



CODE OF PRACTICE FOR
**PROJECT
MANAGEMENT**
FOR CONSTRUCTION AND
DEVELOPMENT



FIFTH EDITION

WILEY Blackwell

 **CIOB**
THE CHARTERED INSTITUTE OF BUILDING

Code of Practice for Project Management for Construction and Development

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Fifth Edition



WILEY Blackwell

This edition first published 2014
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Registered Office

John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ,
United Kingdom.

Editorial Offices

9600 Garsington Road, Oxford, OX4 2DQ, United Kingdom.
The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, United Kingdom.

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Library of Congress Cataloging-in-Publication Data

Code of practice for project management for construction and development. – Fifth edition.

pages cm

Coordinated by CIOB.

Includes bibliographical references and index.

ISBN 978-1-118-37808-3 (paperback)

1. Building-Superintendence. 2. Project management. I. Chartered Institute of Building (Great Britain)

TH438.C626 2014

690.068'4-dc23

2014017295

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

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Cover photo courtesy of iStock Photo

Cover design by Steve Flemming at Workhaus

Set in 10/13pt Franklin Gothic by SPi Publisher Services, Pondicherry, India

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Foreword

The first edition of this *Code of Practice*, published in 1992, set out a job specification for a project manager and provided guidance on the project manager's role. Since then project management has become an integral part of the construction industry and been responsible for its increased reliability and quality of product.

The next few decades experienced some significant changes within the industry with much focus towards changing our culture and communication. The interaction between the key participants in this industry, which produces many spectacular projects with increasing levels of complexity and technological prowess, continue to evolve around the necessity to deliver projects within an agreed budget, to a level of acceptable quality and within an agreed time scale.

The fourth edition, published in 2010, captured a range of themes across the industry. In this fifth edition, prepared in collaboration with a number of key professional bodies, the entire document has been overhauled to make it more contemporary while maintaining the integrity and rationale of the role of a project manager and project management in context of the construction industry.

Following the spectacularly successful delivery of the Olympics (London 2012) and continuing with the UK Crossrail project, construction is at the forefront of successful project management. This fifth edition, although developed specifically for the UK construction industry, will continue to satisfy the ever increasing demand for an authoritative document on this subject in other parts of the world.

I strongly commend this valuable multi-institutional code of practice to all the industry's clients, to practising project managers and indeed to all students of the subject and their mentors.

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Acknowledgements

The fifth edition of the *Code of Practice*, under the stewardship of David Woolven FCIQB, has strived to keep pace, and in places perhaps steer the directions ahead, in the construction industry which has been at the centre of economic regeneration and development across the globe.

In keeping with the fourth edition, the fifth edition has also been prepared by a broad representation of the industry, with contributions from built environment specialists and interdisciplinary cooperation between professionals within the built environment. I would like to take this opportunity to thank the many people who have helped with the fifth edition. A list of participants and the organisations represented is included in this book.

Specific note of thanks must go to Piotr Nowak, who has been ably and patiently assisted by Una Mair throughout the delivery process, for coordinating all the disparate elements of the review of the *Code of Practice* by maintaining the information flow and also for managing the digitalisation of all the figures and diagrams.

I would also like to thank Arnab Mukherjee, FCIQB, who led the editorial and drafting team, for the successful delivery of this document.

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O

Introduction

Project management

Project management has come a long way since its modern introduction to construction projects in the late 1950s. Now, it is an established discipline which executively manages the full development process, from the client's idea to funding coordination and acquirement of planning and statutory controls approval, sustainability, design delivery, through to the selection and procurement of the project team, construction, commissioning, handover, review, to facilities management coordination.

This *Code of Practice* positions the project manager as the client's representative, although the responsibilities may vary from project to project; consequently, project management may be defined as 'the overall planning, co-ordination and control of a project from inception to completion aimed at meeting a client's requirements in order to produce a functionally and financially viable project that will be completed safely, on time, within authorised cost and to the required quality standards'.

The fifth edition of this *Code of Practice* is the authoritative guide and reference to the principles and practice of project management in construction and development. It will be of value to clients, project management practices and educational establishments and students, and to the construction and development industries. Much of the information contained in the *Code of Practice* will also be relevant to project management practitioners operating in other commercial spheres.

Definitions

There are many definitions in existence for the term 'Project Management'. The CIOB, in this Code of Practice, and in all other publications, uses the following definition:

Project management

The overall planning, coordination and control of a project from inception to completion aimed at meeting a client's requirements in order to produce a functionally viable and sustainable project that will be completed safely, on time, within authorised cost and to the required quality standards.

Table 0.1 summarises a number of definitions of project management, as practiced by a selection of leading organisations involved in project management within the construction and building industry in UK.

Table 0.1 Definitions of project management

Organisation	Definition of project management
Chartered Institute of Building	The overall planning, coordination and control of a project from inception to completion aimed at meeting a client's requirements in order to produce a functionally viable project that will be completed safely, on time, within authorised cost and to the required quality standards.
Association for Project Management	The application of processes, methods, knowledge, skills and experience to achieve the project objectives. ¹
British Standards 6079:2010	A unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters.
Office of Government Commerce (Department of Business, Innovation, and skills)	The planning, monitoring and control of all aspects of the project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance. ²
International Organization for Standardization 21500:2012	Project management is the application of methods, tools, techniques and competencies to a project. Project management includes the integration of the various phases of the project lifecycle.
International Project Management Association ³ IPMA	Project management (PM) is the planning, organising, monitoring and controlling of all aspects of a project and the management and leadership of all involved to achieve the project objectives safely and within agreed criteria for time, cost, scope and performance/quality. It is the totality of coordination and leadership tasks, organisation, techniques and measures for a project. It is crucial to optimise the parameters of time, cost and risk with other requirements and to organise the project accordingly
Project Management Institute ⁴ PMI	Project management is the application of knowledge, skills and techniques to execute projects effectively and efficiently. It is a strategic competency for organisations, enabling them to tie project results to business goals – and thus, better compete in their markets.

¹Definition as available at <http://www.apm.org.uk/content/project-management> (accessed November 2012).

²Definition obtained from OGC Glossary of Terms & Definitions v06 March 2008 – at the time of publication the document is available at www.gov.uk through publications of the Department of Business, Innovation & Skills.

³Definition obtained from ICB 3.0 – page 127.

⁴Definition as available at <http://www.pmi.org/About-Us/About-Us-What-is-Project-Management.aspx> (accessed February 2013).

Characteristics of construction projects

Construction projects have inherent features that make them highly complicated enterprises. These features are characterised by high levels of complexity, uncertainty and uniqueness and include

- Complexity created by the fragmentation of the organisational mechanism by which most projects are delivered. Usually the project delivery team is external to the client organisation, there is a separation between the designers and the constructors and the requirement for a wide range of specialist knowledge and skills demands the involvement of a large number of consultants, contractors, suppliers and statutory bodies.
- Complexity of the technology involved in the construction of modern buildings.
- Logistical complexity created by the locational aspects of projects – the site being a fixed location means that everything else must be taken to it. It is likely logistical complexity will be increased in a highly urbanised country where the pressure on land means the building footprint is likely to be the same as the site area, leaving minimal working space.

- Uncertainty created by exposure to the extremes of the weather.
- Uniqueness of each project; the project organisation and the participants vary, site conditions are different, technology adopted for the building varies, external influences on the project will be different and client constraints will be different.
- Uncertainty caused by the time necessary for the project life cycle. The longer the period of time, the greater the opportunity for the project to be impacted by changing external circumstances, such as economic conditions, or by changing client requirements.

Further pressures are created by a client needing to commit to key criteria such as the project duration and cost budget at an early stage, often before the full implications of what the project actually is about and how it is to be implemented have been developed in detail.

Most participants to the project are involved because they are offering a service or product as part of their business activity. It is usual practice for this involvement to be a formal contractual agreement with an agreed fixed, lump sum price based on a definition of the service or product required. Throughout their contribution to the project, participants are therefore balancing protecting their commercial position with working towards helping to achieve the overall project objectives. This relationship is not without difficulties and does not always work to the best advantage of the client or the project.

Characteristics of construction project management

Construction projects are intricate, resource consuming and often complex activities. The development and delivery of a project typically consists of several phases, sometimes overlapped but always linked, requiring a wide variety of skills and specialised services to balance the key project constraints (Figure 0.1). In progressing from initial feasibility to completion and occupation, a typical construction project passes through successive somewhat distinct stages that necessitate input from such asynchronous areas such as financial institutions, regulatory and statutory organisations, members of the public, engineers, planners, architects, specialist designers, cost engineers, building surveyors, lawyers, insurance companies, constructors, suppliers, tradesmen and cost managers.

During the construction stage itself, a project of relatively simple design and methodology involves a wide range of skills, materials and a plethora of different but often sequential activities and tasks that must follow a predetermined order that constitutes a complicated and sensitive pattern of individual criteria and restrictive sequential relationships.

The Construction Industry Council (CIC) suggests that the primary purpose of project management is to add significant and specific value to the process of delivering construction projects.¹ This is achieved by the systematic application of a set of generic project-orientated management principles throughout the life of a project. Some of these techniques have been tailored to the sector requirements unique to the construction industry.

The function of project management is applicable to all projects. However, on smaller or less complex projects, the role may well be combined with another discipline, for example, leader of the design team. The value added to the project by project management is unique: no other process or method can add similar value, either qualitatively or quantitatively.

¹ Construction project management skills.pdf, at <http://www.cic.org.uk> (accessed April 2014).

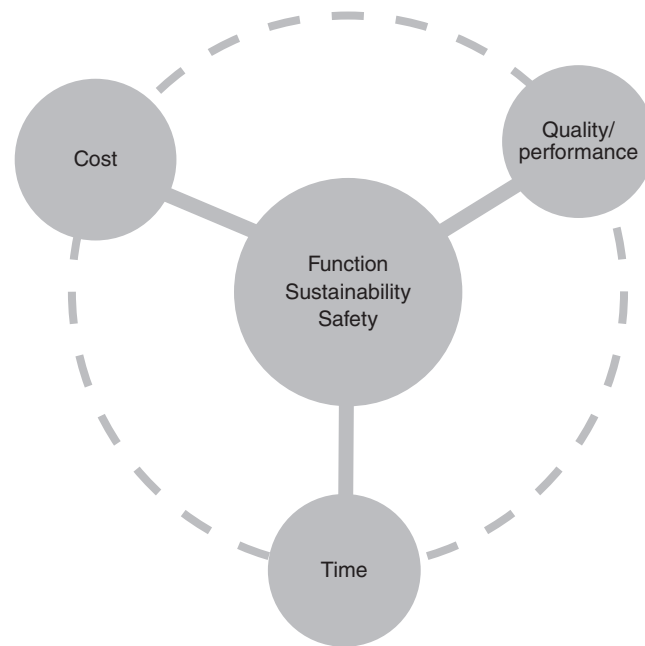


Figure 0.1 Key project constraints.

Adding value

The raising of standards should lead significantly to the adding of value. Greater awareness can result in better design, improved methods and processes, new material choices, less waste, decreases in transportation costs and ultimately more efficient buildings, all of which can bring added value to the whole development process.

Scope of project management

Construction and development projects involve the coordinated actions of many different professionals and specialists to achieve defined objectives. The task of project management is to bring the professionals and specialists into the project team at the right time to enable them to make their best possible contribution, efficiently.

Professionals and specialists bring knowledge and experience that contributes to decisions, which are embodied in the project information. The different bodies of knowledge and experience all have the potential to make important contributions to decisions at every stage of projects. In construction and development projects, there are far too many professionals and specialists involved for it to be practical to bring them all together at every stage. This creates a dilemma because ignoring key bodies of knowledge and experience at any stage may lead to major problems and additional costs for everyone.

The practical way to resolve this dilemma is to carefully structure the way the professionals and specialists bring their knowledge and experience into the project team. The most effective general structure is formed by the eight project stages used in this *Code of Practice's* description of project management.

Project lifecycle

The different stages of the project lifecycle as identified across the industry have been summarised and compared in Figure 0.2.

Code of Practice for Project Management	Royal Institute of British Architects (RIBA) Plan of Work 2013	BIM Digital Plan of Work 2013	BS 6079-1:2010	ISO 21500:2012
1 Inception	0 Strategic definition	1 Strategy	1 Conception	1 Initiating
2 Feasibility	1 Preparation and brief	2 Brief	2 Feasibility	2 Planning
3 Strategy	2 Concept design	3 Concept 4 Definition	3 Realisation	
4 Pre-construction	3 Developed design 4 Technical design	5 Design		3 Implementing
5 Construction	5 Construction	6 Build & commission	4 Operation	4 Controlling
6 Testing and commissioning	6 Handover & close out	7 Handover & close out		
7 Completion, handover and operation	7 In use	8 Operation & end of life	5 Termination	5 Closing

Figure 0.2 Project lifecycle.

In many projects, there will be a body of knowledge and experience in the client organisation which has to be tapped into at the right time and combined with the professional and specialists' expertise.

Each stage in the project process is dominated by the broad body of knowledge and experience that is reflected in the stage name. As described earlier, essential features of that knowledge and experience need to be taken into account in earlier stages if the best overall outcome should be achieved. The way the professionals and specialists who own that knowledge and experience are brought into the project team at these earlier stages is one issue that needs to be decided during the strategy stage.

The results of each stage influence later stages, and it may be necessary to involve the professionals and specialists who undertook earlier stages to explain or review their decisions. Again, the way the professionals and specialists are employed should be decided in principle during the strategy stage.

Each stage relates to specific key decisions (see Table 0.2) Consequently, many project teams hold a key decision meeting at the end of each stage to confirm that the necessary actions and decisions have been taken and the project can therefore begin the next stage. There is a virtue in producing a consolidated document at the end of each stage that is approved by the client before proceeding to the next stage. This acts as a reference mark as well as acting as a vehicle for widespread ownership of the steps that have been taken.

Having considered the social, economic and environmental issues, projects begin with the inception stage which starts with the business decisions by the client that suggest a new construction or development project may be required. Essentially, the inception stage consists of commissioning a project manager to undertake the next stage which is to test the feasibility of the project. The feasibility stage is a crucial stage in which all kinds of professionals and specialists may be required to bring many kinds of knowledge and experience into a broad ranging evaluation of feasibility. It establishes the broad objectives and an approach to sustainability for the project, and so exerts an influence throughout subsequent stages.

The next stage is the strategy stage which begins when the project manager is commissioned to lead the project team to undertake the project. This stage requires the project's objectives, an overall strategy and procedures in place to manage the sustainability and environmental issues, and the selection of key team members to be considered in a highly interactive manner. It draws on many different bodies of knowledge and experience and is crucial in determining the success of the project. In addition to selecting an overall strategy and key team members to achieve the project's objectives, it determines the overall procurement approach and sets up the control systems that guide the project through to the final post-completion review and project close-out report stage. In particular, the strategy stage establishes the objectives for the control systems. These deal with much more than quality, time and cost. They provide agreed means of controlling value from the client's point of view, monitoring time and financial models that influence the project's success, managing risk, making decisions, holding meetings, maintaining the project's information systems and all the other control systems necessary for the project to be undertaken efficiently.

At the completion of the strategy stage, everything is in place for the pre-construction stage. This is when the design is developed and the principal decisions are made concerning time, quality and cost management. This stage also includes statutory approvals and consents, considering utility provisions such as water and electricity, monitoring of the environmental performance targets, and bringing manufacturers, contractors and their supply chains into the project team. Like the earlier stages, the