

FOREWORD

The vision of engineering management presented by Stephen Armstrong is one that is both broad in its context and deep in its coverage. He offers the engineering project manager with a extensive set of management tools that, when used in total, will assure project success while improving overall project engineering effectiveness. Managers that employ this methodology will soon find this to be their indispensable desktop reference manual as the progress through the phases of product development.

The demands on the modern engineering manager are greater than they have ever been and the challenges to program success continue to grow exponentially. The rapid growth of technology has resulted in most of the products being developed by current and future companies - large and small – being inordinately complex systems of integrated technologies. This complexity is exacerbated by the complicated interdependencies among the technologies of the various product components. The availability of highly capable e-design, e-analysis, and e-prototyping tools and the growth in new methods that better integrate design and manufacturing are both wonderful benefits and potential burdens to the engineering teams using them. The move to virtual prototyping changes the planning and staffing profiles from that of the traditional project engineering organization. Added to these changes are the increasing demands for shorter and shorter engineering span times accompanied with further expectation that engineering costs must be reduced by factors of 30% to 50% for businesses to remain competitive, and in some cases these reductions are expected to be recurring. These factors bring additional uncertainties and risk to an activity that has traditionally been risky.

Given this backdrop, Stephen Armstrong urges us to view the engineering management problem from a different perspective than has been offered before. Engineering managers should adopt a total perspective of the problems that they have facing them. While they divide the work along the logical lines of work breakdown, they must at the same time undertake the effort with the right tools and processes to assure success. At the core of these processes are the ones that provide a logical and systematic definition of work flow and that provide the mechanisms to control and manage risk. Since an engineering effort is simply the maturation of information, understanding the flow of information and the management of it is critical to success. We are also cautioned that the answers to good engineering management are more than just technical or administrative. The engineering manager must recognize that his primary resource is people and provide a human side to the management of engineering teams.

The managers that read this book will find the formula for the success of their projects. You will find as you read the pages of useful management methods that a pattern starts to unfold and the powerful concept of an integrated technical management will form. Your approach to successful engineering management will never be the same.

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