

## FOREWORD

A holistic and structured approach to engineering management has been presented by Stephen Armstrong . It is customer focussed dealing with processes, people, communication, and their working relationships. This approach is comprehensive and offers the engineering executive an extensive and structured methodology that brings together an integrated team to enable extraordinary project success in terms of quality, cost, and schedule.

It was through Stephen Armstrong that I was introduced to a holistic view to engineering management. This approach was first implemented at Bombardier deHavilland on the Lear 45 Wing Program with great success. Later, this philosophy was adopted by Bombardier Aerospace and developed into their superb Bombardier Engineering System. It is currently being applied on new Bombardier programs such as the Regional Jet Aircraft.

Twenty-first century customers are becoming significantly more sophisticated and are demanding shorter and shorter product development times, higher quality, more product performance, and lower cost. This is a continuous challenge. The product must meet design expectations the first time. Today, customers are virtually demanding zero tolerance. To add to this challenge, new products are being developed more and more by corporate consortiums and partnerships who are faced not only with developing their components but integrating them into the final product. Most of this is now being done with e-tools. E-tools are not only subject to their own continuous development but they must be integrated with partners who are now faced with a continuous training program to use these tools. The risks are increasing dramatically and the complexity of managing all of this has become formidable indeed.

In this book, Stephen Armstrong makes evident a management methodology which will enable success with programs of all sizes. He takes the disciplines of Integrated Product Development, Project Management, Process Management, Systems Engineering, Product Data Management, and Organizational Change Management and integrates them into a holistic approach for managing engineering and product development. He treats the most important constituent of a program, the people and the organizational culture. This methodology is documented in a simplified way that can be easily understood and employed by all levels of management. Knowing and understanding the information flow and human aspect is paramount for the success of any team.

Success will come to those who read, and implement the methodologies presented in this book. The material is presented with a logical flow. It provides the breadth of knowledge and the tools needed. It will lead one to the structure, organization, and effective management of a team that will make the changes required.

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