



B O O K S

*Practical guidebook of management tools
Engineering and Product Development Management: The Holistic Approach*

Stephen C. Armstrong, \$98, ISBN 0521790697, hardcover, 368 pp, Cambridge University Press

Technological changes, global competition, and customer demands have significantly reshaped the landscape of engineering planning and design, marketing, and manufacturing of products. Management and engineering teams face the increased challenges of formulating and implementing survival and growth strategies, reducing cycle time and improving cost performance and product quality. Engineering managers and engineers must seek and deploy new approaches beyond conventional methods of engineering and product development.

Given the current climate, Stephen Armstrong's book is an invaluable resource that advocates the integration of technical aspects of engineering with leadership and process management. It highlights an integrative thinking approach to engineering management and suggests a learning-to-learn structure for the integration of product development, project/program management, process management, organizational change management, product data management and system engineering.

Unfortunately, our engineering schools do not teach the discipline of engineering management to students. The University of Toronto has recently offered The Jeffrey Skoll Program—combined studies of BAsC and MBA degrees with a Management Experience Year (MEY)—as one of the Canada's first engineering-MBA programs. However, limited numbers of students get into the program (eight students in 2003). It is my view that the discipline of engineering management must be taught as a mandatory engineering course. This is critical to ensure engineers are properly prepared to understand and manage functional and process-based work flows, and understand the key ingredients to the engineering operation.

Armstrong's "holistic approach" helps to bridge this educational gap by offering a practical guidebook of management tools.

Work breakdown structure, customer deliverables, and alignment of activities to the business processes and objectives are used for defining and structuring processes. The concept of an integrated master plan is presented for the organization and documentation of engineering tasks through a team approach. The importance of managing key stakeholders and understanding their roles and responsibilities for effective project management and product development are well covered. Leadership and executive commitment and emphasis on planning and control are noted as the most important ingredients of success for program and project management.

The book offers useful risk assessment management tools in the form of questionnaires, summary sheets and tables. A quality assurance (QA) framework for uncovering errors is outlined to assess deliverable compliance to customers' requirements and ensure completeness and consistency in product delivery. The concept of product data management is illustrated effectively using tables and diagrams that explain key linkages to process management. The emphasis on the "people side" of engineering management and consideration for organizational change is also well done.

In fact, the book offers rich resources, including numerous tables, figures, and templates. It is an excellent addition to the libraries of planning, design, and operation engineers, consulting engineers, project and program managers, engineering managers, directors and executives.

Reviewed by Daria Babaie, P. Eng., Director, Administrative Services, PEO

This is the second review of this book to appear in Engineering Dimensions in order to obtain original observations from a P.Eng. working in the field.



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