



IN SEARCH OF  
CONSTRUCTIVE CAPITALISM  
IN THE 21<sup>ST</sup> CENTURY

IC<sup>2</sup> Institute

The University of Texas at Austin

Annual Report 1997-1998

THE VISION IS WORTHY...

...A QUEST FOR CONSTRUCTIVE FORMS OF CAPITALISM THAT WILL ALLOW  
COMMUNITIES AND NATIONS TO GROW AND PROSPER...

THE MISSION IS CHALLENGING...

...TO COMBINE TECHNOLOGY, ENTREPRENEURSHIP, AND EDUCATION TO IMPROVE  
THE WORLD VIA WEALTH CREATION AND PROSPERITY SHARING...



*From left to right, Larry Faulkner, President, The University of Texas at Austin;  
Robert Ronstadt, Director, IC<sup>2</sup> Institute; and  
Sheldon Eklund-Olson, Provost, The University of Texas at Austin.*

*The primary definition and distinction of capitalism, I believe, is a view of the future. I believe that socialism and communism look at the past, or at the best, where society is today. Capitalism, on the other hand, not only looks towards the future, but actually drives what the future will become.*

David Smith  
IC<sup>2</sup> Senior Research Fellow  
Technology Futures, Inc.

*Capitalism is always in the becoming, a cross-fertilization of ideas, technology, and entrepreneurship. The spirit of capitalism, which is a variable, is the driving force of this economic arrangement. Most people do not understand what it is to think and act like free people and to transform mental and raw materials into prosperity for future generations.*

John S. Butler  
IC<sup>2</sup> Centennial Research Fellow  
The University of Texas at Austin

*When I think about capitalism and the free enterprise system, I visualize a long line in the old Soviet Union of citizens waiting to buy government-produced soap from a government store. Countless hours of human capital were wasted in such lines. Surely, some must have thought while waiting, "making soap isn't such a big deal. I'll bet I could make better soap than they can." And surely, if it had been allowed, one of them could indeed have made up a batch for family use, with some left over to give to friends. Then maybe more batches could be made and sold to people who then wouldn't have to stand in line. It might even occur to a bright comrade to deliver soap to people, and eventually to distribute to other people who were setting up stores to sell other things. Too bad it didn't happen that way.*

Ben Streetman  
IC<sup>2</sup> Centennial Research Fellow  
The University of Texas at Austin

*A definition of capitalism: ownership of firms and productive property decentralized to risk-taking investors.*

William A. Barnett  
IC<sup>2</sup> Senior Research Fellow  
Washington University

*Capitalism is not a static system, but a dynamic phenomenon, rediscovered by every nation and generation that allows the free play of human initiative, competition, and cooperation.*

Steve Gardner  
IC<sup>2</sup> Senior Research Fellow  
Baylor University

*The future of capitalism relies heavily on a well-balanced participation of stakeholders on a worldwide basis.*

Akira Ishikawa  
IC<sup>2</sup> Senior Research Fellow  
Aoyama Gakuin University (Japan)

*Free societies must—out of a sense of "self altruism"—be prepared to invest in education and research in order to preserve economic growth. Because the driving force of new commerce is innovation, which requires trained minds, the future of capitalism is vitally intertwined with the "education of the public in the public."*

Luis M. Proenza  
IC<sup>2</sup> Senior Research Fellow  
Purdue University

*Capitalism is the only economic and political system which is based on experimentation with new ways of growing wealth and only the fittest approaches survive.*

Laszlo Belady  
IC<sup>2</sup> Senior Research Fellow  
Mitsubishi Electric Corporation (Retired)

*In the 21st century, capitalism will expand more and more into space. We will see profit-making services like refueling stations and even hotels thriving on other planets. This can happen within our children's lifetimes.*

Humboldt C. Mandell, Jr.  
IC<sup>2</sup> Senior Research Fellow  
NASA Johnson Space Center

*Capitalism as it is practiced in the U.S. is being reinvented—it is now cap-communism (China), cap-socialism (France), and cap-anarchy (Russia). For the U.S., it may well be cap-Puritanism as a backlash to the late 1990s.*

Larraine Segil  
IC<sup>2</sup> Senior Research Fellow  
Lared Presentations

LETTER FROM THE DIRECTOR	2
RESEARCH	4
EDUCATION	7
OUTREACH	10
IC <sup>2</sup> INSTITUTE PUBLICATIONS	16
COLLABORATIVE PARTNERSHIPS	18
STAFF	20
GRADUATE TEACHING FACULTY	21
FELLOWS AND SCHOLARS	22
ASSOCIATES	28

DEDICATED TO THE LIFE AND SPIRIT OF JOHAN GERVAIS  
1955-1998

*"There's a lot of know-how already embedded in what ATI and IC<sup>2</sup> does. My goal is to find the 'best-way' strategies that we can learn from the other incubators. We can't rest on our laurels. We can always do better."*

Johan Gervais, 1998

Twenty years ago, IC<sup>2</sup> Institute was known briefly as the “Institute for Constructive Capitalism.” In 1978, however, the word “capitalism” and the ideology behind it were far from politically correct on America’s university campuses. Thus, the wording was changed from “Institute for Constructive Capitalism” to the present “Innovation, Creativity, and Capital.” Some argue now that we should never have changed the name. My sense is that the change was appropriate for the times.

## Letter from the Director

We easily forget how much our mindset has changed in just a few short years. When IC<sup>2</sup> emerged two decades ago, the Berlin Wall and the Soviet system of socialism were still intact. No one, not even the most perceptive futurists could have predicted the extent and the degree to which communist and socialist experiments around the world would collapse and be discredited among academicians, government officials, and community leaders. This collapse profoundly altered the framework within which we viewed capitalism.

Our perception of capitalism was also similarly altered by another revolution of thinking—specifically, the change in our understanding of entrepreneurship and our feelings toward entrepreneurs. Twenty years ago, the word “entrepreneurship” was not yet part of our everyday vocabulary. Much worse, the entrepreneur, the very embodiment of capitalism, was seen as an unworthy scalawag, a greedy and dishonorable person who, more often than not, was a swindler of wealth. Today, through clearer lenses, we understand that entrepreneurs reside at the heart of wealth creation, and that creating new wealth is not an easy task, but one that requires great courage, sacrifice, and commitment.

The founder and other visionaries associated with the Institute understood the importance of entrepreneurs and their special role in high technology commercialization. They were ahead of their times in viewing capitalism and entrepreneurship, in their purest forms, as being beneficial tools of society. However, the fact that their views were not in the majority was not the fundamental reason for the name change. As both a “think tank” and a “do tank,” the Institute needed to bring different, often divergent groups, together from business, academia, government, and the community. Only by uniting these groups could the new Institute discover, demonstrate, and transfer knowledge regarding entrepreneurial wealth creation and distribution through “Innovation, Creativity, and Capital.”

New challenges and conditions confront the Institute and capitalism as both move into the next century. Presently, the Institute has emerged as a global leader in entrepreneurial facilitation of high technology ventures, and capitalism is a favored economic ideology and sociopolitical system around the world.

But a word of caution for those still celebrating the triumph of capitalism is in order. We need to belay the celebration. Despite its success, the future of capitalism remains clouded and uncertain in many parts of the world. Today, capitalism is “being tested”—a polite euphemism for saying it is “under attack”—in countries



such as Russia, Indonesia, and Haiti. Similar challenges are underway in Mexico, Peru, India, Hong Kong, and other nations and regions. Who is to say that the forms of capitalism that emerge in these nations won't be destructive? Who is to say a virulent form of capitalism won't emerge in the United States of the 21st century?

This is not idle speculation. Destructive forms of capitalism have surfaced before. In our own country, the inequities embodied in the grand estates of Newport, Rhode Island remind us of a Robber Baron Age that fortunately was not tolerated nor sustained. An unforgettable lesson of pre-World War II Germany is that fascism is simply a hybrid concoction of socialism and capitalism gone bad. Today, crony capitalism or "capitalism of the privileged few" still exists in far too many nations of the world.

And so the quest for constructive capitalism continues. Fortunately, some things are clearer now. An important clarity is that many business leaders realize that shareholder value cannot be calculated in isolation. A global economy won't allow it. Other stakeholders won't allow it. We know now that the best return on investment we can earn over the next one hundred years must consider not just wealth creation but wealth distribution. Unfortunately, our institutional myopia with the short term often leads us to forget that the best and highest return over the long run demands an investment in our communities, our employees, our vendors, and others affiliated with our businesses.

Today, our best executives and entrepreneurs know they must discover and pursue innovative forms of prosperity sharing among all the stakeholders of their enterprises. To their benefit, they are the socioeconomic heirs of George C. Marshall, who knew, perhaps best among the statesmen of the 20th century, that capitalism, peace, and prosperity are inseparable. Wealth creation and prosperity sharing are inextricably intertwined. They are but different sides of the same coin.

The instruments, plans, programs, and organizations of capitalism will change, whether it's the Marshall Plan, the rapid rise of ESOP companies (Employee Stock Option Plans), globalization and virtual organizations, or the emergence of Internet commerce. But some hard questions remain. To ask where capitalism is going, where it should go, and how it will fare in diverse cultures and technological environments, remain the sociopolitical and economic questions of the age. How will technological innovations in biotechnology, software, telecommunications, aerospace, etc., cause changes in capitalism? Will cultural changes caused by e-commerce, an aging world population, and supersonic flight produce positive or negative forms of capitalism?

Finally, how should the Institute organize and position itself to answer these questions to the benefit of mankind? It's a strategic question we will address this year, as we reposition IC<sup>2</sup> Institute for the next twenty years. What is encouraging is that the fundamental questions surrounding capitalism are indeed worthy questions for a cutting-edge organization such as IC<sup>2</sup> Institute. As an "Institute for Constructive Capitalism," we are charged to take risks, to be innovative, to be inclusive, and to be creative as we tackle the challenging issues of our time. Help us to embrace these challenges. We invite your participation in a wonderful and exciting quest, one that invariably will have great meaning for all of us.



ROBERT C. RONSTADT  
DIRECTOR



## Research

IC<sup>2</sup> Institute's research activities focus on the issues of wealth creation and global prosperity through science and technology commercialization. Interdisciplinary teams of researchers and practitioners use digital technologies to combine the best of academic, government, and business resources and interests. Linking theory with practice, the Institute's research activities address global challenges and opportunities that shape organizations as well as strategic regions.

### AGILE AEROSPACE MANUFACTURING RESEARCH

1997–1998 was the fourth year of a five-year National Science Foundation-funded grant to promote agile manufacturing in the aerospace industry. IC<sup>2</sup> Institute, in partnership with the Agile Aerospace Manufacturing Research Center (AAMRC) of the Automation and Robotics Research Institute at The University of Texas at Arlington, conducts research on agility focusing on radical organizational redesign achieved through a synthesis of innovations in manufacturing, information, and communication technologies.

During the past year, AAMRC researchers have been actively publishing books and articles, including a monograph which resulted from the international conference on agility in aerospace manufacturing co-sponsored by AAMRC. In addition, IC<sup>2</sup> Fellow Jeff Amos, co-director of the IC<sup>2</sup> AAMRC program, has begun a course in agility—U.S. Trends in Business Economics—in UT-Austin's undergraduate Business Economics Program.

### IN-HOUSE RESEARCH ACTIVITIES

Dr. Piyu Yue, IC<sup>2</sup> Research Associate and Senior Research Fellow, has been working with Dr. George Kozmetsky to identify unstructured problems in a continuing study of the changing global economic environment and various forms of market-driven economic systems.

This research is based on the belief that the changing world is in an historical process of transition towards a more democratic and free-market oriented global community with diversified cultures, religions, political status, and social life. Globalization represents a striking characteristic of this transition. Now the world economy is developing its global integration of manufacturing, financing, marketing, distribution, and R&D activities. However, the present financial crisis in emerging-market nations—Southeast Asian countries, Russia, Mexico, Brazil, and other South American countries—casts a long shadow on the future of globalization and the free-market capitalist system.

This research aims at illustrating the globalization process from multiple dimensions by using quantitative measures. Four parts are expected to be included: a new look at the global demographic

landscape; the changing economic-power nations; international trade and reallocation of global production centers; and capital flow in global financial markets (the benefits and risks).

In addition to this ongoing research, Drs. Kozmetsky and Yue have recently published an article in the journal *Omega*, entitled "Comparative Performance of Global Semiconductor Companies" (April 1998:153–175).

*"The ability to work and communicate globally is creating a capitalistic world economy that has influence on the wealth and well-being of all our nations."*

Mayor Kirk Watson  
City of Austin, Texas

## CONFERENCES

On October 21–23, 1997, IC<sup>2</sup>'s Japan Industry and Management of Technology Program and Agile Aerospace Manufacturing Research Center, along with the Technical Japanese Program at the University of Washington, co-sponsored *U.S. Asian Collaboration: International Agility in Aerospace Manufacturing*



*Conference*. Held in Seattle, Washington, the conference focused on major international collaborative projects between U.S. and Asian aerospace firms. Specific discussions at the conference focused on the Boeing 777 project, in which Boeing Company and the Japan Aircraft Development Corporation (JADC) are collaborators; the F-2 (formerly FS-X) fighter jet project run by Mitsubishi Heavy Industries with Lockheed Martin Corporation as the primary subcontractor; and developing projects in China and the ASEAN-member countries. Presentations at the conference were made by actual participants and policymakers involved in these projects.

Emphasis was given to issues which arise when dealing with international collaborations, including the logistics of coordinating design and manufacturing across multiple time zones and language differences, as well as the manufacturing supply chain relationships. Also discussed was the growing trend towards international collaboration due to the enormous investment required to develop a new aircraft design.

As a result of the conference, *U.S. Asian Collaboration: International Agility in Aerospace Manufacturing*, edited by Sunil Tankha, Jeffrey Amos, Heidi Lopez-Cepero, and David Gibson, was published by IC<sup>2</sup> Institute.

The *International Seminar on Innovation and Information Society* was held in Curitiba, Brazil on May 7 and 8, 1998. IC<sup>2</sup> Institute seminar participants included Dr. George Kozmetsky, who presented (via videoteleconference) “Crossing the Rubicon: Brazil’s Partnerships for the Global/Knowledge-Based Economy” and Dr. David Gibson who spoke on “Growing and Sustaining Regionally-Based, Globally Competitive Technopolies in the Digital Economy.” Other invited participants included the Governor of the State of Paraná, Brazil, as well as Paraná’s Secretary of Education, high technology industry representatives, and other leaders from Brazil.

*Lisbon ‘98: Second International Conference on Technology Policy and Innovation* was held in Lisbon, Portugal, August 3–5, 1998, attracting 250 scientists, engineers, managers, entrepreneurs, academics, and policymakers from 32 countries. The conference was organized and sponsored by Instituto Superior Técnico, Lisbon, Portugal; Calouste Gulbenkian Foundation, Portugal; European Commission; Portuguese Foundation for Science and Technology; Center for the Promotion and Innovation of Business, Portugal; Institute for the Support of SMEs, Portuguese Ministry of Economy; Portugal Telecom; Portuguese Investment Bank; EXPO ‘98; and IC<sup>2</sup> Institute.

The goal of the conference was to improve the understanding of the impact of national and global science and technology systems on economic and social development, as well as to guide the development of future research directions towards sustainable development. Participants from academia, government, and industry came together to discuss knowledge integration over a range of traditional disciplines as a key factor in improving living standards over the next century. The President of Portugal, Dr. Jorge Sampaio, welcomed the conference participants and took part in the inaugural session of the conference; three directors from the European Commission were also present at this session.

From left, IC<sup>2</sup> Fellow Manuel Heitor, deputy president of Instituto Superior Técnico, Lisbon, Portugal; João Caraça, director of the Calouste Gulbenkian Foundation, Lisbon, Portugal; Giorgio Sirilli, Institute of Studies on Scientific Research, Italian National Research Council; and Nathan Rosenberg, professor of economics, Stanford University, present at the inaugural session of Lisbon ‘98: Second International Conference on Technology Policy and Innovation.





Selected papers from the conference will be published in a forthcoming book. The book from the first conference, held in Macau in 1997, *Science, Technology and Innovation Policy: Opportunities and Challenges for the 21st Century*, will be available from Quorum Books in early 1999. *Austin '99: Third International Conference on Technology Policy and Innovation* is scheduled for August 30–September 2, 1999, in Austin, Texas.

The *Third Biennial World Conference on Integrated Design and Process Technology (IDPT)* was held at the Maritim proArte Hotel, Berlin, Germany on July 6–9, 1998. Conference co-sponsors included IC<sup>2</sup> Institute, RGK Foundation, the Society for Design and Process Science (SDPS), the Institute for Design and Advanced Technology (IDEATE), the International Institute for Systems Integration, and the American Society of Mechanical Engineers. The aim of the 1998 IDPT Conference was to encourage the cross-fertilization of ideas and knowledge about design and process techniques, tools, and environments that help to master design complexity and build high-quality and cost-effective engineering artifacts. The conference program consisted of invited and selected papers emphasizing knowledge integration through the study of processes leading to the delivery of a more robust, high-quality line of products, software, and services. Dr. George Kozmetsky, chairman of the board of the Society for Design and Process Science, was elected an honorary member of SDPS and received an award for his outstanding accomplishments in engineering, science, public service, and other allied pursuits beneficial to design and process science.

Photo right: Ronya Kozmetsky (center) accepts an award from the Society for Design and Process Science (SDPS) at the Third Biennial World Conference on Integrated Design and Process Technology. Presenting the award are IC<sup>2</sup> Fellow Raymond Yeh, Chairman and CEO, FunSoft Inc. (left) and Stephen Szygenda, Dean of Engineering, University of Alabama at Birmingham and SDPS Steering Committee Co-Chair.



IC<sup>2</sup> Institute has received a grant from the Southwest Region of the Economic Development Administration (EDA), U.S. Department of Commerce to organize a conference on *Technology Communities Competing in the 21st Century*. The conference, which will be held in Dallas in June 1999, will focus on the effective use and leveraging of public and private know-how to foster and accelerate technology-based economic development in distressed communities and disadvantaged populations—particularly in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. Conference presentations, keynote addresses, workshops, and exhibits will provide participants with the opportunity to:

- educate and promote public and business understanding of how to foster and sustain regionally-focused and technology-based economic development;
- network and build relationships among relevant and technology-focused public agencies, businesses, and community-based organizations;
- learn lessons from the successes and failures of private-, public-, and academic-based initiatives that use science and technology to foster wealth and job creation;
- engage in targeted strategic planning to benefit technologically-distressed areas;
- showcase entrepreneurial and innovative regional approaches to technology-driven growth opportunities; and
- explore opportunities, ideas, and linkages between technology-based economic development activities and the training and employment of individuals from disadvantaged populations.

# Education

IC<sup>2</sup> Institute educational activities emphasize the

importance of science and technology commercialization for global wealth creation and prosperity sharing. IC<sup>2</sup> educational programs present a variety of subjects and target representatives from academia, business, and government.

## MASTER OF SCIENCE IN SCIENCE AND TECHNOLOGY COMMERCIALIZATION

Since January 1998, IC<sup>2</sup>'s Master of Science in Science and Technology Commercialization degree program (MSSTC) has joined students and faculty in three geographical locations for interactive program classes. Students in Austin, Texas; Lisbon, Portugal; and Washington, D.C. collaborate in real-time via videoteleconferencing technology. Within the Austin classroom, students from China, Japan, Mexico, Portugal, Russia, and the U.S. interact with their colleagues in the Washington, D.C. and Portugal classrooms.

As members of virtual, global teams, students use a variety of digital technologies to perform technology commercialization assessments, create opportunity plans, and develop business plans for the commercialization of real technologies. Although the program uses distance learning technology to facilitate the learning environment, the program is not a distance education program in the traditional sense. There is always a faculty member in each location during each class; the faculty members who are not teaching act as facilitators of the interaction in their respective locations. The multiple-faculty perspective enriches the classes significantly.

The objectives of facilitating a global virtual teaming environment for commercialization are:

- to provide students in multiple countries the ability to work together to address commercialization issues which are truly global in nature;
- to provide multiple perspectives based on differences in culture;
- to enhance the creativity of ventures through diversity; and
- to develop international business networks for cross-enterprise, cross-national commercialization efforts.

Additionally, virtual global teaming reflects an emerging and growing organizational reality. Indeed, the phenomenon of virtual teaming cuts across the commercial, non-profit, government, and educational sectors to such a degree that there is little chance that one will be part of an organization that does not involve virtual teaming to some degree.

The value to the students in terms of working across cultures has been deemed by the students, faculty, and program delivery team to be well worth the effort to address the implementation challenges. In addition to learning based on thinking about different perspectives on issues and opportunities, the students agree that diverse input improves the results of a project.

*"The essence of capitalism is concerned with finding and directing capital to its most productive uses. This is best done with an educated, intelligent population in a free, competitive market system—with accompanying institutions to ensure integrity and stability."*

William W. Cooper  
IC<sup>2</sup> Centennial Research Fellow  
The University of Texas at Austin



## ENTERTECH PROJECT

Synthesizing issues in workforce development, welfare reform, and new media for education, IC<sup>2</sup> Institute is facilitating the research and production of the EnterTech Project.

EnterTech is a collaborative effort between Texas business, education, and community-based organizations to develop a job skills training program specific to entry-level positions in Texas technology industries. The Governor of the State of Texas awarded Wagner-Peyser grant funding to support the \$1.9 million EnterTech Project. The Texas Workforce Commission is managing the state's contract which commenced on June 15, 1998. The development, testing, and piloting of the project are funded for a two-year grant period.

Through industry guidance, new media technologies, and best pedagogical practices, EnterTech aims to prepare the state's poorest citizens for careers within the state's technology economy. Citizens targeted by EnterTech include transition-ready welfare and public assistance recipients, teen parents, and unemployed as well as dislocated or underemployed workers.

Interactive computer-based modules will be combined with facilitated group learning for use in community colleges, high schools, career centers, industry training sites, and community-based organizations.

Instruction will be provided in reading and communications, mathematics and measurements, technology literacy, and work readiness. Students will engage in experiential learning as interns in a virtual technology company, solving real-world problems using computer-simulated, work-based scenarios. Learner assessment and remediation will occur seamlessly as the learner explores this simulated world of work.

*Modern capitalism is in a perennial state of disequilibrium: a gap between the perceived technological potential of the future on the one hand and existing practices that are fast becoming obsolete on the other. It is a never-ending quest toward technological targets and market potentials that are forever evolving. Capitalism is the management of the future itself.*

Sten Thore  
IC<sup>2</sup> Research Fellow Emeritus  
Instituto Superior Técnico (Portugal)

Skills requirements for the curriculum will be ascertained by building on existing research, profiling entry-level jobs in Texas technology industries, and determining prerequisite knowledge, skills, and abilities for continuing education, such as technician training or associate degree programs. Baylor University is surveying current and

emerging technologies to make recommendations on the delivery platform. Interactive Architex, an Austin-based multimedia production company and ATI resident, is subcontracting the instructional design and development of the interactive components. In addition, more than 50 industry partners, educational institutions, and community-based organizations are collaborating in the creation of the EnterTech Project.

## GLOBAL CLASSROOM

IC<sup>2</sup> Institute continues to refine its efforts to create a global classroom which will enable interactive learning and communication across the globe. This has been facilitated in the past year by financial and equipment donations from 3M Corporation. Two of each of the following equipment has been provided to IC<sup>2</sup>: 384K videoconferencing equipment, portable multimedia projectors, mobile Ideaboards, and audioconferencing systems. The equipment will be split between the two IC<sup>2</sup> sites (San Gabriel and MCC building). At the San Gabriel site, the videoconferencing equipment will increase the capacity of the current equipment which is used for the Master of Science program. The projector, Ideaboard, and audioconferencing equipment will be used to enhance IC<sup>2</sup> meetings and conferences. At the MCC building, the Austin Technology Incubator and its resident companies will be using the equipment to facilitate interactive meetings and seminars around the world.

## RUSSIAN TRAINING PROGRAM

IC<sup>2</sup> Institute has received a grant from the Eurasia Foundation to develop a Russian Master of Science Degree Program in Technology Commercialization. Through this program, seven Russian professionals have visited IC<sup>2</sup> Institute since February 1998:

- Vladimir Antonets, head scientific advisor, Nizhny Novgorod Center for High Technology Incubation;
- Andrei Balaban, executive director, Russian Venture Capital Association;
- Nina Fonstein, executive director, International Business and Technology Incubator;
- Andrey Petrov, director, Photochemistry Center, Russian Academy of Sciences;
- Alexander Petrunenkov, deputy director, International Business and Technology Incubator;
- Sergey Simaronov, general director, Technoconsult; and
- Vladimir Zinov, deputy director, CTC, Academy of National Economy.

These visitors have been participating in the IC<sup>2</sup> Master's degree classes and working with IC<sup>2</sup> staff to develop Russian case studies for their program.



From left, Nina Fonstein, director of the International Business and Technology Incubator, Moscow, Russia; Abel Aganbegyan, president of the Academy of National Economy, Moscow, Russia; and Stephen Monti, then-provost ad interim at The University of Texas at Austin, met in Austin to discuss the Russian training program funded through the Eurasia Foundation.

## AUSTIN TECHNOLOGY INCUBATOR RESIDENT COMPANIES

**APPLIED INFORMATION MANAGEMENT (AIM)** provides consumer behavior information on historically difficult-to-reach segments of the population through a unique customer loyalty program and proprietary database marketing software.

**ADAPTIVE LEARNING TECHNOLOGY, INC.** develops technology that continually assesses and analyzes the intelligence strengths and interests of a child and adapts the presentation and instruction to provide an individualized and creative learning tool.

**BRICOLAGE INTERACTIVE DESIGN** was founded in 1997 to help teachers use new Internet technologies effectively in the classroom. Bricolage is currently developing "The ActiveInk Network," a suite of instructional software products that help teachers create online, interactive projects they can assign to their students and share with other teachers.

**COMPUTER MOMS INTERNATIONAL CORPORATION** is a franchise system offering a home-based business opportunity in computer support and training services, specifically designed for and delivered in the client's home or office, on their computer, with their applications.

**ERGOSOFT LABORATORIES, INC.** provides usability testing and consulting services to facilitate the delivery of computer products that are simple to learn, use, install, and maintain.

**EXTERPRISE INC.** develops intelligent-agent driven knowledge management software that enables knowledge workers to efficiently access, apply, and manage business information across an extended enterprise.

**INDEX.COM, INC.** is developing an online library providing information for the water and wastewater treatment equipment and services industry.

**INFOGLIDE CORPORATION** has developed the Similarity Search Engine and Dynamic Database Structures which offer companies the ability to create highly-detailed profiles for searches and then apply them against any kind of database.

**INTERACTIVE ARCHITEX** is an interactive-oriented multimedia company which focuses on the creation of multimedia materials and the development of the multimedia industry in the Austin area.

**ISOCHRON DATA, LLC** is developing wireless technologies that allow companies to monitor and gather data from their field equipment on a real-time basis.

**KAPADIA COMMUNICATIONS** designs and manufactures fiber optics communications systems designed for local loop and inter-exchange service providers.

## Outreach

As an internationally recognized leader in science and technology commercialization, IC<sup>2</sup> Institute organizes and promotes numerous outreach activities which benefit the city of Austin, the state of Texas, and other regions and nations. Public and private initiatives, as well as domestic and international alliances, foster collaborative efforts, promote regionally-based economic growth, and nurture government-academic-business relationships.

### AUSTIN TECHNOLOGY INCUBATOR

The Austin Technology Incubator (ATI) is entering its tenth year with an enduring commitment to assist emerging high technology growth companies in the Austin region. Through its consulting services, extensive "know-how" network, educational programs, and outstanding facilities, ATI nurtures and supports nearly 25 of Austin's most promising young high-tech firms.

ATI's worldwide reputation as an award-winning business incubator provides numerous opportunities for strategic partnerships. Visiting scholars from China, Portugal, and Russia have resided at ATI this past year. The incubator's residents currently include companies from Australia, Brazil, and India. Delegations from 17 nations, 14 states, and a dozen universities visited the incubator during the past year.

As of the end of 1997, ATI graduate companies had created over 1,500 high value jobs and reported revenues of more than \$183 million. Eleven new companies have joined ATI since December 1997, representing the telecommunications, hardware, e-commerce, computer training, and educational and business-to-business software industries.

ATI maintains a vigorous student program. High school, undergraduate, masters, and Ph.D. student interns studying business, law, information systems, communication, liberal arts, and computer science assist companies with product development, business strategy, market research, network administration, and public relations. Taking advantage of ATI's learning laboratory, students from diverse programs such as business, communication, sociology, and library information science have conducted research projects for ATI resident companies.



Following an intensive search, Dr. Johan Gervais was selected to serve as the ATI Director beginning June 15, 1998. Dr. Gervais' promising tenure was tragically cut short by an untimely and sudden death on August 16, 1998. Johan will be remembered by all as a thoughtful, thorough, intelligent, and skilled manager of both people and projects.

To maintain this level of excellence, Dr. Robert Ronstadt, Director of IC<sup>2</sup> Institute, recently announced the appointment of Dr. Norman Kaderlan as Director of ATI. Dr. Kaderlan will also direct and develop the Institute's non-degree educational programs.

"Dr. Kaderlan offers the unique blend of practical experience and academic training to his new position," Dr. Ronstadt said. "He has run companies, advised entrepreneurs, and taught students. We are excited that he is joining our team."

#### AUSTIN MULTIMEDIA INCUBATOR

1997–1998 marked the inauguration of the Austin Multimedia Incubator (AMI). At this time, AMI shares Austin Technology Incubator staff and resources and is geared specifically toward providing support services to multimedia start-ups. Interactive Architex, M.A.D. Studio, index.com, NORDview, Adaptive Learning Technology, and Bricolage Interactive Design have been accepted as resident AMI companies and see their new affiliation as a chance to receive more specialized attention for their market needs.

Austin's eclectic array of growing markets includes music, film, and computer gaming, in addition to its expanding high-tech market. In response to this diversity of talent, the City of Austin launched a multimedia enterprise-assistance initiative and sees AMI as an integral part of this new program's success. The City awarded IC<sup>2</sup> seed capital to help launch AMI's activities and services. AMI's objective is to capitalize on the incredible potential for multimedia growth by identifying companies who creatively integrate the artistry and technical expertise of these different industries.

In addition to the traditional business incubator model, AMI has begun operating a virtual incubator, providing off-site companies with networking, consulting, and website listing services. Whether on- or off-site, the companies benefit from the shared resources of The University of Texas at Austin, IC<sup>2</sup> Institute, and ATI. These resources include access to an extensive list of service providers (the "know-how" network), The Capital Network, Austin Software Council, The University of Texas faculty, students, and services, as well as general business consulting.

**M.A.D. STUDIO** helps companies communicate their corporate identity by providing creative design solutions in a variety of media.

**MATTHEWS COMMUNICATIONS MANAGEMENT** is developing a new call management system based on digital signal processing technology.

**NORDVIEW** develops low-cost storage devices to make digital cameras more economic and portable.

**PARTNERWARE TECHNOLOGIES** is an Internet software company serving corporations that want to build profitable, lasting relationships with corporate partners.

**PCS TEKUSA** is developing networks of public kiosks that will allow people without home computers and/or modems to establish email accounts, purchase soft and hard goods from remote locations, and surf the Web.

**PRAXSYS SYSTEM DEVELOPMENT, INC.** has developed a core set of products, technologies, and processes for delivering complete electronic commerce systems to a variety of clients.

**TMANAGE** is a systems integrator which offers a turnkey telecommuting service for large corporations and government offices across North America.

**TAVEREN TECHNOLOGY** is a provider of integrated circuit (IC) design products and services, including software products which allow designers to get their new ICs to market more quickly.

**ULTIMATE PRIVACY CORPORATION** delivers the highest level of computer security through innovative software products and custom solutions.

**AUSTIN TECHNOLOGY INCUBATOR GRADUATE COMPANIES (1998–1999)**

**APPLIED SCIENCE FICTION, INC.** develops and markets leading-edge imaging products for the desktop publishing market, and specialized imaging software.

**ARM AUTOMATION, INC.** develops and markets modular robot components, including both hardware and software modules that can be configured to optimally meet the automation requirements of the customer.

**OPENPLUS INTERNATIONAL INC.** develops, markets, and sells enterprise client-server application solutions.

**SCINTELLECT SYSTEMS, INC.** develops intelligent factory management software for the batch processing industry.



AMI companies will also have the opportunity to participate in special events that include seminars on intellectual property, marketing, venture capital, grant-writing, and securing patents. An advisory committee is being formed to help advise AMI about value-added services, appropriate fees for services rendered, operations protocol, identification of emerging growth companies in the multimedia sector, and administrative needs of the incubator.

#### CENTER FOR TECHNOLOGICAL INNOVATION

1998 marked an exciting year of growth, change, and transition for the Center for Technological Innovation (CTI) in Charleston, South Carolina. CTI is a joint economic development initiative funded by the National Oceanic and Atmospheric Administration (NOAA) and operated by IC<sup>2</sup> Institute.

During its brief history, CTI's reputation for providing a high level of quality assistance to entrepreneurs in the Lowcountry region of South Carolina was reflected through the many entrepreneurs and new ventures it helped nurture and counsel during its regular course of business. There has been a high level of enthusiasm and community support for CTI's consulting services. However, since opening in March 1997, its incubator facility has remained under-utilized by entrepreneurs who were neither prepared nor qualified to enter the incubator at their early stage of evolution. Through this experience, CTI and IC<sup>2</sup> Institute gained valuable knowledge and insight as they observed and studied the dynamics of early stage entrepreneurship and the critical "smart infrastructure" components required to create a technology sector in a region that is heavily reliant on tourism and trade versus technology-based economic development.

With the formal cooperative agreement with NOAA nearing completion, CTI and IC<sup>2</sup> worked directly with Charleston's business support organizations and government officials to formulate strategic plans to continue CTI's valuable role as a catalyst and facilitator of technology-based entrepreneurship throughout the region. During this process, it was collectively determined that a "virtual incubator" model (vs. the traditional brick-and-mortar model) would more appropriately support the current business needs of Charleston's budding entrepreneurial community. Going "virtual" would serve as a bridging mechanism to network critical resources and expertise needed to reduce early risk and increase the potential for commercial success. By seamlessly integrating and linking local, regional, and global value-added business knowledge with professional expertise and advice (through IC<sup>2</sup> know-how networks) into a functional and congruent on-line resource, CTI can create a "virtual incubator" community of like-minded entrepreneurs, professional service providers, and experienced business mentors that can help serve the unique needs of entrepreneurs launching technology-based ventures in the region.

With this in mind, CTI began constructing the framework, content, and other resources necessary to convert CTI from the traditional brick-and-mortar model into a comprehensive and functional virtual incubator with the support services needed to ensure success. This new and experimental approach to commercialization is expected to better serve early stage entrepreneurs more concerned with leveraging talent, know-how, capital, and technology resources, than with conventional office space as they create new ventures.

#### JAPAN INDUSTRY AND MANAGEMENT OF TECHNOLOGY PROGRAM

The Japan Industry and Management of Technology (JIMT) Program continued to execute its two primary missions, education and outreach, during 1997–1998. The educational component is designed to assist the United States in fulfilling its need for scientists, engineers, and technology managers who are global citizens. Education programs are directed towards increasing the number of Americans who can speak and understand the Japanese language and understand Japanese culture, thus becoming effective in research and business arenas in and associated with Japan. The outreach component is designed to familiarize a broader

range of Americans with Japanese business and research issues. Workshops and conferences familiarize American technical experts with Japanese technology developments. Speaker events are designed to acquaint the local community with the Japanese technology and business scenes. Publications provide a source of information for those who want to study these issues in greater depth.

One of JIMT's important educational initiatives is the internship program. These internships provide Americans with the opportunity to study management and research practices used by the Japanese in the areas of science, engineering, and manufacturing. JIMT internships are typically for three months to one year and provide university students and industry professionals with research and development positions at businesses and research institutions in Japan. During 1997–1998, JIMT placed nine people into internships in Japan. Another educational initiative was the evening technical Japanese course, which was primarily designed to help those interested in working with Japanese counterparts in a science or engineering environment. The course attracted many professionals from local companies.

Because workshops and conferences are an important vehicle for outreach, JIMT sponsored or co-sponsored four during 1997–1998. The most prominent was the *U.S.-Asian Collaboration: International Agility in Aerospace Manufacturing Conference* held in Seattle in October 1997. The conference featured key members of the aerospace industry and highlighted collaborative efforts between American and Asian aerospace firms and policymakers (see page 5). *Implementation Techniques for Just-In-Time Manufacturing* was a seminar held at IC<sup>2</sup> in January 1998 to provide an overview of the strategies to apply different techniques to achieve just-in-time manufacturing. Given the large semiconductor industry presence in Austin, JIMT co-sponsored the workshop *Silicon, Software, and Smart Machines: Manufacturing Integration in the Semiconductor Industry* in June 1998. The focus of the workshop was on key trends in manufacturing integration in the semiconductor industry both in the U.S. and Japan. Speakers discussed media integration and trends in the Japanese multimedia industry. In addition, JIMT acted as a videoconference site for the fourth seminar of the MIT Japan Program's 1997 Distance Education Series. This September 1997 session was entitled "Building Human Capital in Japan and the Pacific Rim."



The 1998 Japan Industry and Management of Technology (JIMT) interns meet with JIMT program administrators for a workshop in Japan in July 1998.

*"For more than one hundred years, from John D. Rockefeller in the late 19th century to the Sultan of Brunei in the late 20th century, the richest person in the world was associated with oil. Before that it was gold or land. But today, it is a person, Bill Gates, who owns nothing but brain power. This reality is going to radically change how capitalism functions."*

Lester Thurow  
Professor of Economics  
Massachusetts Institute of Technology

During 1997-1998, JIMT also hosted four guest speakers, emphasizing high-technology issues affecting doing business in Japan:

- Japanese Style Networks and Innovations in High-Technology Firms in Texas
- The Competitive Advantage of Electronic Patent Information: What Technological Advances Are Your Competitors in the United States, Japan, and Beyond Developing?
- Japan...What's Happening and Where Are They Planning to Go?
- Doing Business in Japan, China, and Taiwan with a High-Tech Focus

Reports for each of these talks are available as IC<sup>2</sup> Institute Working Papers.



In addition to working papers, JIMT has published two monographs, *The Science City in a Global Context*—collection of papers presented at the *International Conference of the Science City* held at Kansai Science City, Japan, edited by Kunio Goto, David Gibson, Heidi Lopez-Cepero, and Graham Stewart—and *U.S.-Asian Collaboration: International Agility in Aerospace Manufacturing* (in collaboration with the AAMRC program). JIMT has been increasingly focusing its efforts on maximizing the effectiveness of the JIMT website for education, outreach, and communication of activities. Available internships were listed on the website as soon as they became known and the internship application is available for download on the website.

#### EXECUTIVE INNOVATION BOOT CAMP

In June 1998, Exterprise Inc. became the first company to enter the Austin Technology Incubator as a result of the executive innovation boot camp program facilitated by IC<sup>2</sup> and 3M Corporation. Exterprise Inc., founded by Manoj Saxena, a 3M employee, and Satyendra Rana, an IBM veteran, develops intelligent agent products for the telecommunications and e-commerce industries.

The boot camp is an experimental program designed to speed the time-to-market for new technologies at large firms by encouraging entrepreneurship in employees. The program is directed at senior executives responsible for new product development, research and development laboratories, technology commercialization, and other areas that rely heavily on innovation.



From left to right, Mike Bradley, Vice President, Operations, Manoj Saxena, CEO (seated), and Satyendra Rana, President and Chief Technology Officer, of Exterprise, Inc., the first executive innovation boot camp company.

#### OPPORTUNITIES: EAST/WEST

IC<sup>2</sup> Institute is sponsoring Opportunities: East/West, a student organization which focuses on professional academic and outreach programs focusing on Russia, Eastern Europe, and Eurasia. One major activity is an outreach program which aids Eastern European students and scholars who are moving to Austin. The program assists the students and scholars with housing and transportation, and helps them adjust to the cultural differences in the U.S. In addition to this outreach program, Opportunities: East/West promotes and organizes lectures and workshops. In November 1997, a high-tech business forum was held at IC<sup>2</sup> Institute, *Eastern Europe: Opportunities and Challenges*. This two-day forum, sponsored by Vinson & Elkins L.L.P. and Paradigm Corporation, brought together students and professionals, facilitated cross-border contacts, and provided information on resources related to Eastern Europe.

## INTER-AMERICAN DEVELOPMENT BANK

IC<sup>2</sup> Institute is working with UT-Austin's Institute of Latin American Studies (ILAS) as a subcontractor on a grant from the Inter-American Development Bank. The grant focuses on regional management training and competitiveness in the small and medium-sized enterprise (SME) sector in Latin America. Six Latin American institutions are involved in demonstration projects to develop training products and methodologies for the SME sector. IC<sup>2</sup>'s main task as a subcontractor is to develop and administer a global workshop which brings together leading institutions from around the world to exchange views and share best practices in SME management training. The workshop is scheduled to be held in Argentina in May 1999.

## INTERACTIVE MULTITAINMENT ADVANCED TECHNOLOGY CENTER

Dr. George Kozmetsky serves as an advisor to the Interactive Multitainment Advanced Technology Center (IMATC) in Los Angeles, CA. This model incubator is creating a technology infrastructure that provides a mix of business services and practices to support start-up and small businesses in the commercialization of their products and services to the global marketplace. Plans are underway to locate the incubator in the historic Spring Street region of downtown Los Angeles' Empowerment Zone. The City of Los Angeles, the Community Redevelopment Agency (CRA), and the Spring Street Association, Inc. are committed to restoring this historic district to a place of economic prominence, thereby creating jobs, bolstering the tax base, and sparking the revitalization of the central city. In October 1998, Dr. Kozmetsky was the keynote speaker at *FutureSphere98*, presented by The Greater Los Angeles Futurists and sponsored by Global Business Incubation, Inc. and Loyola Marymount University. This strategic thinking and planning conference featured presentations from high-profile keynote futurists, business leaders, and young futurists who focused on building the corporation of the future and rebuilding the American dream. Think tank sessions were devoted to eight topic areas: technosphere, futuresphere, biosphere, econosphere, politisphere, sociosphere, mediasphere, and internetsphere.

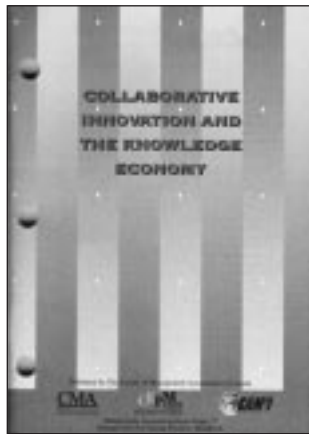
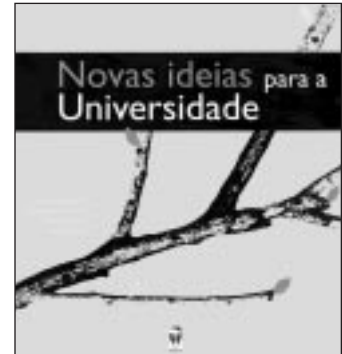
*"In the past, capitalism meant the classical forms of production—land, labor, and capital. A political revolution answered the question of who owned, distributed, and controlled them. In the future, capitalism is adding knowledge as a new factor of production. The knowledge revolution will answer the question of who best creates, shares, and grows from the new driver of economic activity."*

James Botkin  
IC<sup>2</sup> Senior Research Fellow  
InterClass



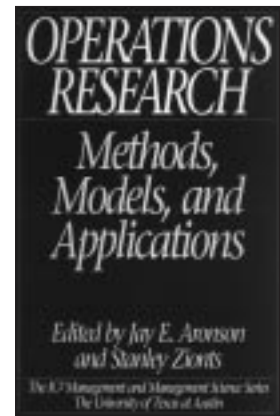
A special issue of *Technological Forecasting and Social Change*, edited by IC<sup>2</sup> Fellows Manuel Heitor and David Gibson, and visiting scholar Pedro Conceição (58:3, July 1998) included selected papers which were presented at *Macau '97: First International Conference on Technology Policy and Innovation*.

*Novas ideias para a Universidade (New Ideas for the University)*, by IC<sup>2</sup> visiting scholar Pedro Conceição, Diamantino F. G. Durão, IC<sup>2</sup> Fellow Manuel Heitor, and Filipe Santos (IST Press 1998) looks back at the last thirty years of the University in Portugal and then looks forward with ideas for the next millennium.



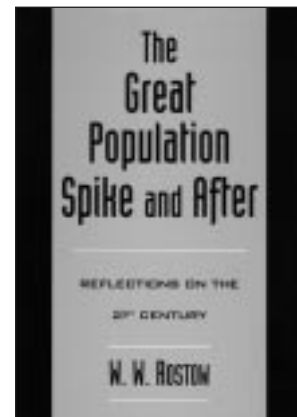
IC<sup>2</sup> Fellow Debra Amidon recently published *Collaborative Innovation and the Knowledge Economy* (The Society of Management Accountants of Canada 1998), which expands the current thinking on innovation and provides a simple framework for considering the issues and related managerial implications.

*Operations Research: Methods, Models, and Applications*, edited by Jay E. Aronson and Stanley Zionts (Quorum Books 1998) includes papers presented at a conference which was held in honor of IC<sup>2</sup> Senior Research Fellow Gerald Thompson, a pioneer in operations research and management science.



*The Knowledge Seekers: Creating Centers for the Performing Sciences*, by W. Arthur Porter, was published by IC<sup>2</sup> Institute (1998). This book offers practical guidance for business, political, and community leaders who may want to create a Center for the Performing Sciences in their own community.

*The Great Population Spike and After: Reflections on the 21st Century*, by IC<sup>2</sup> Fellow W. W. Rostow (Oxford University Press 1998), presents a look at what the current decline in population growth rates will mean for the world's financial and government systems.

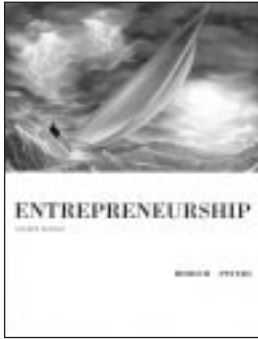
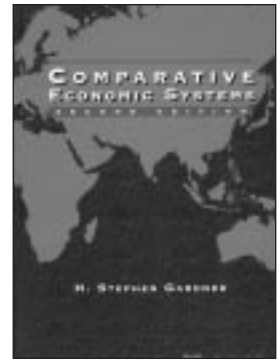






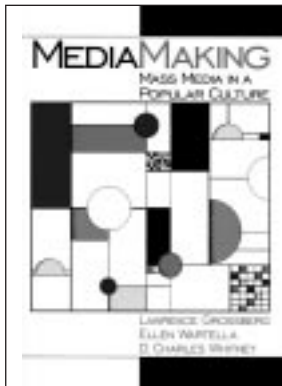
Fellow David Gibson and Jeffrey Liker were co-editors of *IEEE Transactions on Engineering Management Special Issue on Technology Management and the Asia Pacific* (45:3, August 1998).

*Comparative Economic Systems* (Second Edition), by IC<sup>2</sup> Fellow H. Stephen Gardner (Dryden Press 1998), presents the current economic condition of the world and its regions and a look at the forces that will shape the economy of the future.



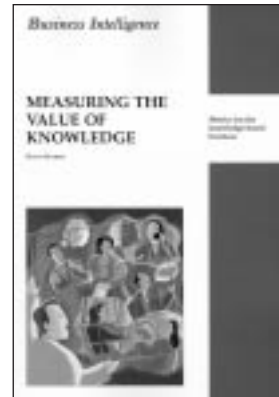
In *Entrepreneurship*, Fourth Edition (Irwin McGraw-Hill 1998), IC<sup>2</sup> Fellow Robert Hisrich and Michael Peters provide an understanding of the entrepreneur and of the process of creating and growing a new venture.

*Electronic Commerce* by Ravi Kalakota and IC<sup>2</sup> Fellow Andrew Whinston was published in 1998 in Korean and Chinese (both Addison Wesley Longman).



With a unique approach to the study of mass communication and cultural studies, *MediaMaking: Mass Media in a Popular Culture* (Sage Publications 1998), by Lawrence Grossberg, IC<sup>2</sup> Fellow Ellen Wartella, and D. Charles Whitney presents the current knowledge about the relationship between media, culture, and society.

*Measuring the Value of Knowledge: Metrics for the Knowledge-Based Business*, by IC<sup>2</sup> Fellow David Skyrme (Business Intelligence 1998), provides an in-depth analysis of developments in thinking, methods, and practical applications for the measurement and management of knowledge-related assets—one of the most important issues for the knowledge-based business.



*It is increasingly clear that capitalism in the 21st century will be based less on physical and financial capital and more on human and intellectual capital. Just as every institution in society—business, government, educational, and civic organizations—had to change as we made the transition from an agricultural to an industrial economy, so too must every institution make the transition to the new realities of the knowledge economy.*

Doug Henton  
IC<sup>2</sup> Senior Research Fellow  
Collaborative Economics



# Collaborative Partnerships

*The Institute has a wide range of collaborative partnerships with many institutions.*

## BUSINESS AND INDUSTRY

Adecco  
AMD  
Atlas Group  
Austaco, Inc.  
Bechtel Civil, Inc.  
Boeing  
Booz Allen & Hamilton  
Caliber Logistics, Inc.  
Charleston Metro Chamber of Commerce  
Dell Computer Corporation  
Fenix Technology International, Inc.  
The Geneva Companies  
Greater Austin Chamber of Commerce  
IBM  
Integrated Concepts, Inc.  
Intel  
Interactive Architex  
Lockheed Martin  
MCC  
M.I. Inc.  
3M  
Motorola  
National Instruments  
Northrop Grumman  
Radian International  
Raytheon  
Samsung  
SEMATECH  
Siemens  
Solectron  
Tech Coast Advisory Board  
Texas Instruments  
Vinson & Elkins L.L.P.

## COMMUNITY-BASED AND EDUCATIONAL ORGANIZATIONS

ACT  
American Institute for Learning  
American Training Standards Institute  
Austin Academy  
Austin Area Urban League, Inc.

Austin Independent School District  
Capital Area Education and Careers Partnership  
Capital Area School-to-Work Partnership  
Capital Area Tech-Prep Consortium  
Capital Area Training Foundation  
Capital Area Workforce Development Board  
Capital Metro  
Capital of Texas Workforce Center  
Communities in Schools  
Community Action Network  
Georgetown Independent School District  
Green Thumb  
KCTF  
KLRU  
MATEC  
Teen Parent Council of Austin, Inc.

## FEDERAL GOVERNMENT

Air Force Office of Scientific Research  
Defense Systems Management College  
National Oceanic & Atmospheric Administration  
National Science Foundation  
U.S. Army Acquisition Corps

## U.S. COLLEGES AND UNIVERSITIES

Austin Business College  
Austin Community College  
Baylor University  
Carnegie Mellon University  
College of Charleston  
Cornell University  
Massachusetts Institute of Technology  
Medical University of South Carolina  
Montgomery College  
Stanford University  
Texas A&M University  
Texas State Technical College  
The University of Texas System  
University of California at Berkeley  
University City Science Center  
University of Michigan  
University of New Mexico  
University of North Carolina  
University of Pittsburgh  
University of Washington  
University of Wisconsin  
Utah Consortium of Asian Studies  
Vanderbilt University  
Virginia Tech University

## INTERNATIONAL

### **Brazil**–Instituto Genesis

INTEC-Curitiba  
International Center for Software Technology  
Polo Software International  
Pontifícia Universidade Católica (PUC) de  
Empresas do Paraná  
Pontifícia Universidade Católica (PUC) de Rio  
de Janeiro  
SOFTEX 2000

### **Canada**–International Development Research Center

### **China**–Beijing University

Beijing University of Aeronautics &  
Astronautics  
Chinese Academy of Sciences  
Chinese Academy of Social Sciences  
Chinese University of Hong Kong  
Fudan University  
Hong Kong University of Science and  
Technology  
Ministry of Science and Technology of China  
Shanghai Zhangjiang Hi-Tech Park  
Development Corp.  
Torch High Technology Industry Development  
Center  
Tsinghua University  
University of Science & Technology, China  
Wuhan International Business Incubator

### **England**–Oxford Center for Innovation

Segal Quince Wicksteed  
SPRU-University of Sussex

### **Finland**–Chydenius Institute

Managing Director Academy  
Oulu Polytechnic  
Seinajoki Polytechnic  
Turku Polytechnic

### **France**–ESC Paris

### **Germany**–International Institute for Technology

Management and Economics

### **Israel**–The International Technology and Trade

Network  
The Israeli Export Institute  
Israel Institute of Technology  
Office of the Chief Scientist

### **Italy**–National Research Council

### **Japan**–Aoyama Gakuin University

Hanwa Electronic Industry Co., Ltd.  
Hirata Corporation  
Institute of Mitsui & Co. for Trade & Economics  
Japan External Trade Organization  
Japan Statistics & Research Co., Ltd.  
Kansai Research Institute  
Ministry of International Trade & Industry: AIST  
Mitsubishi Research Institute

Nippon Timeshare Co. Ltd.  
NTT Multimedia Network Laboratories  
Oita Chamber of Commerce & Industry  
Oki Electric Industry Co., Ltd.  
Osaka Gas Co.  
St. Andrew's University  
University of Tokyo

### **Mexico**–Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM)

### **Portugal**–Gulbenkian Foundation

Instituto Superior Técnico  
JUNITEC Young Entrepreneurs Association  
Luso-American Foundation for Development  
Technological Institute for the European  
Community (ITEC)  
University of Macau

### **Russia**–Academy of National Economy

Association Technopark  
International Business Technology Incubator  
International Higher Education Academy of  
Sciences  
Moscow Power Engineering Institute  
Science Park “Izmayalovo”  
Technology Transfer & Innovation (T<sup>2</sup>I) Center

### **South Korea**–Chungnam National University

Korea Science and Engineering Foundation  
Kyonggi University  
Taejon Metropolitan City

### **Taiwan**–Hsinchu Science-Based Industrial Park

## OTHER

Austin Mayor's Office and Department of Housing  
Austin Software Council  
National Business Incubation Association  
National Technology Transfer Center  
RGK Foundation  
SEI Center for Advanced Studies in Management  
(The Wharton School)  
Texas Business Incubation Association  
The Agility Forum  
The Capital Network  
United Nations Educational Scientific and Cultural  
Organization (UNESCO)  
United Nations Industrial Development  
Organization (UNIDO)

## STATE OF TEXAS

Departments of Commerce and Economic  
Development  
Legislative Task Force for Science & Technology  
Office of the Governor  
State Occupational Information Coordinating  
Committee  
Texas Incubator Fund Advisory Committee

Robert Ronstadt  
George Kozmetsky

Director  
Chairman of the  
Advisory Board

James Jarrett

Senior Research  
Scientist  
Director, ATI  
Director of Non-Degree  
Educational Programs  
Research Associate  
Technical Writer and  
Editor

Norman Kaderlan

Sheila Kearns  
Masoom Khan

Chris Lake Marcum

Derek Robinson  
Patricia Roe

Mark Sandifer  
Catherine S. Thomas

C. Marie Warden  
Nan M. Watkins  
Jay Whitman

Joel Wiggins

Piyu Yue

Director of  
Development  
Network Analyst  
Assistant to the  
Chairman  
Systems Analyst  
Program Coordinator,  
MSSTC Program  
Marketing Manager  
Executive Assistant  
Assistant Director for  
Special Projects  
Director of Education  
and Research, ATI  
Research Associate

## IC<sup>2</sup> Staff

Jeff Amos  
Brenda Anderson

Research Associate  
Administrative  
Assistant, ATI

Deaton Bednar

Project Director,  
EnterTech

Melissa Brown

Assistant to the  
Director

N. Susie Brown

Associate Director for  
Finance and  
Administration &  
Controller

Robert Brown

Information Analyst,  
MSSTC Program

Li Eckert

Conference  
Coordinator

Barbara Fossum

Director, MSSTC  
Program

Coral Franke

Administrative  
Associate

Tina Ghabel

Administrative  
Associate, MSSTC  
Program

David Gibson

Director of Global  
Programs

Sheri Gonzalez

Administrative  
Associate, ATI

Mike Holt

Administrative  
Assistant

Mindy Jackson

Assistant Coordinator,  
EnterTech

## IC<sup>2</sup> INTERNS

Brian Bernknopf  
Erin Boone  
Joyce Deaton  
Hannah Gourgey  
Kimberlee Hanken

Elsa Pinheiro  
Matthew Scheffrahn  
David Skaggs  
Ingrid White  
Brian Wiblin

IC<sup>2</sup> staff members-from left,  
Jeff Amos, Mark Sandifer,  
Norman Kaderlan, Barbara Fossum,  
Brenda Anderson, Robert Brown,  
David Gibson, Heather Setzler,  
Tina Ghabel, Pattie Roe,  
Sheri Gonzalez, Derek Robinson,  
George Kozmetsky, Pedro Conceição,  
Robert Ronstadt, Cathe Thomas,  
Marie Warden, Joel Wiggins,  
Li Eckert, Deaton Bednar,  
Susie Brown, Mike Holt,  
Melissa Brown, Masoom Khan,  
Joyce Deaton, Coral Franke, and  
Jay Whitman.



# Graduate Teaching Faculty

*Master of Science in Science and Technology  
Commercialization*

**Barbara M. Fossum, Ph.D.**

Director and Graduate Advisor  
IC<sup>2</sup> Senior Research Fellow

**Timothy W. Ruefli, Ph.D.**

Assistant Graduate Advisor  
IC<sup>2</sup> Centennial Fellow  
Daniel B. Stuart Centennial Professor in the Application  
of Computers to Business and Management  
Department of Management Science & Information  
Systems

**John Sibley Butler, Ph.D.**

Graduate Studies Committee Chairman  
IC<sup>2</sup> Centennial Fellow  
Dallas TACA Centennial Professor of Liberal Arts,  
Department of Sociology  
Arthur James Douglass Centennial Professor of  
Entrepreneurship and Small Business, Graduate  
School of Business

**Donde Ashmos, Ph.D.**

Associate Professor, Department of Management  
The University of Texas at San Antonio

**Corey Carbonara, Ph.D.**

IC<sup>2</sup> Senior Research Fellow  
Associate Vice President for Technology Management  
Executive Director, Institute for Technology Innovation  
Management  
Baylor University

**Mario W. Cardullo, P.E.**

Senior Research Associate and Adjunct Professor  
Virginia Polytechnic Institute and State University

**James S. Dyer, Ph.D.**

Chair, Department of Management Science and  
Information Systems  
Foster Parker Centennial Professor of Finance and  
Management  
Jack S. Josey Professor in Energy Studies

**David V. Gibson, Ph.D.**

IC<sup>2</sup> Senior Research Fellow  
IC<sup>2</sup> Director of Global Programs

**William H. Hulsey, J.D.**

Intellectual Property Law  
Baker and Botts, L.L.P.

**Sheila Kearns, Ph.D.**

IC<sup>2</sup> Research Associate

**Henry W. (Hank) Jones III, J.D.**

Arnold, White & Durkee

**Vish V. Krishnan, Sc.D.**

IC<sup>2</sup> Senior Research Fellow  
Professor, Department of Management

**Kathleen S. Mackie, Ph.D.**

Lecturer  
Departments of Management and Marketing  
Administration

**Robert H. Schwartz, M.B.A.**

President, Jeremiah Partners  
Senior Lecturer, Department of Management  
Director, Entrepreneurship Concentration

**W. Austin Spivey, Ph.D.**

Associate Professor, Management of Technology  
The University of Texas at San Antonio

**Meg Wilson, M.P.Aff.**

Lecturer, MSSTC Program

*Fellows not otherwise  
identified are associated with  
The University of Texas at Austin.*

*“There’s an old expression, ‘a penny for your thoughts.’ That will be the challenge for capitalism in the 21st century—how to organize and capitalize on the vast distributed resources of human knowledge, while giving the contributors due reward, whenever output is used.”*

David Skyrme  
IC<sup>2</sup> Senior Research Fellow  
David Skyrme Associates Limited

## ENDOWED FELLOWS

### Creed W. Abell

*Bonita Granville Wrather Centennial Fellow*

Director, Institute for Neuroscience  
Henry M. Burlage Endowed Centennial Professor in  
Pharmacy

### Patrick Lee Brockett

*Janey S. Briscoe Centennial Fellow*

Gus S. Wortham Memorial Chair in Risk Management  
and Insurance  
Professor of Management Science and Information  
Systems, Finance, and Mathematics  
Director, Risk Management and Insurance Program

### John Sibley Butler

*Sam Barshop Centennial Fellow*

Dallas TACA Centennial Professor of Liberal Arts  
Department of Sociology  
Arthur James Douglass Centennial Professor of  
Entrepreneurship and Small Business  
Graduate School of Business

### William W. Cooper

*Nadya Kozmetsky Scott Centennial Fellow*

Foster Parker Centennial Professor Emeritus of Finance  
and Management

### Laurence H. Hurley

*Cynthia Hendrick Kozmetsky Endowed Fellow*

George Hitchings Regents Chair in Drug Design  
Head, Laboratory for Drug Design, Drug Dynamics  
Institute  
College of Pharmacy  
Director of Chemistry, Institute for Drug Development

### Dale E. Klein

*Richard Seaver Centennial Fellow*

Vice Chancellor for Special Engineering Programs,  
The University of Texas System  
Executive Director and Chairman of the Board,  
Amarillo National Resource Center for Plutonium  
Bob R. Dorsey Professorship in Engineering  
Department of Mechanical Engineering

### George Kozmetsky

*E.D. Walker Centennial Fellow*

Chairman, IC<sup>2</sup> Institute Advisory Board  
Executive Associate for Economic Affairs,  
The University of Texas System  
Murray S. Johnson Chair in Economics  
Professor of Management and Computer Science

### Richard Lariviere

*Judson Neff Centennial Fellow*

Associate Vice President for International Programs  
Ralph B. Thomas Regents Professor in Asian Studies

### Tom J. Mabry

*Jack Wrather Centennial Fellow*

Professor of Botany

### Robert A. Peterson

*Charles E. Hurwitz Centennial Fellow*

John T. Stuart III Centennial Chair in Business  
Department of Marketing Administration

### Ilya Prigogine

*RGK Foundation Centennial Fellow*

Director, Ilya Prigogine Center for Studies in Statistical  
Mechanics and Complex Systems  
Ashbel Smith Professor and Regental Professor  
Departments of Physics and Chemical Engineering

### Robert Ronstadt

*Harry H. Ransom Centennial Fellow*

Director, IC<sup>2</sup> Institute  
J. Marion West Chair for Constructive Capitalism  
Graduate School of Business

### Walt W. Rostow

*William B. Blakemore II Centennial Fellow*

Professor Emeritus of Political Economy

### Timothy W. Ruefli

*Frank C. Erwin, Jr. Centennial Fellow*

Daniel B. Stuart Centennial Professor in the Application  
of Computers to Business and Management  
Department of Management Science and Information  
Systems

### Rajendra Srivastava

*Charles A. LeMaistre Centennial Fellow*

Senior Associate Dean for Research and Collaborative  
Programs  
Director, Center for Customer Insight  
Jack R. Crosby Regents Chair in Business  
Administration  
Professor of Marketing  
College and Graduate School of Business  
Administration

### Ben Streetman

*Henry E. Singleton Endowed Fellow*

Dean, College of Engineering  
Dula D. Cockrell Centennial Chair in Engineering  
Professor, Department of Electrical and Computer  
Engineering

### Byron D. Tapley

*George A. Roberts Endowed Fellow*

Clare Cockrell Williams Centennial Chair in  
Engineering  
Department of Aerospace Engineering and Engineering  
Mechanics  
Director, Center for Space Research  
Director, Texas Space Grant Consortium

*Fellows not otherwise  
identified are associated with  
The University of Texas at Austin.*



**Richard L. Tucker**

*Michael Scott Endowed Fellow*  
 Director, Construction Industry Institute  
 Joe C. Walters Chair in Engineering  
 Department of Civil Engineering

**Andrew B. Whinston**

*Jon Newton Endowed Fellow*  
 Director, Center for Research in Electronic Commerce  
 Hugh Roy Cullen Centennial Chair in Business  
 Administration  
 Professor of Management Science & Information  
 Systems, Computer Science, Economics, and Library  
 and Information Science

**John M. White**

*Gerhard J. Fonken Endowed Fellow*  
 Norman Hackerman Professor of Chemistry  
 Director, Center for Synthesis, Growth, and Analysis of  
 Electronic Materials  
 Director, Center for Materials Chemistry

**Frederick D. Williams**

*W. W. Heath Centennial Fellow*  
 Professor Emeritus  
 Department of Radio-Television-Film  
 College of Communication

## FELLOWS EMERITUS

**Willis Adcock**

Cockrell Family Regents Chair Emeritus in  
 Engineering #6  
 Department of Electrical and Computer Engineering

**Sten A. Thore**

Luso-American Development Foundation Chair of  
 Science and Technology  
 Instituto Superior Técnico (Lisbon, Portugal)

## SENIOR RESEARCH FELLOWS

**Abel Aganbegyan**

President  
 Academy of National Economy under the Government  
 of the Russian Federation (Moscow, Russia)

**Gerald Albaum**

Professor of Marketing  
 Lundquist College of Business, University of Oregon

**Debra M. Amidon**

Founder and Chief Strategist  
 ENTOVATION International, Ltd.

**Jeffrey W. Amos**

Research Associate, IC<sup>2</sup> Institute  
 Lecturer, Department of Economics

**William A. Barnett**

Professor of Economics  
 Editor, *Macroeconomic Dynamics*  
 Washington University

**Laszlo A. (Les) Belady**

CEO (Retired), Mitsubishi Electric Information  
 Technology Center America  
 Board Member, Mitsubishi Electric America

**Miroslav Benda**

Enterprise Architect, Boeing Commercial Airplane  
 Group

**James W. Botkin**

President, International Corporate Learning  
 Association

**R. Malcolm Brown, Jr.**

Johnson & Johnson Centennial Chair in Plant Cell  
 Biology  
 Department of Botany

**James C. Browne**

Regents Chair in Computer Sciences No. 2  
 Department of Computer Sciences  
 Professor of Physics and Electrical and Computer  
 Engineering  
 Chairman of the Board  
 Scientific & Engineering Software, Inc.

**Corey Carbonara**

Associate Vice President for Technology Management  
 Executive Director, Institute for Technology Innovation  
 Management  
 Baylor University

**Xuelin Chu**

Assistant Dean, School of Business and Management  
 Deputy Director, USTC Institute of Management  
 Director, MBA Program  
 Professor of Management  
 University of Science and Technology of China  
 (Hefei, China)

**W. Dale Compton**

Lillian M. Gilbreth Distinguished Professor of Industrial  
 Engineering  
 Interim Head, School of Industrial Engineering  
 Purdue University

**Jerry Davis**

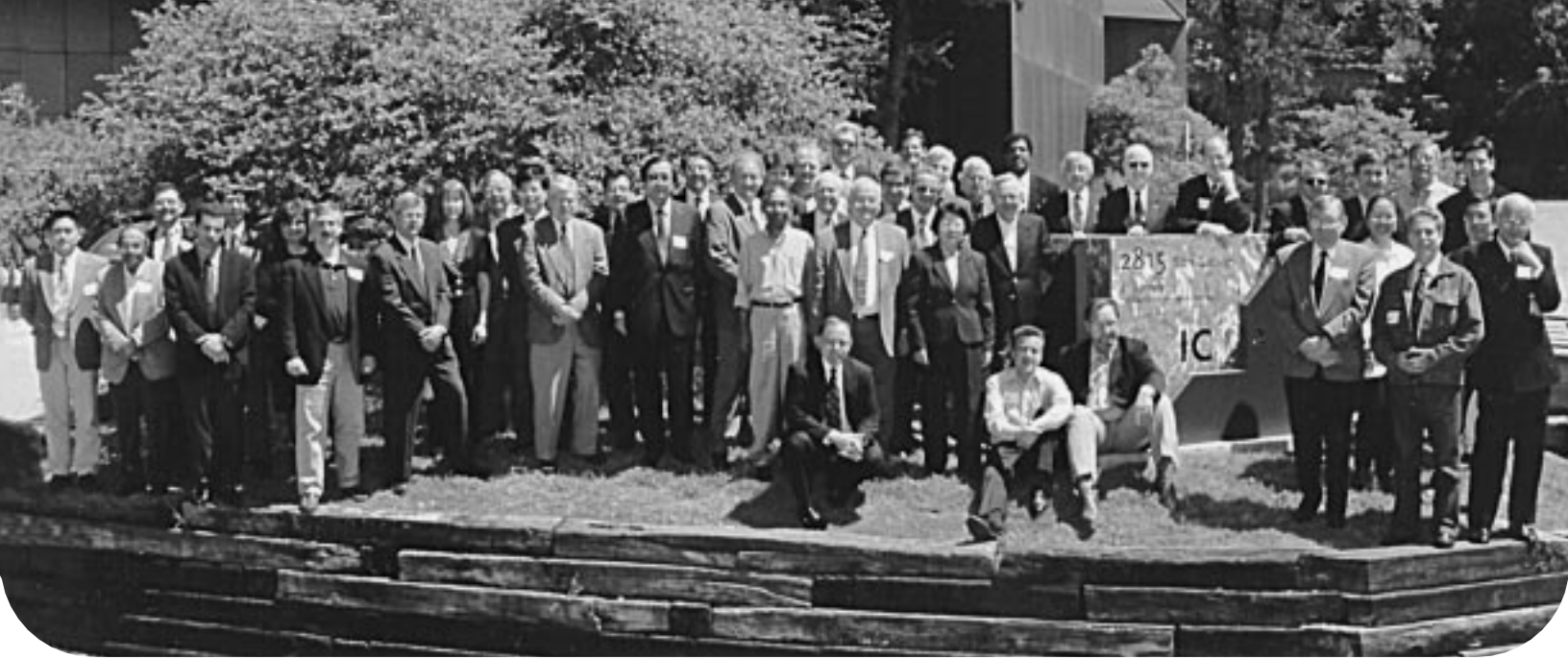
Director  
 Center for Professional Development and Training

**Stephen Director**

Robert J. Vlasic Dean of Engineering  
 Professor of Electrical Engineering and Computer  
 Science  
 University of Michigan

*Fellows not otherwise  
 identified are associated with  
 The University of Texas at Austin.*





IC<sup>2</sup> Fellows gather at the Institute for their annual meeting in April 1998.

**John Nelson Doggett**

Adjunct Assistant Professor, Departments of Management and Marketing  
Partner, The Institute for Management, Development and Change

**Helen Baca Dorsey**

Director of Development  
Society of Manufacturing Engineers (SME) Education Foundation

**Mark Eaton**

CEO, KYPWEE Display Corporation

**Atila Ertas**

Professor of Mechanical Engineering  
Director, Institute for Design and Advanced Technology  
Texas Tech University

**Barry S. Fogel**

Adjunct Professor of Community Health, Brown University  
Visiting Scholar, Massachusetts Institute of Technology  
Executive Vice President, LTCQ, Inc.

**Barbara Fossum**

Director, MSSTC Program  
IC<sup>2</sup> Institute

**Antonio Furino**

Director, Center for Health Economics and Policy  
Professor of Economics  
UT Health Science Center at San Antonio

**H. Stephen Gardner**

Director, McBride Center for International Business  
Hankamer School of Business  
Baylor University

**David V. Gibson**

Director of Global Programs  
IC<sup>2</sup> Institute

**Boaz Golany**

Associate Dean  
Faculty of Industrial Engineering and Management  
The Technion, Israel Institute of Technology  
(Haifa, Israel)

**Linda L. Golden**

Chair, Department of Marketing Administration  
Zale Corporation Centennial Professor in Business

**Steven Gomes**

Managing Principal, The Warren Company (San Francisco Office)

**Kunio Goto**

Director, Research Institute  
Professor, College of Letters  
St. Andrew's University (Osaka, Japan)

**Julian Gresser**

President  
JG Enterprises

**Jack Griggs**

Dean, College of Business Administration  
Professor of Finance  
Abilene Christian University

**Manuel V. Heitor**

Deputy President  
Professor of Mechanical Engineering  
Instituto Superior Técnico, The University of Lisbon  
(Lisbon, Portugal)

Fellows not otherwise identified are associated with The University of Texas at Austin.

**Doug Henton**

President  
Collaborative Economics

**Robert D. Hisrich**

A. Malachi Mixon III Chair in Entrepreneurial Studies  
and Professor  
Weatherhead School of Management  
Case Western Reserve University

**Henry T. Ingle**

Associate Vice President for Technology Planning and  
Distance Learning  
Professor of Communication  
The University of Texas at El Paso

**Akira Ishikawa**

Professor and Chairperson in International Business  
Aoyama Gakuin University (Tokyo, Japan)

**Zhouying Jin**

Director, Center for Technology Innovation and  
Strategy Studies  
Institute of Quanti-Economics and Techno-Economics  
Chinese Academy of Social Sciences  
Director, Research Center of Social and Economics  
Development  
Chinese Academy of Social Sciences, Tsinghua  
University (Beijing, China)

**James Kenworthy**

Executive Director  
Alaska Science and Technology Foundation

**Laura Kilcrease****Theodore D. Klasterin**

Burlington Northern/Burlington Resources Professor of  
Operations Management  
Chair, Department of Management Science, School of  
Business  
Adjunct Professor of Health Services, School of Public  
Health and Community Medicine  
University of Washington

**Ajay K. Kohli**

Sam Barshop Centennial Professor of Marketing  
Administration

**Steven Kornguth**

Professor Emeritus  
Neurology and Biomolecular Chemistry  
University of Wisconsin Medical School

**Joel Kotkin****“Vish” V. Krishnan**

Assistant Professor of Management

**Robert L. Kuhn**

President, The Geneva Companies, Inc.

**Finn E. Kydland**

Professor of Economics  
Graduate School of Industrial Administration  
Carnegie Mellon University

**Kenneth C. Land**

John Franklin Crowell Professor, Department of  
Sociology  
Senior Research Fellow, Center for the Study of Aging  
and Human Development  
Research Fellow, Center for Demographic Studies  
Duke University

**Leon Lasdon**

David Bruton, Jr. Centennial Chair in Business Decision  
Support Systems  
Department of Management Science and Information  
Systems

**David B. Learner**

President and Chief Executive Officer  
MRCA Information Services

**Robert P. Leone**

Berry Chair in Marketing  
Fisher College of Business, The Ohio State University

**Brian Lever**

Industrial Advisor, Innovation Unit  
Department of Trade and Industry (United Kingdom)

**Vijay Mahajan**

John P. Harbin Centennial Chair in Business  
Department of Marketing Administration

**Humboldt C. Mandell, Jr.**

Associate Manager, Exploration Office  
NASA Johnson Space Center

**Mike Maples**

Microsoft Corporation (Retired)

**Hiroshi Matsumoto**

Senior Executive Director, The International House of  
Japan, Inc. (Tokyo)

**Robert G. May**

Dean, College of Business Administration and Graduate  
School of Business

**Abderrahmane Megateli**

President  
A & K Consulting and Associates

*Fellows not otherwise  
identified are associated with  
The University of Texas at Austin.*

**Gerhard O. Mensch**

Professor, International School of General Management  
 Director, International Institute for Technology  
 Management and Economics (Bad Waldsee, Germany)

**Edward A. Miller**

President, DSI

**Yukio Mizuno**

Advisor  
 NEC Corporation

**Kate Moody**

Director, Open Gates Dyslexia Programs  
 Assistant Professor, Department of Neurology  
 The University of Texas Medical Branch at Galveston

**Kiyoshi Niwa**

Professor, Department of System Science  
 The University of Tokyo

**Fred Phillips**

Professor and Department Head  
 Department of Management in Science and Technology  
 Oregon Graduate Institute of Science and Technology  
 Affiliate Staff Scientist, Battelle-Pacific Northwest  
 Laboratories

**Jesse H. Poore**

Professor of Computer Science  
 Ericsson-Harlan D. Mills Chair in Software Engineering  
 University of Tennessee

**Kenneth Preiss**

Professor  
 Ben Gurion University of the Negev (Beer Sheva, Israel)

**Luis M. Proenza**

Vice President for Research and Dean of the Graduate  
 School  
 Purdue University

**C.V. Ramamoorthy**

Professor of Electrical Engineering and Computer  
 Science  
 University of California, Berkeley  
 Visiting Professor, University of Illinois-Urbana  
 Champaign

**Raj Reddy**

Herbert A. Simon University Professor  
 Dean, School of Computer Science  
 Carnegie Mellon University

**Nikolay Rogalev**

Senior Scientific Researcher  
 Director, Science Park "Izmaylovo"  
 Moscow Power Engineering Institute

**Everett M. Rogers**

Professor, Department of Communications and  
 Journalism  
 University of New Mexico

**Brian Rosborough**

Chairman and Founder  
 Earthwatch Institute

**Martha Russell**

Assistant Dean for Instructional Technology  
 College of Communication

**Lorraine Segil**

Partner, The Lared Group

**Syed Z. Shariq**

Director for Research  
 Knowledge, Technology, and Innovation Systems  
 Project, Institute for International Studies  
 Visiting Scholar, Center for Economic Policy Research  
 Stanford University  
 President, Knowledgen, Inc.  
 President, Knowledge Asset Management

**David Skyrme**

Knowledge Management Consultant  
 David Skyrme Associates Limited  
 (Newbury, England)

**Raymond Smilor**

Vice President, Center for Entrepreneurial  
 Leadership Inc.  
 Ewing Marion Kauffman Foundation

**David Smith**

Vice President  
 Technology Futures, Inc.

**Jay Stein**

Senior Vice President and Vice Provost for Health  
 Affairs  
 University of Rochester Medical Center

**Robert S. Sullivan**

Dean  
 Kenan Flagler Business School  
 University of North Carolina at Chapel Hill

**Murat Tanik**

Professor of Electrical and Computer Engineering  
 University of Alabama at Birmingham

**Sheridan Tatsuno**

President, Dreamscape Net

*Fellows not otherwise  
 identified are associated with  
 The University of Texas at Austin.*

### **Delbert Tesar**

Director of Robotics Research Group  
Carol Cockrell Curran Chair in Engineering  
Department of Mechanical Engineering

### **Gerald Thompson**

IBM Professor of Systems and Operations Research  
Graduate School of Industrial Administration  
Carnegie Mellon University

### **Michael H. Wakelin**

Vice President, Bechtel International Corporation  
Manager of Strategic Regional Initiatives  
Bechtel Fellow  
Bechtel Corporation

### **Kenneth D. Walters**

Professor of Business  
Bothell Business Program  
University of Washington

### **Ellen Wartella**

Dean, College of Communication  
Walter Cronkite Regent's Chair in Communication

### **Raymond Yeh**

Chairman and CEO  
FunSoft, Inc.

### **Leslie Young**

Professor of Finance  
Executive Director, The Asia-Pacific Institute of  
Business  
The Chinese University of Hong Kong

### **Piyu Yue**

Research Associate, IC<sup>2</sup> Institute

## RESEARCH FELLOWS

### **Uttarayan Bagchi**

Professor of Management

### **Xiangming Chen**

Associate Professor of Sociology  
Faculty Scholar, Great Cities Institute  
The University of Illinois at Chicago

### **Hirofumi Matsuo**

Fred H. Moore Centennial Professor in International  
Management

### **Donald Sexton**

Scholar in Residence, Ewing Marion Kauffman  
Foundation  
Adjunct Faculty, Nova Southeastern University

### **Tae Kyung Sung**

Associate Dean, Sosung Institute  
Assistant Professor of Management Information  
Systems  
Kyonggi University (Seoul, South Korea)  
Executive Vice President, Korea Management  
Information Society

### **Devanath Tirupati**

Associate Professor of Management

## WASHINGTON FELLOWS

*The IC<sup>2</sup> Washington Fellows advise the academic Fellows of the Institute on the direction, dissemination, and policy implications of their research. Washington Fellows activities are coordinated by IC<sup>2</sup> Fellow J. R. Kirkland.*

### **Don Fuqua**

President and General Manager  
Aerospace Industries Association of America, Inc.

### **John E. Hunnicutt**

Senior Vice President-Public Affairs  
American Institute of Certified Public Accountants

### **J. R. Kirkland**

President, FBA, Inc.

### **Philip H. Potter**

President, Federal Strategies Group, Inc.  
President and Executive Director, The NAFTA Institute

## VISITING SCHOLARS

### **Pedro Conceição**

Instituto Superior Técnico  
(Lisbon, Portugal)

### **Frederic Frery**

Ecole Supérieure de Commerce  
(Paris, France)

### **Xiaoming Lu**

University of Science and Technology, China  
(Hefei, China)

### **Zhang Qin**

Wuhan East Lake New Tech Innovation Center  
(Wuhan, China)

*Fellows not otherwise  
identified are associated with  
The University of Texas at Austin.*

## IC<sup>2</sup> Associates

Research and scholarship activities at The University of Texas at Austin of these Associates were or are supported in part by IC<sup>2</sup> Institute.

### **Sherri Dunlap**

Bachelor of Science Candidate  
Department of Computer Science  
St. Edward's University

### **Ardell Taylor Fleeson**

Master's Candidate  
Science and Technology Commercialization  
IC<sup>2</sup> Institute

### **John Holden**

Bachelor of Science Candidate  
Department of Electrical Engineering

### **Jeffrey Janert**

Bachelor of Science  
Department of Mechanical Engineering

### **Fred Lin**

Bachelor of Arts Candidate  
Department of Japanese

### **Giac Nguyen**

Bachelor of Science Candidate  
Department of Computer Science

### **Paulo Pinto**

Master's Candidate  
Science and Technology Commercialization  
IC<sup>2</sup> Institute

### **Joe Poehls**

Bachelor of Science Candidate  
Department of Electrical Engineering

### **Daniel Rodriguez**

Bachelor of Business Administration Candidate  
Department of MIS  
College of Business Administration

### **Craig White**

Bachelor of Science  
Department of Mechanical Engineering

*"21st century capitalism will be focused on the flow of resources into a much greater diversity of innovative services, ideas, and knowledge-based activities. Economies will be driven by a much wider range of entrepreneurs whose assets will be their knowledge rather than their 'manufacturing machines.' The rate of change of consumer needs and the supply processes will be rapid. Competitive advantage will depend on innovation rate and agility. Success for regions and nations will depend on a higher proportion of the population being entrepreneurial. The intellectual, 'soft' infrastructure will be critical."*

Brian Lever  
IC<sup>2</sup> Senior Research Fellow  
Department of Trade and Industry (United Kingdom)



*The 21st century is a time to build civil societies, a society that provides all individuals opportunities for conditions of daily life, e.g., jobs, skills, and competencies as well as an appropriate recognition of their contributions. A civil society requires entrepreneurial civic leadership in each community to integrate its economic, cultural, political, and technology sectors. Civil societies' entrepreneurial community leadership must come from a sharing and caring partnership between the academia, business, government, and foundations sectors of our communities.*

George Kozmetsky  
Chairman of the Advisory Board

IC<sup>2</sup> INSTITUTE LEADERSHIP COMMITTEE

Michael Dell, Chairman and CEO,  
*Dell Computer Corporation (Chairman)*

Samuel E. Barshop, Chairman,  
*Barshop & Oles Company, Inc.*

Kay Hammer, President & CEO,  
*Evolutionary Technologies International, Inc.*

George Kozmetsky, Chairman of the Advisory Board,  
*IC<sup>2</sup> Institute*

Bernard Rapoport, Chairman and CEO,  
*American Income Life Insurance Company*

Robert Ronstadt, Director,  
*IC<sup>2</sup> Institute*

Joseph C. Walton, Private Investor,  
*Reed Slatkin & Associates*



**IC<sup>2</sup> Institute**  
The University of Texas at Austin  
2815 San Gabriel — Austin, Texas 78705  
Telephone 512-475-8900 — Fax 512-475-8901  
[www.utexas.edu/depts/ic2/](http://www.utexas.edu/depts/ic2/)  
[mail@icc.utexas.edu](mailto:mail@icc.utexas.edu)

**Edited by**  
Heather Setzler, Publications Director  
Masoom Khan, Technical Writer and Editor

**Design by**  
Don Lewis, Creative West.dzn

**Photography by**  
University Photography Services