Stewart R. Clegg • Torgeir Skyttermoen • Anne Live Vaagaasar

PROJECT MANAGEMENT

CREATING SUSTAINABLE VALUE

2ND EDITION

Sage

1 Oliver's Yard
55 City Road
London EC1Y 1SP

2455 Teller Road
Thousand Oaks
California 91320

Unit No 323-333, Third Floor, F-Block
International Trade Tower
Nehru Place, New Delhi – 110 019

8 Marina View Suite 43-053
Asia Square Tower 1
Singapore 018960

Editor: Ruth Stitt
Assistant editor: Hanine Kadi
Production editor: Sarah Cooke
Marketing manager: Elena Asplen
Cover design: Shaun Mercier
Typeset by: C&M Digitals (P) Ltd, Chennai, India
Printed in the UK

Library of Congress Control Number: 2024933389

British Library Cataloguing in Publication data

A catalogue record for this book is available from the British Library

ISBN 978-1-5296-2934-7
ISBN 978-1-5296-2933-0 (pbk)

CONTENTS

LIST OF CASE STUDIES

LIST OF 'IN PRACTICES'

ABOUT THE AUTHORS

Stewart R. Clegg is Professor of Project Management in the School of Project Management and the John Grill Institute for Project Leadership at the University of Sydney and an Emeritus Professor of Management and Organization Studies at the University of Technology Sydney. He has published widely in many of the leading journals in the project management, management, organizations, and politics literatures. Widely acknowledged as one of the most significant contemporary theorists of power relations, he is also one of the most influential contributors to organization studies as well as a significant contributor to project management, as acknowledged by the Project Management Institute in 2016, when they awarded him the PMI Research Achievement Award, one of many awards and distinctions gained in his career.

Torgeir Skyttermoen is Associate Professor in Project Management at Oslo Business School, Oslo Metropolitan University. He has published books on project management and has taught several disciplines for more than 20 years, including project management. A prolific researcher, he has received the Norwegian Ministry of Education's Quality Award. He is pedagogically committed to providing excellent learning processes. He is also a Visiting Associate Professor at Inland Norway University of Applied Sciences and an instructor and consultant in business and public organizations.

Anne Live Vaagaasar, PhD, is Associate Professor in Project Management Organization and Leadership at BI Norwegian Business School. She has published widely within organizational science, particularly on matters of temporary organizing. Her key interests are issues of organizing, relationship development, temporality, learning, and innovating – always in the context of temporary organizations. She has written several books, book chapters, and scientific articles on these topics and won several international research awards. She is responsible for the renowned executive programmes in Project Management at BI and teaches and lectures on a wide range of topics within the subject area.

ACKNOWLEDGEMENTS

SECOND EDITION

For the second edition of the book, we adopted a definite strategy. Basically, we sought to pare down the first edition, ensure that the material we cited was up to date, make sure that the text was a gateway that any student, not necessarily one for whom English was their first language, could easily access. We were also committed to making the case for an approach to project management that stressed sustainability as a key element of value creation. We developed the concept of the 'Project House of Wellbeing' to capture this commitment. We were also committed to continuing the precedent that we had established in the first volume of both a comparative scope of case studies and examples, as well as a focus that was broad – that dealt with projects in the widest sense – opera houses, cars, festivals, infrastructure, IT, Covid-19, house renovations, etc. We have wide interest in projects and broad international experience that we have brought to bear on this edition.

Writing a book such as this is an act of translation. We are privileged to be familiar with a great many journal articles that we write and consume in our working life. To many students, at least in the initial stages of their academic career, this is highly esoteric material. Writing for journals, with the rigours of peer review and the need to make a theoretical contribution, does not produce easy reading for those unfamiliar with the genre. It is for this reason that textbooks are important. At their best, they are a form of translation from vast fields of knowledge for readers eager to learn from the academic literature but ill-equipped to navigate the depths of scholarship that the journals require. When we publish articles in the top journals, we invariably use the standard APA Harvard style referencing system, the unfamiliarity of which for readers new to academic life, disrupts the flow of reading. For this edition we opted to use endnotes to keep the text uncluttered and easy to read. We have striven to be effective translators and are extremely satisfied with the results that ensued, and we hope that you will be as well.

FIRST EDITION

Writing this book has been a project that, as with many projects, comes with a complicated history. Initially, a Norwegian publisher issued a much earlier version of it, in terms of both time and content, back in 2015 named *Verdiskapende Prosjektledelse*. Two of the authors, Torgeir and Anne Live, wrote this book. It turned out that they both had a friend

in common with Stewart – Tor Paulson. In 2018, Tor invited Stewart to make a keynote presentation at a conference in Norway. Prior to Stewart's journey from Australia to Norway, Tor had been in touch with Stewart about perhaps collaborating with Torgeir and Anne Live in producing an English-language version of their book. The four of us met, discussed, and decided to proceed with this project.

The nature of the project work has been multi-pronged. One task was to render a good English-language version of what Torgeir and Anne Live had written; another task was to turn it into a different kind of textbook. Stewart had a fair bit of experience of producing textbooks that were somewhat different from the usual run of the mill, for example *Managing and Organizations: An Introduction to Theory and Practice* and *Strategy: Theory and Practice*, both published by Sage. What marked them out was that they were written in such a way as to open debates and perspectives rather than merely cataloguing them for easy regurgitation during the ritual examination process. Throughout this project, the three of us have followed this strategy. All three authors are very well acquainted with the project management field yet have come to it from quite different backgrounds and interests, which has made the project truly engaging. Stewart, very well versed in the organization theory and strategy literatures, was no stranger to project management, having published many things in the field over the years. While Torgeir has a background in organizational science, Anne Live contributes extensively to project management from a background in psychology and educational science.

All projects have their difficulties, on and off periods, which is the case for this book project as well. Nevertheless, collaborating in different time zones is a very effective way of working, in as much as it allows for a 24-hour cycle of writing and revision, and doing the work in this way proved constructive. Milestones coupled with deadlines have been helpful in terms of prioritizing and making progress. The final delivery of this project is now in your hands – literally. It will be you, the reader, who will create value from the delivery of this project, in terms of gaining new understanding, better knowledge of project management and testing this competence in real-life projects.

During this project, many people should be acknowledged. First, without Tor Paulson this would never have happened. Tor's enthusiasm for this prospect and his willingness to connect the three of us was a sparkling start for this book project. We would also like to thank the Norwegian publisher Cappelen Damm for being so positive in allowing the Norwegian textbook as a fundament to be taken further into an international textbook. Usually, the traffic is the other way – from English into another language; we find it refreshing to be engaged in a different form of trade.

For feedback we thank Kristian Kreiner, Bent Flyvbjerg, Shankar Sankaran, Graham Winch, Miguel Pina e Cunha, Marco Berti, Samuel MacAuley, and Julien Pollock.

At Sage, editors Matthew Waters and Jasleen Kaur were a great help as were the whole team at Sage; making a book is a complex project and a large team works to produce the volume you are now reading, not all of whom we meet or know but to all of whom we express our gratitude.

PREFACE
HOW TO USE THIS BOOK

Project Management: Creating Sustainable Value is intended as a textbook for people either learning to become project managers or who are already working in the field. The book is written in such a way as to be as useful as possible to you, the reader. The first chapter is an introduction to the whole book. There are a number of features introduced from the second chapter onwards that are designed to enhance usability.

You will find that the first chapter of the book provides an overview of the book's contents and approach. The chapters contain a number of features designed to spark your imagination:

- **In practice**. The 'in practice' feature consists of mini case studies that ask you questions that allow you to reflect on what you have read in the context of practical issues to be addressed.
- **End of chapter case studies**. These are more extensive cases that ask you to address some of the key points covered in the chapter in your understanding of the case.
- **What would you do?** These are very short vignettes that ask you to consider what you would do, given what you know, in a specific situation.
- **Marginal definitions**. Where some terms that are not in everyday use are introduced, usually either specific project management or social science terms, there are short marginal definitions to help you, the reader, with comprehension.
- **Sustainable Development Goals** (SDG) icons connect the global goals for a better and more sustainable world, created by the United Nations (UN), with the relevant areas of management in the text so you can more easily recognize and link the two.
- **Digital toolbox** of templates can be found in the Appendix. These are a set of templates used by students for their own projects.

We have tried to standardize these features across each chapter, although there will be some slight variance depending on the nature of the material being addressed.

Given what we want to achieve with this book we have made a number of assumptions about you, the reader:

- You deal with projects in various ways, every day. These may be student projects at your college or university, they might be work-based projects, they could be IT projects, event projects, construction projects, change projects – indeed, any kind of project.

- You live and work with the outcomes of successful projects every day, as well. You attend festivals, sporting events, go to museums and galleries to see specially curated exhibitions, you organize life projects through your smart phone and other devices by making appointments, reading text, receiving emails, and keeping up with your social media contacts.
- You will either soon start working in an organization in a full-time position or be doing so already, whether it is a consulting company, a multinational, a hospital, a university, an art gallery, a non-profit organization or a security or emergency service. In any of these or almost any other organization you will have to deal with projects. You will do so either as a project manager, a project owner, project team member, as an employee affected by a project or someone that has a stakeholding interest in a project.

To be able to contribute to a project, understand what a project is and how it often plays out, you need to have a thorough grounding in projects, their management and all the factors affecting them. Too often, projects and the people involved fail to recognize the main purpose of a project is to create value. Value is not just a question of profit, although in a commercial organization this will undoubtedly be important. Value can be defined in many ways, for many different categories of actors that we explore in this book. Value is sometimes hard to achieve; uncertainty, ambiguity, complexity, and, most challengingly, events, will often serve to distract, destabilize, or destroy value. Value is often captured in terms of use value for specific constituencies of interest, or surplus value in the form of profit for just one constituency of interest, that is, the owners and shareholders. Such a concept of value is too limited. Creating sustainable value involves far more than the bottom line as we develop across the whole book. Project value is much wider, concerned with sustainable outcomes and process, whether reducing pollution, inequality or social injustice or creating beauty, enjoyment, and regeneration.

What do all these projects have in common? We understand a project as a form of organizing that is characterized as temporary, processing through various stages, to deal with tasks and goals that could not be dealt with under the usual organizational routines. Every project starts with the intention of being a success. Many projects succeed; nevertheless, like you, we have read about many projects being over budget, over time, over and over again. We cannot guarantee that readers of this book will not be involved in such projects, as at some time that is likely to be the case. However, we maintain that the value of this book as a project will be that it reduces the probability of 'over and over again' occurring due to a lack of good judgement about being a project manager. Now, dear reader, you are about to join our project. Thank you for joining us.

The authors
Oslo, Lillehammer, and Sydney
22 April 2024

REVIEWS OF THE FIRST EDITION OF *PROJECT MANAGEMENT*

Project Management is the textbook on project management we have all been waiting for. Solidly based on cutting-edge social science it takes the field forward in ways that will hugely benefit students, complete with great case studies, guidance on further readings, and which videos to watch. It even has access to slides for lecturers. Get it, read it, use it!

Bent Flyvbjerg
BT Professor and Chair of Major Programme Management, Oxford University's Saïd Business School, co-author of Megaprojects and Risk

'Project management is traditionally framed as a discipline based in techniques and models for effective planning and execution of projects – implying a widespread neglect of emotional, behavioral, organizational and societal aspects of project-based work. In this volume, the authors provide a much needed research-based overview of these aspects and relate them well to the practical realities of projects. It is a book not only for scholars and students of project management, but also for all those who lead projects, work in projects, hold stakes in projects or want to understand better the role of projects in industrial and societal transformation.'

Johann Packendorff, Professor of Industrial Economics and Management, School of Industrial Engineering and Management, KTH Royal Institute of Technology

'Challenges to the predominant systems paradigm in project management first espoused by Cleland and King in the 1960s have been maturing in the research literature for over 20 years. Yet our most widely used textbooks draw thinly on this new thinking and remain within the systems paradigm. These authors have created the first textbook that addresses the needs of contemporary project managers which engages deeply with this research literature. The book is, therefore, a vital contribution to our libraries and reading lists.'

Graham Winch, Professor of Project Management, Manchester Business School, University of Manchester

'This is the kind of book I wish I had when I was learning project management. It presents a very human view of projects that goes far past the simple emphasis on process common in so many texts. This book introduces the reader to a rich literature in a way that is a pleasure to read.'

Julien Pollack, Associate Professor, The University of Sydney

'The highlight of this book is that while it starts unconventionally with value as its focus in early chapters it also covers the essential knowledge on how to manage a project through its lifecycle in later chapters. Thus, both students and practitioners will also find great value from the book.'

Shankar Sankaran, Professor of Organizational Project Management, University of Technology Sydney

'There are books on project management. Then there is *Project Management: A Value Creation Approach* by Clegg, Skyttermoen and Vaagaasar! An easy-to-follow structure guides the reader through this inventive book. Beyond "simple" solutions, Clegg et al. provide any student of projects theoretically informed distillations of useful and informative practices that are useful and relevant to any setting. This book has a unique approach that is best experienced!'

Markus Hällgren, Professor of Management, Umeå School of Business and Economics, Umeå University

'Strongly rooted in a temporary organization perspective, *Project Management: A Value Creation Approach* offers a detailed and multi-layered compendium of ideas related to project management. With its contemporary emphasis on the value and valorization of projects, and through fun and creative "What would you do" exercises, this book is an indispensable guide to the modern project manager.'

Rene M. Bakker, Associate Professor of Strategy & Entrepreneurship, Rotterdam School of Management, Erasmus University

'This book is an interesting contribution to the project management debate. The dominant perception of organizing projects as technical defined matters in demarked spatial settings with a particular kind of complex tasks that have to be solved has become highly problematic. Therefore, I am very supportive to approaches that take humans as central and perceive projects as social networks of people in the process of organizing. This is

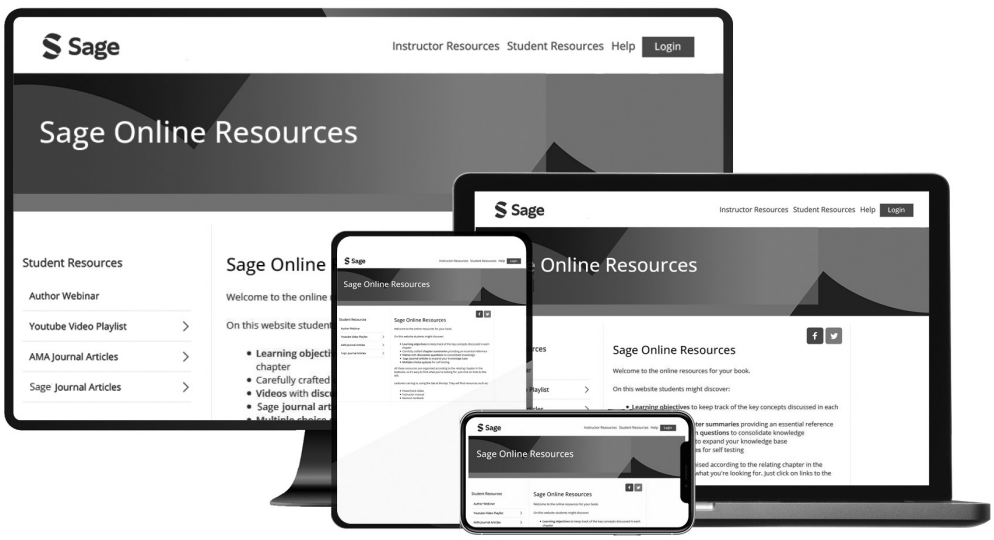
exactly what the authors do in this book; exploring how projects can create value for solving contemporary social questions.'

Alfons van Marrewijk, Professor of Construction Cultures, Delft University of Technology; Associate Professor, Organization Sciences, Vrije Universiteit Amsterdam; Adjunct Professor in Project Management, BI Norwegian Business School

'This book draws a useful map of project management. It will help you decide where and how to travel the full gambit and terrain of workplace projects with all the tools needed to reach your desired destination. Buckle up and enjoy the journey!'

Kristian Kreiner, Professor Emeritus, Department of Organization, Copenhagen Business School

FIND US ONLINE!



Project Management is supported by a wealth of online resources for both students and lecturers to help support learning and teaching. These resources are available at: **https://study.sagepub.com/pm2**.

FOR LECTURERS

- **Integrate** the chapters into your weekly lectures by using the **PowerPoint slides** created by the authors.
- **Support your teaching** by making use of the **tutor's guide** specifically structured to help teach each chapter and **guide discussions** in class.
- **A digital toolbox** that can be downloaded and used to support student learning and understanding of the content.

FOR STUDENTS

Follow along with the chapter guidance and **expand** your knowledge by clicking through to the **weblinks and further reading articles** mentioned throughout the book.

3

DEFINING PROJECTS

Learning Objectives

After reading this chapter, you should be able to:

1. Understand why projects are used.
2. Know how projects can be assessed.
3. Grasp why project goals' complexity affects possible project success.
4. Explain the relationship between project outcomes and project goals.
5. Identify key elements in decision-making processes and avoid some potential decision-making traps.

INTRODUCTION

A great many projects that are established, in hindsight, should not have been started at all or, at least, not in the form in which they were planned and initiated. In this chapter, we will look at the main issues to clarify before starting a project, such as defining the right concept for the project, and working with adequate objectives and goals. We will also dwell on why too often we persist with the worst projects.

STRATEGIC PROJECTS AND EMERGENT PROJECTS

Organization strategy is often implemented through projects. When organizations design strategies, they elaborate purpose, values, and different objectives. Although the link between projects and **strategy** is not always clear and pronounced, most projects are part of or based on an organizational strategy.

Strategic projects involve planning, positioning, patterning, partnering, and projecting in attempts to create a desired and beneficial outcome as part of an overall strategy.

Public Private Partnerships (PPPs) are institutional arrangement for 'cooperation between public and private parties in the planning, construction and/or exploitation of infrastructure facilities in which they share or reallocate risks, costs, benefits, resources, and responsibilities'.[1]

Automobile companies, such as VW, which in the past invested heavily in promoting diesel engines, are now seeking to catch up with dedicated electric car companies such as BYD or Tesla. An electrification project seeks to transform the product range of the company as a wholly new strategy. A new and different *patterning* of activity by the organization is developing. IBM changed their patterning by selling their computing division, based around PCs. They shifted from being hardware manufacturers of computers to providers of consulting services based on offering business solutions.

Organizations often become involved in *partnering* with other organizations to achieve strategic projects. In their early stage of development, Apple learnt about miniaturization by partnering with Sony. Many infrastructure projects are only deliverable because lead organizations, often in the public sector, enter partnering with private sector providers to deliver project outcomes that the public sector organization cannot. The rationale for **Public Private Partnerships** (PPPs) is usually to create a new infrastructure of roads, airports, or some other major part of the built environment.

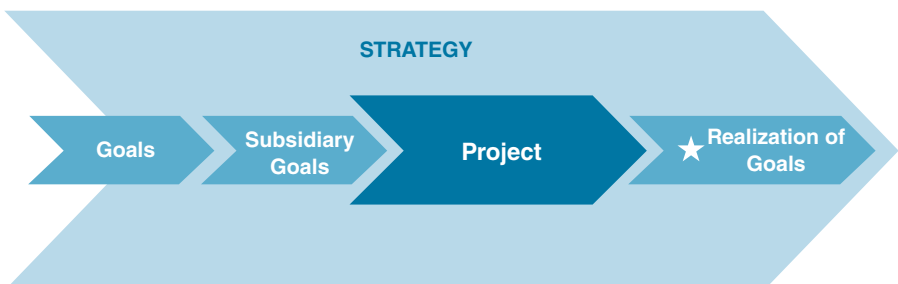


Figure 3.1 Projects as a part of a company's strategy

Organizations' markets, employees, suppliers, competitors, customers, clients, and other stakeholders continuously change. Strategic projects are constantly revised, affecting how and what an organization does and strives to be. Strategy is not always planned but can often be 'emergent'.[2] Emergent strategies arise as projects from ongoing processes and deliberations. All projects requiring strategic change involve innovation.[3] Innovation is essential when organization goals change.[4] For instance, the supply chain of a dedicated electric vehicle manufacturer such as BYD or Tesla are vastly different from those of legacy manufacturers. Realizing that diesel and petrol motors are being outflanked by electric vehicles provides a major emergent project for legacy automobile manufacturers, unable to start from scratch, and unsure about how far and fast the electric revolution will go.

IN PRACTICE 2.5

Renovation

John and Jim were a couple who had invested in a scheme for renovating their existing inner-city terrace house. Loving the boho feel of the neighbourhood but feeling increasingly cramped in their house, they decided on a major renovation. Thinking that they knew what they wanted, they thought they knew what was needed. Jim was a theatre director while John was an antiques and curio retailer. During John's career, he had filled a warehouse with old bits of houses, often sourced from demolition sites, such as fireplaces, windows, and a staircase. John's plan was to use these materials in the renovation and thus keep costs down. Jim sketched out what he thought they wanted to do and then contacted Jules, an architect friend. Jules was very enthusiastic about the project and started to design a transformation for the house that would see them dig down into a basement and out into the garden, while opening the Victorian interior by removing walls and letting light flood in from Velux windows in the roof on to the staircase that John had salvaged. Jules reckoned that the renovations would cost about $450,000.

John and Jim put the job out for tender and selected the quote that came in as the most reasonable, from Sandy. Jules handed the project over to Sandy, a builder, at this stage.

Six months into the project a number of snags began to appear. The basement which had been dug and extended proved not to be waterproof; water was forcing its way into the basement. Research at the local library indicated that they were building on a water course that early maps had recorded but that had more recently been forgotten. The windows, which were John's dream, with their lead-lighting, were so out of true that they did not fit the apertures created in the brickwork. The staircase did not turn sufficiently tightly to fit the available space where the old staircase had been demolished.

Sandy advised them that these were not insuperable problems, only expensive ones. The budget was blowing out beyond 1 million dollars and a ceiling could not be put on the unanticipated costs. Further loans from the bank seemed increasingly difficult.

Question

1 You were a project manager called in late in the project to advise John and Jim what to do. Previously Jim had been managing the project between rehearsals and performances and Jules had absolved himself of responsibility as he had only designed the renovations and his role had stopped at the design stage. Learning from this project, what advice would you offer future clients contemplating similar renovations?

What is the Right Project?

When projects are proposed, claims are made about the needs that the project will meet and the change and renewal that it will help to create. Such promotion strengthens the case for establishing the project. Needs, however, are always related to interests. Different stakeholders will propose different needs or, once they have been proposed, interpret these needs in different ways.

A project involves creating a desired future, one arising from a perceived necessity for change. These needs and desires may have their origin in an organization's planned, long-term strategy. They may arise because of some perceived challenges or opportunities. Projects also arise because of changes in values. For instance, achieving sustainability and digitalization are important values behind the impetus for many recent projects. Old carbon intensive technologies are being replaced by more sustainable sources of energy. Legacy print and paper file-based systems are being replaced through digitalization. The latter is not too difficult because the legacy systems are easily dispensed with; this is not always the case with decarbonization of fossil fuels.

The **project proposal** clarifies an idea or design in words and images, often as part of a business plan, investment proposal, or tender documentation.

To try and pin down the rationale for a project, to establish why it is needed, requires a **project proposal,** which forms the basis for establishing performance goals associated with implementation and impact targets, as well as outcomes and mission critical features. These are the future desired effects the project is intended to provide as its strategic intent about the value that it will create. Such goal-oriented management is a vital tool for increasing success in most projects.

Several factors can hinder value creation.

- If the idea underlying the project is not well thought through.
- If key stakeholder commitments have not been enrolled in support of the project.
- If all the resources necessary to deliver the project have not been secured.
- If intra-organizational politics associated with the project have not been processed and resolved as agreed-upon commitments.

It is essential to understand the decision-making processes in the project context and how a project might move in a desirable way from conception, through inception, to execution (see Figure 3.2). Before starting a project, the need for that project should be evaluated. The possible future relevance of potential project deliveries, as well as the project purpose must be considered. Assessments of a possible project start-up, including details about limitations and feasibility, must be made. A list of items and questions (shown in Figure 3.3) should be clarified.

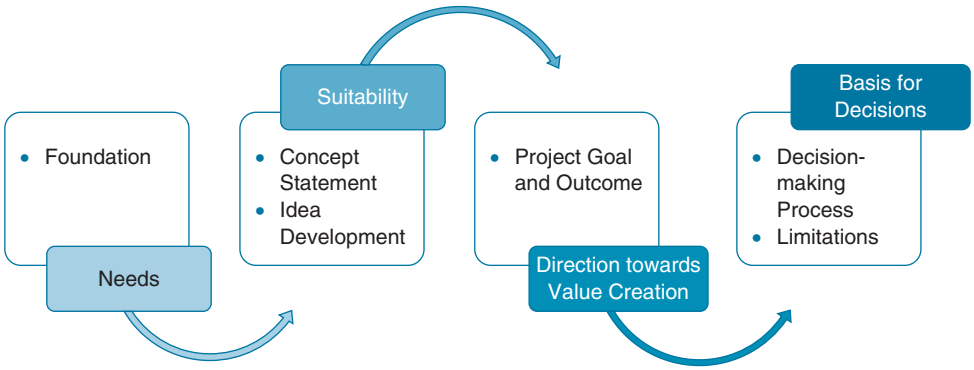


Figure 3.2 Defining projects

Importance and Relevance	Purpose Connection	Type of Value Creation	Limitations and Feasibility

• How important is this?
• What's the relevance?
	• In what way is this in line with the company's:
	  • Purpose?
	  • Strategy?
	  • Goals?
		• How can it contribute to increased value?
		• What kind of values could this provide?
		• How can potential values be made concrete?
			• In what way is this suitable as a project, and how should it be limited?
			• Is it likely to be feasible?

Figure 3.3 Key considerations in initiating projects

IN PRACTICE 2.6

Heat Pumps

Heat pumps run on electricity, which can be powered by solar, wind, wave, and hydro power. Heat pumps are an important net zero tool and are much more efficient than gas boilers, producing three to four times as much heat energy per kilowatt hour of electricity used. However, as Clark[5] explains, electricity tends to be about three times more expensive than gas in some countries, such as the UK. There are considerably more green levies on electricity, compared to gas, because of its carbon intensive generation.

(Continued)

7 AFFORDABLE AND CLEAN ENERGY

UK building standards lag those in much of other parts of northern Europe. The buildings are cold and draughty because they are less likely to be adequately glazed. Depending on its design and the season, a heat pump is very efficient at turning electricity into heat. But it is much harder (and demands more energy) to maintain a constant temperature in a draughty home. Heat pumps need to be made bigger and become more expensive because the context in which they are fitted makes them less efficient. Replacing household heating technology is only part of the picture; the whole home's energy needs require addressing. Heating technology is a part of a system. The other parts should not be ignored.

Questions

1 In practice, what do you think would be necessary for a successful national sustainability project to improve both the take-up and the efficiency of heat pumps being installed in leaky buildings in a cold climate?[6]
2 What might be the project management implications for the ways in which heat pump installers define their strategy?

STARTING THE PROJECT

The starting point for a project is often a comprehensive and dramatic statement or idea. For ideas to materialize as projects, they need to be refined.[7] Ideas are often unclear and ambiguous and may need interpreting into a manageable, affordable, and sustainable project. Doing this entails clarifying what the project results should be to try and prefigure the extent to which it is possible to create desired results in a sustainable manner. The idea also needs to be anchored broadly in both the client and the delivery organization before materializing it through a project.

Many projects that fail should never have been started in the first place. Failures often occur because suitability, relevance, and budget have not been sufficiently considered. In fact, failure is normal for major infrastructure projects, as Flyvbjerg and Gardener (2023) elaborate at length. Often, clients/principals are eager to get started, rushing to prepare and champion ideas, sketching in a project description what the project will deliver and how it can be accomplished.

Increasingly, more effort is being put into project preparation through creating a knowledge pool to maximize a project's value creation. Recent research, published in 2023, demonstrates how the front-end of the project life cycle is changing. The changes involve three subphases: first, the more *general value definition phase* in the client organization; second, the *value proposition phase* among decision makers in the project portfolio, and third, the *concept development phase*, that includes allied partners involvement. The project proposal is more likely to obtain investment decision if it is better prepared.[8]

For any unique, rather than recurrent, project, delivery is difficult to foresee. There is no prior context to draw on. If the projects that you manage involve heat pump installation, you gain experience through the number of heat pumps you install and the issues you encounter. The more the scale and the more modular the installation the more routine project processes and problems become. Any context in which the project unfolds that is unique, such as the house renovation at the beginning of the chapter, will pose many more issues than a combination of modularity, scalability and routines. This is why unique research and innovation projects pose considerable uncertainty. Additionally, the more stakeholders are involved, the more likely it is that difficulties can mount, unless considerable collaboration occurs though the project processes. Whether it is feasible to proceed depends: first, on the ability to clarify the project concept and ambition level sufficiently and second, on being able to foresee the methods needed to create the project. Doing this entails careful planning. These two dimensions can be combined in a simple framework to clarify the potential journey from idea to project.[9] (See Figure 3.4.)

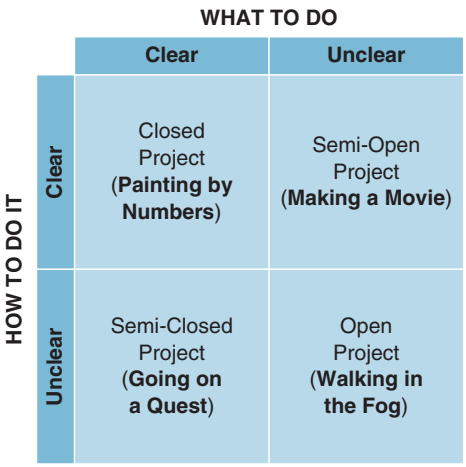


Figure 3.4 Different foundations at project start-up regarding characteristics for outcome and methods for creating desired delivery

- **Closed Projects: 'Painting by Numbers'**. The task and methods are clear – you know what to do and how to deliver the outcome. Uncertainty is limited. Since such projects are predictable, they can be planned in detail, often split into a work breakdown structure in isolating and distributing tasks among involved parties. The project manager's role is to direct work and organize its parts. A simple construction project, where a new build is required on a greenfield site, is an example of this type of project.
- **Semi-open projects: 'Making a Movie'**. In this type of project, the method is familiar, the team knows what each one should be doing. Assembling the disparate parts so that sound, vision, narrative, *mise en scène*, etc., all hang

together is something else. In system development projects, for example, methods are often clear, while the characteristics of delivery are only gradually clarified. These must be anchored in the project team, the host organization and other stakeholders. Much as in making a movie the project manager must be a director, pulling all the parts together in a successful production.

- **Semi-closed projects: 'Going on a Quest'**. In this type of project, you know what the destination should be but not what the journey entails. Questing projects can be a crusade, fired by conviction, using methods that have worked previously elsewhere. Castles and garrisons were methods Christian Crusaders understood well from their experience in Europe. As product development methods, however, they failed to be transplanted successfully into the hostile territory of the Islamic Middle East because there was no network of supporting institutions and local support. Their fortresses were less command posts and more targets. Good project managers manage the cultures in which their projects are embedded.[10]
- **Open projects: 'Walking in the Fog'**. In this type of project both goals and methods are uncertain. The project team, without the foggiest idea of where they are, can only see a short distance ahead. Uncertainty means that it becomes crucial to exploit all team members' competencies as well as ensuring a strong team culture. Team members must elaborate vision and direction while navigating uncertainty with few clues as to direction and progress. Relating with other stakeholders, involving them deeply in the project to minimize uncertainty, helps decision making. The national project teams that were assembled at government level in the early days of the Covid-19 pandemic were such foggy, open projects.

Traditionally, project execution is taught as a process akin to following a recipe. It is recommended to proceed from idea to project in linear steps. However, where projects involve exploration and innovation, recipes are less useful. Due to high uncertainty, projects that seem foggy are the most difficult to launch. Nonetheless, uncertainties can foster many good innovations. The development of significant innovations involves a considerable degree of search and ambiguity, a great deal of '**idea work**'.[11] Innovation projects need to be integrated in the project execution process rather than only in their initial planning.

Idea work involves activities that involve generating, selecting, maturing, transforming, realizing, and communicating ideas in organizations.

When innovative ideas are refined in projects, they must achieve an affinity with the legitimate goals of the organization. Projects need to align with the capabilities of the organizations delivering them. A systematic approach to cultivating ideas involves more than brainstorming and free creativity.[12] Ideas must be elaborated, information integrated, and material generated to inspire further action. Frameworks must be put in place that design ideas into actions once initial insights have been generated. As different organizations and disciplines promote different approaches, once the ideas have been sufficiently processed, you must be engaged in negotiating an ordered outcome. Idea refinement should produce project legitimacy.

DEVELOPING THE CONCEPT

Before starting projects, several concepts are often compared and further evaluated. Where there are multiple concepts, analysis and evaluation often result in sketches of the project, providing the client and the permanent organization with a better understanding (Figure 3.5). Concept development clarifies what tasks should be included in the project and how these relate to the organization's strategy. An overall assessment of project purpose, focusing on the value creation dimension and clarification of objectives, is necessary. The project may go ahead, be redefined into operations, or shelved for its immaturity.

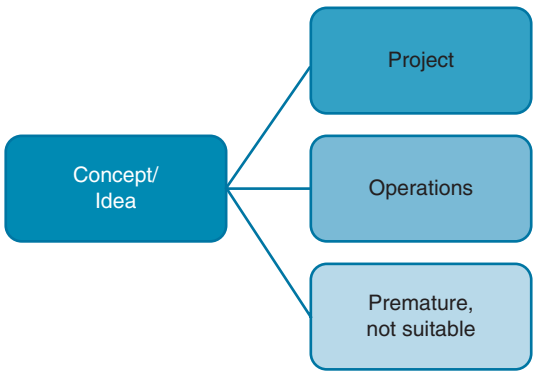


Figure 3.5 Alternatives for dealing with concepts

Design Thinking

Design Thinking comprises an approach to problem solving in innovation processes, utilizing cross-disciplinary tools, methods and collaboration in a creative way. In digital transformation, for instance, it can be useful to bridge high-level firm strategy with change projects at the operational level, involving a three-stage process, including understanding the present reality, defining a digital transformation strategy, and converting the digital transformation strategy into digital projects.[13]

Design Thinking is useful for developing concepts. It is increasingly used in projects, especially in innovation projects. It is a process designed to try and maximize creative innovation through a conjoined process of *inspiration, ideation*, and *implementation*:

- *Inspiration* derives from making a problem material through mock-ups, sketches, scenarios, and so on.
- *Ideation* is the process of generating, developing, and testing ideas through building prototypes, piloting, and 'testing the waters' – idea work.[14]
- *Implementation* is the clear development and specification of the idea, its effective communication, the enrolment of others in its support and the translation of the idea into action or practice.

Design thinking often involves the use of prototypes, as it did in the construction of a project designed by the famous architect Frank Gehry. The project, the construction of a new business school, involved windows and bricks being mounted on a sub-structure of non-linear but 'folded' metal (see Image 3.2). How to do this was challenging, as there were no precedents for using bricks and windows in this way. The project team resolved the innovation challenges by constructing a mock-up full-scale model of the detail in question, incorporating the sub-structure, bricks, and window frame, to arrive at a practical solution involving innovative brick ties as a means of fastening the bricks.[15]

Image 3.1 Frank Gehry designed UTS Business School[16]

As with other agile methods, Design Thinking is a non-linear process, one especially relevant for resolving 'wicked problems' that are ill-defined.[17] Visualizing, prototype-driven, and experimental behaviour are essential elements in Design Thinking projects. Design Thinking in projects operates between intersections of:

- *Desirability* – what is desirable from a human point of view.
- *Viability* – what is economically viable from the organization owning the project.
- *Feasibility* – what is technologically and practically feasible to develop and implement.

Design Thinking uses visualizations such as drawings, models, figures, and prototypes. Making use of visual and physical elements makes it easier to imagine the product or

processes the project is supposed to deliver. Furthermore, it communicates with and enables involvement with participants and stakeholders. Design Thinking provides a method to apply in innovative projects, related to which there are a range of adjoining approaches and methods (Figure 3.6).

Design approaches are improvement- and solution-centred.[18] They stress collaboration; a focus on solutions rather than on analysis; experiment as necessary to create successful processes, with each situation seen as unique in its context for which solutions should be goal oriented – even if these goals change in the process.[19]

Design Thinking's usefulness depends on the type of project to which it is applied and tends to be most useful in projects where there is a degree of open-endedness in designing solutions. In innovation projects, where uncertainty and ambiguity are high, Design Thinking can create value.[20] Under these conditions the process can generate and nourish ideas, testing and improving solutions before implementing them. It adds little value in standard approaches to standard projects.

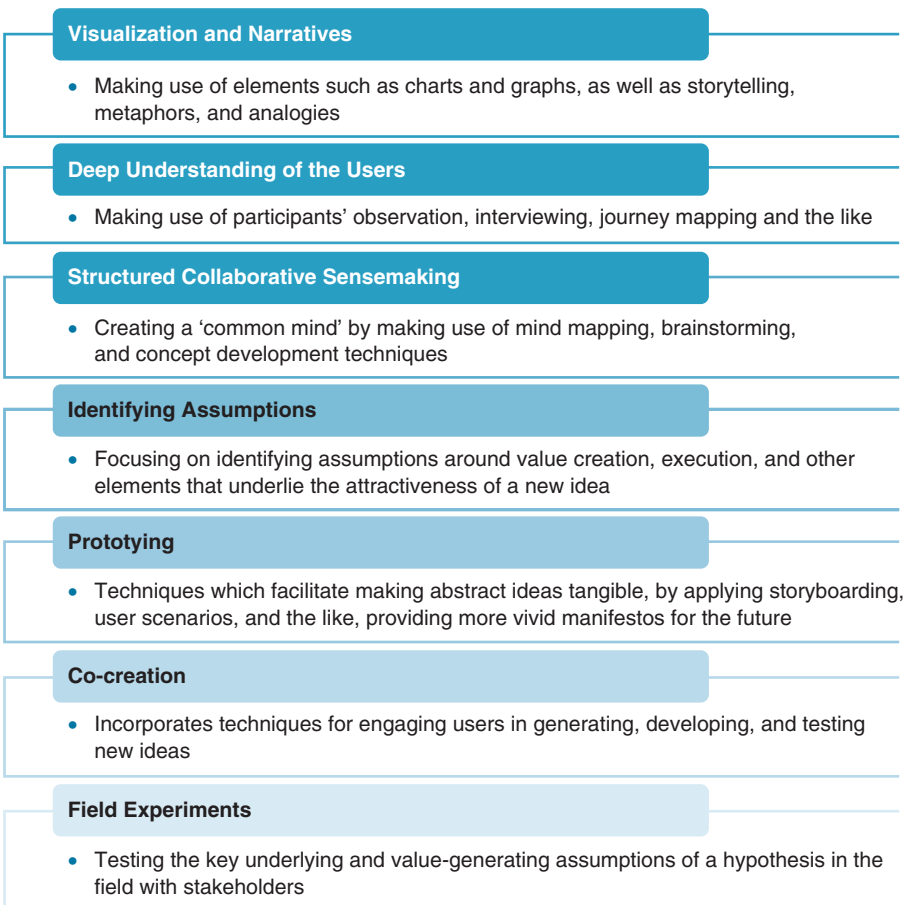


Figure 3.6 Design Thinking tools and the tasks they aim to achieve

Project Canvas

Osterwalder and Pigneur's[21] Business Model Canvas is used in many contexts, including Project Management. A Project Canvas can help define the purpose and central elements of a project that can applied in both small and large projects. Project Canvas makes it easier to visualize and communicate the concept for the project in its broad details and interrelations.[22]

Using Project Canvas, the 'why' question, in terms of purpose, is the first thing to clarify. It enables identification of expected benefits and deliverables. In the project's implementation phase, the Project Canvas can be used to ensure that key elements and processes contributing to value creation are foremost. While the Project Canvas is a dynamic tool for capturing and adapting to changing circumstance and project phases, essential things, such as purpose and other specific frameworks, will be relatively fixed. The building blocks of the canvas are numbered, suggesting a path for project processes. Although the numerically denoted elements are represented as if they were linear, they may well overlap and zigzag in practice. The process of using a canvas will include going back and forward between the elements. Figure 3.7 on page 88 represents the Project Canvas.

WHAT WOULD YOU DO? 2.6

Using Project Canvas

In using Project Canvas, colours can differentiate different elements. Elements 1 to 4 relate to the overarching framework and could be coloured the same. In contrast, 5 to 7 link specific roles, responsibilities, and their relation to resources, while 8 and 9 indicate central contingencies to be managed. Framing each of these sets of elements in a different colour helps to communicate both their interrelatedness and their specificity.

Later we will look at how various tools like project charter, stakeholder analysis, and uncertainty analysis can be further developed based on the canvas can be developed further.

Testing Project Canvas

1. Find a project you are working on, a project you are planning to start or a project that you know of.
2. Start working on Project Canvas by following the suggested path, starting with 'Purpose'.
3. When you are finished with the first draft, reflect on how it worked as a tool for clarifying the project.
4. What seemed logical and easy, what was more difficult to deal with?

Project Canvas

Project Canvas is a framework supporting you when establishing and developing projects for creating value and ensuring appropriate processes.

Project Name _____ **Date** _____

Purpose
What is the need for the project, why should it be created, and what should its purpose entail?
1

Benefits
Clarify which gains the project aims to realize based on the project's results, including sustainable efforts.
2

Deliverables
Specify the final deliverable and state what will be achieved when the project ends. Identify and clarify which sub-goals/ milestones or sub-deliverables are central to the project.
3

Principal Responsibility
Make it clear that the client is responsible for the project and what responsibility and involvement are required for it to succeed.
5

Key Elements
Identifies essential criteria to be aware of if the project is to succeed. Find out which key elements the project must pay particular attention to.
Assess the project's clarity related to goals, method and the significance it has for the design and execution.
4

Stakeholders
Which actors are central to the project's chances of being successfully implemented and for effects to be realized? How can they be involved and handled?
7

Uncertainty
Identification of key elements of uncertainty for the project and how they can be handied.
8

Core Resources
Clarifies responsibility for implementation, conditions, and frameworks for the project leader. Moreover, defining what is required of the project team and others who will work directiy with the project's content and implementation.
6

Time- and Cost Frames
Projects are time-limited, and this element must provide assessments linked to the time period. It also considers which resources and investments must be made in the project itself. How will the priority be if it is relevant to prioritize between different specifications or wishes?
9

Figure 3.7 Project Canvas model

TOOLBOX

Project Canvas. You will find Project Canvas as a Toolbox template in the book's Appendix, together with guidelines on how to use it.

GOALS AND OBJECTIVES IN PROJECTS

Objectives and goals are formulated based on needs to be met by projects. *The overall objective* refers to the purpose of the project. It describes the desired future condition of value creation a project seeks to deliver, performance targets or goals describe the project deliverables. *Goals* are tools for directing processes towards realizing objectives. *Purposes* may be plural; there could be impact targets as well as performance targets. For example, an enterprise may seek to provide good user experiences for customers (performance target), while achieving a sufficiently large profit so that increased annual dividends can be paid to shareholders (impact target). Objectives here might include customer satisfaction, product quality and sustainability, as well as high returns to shareholders. Objectives can be multiple, ambiguous, and sometimes seemingly divergent. Multiple goals need to be interrelated even while they may be separated organizationally in project responsibilities.

Performance targets can be evaluated immediately at the end of a specific aspect of the project. Performance targets are linked to project management success, while purpose is associated with overall success in achieving the project objectives (Figure 3.8). We will look at some examples.

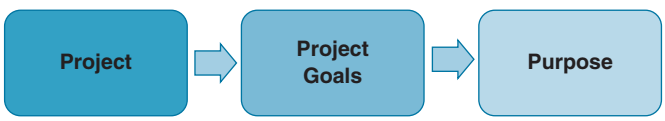


Figure 3.8 Connection between project, project goal (performance targets) and purpose

The construction of a bridge can be organized as a project. A typical goal will be to build a bridge according to the determined quality criteria, preferably within time and cost estimates. However, the bridge itself is not a definitive goal; it is its use that matters. The use value of the bridge is its role in changing the pattern of transportation, improving access to individual sites, providing better infrastructure for residents and business activities in an area. Perhaps the bridge will also reduce the environmental impact of transport patterns and improve wellbeing and satisfaction among nearby inhabitants and users, improving sustainability.

When an adventure park is going to develop a new product, the new product is the actual project objective, while increased visitor numbers, customer satisfaction, and increased revenue may be desired purposes. If a governmental agency reorganizes, the project target may be a new organizational structure, changed division of labour or changed responsibilities. The purpose will be more efficient service production, higher quality of case processing, and perhaps the integration of new tasks for the affected organization.

Sometimes it can be difficult to make the distinction between project goals and purposes, as they are often entangled. For an artist contributing to an exhibition, the project will be showing work at the exhibition and selling it to appreciative buyers. The purpose of the exhibition is increased attention and demand, as well as higher income for the gallery and the artists represented. For specific artists, however, the exhibition and the effects that might be gained from it are so interlinked that it may be difficult to separate project goals and purposes. As these short and general examples demonstrate, there are differences in types of projects and organizations that have in common project goals as the tool for achieving a purpose. We have emphasized this approach several times, yet it is often forgotten both in the project literature and in project work itself.

IN PRACTICE 3.1

Sagrada Familia

There are some projects that take more than a lifetime to accomplish. One significant contemporary example is the Sagrada Familia basilica in Barcelona. It was begun in 1882, although it is usually credited as beginning in 1883, when Antoni Gaudí took over as chief architect. His project was only a quarter completed when he died in 1926 and the construction of the church continues to this day. It was disrupted by the Spanish Civil War during the course of its construction in 1936, when the loss of detailed project plans occurred, as well as damage to some of the built structure, as a result of the conflict. The style of the architecture is a highly distinctive fusion of Gothic motifs and Art Nouveau, with many organic elements represented with nary a straight line anywhere in the building.

The project was initially wholly privately funded by donations – which today we might refer to as crowdsourcing – and is now sustained by a visitor fee levied on the 2.5 million tourists that visit it each year. At present it is about 70% complete. Hence, nearly 140 years since the project's inception, it is not yet accomplished. With the completion of the main nave's roof and the installation of an organ in 2010, the building became available for Catholic religious services. In November 2010 the then pope, Benedict XVI, consecrated the building at a ceremony attended by a congregation of 6,500. From mid-2017 an international mass has been celebrated in the building every Sunday.

(Continued)

Image 3.2 The Sagrada Familia (Photo by Torgeir Skyttermoen)

Questions

1 Separating project goals and purposes clearly can help to clarify the central dimensions of objectives and to see which elements comprise dynamic objectives and which need to be more stable. The purpose of most projects will be fixed, while the project objective is more dynamic, being a tool to produce the desired effects. In your estimation, what are the purposes of the Sagrada Familia and how do these relate to the project goals?

2 What value is being produced by the Sagrada Familia project and which elements of this value were part of its purpose?

Projects increasingly need to be considered in terms of their side effects. For the Barcelona Metro project, preserving the heritage, religious and tourist value of the Sagrada Familia was an important side effect. Because of the building's value and purpose, the Metro project beneath it was made more sustainable than it needed to be. It is not only organizations' projects that cast a shadow[23] that project managers must be aware of. The values inherent to the ecologies and environments in which these projects intrude are also important.

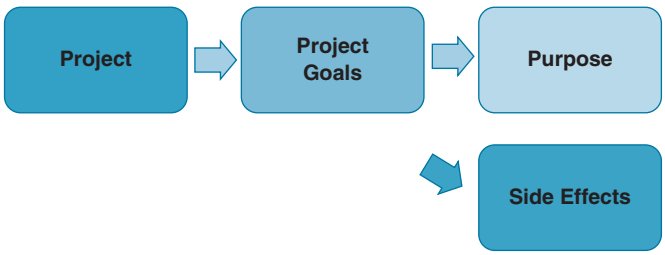


Figure 3.9 Project goals and possible side effects

Where there are many stakeholders in the design of project goals, these goals may become ambiguous, with conflicts of interest arising, requiring flexibility. Contemporary projects rarely have exclusively one-dimensional goals, yet awareness of ambiguous goals and conflicts of interest may be limited, given the optimism biases and sublimes discussed in Chapter 2. The different dimensions inherent in the intended goals need to be considered. The goal may be to produce a more efficient machine but is it also sustainable, aesthetically pleasing, and appropriately priced? Will it enhance value for some at the expense of others? Who benefits?

Goal complexity and conflicts occur not only where there are multiple organizational stakeholders but also multiple entities representing a permanent organization. Where multiple entities in an organization might also be affected by the future implementation of the project, there will often be different values and agendas leading to complex and partly contradictory goals. For example, an organization that is going to develop a new product typically would have a technical department with more detailed project goals than the marketing department. Importantly, it will need to be clear what is the overall purpose of the project, so that it will form a point of reference for the goals of all involved. A common sense about the goals and purpose of the project needs to be achieved.

DECISION MAKING AND SIDE EFFECTS

If we think of major post-war development projects, such as the Aswan dam in Egypt, while praised as major initiatives at the time of their completion, they are now viewed differently. The purpose of the dam was to control flooding of the Nile River, improve riverine navigation, to generate hydroelectric power and create a fishing industry. These project goals were achieved but there were costs associated with the value they produced. Considering this case highlights how projects can be reassessed over time in terms of decisions made in the past.

The important heritage of the Temple of Ramses II had to be moved and reassembled elsewhere, disturbing the heritage value of the temple remaining on its site. There was

a massive population dislocation, with over 90,000 peasants being forcibly removed from the valley and transplanted elsewhere, uprooting communities, habitats, and local economies. In addition, the dam has gradually decreased the fertility and productivity of Egypt's riverside agricultural lands. Traditionally, these lands benefitted from flooding as rich layers of silt renewed the fertility of the fields. The Nile's annual flooding is now controlled by the dam. The consequence is that much of the flood and its load of rich fertilizing silt is now deposited in reservoirs and canals, no longer fertilizing farmlands through the Nile's rising waters. Now Egypt imports a million tons of artificial fertilizers annually, at great financial and ecological cost, as an unsustainably inadequate substitute for the 40 million tons of silt that the Nile flood used to deposit naturally. The project has created greater water salinity, leading to the disappearance of many animal species as well as downstream erosion and worsening health problems because Lake Nasser's irrigation canals and banks make an ideal habitat for *Anopheles mosquito*, a vector of malaria and other dangerous parasites. What might have been seen to be common sense-making when the decision was made to build the Aswan High Dam project, can now retrospectively be seen to be a major failure of sustainability. It has delivered value but at costs to humans and ecology that were never anticipated as part of the project.

The problem with the Aswan dam was that it was constructed in terms of politicians, engineers, and development agencies' project goals. It did not include the local knowledge of the people displaced by the project, people that knew the river intimately, who had many generations of wisdom and experience of working with the river, rather than against it, whose knowledge would have been an invaluable innovation had it been included in the project process, but it was not.

A significant part of project managing is to try and cue people in similar processes of pattern making to fit clues and cues together and make common meaning out of them. Project Canvas creates a frame, enabling things to be connected to make coherent sense. A frame defines what is relevant from the infinite number of stimuli, behavioural cues, sense data, and information that surround us. Framing makes things patterned and relevant.

WHAT WOULD YOU DO? 3.1

The Aswan High Dam project

Two lessons emerge from the Aswan High Dam project and its subsequent history. First, the absence of the local peoples' participation in the debate prior to the Aswan Dam project was not thought important at the time. Their displacement, in favour of the views of politicians, expert engineers and development economists, resulted in dysfunctional and unsustainable project outcomes. We should not take for granted that everyone formally involved in defining

a project necessarily understands the context in which the project goals and purpose will be achieved. Different stakeholder interests need to be understood, especially those of people that are rarely heard in decision making but who have considerable local knowledge. Plans and strategies for interaction with various key stakeholders, as well as the distribution of responsibility and authority among the involved parties, need to be produced, and goals and purpose must be clear.

Second, if everyone agrees about how they should be doing what they are going to do in a project and why they are doing it, then there is likely to be little conflict or debate. Good projects will strive to surface debate before the project definition is set in concrete. Giving voice is not only the sign of a healthy body politic but also a key source of innovation. Debate and disagreement about approaches and ideas are the source of alternative ways of doing things; it is from a range of different views that innovations flow. If the views of historic stakeholders, such as those that had made their living off the river over many generations, were not considered, expert decision making excluded the practical expertise of those who knew the river intimately, unlike the engineers, economists and politicians.

Questions

1 How might Project Canvas have been used to aid a wider range of views in the Aswan High Dam project?
2 How might using Project Canvas limit innovation?

DECISIONS AND RATIONALIZATIONS

Herbert Simon,[24] regarded as one of the foremost researchers in decision theory, claimed that even if humans wish and try to act as perfectly rational, they will never succeed in doing so. Rationality is partially due to limitations in time and other resources, as well as the complexity of the decisions to be made. Instead of perfectly rational solutions, we must seek to find satisfactory solutions, suggests Simon. We satisfice rather than rationalize.

Not being perfectly rational does not mean being irrational. When we strive to make sense with whatever tools, resources and skills are at hand, we relate analytically to an issue by evaluating different alternatives and their consequences, in order to choose the option that best fits dominant preferences and goals. The search is not unlimited, however; the information is never complete; time is always a constraint, so we satisfice within the cognitive limits of our 'bounded rationality'. Projects will never be perfect, and it would be stupid to expect them to be so in a world of so many unknown unknowns, so much organizational complexity, as well as the potential for people to sometimes get things wrong. Consequently, project decision making is unlikely to be easy.

IN PRACTICE 3.2

Strategies and Sensemaking at Ikea

Many good ideas do not emerge from a long and strategically founded process but emerge as rather more or less random events. Ikea's concept of flat-packed furniture was an idea that came out of a random event, for instance. Ikea did not spring into life selling flat-pack furniture. The idea for doing so sprang from an early encounter between a small car, a designer, Gillis Lundgren and a Lovet table. The table was to be delivered by Lundgren to a customer but would not fit in his car. He had the idea of designing the table so that the legs could be attached by the customer after receipt of the goods, thus making delivery much easier. Flat packing as an innovation came to define Ikea as a result of an unplanned project. Projects may also emerge because someone in the organization had an inspiring experience when attending a course or visiting another organization that triggered interest in either creating new products or processes or modifying the existing ones.

1 The organizational world is full of random events that generated major projects. Use Google Search to explore the story of the random projects that produced Post-it Notes, Velcro, and Viagra.
2 What other projects can you think of that began as random events?

Project Decision Making

A decision cannot be isolated from its context. It is part of a decision-making process that includes assessments and actions that lead to a decision, as well as implementation. To choose between different options, some general elements must be clarified. You must:

- Know what you want to achieve; that is, you should be clear about what your goal is.
- Acquire relevant knowledge, by gathering information and assessing it as a basis for decision in a timely manner.
- Compare and rate the options that appear feasible, given available resources.
- Decide decision-making criteria and rank options, deciding by selecting according to the ranking of the options on the criteria of worth and value chosen.

All these elements appear to be self-evident and partly banal, yet they are fundamental to decision-making processes in proceeding from ideas to projects. We will see how decision-making processes are complicated by the involvement of many parties, either directly or indirectly.

One important aspect of a project decision-making process is to assess the probable outcomes of different actions and choices. Doing so involves foreseeing and evaluating the potential consequences of different strategic steps, planned actions, and possible measures. As we have seen, the decision to build the Aswan High Dam did not do this adequately, at least not in terms of current concerns with sustainability. In terms of contemporary evaluation processes, see Table 3.1 for a guide as to how these might be framed.

Table 3.1 Evaluating consequences and defining benefits

Type	Considerations
Strategic Assessments	Assessments of projects should always be linked to the organization's overall strategic efforts related to value creation, depending on how value is defined. It is crucial that these assessments provide a link to and anchoring in the strategy when it comes to launching projects. Projects require legitimation to be accepted, and one way of seeking to ensure this is to link them explicitly to the current strategic plan and its categories.
Conceptual Assessments	Implies considering the types of potential project deliveries. These projects are still at the idea stage, and it is essential to look into the potential quality of solutions, how they integrate with existing organizational processes, their potential for being implemented and used, and the maintenance and operational needs they will likely engender.
Financial Assessments	When an organization elaborates on what ways the potential project can be executed, the questions of costs and benefits will usually be close by. Often, these considerations will be expressed in terms of profitability. There are many methods for assessing profitability. Still, it might be difficult to calculate profitability, as projects often have extensive uncertainty. Although not advanced, calculations and methodologies can reduce uncertainty and provide a basis for familiar and more qualified assessments.
Assessments of Uncertainty	Is a key aspect of project work. Various types of uncertainty are considered, including technological, political, market, capacity-sensitive, and economic. These uncertainties must be included in impact assessments.
Evaluation of the Implementation Plan	This is a stage when the feasibility of project implementation is assessed: How realistic is the project? Are the key elements related to implementation available? Some aspects central to the project, such as time, cost, and resource requirements, will be considered.

Ambiguities, Adjacencies, Decisions

Projects involve very many components and interfaces, factors that lead to uncertainty and complexity, not least given that decision making is often represented as being rational when, as social scientists, we know that it is always boundedly rational.[25]

The well-known 'garbage can' theory developed by Cohen, March, and Olsen points out that when events are analysed, problems, solution options, decision makers, and decision making all flow in and out of metaphorical garbage cans. What happens to be in the mix is random, dependent on adjacencies, participation and timing. What Cohen et al. stress is that decisions are always made in a context defined by what's happening at the time. All manner of schemes and dreams may end up

being aligned simply because they were in process at the same time in contiguous places. There, given random adjacencies, they sometimes connect.[26] Proponents of solutions frame problems in terms with which they can provide solutions. Problems and solutions are often linked quite randomly. You often do not know what is the problem you are trying to address until the problem is solved.

The 'garbage can' theory shows us that work in projects, whether in temporary or permanent organizations, is characterized by some ambiguities that make it impossible for events to be entirely rational. We mention four types of ambiguities here:

- Ambiguity related to what are the preferences in a decision-making situation. There is often a lack of consistent decision criteria. Organizational project preferences are neither well defined nor consistent.
- Unclear technology or system solutions characterize the project. Participants do not, will not or cannot understand the solutions; they interpret them differently, sometimes out of predefined power interests, other times out of a logic based on trial and error, sometimes out of unfamiliarity.
- Storytelling ambiguity. Participants have different understandings of the targets of the project and the relationships between these and other processes.
- Unclear boundaries for the project and its organization, as participants come and go to join other projects.

An aware project manager can systematically elaborate insight into these sources of ambiguity. Ambiguity is part of any project process, especially in early phase activities in projects. There will always be things we did not expect to find as projects unfold because we can never have perfect foresight. Structurally, in some decision forums, such as the steering group of the project, there will be those pushing to be decisive even when ambiguity abounds. A myth of rationality can prevail. Participants will still be expected to act decisively by signing contracts, terminating, or commencing contractual relations or attributing responsibility for uncertainty. Doing this is doing managing as they know it, even when they are unsure about the context in which that managing is being enacted.

The likelihood of irrational decision making increases as a result of the flow of participants entering and leaving projects and project contexts.[27] Participants' skills and attention determine their capacity in decision making situations. In project-based organizations, many of the organizational members may be associated with several matrix projects that run in parallel. In these circumstances it is difficult for the most competent people to be in the decision-making situation at the right time and with the necessary attention and understanding of problems to be solved. Moreover, it is often the case that when a decision needs to be taken, there is often little chance of obtaining sufficient information, if only because it is time-consuming to do so. Planning, which takes time, is essential for good decision making.

IN PRACTICE 3.3

Project Delivery

Delivery projects are widely used in public sector management. They often presume a high level of rationality in decision making. From organization theory, we know that this rarely pertains. Instead, most decision making is characterized by bounded rationality. Bounded rationality[28] means producing satisfactory rather than optimally rational decisions, a process referred to as 'satisficing', meaning accepting decisions that are both sufficient and satisfying and many decision-making processes are best thought of in terms of the 'garbage can model'.[29] The garbage can model describes the chaotic reality of organizational decision making in conditions of organized anarchy. Organized anarchies are decision situations characterized by problematic preferences, unclear technologies, and fluid participation.

Questions

1 Looking at the framework for value management, what are the major points at which value might not be well managed from the perspective of bounded rationality, particularly in terms of the 'known unknowns' and the 'unknown unknowns' that might have an impact on the project? (Hint: these terms pop up again in Chapter 8.)

2 Looking at the framework for value management, what are the major points at which value might not be well managed from the perspective of the garbage can model, particularly in terms of the evolution of the project over time?

WHY DO WE START BAD PROJECTS?

Looking back at project failures, it's not difficult to point out projects that should not have been launched, as mentioned in the previous chapter. These are projects that were initiated despite the lack of analysis indicating that the investment of money and other resources would probably lead to expected value. What are the reasons why so many projects that seem to be inappropriate seem to be implemented? Such projects may be started without demand for the process or product being delivered. Projects may include highly complicated and/or uncertain solutions, entailing economic risk and decisions to further invest funds that are difficult to defend.

Biases in Projects

Standard economic theory would explain that bad results are a natural consequence of organizations taking rational risks in uncertain situations. Leaders know and are willing to run this risk because they believe that, in the long run, they will achieve some successes. This might seem like an attractive argument, especially for leaders, because it relieves guilt related to project fallacies. As Lovallo and Kahneman[30] demonstrate, there are other, and perhaps better, explanations of failure than claiming that normally, what we have, is 'rational choices gone wrong'. Rather, they see it as 'the result of bad decision making – characterized by decision-making traps'. According to behavioural psychology and economics, these can be explained by various **biases**. Since they can have fatal consequences for the project success, we will look at some different decision traps.

Bias
is innate or learned, disproportionately weighing in favour for or against an idea, usually in a way that is closed-minded or prejudicial.

Cognitive bias
is a systematic error in thinking caused by the tendency of the human brain to simplify information processing through a filter of personal experience and preferences affecting decisions and judgements.

There are many biases which are said to play out in project processes. Some are labelled as cognitive biases, while others can be labelled power biases, according to Bent Flyvbjerg in 2021[31]. **Cognitive biases** are a deliberate deception, while power bias arises from strategic misrepresentation, which can be traced to political-organizational pressures, as discussed in the previous chapter.

According to Daniel Kahneman[32] over-optimism is the most common cognitive bias in decision making related to projects. *Over-optimism* means overestimating the benefits of the project and underestimating the potential for it to go wrong. Over-optimism is a human asset that we can be aware of and appreciate in some contexts. We can try to correct for it in decision-making processes related to start-up and implementation of projects. It's risky, however, because when a project starts to go bad economically, there's almost no limit to how bad it can go. When a project starts to go bad, commitment to the project on the part of those deeply involved in it can escalate, rather than losses be cut: the participants feel to be in too deep.

Over-optimism allows managers to create success scenarios for projects and be led by them, which inhibits the ability to weigh the pros and cons accurately. The leaders' over-optimism can be traced both to psychological factors and forces in the organization that push it in a certain direction. Research has shown that people tend to be quite optimistic most of the time, when it comes to the outcome of processes that they take part in or in or for which they hold responsibility. An important reason for this is that we often think we have better abilities than is the case.[33] For example, a survey showed that when more than 1,000 students were asked to evaluate their leadership skills, 70% thought they were above average. Similar results are found among athletes and workers. Most of us think we are far above average. On the question of how well one thought fellow students liked them, 25% of the students answered that they were among the top 1%.[34]

Personal judgement is bad. If someone cuts in while you are driving, your first thought might be 'What a jerk!' instead of considering the possibility that the driver is rushing

someone to the hospital. On the other hand, when we cut someone off in traffic, we tend to convince ourselves that we had to do so. We focus on situational factors, such as being late to a meeting, ignoring what our behaviour might say about our own character.[35] That means that in situations where we succeed, we add this to our abilities while, when we fail, we attribute that to coincidence. Simply put, it's rare we talk about projects succeeding because we were lucky, while we often talk about failing because of bad luck.

Furthermore, we tend to overestimate the degree of control we have in different contexts. In some experimental studies, people who have been asked to press a button each time a light blinks, hit it as often as they possibly can. The test subjects are told that the number of hits will depend on both the effort and the coincidence of hits and blinks. Usually, the significance of your own effort for the number of hits is greatly overestimated. Your belief in your abilities and the ability to control them in given situations may be over-optimistic. For managers and entrepreneurs, this image is strengthened by two other traps, according to Lovallo and Kahneman:[36] the *anchor effect* and *competitor neglect*, which can explain much of why 80% of business ventures fail within a short period of start-up. We will investigate this in relation to projects.

In the assessment of project start-ups, decision makers often submit a proposal with some estimates and a preliminary plan. Decision makers estimate the value of this proposal and may make additional analyses as well. While the proposal makes sense, the problem is often that the starting point is incorrect. First, it is the case that those who have promoted the proposal are probably affected by over-optimism associated with positive outcomes, abilities, and control. Furthermore, they would like to have this project be accepted. The basis being considered is therefore too optimistic.

A classic example was the joint British–French project, Concorde, which produced a plane that was very fast, too noisy, too small, and too expensive for airlines to run at a

Image 3.3 British Airways Concorde[37]

profit. It was an advanced but overly optimistic technology and only 20 models were ever built. The last of only two in service was involved in a terrible accident at Charles de Gaulle airport in Paris, in 2000, in which all on board were killed.

We anchor our estimates randomly. When decision makers are provided numbers, for example related to how much time and money a potential project would cost, as a foundation for their decisions, they will anchor their action in these figures. Even when the numbers are completely wrong, they base their decisions on the numbers. They adjust estimates based on analyses but do so insufficiently, similarly to haggling situations, where the seller starts with a very high price. An organization's degree of success depends on the activities of their competitors. Nevertheless, decision makers tend to concentrate their attention on internal relationships such as their capacity and capabilities, not whether competitors have better capacity, capabilities, and ideas.

Such factors contribute to over-emphasizing the benefits of the project and the possibilities for project success, undermining the possible adverse outcomes of a project. The awareness of over-optimism and how it affects decision-making processes can strengthen the ability of decision makers to reflect on the quality of their own decisions. Those who introduce analyses that are more systematic where they compare their focal activities with relevant activities and projects outside their own organization (labelled *outsider view*) succeed better. Research shows that it is better to assess other people's estimates than one's own and that when one has an outsider view, optimism is reduced. For example, a group of students were asked to evaluate their performance compared to other students, with 84% answering that they were better than the average. When asked to base their views on the grades of the other students, the number of students who thought they were better than the average fell to 60%. A quick look at other people's achievements can significantly reduce over-optimism, even when it comes to project implementation. This way of overcoming classic problems with the assessment of the pros and cons of a project is what is called benchmark comparisons. In setting up projects, companies tend to focus on their own experiences, competencies, and expectations in their analyses. This experience, however, is too narrow. Systematic comparisons with similar activities and projects outside of your own organization can achieve a more nuanced view.

Many biases are mentioned here, and some of them overlap to a degree with each other. In the field of project management, biases have been mostly ignored in understanding project processes and outcomes. Bent Flyvbjerg[38] provides a 'Top ten list for biases in project management', illustrated in Figure 3.10. However, there is a problem with attributing project failure to inherent bias in the actors involved in launching and executing them. Such attributions of bias are always post hoc; there is rarely direct evidence that bias was present. Reading backwards, retrospectively, it is easy to attribute bias to project actors who may not have been biased but just involved in unique experiments in which, for innumerable reasons, things did not go according to plan. Planning is important but not fool proof. As the old military adage has it, plans rarely survive encounters with the enemy. In projects, the enemy resides in uncertainty, ambiguity, the unknown unknowns. You cannot plan for that which you do not know.

Strategic misrepresentation	• The tendency to deliberately and systematically distort or misstate information for strategic purposes; political bias, strategic bias, or power bias.
Optimism bias	• The tendency to be overly optimistic about the outcome of planned actions, including overestimation of the frequency and size of positive events and underestimation of the frequency and size of negative ones.
Uniqueness bias	• The tendency to see one's project as more singular than it actually is.
Planning fallacy	• The tendency to underestimate costs, schedule, and risk and overestimate benefits and opportunities.
Overconfidence bias	• The tendency to have excessive confidence in one's own answers to questions.
Hindsight bias	• The tendency to see past events as being predictable at the time those events happened. Also known as the I-knew-it-all-along effect.
Availability bias	• The tendency to overestimate the likelihood of events with greater ease of retrieval (availability) in memory.
Base rate fallacy	• The tendency to ignore generic base rate information and focus on specific information pertaining to a certain case or small sample.
Anchoring	• The tendency to rely too heavily, or 'anchor', on one trait or piece of information when making decisions, typically the first piece of information acquired on the relevant subject.
Escalation of commitment	• The tendency to justify increased investment in a decision, based on the cumulative prior investment, despite new evidence suggesting the decision may be wrong. Also known as the sunk cost fallacy.

Figure 3.10 Top ten biases in Project Management

SUMMARY

We have addressed some issues that should be clarified when launching projects:

- To create a desired value, goals must be relatively unambiguous, aiming to contribute to organizationally intended goals and purpose. The connection to value creation and purpose is essential for a project.
- Projects are instruments for achieving goals. Therefore, it is key to be aware of the distinction between the project's mission (the purpose of achievement) and the project's performance goals, as well as the relationship between them.
- Working on the business case, deciding to turn idea work into a project, and developing objectives, are all part of starting up a project. These procedures must, of course, be adapted to the characteristics of a given project and its context.
- Projects, project assignments, and the context of projects vary greatly and thus all mainstream project processes and practices must be adapted to fit the particular project.
- Delivery projects, for example, will follow a different logic and approach for those who will perform the assignment than would be the case in internal development projects or change projects. The size and complexity of the projects will also affect the nature and relevance of the different project processes.
- Projects are often experiments and adventures – expect the unexpected.

EXERCISES

1 Please account for the elements that need to be considered when an organization is considering starting a project. What can you say about limitations and feasibility?
2 What are the typical origins for new projects – do you recall the four categories?
3 What do we mean by the two terms 'sensemaking' and 'framing'? What are the functions of these two processes?
4 What are the differences between: closed projects, semi-open projects, half-open projects, and open projects? Why is it important to be able to distinguish between projects in this way? How would you approach a semi-open project?
5 How is rationality bounded?
6 What is a goal and how is a purpose different from a goal? Why are both goals and purposes important to project work?
7 What is goal complexity and how can we deal with that?
8 What are some key aspects of decision making? What are common flaws in decision-making processes with which you are familiar? What do you know about over-optimism?
9 What are the key principles of Design Thinking and when is it relevant to apply Design Thinking in projects?

CASE STUDY 3.1

Theranos and Elisabeth Holmes

Founded in 2003 by 19-year-old Elizabeth Holmes, *Theranos* aimed to revolutionize medical diagnostics through its device, 'Edison', which promised to conduct extensive lab tests with just a few drops of blood. The idea captivated investors and the media, raising millions in funding and valuing the company at $9 billion by 2014. The company claimed that Edison could democratize healthcare by providing fast, cheap, and accurate tests, drastically reducing the need for traditional venipuncture.

Theranos operated under a shroud of secrecy, avoiding peer-reviewed publication and failing to disclose the technical workings of the Edison device. In 2015, the *Wall Street Journal* published an investigation questioning the device's reliability and efficacy. It was revealed that not only was the device prone to errors, but the company was also using commercial testing machines for most of its operations.

In 2018, Holmes and her former president Ramesh 'Sunny' Balwani, were charged with massive fraud by the US Securities and Exchange Commission (SEC). Legal and financial troubles continued to mount, and by 2020, Theranos was defunct.

The case took another twist in January 2022 when Holmes was found guilty on four charges of defrauding investors. She was sentenced to over 11 years in prison in November of the same year. The trial shed more light on the company's operations; prosecutors accused Holmes of destroying evidence during Theranos' last days. Although Holmes admitted to operational mistakes during her testimony, she continued to assert that she had never knowingly defrauded anyone. Holmes is currently serving her sentence while attempting to appeal her convictions, having lost the bid to remain out of prison during the appeal process. The legal twists and turns suggest that the Theranos story may still have more chapters to unfold.[39]

Questions

1 What made Holmes' project goals complex? Holmes sought to disrupt a well-established and regulated medical testing industry with a ground-breaking device. This complexity was compounded by high stakeholder expectations and stringent healthcare regulations. Could better management have mitigated these complexities?

2 Holmes' vision combined healthcare, technology, and regulatory elements. What different approaches could have led Theranos towards a more sustainable and ethical path? If you were the project manager, what would you have done differently?

REFERENCES

Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, *8*(2), 5–21.

Carlsen, A., Clegg, S., & Gjersvik, R. (2012). *Idea Work: Lessons of the Extraordinary in Everyday Creativity*. Cappelen Damm akademisk.

Clegg, S. R., Pitsis, T. S., & Mount, M. (2022). *Managing and Organizations: An Introduction to Theory and Practice* (6th ed.). Sage.

Clegg, S. R., Pitsis, T. S., Rura-Polley, T., & Marosszeky, M. (2002). Governmentality matters: Designing an alliance culture of inter-organizational collaboration for managing projects. *Organization Studies*, *23*(3), 317–37.

Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly*, *17*(1), 1–25.

Coldevin, G. H., Carlsen, A., Clegg, S., Pitsis, T. S., & Antonacopoulou, E. P. (2019). Organizational creativity as idea work: Intertextual placing and legitimating imaginings in media development and oil exploration. *Human Relations*, *72*(8), 1369–7.

Flyvbjerg, B. (2021). Top ten behavioral biases in project management: An overview. *Project Management Journal*, *52*(6), 531–46.

Flyvbjerg, B. & Gardner, D. (2023). *How Big Things Get Done: The Surprising Factors that Determine the Fate of Every Project, from Home Renovations to Space Exploration and Everything in Between*. Macmillan.

Jørgensen, S., & Pedersen, L. J. T. (2018). *RESTART Sustainable Business Model Innovation*. Palgrave Macmillan.

Kahneman, D. (2012). *Thinking, Fast and Slow*. Penguin Books.

Koppenjan, J. F. M. (2005). The formation of public–private partnerships: Lessons from nine transport infrastructure projects in The Netherlands. *Public Administration*, *83*(1), 135–57.

Lovallo, D., & Kahneman, D. (2003). Delusions of success. *Harvard Business Review*, *81*(7), 56–63.

March, J. G., & Olsen, J. P. (1976). *Ambiguity and Choice in Organizations*. Universitetsforlaget.

Mintzberg, H., & Waters, J. A. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, *6*(3), 257–72.

Nieto-Rodriguez, A. (2021a). *Harvard Business Review Project Management Handbook: How to Launch, Lead, and Sponsor Successful Projects*. Harvard Business Review Press.

Nieto-Rodriguez, A. (2021b). The project economy has arrived. *Harvard Business Review*, *99*(6), 38-45.

Naar, L., & Clegg, S. (2015). *Gehry in Sydney: The Dr Chau Chak Wing Building, UTS*. Images Publishing.

Naar, L., & Clegg, S. (2018). Models as strategic actants in innovative architecture. *Journal of Management Inquiry*, *27*(1), 26–39.

Obeng, E. (1996). *The Project Leader's Secret Handbook: All Change!* Financial Times/ Prentice Hall.

Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.

Patanakul, P., & Shenhar, A. J. (2012). What project strategy really is: The fundamental building block in strategic project management. *Project Management Journal*, *43*(1), 4–20.

Simon, H. A. (1965). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization* (2nd ed.). Free Press.

Simon, H. A. (1991). Bounded rationality and organizational learning. *Organization Science*, *2*(1), 125–34.

Tampio, K.-P., Haapasalo, H., & Lehtinen, J. (2023). The client's essential stakeholder collaboration activities at the front-end phase of a hospital construction project. *International Journal of Managing Projects in Business*, *16*(8), 182–207.

Tourish, D., & Willmott, H. (2023). Despotic leadership and ideological manipulation at Theranos: Towards a theory of hegemonic totalism in the workplace. *Organization Studies*, 44, https://journals.sagepub.com/doi/full/10.1177/01708406231171801.

Trullen, J., & Bartunek, J. M. (2007). What a design approach offers to organization development. *The Journal of Applied Behavioral Science*, *43*(1), 23–40.

Vendraminelli, L., Macchion, L., Nosella, A., & Vinelli, A. (2023). Design thinking: Strategy for digital transformation. *The Journal of Business Strategy*, *44*(4), 200–10.

Vaagaasar, A. L. (2011). Development of relationships and relationship competencies in complex projects. *International Journal of Managing Projects in Business*, *4*(2), 294–307.

ENDNOTES

1 Koppenjan, J. F. M. (2005). The formation of public–private partnerships: Lessons from nine transport infrastructure projects in The Netherlands. *Public Administration, 83*(1), 135–57, at p. 137.

2 Mintzberg, H., & Waters, J. A. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal, 6*(3), 257–72.

3 Clegg, S. R., Pitsis, T. S., & Mount, M. (2022). *Managing and Organizations: An Introduction to Theory and Practice* (6th ed.). Sage.

4 Patanakul, P., & Shenhar, A. J. (2012). What project strategy really is: The fundamental building block in strategic project management. *Project Management Journal, 43*(1), 4–20.

5 Clarke P. (2023) Why Britain is so bad at heat pumps, *Financial Times*, 25 October, www.ft.com/content/1eb9fbef-5fcf-498e-a210-be26364d78ec (accessed 26.10.23).

6 https://www.iea.org/reports/installation-of-about-600-million-heat-pumps-covering-20-of-buildings-heating-needs-required-by-2030.

7 Carlsen, A., Clegg, S., & Gjersvik, R. (2012). *Idea Work: Lessons of the Extraordinary in Everyday Creativity*. Cappelen Damm akademisk.

8 Tampio, K.-P., Haapasalo, H., & Lehtinen, J. (2023). The client's essential stakeholder collaboration activities at the front-end phase of a hospital construction project. *International Journal of Managing Projects in Business, 16*(8), 182–207.

9 Obeng, E. (1996). *The Project Leader's Secret Handbook: All Change!* Financial Times/Prentice Hall.
10 Clegg, S. R., Pitsis, T. S., Rura-Polley, T., & Marosszeky, M. (2002). Governmentality matters: Designing an alliance culture of inter-organizational collaboration for managing projects. *Organization Studies, 23*(3), 317–37.
11 Carlsen et al. (2012).
12 Coldevin, G. H., Carlsen, A., Clegg, S., Pitsis, T. S., & Antonacopoulou, E. P. (2019). Organizational creativity as idea work: Intertextual placing and legitimating imaginings in media development and oil exploration. *Human Relations, 72*(8), 1369–97.
13 Vendraminelli, L., Macchion, L., Nosella, A., & Vinelli, A. (2023). Design thinking: Strategy for digital transformation. *The Journal of Business Strategy, 44*(4), 200–10.
14 Coldevin et al. (2019).
15 Naar, L., & Clegg, S. (2015). *Gehry in Sydney: The Dr Chau Chak Wing Building, UTS*. Images Publishing; Naar, L., & Clegg, S. (2018). Models as strategic actants in innovative architecture. *Journal of Management Inquiry, 27*(1), 26–39.
16 Photo: Torgeir Skyttermoen.
17 Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues, 8*(2), 5–21.
18 Trullen, J., & Bartunek, J. M. (2007). What a design approach offers to organization development. *The Journal of Applied Behavioral Science, 43*(1), 23–40.
19 Ibid., p. 27.
20 Carlsen et al. (2012).
21 Osterwalder has published several books related to this concept, however the one from 2010 is the most relevant. Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.
22 There are several versions of Project Canvas out there. This one has been developed by one of the authors in collaboration with various projects in practice. Antonio Nieto-Rodriguez has a project canvas with some similarities with this one, presented in *Harvard Business Review* as well as in a book. Nieto-Rodriguez, A. (2021a). *Harvard Business Review Project Management Handbook: How to Launch, Lead, and Sponsor Successful Projects*. Harvard Business Review Press; Nieto-Rodriguez, A. (2021b). The project economy has arrived. *Harvard Business Review, 99*(6), 38–45.
23 Jørgensen, S., & Pedersen, L. J. T. (2018). *RESTART Sustainable Business Model Innovation*. Palgrave Macmillan.
24 Simon, H. A. (1965). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization* (2nd ed., with new introduction). Free Press.
25 Ibid.
26 March, J. G., & Olsen, J. P. (1976). *Ambiguity and Choice in Organizations*. Universitetsforlaget.
27 Vaagaasar, A. L. (2011). Development of relationships and relationship competencies in complex projects. *International Journal of Managing Projects in Business, 4*(2), 294–307.
28 Simon, H. A. (1991). Bounded rationality and organizational learning. *Organization Science, 2*(1), 125–34.

29 Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly, 17*(1), 1–25.
30 Lovallo, D., & Kahneman, D. (2003). Delusions of success. *Harvard Business Review, 81*(7), 56–63.
31 Bent Flyvbjerg argues for differentiation between cognitive and power biases in an article from 2021. He previously had labelled this bias as political biases, but to avoid confusing it with political issues, calls it power bias. In the book *How Big Things Gets Done* (2023), he equates this bias with strategical misrepresentation, a term discussed in Chapter 2. Flyvbjerg, B. (2021). Top ten behavioral biases in project management: An overview. *Project Management Journal, 52*(6), 531–46.
32 Kahneman, D. (2012). *Thinking, Fast and Slow*. Penguin Books.
33 Ibid.
34 Lovallo & Kahneman (2003).
35 Kahneman (2012).
36 Lovallo & Kahneman (2003).
37 https://commons.wikimedia.org/wiki/File:235ac_-_British_Airways_Concorde;_G-BOAD@LHR;15.05.2003_(8056002570).jpg (photo by Aero Icarus)
38 See table 1 in Flyvbjerg (2021).
39 If you want to know more about Theranos and this case, the documentary *The Inventor: Out for Blood in Silicon Valley* from 2019 on HBO is well worth watching. Also, you might want to consult Tourish, D., & Willmott, H. (2023). Despotic leadership and ideological manipulation at Theranos: Towards a theory of hegemonic totalism in the workplace. *Organization Studies*, 44, https://journals.sagepub.com/doi/full/10.1177/01708406231171801.