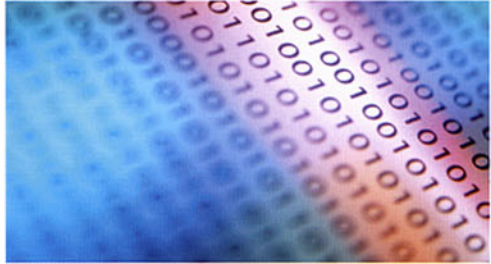


INFORMATION STORAGE INDUSTRY CENTER 18.0

UNIVERSITY OF CALIFORNIA, SAN DIEGO EST. 1998

PROFESSOR ROGER BOHN, *Director*

[HTTP://ISIC.UCSD.EDU/](http://isic.ucsd.edu/)



Information is one of the key assets of companies in the new economy. Storing and accessing it cheaply, rapidly, and effectively is critical. The information storage sector of the computer industry is characterized by explosive technological progress, fierce competition, and globalization. The Information Storage Industry Center builds on its relationships with companies to address critical issues for the industry. Among its strengths are faculty with expertise in the Pacific Rim, access to the Center for Magnetic Recording Research at UCSD, and a database of 30 years of history on firms, factories, and products.

A central theme of the Center's research is to identify business strategies and tools for environments of rapid technological change yet very high volumes, sometimes referred to as "high-tech commodity" businesses. The Center's competitive dynamics research examines how technological and organizational changes enhance an organization's performance, as well as when they are detrimental. Research on the economics of organization employs recent theories of the firm to examine how the storage industry is structured, including vertical integration decisions and their implications for innovation and performance. Other research examines product modularity and its role in accelerating the pace of product development. A fourth area examines ways to alter information flow among different storage components to enhance total system reliability.

Some of the Center's extensive research on the hard disk drive industry is published in *From Silicon Valley to Singapore: Location and Competitive Advantage in the Hard Disk Drive Industry*, available from Stanford University Press. This work reveals how U.S. companies have maintained global leadership by developing tightly integrated trans-Pacific supply chains linking product development in the United States to wholly owned factories in Southeast Asia. Related research examines how companies globally coordinate development and manufacturing in light of the rapid life cycles of complex products. Modular designs and integrated corporate networks are two of the keys.

The Center is also taking a comprehensive look at the factors that affect the survival of firms over time. This research is based on databases that include every company and product (past and present) in the market being studied, providing insights that would not have been recognized by studying only the currently surviving firms.



BECAUSE OF RAPID FLUCTUATIONS AND CONSTANT INNOVATIONS IN THE COMPUTER SUPPLY CHANNEL, THE DATA STORAGE INDUSTRY HAS AN ACUTE NEED FOR THE SOPHISTICATED INTELLIGENCE PROVIDED BY THE INFORMATION STORAGE INDUSTRY CENTER AT UCSD.

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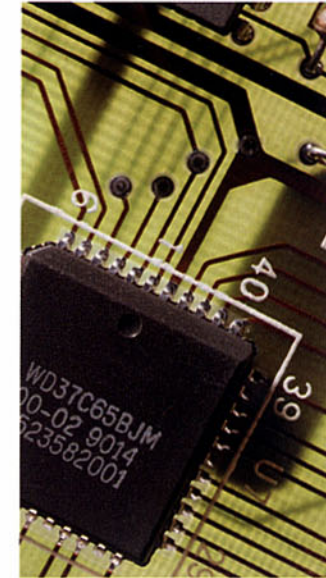
DICK LAMPMAN *Vice President, Research / Director, Hewlett Packard Laboratories*

19.0 COMPETITIVE SEMICONDUCTOR MANUFACTURING PROGRAM

UNIVERSITY OF CALIFORNIA, BERKELEY EST. 1991

PROFESSORS DAVID A. HODGES AND ROBERT C. LEACHMAN, *Co-Directors*

[HTTP://ESRC.BERKELEY.EDU/CSM/](http://esrc.berkeley.edu/csm/) AND [HTTP://SOCRATES.BERKELEY.EDU/~IIR/WORKTECH](http://socrates.berkeley.edu/~iir/worktech)

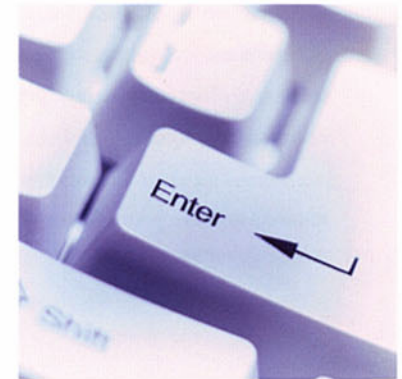


The U.S. semiconductor industry is one of the foundations of the technological revolution. The Competitive Semiconductor Manufacturing Program produces state-of-the-art research by drawing upon collaborations with departments at UC Berkeley, including work with the College of Engineering, the Haas School of Business, the Institute of Industrial Relations, and the Berkeley Roundtable on the International Economy.

The Competitive Semiconductor Manufacturing Surveys are a key aspect of the Center's program and are highly regarded throughout the industry. The Surveys' comparative benchmarking of semiconductor chip factories (fabs) has led to the establishment of the "Berkeley Metrics" system, the industry standard for comparative analysis of best global practices in the industry. The U.S. consortium SEMATECH promotes the use of Berkeley Metrics by its member companies. As part of its manufacturing surveys, the Center has completed full quantitative evaluations of more than 30 fabs in the United States, Japan, Korea, Taiwan, and Europe. The Center conducts on-site visits, examining fab practices in operations, management, training, maintenance, and continuous improvement; it

issues reports illuminating the factors resulting in world-class fab productivity and performance.

The Center engages in in-depth focus studies, demonstrations, and implementation of critical performance and efficiency practices in fabs and companies across the industry. SEMATECH member companies, such as Conexant, Texas Instruments, and Intel, along with an array of Center partners, benefit from the analysis and follow-on projects undertaken by the Center. In addition to its benchmarking studies, the Center has published the report, *Reversal of Fortune? The Recovery of the U.S. Semiconductor Industry*, by Jeffrey T. Macher, David C. Mowery, and David A. Hodges. Research reports and working papers from the Center, including its Human Resource Project led by Professor Clair Brown, can be obtained via the Internet. Graduates hold senior positions at companies such as Intel Corporation and Boston Consulting Group.



THE COMBINED WORK OF THE COMPETITIVE SEMICONDUCTOR MANUFACTURING PROGRAM HAS LED TO VISIBLE IMPROVEMENTS AND EFFICIENCIES THROUGHOUT THE INDUSTRY. THE CENTER OFFERS COMPANIES UNPRECEDENTED OPPORTUNITIES TO WORK WITH SOME OF THE BEST MINDS IN THE FIELD ON SPECIFIC CHALLENGES IN THEIR PLANTS AND BUSINESS.

V

DR. WILLIAM J. SPENCER *Chairman of the Board Emeritus, SEMATECH*