

QUALITY IN THE U.S. ECONOMY

Two GSM professors research quality control in the U.S. economy. Carlton Scott looks at quantitative issues in manufacturing, while Mary Gilly examines behavioral aspects in the service sector.

Some time ago H.G. Wells said, "Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write."

According to GSM's Carlton Scott, Professor of Decision Sciences, that day has now arrived. He is researching quality control issues in the American economy from the quantitative modelling viewpoint.

Scott, who earned his Ph.D. in Applied Mathematics from the University of New South Wales in Australia, has spent the past 20 years developing mathematical models to support business decision making in a variety of areas including the oil, steel and sugar cane industries. "Statistical thinking, coupled with appropriate quantitative methodologies have been effective in establishing American chemical and pharmaceutical industries as world leaders," says Scott. His research emphasizes the importance of quantitative models in decision making.

"Any company that is making product mix decisions without utilizing quantitative methods is not effectively leveraging information that already exists," says Scott. "And companies that are distributing products nationally or internationally without using these methods to support



Carlton Scott, Professor, Decision Sciences

decision making are not doing the best that they can."

His findings contain important information for American companies. "United States companies have been

losing market share in significant industries since the 1970s, and the main reason is an inattention to manufacturing," explains Scott. "After World War II, the U.S. could sell anything it produced both nationally and internationally. The emphasis was on marketing and finance. Manufacturing was neglected."

"The Japanese, meanwhile, concentrated on producing higher quality goods at lower cost. American competitiveness, in areas such as the automotive and consumer electronics industries, eroded."

Research now shows that U.S. companies are fighting back. According to Scott, several major firms, including Ford and General Electric, have introduced Total Quality Management Systems — or TQMS — to establish and monitor quality improvements. The Department of Defense is requiring all suppliers to have TQMS in place. And the large contractors in turn are mandating that their suppliers provide statistical evidence of quality.

"Supplier relationships in the United States are often based on price factors that lead to adversarial attitudes and less emphasis on quality," explains Carlton. "A better scenario would include long-term relationships between manufacturers and suppliers where Total Quality Management Systems are in place. When a supplier