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BOOK REVIEW

Industrial megaprojects: concepts, strategies and practices for success

Merrow, E.W. 2011, *Industrial megaprojects: concepts, strategies and practices for success*, Hoboken, NJ: John Wiley & Sons. 384 pages. ISBN: 978-0-470-93882-9. AUD\$85.95 (hardcover)

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RELEVANCE OF THIS BOOK TO:

RESEARCHERS

The book is based on real data, collected from over 318 megaprojects, providing useful guidelines to evaluate megaprojects.

PRACTITIONERS

Sound advice is provided for both project owners and project managers, including practical information on making the right decisions before and during a project, as well as setting up project teams, contracting, and risk management. The book elaborates on mistakes that are often made on megaprojects.

ABSTRACT

This is a review of a recent book by an experienced practitioner and researcher of megaprojects, who has been writing about the subject for three decades. It focuses on industrial megaprojects, mainly in oil and gas production, petroleum processing and refining, minerals and metals processing, chemical and liquefied natural gas plants, and power generation and pipelines. The book is written from the perspective of project owners, but contains some good advice for project managers as well.

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Edward Merrow's book is a welcome addition to the growing literature on megaprojects. Merrow defines his focus as industrial projects, compared with other classes of important megaprojects such as "military developments, purely public works and transportation" (p. 14).

Professor Bent Flyvbjerg (who directs a megaproject research centre at the Saïd Business School at the University of Oxford, in the UK) [defines a megaproject](#) as a major infrastructure project that attracts a high level of public attention or political interest because of substantial direct and indirect impacts on the community, environment, and budgets. Zhai et al. (2009) add that megaprojects exhibit "extreme complexity, substantial risks, long duration, and extensive impact on the community, economy, technological development, and environment of the region or even the whole country." Megaprojects are often criticized for not being able to deliver their intended benefits, while exceeding the cost and scheduled completion date – yet more and more are being undertaken around the world, especially in emerging economies. Hence the topic of how to manage megaprojects better is of great interest to project management researchers, and Merrow's book provides some excellent insights into why things go wrong and what to do about it.

Merrow is not a newcomer to this field. He has been writing about large projects since his days at RAND Corporation, where he worked as a research analyst and director of the energy policy program in the early 1980s. Two publications from his work at RAND (Merrow, Philips & Meyers 1981; Merrow, McDonnell & Arguden 1988) and the data his firm Independent Project Analysis (IPA) has collected serve as the foundations for this book. IPA has accumulated data about 318 megaprojects over the years, mainly in oil and gas production, petroleum processing and refining, minerals and metals processing, chemical and liquefied natural gas plants, and power generation and pipelines.

In his foreword to the book, James Porter states: "Data from more than 300 global megaprojects shows that 65 percent of industrial projects with budgets larger than US\$1 billion in 2010 failed to meet their business objectives" (p. vii). Porter emphasizes the contribution that Merrow's book will make, as it "lays out ways to overcome the largest challenge in successful implementation of megaprojects – enabling the business and technical professionals to work together collaboratively as a fully integrated team" (p. vii). Merrow claims that his book is a primer on what to do and what not to do, as part of end-to-end megaproject management.

A glance at the chapters reveals the importance Merrow places on data and the use of good data in decision-making, in carefully shaping the project at the front-end, and in managing people and project teams. This is a highlight of the book, distinguishing it from other literature on megaprojects. While Merrow has expanded on the work of Miller & Lessard (2000), which deals with the importance of shaping large engineering projects, there are some very practical discussions on how to get the shaping right, including two case studies. Merrow has also acknowledged the importance of two widely referenced books on large or megaprojects, and included chapters on topics that these other books cover: risk (Flyvbjerg 2003) and success (Morris & Hough 1987).

Merrow opens the introduction to *Industrial megaprojects* by stating that his book is mostly about "mistakes" that could have been avoided. He explains that while engineers can make small mistakes, it's senior managers and sponsors who usually make the big mistakes. This book has plenty of advice for the latter, but is also offers valuable insights for project managers.

Merrow starts the book with seven big mistakes that are made on megaprojects, which he calls the "Sorry Seven" (p. 2). While some of them are similar to the mistakes we often

encounter on smaller projects, there are some specific points of difference. Merrow's focus on mistakes certainly sets the scene, and is a clever way to evoke interest! The Sorry Seven are:

1. "I want to keep it all" (which is about the proper allocation of project value and being less greedy).
2. "I want it NOW!" (pressure to move the project along faster – and experienced project managers know exactly what that does).
3. "Don't worry, we'll work out the details of the deal later" (the business deal and the projects have to develop together, even if the deal governs).
4. "Why do we have to spend so much up front?" (the problem with skimping on the front-end definition of a project).
5. "We need to shave 20 percent off that number" (ignoring the effects of cost cutting on other aspects of a project).
6. "The contractors should carry the risk" (they're doing the project emphasizing appropriate risk allocation).
7. Fire those #@\$^! project managers who overrun our projects!

Part 1, titled "Understanding the projects," provides an introduction to issues faced in megaprojects and advice on how to use data to evaluate project outcomes. I particularly liked Chapter 1, "Data and methods," which shows how data should be collected and who should be involved in the collection. It also explains the methodology used for analyzing the data. The importance of using the data in evaluating project outcomes, described in Chapter 2, and the thresholds used for failure, are very useful in analyzing megaprojects. The radar diagram (Figure 3.1, p. 48) clearly shows the overall differences between successful and failed projects.

Part 2 of the book, titled "Making the right decisions before you commit," points out the importance of the shaping process. Five steps are suggested in Chapter 4, to achieve good shaping:

- Understand the context clearly. The highlights here are about evaluating local conditions, including the history of projects in the location, the political and institutional environment, the regulatory climate, the cultural climate (including religious issues), labour availability, and the inclusion of local content.
- Assess the potential value. The key point to focus on is the importance of weighing the project environment against the anticipated value and the number of claimants for that value, without which a lucrative project could turn sour very quickly.
- Assess the competitive advantage. Look at the business objective, and balance it with the team objectives, giving due consideration to the project team interface.
- Determine stakeholder expectations. The highlight here is the advice to identify all stakeholders and their claims early, to help decision-making.
- Think about partners and consider their interests. Ensure they help to share the risk, and do not create it.

Chapter 5 is about devising a shaping strategy. Here the highlights are developing "kill criteria" for a project (which are often ignored, even on smaller projects) and the use of real options, which are becoming more popular in project portfolio management. The chapter includes two case studies, one describing a successful shaping strategy and the other an unsuccessful strategy. These are of great value to readers.

Part 3 of the book, titled "Making the right project decisions," contains good points on project implementation. In this part, the two chapters on teams align with the book's claim

that “people do projects.” In Chapter 8, I liked the particular stress on having strong owner teams, which I have found a problem on large projects that I have managed. I also liked the focus on team leadership and the importance of continuity. How often do we see project teams flounder due to change of personnel? Chapter 9 focuses on organizing the project team, and encourages the reader to consider alternative models to traditional models, including hub, satellite, and organic.

Overall this book is a useful and practical addition to the megaproject literature, which could also help public projects in certain aspects, even though this book is more about private sector projects. The book certainly delivers what it claims to do: help leaders and stakeholders of future megaprojects to be aware of the pitfalls in megaproject management, especially at the front-end, so that they can avoid common mistakes.

About the author

Shankar Sankaran is a Professor of Organizational Project Management at the University of Technology Sydney. He has been involved in community projects carried out by not for profit organisations for more than twenty years. He completed an Australian Research Council funded research grant studying leadership development in not-for-profit organisations in health and community care. He teaches advanced level subjects at a Master of Project Management Course at his University where his students work on community projects. Shankar’s research interests are in organizational project management systems thinking and action research.

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