

University of Texas at Austin Conducts Orientation Session at DSMC

Science and Technology Commercialization Graduate Degree Now Offered at DSMC's Fort Belvoir Campus

COLLIE J. JOHNSON

On December 16, 1995, Col. William E. Knight, USA, extended an enthusiastic and long-awaited welcome to the first candidates for the University of Texas at Austin (UT-Austin) graduate degree in Science and Technology Commercialization. Knight, the Dean of College Administration and Services at DSMC's main Fort Belvoir campus, was joined by representatives of UT-Austin and the DSMC Commandant. Together, they conducted the first Virginia Orientation Session for students enrolling in UT-Austin's Science and Technology Commercialization Masters Program, which began classes on January 26, 1996.

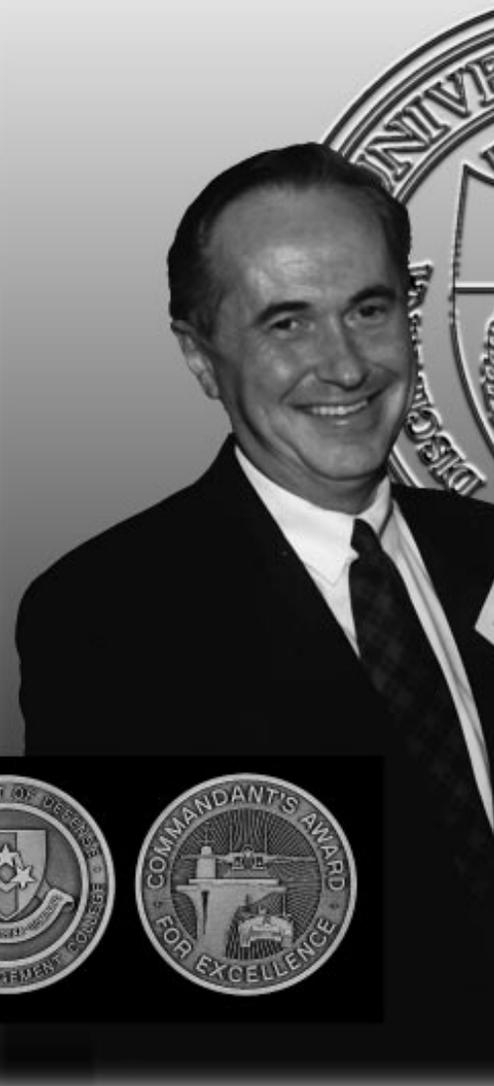
Making It Happen

This mutually beneficial educational partnership was preceded by months of rigorous preparation and restructuring on the part of UT-Austin and DSMC. Realizing that a critical core of technology managers in the Washington, D.C. area could benefit from such a program, UT-Austin and DSMC developed and structured the curricula, schedule, and facilities so that students could remain on the job while pursuing a graduate degree in Science and Technology Commercialization. Of special note is the fact that this is the first degree program UT-Austin has offered totally outside the state of Texas.

After two years of work, Knight and his staff pulled together many of the legal, logistical, and administrative details to make the new educational partnership between UT-Austin and DSMC a reality. An enthusiastic supporter of this joint educational venture from the onset, Knight stressed that "partnership" was indeed the key word. "This is a perfect match for a partnership between UT-Austin and DSMC because UT is an innovator in trying to bring technology to the marketplace quickly. We [DSMC] are also innovators in assisting the acquisition reform effort, which is helping not only the federal government but, specifically, the Department of Defense to work better, smarter, faster, and cheaper...you're here to learn this process," Knight told the assembled students, "and you've come to the right place."

A Dream Come True

"A dream come true" is how the DSMC Commandant, Brig. Gen. Claude M. Bolton, Jr., USAF, described the UT-Austin/DSMC educational partnership. "From the beginning when Bill Knight and I first looked at the proposal, it sounded like a great idea, because a lot of folks in this area want to know how to do this type of work. And thanks to UT Austin, and the hard work of



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Bill and his staff, you, our students, now have the opportunity to take this important step in achieving your graduate education goals. *You* are the reasons that we've worked so hard over the last couple of years to make this educational partnership happen."

Bolton went on to say that, "We [DSMC] look at this as a grand opportunity for the College, working with UT-Austin, to bring the business of technology and commercialization, together with the latest in learning theories and classroom equipment, to your learning experiences on this cam-

pus." He had generous praise for UT-Austin, Knight and his staff, calling their joint cooperation "key to bringing this graduate program altogether for all of you." Referring to the increased importance of dual use-technology and how to get it to the marketplace, he commended UT-Austin for being at the forefront educating the professional acquisition workforce in this vital acquisition reform initiative.

Introducing Dr. Robert S. Sullivan, Director, IC² Institute, UT-Austin, Bolton presented him with a brass coin – the DSMC Commandant's

Award for Excellence. Reciprocating, Sullivan presented Bolton with one of the first UT-Austin/Fort Belvoir T-shirts, commenting, "It's one of the shirts that hopefully many of our students also will wear to remember that they're part of a new group, an experiment, changing the learning processes in higher education."

About the IC² Institute

The Science and Technology Commercialization graduate degree program has deeply embedded roots in UT-Austin's IC² Institute. Sullivan first gave an overview of the Institute's framework. The Institute's acronym stands for "Innovation, Creativity, and Capital." It was founded by Dr. George

Kozmetsky, who had previously co-founded Teledyne Corporation – the large, multi-national, multi-business industry, with strong ties to the defense industry technology base.

Kozmetsky, seeking to parley his past successes and profits taking knowledge from the laboratory to the marketplace, plunged those assets into establishing the IC²

Institute 17 years ago. As the IC² Institute Director, he looked at many issues including venture capital and start-up firms.

"The IC² Institute," said Sullivan, "is now more than UT-Austin. In fact, its programs span the United States in terms of our activities within the Institute. And one very important piece of the Institute is the Master of Science Degree in Science and Technology Commercialization, which we're now focusing on. Ultimately, you'll realize that it's at the core of what we do."

Austin Technology Incubator

Another important piece of the Institute's success, according to Sullivan, is

BRIG. GEN. CLAUDE M. BOLTON, JR., COMMANDANT, DSMC, PRESENTS DR. ROBERT S. SULLIVAN, DIRECTOR, IC² INSTITUTE, UT-AUSTIN, WITH A BRASS COIN REPRESENTING THE DSMC COMMANDANT'S AWARD FOR EXCELLENCE. THE OCCASION MARKED THE FIRST VIRGINIA ORIENTATION SESSION OF UT-AUSTIN'S NEW MASTERS PROGRAM IN SCIENCE AND TECHNOLOGY COMMERCIALIZATION. (SEE INSET FOR COIN CLOSE-UP.)



its Austin Technology Incubator, which basically takes knowledge out of the laboratories, commercializes that knowledge, and sets up companies. Currently, the Institute has about 29 companies in its incubator; only two have failed.

“Our easy access to support structures and other infrastructures necessary for launching these companies has been critical.” Sullivan went on to say that in Austin, the UT-Austin Technology Incubator has directly created between 800 and 1,000 jobs that are technology-based and high-paying. And the multiplier effect for that in terms of other related jobs is very significant for the community. “In fact,” he acknowledged, “two years ago, the Austin Technology Incubator was named the top incubator in the United States.”

But That’s Not All

Sullivan continued his discussion of the Institute with a recap on the amazing array of projects and services originating from the Institute. Among them:

Capital Network, TCN. This is a “matching mechanism” where the Institute matches wealthy individuals looking for investment opportunities with a technological industry suited to their capital, risk, and other parameters. This Network has now become the largest of its kind in the United States, very successful, and completely self-sustaining. *Forbes*, *Fortune*, and *Business Week* have published articles highlighting the Network’s successes.

Technology Commercialization Centers. The National Aeronautics and Space Administration was the Institute’s first experiment outside of Austin to bring the technologies in, provide the best technology for the market, provide an infrastructure and support, and increase the likelihood of the company’s success. The commercialization process is now growing so rapidly that, according to Sullivan, the Institute could double its size and still not satisfy all the demand. Centers are

evolving all across the country including Johnson Space Center, Houston, Texas; San Jose, California; Charleston, South Carolina; and Bechtel, North Las Vegas, Nevada.

Global Alliances. The Institute plays a role networking commercialization processes and procedures around the world. Its horizons extend from working military defense processes in the Ukraine, to sharing technologies and processes in Cuba, to incorporating software companies in Brazil into the Austin Technology Incubator.

Telecommunications. The Institute recognizes that the processes of communicating and learning are changing drastically. The goal is to distribute learning worldwide; provide individuals with the right knowledge when they need it and where they need it; customize the information for customers; and maintain a mutually satisfying partnership with customers and institutions.

Conferences, Seminars, Executive Programs. The Institute runs conferences, seminars, and executive programs all over the world, including Russia and China, as well as major cities in the continental United States.

Focus for Tomorrow

Sullivan then outlined for the assembled students exactly what the Institute’s focus would be during their graduate education:

Continual Transforming Process. “Focus on not only what skills are necessary today to carry out our jobs, develop a foundation or a process so that we’re continually transforming ourselves – not only trying to *keep up* with change, but actually *causing* change. We want to be at the *forefront*.”

Research, Discovery, Dissemination. These three areas are a vital part of the Institute’s mission. Research and discovery focus on the laboratory process – what it takes to be more successful in the process of commercializing sci-

ence and technology. How do we do it better? What would build a better infrastructure? “It doesn’t do us any good to discover something,” said Sullivan, “if we’re not getting the information out.” And that is where dissemination enters the picture. The bottom line, according to Sullivan, is if a discovery does not go into the market [dissemination] and society does not benefit, no wealth or prosperity sharing results. Sullivan stressed that the Institute wants to create social and cultural enrichment. And to achieve that end, all three processes – research, discovery, dissemination – are inseparable.

Summarizing his presentation, Sullivan told the students the Institute’s primary mission is to “enhance understanding of the processes of creating economic wealth and prosperity sharing. Clearly, this technology transfer process is at its heart. We want to not only tell you what we know, we want to know more ourselves.”

Sullivan referred to commercialization as the core to the entire commercialization process, “...because we create industry, take discovery, and get it to the market. It then creates wealth and prosperity sharing – and we want to increase the likelihood of teaching you how to succeed in these areas as well as being successful at doing that ourselves.”

Focus on the Faculty

Sullivan then introduced Professor Timothy W. Ruefli, Management Science and Information Systems Department, UT-Austin Business School. In addition to his professorship at the Business School, Ruefli is an IC² Institute Fellow and Frank C. Erwin Endowed Centennial Professor.

According to Ruefli, his primary responsibility is to support the educational partnership between UT-Austin and DSMC by coordinating faculty for the program, and promoting a rapport between students and faculty that fosters a thriving learning environment.

Welcoming the assembled students, Ruefli said, "This degree program is designed for working professionals... We expect you will learn a lot from each other as part of the learning experience. We're bringing together a diverse group of people with various experiences, and we promote interaction."

Ruefli went on to say that the overriding focus of the course will be on science and technology as a key element of organizational competitive strategy. According to Ruefli, "We see science and technology commercialization as keys for organizations to reinvent themselves, as the basis for technology entrepreneurship, and as the engine that drives the social and cultural enrichment resulting from economic wealth and prosperity sharing. The ability to get things off the shelf and into the market is the key to competition, and rapid innovation is becoming the key to survival."

Masters Program Structure

Ruefli promised the students a 12-month program that will be an intense, perhaps painful experience. The Institute will administer the program with a Friday/Saturday schedule, designed to let students work regular hours and still continue their education. He also spoke of communication skills and team building, two important tools integrated into the curricula. Speaking of the types of material covered in the program, Ruefli gave a brief review of the course material:

- What is the technology transfer and commercialization process?
- What are the stages of commercialization and why are they critical?
- How are innovation and creativity stimulating?
- How do we create scientists with entrepreneurial minds?
- How do we get scientists in the lab to work with people who can integrate things into the market?
- How can technology markets be identified and defined?
- What is the process of assessment, and how can capital expertise be

DR. ROBERT S. SULLIVAN

Director, IC² Institute
The University of Texas at Austin

Dr. Robert S. Sullivan became director of the IC² Institute at The University of Texas at Austin on June 1, 1995. He has been an IC² Fellow since 1987 and is now the IC² Harry H. Ransom Centennial Fellow. He also serves as a member of the faculty of the UT-Austin Graduate School of Business and holds the J. Marion West Chair for Constructive Capitalism.

Sullivan was dean of the Graduate School of Industrial Administration (GSIA) at Carnegie Mellon University (CMU) from 1991-95 and is an adjunct professor in the Information Technology Center in the CMU School of Computer Science.

Under his leadership, the ranking of GSIA among business schools rose significantly. He led GSIA through complete reengineering of the school's educational and research programs. This complex effort included the application of advanced technology in the field of finance, a focus on increasing manufacturing productivity, and the creation of experimental and distance learning. The reengineering effort also encompassed development of one-of-a-kind innovative degree programs forged by combining GSIA's own resources with other Carnegie Mellon departments and those of other universities.

His administration stressed global educational interactions, the application of technology to the GSIA learning experience, "just-in-time learning," entrepreneurship, and the commercialization of new technologies.

From 1976 to 1991, Dr. Sullivan was on the faculty at The University of Texas at Austin, where he was Joe B. Cook Professor of Management and associate dean for research and academic affairs in the Graduate School of Business. He served as codirector of the Center for Technology Venturing, director of the Bureau of Business Research, and associate director of the Manufacturing Systems Engineering Program in the College of Engineering.

Sullivan was the first professor in the Management Department to win both the business school's undergraduate and graduate awards for teaching excellence. He was also involved in the design of the Manufacturing Systems Engineering Program and was a lead faculty member in the design of the Systems Management MBA program, which was funded with a \$2.7 million grant from the IBM corporation.

Sullivan's research interests center on manufacturing systems management and project



management. In particular, his research has focused on network simulation, implementation strategies for computer integrated manufacturing, and job scheduling and sequencing.

His publications have appeared in such journals as *Management Science*, *Operations Research*, *The International Journal of Production Research*, *Naval Research Logistics Quarterly*, and *Annals of Operations Research*. He has written two books with colleagues: *Service Operations Management* (McGraw-Hill, 1982) and *Quantitative Systems for Business* (Prentice-Hall, 1986), accompanied by a software product of the same name, which has appeared in a number of versions since the first publication.

Sullivan is a member of the editorial boards of two academic journals: *Interfaces* and the *Journal of Manufacturing and Operations Management*. He has served as chairman of The Institute for Management Sciences (TIMS) College on Production and Operations Management, chairman of the Special Interest Group in Manufacturing Management of the Operations Research Society of America (ORSA), and chairman of the review panel for the Design and Computer Integrated Manufacturing Program of the National Science Foundation. He is a member of the Task Force on Business School Education Committee of INFORMS (merger of TIMS and ORSA), a member of the Advisory Board of the Business School of the Adolfo Ibanez University (Chile), and 1996 president of the Greater Austin Quality Council.

His professional affiliations include the American Institute for Decision Sciences, the Institute for Management Sciences, and the Operations Management Association.

A graduate of Boston College in mathematics, Sullivan holds a master's degree in production management and quantitative methods from Cornell University and a doctorate in operations management from Pennsylvania State University.

accessed and applied to the commercialization process?

- How do we define the metrics of performance and assess risk?
- How do state and federal governments support R&D and commercialization? What's likely to happen? How can we capitalize on this?
- What is the impact of the legal system and intellectual property rights?
- What constraints are placed on commercialization?
- What do you have to know to make commercialization successful?
- How can you apply the commercialization process as a competitive weapon?

Potential Career Paths and Course Instructors

Referring to the career paths available to those with the Science and Technol-

ogy Commercialization Degree, Ruefli stated, "We don't have a specific narrow channel that we're aiming at. We're talking about managers or directors of labs or technology divisions; leaders of technology-based companies; and companies working with Department of Defense, Department of Energy, and the federal labs. We're aiming at consultants holding local, state, and national positions with industry consortia. We're also looking at science and technology entrepreneurs themselves and technology venture capitalists."

Ruefli assured the students that UT-Austin had assembled an exceptional group of faculty to teach the courses. The instructors were selected for their knowledge, eminent qualifications to teach the subject matter, and skill in

working with people. He noted that Kozmetsky, co-founder of the C² Institute, will also be involved.

Wrap-up

Concluding his remarks, Ruefli said that the classes are small enough that instructors can accommodate a reasonable amount of individual attention and focus. He then opened a student question-and-answer session, followed by registration and a tour of the Defense Systems Management College library, Management Deliberation Center, Learning Resource Center, and classrooms.

Editor's Note: For further information, prospective students should call 1-800-218-6782 or E-Mail: exec.ms@icc.utexas.edu.

ARGENTINE DEFENSE ATTACHÉ VISITS DSMC

On 18 January, 1996, we welcomed Lt. Gen. Carlos Zabala, Argentine Defense Attaché, to the Defense Systems Management College (DSMC). Zabala's visit was precipitated by Secretary of Defense William J. Perry's creation of the Argentine-U.S. Defense Bilateral Group in November of 1994 with the goal of cementing the close relations that have developed between Argentina and the United States since the 1990 Gulf War, in which Argentina participated. Argentina is in the process of restructuring its defense policy making apparatus, which includes, but is not limited to, the Ministry of Defense. They have identified an urgent need for trained civilian defense experts. This was the primary focus of Zabala's visit. They are interested in sending students to DSMC as well as having DSMC send instructors to Argentina to reach a larger audience at lower cost. This issue is likely to be central in the second meeting of all the Ministers of Defense of the Southern Hemisphere scheduled for October in Argentina. Perry hosted the first meeting, and will attend the second.

Editor's Note: LeBoeuf, whose native language is Spanish, acted as official interpreter throughout the visit.



LT. GEN. CARLOS ZABALA, ARGENTINE DEFENSE ATTACHÉ, A REPRESENTATIVE FROM THE OFFICE OF INTERNATIONAL SECURITY AFFAIRS, AND MEMBERS OF THE COLLEGE STAFF REVIEW COURSE MATERIALS DURING THE ATTACHÉ'S ORIENTATION VISIT TO DSMC ON JANUARY 18, 1996. PICTURED FROM LEFT: LT. COL. BEAUCHAMP, AIDE TO LT. GEN. ZABALA; COL. WILLIAM E. KNIGHT, U.S. ARMY, DEAN OF COLLEGE ADMINISTRATION AND SERVICES, DSMC; LT. GEN. CARLOS ZABALA, ARGENTINE DEFENSE ATTACHÉ; PROFESSOR GIBSON LeBOEUF, HOLDER OF NAVY CHAIR, DSMC EXECUTIVE INSTITUTE; DR. FRED RUIZ-RAMON, INTERNATIONAL SECURITY AFFAIRS, INTER-AMERICAN REGION.