PROPOSAL TO ESTABLISH A SCHOOL OF MANAGEMENT AT THE UNIVERSITY OF CALIFORNIA, SANTA CRUZ

DRAFT: PRE-PROPOSAL FOR COMMITTEE ON PLANNING AND BUDGET, ACADEMIC SENATE, UCSC

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EXECUTIVE SUMMARY

Silicon Valley is the leader of the knowledge-based global economy. Trends in technology and globalization have fundamentally altered the regional economy, the demands upon management and the needs of global organizations. Rapid change and the growing complexity of business are exemplified by several specific changes:

- Globalization of value networks, from basic research to after-sales service
- Increasing science and technology content of products and services
- Increased pace of innovation
- Greater diversity of skills and cultures

Silicon Valley is at the forefront of these trends.

In this context, there are new challenges for managers at all levels and in all types of companies, including managing geographically and culturally diverse teams; managing complex and rapidly evolving mixes of technologies, products and services; and managing large, dispersed amounts of data, information and knowledge for operations, customer service and innovation. Interviews with Silicon Valley business leaders strongly indicate that existing programs or models of management education are not fully meeting the needs of tomorrow's leaders.

The Santa Cruz campus proposes to create a School of Management (SoM) that steps into this gap, providing:

1. world-class management education and research in the heart of Silicon Valley, and
2. innovations in themes, programs and delivery methods to serve the evolving needs of students, the region, and the state of California in the coming decades.

The School of Management will meet the needs of Silicon Valley as a gateway institution both within the region and globally — serving as a hub for local and global talent, cross-disciplinary research, business-university partnerships, global leadership and local entrepreneurship and innovation. Interviews with Silicon Valley business leaders suggest that they are concerned about having enough local talent to allow their organizations to maintain competitiveness, and support the creation of more avenues for local upgrading of high-end skills. The School will help to serve highly-qualified students who are not being accommodated by current management programs in the region or the State.

While several business schools and management programs exist in the Valley, it is significant that the first school *built in partnership with and for* the international, integrated economy exemplified by Silicon Valley will be built by the University of California. The distinctiveness of the new school will be based on this focus on meeting the needs of Silicon Valley, and of the dynamic global economy that the region drives as well as serves.

Building on UCSC's core commitment to interdisciplinary research and teaching and its current strengths in international trade, finance, global studies, leadership, engineering and science, the SoM will provide *the structure, location and programs to meet the evolving needs of Silicon Valley and the State of California through the rest of this century*. Silicon Valley can be a complete global knowledge hub, educating the world as well as innovating for the world. A new School of Management can be an engine of opportunity for generations to come, training future leaders from all backgrounds.

- The SoM's core themes center on interdisciplinary clusters in globalization, technology, innovation and entrepreneurship, with foci on specific sectors and issues that are salient for Silicon Valley and the state of California, including intellectual property rights, information technology, biotechnology, 'green tech,' knowledge-based services, and health care. The foci of the school will align with emerging trends, UCSC faculty interests, and campus priorities for growth.
- The curriculum will train students in the core analytic areas of management education, deeply integrated with managing in a global, technological, innovative, and culturally diverse world environment.
- The opportunity is reflected in the growing demand for management education in Silicon Valley — up to a 25% annual shortfall between demand and supply of MBA graduates — and the unique combination of innovative research, teaching and collaboration that a UCSC School of Management will provide beyond what is currently available for either companies or students in the region.
- Contacts with Silicon Valley entrepreneurs and corporations indicate interest in the idea of a new school of management with UC quality, aimed at serving Silicon Valley. Preliminary indications are that there is potential for a large naming gift for a new management school located in, and integrally associated with Silicon Valley.
- Built from the ground-up for Silicon Valley, the SoM will have new public-private and interdisciplinary research collaborations, new forms of "real-world" training and internships, teaching partnerships with SV executives and practitioners, and provide innovative and responsive executive education by world-class experts.
- The School will eventually contribute over 200 MBA graduates to the Silicon Valley management pool annually, and provide professional education to over 400 executive education participants each year. At this graduation level, the SoM will fill roughly 25% of the projected graduate short-fall, creating opportunities for both growth as well as flexibility as the needs of the region evolve.
- UCSC brings to the SoM established and deep ties to Silicon Valley research (BIN-RDI, UARC), world-class expertise (international trade and finance, globalization, computer networking, information technology and knowledge engineering, leadership, environmental and social policy) and experience and commitment to cultural diversity and interdisciplinary collaboration. The school would be an attractive means for expanding graduate education in a resource friendly manner, avoiding local strains in Santa Cruz, and tapping a need for professional education in a region that is one of the world's major economic engines.
- In common with other management programs, a UCSC School of Management would develop full-time, part-time, and executive programs leading to the Master of Business Administration degree**.** Successful public management schools cannot rely solely on state-funded, full-time MBA students but must have an appropriate mix of part-time and fee-based degree and non-degree students. The school should also develop a small Ph.D. program linked to the core research emphases of the faculty.
- The overall analysis envisions a steady-state enrollment of 635 degree students (200 state-funded MBA, 35 Ph.D. students, and 400 in fee-based MBA programs), combined with an active Executive Education program. The school would have 34 faculty (25 full-time faculty

and 9 adjuncts and lecturers). A significant fraction of the full-time faculty could involve joint appointments with existing UCSC departments.

- UCSC's financial analysis indicates a world-class program is affordable with the appropriate mix of state-funded and fee-based enrollments. Launching a School of Management requires only modest external financial support, primarily to help meet the costs of obtaining a building to house the school in Silicon Valley and transitional costs as the school builds to steady state. At steady-state the School will generate positive cash-flow, allowing for sustainable growth, investment in quality programs and repayment of debt.

MISSION: BUILDING A REGIONAL HUB FOR GLOBAL MANAGEMENT

Silicon Valley is the vibrant, innovation leader of the knowledge-based global economy. However, existing models of management education are not fully meeting the needs of tomorrow's leaders, entrepreneurs and innovators. Recognizing that trends in technology and globalization have altered the Silicon Valley regional economy, the demands upon management and the needs of global organizations, UCSC envisions a School of Management that steps into this gap, providing:

- World-class management education and research in the heart of Silicon Valley, and
- Innovations in themes, programs and delivery methods to serve the evolving needs of students, the region, and the state of California in the coming decades.

UCSC has the opportunity to launch a school that will integrate **Silicon Valley strengths** (innovation, entrepreneurship, a culturally and ethnically diverse workforce, and international engagement) with **UCSC expertise** (international trade and finance, global studies, computer networking, information technology and knowledge engineering, leadership, environmental and social policy) to build **world-class University of California management training** integrating leadership, ethics, global thinking, core management skills, and leading edge technological innovations.

UCSC envisions a School of Management that will serve as a gateway institution both within the region and globally — serving as a nexus for local and global talent, cross-disciplinary research, business-university partnerships, global leadership and local entrepreneurship and innovation.

While several business schools and management programs exist in Silicon Valley, UCSC envisions the first school *for* the international, integrated economy exemplified by Silicon Valley industry, training students to be leaders in global management for a knowledge-based economy. The outcome will be an integrated management education that bridges core functional, organizational, technological, and regional dynamics.

THE EDUCATIONAL CONTEXT: EMERGING DEMANDS ON MANAGEMENT EDUCATION

To make the most of UCSC's opportunity to develop a professional school of management in Silicon Valley, the campus needs to exploit the strengths and world-wide reputation of Silicon Valley — as a center for innovation in technology and organization combined with intense entrepreneurial activity and venture capital funding — with UCSC's own strengths in such areas as global studies, technology, policy and cross-disciplinary and cross-cultural analysis and organization.

As discussed in Singh, Akella, and Eischen[1], globalization is playing a significant, influential role in Silicon Valley organizations, from research all the way through the value chain to marketing and after-sales service. Recent innovations in communication and collaboration technologies, in which Silicon Valley has been the leader, have made it possible for large firms to disaggregate their operations well beyond just locating production in other countries. Business process outsourcing is the most obvious example of this phenomenon, but research and development activities are also being split up and distributed globally. Even small firms, with a few dozen employees, are participating in this trend. This means that act of management has become more complex and the process of educating managers itself needs to evolve. Key emerging issues facing management and management education include:

- *Increasing Technology Content*: The pervasiveness of information technology has increased the "technology-content" and the resultant complexity of a wide variety of products and services. This increases the need for understanding technologies as they evolve individually, as parts of larger systems and as linked to evolving strategic questions. A central recurring management issue becomes which technologies in which combination maximize strategic advantage over a set time-frame. This results in technology becoming a required core functional area of management knowledge, and increases the demand for management education that prepares individuals to manage and integrate products, technologies and human resources across organizations to insure competitive advantage for both known and unforeseen technological innovations.
- *Knowledge Intensive Services*: The globalization of work and evolution of comparative advantage have moved the mix of jobs toward particular kinds of services, and increasingly toward "high-end," knowledge-intensive jobs. These developments are likely to increase the demand for those who can effectively fill management positions requiring broad areas of technical, cultural and functional domain-knowledge with the ability to manage with a highly-skilled workforce.
- *Leadership across Borders*: Effective managerial leadership balances the needs for stability within organizational systems with the requirement for flexibility and responsiveness. The phenomena of dramatically increased globalization and heightened pace of change place increased and unique demands on leaders, while also creating opportunities. National and cultural differences create new problems for internal stability but offer enhanced capacity for innovation and change. Fast-paced innovation raises the stakes for awareness and responsiveness. Contemporary and future leaders will require new kinds of training and understanding to navigate these challenges.
- *Creativity and Innovativeness*: In both technology and management, innovative solutions are essential in dynamic and competitive global environments. On one hand, this is consistent with the entrepreneurial nature of Silicon Valley. However, it also reflects the increasing demand for decision-making in unfamiliar contexts, and for managers trained to combine the specific mix of technology understanding and market awareness required for successful development and market deployment of innovative products.

[1] *Educational Opportunity and Workforce Development Study: Management and Organizational Needs in the Silicon Valley*, Nirvikar Singh, Ram Akella, and Kyle Eischen, University of California, Santa Cruz 2005.

The engine of growth for Silicon Valley will continue to be the creation and growth of firms that focus on cutting edge technologies, as well as organizational innovations. Yet such growth needs to be supported by more and better-trained professionals. This creates an environment where Silicon Valley faces increasing demand in both the quality and quantity of managers and management education in the coming decades.

THE ECONOMIC CONTEXT: THE UC SYSTEM, INNOVATION AND SUPPORTING THE NEXT WAVE OF CALIFORNIA'S GROWTH

It is clear that the need for a new management school in Silicon Valley and California must be met by demand for new managers and management education. However, it is important to signal the benefits of having the University of California lead the meeting of this demand and the positive impacts the UCSC SoM will have on extending the role of UC system leadership in Silicon Valley and helping the Californian industry thrive.

Silicon Valley is vibrant global region that has thrived in-spite of the geographic absence of a UC campus. Clearly, the region has benefited from the UC system research, training and students, but these have largely been indirect benefits. One impact of this is the continued perception of the success of Silicon Valley as attributable to largely non-UC sources. Another impact is that where gaps exist, they have either gone unmet or filled by imperfect solutions. Such trends will only continue as Silicon Valley reinvents itself and the global ties between the California and the world expand.

There are to key points to emphasize on both the quantity and quality of the educational opportunities in Silicon Valley. First, California is already facing a shortage of college graduates in the coming decades, [2] and this shortage is already a reality in terms of management education in Silicon Valley.[3] Second, an essential aspect is the ability of California to convey its leadership in research, management and innovation in the coming decades to the rest of the world. In other words, giving the UC system a more prominent physical presence in Silicon Valley insures that unique California innovations, perspectives and skills get amplified nationally and globally.

California leadership is well-established, and Silicon Valley is an example of that. However, without the infrastructure to continually train and innovate, to make the link between unique UC strengths and real-world opportunities, the quality and speed of such leadership will be lessened. There is a need to strengthen the link between UC research and its application in addressing essential economic, social and environment issues in the coming decades

The SoM will form the kernel around which research collaboration and partnerships will be built. A UCSC SoM will strengthen the institutional ties between all UC campuses and SV management and innovation. The SoM forms a unique opportunity to place the UC system in the heart of the SV as it grows in bio, nano and IT discovery and management in the next decade.

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[2] See Can "California Import Enough College Graduates to Meet Workforce Needs?" Hans P. Johnson and Deborah Reed, Public Policy Institute of California, May 2007.

[3] *Educational Opportunity and Workforce Development Study: Management and Organizational Needs in the Silicon Valley*, Nirvikar Singh, Ram Akella, and Kyle Eischen, University of California, Santa Cruz 2005.

CORE THEMES: MANAGING CREATIVITYAND MANAGING GLOBALLY

The overall trends in the regional and global environment reflect an opportunity for UCSC to play a key role in developing an integrative management curriculum centered on both (a) managing creativity and (b) managing globally. In terms of both current and future needs, each of these issues play into strengths of UCSC and raises the potential impact of a new school of management that can build on the strengths of the established MBA model while innovating for the future of Silicon Valley.

A UCSC School of Management would be defined by its themes and the innovative ways these themes will be integrated into the school's curriculum. The school's themes are designed to capitalize on the centrality of Silicon Valley to the knowledge-based, globalized economy while creating synergies with existing UCSC strengths. From these existing strengths, an assessment of emerging research areas, and consideration of the needs of 21st century management education, three broad themes have been identified:

Globalization –Issues related to the globalization of economic activity, the consequences of global networks, global issues including the environment and poverty, and the human, policy and technical infrastructure that underpins the global world are of critical importance to the managers of the future. Globalization is defined here broadly, reflecting the geographic expansion of global ties, their intensification, and their pervasiveness. UCSC has deep strengths in both defining the distinct characteristics of these changes and their impact on individuals, communities, government, firms, markets, and the environment. These strengths reflect a depth and diversity of perspectives, enabling UCSC to bring to a school of management critical, cross-disciplinary, balanced expertise on globalization that is essential to research and education in 21st century.

Technology –Issues related to new technologies, from understanding how management is affected by the increasing technology content of products and services to its impact on contemporary culture and the role of the arts in society form another critical knowledge area. Broadly, the focus is on both management of change derived from emerging technologies and fostering innovative new technologies with wide impact.

Innovation and Entrepreneurship – Issues related to the economic, social, technological, and cultural processes that shape entrepreneurship and innovation in different countries represent a third theme that is central to understanding global and regional economic success. Entrepreneurship refers not just to the mechanics of starting new businesses, but the entire creative process that leads to innovation in technology, organization, and products. It also incorporates social entrepreneurship in the non-profit sector. Entrepreneurship and innovation play a significant role in every nation or region's economic success, including revitalizing and reshaping the California economy over the last decade. In reforming economies from the Czech Republic to China, economic growth depends crucially on understanding and supporting the processes of entrepreneurship and innovation. Silicon Valley has global recognition as a center for innovation and entrepreneurship, and people all over the globe look to Silicon Valley as the world's leading region for innovation and entrepreneurship.

These are not shifting priorities, but rather the essential features of society and organization in the coming decades. As such, they will be integrated into the School in all facets, both singularly and as complex interactive opportunities and challenges for Silicon Valley.

Academic Rationale

All professional education is driven ultimately by practical societal needs. Nevertheless, these needs can be connected to deeper concerns that are the normal subjects of pure academic inquiry. Certainly, academic inquiry in the social sciences, engineering and even many of the natural sciences is driven by interests in practical issues as much as by the pursuit of knowledge for its own sake. The profession of management has its roots in the Industrial Revolution, and the rise of the modern industrial corporation. The separation of ownership and control necessitated by the need to capture economies of scale and scope created the need for specialized managers, captured in the term 'managerial capitalism.' The apogee of the industrial corporation came between and after the two world wars, with the creation of firms such as General Motors and General Electric – large hierarchical organizations embodying and extending the ethos of the factory age.

The educational response to the needs of the modern industrial corporation was the professionalization of management education, in which the management curriculum was systematized, initially in the United States, and the MBA degree popularized as a *de facto* certification for the profession. European and Asian management education has essentially mimicked the US model, with some local variations. Management is still too broad and amorphous a field to lend itself to the kind of professional accreditation that characterizes law, medicine and accounting, but it is a measure of the success of the educational project that a basic skill set for MBAs is taken for granted, even by those who are otherwise critical of management education. Basic intellectual tools of economics, finance, accounting, statistics and psychology are particularly prominent in the standard MBA toolbox, though the depth with which they are imparted may sometimes be questioned. One cost of this systematization has been the creation of functional silos within management education, another phenomenon that has been criticized. However, at their best, graduate management schools have led to fundamental advances in understanding human behavior, in the design of market institutions, and in comprehending the dynamics of modern capitalism.

The forces of globalization and innovation described earlier in this proposal are reshaping the modern corporation, making it more geographically dispersed, more networked (relationally as well as technologically), more culturally diverse, and less hierarchical. The implication of these changes is that we are at an inflection point in the nature of management, and therefore of management education, in some ways as significant as the change heralded by the Industrial Revolution. Discussions among some members of the UCSC steering group that submitted its report in 2006 led to a formulation of the challenges facing management in the 21st century in terms of four inter-related 'emerging worlds.' These are briefly described next.

- ***The virtual world*** is essentially the product of Silicon Valley, being the descendant of all microprocessor-based technologies, though these have been combined with storage and communication technologies that often had their roots elsewhere. From information sharing

to interaction, economic transactions, and parallel lives and universes, the virtual world has become the means to fully express peoples' desires to connect, communicate and collaborate. The embedding of digital technologies in a host of old and new products and services has created new kinds of businesses, and reshaped old businesses, internally (organizational forms) and externally (customer and supplier relationships).

- ***The developing world*** is flowering thanks to the innovations of the virtual world. Distance is dissolving, and knowledge transfer accelerating. China and India, with a third of the world's population, are growing at speeds unprecedented for countries their size. Even the world's poorest, the 'bottom of the pyramid,' can be given hope by the connections and cost reductions enabled by the technologies underlying the virtual world. The promise of these developments is a more evenly balanced world in the long run, albeit with increased stresses and strains along the way. Management practice in the 21st century will have to encompass the new, multi-polar economic landscape – it will have to go well beyond the model shaped by the needs of General Motors, Proctor & Gamble and their cohorts.
- ***The green world***, which has been eroding since the industrial revolution, is facing its greatest challenge ever, arising from the emergence of the developing world. There are two sets of challenges, one being reduction of effluents and other wastes, and the second being the conservation of fuels of all kinds. These two goals may be complementary, or they may conflict (e.g. ethanol use can reduce fossil fuel extraction, but harm biodiversity), increasing the complexity of the management task. Both goals ultimately aim to reduce damage to the ecosystem, and recover or protect the 'green world.' Solutions require innovations in technologies, public policy and social behavior, and commercial sustainability of innovations can be an important contributor to achieving environmental sustainability.
- ***The inner world***, representing the drivers of human behavior, is in some sense the last frontier of knowledge. Managing creativity and collaboration among fellow human beings is perhaps the most difficult and fundamental challenge of management practice, in capitalist firms, government organizations, or voluntary associations. Intertwined innovations across many disciplines – neuroscience, behavioral economics, evolutionary biology, and psychology are providing new insights into individual and social behavior. Interestingly, the virtual world is a tool and an arena for exploring the inner world, through bioinformatics, games and simulations, and collaborative discovery, and provides a significant new set of tools for management education and practice.

The lesson of the conceptual framing in terms of 'emerging worlds' is that a new graduate school of management has the potential to intersect with significant intellectual themes, including basic as well as applied research in areas of science, engineering, social science, humanities and arts.

Sectors and Issues

The broad themes of globalization, innovation and entrepreneurship permeate the challenges of managing the four emerging worlds. At a more pragmatic level, management involves specific sectoral expertise, or specialized knowledge of key issues. While core functional expertise in areas such as marketing, finance and operations will always be important, a new school of management tailored for Silicon Valley can add value by focusing on areas of critical importance for the Valley, and for the larger state and national economies. Domain expertise is a critical

factor in successful management, beyond functional expertise: for example, high tech marketing is quite different in scope, conceptualization and execution than marketing cosmetics or clothes. The areas we have identified are intellectual property rights, information technology, biotechnology, 'green tech,' knowledge-based services, and health care. Each of these areas involves some degree of interdisciplinarity, and management education requires imparting management tools to those with appropriate domain knowledge, or jointly teaching both management skills and domain expertise.

Information technology represents the heart of Silicon Valley's expertise, including hardware, software and services based on combinations of the first two. While some aspects of information technology have been commoditized, the region has demonstrated a remarkable capacity for innovation, in exploring the commercial implications of the emerging virtual world. For management education in this sector, there will be direct ties to UCSC's strengths in computer science, computer engineering, technology and information management (TIM), electrical engineering, and digital arts and new media.

Intellectual property rights management represents an area of growing concern for Silicon Valley, and as the region becomes a contributor to content production and management, as well as to dissemination technologies, the complexities of the economic interests involved are multiplying. Copyrights, patents, and innovative intellectual property (IP) regimes such as various versions of open licensing are crucial components of modern firms' strategic armory. Managing these issues will be of increasing importance in the coming decades. UCSC's current expertise in these areas resides with a couple of economics faculty, as well as with the campus office of IP management. A promising approach to buttress expertise in this area may be to collaborate with the Hastings School of Law in San Francisco.

Biotechnology is emerging as an increasingly significant part of the regional economy, encompassing innovations in drug discovery, as well as medical instrumentation and basic medical research. Management education in this sector will tie in to UCSC"s strengths in biomolecular engineering, bioinformatics, and molecular, cell and developmental biology.

Green tech includes innovations that are 'cleaner' as well as more economical of resources. Technological innovations are at the forefront of a funding boom for green tech start-ups, but understanding the behavioral and regulatory changes that will be required for commercial sustainability will be a critical component of successful innovation. Management education in this sector will connect to UCSC's existing broad strengths in environmental studies and individual research in renewable energy in engineering and in physics. It will also complement and draw upon expertise that is added in a new UCSC school of environmental sciences and policy.

Knowledge-based services include an array of information-technology enabled offerings, including electronic markets, expertise, collaboration facilitation, and customer support. Their growing economic importance, domestically as well as globally, suggests calling them out separately from other information technology issues. Indeed, 'Services Science, Management and Engineering' is a new proto-discipline that firms such as IBM are conceptualizing and supporting. The technology and information management program at UCSC, as well as a research group in economics, have ties with this initiative.

Health care represents a significant segment of the economy, and is likely to grow even more in importance as the population ages. More effective management represents a possible approach to the cost pressures of technological innovation, organizational complexity, and higher expectations for health in aging populations. The economics department at UCSC has a leading health economist. Two prominent health policy experts from UCSF are on the current Academic Advisory Group (Appendix F). There is also scope to connect with UCSC professional school initiatives in public health and public policy.

Key Faculty

While a full-fledged management school will require significant new hiring to reach a steady state, including a pool of adjunct faculty, existing faculty have considerable expertise to cover several components of the curriculum, and to launch research programs related to the mission of the school. While a broad cross-section of faculty have expressed support for the school, and served or are serving on various committees, we can also list faculty who would be able to directly teach in the proposed SoM: while not all of them have been approached, their research interests and expertise have been identified as pertinent to the mission of the proposed school of management. It is impossible to predict the final level of interest of each faculty member who has a main affiliation elsewhere, and all potential faculty may not have been identified. However, the list is illustrative of potential.

Economics
Joshua Aizenman
Yin-Wong Cheung
Carlos Dobkin
Michael Dooley
Robert Fairlie
Daniel Friedman
K.C. Fung
Ricard Gil
Michael Hutchison
Kenneth Kletzer
Lori Kletzer
Justin Marion
Phillip McCalman
Ryan Oprea
Nirvikar Singh
Carl Walsh

Other Social Sciences
Donald Brenneis
Martin Chemers
Nancy Chen

Faye Crosby
Ben Crow
Brent Haddad
Paul Lubeck
Dominic Massaro
Anthony Pratkanis
Ravi Rajan
Alan Richards
Lisa Rofel
Helen Shapiro

Science and Engineering
Ram Akella
James Davis
Luca De Alfaro
Subhas Desa
David Draper
Herbie Lee
Suresh Lodha
Patrick Mantey
Michael Mateas
John Musacchio
Raquel Prado
Kevin Ross
Bruno Sanso
Ali Shakouri
Barry Sinervo
James Whitehead
Yi Zhang

Arts and Humanities
John Bowin
Margaret Morse
Paul Roth
Warren Sack

EDUCATIONAL PROGRAMS

In common with other graduate schools of management, a UCSC School of Management would develop full-time, part-time, and executive programs leading to the Master of Business Administration degree**.** The MBA is a degree recognized world-wide, and a UCSC School of Management must provide the training in core competencies expected by students applying to the MBA program and by employers hiring graduates of the school. MBA programs, however, offer sufficient flexibility in the curriculum to allow UCSC to develop innovative areas of

specialization that reflect the research expertise of the faculty as well as the needs of a diverse pool of employers in, for example, the non-profit and public sectors as well as areas of traditional graduate demand. Part of this flexibility stems from a curriculum that reflects the need to train students in the core analytic areas of management combined with an interdisciplinary focus on globalization, technology, and innovation.

Successful management schools cannot rely solely on state-funded, full-time MBA students but must have an appropriate mix of part-time and fee-based degree and non-degree students. A Ph.D. program would be developed that would be linked to the core research emphases of the faculty, but the Ph.D. program would be relatively small.

MBA Degree Program and Core Curriculum Emphasis

The core program within the SoM will be the traditional two-year MBA program. This program's core curriculum serves as both the global benchmark for management education generally and also will define the unique features and strengths of a UCSC SoM.

Combining UCSC's vision of innovation and tradition, a core curriculum will provide:

(1) Innovative approaches to micro-economics, finance, marketing, quantitative analysis, accounting, strategy, and international finance;

(2) Interdisciplinary approaches to global cultures and environments, economics and organizational dynamics, ethics, leadership and negotiation;

(3) Core training in technology foundations/numeracy, innovation management, and entrepreneurship.

The curriculum combines the strengths of Silicon Valley with UCSC's interdisciplinary traditions and existing campus strengths to prepare California's students for the challenges of a 21century management.

This curriculum will also offer innovation in delivery methods and training to maximize the student learning by drawing on all the strengths of UCSC faculty:

(1) Modular course structure, enabling flexibility in adapting to the shifting and diverse demands of managers over time and within distinct industries.

(2) Case study development focused on Silicon Valley technology firms and continuously incorporated into courses, enabling the incorporation of current issues drawing upon the School's active research agenda.

(3) Co-taught, interdisciplinary courses, bringing in the vast expertise of existing managers, policymakers and venture capitalist to the curriculum.

(4) Innovative internship, project, and research opportunities for students and faculty, enabling tighter integration between theory and practice.

MBA Degree Program Areas of Specialization and Potential Certificate Programs

Building on the core curriculum foundation, the second year will involve a range of areas of specialization and certificate programs combining strengths of UCSC as well as evolving needs within Silicon Valley. The second year curriculum is ideally where the core foundational skills and methods become focused on specific management, technology and innovation issues. Possible areas of focus include:

- *Global Technology Management*: Managing new technologies from lab to market.
- *Venture Funding, Entrepreneurship and Innovation*: Launching and developing emerging technology companies.
- *International Finance*: Managing finance within global markets.
- *Non-Profit Management*: Silicon Valley models and management tools in triple-bottom line organizations.
- *Sustainability and Environmental Management*: Tools and technologies of managing sustainable organizations.
- *Global Investment and Innovation:* Combining investment and organizational models to maximize innovation.
- *Biotechnology and Entrepreneurship*: Managing from lab to market for one of the leading California technology industries.
- *Health and Life-sciences Management:* Managing the technologies, people and organizations within one of the dominant economic and social sectors.

Programs Leading to Joint Degrees

A number of joint degree programs involving the School of Management and existing campus academic units are possible and will need to be explored as planning proceeds. For example, a joint program leading to an MBA and a Masters of Engineering could be developed in cooperation with the Baskin School. As another example, a joint arts-management program involving the program in Digital Arts and New Media (DANM) could lead to a joint degree. If UCSC proceeds to develop a School of Public Policy, joint degrees in Public Policy and Management would be possible. Similarly, a School of Environmental Sciences and Policy could be a strong collaborator with a School of Management, for offering joint degrees in environmental management. Another area of strong interest and potential are joint-degree between UCSC and external programs. Of particular interest is the possibility of a joint-degree with UCSF in health related management fields included technology, operations and policy. A similar arrangement would be possible with a UCSC school or program in public health.

Ph.D. Program

The School of Management would also have a small Ph.D. program with course work reflecting both areas of specialization and joint programs. Ph.D. degree programs are important for attracting the caliber of research faculty we would expect to recruit to a UCSC School of Management. Students in the Ph.D. program could work with faculty in the school and with faculty in departments at UCSC. These types of collaborations would allow existing campus Ph.D. programs to expand their breath, offering new opportunities to graduate students. For example, School of Management faculty in behavioral economics and finance would complement faculty in economics and psychology, while SoM faculty in organizational behavior would complement faculty in sociology and politics.

Executive Education

Executive education programs represent an important component in the teaching mission of a management school. These programs, often designed as short weekend or weeklong courses, serve to strength links between management school faculty and firms, build support for the school, generate job opportunities for its graduates, and provide opportunities for UCSC faculty to expose management executives to innovative research in technology, policy and management. Executive Education programs would offer the opportunity for UCSC faculty who are not otherwise engaged in the School of Management to inform and interact with decision makers in Silicon Valley. For example, faculty in Environmental Studies might work with the School of Management to offer an executive education course on sustainable business or DNAM faculty might design a course to inform executives in the technology industry how new information technologies affect concepts of participatory culture. Possible offerings include:

- *Leadership Institute*: Helping leaders emerge from within existing management ranks.
- *Global Innovation and Investment*: Learning to manage investment, people and products.
- *Sustainability and Environmental Management*: Tools and technologies of managing sustainable organizations.

Undergraduate Education

A UCSC School of Management based in Silicon Valley would initially be developed as a graduate school without any undergraduate programs. Since faculty in the School of Management would be hired for the strengths they bring in the broad thematic areas of globalization, technology, and innovation and entrepreneurship, they could participate in undergraduate teaching in a number of existing UCSC programs, if they so wished. For example, faculty could participate in undergraduate education by teaching in the Business Management Economics (BMEC) and Information Systems Management (ISM) undergraduate programs currently offered by the Department of Economics and the Baskin School. Such participation would add depth to the course offers in both programs in ways that are currently not possible. Depending on the research specializations of the School of Management faculty, participation in such programs as DANM would also be likely. Another contribution to undergraduate education that would be possible with a School of Management located in Silicon Valley would be the

development of a "quarter in Silicon Valley" for a number of different majors that would involve internships with local firms. A School of Management may, in conjunction with the Department of Economics, develop an undergraduate major, though this would not be a priority. An important option would be to offer admission to UCSC undergraduates, deferred by two years to allow them to acquire work experience: Harvard University has recently introduced a version of this approach. Given the ethnic diversity of the undergraduate majors in the BMEC major, this would allow such students (and students in the sciences and engineering as well) to map a lower risk pathway for acquiring the high-end skills needed to survive in a globally competitive job market.

Accreditation of the Management School

Accreditation by the Association to Advance Collegiate Schools of Business (AACSB) is critical today for attracting students, so a UCSC Management School would seek accreditation at the earliest opportunity. AACSB provides services to newly established management programs to assist them with the accreditation process. The formal accreditation review would take place after the first class of MBA degree recipients is graduated.

Two of the major conclusions of the February 2005 WASC Visiting Team Educational Effectiveness Review of UCSC were that the campus needed to make the addition of professional schools and degree programs a priority and that it was essential for the campus to expand into Silicon Valley. WASC accreditation for offering educational programs in Silicon Valley has subsequently been obtained.

RESEARCH PROGRAMS

Core Research Activities

The core curricular areas of the School of Management would include accounting, finance, marketing, economics, government-business relations, operations research, and organizational behavior. Although the exact programs will be determined by the faculty hired, we can anticipate some of the core research activities. The capital campaign will feature funding of centers and endowed chairs to support these activities. Some will reside purely in the SoM. Others will be created jointly with other campus units in order to encourage cross-campus research efforts. Some of the priorities are:

- Globalization — Specific areas of current and future research include: global financial flows and markets; globally networked firms; global and regional production networks; global climate change, global social and environmental movements; regional development; government regulation and policy; global non-governmental organizations; cross cultural interactions and transformations.

- Technology — Specific areas of current and future research include:: the emerging Bio-Info-Nano convergence; identification of new global markets reflecting distinct cultural and social norms; environmental technologies; digital media tools and

applications; adaptive optics; robotics; collaborative research commons; technology transfer; and start-up seeding.

- Innovation and Entrepreneurship — Specific areas of current and future research include: social entrepreneurship, the globalization of capital including direct investment; laboratory-based simulation experiments conducted in different countries, examining norms and experiences; analytical and empirical studies of global entrepreneurship networks which are often ethnic in nature; the interaction between production networks connecting Silicon Valley to world regional centers; studies on race, ethnicity, and business ownership; emerging opportunities for environmentally-friendly manufacturing processes and products; and the globalization of labor markets, including multi-directional temporary and permanent flows of professionals, entrepreneurs, and technical workers.

Building on the Strengths of UCSC

These themes reflect the changing context in Silicon Valley and in management education. They also are supported by already-existing research strengths, partnerships and presence UCSC has in the valley. Specifically, UCSC brings its strengths in globalization, technology management, computer networking, information technology and knowledge engineering, leadership, entrepreneurship, and cultural diversity to the development of a new School of Management.

- UCSC was recently ranked ninth in the world (out of over 300 universities) in international finance.
- The Jack Baskin School of Engineering has won praise from industry and government leaders as the "engineering school of the 21st century," with programs in Bioinformatics, Computer Engineering, Computer Science, Electrical Engineering, and Information Systems Management.
- UCSC strengths in bio-informatics, environmental science and policy, intellectual property, and globalization can offer perspectives on innovation and management from the sciences, the social sciences, and the humanities. The campus is home to leading cross-disciplinary, social sciences research centers, such as the *Center for Global, International and Regional Studies* (CGIRS) and the *Santa Cruz Center for International Economics* (SCCIE). The *Center for Biomolecular Science and Engineering* actively unites biology, chemistry and engineering expertise. Faculty in the humanities and social sciences are also engaging in exploring the cultural implications of technology in interdisciplinary departments and programs such as Digital Arts and New Media (DANM) and Technology and Information Management (TIM).
- UCSC has established a major research presence in Silicon Valley through its management of the *University Affiliated Research Center* at NASA's Ames Research Center in Mountain View.
- UCSC is expanding that presence, and building new partnerships with private industry, through its development of the *Bio-Info-Nano Research and Development Institute* (BIN-

RDI). The BIN-RDI will couple the extensive research talent of UC, NASA Ames, and prominent industrial partners towards Bio-Info-Nano convergence science and technology. The Institute will also be positioned to exert national influence on nanotechnology policy through evaluation of research outcomes, societal impacts, ethics, and commerce.

- UCSC Extension currently serves 12,000 individual Silicon Valley professionals per year, providing post-graduate professional certificate programs to serve the unique workforce needs of this dynamic region. UCSC Extension currently provides name recognition for the campus in Silicon Valley and through its strong links to local industry, can enhance the launch of the UCSC School of Management.

The School of Management is ideally situated to build on these existing strengths and help establish the environment in which innovative research from engineering, social sciences, and natural sciences can serve the evolving constituencies of Silicon Valley.

NEED FOR THE SCHOOL

Employment Opportunities for Graduates

The rapid economic transformation that has characterized Silicon Valley since 1990 has only increased the need for the University to expand MBA programs. Table 1 projects significant shortfalls in the graduates of Bay Area MBA programs relative to the current annual demand for new MBA graduates. This shortfall offers UCSC an opportunity to meet a state educational need by developing a new School of Management. This short-fall is also forecast to expand with the growth in professional and business services, and is even greater if restricted solely to top-tier programs and graduates.

Table 1: Estimated Annual Regional Production and Demand for MBA Education[4]

Annual New Regional Management Positions Through 2008	*Current Annual Regional Supply of MBA Graduates*	*Potential Percentage of Imported MBAs*	*Estimated Deficit Including UCSC SoM Annual Graduates*
3972	2978	25%	19%

Additionally, there is a qualitative issue of the skills and structure of existing programs in meeting the evolving needs of Silicon Valley. In particular, Silicon Valley firms are becoming more globalized, more diverse in their workforces, and more diverse in the mix of products and services that they offer. All these changes place increasing demands on management, and they

[4] Source: *California Employment Development Department, County Level Projection 2001-2008.* Counties included in projecting new management positions are Alameda, San Francisco, San Mateo, Santa Clara, Monterey County, and Santa Cruz. Annual figures are obtained from a simple average of seven-year projections.

increase the demand for managers relative to purely technically trained employees (engineers and scientists).

Surveys and interviews consistently indicated that MBA programs are viewed as doing a relatively good job of educating their students in basic functions and processes, but less well in teaching their graduates interpersonal skills, real-time decision-making, recognition of contexts, and integration across functional areas. The ability to operate in global business environments is also viewed as under-taught. What this suggests for enrollments is that there is a need for a range of programs that can only be met through a fully functioning management program.

To investigate the discordance between perceived importance and perceived quality of different aspects of current management offerings, Singh and Eischen conducted a gap analysis, based on the alumni survey data in the Singh, Akella, Eischen study. For each category, they calculated the difference in percentages of respondents assigning high importance and percentages ranking offerings as "excellent." They then ranked all the categories, with the highest gaps representing the most serious shortfalls. As a robustness check, they repeated this gap calculation using the difference between percentages of "medium" or "high" importance and "good" or "excellent" offerings. Finally, we also constructed a ranking based on the average rank across both calculations. The top fifteen categories (out of 37 possibilities) for each of these three rankings are presented in Table 2.

A comparison of the first two columns of Table 2 shows that there is a high degree of overlap, with 12 categories being common across both rankings. Thus, 18 out of the total of 37 management education aspects surveyed are represented in the two lists. The three which drop out in the combined ranking (the rightmost column of Table 2) are "risk management," "environmental management" and "connecting techniques to current business problems." The final column averaging the rankings across the two lists provides a very strong view of perceived management needs in Silicon Valley: a combination of dealing with technology and innovation processes, what one might lump under the heading of "people skills;" and the challenges of globalization within which these broad areas are operating.

Table2: Management Offerings with Greatest Perceived Shortfalls

Rank	Gap between High Importance and Excellent Quality	Gap between Medium or High Importance and Good or Excellent Quality	Average Combined Ranking
1	Interpersonal communication	Product development	Interpersonal communication
2	Negotiation	Knowledge management	Cross-cultural management
3	Ethics	Intellectual property rights management	Negotiation
4	Cross-cultural management	Cross-cultural management	Knowledge management
5	Project management	Environmental management	Product development
6	Technology management	Interpersonal communication	R&D management
7	R&D management	Negotiation	Ethics
8	Business forecasting	Leadership and motivation	Business forecasting
9	Knowledge management	R&D management	Leadership and motivation
10	Innovation engineering management	Integrating techniques across disciplines	Integrating techniques across disciplines
11	Integrating techniques across disciplines	Business forecasting	Innovation engineering management
12	Leadership and motivation	Innovation engineering management	Technology management
13	Product development	Risk management	Intellectual property rights management
14	Managing in emerging markets	Ethics	Project management
15	Connecting techniques to current business problems	Managing in emerging markets	Managing in emerging markets

(Source: UCSC Alumni/Silicon Valley Managers Survey)

Returning to potential aggregate demand, rather than distinctiveness of offerings, as indicated in Table 2, even at full steady-state the School of Management will fill roughly 25% of the projected graduate short-fall, creating opportunities for both growth as well as flexibility as the needs of the region evolve along all of the programs the SoM will offer. Table 3 indicates that the UCSC SoM will only increase the Bay Area's capacity for MBA graduates by 10%. Hence, it is likely that the market will have no difficulty in absorbing this increased supply. As noted earlier, emerging Asia is expected to be a major source of demand for quality MBA degrees, and absorption of UCSC SoM graduates into those rapidly growing economies would further reduce the increase in local supply. At the same time, serving this global market is very consistent with the globalization of Silicon Valley, as well as with the societal goal of enhancing Silicon Valley as a global educational hub, training as well as employing new generations of leaders for dynamic, rapidly-evolving firms.

Table 3: Estimated Bay Area MBA Market (Enrollments and Graduates) 2003-2004, with Possible UCSC Steady State Enrollments[5]

	Bay Area Enrollments	***Bay Area Graduates***	***UCSC SoM Steady-State Enrollments***	***UCSC SoM Steady-State Annual Graduates***	***% Increase In Total Graduates With UCSC SoM***
Full	2516	1258	200	100	8%
Part	3920	980	300	100	10%
Exec	682	272	100	40	15%
Distance	80	40	NA	NA	NA
Totals	7198	2550	750	253	10%

Notes:
1. Campuses are UCB, Hayward, Santa Clara, Golden Gate, Stanford, SF State, USF, UC Davis, SJ State, Monterey Institute of International Studies, Wharton, University of the Pacific.
2. Graduation rates are derived from enrollments assuming factors of 0.5 for full-time, 0.25 for part-time, and 0.4 for executive programs, i.e., it is assumed that half of enrolled full-time MBA students will graduate every year, etc.

These trends can be seen in the overall application patterns nationally. Applications for management programs, after dipping during the 2001 recession and its aftermath, have resumed the growth exhibited prior to the recession. They also reflect a more fundamental shift from full-time traditional 2-year programs to more flexible accelerated and part-time programs. This is in addition to the consistent and expanding demand for executive education generally.

General Trends in the Demand for Admission to the School of Management

The demand for the MBA degree in the United States has increased consistently over recent decades, as indicated by Table 4. While there is a strong cyclical element in demand for the degree, the average annual growth rate in the table is a robust 4.2%. A significant portion of total demand comes from international students. While European management schools have significantly enhanced their reputations and offerings in the past decade, the areas of fast growth in the global economy lie in Asia, with the two giants, India and China. Neither is likely to be able to meet its internal demand for new managers required by a rapidly growing economy. While countries such as Singapore are striving to fill some of this projected need, a management school located in the heart of Silicon Valley is likely to be able to successfully tap into this global demand.

[5] *Notes:* (1) Campuses are UCB, Hayward, Santa Clara, Golden Gate, Stanford, SF State, USF, UC Davis, SJ State, Monterey Institute of International Studies, Wharton, University of the Pacific.
(2) Graduation rates are derived from enrollments assuming factors of 0.5 for full-time, 0.25 for part-time, and 0.4 for executive programs, i.e., it is assumed that half of enrolled full-time MBA students will graduate every year, etc.

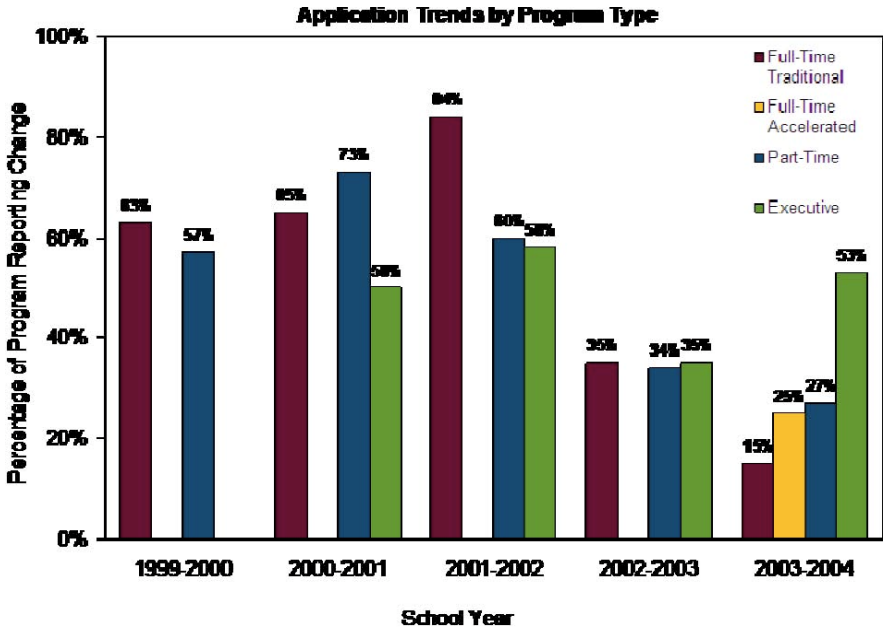
Table 4: MBA Degrees Granted 1987 to 2002[6]

Degrees Awarded

Year	MBA Degrees	Change	% Change
1986-87	67,093	404	0.61%
1987-88	69,230	2137	3.19%
1988-89	73,065	3835	5.54%
1989-90	76,676	3611	4.94%
1990-91	78,255	1579	2.06%
1991-92	84,642	6387	8.16%
1992-93	89,064	4422	5.22%
1993-94	93,437	4373	4.91%
1994-95	93,809	372	0.40%
1995-96	93,982	173	0.18%
1996-97	97,619	3637	3.87%
1997-98	102,171	4552	4.66%
1998-99	108,085	5914	5.79%
1999-00	112,258	4173	3.86%
2000-01	116,475	4217	3.76%
2001-02	120,785	4310	3.70%

This trend has also been consistent on the application side along all program types, reflecting overall trends in the diversity and expansion of the demand for MBA training as indicated in Figure 1. Accelerated, part-time and executive programs are all becoming more important parts of the mix of management education, reflecting desires for flexibility among students.

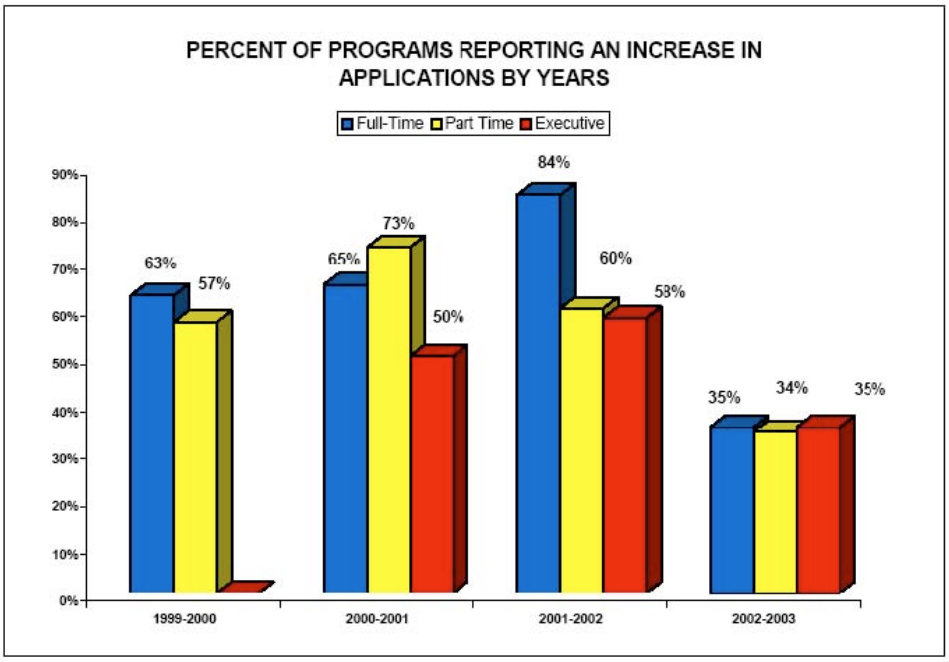
Figure 1: Application Trends by MBA Program Type [7]



[6] Source: "Degrees and Other Awards Conferred by Institutions of Higher Education: 2001-2002", National Center for Educations Statistics, US Department of Education.
[7] Source: GMAC.com

Even more significantly, these trends are widespread across schools individually as well as in the aggregate. As Figure 2 indicates, the broader trends of increased applications are reflected across schools and program types, even during cyclical variations in the overall economy.

Figure 2: Trends in MBA Applications by Program Type[8]



Benchmarking Analysis

A summary overview of major management school programs in Northern California is presented in Table 5. Essentially, UCSC will distinguish itself by offering a UC-quality school in the heart of Silicon Valley. This simple concept resonates surprisingly well in informal conversations with Silicon Valley entrepreneurs. A much more detailed benchmarking is being conducted with respect to UC Berkeley and Stanford. Interestingly, what is emerging from this analysis (which is yet to be completed) is that, while the overall marketing and rhetoric of the two existing schools is quite similar, Stanford appears to be much more Silicon Valley focused than UC Berkeley when detailed curriculum is considered. This manifests itself in the specific electives and concentrations offered. We are also finding that the Stanford management science program housed in their engineering school is more geared toward the needs of Silicon Valley than similar offerings at UC Berkeley. This suggests that the partnership between the proposed UCSC SoM and the management-related offerings in the Baskin School of Engineering can also fill a

[8] Source: GMAC.com

niche for the University of California. In practice, collaborations between Stanford's business school and management programs in their engineering school appear to be limited.

Ultimately, by building from the ground up to develop the requisite collaborations, partnerships and Silicon Valley focus, UCSC has an opportunity to fill a niche that is not completely addressed by Stanford's business school. This conclusion is also supported by the exercise reported in Table 2 earlier, which implicitly included Bay Area schools as reference points, by surveying alumni working as managers in Silicon Valley, and it will be further refined when the benchmarking analysis is completed.

Table 5: Summary Comparison of Major Northern California Management Schools

	UCSC SoM	*Stanford*	*UC Berkeley*	*Santa Clara University*	*San Jose State*	*UC Davis*
Full Time Program	+	+	+	+	+	+
Part Time Program	+		+	+	+	+
World Class Research	+	+	+			+
Industry Partnerships	+	+	+		+	+
Executive Education	+	+	+			+
Silicon Valley Location	+	+		+	+	
Room to Grow	+			+	+	+
UC Gateway	+					
Silicon Valley Science and Technology Research Partnerships	+	+	+	+		+
High-Adjunct Faculty Ratio	+					
Global Focus and Institutional Links	+	+	+			

ENROLLMENT PROJECTIONS

Within the UC system, we view the management school at UC Davis and the business school at UC Irvine as providing the most relevant comparisons for planning a UCSC School of Management. UCSD's Rady School is too young for practical comparisons, though we have

examined their steady-state projections. UCLA is the largest, and richest, of the UC management schools, while UCB is large, old, and has a significant undergraduate program.

UC Davis has a full-time MBA enrollment of approximately 130 FTE and a part-time enrollment of 275 FTE. The figures for UC Irvine are 260 and 680. We believe the size of the Irvine program provides a reasonable target for a UCSC School of Management. Because the marginal revenue to the school from a non-state-funded student in a part-time fully-employed MBA program exceeds that generated by a state-funded full-time MBA student, the enrollment mix between full-time and part-time programs is important.[9] Our analysis suggests that a program more similar to that of the smaller Davis program would not generate the resources necessary to build a world-class program unless it was combined with income from larger Executive Education programs, gifts, or other sources than we feel are reasonable to rely on for planning purposes.

Based on the size of the market, we feel a steady-state size for the School of Management should be approximately 200 full-time MBA students, 35 Ph.D. students, and 550 fee-funded part-time and executive MBA students. In addition, we project non-degree Executive Education program that would enrollment 450 (headcount) annually at steady state. For comparison, UCSD's proposal for their school of management projected full-time MBA enrollments of 600, 50 Ph.D. students, 510 fee-based enrollments, and 1500 (headcount) in non-degree Executive Education programs. Our analysis suggests the UCSD plan is too heavily weighed towards full-time MBA enrollments.

A benefit from shifting the enrollment mix is to move the UCSC SoM away from an overly heavy reliance on "gifts and endowments" as a revenue source in our budget projections. Enrollment projections for a UCSC School of Management are shown in Table 6 under a scenario of fairly rapid build out to the steady state. It would be entirely feasible to slow down this build out. If student demand is slow to build because name recognition takes time to establish, faculty hiring can also be ramped up more slowly. Using a significant proportion of adjunct faculty allows for greater flexibility in managing growth, as well as cyclical enrollment fluctuations. Indeed, Silicon Valley is a unique region in terms of the density and depth of the talent pool available for adjunct faculty. Conversations with Silicon Valley executives suggest that a high quality management school branded as serving the Valley will attract the best and brightest as adjunct faculty.

[9] Once differential fees, financial aid, and campus costs are taken into account, a shift of one student FTE from the full-time program to the part-time program increases net revenues by approximately $5500.

Table 6: Enrollment Projections - UCSC School of Management

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Steady State
MBA Full-time FTE	0	0	0	50	100	125	160	180	200
Ph.D. FTE	0	0	0	0	5	10	18	28	35
Fully Employed MBA FTE	0	0	50	120	180	200	220	260	300
Executive MBA	0	0	25	35	40	60	80	100	100
Total - Degree Enrollments (FTE)	**0**	**0**	**75**	**205**	**325**	**395**	**478**	**568**	**635**
Exec Ed	**50**	**75**	**100**	**150**	**200**	**250**	**350**	**400**	**450**

We believe that our steady-state enrollments are feasible given the current levels of the larger UC schools of management. If anything, our target for steady state may not match the scale contemplated by some established programs. For example, the new Rady School at UCSD projects a complement of 65 faculty FTE at steady state. Finally, as indicated above, we estimate that given the overall demand for new managers, the UCSC School of Management will help fill, but not overwhelm the potential need for management education at the steady-state level (i.e. Table 3).

RESOURCES

The planned enrollment growth for the Management School fits comfortably within UCSC's plan for growth in graduate enrollments. UCSC currently has a General Campus graduate academic and professional enrollment of 1,299 students, which represents only 9% of total General Campus enrollment. The campus enrollment plan provides for steady-state graduate enrollment of 3,047 students, an increase of 1,748 graduate students. The 635 growth in Management School graduate students over this period will constitute 36% of the total General Campus graduate enrollment growth, while still permitting substantial growth in all other graduate programs of 1,113 students or 86% from current levels. In steady-state, the School of Management enrollments will constitute only 3% of General Campus enrollment. This will help UCSC to achieve a balance between academic and professional graduate enrollment and reach the stated campus goal of a 15% graduate ratio. Arguably, a suite of graduate professional degrees in management stands the best chance of attracting students and employers, given the evolving needs of the economy.

External Funding

All subsequent discussion of budget and finances in the following sets aside the issue of external funding. However, it is well recognized that a high-quality, stand-alone management school requires substantial external funding, not so much for operations, as to establish reputation. In other words, external funding is itself a signal of quality for a management school. Recent experience suggests that gifts in the range of $50 million and up are typical for new and existing management schools. In some cases, alumni are the donors. However, Silicon Valley presents a special situation for UCSC. Even in the absence of alumni with the requisite giving capacity, conversations with Silicon Valley entrepreneurs suggest that the opportunity to name a new, world-class management school in the heart of Silicon Valley would be unique and highly attractive.

While there is no way to guarantee such a gift until it is actually made, it is important to have some kind of conditional commitment from the institution for a school of management, prior to approaching potential donors. Hence, the campus leadership will have to make the first move in what is always a delicate dance. Ongoing conversations with Silicon Valley entrepreneurs suggest that the vision of the School of Management as presented in executive documents is appealing and even inspiring. The Silicon Valley leadership Group, the premier umbrella organization for regional firms, has responded favorably to the vision as expressed in the document 'Managing Our Emerging Worlds.' They have written an introductory letter to their entire membership, and provided contact information for direct follow up by the campus, for 50 selected companies.

The Special Advisor to the Chancellor is currently working with University Relations to prepare the follow-up letter and informational packet, to deepen the engagement with Silicon Valley firms. The goal of this exercise is to raise the profile of UCSC in general, and of all its programs, especially those that are currently operating in, or planned for, Silicon Valley. It is entirely possible that external funding for a full-scale school of management will not emerge in the short run. However, the positioning of the proposed school is such that the pre-implementation and planning work currently being performed will support awareness of, and fundraising for, other professional schools and for nascent programs in the School of Engineering. In this sense, the risks associated with the current trajectory are low. Nevertheless, it must be re-emphasized that a conditional commitment on the part of the university is necessary if any external funding is to be forthcoming.

Operating Budget

We have prepared estimates of the expense and revenues of a School of Management, starting from the year the initial dean is hired through the first six years of operations to a steady-state size that reflects the enrollment projections in Table 6. We have tried to err on the side of overestimating costs and underestimating revenues. Thus, we feel we have provided a financially conservative budgetary picture.

While the assumptions employed in our analysis are discussed below, we have used information from AACSB to provide a check on our analysis. AACSB provides standardized information on

operating expenses for accredited public and many private schools of business and management. Table 7 shows the range of operating budgets and operating budgets per full-time faculty for several California management schools. Operating budget per full-time faculty is based on AACSB definitions. The table also provides information on fees for full-time MBA programs. The number of total faculty includes both full-time faculty and part-time faculty expressed in FTE equivalents.

Table7: Operating Budgets for Selected California Management Schools (AACSB)

	Berkeley, Hass School of Business	Los Angeles, Anderson Graduate School of Management	Irvine, Paul Merage School of Business	Davis, Graduate School of Management	Riverside, A. Gary Anderson Graduate School of Management	Santa Clara University, Leavey School of Business
Operating budget of business school	$42,013,177	$58,609,504	$24,314,504	$8,297,505	$5,900,000	$26,636,246
Operating budget per full-time faculty member*	$545,626	$666,017	$476,755	$296,339	$147,500	$283,364
Tuition and Fees: Complete full-time MBA degree program (CA Resident)	$43,024	$43,071	$43,271	$42,924	$19,704	$41,064
Number of total faculty (FTE)	114	101	76	30	42	98

* Based on AACSB standards; excludes financial aid, space, furnishings, and other campus costs.

According to the AACSB, operating budget per full-time faculty among UC schools of management range from $147,000 (UC Riverside) to $667,000 (UCLA). UC Davis is just under $300,000, while UC Irvine is $475,000 and UC Berkeley is at $577,000. This suggests that $400,000 is a minimum target level of operating support per full-time faculty FTE necessary to maintain a successful management school. Under our preferred budget projections discussed below, we estimate the steady-state operating budget per full-time faculty member at $455K. We take this as an indication that we are not significantly underestimating the costs necessary to create a successful school of management.

We have estimated expenses for the School of Management arising from staff and faculty salaries and benefits, recruitment and start up costs, supplies, additional stipends and expenses for the executive education program, one-time equipment costs, library expenses, marketing, financial aid, a campus assessment, and space. While the details are discussed below, the largest single expense after salaries and benefits is for space. Under our preferred enrollment scenario, the School of Management would need a building of approximately 59,000 GSF, leading to an

annual cost to the School of Management under a debt financing scenario of almost $2.5M.[10] For comparison, we also show a scenario in which the School of Management building is gift funded.

Key Budget Components

Projected revenue and expenses for a UCSC School of Management are shaped by several factors. A few central factors are detailed here and a full list of factors is contained in an appendix contains discussing aspects of the budget projections.

Student Enrollments

A major driver for both costs and revenues for a School of Management are projected enrollments, as indicated in Table 3 above.

Student enrollment numbers in degree programs determines the number of faculty FTE in the school. We assume faculty slots accrue to the school based on enrollments of students in degree programs at the standard 18.7:1 student to faculty FTE ratio. Thus, FTE are assumed to be allocated to the School of Management only to the extent that the school generates sufficient enrollments or can fund faculty positions from internal sources.

Revenues are also driven by enrollments. Successful management schools need to have an appropriate mix of full-time and part-time students. We assume a professional school fee of $14,276 for full-time MBA students. The fees for students in the part-time, Fully Employed MBA and Executive MBA programs are set at $20,000 and $27,000 per year respectively. The importance of a vibrant part-time program cannot be over estimated.

Faculty

The ratio of full-time ladder faculty to total faculty FTE is 0.74. This figure represents the average of the existing accredited UC management schools, excluding UCR[11]. For the steady state, these assumptions imply 34 faculty FTE, of whom 25 would be full-time, ladder faculty. The remaining 9 positions would be filled by adjunct professors and lecturers. With 34 faculty positions, the school would be approximately the size of the management school at UC Davis (with 30 faculty) and roughly half the size of the business school at UC Irvine (with 76 faculty).

How this figure of 34 faculty FTE translates into average class sizes in the various degree programs depends on the distribution of students between the full-time and part-time programs and on the number of courses taught per faculty FTE. With a projected full-time program of 235 students and 25 full-time ladder faculty, the full-time student to full-time faculty ratio would be 9. This compares to an average among UC management schools (again excluding UCR) of 9. If

[10] All budget projections are in constant 2006 dollars, as is common in UC budget planning. Obviously, the actual outlays will depend on inflation.

[11] We exclude UCR because it has a very large undergraduate student population with virtually no part-time MBA enrollments, making it an outlier among UC management schools.

UCB is also excluded because it, like UCR, has a large undergraduate program, the UC average falls to 6.

Assuming full-time students take 9 classes per year and part-time students take 6, total degree enrollments at steady state would be 5715. Assuming an average teaching load of three courses per faculty (full-time and part-time), average class size would be 56 students. Since each full-time cohort would consist of 100 students who would share a common core curriculum in the first year, second-year elective courses could average much less. Similarly, each part-time cohort would consist of approximately 150 students who would share a common first-year curriculum, allowing courses in the second and third years to be smaller.

Faculty salaries are a major expense in a school of management. The average of faculty salaries at UCB's Haas School of Business, as provided by the Office of Planning and Budget, is $150,000. As an estimate of average UC management school salaries, this figure seems roughly consistent with market-based salary information provided by UC Davis. Using the Davis information, and assuming a steady state of 25 ladder faculty with 7 assistant professors, 6 associate professors, and 12 full professors, the average faculty salary would be $140,000.[12] To err on the side of overestimating costs, we have employed an average salary of $173,000. This figure incorporates the assumed impact of the dean's salary and an average faculty salary of $140K plus 2/9ths summer salary. While this average might be appropriate for the steady state, when the school would have a distribution of assistant, associate, and full professors, it is undoubtedly too low for the initial years of the school when faculty recruitments will need to target prominent, senior faculty. For these early years, we have estimated full professor salaries at $199,000, associate professors at $153,000, and assistant professors at $138,000. In addition, we have estimated the dean's salary at $300,000.[13]

Table 8 provides the projected hiring plan for ladder faculty. We assume during years 1 and 2 that an existing UCSC faculty member will work with the founding dean and we have estimated the cost of buying out this faculty member's time at $135,000. The budget also treats all faculty in the school as representing new recruitments with attendant expenses. The Office of Planning and Budget employs a figure of $60,000 per ladder faculty hire for start-up and recruitment. We believe this figure is too low and have instead estimated these costs at $100,000.

[12] This is calculated based on the UC management school salaries for Assistant Professor III, Associate Professor III, and Full Professor IV. For each of these categories, the average of the minimum and maximum salaries across management subfields is used.

[13] According to the recently released information on senior management group salaries at UC, the 2005-06 salaries for management deans range from $172K at UCB's Haas School to $292K at UCI's Merage School.

Table 8: Ladder Faculty - UCSC School of Management

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Steady State
Full professors	1	2	4	5	7	8	10	11	12
Associate Professors	0	0	1	1	2	3	4	4	6
Assistant Professors	0	0	0	2	4	5	5	7	7
UCSC faculty on loan	1	1	0	0	0	0	0	0	0
Total – SoM Ladder Faculty FTE	**1**	**2**	**5**	**8**	**13**	**16**	**19**	**22**	**25**
Adjuncts/Lecturers FTE				**3**	**5**	**5**	**7**	**8**	**9**

Staff

Staff salaries are also a significant expense. We have assumed a staff to total faculty FTE ratio of 0.6. This translates into 20 staff positions, or a staff to full-time faculty ratio of 0.8. This is much higher than in existing campus departments, reflecting the need for a school of management to have staff for development, marketing, recruitment, and placement. We have also budgeted for six additional staff positions for the executive education program. Combined, we are projecting slightly over one staff position for every full-time faculty position. Staff salaries are assumed to average $90,000.

To ensure a successful launch of a new school and to build enrollments, adequate marketing will be essential. We have budgeted $150,000 for marketing beginning in the first year the dean is in place, rising to $300,000 in out years.

Space

Space is a major expense. We have used a figure of 250 GSF per state-funded student FTE, a figure based on UCSC data. Based on steady-state enrollments, this calls for a building of 58,750 GSF. We assume this space is available in year 6, when state-funded enrollments have reached 135. The budget estimates incorporate the full cost of the space. The costs consist of land cost, operating costs, and the debt service costs on the building. Land costs are estimated to be $5M and, using a figure of $550 per GSF for construction costs, the total cost of construction would be $32,300,000. At an interest rate of 6.13% and a 30 year term, the debt service cost would total $2.8M per year. Except in the scenario of a gift-funded building, we assume the school rents space until it moves into its own building. Rental expenses are estimated using a rental cost of $2.25 per GSF for a 25,000 GSF building.

Budget Projections

Tables 9 and 10 present estimates of the steady-state expenses and revenues for a School of Management. These projections are based on the factors discussed in the previous section.

Expenses are shown for faculty salaries and benefits assume 34 faculty FTE, of which 25 would be full-time and 9 would be adjuncts and lectures. Instructional and research support includes staff salaries and benefits based on a total of 26 staff positions. Six of these positions would be associated with the executive education program. Financial aid is a formulaic calculation, as are the library costs. Indirect and related costs includes $6,479 per degree student returned to the central campus, recruitment, supplies, furniture, equipment, and marketing. Finally, the space costs represent the operating and debt service costs associated with an approximately 59,000 GSF, $30,000,000 building.

Table 9: Operating Budget Requirements - Phase 1 Steady State in 2005-06 dollars

1	Faculty salaries and benefits	$6.1 million
2	Instructional and Research Support	$4.1 million
3	Financial Aid	$1.5 million
4	Indirect and Related Costs	$.6 million
5	Library	$ .25 million
6	Facilities	$2.8 million
	Total	$15.4 million

Revenues consist of marginal student funding from the state for full-time MBA and Ph.D. students, professional fees, differential fees for fully-employed, part-time MBA students, Executive MBA students, and Executive Education fees. Estimated revenues exceed estimated expenses by $1,167,000 annually.

Table 10. Revenue Projections Phase 1 Steady State

1	State funds – marginal cost of instruction	$1.9 million
2	Professional fees for MBA students	$3.4 million
3	Educational/registration/application fees	$1.4 million
4	Fully-employed MBA fees	$6.0 million
5	Executive MBA fees	$2.7 million
6	Other executive education fees	$1.1 million
7	Sales and Services	.15 million
8	Gifts and endowments	$0 million
	Total	$16.7 million

It is important to note that we show *no revenue from either gifts or endowments.* Our expectation is that a UCSC School of Management would attract significant private funding. These funds would allow the School of Management to offer larger start-up packages to faculty, support research centers, offer financial aid, and/or increase I&R dollars. We have excluded this source

of funding from Table 8 in order to illustrate that a School of Management at our suggested steady-state size can generate a reserve even in the absence of large private gifts. Our analysis suggests that UCSC can operate a successful management school that would be self-sufficient, able to generate income from enrollment related fees and state funds that would more than meet its anticipated expenditures.

Facilities and Space

All of the budget projections above assume a debt-financed building to house the School of Management. Since we estimate land and construction costs associated with a home in Silicon Valley for the school would be on the order of $37M, requiring the school to self-finance a building has a major impact on the projected cash flow the school is likely to generate. The implications of a debt-financed building are shown in Table 11. Start-up costs for the school over the first five years (beginning with the year prior to the arrival of a dean until year four) with a debt-financed building total $6.6M.[14] The break-even point is now in year eight, and an investment of $8.9M would be needed to reach this point. Looking out ten years after the first cohort of MBA students arrive, the school is projected to generate a negative cumulative cash flow of $3.7M. However, by that time the school would be generating an annual positive cash flow of over $1M. Taking into account both the start-up investment and the implications for the steady-state positive cash flow in future years, the present value of the project is $16M.

Table 11: Budget Projections – Debt-funded Building (thousands of $)*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Phase 1
Total expenses	**$1,559**	**$1,994**	**$3,757**	**$6,499**	**$8,541**	**$11,606**	**$13,322**	**$14,761**	**$15,421**
Total Revenues	**$125**	**$188**	**$1,925**	**$5,243**	**$8,269**	**$10,238**	**$12,652**	**$14,971**	**$16,665**
Net	**($1,434)**	**($1,807)**	**($1,832)**	**($1,255)**	**($271)**	**($1,368)**	**($669)**	**$210**	**$1,244**
Cumulative Cash flow	**($1,709)**	**($3,516)**	**($5,348)**	**($6,604)**	**($6,875)**	**($8,243)**	**($8,912)**	**($8,702)**	**($7,458)**

* Year 1 corresponds to the arrival of the School's Dean. In the previous year, year 0, we assume expenses associated with one full-time staff position and recruitment costs. These total $275,357. This figure is included in subsequent summary figures for ramp-up expenses. Figures are in 2006-2007 dollars.

[14] While the school is projected to almost balance revenues and expenses in year five, expenses increase significantly in year six as the school begins repaying the debt associated with its new building.

Library and Information Resources

Library services required by the Management School will emphasize electronic access to various research collections. This plan optimizes the 'anytime, anywhere' concept of access to digital resources while maintaining convenient access to print materials. Students and faculty will be provided with convenient access to librarians in the School building who have special expertise in the literature of subjects covered in the School's curriculum including print and electronic resources. Research conducted by business school faculty typically utilizes electronic databases, journals, and print materials available in libraries and does not ordinarily have special requirements.

The space assigned to the "library" component of a reading and information resources center, therefore, will be somewhat modest, encompassing approximately 2,000 assignable square feet of the building. This will provide work and consultation space for two librarians and shelf space for a print collection of approximately 2,000 current periodicals and essential reference volumes. Additional study and reading areas for students will be integrated into reading and information resources area. One-time start-up costs are estimated at $700,000 and permanent operating costs at $250,000 annually in 2006-07 dollars.

UC CAMPUSES WITH SIMILAR OFFERINGS

Within the UC system, the Berkeley, Davis, Irvine, Los Angeles, and Riverside campuses currently have business or management schools. University of California MBA programs are highly regarded and of solid quality. All of the existing UC schools play key roles in supporting the human capital infrastructures of their regional communities. The leading schools, particularly Haas at Berkeley and Anderson at Los Angeles, are leading institutions supporting California's economy and playing a leadership role in research and training globally.

Application and enrollment numbers at the five existing UC management schools have increased steadily since 1995, and evidence indicates that there is ample room for a UCSC management school, particularly one located in the Silicon Valley.

The 1990 report of the university-wide Ad Hoc Planning Study Committee for Business Administration and Management concluded that UC has an obligation to increase the annual number of MBAs it awards. The committee also called for the expansion of MBA programs for part-time students, nontraditional programs, and join-degree and concurrent MBA programs. The report also recommended that if an additional campus is established, it should have a Management School from the very beginning.

- **Berkeley, Haas School of Business**: Offers B.S., MBA, Evening MBA, Masters in Financial Engineering, and Ph.D. degree programs. Concurrent degree programs (MBA/Masters of Public Health, MBA/J.D., MBA/M.A. Program in Asian Studies, and MBA/M.I.A.S. Program in International and Asian Studies are also included in the curriculum. Certificate Programs within the MBA program include: Entrepreneurship,

Global Management, Health Management, and Management of Technology. The Haas School also offers a number of Executive and Custom programs.

- **Davis, Graduate School of Management:** Offers a full-time MBA program in which students can focus on one or more of 12 standing concentrations, and an MBA program for Working Professionals which includes seven standing concentrations. The school also offers the MBA/J.D., MBA Master of Engineering, MBA/Master in Agricultural and Resource Economics, and the MBA/M.D. programs.
- **Irvine, Graduate School of Management:** Offers full-time, executive, fully employed and health care executive MBA degree programs; a joint M.D./MBA program, a Ph.D. in Management, and an undergraduate management minor. The school also offers non-degree executive education programs for the local business community.
- **Los Angeles, Anderson Graduate School of Management:** Offers full-time and part-time MBA programs, M.S. and Ph.D. programs, and more than 40 short-term Executive Education programs. Concurrent degree programs include the MBA/J.D., MBA/M.D., MBA/Master of Science in Computer Science, MBA/Master of Arts in Latin American Studies, MBA/Master of Library and Information Science, MBA/Master of Nursing, MBA/Master of Public Health, and the MBA/Master of Urban Planning.
- **Riverside, A. Gary Anderson Graduate School of Management**: Offers an interdisciplinary undergraduate major in Business Administration (in conjunction with the College of Humanities and Social Sciences) and an MBA program. The school also offers certificate programs in Advanced Management and in Executive Management.
- **Santa Barbara, Donald Bren School of Environmental Science and Management:** Offers graduate degrees that focus on interdisciplinary managerial approaches to environmental problem solving. These degree programs are a Master's of Environmental Science and Management (M.E.S.M.), and the Ph.D. A certificate in the Graduate Program in Management Practice has recently been initiated.
- **San Diego, Rady School of Management:** Offers full-time, part-time and executive education programs, with certificates in Communications and Information Technology, and Life and Health Sciences.

RELATIONSHIP TO THE LRDP AND SVI

The campus's LRDP is a land-use plan for the Santa Cruz campus. Any enrollment limits associated with the LRDP do not, therefore, include enrollments that might be generated in Silicon Valley. In principle, therefore, building a UCSC School of Management in Silicon Valley would not necessarily limit the ability of the campus to develop on-campus programs or other professional schools. To the contrary, a school of management can provide linkages for other UCSC programs, to the developing Silicon Valley Center (SVC). For example, a School of Environmental Sciences and Policy might be naturally located on the main campus, whereas a UCSC School of Management located at the SVC would provide a portal for its sister school to the key private and public sector decision makers in that field.

Even for the Baskin School of Engineering, which plans to have a significant presence in the SVC, a school of management will provide complementary strengths, needed breadth and critical

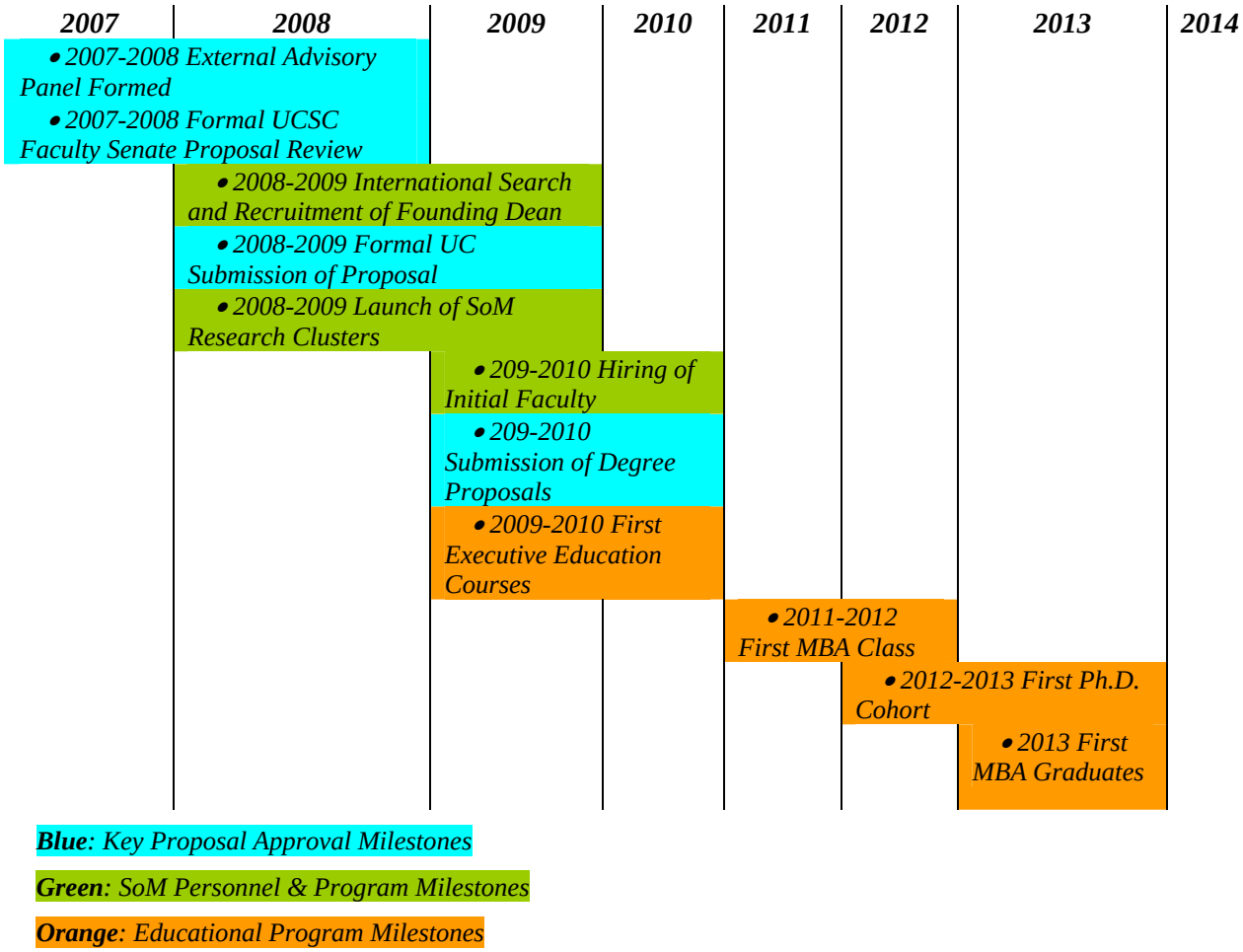
mass for the proposed Technology and Information Management program, which will be based at SVC. In general, a school of management represents one of the best and most attractive means of meeting UCSC graduate enrollment growth targets, and expanding the campus's educational mission at the SVC. Given constraints on growth faced in Santa Cruz, this may be an important consideration. To reiterate earlier discussion in this context, graduate management education represents a relatively broad and accessible pathway to advanced skill acquisition that makes it attractive to a wide cross-section of the undergraduate population, while at the same time, economic trends are increasing the demand for these kinds of skill sets.

It should also be noted that a School of Management would not be isolated at the SVC. Just as many engineering and astronomy faculty maintain a dual presence at the main campus and in Silicon Valley, SoM faculty affiliated with other departments such as economics would also do so. In addition, while the SVC is an ideal location for part-time MBA students, and for internships and research collaborations with industry, the main campus infrastructure and setting would be attractive for Executive MBA programs, which are typically offered on a sequence of weekends.

ANTICIPATED CAMPUS REVIEW AND IMPLEMENTATION DATES

The current implementation timeline foresees a two year planning and hiring process that will establish the formal base for the School of Managements launch. Key aspects of this include formal Senate approval and a successful recruitment of the founding Dean. The hiring of the Dean in 2009 then corresponds to Year One in the enrollment and ramp-up projections, with the first graduates expected by 2013. The timeline is summarized below in Table 12.

Table 12: Timeline for planning and implementation



APPENDIX A: EXTERNAL LETTERS OF SUPPORT

These letters will be solicited shortly. As noted in the main document, we are currently preparing a direct contact with about 50 major Silicon Valley corporations that are members of the SVLG, following on an introductory letter on our behalf sent to all SVLG members.

Corporate Support

Governmental Support

Individual Support

APPENDIX B: INTERNAL LETTERS OF SUPPORT

Campus Deans

Engineering

The Acting Dean has expressed support and will be asked shortly for a written statement of support

Extension

The Vice Provost has expressed support and will be asked shortly for a written statement of support

Campus Departmental Chairs

Economics

A letter of support has been written by faculty in this department

Engineering

Individual faculty in the TIM program have expressed support, and a formal letter will be solicited

Environmental Studies

A letter of support has been written by faculty in this department

Psychology

Individual Support

UCSC Foundation Support

APPENDIX C: EXAMPLE CURRICULUM

Basic Core Full Time MBA Sequence

Year One, Quarter One	Year One, Quarter Two	Year One, Quarter Three
Quantitative Analysis (4 units)	Marketing (4 units)	Global Strategy and the Market Environment (4 units)
Accounting (4 units)	Finance (4 units)	From the Lab to the Market: Strategy, Accounting and Organization for Technology Firms (4 units)
Managerial Economics (4 units)	Organizational Strategy & Human Resource Management (4 units)	Operations Research & Systems Optimization (4 units)
Global Culture and Organization Dynamics (4 Units)	Strategy (4 units)	Leadership Skills and Team Management in Global Firms (4 units)
Second Year		
Elective Courses 46 units)		

Full Time MBA Sequence: Global Technology Management Focus

Year One, Quarter One	*Year One, Quarter Two*	*Year One, Quarter Three*
Quantitative Analysis (4 units)	Marketing (4 units)	Global Strategy and the Market Environment (4 units)
Accounting (4 units)	Finance (4 units)	From the Lab to the Market: Strategy, Accounting and Organization for Technology Firms (4 units)
Managerial Economics (4 units)	Organizational Strategy & Human Resource Management (4 units)	Operations Research & Systems Optimization (4 units)
Global Culture and Organization Dynamics (4 Units)	Strategy (4 units)	Leadership Skills and Team Management in Global Firms (4 units)
Year Two, Quarter One	*Year Two, Quarter Two*	*Year Two, Quarter Three*
BIN (Bio-Info-Nano) Seminar (4 Units)	Production and Supply Chain Mgt (4 Units)	Global Cultures and Organization: Region Specific (4 Units)
Regulation & Law in Technology Markets Platform (4 Units)	Global Competitive Strategy Platform (5 Units)	Global Human Resource Management (4 Units)
Regional Economics: Innovation (4 Units)	Entrepreneurship Workshop (4 Units)	Entrepreneurship Workshop (4 Units)
Entrepreneurship Workshop (4 Units)		

APPENDIX D: ECONOMIC GROWTH AND EDUCATIONAL DEMAND DETAIL

Question One: What are the key employment trends in California?

The Singh et al report[15] offers an initial overview of the structure of demand and the supply of management education in Silicon Valley. The demand for management training is driven by the increasing shift in the California economy toward advanced services and managerial occupations in coming decade.

California Occupation Employment Projections 2002 – 2012[16]

Occupational Titles	Numerical Change	Percent Change	Percentage of All Jobs
Total, All Occupations	**2,691,700**	**18.6%**	
Management Occupations	**167,900**	**21.4%**	**6.24%**
Top Executives	52,500	19.5%	
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	25,200	28.4%	
Operations Specialties Managers	39,200	21.4%	
Other Management Occupations	50,900	20.8%	
Business and Financial Operations Occupations	**148,000**	**23.0%**	**5.50%**
Business Operations Specialists	102,400	24.9%	
Financial Specialists	45,600	19.6%	
Computer and Mathematical Occupations	**130,300**	**32.9%**	**4.84%**
Computer Specialists	129,100	33.8%	
Mathematical Scientists	1,200	8.8%	
Architecture and Engineering Occupations	**38,300**	**11.6%**	**1.42%**
Engineers	21,800	10.4%	
Total Management & Technical Jobs	**484,500**		**18.00%**

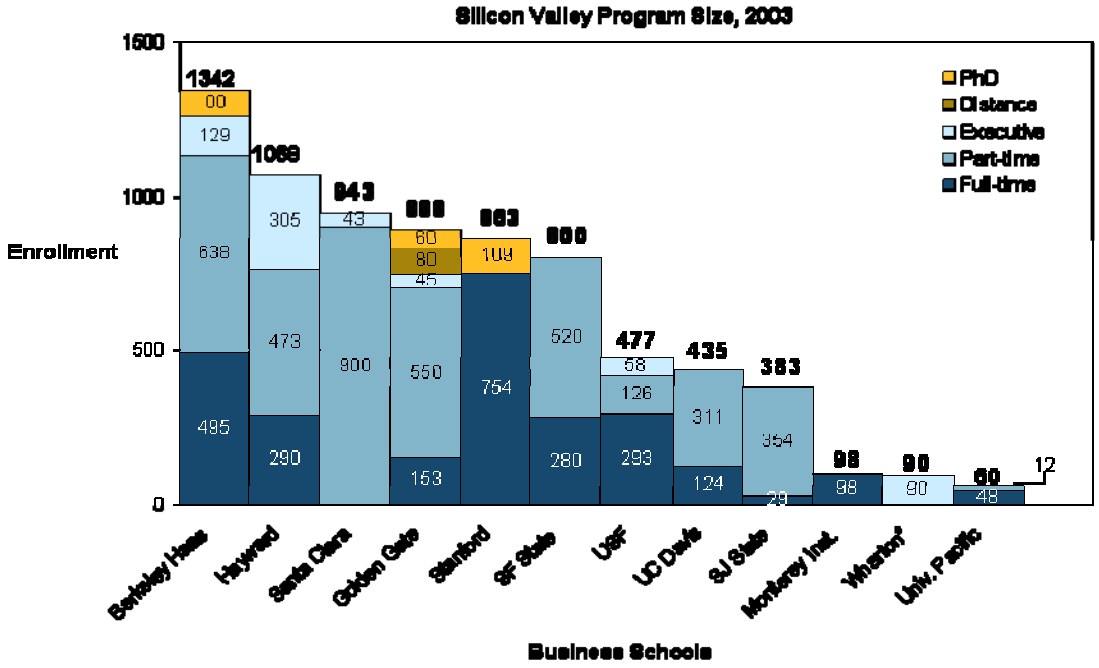
Question Two: What is current management education capacity in Silicon Valley?

On the supply-side, current regional offerings are unlikely to grow to fully meet this additional demand. Programs such as Stanford and UC Berkeley face bandwidth constraints of human and physical capital that have left space for other schools to enter the market. Stanford for example has chosen not to offer part-time MBA or EMBA programs. This has enabled Santa Clara University and UC Davis's new program in the East Bay to expand to fill the gap. However, the

[15] *Educational Opportunity and Workforce Development Study: Management and Organizational Needs in the Silicon Valley*, Nirvikar Singh, Ram Akella, and Kyle Eischen, University of California, Santa Cruz 2005.
[16] *State of California, Employment Development Department Labor Market Information Division, (916) 262-2162.*

full range of offerings in Silicon Valley have a wide-range of quality in terms of national rankings, research, and integration with Silicon Valley firms, with a clear space at the middle and upper levels.

Management Education Enrollments, San Francisco Bay Area[17]



Question Three: What is an appropriate size school?

All UC based management programs, with the exception of Riverside, are in or aspire to be ranked in the top 50 programs nationally, if not globally. The UC programs clump around the oldest programs of Berkeley and UCLA averaging 1100 graduate MBA students each, and the younger programs in Irvine and Davis with programs averaging 500 students. As such, the younger programs provide a bench-mark for a minimum steady-state enrollment. This is the enrollment mark that the newest UC program in San Diego has set. UCSC also follows this mark, with our projections falling exactly between Davis and Irvine.

The comparison with Davis and Irvine is also appropriate given their emphasis on part-time enrollments in contrast to the older UC programs. Older programs within and without the UC systems average a rough 50/50 ratio between full and part-time programs, while younger programs like Davis and Irvine have a 25/75 splits. This is the general trend among management programs nationally, and is the model UCSC has followed.

[17] Wharton* references only the enrollments at the "Wharton West" program operating in the Bay Area and focused on the high-end EMBA market.

Within Silicon Valley, the UCSC SoM will be roughly equivalent in size to USF's management program, but again reflecting the current demand for part-time enrollments. This size reflects the lower end of average programs in the wider Bay Area, with the SoM projections establishing a program smaller than the current size of Haas, Hayward, Santa Clara, Stanford, and SFSU.

Question Four: Is there adequate demand in Silicon Valley?

To estimate the impact of this size program on Silicon Valley, we compared all possible annual management graduates from all programs in or near Silicon Valley with the expected annual increase in regional management positions through 2008. The results demonstrate an annual short fall of roughly 1000 graduates, or a quarter of the expected annual growth in management positions.

Estimated Annual Regional Production and Demand for MBA Education[18]

Annual New Regional Management Positions Through 2008	*Current Annual Regional Supply Of MBA Graduates*	*Potential Percentage Of Imported MBA Graduates*
3972	2978	25%

Outside of new programs like UCSC's SoM, increasing regional program capacity is limited. ***1000 new graduates annually would require over 2000 full-time-equivalent new seats in existing programs.*** This would require minimum growth of 20% at programs across Silicon Valley — even with the seats evenly distributed across all schools in the region. As such, rather than go unfilled, most of these positions will likely be served by importing graduates from outside the region.

This calculation also assumes 1) all management degrees are equivalent, that a Stanford fulltime program degree is equivalent to a Golden Gate part-time program, and 2) only accounts for degree programs and not life-long learning opportunities of existing managers. Taking into account the need for top tier programs combining management and technological research and these various other dimensions, the actual demand is likely even greater.

Even with these assumptions, the UCSC SoM at steady-state will contribute 225 MBA graduates to the Silicon Valley management pool annually. At this graduation level, the UCSC's program will fill less than 25% of the projected graduate short-fall. This creates opportunities for both growth as well as flexibility as the regional economy, management training and workforce evolve.

[18] *California Employment Development Department, County Level Projection 2001-2008*. Counties included in projecting new management positions are Alameda, San Francisco, San Mateo, Santa Clara, Central Coast, Monterey County, and Santa Cruz. Annual figures are obtained from a simple average of seven-year projections.

Demographic trends also support new educational and workforce needs, with Silicon Valley growth forecast at 221,000 new people and 86,000 new households by 2010. Statewide, population growth is forecast at 2.8 million people along with more than a 20% increase in management and business/financial specialist positions in California by 2012.

APPENDIX E: SoM BUDGET DETAIL

Projected revenue and expenses for a UCSC SoM are structured by specific budgetary factors and assumptions detailed here.

1. **Student-Faculty Ratio:** Total faculty FTE are calculated based on a degree student FTE to faculty FTE ratio of 18.7:1.
2. **Ladder rank to part-time faculty ratio:** The ratio of full-time ladder to total faculty FTE is assumed to be 0.74. This is the average of the other UC management schools excluding UC Riverside. (UCR is a poor comparison for a UCSC SoM because a) it has a large undergraduate programs and b) its MBA program is virtually entirely a full-time program.)
3. **Faculty salaries:** Market-based faculty salaries by rank were provided by the Dean of the Graduate School of Management at UC Davis. Within each rank, we used the average across subfields for Assistant Professor Step III, Associate Professor Step III, and Full Professor Step IV. These figures are then increased by 2/9ths under the assumption that the school pays summer salary to all faculty. At steady-state, this produces an average faculty salary (excluding benefits) of $173,000. The average of faculty salaries at Berkeley's Haas School is $150,000. Allowing for summer salary gives a figure of approximately $175,000, close to the $173,000 implied by our assumptions. We would anticipate that initial hires will be concentrated at the senior level and will therefore be higher than the steady-state average, with the average declining as hiring shifts towards a greater concentration of Assistant Professors. Note that all these salaries *exclude* any additional compensation for teaching in executive education programs.
4. **Initial faculty hiring:** See Table 1 for faculty hiring plan. A founding dean is assumed to arrive in year 00. We estimate the dean's salary to be $300K. According to the recently released information on Senior Management Group Salaries within the UC system, the Dean of the Paul Merage School of Business at UC Irvine is the highest paid management dean. His salary is $291K. We assume that the dean would be joined initially by an existing UCSC faculty member "on loan" to the school (estimated salary $135K). In year 0, a second full professor would join the school, followed by the addition of three faculty (two additional full professors, one associate professor) so that the school would have a total of five ladder faculty in place when the first class of fully-employed MBA students enroll.
5. **Start up:** Start up for faculty is estimated to be $100,000. This excludes summer salary that is incorporated into the average faculty base salary.
6. **Lecturer salaries:** Average lecturer salaries (excluding benefits) are estimated to be $100,000 per FTE.
7. **Staff FTE:** Staff FTE are set equal to 0.6 times the number of faculty FTE (ladder plus lecturer). This is high relative to campus practice but reflects the higher service level expected by students and faculty in management schools and the greater need for support staff required at an off-campus location. Additional staff for the executive education program are also budgeted. The budget assumes a rapid build up of staff (i.e., five staff FTE in year 00 when only the dean is in place) to reflect the immediate needs associated with developing degree programs, launching an executive education program, and fundraising.
8. **Staff salaries:** Average staff salary (excluding benefits) set at $90,000.

9. **Benefits:** Benefits were set at $3000 per faculty and staff FTE plus 13% of salaries.
10. **Supplies, materials, and related costs**: These were set at $10,000 per faculty plus staff position. (In contrast, the campus planning figure is less than $5,000.)
11. **Executive Education non-staff costs**: Faculty (adjunct, full-time, and lecturers) stipend of $1,000 per lecture hour and $350 per student for supplies and expenses.
12. **Library:** Library expenses set at $10,000 annually per faculty.
13. **Financial aid**: Set at $6,479 per state-funded student FTE based on 1/3 of the professional, education and registration fees.
14. **Other campus assessments**: set at $5,427 per state-funded student FTE (equal to 100% of registration fee plus 75% of education fee, plus 25% of marginal state funding), reduced by 50% to reflect services school will provide internally.
15. **Space:** Space cost is estimated based on 250 GSF per state-funded student FTE (campus average), $500 cost per GSF for construction, and debt service based on an interest rate of 6.13%. We assume no space costs for years 0-2. For years 1-5, we assume the school occupies rental space. Beginning in year 6, the school is assumed to occupy a 58,000 GSF building. Alternative scenarios are based on (1) gift-funded space and (2) debt-financed by school plus the use of the $20M currently in the campus capital plan for a Silicon Valley facility. Operating costs are assumed to be $9.20 per GSF. Land costs for a site in Silicon Valley are estimated to be $85 per GSF or approximately $5M.
16. **State-funded students:** Marginal funding per state-funded student FTE of $8,100.
17. **Professional school fee**: Based on 1999 UCSD planning figure of $14,276. For this fee, and the fully-employed and executive MBA fees, we have used the figures in the UCSD management school proposal that were, in tern, based on the fees at the UCLA Anderson School. These have not been adjusted for increases in fees since 1999 and so understate the current level of professional degree fees at UC management schools. However, this may be appropriate for a new school. While these fees could be increased as the school grows and its reputation develops, we have not incorporated any increase in our budget estimates.
18. **Fully-employed MBA fees**: $20,000 per year.
19. **Executive MBA fees**: of $27,000 per year.
20. **Executive Education fees:** $2,500 per headcount for executive education programs.
21. **Registration and education fees**: $6,092.

Based on these assumptions, Table A-1 provides details of the various categories of expenditures and revenues that produce the totals shown in Table 11 of the text.

Table A-1: Budget Projections – Debt Financed Building (thousands of $)*

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Steady State
Expenses							
Faculty salaries & Benefits	$2,134,985	$2,461,830	$3,263,413	$3,894,497	$4,724,800	$5,513,133	$6,136,927
I&R	$1,610,461	$2,086,927	$2,570,177	$2,803,497	$3,358,365	$3,782,557	$4,110,089
Financial Aid	$0	$323,945	$680,283	$874,650	$1,153,242	$1,347,609	$1,522,539
Indirect and Related Costs	$0	$135,672	$284,912	$366,315	$482,993	$564,397	$637,660
Library	$29,679	$81,123	$128,610	$156,310	$189,155	$224,770	$251,283
Facilities	$930,456	$1,048,022	$1,069,955	$2,846,587	$2,878,479	$2,849,380	$2,839,228
Total	**$4,705,581**	**$6,137,519**	**$7,997,350**	**$10,941,857**	**$12,787,035**	**$14,281,846**	**$15,497,726**
Revenues							
State Funds -- Enrollment	$0	$405,000	$850,500	$1,093,500	$1,441,800	$1,684,800	$1,903,500
Professional Fees for MBA Students	$0	$713,800	$1,498,980	$1,927,260	$2,541,128	$2,969,408	$3,354,860
Fees -- Education, Registration	$0	$304,600	$639,660	$822,420	$1,084,376	$1,267,136	$1,431,620
Fully Employed MBA Fees	$1,000,000	$2,400,000	$3,600,000	$4,000,000	$4,400,000	$5,200,000	$6,000,000
Executive MBA Fees	$675,000	$945,000	$1,080,000	$1,620,000	$2,160,000	$2,700,000	$2,700,000
Other Executive Education Fees	$250,000	$375,000	$500,000	$625,000	$875,000	$1,000,000	$1,125,000
Sales and Services	$0	$100,000	$100,000	$150,000	$150,000	$150,000	$150,000
Gifts and Endowments	$0	$0	$0	$0	$0	$0	$0
Total	**$1,925,000**	**$5,243,400**	**$8,269,140**	**$10,238,180**	**$12,652,304**	**$14,971,344**	**$16,664,980**
Surplus (deficit)	**-$2,780,581**	**-$894,119**	**$271,790**	**-$703,677**	**-$134,731**	**$689,498**	**$1,167,254**
Cumulative	**-$6,596,144**	**-$7,490,263**	**-$7,218,472**	**-$7,922,149**	**-$8,056,880**	**-$7,367,382**	**-$6,200,128**

* Year 1 corresponds to the arrival of the School's Dean. In the previous year, year 0, we assume expenses associated with one full-time staff position and recruitment costs. These total $271,147. This figure is included in subsequent summary figures for ramp-up expenses. Figures are in 2005-2006 dollars.

APPENDIX F: FACULTY ADVISORY GROUPS, 2005-08

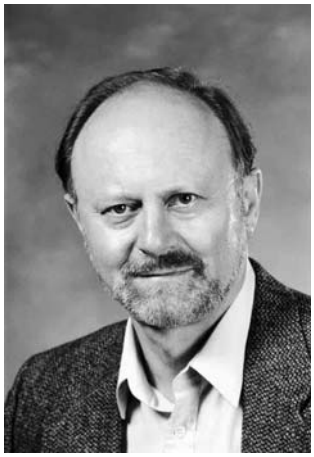
The 2005-07 steering group created the June 2007 draft proposal which serves as the basis for the current document. Its membership was entirely internal. The current academic advisory group includes several prominent faculty and administrators from other universities, as well as new faculty from UCSC, with the aim of refining the intellectual focus of the proposed School of Management.

Steering Group 2005-07

Carl Walsh, Vice Provost Silicon Valley Initiatives, Chair
Professor Martin Chemers, Psychology
Professor Brent Haddad, Environmental Studies
Sheldon Kamieniecki, Dean of Social Sciences
Steve Kang, Dean of Engineering
Professor Lori Kletzer, Economics
Professor Paul Lubeck, Sociology
Professor Pat Mantey, Engineering
Professor Ravi Rajan, Academic Senate Committee on Planning and Budget
Cathy Sandeen, Vice Provost Dean of Extension
Professor Nirvikar Singh, Economics
Lisa Sloan, Vice Provost Dean of Graduate Education

Academic Advisory Group 2007-08

Joshua Aizenman – Professor of Economics at UC Santa Cruz
Philip Berman – Professor and Chair of the Biomolecular Engineering Department of UCSC.
Claire Brindis - Professor in the Division of Adolescent Medicine, Department of Pediatrics and the Department of Obstetrics, Gynecology and Reproductive Sciences at UCSF.
Sue Carter - Professor in the Physics Department at UCSC
Martin Chemers - Professor and the Chair of the Department of Psychology at UCSC
Nicholas Economides - Professor of Economics at Stern School of Business, New York University.
Sebastian Edwards – Professor of International Business Economics in the Anderson Graduate School of Management at UCLA
Dan Friedman – Professor of Economics at UCSC
Pamela Hinds - Associate Professor, Center on Work, Technology & Organization in the Department of Management Science & Engineering, Stanford University
L. Robin Keller - Associate Dean (Full Time MBA) and Professor of Operations and Decision Technologies in the Paul Merage School of Business at UC Irvine
Philip R. Lee - Senior Scholar, Institute for Health Policy Studies and Professor Emeritus of Social Medicine, Department of Medicine, School of Medicine at UCSF
Mohanbir S. Sawhney - Tribune Professor of Technology and Director, Center for Research in Technology and Innovation, Kellogg School of Management, Northwestern University
Ali Shakouri - Professor of Electrical Engineering at UCSC
Vernon Smith - Winner of the Nobel Prize in Economics (2002), Professor of Economics at Chapman University



Joshua Aizenman

University of California, Santa Cruz

Dr Aizenman is a Professor of Economics at UC Santa Cruz. Before joining UCSC, Dr Aizenman served as the Champion Professor of International Economics at Dartmouth College. He has also served University of Pennsylvania, University of Chicago Graduate School of Business, and the Hebrew University, Jerusalem in various capacities. He is a Research Associate with National Bureau of Economic Research (NBER). Professor Aizenman's research areas include: commercial and financial policies, crises in emerging markets, foreign direct Investment, capital controls, and exchange rate regimes.

Philip Berman
University of California, Santa Cruz
Dr Berman is a Professor and the Chair of the Biomolecular Engineering Department of UCSC. In 2004, Professor Berman co-founded Global solutions for Infectious Diseases, a non profit research organization. In 1995, he co-founded Vaxgen and served it as the Senior vice president of research and development. Professor Berman has also served Genentech for 15 years, where he led research on recombinant Proteins, vaccine development, and monoclonal antibodies. Professor Berman's research interests include: development of vaccines, therapeutics, and diagnostics for the prevention and treatment of infectious diseases, as well as the development of new technology for commercial production of complex recombinant glycoprotein.

Claire Brindis

University of California, San Francisco

Dr. Brindis is a Professor in the Division of Adolescent Medicine, Department of Pediatrics and the Department of Obstetrics, Gynecology and Reproductive Sciences at UCSF. She is the Executive Director of the National Adolescent Health Information Center and Associate Director of the Information and Analysis Center for Middle Childhood and Adolescence and Director of the Center for Reproductive Health Research and Policy at the Institute for Health Policy Studies, UCSF.

Her research interests are: adolescent and child health policy, adolescent pregnancy and pregnancy prevention, adolescent health and risk-taking behaviors, reproductive health services, school-based and integrated health and social services, adolescent health policy and women's health.

Sue Carter

University of California, Santa Cruz

Dr Carter is a Professor in the Physics Department at UCSC. She is also the Chief Technical Advisor, Add-vision Inc., Scotts Valley, CA. She has served as the Young Investigator Research Fellow at the IBM Almaden Research Center, San Jose, CA. She also received the David and Lucille Packard fellowship in1996. A PhD from University of Chicago, Dr Carter was a Postdoctoral Research Scientist at the AT&T/Lucent Bell Labs, Murray Hill, NJ from 1993 to1995.
Dr Carter's research areas include: polymer light emitting materials, polymer-based photovoltaics, polymer liquid crystal flat panel displays, novel transparent conductors, protein structure and aggregation, and correlated electron systems.

Martin Chemers

University of California, Santa Cruz
Dr Chemers is a Professor and the Chair of the Department of Psychology at UCSC. Prior to coming to Santa Cruz, Dr Chemers was Henry R. Kravis Professor of Leadership and Organizational Psychology and the Director of the Kravis Leadership Institute at Claremont McKenna College. He also served as a Professor and the Chairman of the Department of Psychology at the University of Utah and has held academic positions at the University of Delaware. Professor Chemers is the president-elect of the Society of Experimental Social Psychology.
His research interests pertain to leadership, team and organizational effectiveness, cultural and personality characteristics of leaders, college student adjustment and performance.

Nicholas Economides

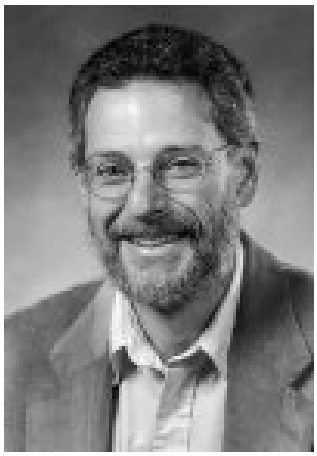
New York University
Dr Economides is a Professor of Economics at Stern School. He also serves as the Executive Director of Network Electronic Commerce and Technology Institute (NET), and a visiting Professor at Haas School of Business, UC Berkeley. Previously, he held teaching and research positions at Columbia University, Stanford University and Federal Reserve Bank of New York.
His research interests cover the areas of industrial organization, network industries, structure of financial markets, law and economics.

Sebastian Edwards

University of California, Los Angeles

Dr Edwards is a Professor of International Business Economics in the Anderson Graduate School of Management at UCLA. He is also a Research Associate with the National Bureau of Economic Research (NBER), a Member of the advisory board of Transnational Research Corporation, co-chairman of the Inter American Seminar on Economics (IASE), a member of the Scientific Advisory Council for the Kiel Institute of World Economics—Kiel-Germany and a member of California Governor's Council of Economic Advisors. Professor Edwards has also been the President of the Latin American and Caribbean Economic Association (LACEA). Prior to joining UCLA in 1996, Professor Edwards was the Chief Economist for the Latin America & Caribbean Region World Bank Group.

Professor Edwards has written extensively on international economics, macroeconomics and economic development



Daniel Friedman

University of California, Santa Cruz

Dr Friedman is a Professor of Economics at UCSC. He is on the editorial boards of the Journal of Evolutionary Economics, Games and Economic Behavior, and Experimental Economics. Prior to his appointment at UCSC in1985, Dr Friedman was in the faculty of the Department of Economics, UCLA and UC Berkeley. He has also served as Senior Financial Consultant for Bank of America, San Francisco; System Analyst for the Education Reform Project, Berkeley and a consultant for Thomte-Roper, Inc. Boston. Dr Friedman has received 11 National Science Foundation grants.
Dr Friedman has research interests in microeconomic theory, learning and evolution, experimental economics, behavioral economics, and financial markets.

Pamela Hinds
Stanford University
Pamela J. Hinds is an Associate Professor with the Center on Work, Technology, & Organization in the Department of Management Science & Engineering, Stanford University. She serves on the editorial board of *Organization Science* and is co-editor with Sara Kiesler of the book Distributed Work (MIT Press). Dr Hinds has also served Hewlett Packard Laboratories and Pacific Bell, before her appointment at Stanford.
Dr. Hinds' research focuses on the effect of technology on groups. She has conducted extensive research on the dynamics of geographically distributed work teams, particularly those spanning national boundaries. Pamela also conducts research on professional service robots in the work environment, examining how people make sense of them and how they affect work practices.

L. Robin Keller

University of California, Irvine
Dr. Keller is an Associate Dean (Full Time MBA) and Professor in the Operations and Decision Technologies area in the Paul Merage School of Business at UC Irvine. She is the Editor-in-Chief of *Decision Analysis*, published by the Institute for Operations Research and the Management Sciences (INFORMS). She is currently serving on a National Academy of Sciences committee, the U. S. National Committee for the International Institute for Applied Systems Analysis (IIASA). She also is a member of the Scientific Advisory Committee for the Homeland Security Center for Risk and Economic Analysis of Terrorist Events (CREATE) at USC. She is a past-president of the Decision Analysis Society of INFORMS. Previously, she served as a program director for the Decision, Risk, and Management Science Program at NSF. Professor Keller was the Vice President-Finance of the Institute of Management Sciences (TIMS) and served as the Chair of its Investment Committee. She was also a founding Director-at-large of INFORMS.

Dr Keller's research interests are in decision analysis, risk analysis, creative problem structuring and behavioral decision theory.

Philip R Lee

University of California, San Francisco

Dr Philip R. Lee, is a Senior Scholar, Institute for Health Policy Studies, and Professor Emeritus of Social Medicine, Department of Medicine, School of Medicine at UCSF. In addition, Dr. Lee has been a Consulting Professor in Human Biology at Stanford University since 1997. Dr Lee has served as the Assistant Secretary for Health, US Department of Health and Human Services from 1993 to 1997. He was the Assistant Secretary for Health and Scientific Affairs, Department of Health, Education and Welfare from1965 to 1969. He has also served as the Director of Health services in the Agency for International Development. He was one of the founders and the Director the Institute for Health Policy Studies (UCSF) and was the chancellor of UCSF from 1969 to 1972.
His research interests are: medicare and prescription drugs, with a focus on the history and policy process since the enactment of medicare in 1965; federal health professions legislation in the 1960.

Mohanbir S. Sawhney

Northwestern University
Dr Sawhney is the Tribune Professor of Technology and Director, Center for Research in Technology and Innovation, Kellogg School of Management. Professor Sawhney currently has 32 consulting clients; among them are: Microsoft, Goldman Sachs and Bank of America. He is an advisor to the US-Jordan Business Alliance and is on the advisory boards of several technology startup companies. He also served as an advisor to the Government of Oman. He was recognized by Business week among the 25 most influential people in e-business, and by Crain's Chicago Business a member of "40 under 40". Professor Sawhney is also a fellow of the World Economic Forum.
Professor Sawhney has research interests in: collaborative marketing with customers, marketing process design and measurement, marketing and media in the connected world, business innovation and organic growth, network-centric innovation, business agility.

Ali Shakouri

University of California, Santa Cruz

Dr Shakouri is a Professor of Electrical Engineering at UCSC. A PhD from the California Institute of Technology, Professor Shakouri received the Packard Fellowship in Science and Engineering in 1999 and the NSF Career award in 2000. He heads the Thermionic Energy Conversion (TEC) center, an initiative involving researchers from seven major Universities, studying ways to improve direct thermal to electric energy conversion technologies.

Professor Shakouri's research interests are: quantum electronics, nano and microscale heat and current transport in semiconductor devices, thermoelectric/thermionic energy conversion, submicron thermal imaging, micro refrigerators on a chip and novel optoelectronic integrated circuits.

Vernon Smith

Chapman University

Winner of the Nobel Prize in Economics (2002), Dr Smith is a Professor of Economics at Chapman University, in Orange County, California. He has served as the President of the Public Choice Society, the Economic Science Association, the Western Economic Association and the Association for Private Enterprise Education. He has been a fellow of the Ford Foundation and the Center for Advanced Study in the Behavioral Sciences. He is a Fellow of the Econometric Society, the American Association for the Advancement of Science and the American Academy of Arts and Sciences. He is a distinguished fellow of the American Economic Association. He was an Andersen Consulting Professor of the Year and was elected a member of the National Academy of Sciences in 1995.Dr Smith has served as a consultant on the privatization of electric power in Australia and New Zealand and participated in numerous private and public discussions of energy deregulation in the United States.

Dr Smith's research interests are: experimental economics, industrial organization, property rights economics, and neuroeconomics.

APPENDIX G: STRATEGIC PLAN THROUGH JUNE 2008

External Engagement	***Intellectual Development***	***Pre-Implementation***	***Internal Approvals***
Channels 1. Silicon Valley Leadership Group (SVLG) 2. Individual C-level contacts for major firms 3. Other corporate groups, (e.g., ACG, Churchill Club, TiE, AAMA) 4. Local and state government 5. Local educational institutions	**Channels** 1. Academic advisory group 2. Workshops and panels 3. Web site 4. Case studies	**Activities** 1. CMU (West) partnership 2. BSoE (ISTM/TIM programs) partnership 3. UARC and NASA partnership 4. Competitive analysis: UCB, Stanford, SCU 5. UCSC Extension partnership 6. UCSD benchmarking 7. Executive education at SVC	**Levels** 1. UCSC Executive Advisory Council and Academic Senate 2. UCOP 3. State legislative bodies
Target Outcomes **(by June 2008)** 1. Letters of support 2. Intellectual inputs 3. Buzz/Brand 4. External Advisory Board (CEOs and thought leaders) 5. Sponsorship (cash and in-kind)	**Target Outcomes** **(by June 2008)** 1. One-pagers on focus areas (e.g., health care, sustainability, intellectual property, knowledge-based services, biotech) 2. Three SV panels (sustainability, intellectual property, health care) 3. Three SV-focused case studies 4. Active blog and web site content relating to management in SV	**Target Outcomes** 1. Competitive Analysis – • 1st round by **January 2008** • 2nd round by **March 2008** 2. Two courses with CMU • Entrepreneurial Finance -- **Spring 2008** • Product Management -- **Summer 2008** 3. Joint marketing and course development with BSoE and UNEX	**Target Outcomes** 1. Pre-proposal for Senate • **January 2008** 2. Full proposal for EAC and Senate • **May 2008**