

# **STRATEGIC TECHNOLOGY MANAGEMENT: BUILDING BRIDGES BETWEEN SCIENCES, ENGINEERING AND MANAGEMENT**

**George Tesar, Steven W. Anderson, Sibdas Ghosh, and Tom Bramorski, 2<sup>nd</sup> edition (London: Imperial College Press, 2008).**

## **Background**

An increasing number of business management jobs are found among companies that operate in technologically advanced markets. In such markets, particularly where technology is rapidly changing and new market opportunities must be evaluated rapidly, knowledge of the basic science or engineering principles underlying a technology is very useful to business managers. Companies with extensive research and development operations depend upon project managers who possess the multidisciplinary skills necessary to coordinate the creative efforts of engineers or scientists with the manufacturing and marketing requirements of the marketplace.

Even production and product managers in many technologically based manufacturing companies need to understand the basic operating principles of sophisticated computer controlled production equipment or quality control systems. Companies that manufacture highly engineered products require technical sales managers who understand the engineering or scientific basis of the strengths and weaknesses of their products.

In order to finance the investment necessary to remain competitive, these companies borrow capital from venture capitalists and other financial institutions by working with financial analysts and venture capital specialists. These professional analysts need to understand the basic engineering or scientific principles representing the technological components of products in order to assess the risk and return on loans made to these companies.

Even attorneys and para-legal assistants representing technologically based companies face an array of unique problems concerning engineering, sciences, and management such as patent protection, product liability, and even safety in laboratories which frequently require close integration between engineers, scientists, and management and lawyers.

Historically, technologically oriented management positions have been filled either by individuals with traditional business majors who have been forced to gather the necessary engineering or scientific information related to products or industrial processes through on the job training, or by engineering or science majors who also learn the necessary management, marketing, or financial skills through on the job training. Over the past ten years universities in North America and Europe particularly have begun to respond to the demands of major global companies for highly trained specialists that are able to integrate engineering or scientific concepts with business management.

**George Tesar, Ph.D.**, started his professional career as a manufacturing engineer with UniRoyal, Inc., in Mishawaka, Indiana where he was responsible for the design and construction of manufacturing equipment and production lines. He received his M.B.A. from Michigan State University and his doctorate in International Marketing from the University of Wisconsin-

Madison. Professor Tesar is a founding member of the Product Development and Management Association and belongs to a number of professional associations, including the Academy of International Business, Association of Comparative Economic Studies, and the European Foundation for Management Development.

Professor Tesar has been appointed a Professor Emeritus at the University of Wisconsin-Whitewater and at Umeå University in Sweden. Currently he is an Assigned Professor at Aalborg University and the Chief Scientific Officer for Social Marketing at the Institute for Lifestyle Options and Longevity in Prague, Czech Republic. He lectures in international marketing on product development and management, business to business marketing, strategic market planning, and social marketing among other topics. Professor Tesar was a Visiting Professor at the Brno University of Technology, Brno, Czech Republic, where he lectured on the methodology of business research in the M.B.A. and doctoral programs. He is a former Fulbright Senior Lecturer in Poland and has lectured in the United Kingdom, Finland, Sweden, and The Netherlands. Professor Tesar has numerous publications in academic and professional journals, five books, and serves on the editorial boards of several professional journals in marketing and international business.

**Steven W. Anderson**, Ph.D. received his doctorate in Chemistry from Northern Illinois University and his M.S. in Chemistry from Marquette University. His undergraduate degree is also in Chemistry. Professor Anderson has been interested in bridging theory and applications since he completed his doctoral studies. He has participated in workshops on chemistry offered by the National Science Foundation and the American Chemical Society. In 1994 Professor Anderson received an award from the American Chemical Society's Petroleum Research Fund for a summer faculty fellowship.

Professor Anderson is a Professor in the Department of Chemistry in the College of Letters and Sciences at the University of Wisconsin-Whitewater where he lectures on topics in chemistry specializing in organic chemistry. He has published results of his research in the *Journal of the American Chemical Society*, the *Journal of Organic Chemistry* and the *Journal of Chemical Education* among others. Professor Anderson has received a number of grants from a variety of sources including the National Science Foundation and the American Chemical Society.

Professor Anderson has consulted for PPG Industries, Serigraph, Incorporated, and Olmarc Packaging Company. He completed an NSF-PACT short course in Industrial Organic Chemistry at Miami University-Middletown, addressing applied chemistry and laboratory exercises, which included company site visits Henkel (now Cognis Corporation), P&G, Sun Chemical as well as guest industrial lecturers. As an undergraduate, Professor Anderson was employed with Universal Oil Products (now Allied-Signal/UOP) as a laboratory technician in the catalytic converter aging and testing facility and later as a research chemist in the Biochemical and Chemicals division where he worked on the development of polymers utilized in reverse osmosis membranes for water desalination processes.

**Sibdas Ghosh**, Ph.D., holds undergraduate degrees in Botany, Plant Physiology, and Biochemistry. He also holds a M.Sc., in Crop Physiology from the University of Reading in the

United Kingdom and a Ph.D. in Molecular Plant Physiology and Biochemistry from the University of Waterloo in Canada. As an Assistant Professor of Biology, Professor Ghosh received a series of academic awards and distinctions for outstanding research including an Outstanding Achievement in Higher Education in the National Space Grant College and Fellowship Program award. In 2001 he was also a recipient of the University of Wisconsin-Whitewater University Research and Service awards.

Professor Ghosh is a Professor of Biology and Chairperson of the Department of Natural Sciences and Mathematics at Dominican University of California. Prior to this appointment, Professor Ghosh directed the University of Wisconsin-Whitewater Undergraduate Research program and also lectured in the College of Letters and Sciences at the University of Wisconsin-Whitewater on topics in biology, biotechnology, plant physiology, and molecular biology among others. He has an extensive publication record. Results of his research have been published in major journals such as *Soil Biology* and *Photochemistry*.

**Tom Bramorski**, Ph.D. received his M.S. degree in Mechanical Engineering from the Technical University of Warsaw. He started his professional career as a designer of construction equipment with Bumar of Warsaw, Poland. He had an opportunity to work in several areas at Bumar including new model prototyping and testing, production, and sales. He received his M.B.A and Ph.D. degrees from The University of Iowa.

As a Professor of Management at the University of Wisconsin-Whitewater, he has published books, papers in academic journals and presented papers at national and international conferences. A sample of journals that published Professor Bramorski's work include *International Journal of Technology Management*, *Omega*, *Problemy Jakosci (The Issues of Quality-Poland)*, *International Journal of Operations and Production Management*, *International Journal of Global Energy Issues*, *Public Productivity and Management Review*, and *International Journal of Production Economics*.

Dr. Bramorski has consulted with companies and government agencies in the US and in Central Europe in the areas of quality management, production and operations management, technology management and Central European privatization issues. He often conducts guest lectures at several Universities and training institutions in Central and Eastern Europe and is a former Fulbright Senior Lecturer in Poland.