EDUCATIONAL STRATEGIES
FOR MEETING THE EAST BAY AREA’S
EMERGING WORKFORCE NEEDS

WORKFORCE DEVELOPMENT ROUNDTABLES REPORT

COSPONSORS
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East Bay Area industries and businesses contribute decisively and indispensible to the economic vitality and global competitiveness of the entire Bay Area region. Cal State East Bay seeks to sustain the region’s economic leadership by ensuring that Cal State East Bay graduates possess the knowledge and skills needed to get good jobs that will enable them to advance and contribute to a growing economy. This report, which emerged from a series of 10 roundtable discussions cosponsored by industry representatives and other organizations and agencies, describes the challenges that we face and the steps we must take to achieve that objective. Cal State East Bay created these discussions so that the recommendations that flowed from them could be incorporated into its academic plan.

The report is divided into four parts.

Introduction
Top executives from manufacturing, technology, financial services, and health care industries, including local governments, school districts and organizations dedicated to regional economic development, were invited to the roundtables to offer their insights in response to a series of questions about the challenges they face in meeting their workforce needs. Cal State East Bay has integrated this information into its academic plan with the intention of reshaping the curriculum to better prepare our students to succeed in the East Bay’s dynamic and technologically advanced economy.

Global and Regional Economic Context
The workforce roundtables must be viewed in a broad economic and demographic context. Globalization has profoundly changed competition and the way invention and production processes are organized and products distributed around the world. In addition, the shift to a knowledge-based services economy has increased the demand for college graduates considerably beyond the available supply. Additionally, a demographic shift towards workers who are less likely to be college-bound because they lag behind in educational attainment in K-12 has contributed to a growing shortage of highly skilled workers.

Industry Forecasts
While market forces and regulatory conditions unique to each industry shape workforce needs, industry representatives also identified several common factors that affected their forecasts of future employment needs. Global markets have significantly changed the supply chain and increased daily contact among co-workers and customers from different cultures with different languages that are ethnically and racially diverse. Although core technical knowledge varies for each industry, “soft skills” that involve writing, communication, critical thinking, leadership, team building, effective management skills and good ethical judgment have become more important.
The aging Baby Boom population is contributing to a growing shortage of mid-manager level employees while creating a multigenerational environment of workers with different paces and job goals. East Bay industries continue to import or outsource a significant number of high-skilled jobs. Nevertheless, they continue to look for local talent who will remain in the area and are willing to upgrade their educational credentials in response to business needs. For many industries, this talent must possess a strong foundation in STEM disciplines involving science, technology, engineering and mathematics that is urgently needed in manufacturing, technology, biotechnology and health care. This will require a stronger collaboration between Cal State East Bay and K-12 local school districts to strengthen science and math education, particularly among Hispanics and African Americans, to increase the number of graduates in STEM and other related disciplines.

Workforce Roundtable Meeting Summaries

These important meetings gave East Bay industries an opportunity to identify their particular employment needs and indicate the kind of preparation needed for employees to succeed in their businesses. Industry representatives singled out several attitudes and skills that students need to acquire at Cal State East Bay. Most representatives agreed that a strong interest in, and passion for working in an industry is considered just as important as possessing the competence to do so. Manufacturers are looking for people who can bridge the technical and managerial realms to deal effectively with external suppliers and co-workers’ needs. The financial services and government sectors indicated the need for both specialists as well as generalists. Government also seeks employees who can respond effectively to multiple perspectives in local communities. The health care industry is looking for employees who can work effectively with physicians as self-confident decision makers. They also seek nurses and lab clinicians who have accumulated experience prior to full-time employment. The technology industry recruits workers who can thrive in a corporate culture that places a premium on technical innovation and the ability to explain the distinctiveness of its product solutions to customers. These industries seek talented people who can think strategically, prioritize work assignments and build strong relationships with culturally diverse co-workers and customers. Finally, the educational system needs teachers who will maintain high expectations for students and motivate them to succeed, attain increased competence in science and math, employ computer technology in the classroom and be able to work with data management systems.

Cal State East Bay heeded this advice and has proposed several strategies to strengthen student competencies that industries consider critical to their continued competitiveness, which include, among others:

- Offering more certificate programs that will count towards a degree;
- Providing all students with an understanding of basic business concepts and increasing their awareness of entrepreneurial opportunities in alternative energy, transportation and environmental products and services;
- Equipping every student with a suite of “soft” skills that include effective communication, writing, reasoning, teamwork, leadership and ethical judgment;
- Working closely with K-12 to increase the number of teachers competent in science and math;
- Increasing the number of minority graduates competent in science and math;
- Increasing faculty contacts with business and industry in summer fellowships;
- Providing more opportunities for experienced industry leaders to become adjunct faculty at CSUEB; and
- Bridging the generation gap by creating realistic expectations among graduates about workplace expectations and demands.
PART I
INTRODUCTION

Background
As a major regional institution for higher education, California State University, East Bay takes seriously its stewardship responsibilities for creating and maintaining a talented regional workforce that enables industries to compete on a global scale. This series of provocative workforce roundtables, described in this report, were designed to enable CSUEB to play a vital role in partnering with several East Bay industries and regional organizations strongly committed to meeting the emerging employment needs of business and industry. The roundtables analyzed the workforce needs in the region with the intent of using the findings to guide CSUEB’s strategic academic planning process. CSUEB invited several prominent organizations in the San Francisco Bay Area involved with workforce, education and economic development issues to cosponsor the series of 10 meetings. A Hayward Economic Summit was also organized to determine the factors that affect the decisions by businesses to locate in Hayward, and a summary of its findings is published in a separate report. The meetings were held from October 2007 through January 2008 and were hosted by different cosponsors. The cosponsors included the following governmental agencies, institutions or organizations:

- Bay Area Council
- East Bay Economic Development Alliance
- Contra Costa Council
- Silicon Valley Leadership Group
- Juniper Networks
- New United Motor Manufacturing, Inc.
- Wells Fargo
- Alameda County
- City of Hayward
- Hayward Chamber of Commerce
- John Muir Health
- California State University, East Bay

Because the university’s diverse student body is drawn mostly from the East Bay, the university’s academic programs must respond to the needs and interests of our future students. The academic strategic planning process is designed to determine how to better prepare CSUEB students to acquire competencies that are most sought after by the manufacturing, technology, financial services, government, health care and education sectors. Because nearly 85 percent of the university’s graduates remain in the East Bay to work, the success of the university’s academic programs is measured by their ability to prepare graduates eager for careers with East Bay employers.

Top executives from manufacturing, technology, financial services, and health care industries, including local governments, school districts and organizations dedicated to regional economic development, were invited to the roundtables to offer their insights about the challenges they face in meeting their workforce needs. Through a series of intimate roundtable discussions, Cal State East Bay sought crucial information about the rapidly changing cultural, scientific, technical, social, demographic, regulatory and economic environments facing industry sectors today. The university will use this timely information to help shape curricula to better reflect the needs of industry in preparing students for employment in technologically advanced jobs that require multiple skills and competencies.
Before summarizing the results of the roundtables, it is important to put them in a broader economic and social context. The Bay Area economy and workforce are being reshaped by five major trends. These trends include: globalization of production; the shift to a knowledge-based services economy; a fundamental demographic change involving a growing minority population; an educational preparedness gap and a consequent workforce shortage in high skilled STEM jobs.

**Globalization**

First, globalization has fundamentally changed how companies create new products, organize production and compete with other businesses. The State of California and, particularly, the San Francisco Bay Area, possesses one of the most robust and dynamic economies in the nation and world largely because of its tremendous attraction of venture capital, innovative start-ups and extensive production ties to other countries. Between 2005 and 2025, employment among wage and salary workers in California is expected to grow by 30 percent. Employment in the San Francisco Bay Area is expected to grow at about the statewide rate to 4.2 million jobs.

**Knowledge-Based Services Economy**

Second, the shift to a services economy, which includes personal, business, health, legal, and educational services, also has altered workforce needs. Service industries made up 34 percent of the economy in 2005 but their share is expected to increase to 39 percent by 2025, as illustrated in the chart below. The projected expansion of service-related industries, especially those involving financial services, biotechnology and professional health care in California, will increase demand for college-educated workers. Over 40 percent of workers in service industries have a college degree (either a bachelor’s or graduate degree). The share of the population with a bachelor’s degree will increase from 28 percent in 2000 to 33 percent in 2020. However, employment projections suggest that the share of workers with a college degree would need to increase from 30 percent in 2000 to 39 percent in 2020, thus falling far short of meeting the projected demand, as depicted in the chart below.

**Demographic Shift**

Third, California is undergoing a fundamental demographic change that will alter profoundly the San Francisco and East Bay Areas’ ability to satisfy its future workforce needs. The U.S. Census Bureau estimates that California’s Hispanic origin population is expected to double between 1995 and 2025 to total over 17 million and account for almost half of the state’s population and one-third of the nation’s total Hispanic population. The composition of all races and ethnic groups is changing dramatically in the East Bay, and this change is reflected in the makeup of CSUEB’s student body. For example, Hispanic and Asian populations are forecasted to increase, with African Americans’ registering a
small decline, while the white population will drop dramatically, as indicated in the chart below.

Contra Costa counties, it is falling short of meeting the needs of the growing Hispanic populations in these counties, as indicated in the chart below.

**Lagging Educational Attainment**

Fourth, the level of educational attainment is not keeping pace with the emerging knowledge-based economy, putting the region’s economy at risk. According to the Public Policy Institute of California, in 2020, 75 percent of jobs will require at least some college but only 61 percent of the workforce will have achieved this level of education. One important reason for this is that educational attainment for all major racial and ethnic groups in California has been uneven, especially in some cities in the East Bay, as described in the Hayward Economic Summit report. For example, while Hispanics have become a majority of K-12, their college participation rates remain exceedingly low. A California Council on Science and Technology (CCST) report estimated that “less than five percent of [California] Latino high school students graduate with college-ready skills.” More troubling is the fact that of the 7,700 science and technology degrees awarded in 2000, only 1.5 percent of these degrees were awarded to Latino students who constituted 43 percent of the population at that time.
Shortage of Highly Skilled Workers

Finally, to sustain a highly skilled workforce, the Bay Area has traditionally attracted a significant number of college graduates from other states and abroad. However, given the restrictions of H-1B visas and the high cost of living, the region faces challenges in meeting its increasing workforce needs. The Public Policy Institute of California concluded, in a recent report, that “it is extremely unlikely that the projected need for highly skilled workers will be met mainly through the increased migration of college-educated workers, arguing instead that “increases in college participation and graduation among California residents could help meet these needs.”

Offshoring has also been a strategy to meet workforce needs. In its listing of best careers for 2008, *U.S. News and World Report* featured jobs that are resistant to offshoring, such as a genetic counselor, curriculum training specialist, investment banker and mediator. Most of the best careers listed in the report that are resistant to offshoring required at least college degrees, and many involved additional graduate education and professional training.

The CCST estimated that 14,000 jobs requiring science and engineering degrees went unfilled in 2001 and the shortfall has steadily grown since then. The CCST has recommended that state education agencies increase the number of qualified teachers, especially in science and mathematics, and take significant steps to improve student-learning outcomes. The Baby Boomer generation also is expected to contribute to a severe labor shortage over the next two decades, as this 65-plus age group is projected to comprise 20 percent of the Bay Area population in 2020.

For these reasons, workforce roundtables were organized to devise innovative ways for Cal State East Bay, the San Francisco Bay Area and East Bay business partners and regional economic development groups to respond to this serious workforce crisis head on. CSUEB is undertaking a bold strategic academic planning process to bring about a closer alignment of its supply of educational services and the demand of Bay Area businesses and industries for more appropriately skilled college graduates.
Basic Knowledge and Skills Requirements
In these highly informative series of roundtables, there was a remarkable convergence of opinion about the common challenges confronting employers seeking new entrants in industries facing dynamically changing market environments. Employers today must keep pace with technological change and no longer have the luxury of hiring from an ample supply of qualified workers. Instead, they must work more closely than ever before with educational institutions to provide employees with the skills and competencies that will enable businesses to sustain their edge in a highly competitive global economy.

Questions For Industry Representatives
To facilitate candid and open-ended discussions, several questions were sent to participants in advance of the meetings regarding key issues to be discussed at the roundtable. The questions were intended to tap the wisdom and practical observations of top-level executives based on their industry experience. The questions addressed several issues regarding industry expectations about future needs described below.

What are the biggest changes you foresee in your industry over the next five or six years?
While most participants agreed that their industries face significant changes in the next few years, the challenges differed in important ways. Manufacturing is confronted with increased labor costs associated with unions and rising competition from overseas to increase productivity to remain competitive. Manufacturing businesses seek tax incentives and other incentives from local governments to reduce costs and locate and remain in the Bay Area.

David Ciesco, Vice President and Comptroller of New United Motor Manufacturing described the impact of these forces on auto production succinctly:

*In auto manufacturing we have two main problems: sustainability and globalization. We are forced to be proficient with suppliers in China. There are common threads, but we have people with different cultures. This will continue, as the supply base is moving out globally. The question we ask our employees now is whether they are adaptable. Adaptability is the key issue—the ability to work with different cultures.*

The technology industries are dealing with a turbulent period of growth and consolidation in which the ability to design and rollout new products and build strong customer ties require multitalented workers with both strong technical expertise and “soft” communication, team-building and interpersonal skills. This industry relies on a considerable amount of overseas talent but recognizes the need to grow more local talent with desperately needed engineering and other math and science-based skills. A growing demand is expected for alternative energy products and this will fuel increased innovation and demand for new municipal infrastructures capable of supporting these technologies.

The health care industry faces a vexing two fold challenge. The number of patients, particularly with chronic diseases, such as diabetes, is expected to increase dramatically as the population ages. But the health care workforce, by one participant’s estimate, is going to fall short about 30 percent or more in the next decade. This shortage is not just concentrated in nursing staffs but also includes highly trained laboratory and clinical technicians. And, of course, any successful plan to create a national health care system would further increase the need for skilled workers.

Ken Anderson, President and CEO, John Muir Health, observed that,

*Our needs are very, very real. What we probably need are opportunities to expand educational opportunities in math and science and allied health technology. If nursing is the core, then we could build on this to add more training. We need to fill the gaps. The real bottleneck is not the degree program but the experience needed in the hospital.*

Financial institutions have developed into a complex industry not only involving banking but also mortgages, investment and trading, among other services that are increasingly integrated. These services have become commodities that enable firms to differentiate from one another in terms of adding value. Financial institutions today are looking for students who can perform multiple roles that include accounting, customer service, and financial and market analysis, among other functions.

Part III
Industry Forecasts
The government sector is steadily introducing business management practices that will require workers with management and accounting skills, as well as knowledge of public policy and community affairs. Some East Bay area governments are experiencing difficulties in recruiting younger workers who sometimes have misconceptions of government employment. They are also experiencing a shift toward a multigenerational work environment, as older workers from other industries return from retirement to seek work. Perhaps the biggest challenge government faces is dealing creatively with encumbering civil service rules to find the best-qualified workers to fill critical professional jobs.

Greg Jones, Hayward city administrator, characterized the challenges this way:

*What we are seeing is much less interest among 25 to 30-year-olds in government service. There is a huge wave of retirees with nothing filling in behind it. There is a need to expand the qualifications of what we are looking for and the type of candidates that we are looking for. In terms of services, we have to look at ourselves as a business and decide what it takes to operate efficiently, such as expenditure management, things that are not well understood by government workers. We need to operate as a business enterprise. Government is a conglomeration of businesses that must be integrated. This would argue for more of an interdisciplinary approach between MBA and MPA degrees.*

Despite these differences, panel members from almost every industry agreed that their workforces have become more racially, ethnically and culturally diverse and that multiple languages are now spoken on the job. Today, there is much more interaction with foreign suppliers and technicians, and firms are struggling to assemble teams that are capable of communicating with one another and with customers effectively. And it is clearly evident, from the foregoing summary, that businesses in almost every industry desire workers who possess multiple skills, can function independently and work in teams.

*What is the “shelf life” of the core knowledge in your industry?*

Industry panel representatives identified core technical knowledge that will continue to be valued and preserved for the foreseeable future. Core knowledge requires special training in a field or discipline that can be applied in the workplace. Technology industries experience the fastest pace of change and their employees must continually update their core knowledge in engineering and related fields. Industry representatives in technology, manufacturing and health care indicated that they hire graduates who possess a sound understanding of the technical demands of their chosen field but who are also adaptable and capable of solving problems that require ingenuity and resourcefulness. The financial services and government sectors do not expect all of their new employees to be specialists and instead hire many graduates with diverse educational backgrounds and generalist skills.

Michael Billeci, Regional President, Wells Fargo, stressed the wide latitude of skills they are seeking in the financial sector:

*The skill set we need is people who can give good advice to Baby Boomers, as there is a gap here. Our value proposition will be giving advice. . . There is a vast spectrum of skills. There is strong need for people with critical thinking skills—i.e., gathering information, analysis and the other steps involved. There is a need among younger employees to explain their process of deliberation and show how they reached a decision. And fundamental social skills are necessary.*

Moreover, there was general agreement that graduates need to develop some combination of hard and “soft” skills to be successful. Soft skills include the ability to write and communicate effectively, think critically, be decisive, show leadership, manage projects effectively, be a team player and show good ethical judgment.

Clearly, in today’s work environment multiple skills are needed, an ability perhaps best expressed by Daniel Woldesenbet, Director, Alameda Public Works.
People are in a one-dimensional work environment but a multidimensional world. So it would be nice to have people capable of a multipronged approach. . . We fail to challenge people to do multiple things but instead hire multiple people to do specific things. We must encourage people to diversify their knowledge. We tend to value people who have 20 years of experience doing the same thing.

Will the retirement of “Baby Boomers” over the next several years create problems for your industry?
There was a general consensus that retiring Baby Boomers were contributing to hiring shortfalls that are expected to grow larger as more of them leave the labor market. Industries consequently will be recruiting younger, less experienced workers who will have a better chance of advancing more quickly if they are prepared to learn and work hard. Industry representatives pointed out that, as Baby Boomers retire, they will create a strong demand for financial services, health care and public services that will increase the number of jobs in these sectors.

Emily Shanks, Senior Vice President, Business, Banking and Market Executive, Bank of America, noted the dimensions of the problem:

This is not just a U.S. problem, it is a worldwide problem. The Baby Boom drives the economy and where resources go. It is going to redefine financial services.

While acknowledging that the Baby Boomers present a serious labor market problem, Daniel Woldesenbet, Director, Alameda Public Works, also noted that:

Yes, there is a Baby Boom problem but they are a generation that is coming back from retirement. There is now a multigenerational environment that is challenging. So we need to incentivize work that is attractive to both generations. The knowledge base required in this work environment is changing in response to a global market. So maybe a certification program that is targeted to a specific problem or area of the market would be appropriate. Internships also would be useful. Adults learn differently than others—so curriculum needs to be modified to meet their learning needs. I started with a certification program that led eventually to a Ph.D. This is a very valuable program.

Compared to other regions, how would you characterize the occupational strengths and weaknesses of the East Bay's labor pool for your industry?
The shortage of engineers and graduates with STEM (Science, Technology, Engineering and Math) training in the Bay Area has most directly affected the technology and manufacturing sectors. Representatives from software and Internet-based businesses and highly automated manufacturing firms indicated that they continue to import considerable numbers of highly trained workers to furnish the talent they need to design and upgrade products and equipment. High-tech firms also rely increasingly on outsourcing for the production and distribution of products.

The East Bay workforce also possesses numerous strengths that make local hiring an attractive inducement to business and industries. Over 85 percent of CSUEB graduates and many other graduates of East Bay universities remain in the area after graduation to pursue long-term careers, contributing to labor market stability. California alone enrolls 13.6 percent of all college graduates in the U.S.12 Importantly, 37 percent of Bay Area residents have at least a bachelor’s degree, compared to 24 percent nationwide, and one in six has a graduate or professional degree.13 The East Bay also has a more flexible workforce that can easily adapt to meet the changing needs of technology, biotechnology and other industries, which must continually grow, retool and relocate within the region. CSUEB and other universities also have the capacity to support internships and provide certificate programs that offset the substantial costs of in-house training by providing timely and up-to-date curricula.

Robert Smith, President of U.S. Steel/POSCO Industries, acknowledged the value of certificate programs:

We handle [the need to update core knowledge] through conferences and training workshops. We spend a lot of money on this area. I never even thought of using a state university to do this. Having a certificate to get recognized would be
terrific . . . Our programs focus on a specific skill set but we still need broader training. . . Get the word out about the availability of CSUEB programs. We are doing training anyway, why not at Cal State East Bay?

Purely from an industry perspective, what is the ideal solution for filling workforce needs in your industry locally?

Industry representatives offered several useful suggestions about the kind of local talent they are looking for and how CSUEB can help as an educational institution to put that talent to maximum use. It is evident from their statements that students today need to be prepared to face challenges that are far more demanding, as well as professionally rewarding, than for previous generations.

Technology
Dennis Cima, Silicon Valley Leadership Group:

There is a need for talent that is multidimensional. New employees want a different work environment and are more concerned about company values than before. Today, employees need to be well rounded with technical, management, communication and negotiation skills. Math and science, the fundamentals, don't change.

Steve Rice, Vice President for Human Resources, Juniper Networks:

Juniper launched a recruitment program in 2008. We want to establish a long-term relationship with an educational institution. . . We need to build relationships with teachers on fellowships to get them better acquainted with our companies. . . We want to learn more about your graduates’ expectations.

Manufacturing
David Ciesco, Vice President and Comptroller, New United Motor Manufacturing, Inc.:

[Local] graduates tend to come in with a narrow view of job requirements. Engineers need to have business or professional acumen to bridge the technical and managerial realms.

Robert Smith, President, U.S. Steel/POSCO Industries:

What we need to do to keep our manufacturing here is to increase productivity. If it stalls, then we can’t compete here locally. So we look for people who are creative in a management team, to make the process more efficient. Our sales have grown fast, so if we can’t do that per employee input, then there would be trouble.

Government
Daniel Woldesenbet, Director, Alameda Public Works:

The community is much more knowledgeable today and knows what is going on in other communities. This changes the whole dynamic between governmental workers and community. There is a perception that government is lagging behind. So there is a need to attract people who have the desire and ability to contribute and deal with the challenges. How to deal with the public requires understanding multiple perspectives and how to shape solutions for specific constituencies. So we need to demonstrate that government workers are adding value.

A number of recent studies have indicated a shortage of graduates proficient in science, technology, engineering and math. Is this a problem in your industry?

Almost without exception, industry participants agreed that competence in science and math was essential to successful employment. Technology, manufacturing, biotechnology and health care industries, particularly, need employees who have taken a rigorous combination of courses in science and math. Biotechnology firms look for students who have had laboratory experience in life sciences and are competent in biostatistics. But financial and government sectors also need employees who are solidly grounded in mathematics and can competently assemble and explain spreadsheets using Excel and other software programs.

What will your industry likely do to respond to the anticipated shortages in the workforce?

Technology industries have imported or outsourced a significant number of jobs in response to the shortage
of qualified workers in the Bay Area. This trend is likely to continue until K-12 and local universities succeed in working together to substantially increase the number of students who enter the STEM workforce pipeline. In manufacturing, for example, foreign competition is forcing the steel industry constantly to find ways to automate production processes to increase productivity and cut costs. Similarly, the financial services sector continually analyzes how to better integrate its multifaceted services to enable customers and clients to undertake comprehensive investment strategies. These strategies have resulted in the recognition that there are limits to importing employees, because of the high cost of living and because East Bay educational institutions can furnish highly qualified students to help achieve business goals.

Mo Qayoumi, President of CSUEB, noted that industry and the university have mutual goals:

*Enterprises are taking their business where the talent is. There is a lot of parallelism in your efforts to integrate services and our efforts to integrate our educational services. We are also recognizing that stakeholders have different needs in each segment of the market. We are hopeful to have an ongoing conversation with you that will fulfill more of your educational needs in the future.*

Looking at recent graduates from institutions of higher education -- again from your industry's perspective -- do you see common areas in which they are unprepared?

While industry representatives indicated that many students showed weakness in writing, mathematics, communication and critical thinking that involve academic training, there were other areas of unpreparedness that have more to do with nonacademic competencies that are acquired through experience. Personal traits and attitudes associated with successful employment included being patient, responsible, accountable, professional, resilient, self-confident and passionate about work. Leadership skills and teamwork were both considered essential to effective project management. Cultural and intergenerational awareness was also stressed, including the need to learn a second language to deal with the cultural diversity of fellow employees, as well as clients, patients and customers.

Industry representatives also expressed frustration with some job candidates who felt entitled to a job and with those who were more dependent on friends for support than on their co-workers. There was also much concern about lack of loyalty and rapid turnover. But there was also the feeling that young employees today are energetic risk takers who are computer and Internet savvy and capable of adapting more rapidly to industry requirements and culture.

This is an important question that enabled industry representatives to articulate the qualities they look for in students and the kinds of programs the university can offer, as well as initiatives it can take in the community to meet their emerging workforce needs. Here are some thoughtful excerpts from participants at different roundtables:

**Manufacturing**

Robert C. Smith, President, U.S. Steel/POSCO:

*We have business models that enable us to see how we are doing. We hire consultants that give us a flow chart of costs as a product moves through the process. This is very useful but very expensive. Does CSUEB have courses in this?*

(Saied Moltavalli, Chair, Department of Engineering, College of Science, indicated that his department did have courses in this area)

**Technology**

Steve Rice, Vice President for Human Resources, Juniper Networks:

*We are looking at how competitive your students are and whether they can make it through a technical interview. We are looking for agility in response to questions and how analytical they are in thinking through a problem. They also need to show an understanding of the culture.*
Health Care
Susan Rosenthal, Kaiser Permanente:
We have an allied health school in Richmond for our future employees. It involves mostly radiological and nuclear medicine—that range of occupations. We are in the middle of doing a strategic plan. The Richmond program was started 20 years ago. But it has open enrollment now; students do not have to take jobs at Kaiser anymore. We have distance learning sites at San Jose State and other universities. There have always been partnerships, but we want to be more strategic in how we do this in the future.

Bay Area Council Workforce
Perla Rodriguez, PG&E:
CSUEB is a key institution in one of the most culturally diverse communities in the country. There is a huge need to reach out to Hispanics and African Americans who are still underrepresented in a way that is more strategic and aggressive. Our company is thirsty for finding and hiring a more culturally diverse and competent workforce. A lot more needs to be done to reach out to these students and to prepare them. Perhaps there are ways to support the K-12 system through mentoring and outreach.
That is why employers are eager to hire local, experienced employees because they know how to be professionals and they want to stay in the area.

• Many industries face the retirement of a large proportion of their workforce and there were concerns expressed repeatedly about being able to find adequate replacements.

Taken together, industry representatives desire college graduates who possess several positive attitudes, skills, and competencies:

• Personal attitudes include patience, resilience, confidence, a passion for their work, responsibility, accountability and professionalism.

• Skills include leadership, independence, effective project management and teamwork, and an entrepreneurial orientation.

• Competencies include critical and analytical thinking, above average skill in reading, writing and math, and an awareness of cultural and intergenerational differences.

What CSUEB can do to help

• CSUEB needs to be part of the future development of Oakland and should consider creating a campus in Oakland.

• Educational programs need to be customized to meet the needs of a diverse student body. Industry representatives recommended that CSUEB offer more evening and weekend classes for nontraditional students and consider providing on-site classes during lunch and after work within reach of local BART stations.

• CSUEB could strengthen its ties to community organizations to recruit and educate more Hispanic, Latino and African American students.

• Students need more preparation for the transition into the workplace. They need to know what to expect, how to behave and the kinds of challenges they face in achieving success.

• Students need to acquire basic writing and communication skills and “soft skills” that include initiative, leadership, judgment and teamwork.
CSUEB could provide language classes for professionals in business and government who need to learn a second language to communicate more effectively with foreign customers, suppliers or government representatives abroad.

CSUEB needs to emphasize the assets of its diverse student body.

Career development should go beyond the job and internship fairs and offer seminars for employers and take the initiative to place students.

Strategic partnerships need to be formed between faculty and business leaders to create education-to-employment pipelines through internships and faculty visits to work sites.

Manufacturing

Manufacturing is a dynamic industry in the East Bay that faces challenges to maintain productivity in a globally competitive market. Representatives from steel, automotive and medical diagnostics businesses were invited to share their perspectives about their industry’s workforce needs and the educational skills their employees need to succeed on the job.

Summary ~ Industry Sector Needs and Workforce Preparation

- Manufacturing in the East Bay Area must compete globally while sustaining the local economic base. In order for this industry to remain competitive, productivity continually needs to be increased. This requires skilled employees who must be periodically retrained to master new forms of technology and automation introduced into the production process. Students need to overcome manufacturing stereotypes and discover the unique challenges and opportunities of this business environment.

- There is strong demand for engineering graduates who are able to anticipate production needs and implement new production technologies that will be required in manufacturing to remain competitive in the global market. Consultants are occasionally hired to help manufacturers model production and supply chains, but this is very expensive and could be provided by CSUEB.

- There is also an increasing need to find students who can bridge the technical and managerial realms to deal effectively with external suppliers and internal employee needs, involving team building, unions and conflict resolution. These students will need to acquire “soft” communication and negotiation skills.

- The manufacturing sector welcomes sponsored internships and co-ops because this introduces the student employee to the real world environment and paves the way for future full-time employment. Interns from CSU schools in the area are placed to do specific projects and get graded for their work.

- Employees are encouraged to get additional education (in accounting and other areas), and industry relies heavily on community colleges to fulfill this need. The industry also offers a lot of on-site training in the fundamentals that many employees have failed to attain earlier in their educational careers. This includes instruction in computing applications, such as Excel and other software.

What CSUEB can do to help

- The Department of Engineering could create certificate programs in quality management and other areas that will increase employee access to continuing education and that will eventually lead to a baccalaureate. CSUEB should also become better informed about the manufacturing employees’ perspectives, and what kinds of educational opportunities they are looking for.

- CSUEB needs to ensure that its students acquire a sound foundation in the fundamentals that include writing, communication, mathematics and related skills. Students also should become proficient in the latest computer applications that include Excel, PowerPoint and others.

- Nonbusiness majors should all receive supplementary education in basic business concepts and become better informed about careers in manufacturing and related entrepreneurial opportunities. This material could be incorporated into the General Education curriculum.

- CSUEB should also increase the number of community college students who attain AA Degrees and pursue four-year baccalaureates in STEM disciplines.
More opportunities should be provided for in-service professionals in manufacturing to teach at CSUEB as adjunct professors in appropriate engineering and business courses.

FINANCIAL SERVICES
“Banking” is too narrow a term to describe today the services encompassed by what is better characterized as the financial services industry. Several representatives from globally positioned, locally rooted, banks in the San Francisco and East Bay area financial services industry shared their analyses of where the industry is headed and what kind of skill sets will be needed to advance their market positions.

Summary ~ Industry Sector Needs and Workforce Preparation
- The structure of the financial services sector is not well understood among young, educated workers seeking employment. Banking is really a conglomeration of businesses involving diverse products and services, such as mortgages, investment and trading. Even college seniors majoring in business do not appear to have a very good understanding of how financial services function and what employment opportunities are available in the industry.
- Financial services requires a diversity of skill sets involving not only a good understanding of accounting but also many other abilities involving effective communication (especially in English), writing, critical thinking, analysis and the capacity to explain the reasoning processes that lead to conclusions. Additional skills that are needed are the ability to influence other people and gain their confidence, honesty, ethical behavior and the readiness to adapt to change. However, many students today are deficient in the fundamentals they need to succeed.
- There is a need for both specialists and generalists. Younger workers need to be more patient in acquiring early employment experiences, as these workers are more likely to change jobs after only brief on-the-job training.
- In the Bay Area, financial service institutions are hiring some foreign workers with MBAs through H-B1 visas, but are still very much dependent on the local labor market for entry-level jobs as tellers and related employment.
- Internships are a very valuable method of acquiring on-the-job experience, and there is a willingness to hire interns in permanent jobs.
- Financial services in the Bay Area welcome the growing diversity of the workforce and recognize the value of multicultural perspectives.
- An increased growth of the demand for financial services is anticipated in the East Bay Area and inland to Sacramento, where shifts in population growth are expected.

What CSUEB can do to help
- CSUEB needs to graduate students who have a sound understanding of the financial services industry, early experience working as interns, and the willingness to gain valuable on-the-job work experience in several roles before advancing to middle management and leadership positions. Students also need to cultivate a concept of service that puts the needs of customers and clients first.
- CSUEB needs to offer certificate programs in accounting and other related business fields that provide a good foundation in financial services, as well as to continue to produce MBA students who desire to pursue careers in the banking industry.
- CSUEB students in the College of Business need to acquire a suite of skills that include not just accounting, but also effective communication and writing, proficiency in the use of spreadsheet applications, such as Excel, the ability to interact with and influence people, the capability to explain how conclusions are reached and the ability to show good ethical judgment.
- More CSUEB students who are eligible and interested should get internships that will increase their chance of getting full-time employment in the financial services industry.
• CSUEB needs to continue to seek the advice and counsel of leaders in the financial services industry regarding the kinds of curriculum that can be designed to best provide the skills that will be needed to maintain the future economic vitality of the industry.

GOVERNMENT
Government is no longer solely a regulatory industry but one that is participatory and must provide services to many different communities with specific needs and demands. Representatives from local government agencies indicated that the challenges they face today are more complex and require employees with multiple skills that include diplomacy and a sense of equity for their diverse constituents’ needs.

Summary ~ Industry Sector Needs and Workforce Preparation
• Like other sectors, government is facing the challenge of losing a large number of Baby Boomers and other aging employees to retirement. There is a concern that there are not enough sufficiently trained younger workers to fill the growing vacancies. However, there is also an apparent upsurge in the number of older workers who are returning from retirement, contributing to a multigenerational workforce with different paces and expectations.
• Younger workers are willing to take risks and are more likely to change jobs more frequently than older workers. Younger workers (25-30) appear less interested in government careers than their predecessors, so there is a need to create stronger incentives to attract and retain them.
• There was a consensus that today’s students lack basic writing, communication and analytical (i.e., mathematical) skills needed to perform effectively.
• Students and the public have many misconceptions about government that must be overcome to make government service a credible employment option.
• Students must be capable of handling multiple perspectives in public service and be able to fashion solutions that meet the needs of specific groups.

• As an employer, government agencies have difficulty identifying people with appropriate backgrounds and skills. Civil Service rules provide little leverage to go beyond formal credentials to identify individual strengths. University sponsored internships provide a means to bypass this problem, but more opportunities need to be created.
• Government is a business just like any other enterprise. Efficiency and effectiveness go hand in hand, and there is a need for employees who appreciate and can work in an environment that requires both generalist and specialist abilities.

What CSUEB can do to help
• Certificate programs are recommended that are specifically targeted to the needs of younger workers and experienced workers who need continuing education. There is also a need to combine the best features of both an MBA and MPA in an interdisciplinary degree that will provide a strong business and public policy foundation.
• CSUEB needs to educate students to become “facilitators” who can deal effectively with different constituencies. Students are needed with training in how to take a multipronged approach to problems and deal in a multidimensional world.
• Students need a strong foundation in mathematics, writing and communication skills. Students should also be knowledgeable about information technology and capable of employing these tools effectively.
• Internships are vital to job experience and successful entry into a career in public service. CSUEB is strongly urged to increase internship opportunities in the public sector.

HEALTH CARE
The health care industry in the East Bay faces a steeply increasing demand for medical and nursing services in the next five to ten years as Baby Boomers retire and develop diseases associated with aging. Consequently, industry representatives indicated that they anticipate the need for more and better-trained nurses and technicians than are currently being supplied by local educational institutions.
Summary ~ Industry Sector Needs and Workforce Preparation

The Health Care industry has pressing employment needs that are concentrated in the field of nursing. Demand continues to outstrip supply and this has put pressure on health care facilities to seek educational institutions that can furnish the educational credentials nurses need to find successful employment. Health care programs must supplement this training with on-the-job experience that is critical to learning about the medical culture and patient needs.

- Using a lottery system to select students has its limitations, as many students who enroll in community college and university programs do not possess good GPAs. The lack of frequent state exams has also severely limited the production of nurses.
- Industry representatives acknowledged that 4-year students possess superior skills and competencies compared to their 2-year counterparts. They are more mature, better-organized, self-confident decision-makers who are more comfortable working with physicians. However, regardless of training, students still find it difficult to get sufficient opportunities to acquire work experience that will enable them to quickly find employment after graduation.
- There was a general concern that today’s students do not possess adequate training in science and math and that K-12 should do more to increase competence in these areas. Hispanic students, who are among the fastest growing groups within California’s burgeoning population, are more likely to need more intensive training in science and math in order to succeed in the workforce.
- Students who speak English as a second language are considered an asset because there is an increasing need to communicate with a growing percentage of patients who speak Spanish or some other foreign language. There was a concern that more outreach is needed in the Hispanic community to motivate young children to strive for a career in health care.
- The health care industry faces a challenging future in which advanced technology will become more dominant. Robotics will increase and genetic testing will play a larger role in prevention. Nurses and other health care workers will need additional training to upgrade their skills, and educational institutions will need to tailor their programs to fit the need for training that does not require a burdensome commitment of time.

What CSUEB can do to help

CSUEB can increase the number of faculty in its nursing programs to accommodate a larger number of students. It can also work with health care providers to make it possible for more students to get essential work experience before graduation.

- Courses in allied health education can gradually be phased into the curriculum to respond to the expected demand for workers with technologically sophisticated laboratory and clinical skills. CSUEB can also offer more certificate programs in specialty areas that enable skill upgrades within a shorter period of training.
- CSUEB will continue to expand its outreach programs in the Hispanic community by sponsoring special workshops and focus groups on health care careers.
- The university will also work closely with K12 leaders to find ways to increase the number of teachers who are competent in science and math.
- The number of students who obtain a degree in nursing and allied health fields at CSUEB with bilingual and multilingual capabilities will also be increased.
- CSUEB will continue to work in close partnership with health care providers in anticipating and responding to new developments in the field that will require systematic educational strategies.

TECHNOLOGY

Today, the technology industry is experiencing rapid change involving the continuous design, rollout, and manufacture of new computer and Internet-based products. The shortage of a highly skilled workforce in the Bay Area has forced many firms to outsource production and distribution to foreign partners. But industry representatives recognize the need to increase the number of locally educated workers to fill jobs that require not only strong technical knowledge but also multiple “soft” skills.
Summary ~ Industry Sector Needs and Workforce Preparation

- For example, Juniper Networks is now moving from a growth-through-acquisition stage to a period involving the organic growth of local talent. Juniper representatives are seeking to diversify its workforce, which now consists of workers from China and India, 75 percent of whom are male.
- Juniper is looking for employees who possess technological knowledge, and are innovative and creative in enabling customers to better understand the capabilities of Juniper products. Importantly, new employees need to know how to build relationships with the customers who may be from many different cultures.
- As a smaller silicon chip business, Pantronics needs employees who are willing to learn at work and start by gaining experience involving everything the company does from the ground up. Pantronics is eager to hire new graduates who have not yet developed bad work habits and provide them with an excellent practical education.
- One industry representative predicted that major changes will occur in all aspects of related industries as more emphasis is placed on clean, green space and solar energy. And there could very well be an infrastructure crisis in education, municipal governments and utilities, especially with the retirement of the Baby Boomers, which is another important reason to grow the workforce, including making a larger investment in K-12.
- It was noted that work environment demands are changing. Technology industries need to understand what features of the workplace will attract talent. Each company needs to identify its values and be clear about what is distinctive about its corporate culture.

Industry representatives identified several skills that they would like CSUEB graduates to possess, which included:

- both technical knowledge and strong communication skills, and the ability to build essential relationships with co-workers and customers;
- a strong foundation in languages, math, and physics;
- the ability to negotiate problems;
- project management and multitasking skills;
- the ability to meet deadlines, set goals and prioritize work assignments;
- data analysis;
- being a chess player and knowing how to be strategic to get a job done; and
- knowledge of the latest technology before being hired.

What CSUEB can do to help

- CSUEB could partner with Juniper to provide management training to employees from start-ups who had not had the time to get a business degree. Moreover, CSUEB could develop a course in enabling employees to learn how to update their knowledge, which becomes obsolete more quickly today.
- CSUEB could offer certificates consisting of 4-6 classes that could eventually lead to the accumulation of enough credits to earn a Master’s degree.
- Pantronics recommended that CSUEB offer continuing education on a specific topic in Saturday classes. This would be more convenient for employees who have full weekday schedules.
- Unlike start-up companies, Juniper and other well-established software firms want to become multigenerational companies with local roots and community involvement. To grow local talent, Juniper will need to build relationships with universities and their faculty. They will also need to become more involved with and invest in relationships with the K-12 system. They would like to give more teachers a chance to work in summer fellowships that puts teachers into companies during the summer. CSUEB education faculty could facilitate building these relationships in local school districts, and business and science faculty could consider summer fellowships.
Key indicators that CSUEB is meeting the needs of the technology industry were identified. These included:

- An understanding of what motivates students today to pursue careers in the technology industry and a solid preparation for and exposure to the industry culture in which they will work. Students need to know the reality of the job market and need to be more self-reflective. They need to be honest with themselves about what type of corporate culture they will fit into best.

- Preparing CSUEB students for the competitive environment that they will experience in job interviews at Juniper and other corporations. They will need to demonstrate their intellectual agility and ability to solve problems.

- Familiarizing students with what it takes to succeed in a skill-based dynamic industry. Initiative and leadership, as well as teamwork and collaboration, are primary attributes. Hard skills, as well as soft skills, are essential, involving effective communication, writing, negotiation and compromise.

EDUCATION

The educational system in the East Bay area faces many challenges that are placing new demands on teachers and school administrators alike to motivate and educate students. Students today live in complicated social environments and face racial and economic barriers that require that teachers utilize multiple strategies to ensure that students learn and succeed in the workforce.

The superintendents of several school districts in the East Bay who attended this roundtable indicated that teachers are facing special pressures to be more professional and provide a high quality education that requires an increased awareness of student needs. Expectations for students in urban districts have been lower than in other school districts and racial discrimination is still prevalent. Even students know that the curriculum should be more rigorous. However, teachers need to be passionate, rigorous and have high expectations of all students, and believe that everyone can attend college if they study hard and master the basics.

Teachers need to serve the needs of the students they work with by being prepared to work in a diverse setting. Teachers today must be able to diagnose and analyze students’ needs, and create solutions and deliver the services; it is a teacher’s responsibility to recognize the needs of the immediate context and adapt. They can’t give up on students who struggle to do well. Children with learning differences should not be isolated but kept in the mainstream in the least restrictive environment.

Summary — Industry Sector Needs and Workforce Preparation

Future teachers will need to acquire a broader skill set to manage the classroom and satisfy California’s educational standards and accountability systems. Local school districts not only need teachers that represent the students they teach but also teachers who are able to:

- access and employ computer technology in the classroom;
- work with data and data management systems;
- remain current in content knowledge;
- improve student skill sets and increase the level of their academic performance;
- listen, analyze, collaborate, cooperate, and have the interpersonal skill to work with a diverse population of parents and children;
- instill motivation and effect change in student behavior;
- demonstrate and promote leadership; and
- increase literacy in STEM-related knowledge and skills;

What CSUEB can do to help

Education representatives recommended that CSUEB strengthen existing programs and consider taking some new initiatives to help school districts fulfill their workforce needs. The math curriculum changes initiated by Phil Gonsalves, an ACOE specialist and CSUEB adjunct math faculty member, were singled out by Dennis Byas, Superintendent of the San Lorenzo Unified School District, as excellent and should be expanded. So, too, was the special education training provided by CSUEB for autistic children, which was praised for keeping teachers open to change and to being more flexible to accommodate in the classroom children who have different learning styles. Additional
programs were suggested that CSUEB should undertake to strengthen teacher competencies and increase school district administrators’ knowledge of teaching practices and needs.

- Curriculum and programs vary widely and CSUEB could provide information through outreach to help school administrators find out what is going on;
- CSUEB could offer a class for teachers about how to work with parents and get them involved in their children’s education. Parents often are intimidated, so there is a need to learn how to maximize teacher-parent relationships;
- Every teacher could benefit from learning grant writing skills, as much of the available money ends up being returned to the grant source because of the failure to apply for the funds;
- School districts often use consultants for in-service training for post-MA education, but they are of limited usefulness. Instead, school districts need to organize workshops backed up by solid research to provide support to teachers;
- Today, in-service training is inadequate and there should be a closer partnership between the school districts and CSUEB;
- A vacuum in educational leadership positions is looming because of the limited competence of the applicant pool, so CSUEB can help by offering training programs for potential superintendents; and;
- CSUEB could help retrain Baby Boom retirees with math, science and engineering backgrounds to reenter the workforce as teachers.

FOOTNOTES

1 Just the Facts: California’s Future Economy. (Public Policy Institute of California, September 2006, p. 1).
2 Ibid., p. 2.
Workforce Roundtable Participants ~ Industry Representatives

Bay Area Council Workforce Development Roundtable
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APPENDIX

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