

Sixth Edition

Project Management, Planning and Control

Managing Engineering, Construction and Manufacturing Projects
to PMI, APM and BSI Standards

Albert Lester

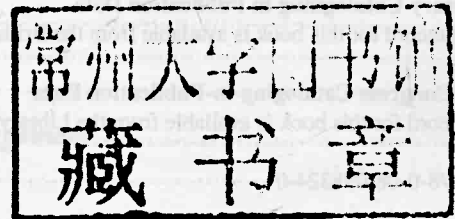


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Preface

The shortest distance between two points is a straight line.

—Euclid

The longest distance between two points is a shortcut.

—Lester

Project management, like every other aspect of life, is constantly changing and developing, so that for a textbook to remain relevant, it inevitably has to be updated periodically to reflect these changes. In the case of project management training, these changes are mainly ones of emphasis on particular topics as perceived by setters of examination papers or compilers of national or international standards. The soft topics now feature more widely in examination questions and although these are not unique to project management they are, of course, part and parcel of good general management. Whether industry attaches the same importance to some of these emphasised topics is a matter of debate. Nevertheless, a number of changes have been incorporated in this 6th edition to enable the reader to keep abreast of events.

Shortly after the 5th edition was published, The APM added Project Governance to the syllabus of the APMP examination and a new chapter on this important topic has therefore been added. This was specially written by David Shannon, Managing Director of Oxford Project Management Ltd., who is an acknowledged expert on the subject and was the founder of the APM Specific Interest Group on Governance.

A major change in the book is the replacement of the Hornet Windmill computer program by the well-known Primavera P6 project management program. Although Hornet Windmill still is an excellent system, it is unfortunately not marketed anymore by its originators, Claremont Controls. I decided therefore to include a new chapter specially written by Arnaud Morvan from Milestone Ltd., which describes the latest version of Primavera P6 (now part of Oracle), which was used on numerous infrastructure projects such as Transport for London, Network Rail, and Heathrow Airport. Although P6 incorporates planning, performance, cost, earned value, and risk management I must still emphasise that although modern computerised project management programs are now very sophisticated, more user friendly, and have greater functionality, unless a planning network (especially for large or complex projects) is first

drafted by hand by the project manager and his team, the full benefits of network analysis, such as the earliest possible completion, may not be realised.

Other changes include incorporating precedence (AoN) diagrams, scaled networks, and bar charts in the chapter on basic network principles, merging the sections on graphical and computer analysis, and combining the section on arithmetical network analysis with float, since the manual calculation of float is really only a matter of arithmetic. The importance of an understanding and the use of float to obtain the shortest completion date with the most efficient use of resources is still not fully appreciated by many planners and this has therefore been highlighted by additional text in this new combined chapter.

On network analysis, the book covers the whole spectrum, from the first principles of CPM through some early techniques (now only of historical interest) to the latest sophisticated computer software.

Although, with the use of modern computers, it is not necessary anymore to number the activities before carrying out an analysis (either manually or by computer), the section on numbering has still been retained for the benefit of readers interested in the historical development of network analysis.

The chapter on cost control and earned value analysis (EVA) has been amended to make it clearer that there is no difference between SMAC, the earned value system developed by Foster Wheeler Power Products in 1978 and first mentioned in the 2nd edition, and EVA (or EVM) as it is now universally called. A number of new developments have taken place over the last few years, and these have also been incorporated.

Apart from the changes to the text of the last (5th) edition, two major topics have been added. The first is a new chapter on agile project management written by Graham Collins, who, with colleagues, has pioneered methods that are used successfully to develop strategic programmes. His teaching at University College London covers the latest approaches to agile project management and his current research and consulting is in collaboration with ThoughtWorks. The second is a new chapter on BIM (Building Information Modelling) contributed by Clive Robinson, Products Manager from Tekla (UK) Ltd. BIM is now being adopted by many of the large consulting and construction companies, and with strong backing from government departments, will no doubt become the standard methodology for the construction industry in the future.

The glossary has been updated with the latest terminology adopted by the revised BS 6079-1:2010 (Project Management) and the new ISO 21500:2012 (Guidance on Project Management), as have the cross-references to the APM and PMI Bodies of Knowledge. Finally, some of the older publications have been dropped from the revised bibliography, which has been brought up to date by including the latest books on project management.

A. Lester

Foreword to the First Edition

*by Geoffrey Trimble, Professor of Construction Management
University of Technology, Loughborough*

A key word in the title of this book is 'control'. This word, in the context of management, implies the observation of performance in relation to plan and the swift taking of corrective action when the performance is inadequate. In contrast to many other publications which purport to deal with the subject, the mechanism of control permeates the procedures that Mr. Lester advocates. In some chapters, such as that on Manual and Computer Analysis, it is there by implication. In others, such as that on Cost Control, it is there in specific terms.

The book, in short, deals with real problems and their real solutions. I commend it therefore both to students who seek to understand the subject and to managers who wish to sharpen their performance.

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The author and publishers acknowledge with thanks all the individuals and organisations whose contributions were vital in the preparation of this book.

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Graham Collins from UCL for providing the description of Agile Project Management.

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British Standards Institution for permission to reproduce extracts from BS 6079-1-10 (Project management life cycle and BS5499-10-2006 (Safety signs). British Standards can be obtained in PDF or hard copy formats from the BSI online shop: "<http://www.bsigroup.com/Shop>" www.bsigroup.com/Shop or by contacting BSI Customer Services for hardcopies only: Tel: +44 (0)20 8996 9001, Email: "<mailto:cservices@bsigroup.com>" cservices@bsigroup.com.

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Jane Walker and University College London for permission to include diagrams in the chapters on project context, leadership, and negotiations.

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