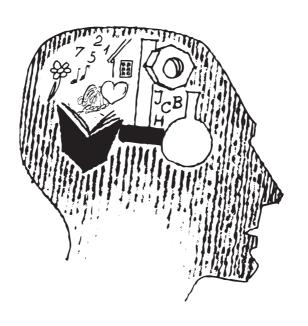
PROJECT MANAGEMENT

A Multi-Perspective Leadership Framework



PROJECT MANAGEMENT

A Multi-Perspective Leadership Framework

BY

HANS MIKKELSEN

PRODEVO Consulting, Aalborg University, Denmark

JENS O. RIIS

Aalborg University, Denmark



United Kingdom – North America – Japan India – Malaysia – China Emerald Publishing Limited Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2017

Copyright © 2017 Emerald Publishing Limited

Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data

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

ISBN: 978-1-78714-830-7 (Print) ISBN: 978-1-78714-829-1 (Online) ISBN: 978-1-78743-266-6 (Epub)



ISOQAR certified Management System, awarded to Emerald for adherence to Environmental standard ISO 14001:2004.

Certificate Number 1985 ISO 14001



Contents

Lis	ist of Figures	
About the Book		xxi
Pre	eface	xxiii
1.	Introduction	1
2.	Forming and Defining the Project	53
3.	Planning the Course of Action	87
4.	Organizing	145
5.	Cooperation in the Project Organization	201
6.	Project Leadership	253
7.	Project Control	281
8.	Management of Several Projects	335
9	Trends and Challenges for Future Projects	381

Appendix A: Project Characteristics	415
Appendix B: Forming and Defining the Project	427
Appendix C: Planning the Course of Action	469
Appendix D: Organizing	577
Appendix E: Cooperation in the Project Organization	595
Appendix F: Project Leadership	643
Appendix G: Project Control	669
References	779
About the Authors	787
Index	789

List of Figures

Chapter 1		
Figure 1.1	The Five-by-Five Project Management Model	7
Figure 1.2	The Planning Process is Circular	14
Figure 1.3	Four Complementary Perspectives	28
Figure 1.4	Narrow and Broad Visions	31
Figure 1.5	Three Types of Relationships between a Project and Organizational Change	43
Figure 1.6	The Total Elapsed Change Process	44
Chapter 2		
Figure 2.1	The PPSOP Model	62
Figure 2.2	Consequences of Uncertainty	68
Figure 2.3	Dimensions of Complexity	70
Figure 2.4	Forming the Project Based on Synergy Considerations	75
Figure 2.5	Aspects of Forming a Project	77

Chapter 3	
Figure 3.1	Structuring a Project as a Combination of Work Paths and Time
Figure 3.2	A Cascade Model of a Production Group Project
Figure 3.3	Project Processes
Figure 3.4	Four Tasks of the Change Process 100
Figure 3.5	Resistance to Change
Figure 3.6	Driving Forces of Change
Figure 3.7	The Choice of Course of Action is Determined by the Project Complexity 110
Figure 3.8	Some Detailed Check Points Concerning the Course of Action
Figure 3.9	Four Approaches to Planning the Course of a Project
Figure 3.10	Decisions During the Project
Figure 3.11	Kotter's Eight Points in a Change Process 123
Figure 3.12	A Model of Project Planning 126
Figure 3.13	Planning Events During the Project 127
Figure 3.14	Aspects of Preparing a Master Plan for the Course of Action
Figure 3.15	A Typical Life Cycle for a Renewal Project 130
Figure 3.16	The Dilemma of Project Planning 132
Figure 3.17	Seven Principles of Agilean Thinking for Project Management
Chapter 4	
Figure 4.1	An Example of a Typical Project Organization

Figure 4.2	A Basic Pattern of a Project
J	Organization
Figure 4.3	Participation versus Influence
Figure 4.4	An Example of a Project Organization
	Diagram
Figure 4.5	Two Organizational Forms and Work Culture
Figure 4.6	The Project Organization as an Arena for Cooperation with Other Organizational Units
Figure 4.7	An Example of Values in Partnering 195
Chapter 5	
Figure 5.1	Aspects of Project Teamwork 203
Figure 5.2	The Special Characteristics of Project Groups
Figure 5.3	Examples of Inappropriate Group Culture 205
Figure 5.4	The 5C Model
Figure 5.5	Work Patterns for Project Groups 210
Figure 5.6	Types of Project Cooperation 213
Figure 5.7	Project Work Needs Three Rooms 218
Figure 5.8	Intensive Work Patterns
Figure 5.9	Energy Creators and Energy Killers in Project Work
Figure 5.10	Two Problem-Solving Processes 231
Figure 5.11	Elevator Model
Figure 5.12	Field of Tensions
Figure 5.13	Stages of Group Development 243
Figure 5.14	Four Kinds of Learning 248

Chapter 6

Figure 6.1	What Kind of a Project Manager Are You?
Figure 6.2	The Special Characteristics of a Project Management
Figure 6.3	Five Project Management Areas
Figure 6.4	The Project Manager and Creation of Results
Figure 6.5	The Project Coordination Tasks 261
Figure 6.6	Differences between Leadership and Control
Figure 6.7	Conditions for Project Management 267
Figure 6.8	Some Requirements for Project Managers of Tomorrow
Figure 6.9	Adapt Leadership Style to Project Phases 270
Chapter 7	
Figure 7.1	Five-by-Five Project Control Model 284
Figure 7.2	Project Control Is Determined by the Complexity
Figure 7.3	Effect Areas of Control Decisions 289
Figure 7.4	The Good Activity Control
Figure 7.5	Forward-Oriented Follow-up 294
Figure 7.6	General Control Model – Control Loops 294
Figure 7.7	Aspects of Managing Complex Projects 298
Figure 7.8	Elements in Evaluation of a Completed Project
Figure 7.9	Considering Imposed Effects

Figure 7.10	Life Cycle Cost Model	309
Figure 7.11	Elements of Quality Assurance	311
Figure 7.12	Quality via People versus Quality via Methods	311
Figure 7.13	Planning Levels	313
Figure 7.14	Effects of Delay and Cost Budget Overrun 3	317
Figure 7.15	Economy Control Tasks	323
Figure 7.16	Life-cycle Economy	324
Figure 7.17	Project Costs	326
Chapter 8		
Figure 8.1	The Gray Zone of Company Development Initiatives In-between Major Strategic Efforts and Projects in Single Sections	338
Figure 8.2	Many Development Initiatives Need to Be Formed to Ensure Value-adding	340
Figure 8.3	Means of Connecting Strategy and Development Projects	343
Figure 8.4	Internal Development Takes Place at Several Levels	350
Figure 8.5	An Example of a Diagram of Balances in a Portfolio	352
Figure 8.6	Examples of Dimensions of Balancing Two Portfolios	352
Figure 8.7	Orchestration Forms	357
Figure 8.8	From Ideas to Portfolio	358
Figure 8.9	The Attention of the Portfolio Management Should Be Directed Toward Value Creation	35 <i>8</i>
Figure 8.10	Classical Tasks of Portfolio Management 3	
U	O	

Figure 8.11	Definition of a Program
Figure 8.12	An Example of an Overall Milestone Plan for a Program of a Total Relocation of a Production Plant
Figure 8.13	The Transformation Matrix
Figure 8.14	Transformation from Strategy into Initiatives in a Strategic Effort Area: Sales of Process Equipment "M1" in Northern Europe
Figure 8.15	Focus on the Value of Projects
Figure 8.16	A Model of Functions for Program Management
Figure 8.17	Important Information Sheets for Program Management
Figure 8.18	Elements of Agile Company Development 374
Chapter 9	
Figure 9.1	Different Relationships Between a Renewal Project and Change
Figure 9.2	The Total Change Process
Figure 9.3	Roles of the Change Organization Compared to Roles of the Project Organization
Figure 9.4	Tasks of the Change Manager
Figure 9.5	The Context of Company Development 400
Figure 9.6	The Management Triad 401
Appendix A	
Figure A1	Four Pictures
Figure A2	A Frame for the Portrait 419
Figure A3	Examples of Project Portraits 419

Appendix B

Figure B1	Challenges As a Basis for Planning 428
Figure B2	Description of Project Complexity 430
Figure B3	Examples of Project Conditions 431
Figure B4	Analysis and Prioritization of Challenges – An Example 431
Figure B5	Points of Special Attention 432
Figure B6	The Coalition Model
Figure B7	Form: Analysis of Interested Parties (Stakeholders)
Figure B8	Interested Parties' Position 439
Figure B9	Classification of Interested Parties 440
Figure B10	Sociogram
Figure B11	Connections Between Project Goals 443
Figure B12	Types of Benefit Goals
Figure B13	Value Calculation 450
Figure B14	A Business Case
Figure B15	Goals and Means Are Linked 452
Figure B16	Concept Documentation 454
Figure B17	Form for Analysis of Uncertainties 458
Figure B18	Analysis of Milestones and Activities
Figure B19	Sorting Uncertainties
Figure B20	Interfaces and Connections
Figure B21	SWOT Analysis
Figure B22	RPD Example (a) and (b) 465
Figure B23	Decision Tree Example

Appendix C

Figure C1	Planning Points in the Project Process 470
Figure C2	Planning Model 472
Figure C3	Purpose of the Picture of Interested Parties 477
Figure C4	Pictures of the Project Environment 479
Figure C5	Five-by-Five Model of Control Functions 489
Figure C6	Structure for Development of a Manufacturing System 497
Figure C7	Process Diagram Is the Basis for Structure (an Example)
Figure C8	A Process Plant Is Divided into Modules/ Units (a Cement Factory)
Figure C9	An Example of Project Structure 501
Figure C10	Three Structures and Their Connections 502
Figure C11	Activity Relations to Project Structure 502
Figure C12	Different Activity Delimitations 503
Figure C13	The Classic Phase Model — The Waterfall Model
Figure C14	A Phase Model for an IT Project 506
Figure C15	A Phase Model for Implementation of a Standard IT System 506
Figure C16	A Phase Model for a Product Development Project
Figure C17	A Phase Model for Medicare Product Development
Figure C18	Phases in an Engineering/Construction Project

Figure C19	A Phase Model for a Building Project 508
Figure C20	The Concept-Based Approach Model 509
Figure C21	A Three-Stream Model for Integrated Product Development
Figure C22	A Four-Stream Model for Development of a Production System
Figure C23	Streams in a Technical Project 520
Figure C24	The Principle of an Iterative Approach 523
Figure C25	An Example of an Iterative Approach 524
Figure C26	Different Views — Different Phases 525
Figure C27	Organizational Conditions for the Project 526
Figure C28	Interested Parties' Understanding and Acceptance of Necessity or Value 527
Figure C29	Interested Parties' Understanding and Acceptance of the Concept and Vision 528
Figure C30	Interested Parties' Change Competency 528
Figure C31	Change Analysis and the Change Task 531
Figure C32	Means of Creating Engagement 532
Figure C33	Considerations from interested parties 533
Figure C34	Structure of the Coordination and Control Schedule
Figure C35	Factors Determining Activity Duration 542
Figure C36	The Active Project Start
Appendix D	
Figure D1	Basic Pattern of the Project Organization 579
Figure D2	The Project Team Structure Is Related to the Work Paths

Figure D3	Organogram with Contact Lines 582
Figure D4	Responsibility Chart
Figure D5	Two Examples of Interaction 591
Figure D6	Example: Matrix Organization in a Technical Manufacturing Company 592
Figure D7	Example: Matrix Organization in a New Product Development Department 593
Appendix E	
Figure E1	The Workshop Meeting 597
Figure E2	The Control Meeting
Figure E3	The Meeting Minutes
Figure E4	Examples of Collaborative Behavior 603
Figure E5	A Model for Teambuilding 605
Figure E6	Teamwork Issues
Figure E7	Obstacles in the Group
Figure E8	Evaluating the Culture in the Project Group
Figure E9	Analyzing the Behavior of the Participants During a Meeting
Figure E10	Characterizing the Disagreement 610
Figure E11	Reasons for Emotional Tension 611
Figure E12	Types of Behavior in a Conflict Situation 612
Figure E13	Reactions to a Conflict Situation 613
Figure E14	Levels of Power in a Collaboration 614
Figure E15	Political Activities to Gain Influence 615
Figure E16	A Decision Model 617
Figure E17	Advice on Decision Processes 619

Figure E18	Activities in a Decision Process 621
Figure E19	Preparing for a Decision 622
Figure E20	Participants' Possibilities of Gaining Influence
Figure E21	A Model for Time-out Reflections 633
Figure E22	An Example of a Cause-effect Analysis 634
Figure E23	Cues for Evaluation During the Project 635
Figure E24	A Method for Reflecting on Management Situations
Appendix F	
Figure F1	Project Leader's Five Management Areas 644
Figure F2	The Project Leader's Roles
Figure F3	Checklist for Selection of a Project Leader
Figure F4	Challenges for Leading the Team 648
Figure F5	Delegation of Tasks
Figure F6	Leading in a Political Milieu
Figure F7	Project Manager's Contract 651
Figure F8	Competencies in Project Management 654
Figure F9	Competency Elements of Leadership Behavior
Figure F10	Workshop about Project Manager's Competency Profile
Figure F11	Example of a Competency Profile Form 658
Figure F12	The Managerial Grid
Figure F13	Dulewitz and Higgs Company Model 663
Figure F14	Project Leader's Plan

Figure F15	Management of a Small Project 666
Figure F16	Plan for Own Work
Figure F17	Week Plan
Appendix G	
Figure G1	Work Plan Form
Figure G2	Example of Project Planning Billboard 671
Figure G3	Conditions Determining Activity Duration
Figure G4	Estimating Activity Duration — Three Estimates
Figure G5	Principles of the Critical Chain Method 678
Figure G6	Principles for Time Schedules in Gantt Charts
Figure G7	Elements in a Gantt Chart
Figure G8	Example of a Master Plan as a Gantt Chart
Figure G9	Example of a Cyclogram
Figure G10	Example of Network Plans 686
Figure G11	Rules for Activity Overlap
Figure G12	Time Calculation in Process Diagram 688
Figure G13	Project Info-Room
Figure G14	Info-Room Facilities 692
Figure G15	Issue Management
Figure G16	Example of the Structure of a Technical Logbook
Figure G17	Work Status in a Gantt Chart 699
Figure G18	Deadline Trend Diagram

Figure G19	Basic Elements of the Progress Curve 702
Figure G20	Example of the Line of Balance Tool (a) and (b)
Figure G21	Basic Elements of PMS
Figure G22	The Five-by-Five Model as a Scorecard 713
Figure G23	A Scorecard Example
Figure G24	Factors Influencing Resource Consumption
Figure G25	A Resource Planning Form for a Participant
Figure G26	Formulas in Successive Calculation 723
Figure G27	Example of Successive Calculation 724
Figure G28	Timeline for Cost Control Actions 726
Figure G29	Cost Control Activities
Figure G30	Cost Summary Take in Figure 729
Figure G31	Project Account
Figure G32	Types of Deliveries and Services
Figure G33	Typical Contract Elements
Figure G34	Example of a Hierarchical Influence Diagram
Figure G35	Example of an Influence Diagram 740
Figure G36	Example of a Goal-Means tree for a Hydro Power Project
Figure G37	Example of an Ovalogram 742
Figure G38	Symbols and Drawing Rules for an Ovalogram
Figure G39	Example of a Cause-Effect Diagram 744
Figure G40	Symbols in a Cause-Effect Diagram 744

Figure G41	Example of a Problem Matrix 745
Figure G42	Example of a Gap Analysis 745
Figure G43	Example of a Function Tree 746
Figure G44	Description of the Development Task 747
Figure G45	Example of a Systems Hierarchy 749
Figure G46	A Black-Box Description of a System 750
Figure G47	Illustration of Systems
Figure G48	Description of a System
Figure G49	Logical Framework Example
Figure G50	Activity-Oriented and Goal-Oriented Planning
Figure G51	Example of Content in the System Specification
Figure G52	Content in a Basic Product Specification 761
Figure G53	The Road to Quality
Figure G54	Quality Management Activities 762
Figure G55	Quality Assurance Plan
Figure G56	A Review Procedure
Figure G57	The Requirement Picture in QFD 767
Figure G58	Example of Requirements in QFD 768
Figure G59	Form for FMEA Analysis
Figure G60	Example of Types of Changes

About the Book

Professional projects are increasingly confronted by complexity and ambiguity. For successful project management, it is essential to understand the project environment, business, and organizational perspectives, and to identify and interact with stakeholders. Much of the training and teaching of project management is dominated by a belief in prescribed solutions and courses of action that fit all situations, but in order to cope with the challenges of modern projects, a more holistic approach is needed.

Project Management – A Multi-Perspective Leadership Framework suggests that managers view change as an integral part of project development, allowing leaders to better adapt to difficulties and incorporate multiple perspectives. Often, public and private projects do not lead to expected success because of insufficient management of organizational change. This book presents a circular planning process, taking the reader from the loose ideas of a project's inception through to its gradual coherence with the demands of the environment. It breaks a project down into five key elements, allowing managers to easily develop appropriate strategies. This is reflected in the broad spectrum of tools presented in the second part of the book, focusing on practical methods for both planning and leadership.

The book is targeted at practitioners who need an overview of project management techniques through a comprehensive framework and to graduate students who work with complex projects or who wish to relate their studies to broader corporate strategy.

Preface

Although project management is a rather new subject in management and organization theory, it has undergone significant developments in the last two or three decades, partly due to its widespread applications in almost all areas of society. The role of the project manager has changed from that of a planner to the role of a business developer.

For many years we have been interested in understanding the nature of the project environment, e.g., how to identify the kind and extent of uncertainties and ambiguity, how to come to grips with various kinds of complexity, and how to understand the political environment by asking who would like to see the project carried out, and who would be against it.

In recent years, this approach has been supported by new developments. For example, Agile Project Management has acknowledged that often no clear objectives of a project can be established in the early stages; rather a learning process should be staged in a dialog with customers and by means of a series of prototypes.

Lean Thinking has successfully been applied to production, service and product development with its focus on creation of value. This has also implications for project management to focus on creating effect in the receiving organization, and to ensure that stakeholders see the project as a success.

Rethinking project management has gained momentum in recent years. The starting point was an observation that a major part of the project management theory and practice was preoccupied with looking inwards to planning, organizing, and controlling of a project, rather than viewing a project in a larger context. For example, the Rethinking literature views a project as part of a strategic effort, and acknowledges the necessary organizational changes to take place in order to assure implementation of the project.

Our approach embraces these approaches and seeks to contribute to their further development by means of frameworks, models, and solutions.

We shall present five generic elements of a project, respectively, project management, project task, stakeholders (interested parties), resources, and project environment. This five-by-five model is used to identify the nature of a specific project and to develop appropriate approaches and means. It also allows a circular planning process that gradually leads to coherence among the five elements.

To better cope with the complexity of the project environment, this book adopts a multi-perspective framework by introducing four perspectives: a technical, a business, an organizational, and a stakeholder perspective. In this way, project management may be tied to corporate strategy and organizational development. Also, five dimensions of complexity will be identified and a number of means of managing complex situations will be presented.

In view of the diversity of projects, we have identified five generic types of projects, each with specific characteristics and practice. This has also led us to square up with a standard project phase model. In practice, we see numerous courses of action that reflect the specific situation of projects and that have been acted upon with great empathy and ingenuity. Instead of proposing a standard model for a project's course of action, we will present a spectrum of different models to support a situational approach.

The increased prevalence of projects has created a need to view several projects together. Therefore, we have written a separate chapter on management of several projects, with coordination of projects in a portfolio and a program as a central theme. Also, projects' role in corporate strategy is discussed. The chapter rests, among other things, on a survey and a development project that we have carried out in Danish companies.

The book is organized in two, almost equal parts: (1) a theoretical part covering key models and issues related to project management. The first part of each chapter introduces a few basic models to the subject of the chapter. The latter part elaborates on the subject by means of additional models and discussions. (2) Appendices with a number of tool sheets aimed at providing practical methods, techniques, and checklists associated with themes of the chapters.

This book is aimed at two groups of readers:

- Graduate students who work with complex projects in their studies and who want to adopt a broader view of project management. They may be inspired by examples from practice and exercises.
- Practicing and reflecting project managers who want to go beyond a specific project manual, to obtain an overview by means of a comprehensive and unified framework, and to be inspired to develop own solutions. Learning from own experience may be stimulated by reflecting on own practice in relation to general models and relevant tools. It may be supported by keeping a logbook with weekly descriptions of activities, important decisions and incidents. Mutual learning may be facilitated by forming an experience group of project managers.

It will require empathy, intuition, creativity, and interplay with people to work with projects on the basis of an effort to understand the project environment, including the uncertainty and complexity of the project task. This will make project management more challenging and also more interesting and rewarding. It may be relevant to ask if companies and institutions are willing to support a more situational, task-oriented and value-driven mode of working with projects, rather than focusing on complying with procedures and directions. We believe that a more systematic and

explicit delineation of the project conditions and a broad discussion of the project task will make it possible to clearly define the responsibilities of a project.

Often in the book, we use the term 'company' as the place where projects take place. It should be interpreted in a broad sense to include private and public companies, public institutions and administrations, as well as networks of organizations.

We are indebted to Ms. Anna Falcon Svendsen for her great effort to format our manuscript and figures into a readable form, and to Ms. Louise Olesen Kragh for editing our English manuscript and Ms. Kirstine Rosenkrands Mikkelsen for translation assistance. We thank Annette Wier for her vignettes. We would also like to thank Jaya Chowdhury (MPS Limited, Chennai, India), the Project Manager of our book.

Hans Mikkelsen Jens O. Riis April 2017