

# John-Paris Pantouvakis Review

**Title:** MANAGEMENT OF ENGINEERING PROJECTS – People are Key

**Editors:** Bakker, H.L.M, de Kleijn, J.P.

**Publisher:** NAP – The Process Industry Competence Network, [www.napnetwerk.nl](http://www.napnetwerk.nl)

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**Reviewed by:** Professor John-Paris Pantouvakis, Ph.D.

**Level of education or training:** Advanced

**Suitable IPMA Certification Level(s):** B and A. Particularly relevant to green field, brown field and infrastructure projects. Chapters 12 and 13 are in particular relevant also for Level C certification of project managers with related experience.



## Short Presentation

The book, a collective work edited by Prof. Hans Bakker and Dr. Jaap de Kleijn, is developed on the premise that with a focus on both the people who form the project team and a fit-for-purpose management approach, the successful delivery of technical projects may become more predictable.

The book is published by NAP, the competence network of the Dutch Process Industry since 1960. NAP's Members include asset owners, equipment manufacturers, engineering firms and construction companies. The organization represents the entire value chain in the Netherlands. Members actively participate in NAP activities, including, but not limited to educational issues. One such educational activity is the establishment and financial support (since the 1990s) of the Chair on the Management of Engineering Projects at the Delft University of Technology, currently held by Prof. Hans Bakker. Prof. Bakker is following the legacy of previous Chairs in delivering a master's course on Management of Engineering Projects. At this particular course, the origins of this book can be found.

More precisely, the book started as a reader, based on chapters of existing books that supported the delivery of the course. Over the years, some of the 15 authors of the book delivered guest lectures and finally, based on NAP sponsorship and support, the material used for the course further developed into its current form, i.e. a book centered on people managing engineering projects. Indeed, the book is relevant to green field (i.e. a new developments), brown field (i.e. expansions or alterations to existing plants) and infrastructure projects.



The book is based on a number of unique features. More precisely:

- Project Management is considered from the viewpoint of the people who populate the project teams and join hands within the team to achieve success. After all, the people are responsible for making the difference in applying processes, knowledge and experience. Therefore, the first feature, which makes this book unique, is that management of projects is actually about people who are considered the key.
- The second unique feature of the book is the importance given to stakeholder management (or "interested parties in IPMA's jargon) with particular consideration on how stakeholder support and commitment can be broadened for the benefit of the project implementation. Front-end development and early involvement of all key stakeholders is suggested as being crucial for project success. A chapter is devoted to "Opportunity Framing" to discuss how broad support and commitment by the project stakeholders as well as project enrichment can be achieved.
- The third unique feature of the book is the proposal for scaling the project management approach to the characteristics of the project, making sure that project management it neither overdone nor underdone. In addition, fit-for-purpose contractual arrangements between owner and contractor are discussed, as well as key elements of project monitoring and control.
- The fourth feature is the implementation of an "operational readiness" concept enabling flawless start-up and operational excellence. Links to the EFQM model and the IPMA Excellence Award are also provided.
- Finally, a chapter is devoted to future trends and challenges for the management of engineering projects as perceived by leading industrial organizations in the field.

The book's ambition is to contribute to the successful delivery of engineering projects by presenting the relevant theoretical concepts coupled with selected practical insights from a case study that is discussed in parallel. With the focus put on people, stakeholder involvement and on scaling the project management approach to fit-for-purpose, it is claimed that the ambition can be realized in practice once the theoretical concepts are mastered.

## Contents of the book

The book follows the project management lifecycle from the pre-project to the post-project phases, starting from project appraisal and ending with project operation. The material is well organized, readable and makes frequent reference to existing project management standards including ISO 21500 and the standards offered by PMIBoK, IPMA ICB 3 and PRINCE2. A sound grounding on existing literature is also made with more than 100 references used.

In Chapter 1 (Introduction) the origins of project management as well as the development of project management over the years is made. Basic concepts and definitions, as well as the discussion of the project management lifecycle are also included. The chapter concludes with the presentation of a case study brief which will be used throughout the book.

Following Chapter 1 the remaining chapters are organized in five sections; Preparation, setting the scene, time and money, people at work and outlook.

Chapters 2, 3 and 4 belong to the preparation section. Chapter 2 (Project portfolio management and project selection) discusses the balancing of requirements of a project portfolio aligned to the strategy and the business case of an organization as well as issues related to project selection. Chapter 3 (The project manager) is devoted to the activities, roles, competences and attitudes of a project manager. Typical career paths and development of project manager competences are also discussed. Finally, in Chapter 4 (Building and leading the team) issues relating to staffing and building up of a coherent project team through the five-team development stages (forming, storming, norming, performing and adjourning) are presented.

The next section of the book (setting the scene) consists of chapters 5 (Value and project assurance), 6 (Opportunity framing), 7 (Front-end development) and 8 (project risk management). Chapter 5 is devoted to the discussion of the principles behind a well-planned and properly executed project assurance process (also called "assurance of the management quality in projects" in other books) which will be risk scaled and applied in an integrated manner to support the project and its sponsors. In this context, project assurance is related to internal (by the team) and external (by the sponsor) project management auditing and not to project controlling. The process is assisted by the definition of clear roles and responsibilities, efficient use of project consulting, build-up of a high-trust working environment, self-assessment and lack of perceived over-controlling by project members. Chapter 6 is devoted to "opportunity framing" (a concept related to "project anchoring" as referred to by other books) as a means to add value to a project by framing or re-framing the project concept using new technologies or ideas or by adding scope in cooperation with the project stakeholders (interested parties) in order to contribute to project success. Project success in this context is the achievement of maximum user, social and economic benefits in the whole project lifespan using, for example, Value Engineering principles and not merely the completion of the physical project on time, on budget and on specification. Chapter 7 relates to the early project phases (sometimes referred to as the "project start-up") where fit-for-purpose Value Improving Practices (VIPs), VIPs benchmarking and lessons-learned based on this phase is discussed. The issues of safety and sustainability are also addressed. Chapter 8 deals with the why, what and how of threats and opportunities (risks) pertinent to managing projects with a view of clarifying the related concepts and enabling its application in practice.

The next section of the book (time and money) consists of chapters 9 (contracting), 10 (Project Monitoring and Control) and 11 (economic project evaluation) further discussing elements of the front-end development phase (chapter 7). Chapter 9 presents different types of contracts related to engineering projects and discuss fit-for-purpose contractual arrangements including equitable allocation of risk. Issues of contract management are also discussed. Chapter 10 presents cost estimating, planning and scheduling based on critical path methods, project monitoring, progress reporting and earned value analysis, as well as fit-for-purpose establishment of project controls. Finally, chapter 11 discusses economic evaluation of projects depicting their financial viability. Basic economic parameters (such as Return on Investment (ROI), Present Value (PV) and Internal Rate of Return (IRR)) are defined and sensitivity analyses of project cash flows and their significance are studied.

The semifinal section (people at work) consists of chapter 12 (construction) presenting the steps of the construction and pre-commissioning process and chapter 13 (operational readiness, commissioning and start up) discussing the handing over of the project results to the asset manager and the starting up of the operation. More specifically, chapter 12 deliberates on the intricacies of construction project management and the special considerations applicable such as climate, logistics, and the impact of the local community and the availability of labor. Issues of Health, Safety and the Environment (HSE), constructability, direct hire vs subcontracting, issues of construction execution (such as temporary facilities and construction sequence), construction quality management and mechanical completion and pre-commissioning are also addressed. Finally, chapter 13 discusses "operational readiness" (or OR&A or combat readiness), commissioning and start up, issues of operational excellence linked to the EFQM and IPMA Award models, project closing and capturing of lessons learned.

The final section (outlook) consists of chapter 14 (trends and challenges) deals with reflections on present performance of the management of engineering projects, the vision of the industry institutes (Project Management Institute, Construction Industry Institute, European Construction Institute and International Project Management Association). The chapter concludes with academic perspectives and proposals for future challenges that should be met.

## Commentary and relation to ICB

The book presents an advanced, independent and a somewhat academic view on the management of engineering projects. In fact, the book is an excellent academic resource particularly suited as reading material for advanced University courses on engineering management. Thorough study is, however, recommended before some of the techniques and methods described in the book are put in actual practice.

As a teaching resource the book does not include an adequate number of questions, self-assessment exercises and learning activities. Although frequent references to a case study are made throughout the book, and practical issues are discussed, much is left to the instructor of the course on this respect. The excellent presentation, readability and editing of the book make up for some of this deficiency plus the inferred premise from the overall quality of the book that the authors have never aimed at producing a 'recipe' manual. Nonetheless, enhancements and additions to the case study discussed in the book would have been most welcome. In addition, the project management plans of the case study, along with their assumptions, affect, practical difficulties and lessons-learned may be a useful future addition for both students and professionals alike.

The book is "people-centric", "leaning towards project stakeholders" and "method fit-for-purpose oriented" and as such shares fundamental views with IPMA. However, a number of issues dealt with in the book are not really aligned to ICB or other IPMA standards as there seems to be a preference to embrace authors' personal experiences for what works in practice. ICB is by enlarge treated as a separate subject. As an immediate consequence, the

book may not be that much relevant to the beginner on the IPMA certification process at least as much as other IPMA E&T recommended books such as those authored by Hermanrij, J. (2013) and Fangel, M. (2013). IPMA certification level B or A applicants are expected to benefit the most from reading the book.

Finally, the book addresses directly or indirectly a number of technical, contextual and behavioral competences as described in the ICB and provides a fresh and independent view of the relevant concepts. This, along with the overall quality of the book renders it as a valuable learning resource for people interested in a deeper understanding on current project management issues.

## Conclusion

An interesting, professionally edited and very readable book that presents an independent view of people-centric management of engineering projects. It is a very useful addition to the existing body of literature and a valuable learning resource for the more developed and experienced project managers that want to refresh or broaden their insights in managing engineering projects.

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