

Introduction to the Second Edition

In a rapidly changing technological environment where introductions of new product ideas, concepts, and products in our society are ever more increasing phenomenon, it is even more important for scientists, engineers, and business managers to clearly and effectively communicate their ideas and expectations. In order to maintain and improve this communication process, we need to educate the next generation of managers to be able to not only communicate clearly and effectively, to understand each other's problems, challenges, and obstacles, but also to work together side by side.

This was the overall aim of our first edition. We discovered quickly that besides educating students in sciences, engineering, and business management to begin to understand each other, we were faced with comments and suggestions from practicing scientists, engineers, and business managers that they needed to develop their practices within this framework. Several large corporations found our approach useful in their in-house training programs. We received several comments from the management training programs offered by business schools in North America and in Europe regarding the value of the approach we are using and the importance of some of the cases included in the first edition. We also learned that several major technical universities used the first edition as a text in their senior policy programs; courses were attended by both science and engineering students and business management students. We were pleased with these comments.

We also recognized, through book reviews and personal suggestions from colleagues who used the first edition, that some cases needed to be updated or changed. This is mainly due to recent changes in scientific and technological developments and in business practices. For the second edition, we have selected cases that reflect these developments. In the process of discussing the changes with our international colleagues, we were told that the first edition has also

been used in training entrepreneurs interested in introducing their ideas to the market. Many of these entrepreneurs are medical doctors and instrumentation engineers who have more efficient ways of measuring certain events related to computerized medicine. The entrepreneurs found the first edition useful in developing their understanding of moving an idea into the market.

Since we introduced the first edition, the emphasis on green or renewable technology has increased dramatically. Areas of biology, chemistry, and ecology started to focus on green and renewable technology with unprecedented rigor. In our own presentations and training sessions, it became obvious that these two aspects of technology will play an important part in almost every field of scientific, engineering and business management in the future. We decided to include cases that partially or fully focus on these developments. It is unfortunate that more cases have not been as readily available as we expected.

The emphasis on integrating sciences, engineering, and business management is becoming rather international in scope. A number of technical and engineering programs in North America, Europe, Japan, and even Africa are gradually integrating business management concepts into scientific and engineering programs. Even medical programs are introducing more quantitative decision-making in order to introduce more objectivity and the latest scientific knowledge into their practice. Computer modeling as a basis for decision-making is becoming routine in medicine today. These trends in medicine have stimulated a greater need for new computer-based products and service. An increasing number of specialists will have to be educated and trained to develop the necessary products and services for the medical profession, and also to determine their marketability. We see the second edition of this publication as contributing to this need.

We wish to thank all our colleagues for their constructive comments, the reviewers who reviewed the first edition and provided us with their constructive comments and occasional criticism of the first edition, and also the anonymous reviewers for their constructive suggestions. In addition, we wish to thank our publisher, Imperial College Press and, especially, the editors in charge of our publication for their cooperation, comments, and patience.