Mid-Pacific ICT Center Quarterly Newsletter

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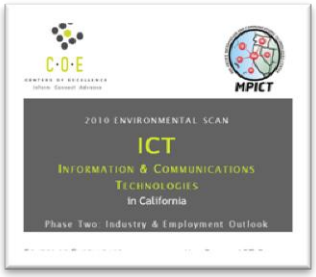
2010 Newsletter Quarter 3

Phase 2 California ICT Study Released



This summer, MPICT released an extensive 2010 ICT industry and workforce study for California.

The Information and Communications Technologies (ICT) sector encompasses all rapidly emerging, evolving and converging computer, software, networking, telecommunications, Internet, programming, and information systems technologies. ICT is a comprehensive framework for organizing these inter-related, interdependent and rapidly changing high-tech fields and industries - and the ICT workforce, which spans organizations of all sizes, kinds and industries. The ICT term is widely used outside the U.S., for example, by the U.N., European Union, World Bank, and International Telecommunications Union. This is a groundbreaking study of the California economy using the ICT framework.

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MPICT Launches Blog Space

MPICT is launching a blog space at mpictcenter.blogspot.com. Its purpose is to share information and create community among ICT educators, students, employers and other stakeholders in the region.

ICT is a rapidly changing field, which is difficult to keep up with. This blog space is to share relevant information we encounter, ideas that might interest or influence others, what we are doing that is innovative or interesting, expertise in specific subject matter areas, practices worth noting, news that affects education and other interesting pieces. RSS feeds are available, and the site will evolve.

To become an MPICT blogger, please send an email to info@mpict.org. We'll show you how.

In This Issue

New MPICT Regional Partner Announced

MPICT is pleased to announce the addition of a new Regional Partner: **Kapi'olani Community College in Honolulu, HI**, represented in MPICT's Regional Leadership Council (RLC) by Steve Singer.

UNIVERSITY of HAWAI'I
KAPI'OLANI
COMMUNITY COLLEGE

Kapi'olani will represent ICT higher education in Hawaii well.

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California ICT Study Released - continued from page 1

The research was a collaboration of the Mid-Pacific ICT Center (MPICT), a regional effort to improve ICT education at community colleges funded by the National Science Foundation, and California Community College (CCC) Economic and Workforce Development program (EWD) Centers of Excellence (COE).

According to the study, ICT industries and employment are strategically important parts of California and U.S. economies that are faring well and have strong future prospects - a welcome bright spot in a long, dark economic downturn. Employers across California report strong job growth for ICT workers.

Strong ICT Industries:

Mapping existing industry classifications to ICT, ICT companies:

- represent about 4% of all California companies,
- bring in 6% of California revenue,
- employ a million workers in California,
- pay 12% of private sector wages,
- 2nd among California industry clusters by wages paid,
- with wages per employee about twice the State average,
- and expected job growth of 20% between 2006 & 2016, outpacing most other sectors.

Intuitively, many realize ICT industries are big and important in California, but ICT is considerably larger than previously acknowledged in the state using existing industry categories.

Strong ICT Employment:

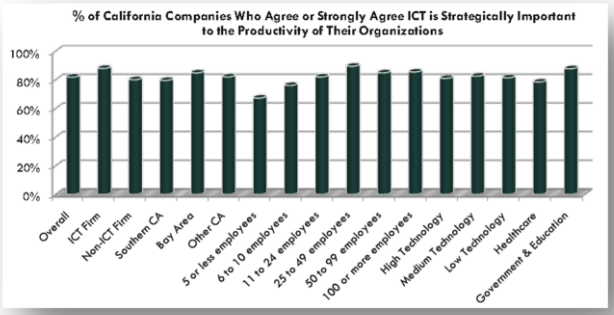
Not all ICT industry workers do ICT related work, but ICT related work occurs in most industries today. Mapping existing job classifications to ICT, the ICT workforce is now:

- about 1 in 20 jobs in the U.S. and in California,
- with strong growth projections of 46,000 annual new and replacement jobs in California,
- paying about twice the State average,
- California's 8th largest job cluster by job count.

Strategically Important:

The study also included primary research. More than 600 California companies were surveyed, a sample representing the geographic, company size and industry diversity of the State. Among the findings:

- 82% agree or strongly agree ICT is important to their organizational productivity.



- California companies anticipate 3.8% overall employment growth over the next two years. However, companies providing ICT goods and/or services expect 8.5% employment growth, and those that do not expect overall employment to shrink by .4% over the next two years.

- California companies anticipate 7% overall ICT workforce employment growth over the next two years, significantly higher than the 3.8% overall employment growth estimates.
  - Companies providing ICT goods and/or services expect 11.2% growth in ICT workforce employment in the next two years, compared with overall employment growth expectations of 8.5%.
  - Companies that do not provide ICT goods and/or services expect -.4% overall employment growth, but expect 3.7% growth in ICT workforce employment over the next two years.

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- 85% of California companies require at least some employees to fill ICT workforce roles, and 74% agree or strongly agree that these roles will grow in importance for their employees
- Overall, 36% of respondents expect to have more, and only 2% expect fewer people in ICT workforce roles in two years
- More than 50% of firms report difficulty recruiting employees with appropriate ICT workforce skills, a surprising finding in this difficult job market and a wakeup call for ICT educators.

ICT workforce roles were simplified into 5 categories. Firms reported these roles as important or extremely important:

- Roles supporting ICT end user devices, operating systems, and applications, like desktop support, help desk, computer support specialists, and computer repair – two-thirds.
- Roles supporting Enterprise-wide and data center ICT systems, such as phone, server, data storage, telecommunications and networking systems – two-thirds.
- Roles supporting Internet, Intranet and other online or web-based systems and services, such as web design and development, online commerce and webmaster – 71%.
- ICT management roles, such as system and business process design, vendor selection and management, and ICT strategic planning – 58%.
- Hardware and software development roles, like hardware engineer, software engineer and programmer – 51%.
- Roles supporting marketing and sales of ICT related products and services – 41%.

- More than half of California companies don't know or have no opinion about whether California community colleges are doing a good job developing the ICT workforce, suggesting an awareness problem. Of those with opinions, many more agree than disagree that California's community colleges are doing a good job in this regard, especially in larger companies.
- Almost ½ of California firms do not require a bachelor degree for at least ½ their ICT workforce.
- A majority of firms (51%) would value statewide ICT standards that would align employer needs with education and training programs. Overall, firms are 3.5 times more likely to agree or strongly agree than disagree or strongly disagree that they would value ICT standards.
- Approximately half of all firms and 58% of ICT firms indicated desire for a digital literacy, or ICT end user knowledge and skills credential. Overall, firms are 2.9 times more likely to agree or strongly agree than disagree or strongly disagree they would value a Digital or ICT end-user knowledge and skills credential.
- Across the various classifications of firms, technical competence specific to the position is the most important skill area for new ICT-related role hires. Overall, more than 60% of employers report interpersonal communication skills, creative problem-solving skills and an ability to work with different groups or departments are among the most important skills for new ICT-related role hires.

Intuitively, most people think of California, especially the San Francisco Bay Area and Silicon Valley, as a global leader in ICT. California policymakers, investors and education planners should use the information in this report to develop and implement strategic plans to improve ICT infrastructure, adoption, industries, employment and education — to build on California's strengths and stay competitive in the global community. Information and communications technologies are empowering and enabling for all kinds of individuals and organizations. Implementing high quality ICT strategic and educational plans should lead to increased economic performance and higher employment in the state, across all industries and economic strata. It should also help to stem the nation's decline in global rankings of important measures of ICT competitiveness.

The report is available free at www.mpict.org/ict_study_phase2.html. A recorded presentation of report findings is also available free on MPICT's YouTube Channel at www.youtube.com/mpictcenter#p/u/5/UExXE7Yqgeg.

MPICT hopes to complete a more in-depth Phase 3 continuation of this study over the next year, which will dig deeper into ICT workforce demands and skill sets.

New Regional Partner - continued from page 1

Kapi'olani Community College (KCC) is the largest of the six community colleges in the University of Hawaii System. The College sits on 52 acres of land on the slopes of Diamond Head Crater, with panoramic views of Waikiki and Koko Head Crater. The College engages nearly 10,000 students in both transfer and associate degree programs. It provides nationally recognized programs in liberal arts and STEM, culinary arts, nursing and other health sciences, hospitality, tourist industry management, as well as business, legal and technology. An additional 25,000 students enroll through its extensive non-credit programs.

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Founded as Kapiolani Technical School in 1946, while Hawaii was still a territory, the technical school realigned its programs, changed its name and became part of the open door community college system of the University of Hawaii in 1965.

KCC's **Information Technology** program, in the Business, Legal and Technology Education Department, is career-laddered and competency-based. It provides training in the use and support of business-related computer systems, data communication networks (including local area networks), the World Wide Web and its importance to businesses, and the development of business information technology systems programs using procedural and object-oriented programming techniques.

The program includes a combination of business, computer, and information technology courses. Campus-based computer and networking projects, faculty-supervised laboratories and workplace internships provide hands-on experience designed to prepare students for positions in computer support, programming, network hardware set up and configuration, or systems development in a business IT system. The program focuses on computers, the Internet and the World Wide Web, and information technology as tools to solve business problems. An AS in Information Technology is offered.

KCC's Pre-ICS program articulates with the University of Hawaii at Manoa Information and Computer Science (ICS) program, a more traditional transfer pathway in computer and library sciences.

Very interestingly, KCC's IT program articulates in a 3+1 arrangement with the new University of Hawaii – West Oahu campus. Students can study 3 years at KCC, transfer to UH – West Oahu and obtain a Bachelor of Applied Science (BAS) degree in Information Technology. There are problematically few baccalaureate opportunities in public universities for hardware, networking or IT oriented community college program transfer students. This one is very innovative.

A very similar 3+1 articulation with UH-WO also exists with nearby Honolulu Community College's Computing, Electronics and Networking Technologies (CENT) program leading to a BAS – CENT degree.

KCC's **New Media Arts** (NMA) program prepares students for employment in the fields of animation, interactive computer graphics, interface design (including web design), information architecture and the converging industries that require advanced skills in multimedia design and production. NMA offers an Associate in Science degree in two specializations: Animation and Interface Design. All NMA courses are based on industry standards and provide students the opportunity to produce work that is relevant to contemporary industry.

For working professionals looking to update and refine their job skills, NMA offers a wide range of non-credit courses that are continually updated to match the latest techniques in industry practices. For full-time and part-time degree students, NMA offers on-campus practicum classes and off-campus internships that provide a transition to professional activity.

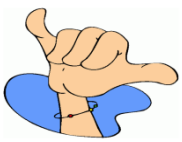
Unlike California, all Hawaii public community colleges and universities are joined in a single higher educational system. This creates opportunities for ICT related programs and faculty to communicate and collaborate closely, and for ICT related programs to be better aligned and articulated. MPICT entertained Regional Partner proposals from 3 community colleges in Hawaii, and the choice was very difficult. All the proposals and people from all of the Hawaii colleges have been great.

KCC and all the ICT related programs in the University of Hawaii higher education system will be represented on MPICT's Regional Leadership Council by Associate Professor Steven A. Singer, Ed.D. Steve is the current program coordinator for the Information Technology program.

For more than two decades, Dr. Singer has made major contributions to KCC, serving in numerous leadership roles, including: designer manager, manager of multiple computer and language labs; recipient of numerous Perkins and Title III grants; and leader in an NSF/Perkins funded UH Community Colleges Health Information Technology initiative. He also makes important contributions in institutional development, where he serves as Co-chair in KCC's Accreditation Self-study, member of the Faculty Senate standing committee on Student Learning Outcomes Assessment, and member of the committee to update the Long Range Development Plan.

MPICT is excited to welcome Steve Singer and Kapiolani Community College as a new Regional Partner, representing all the great ICT related efforts in the University of Hawaii higher education system!

We look forward to collaborative successes with Hawaii to benefit those in Hawaii and those in other States.



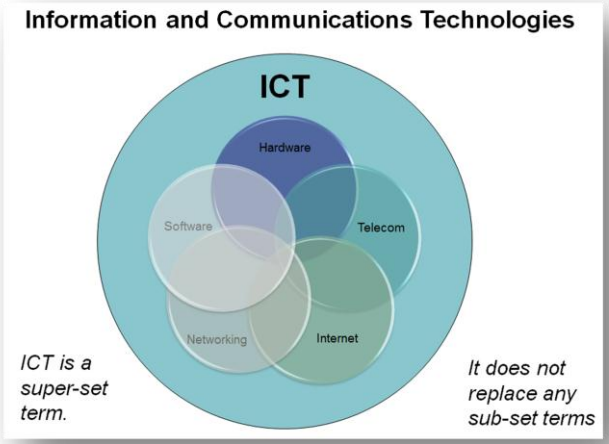
ICT Employment Web Content Added

MPICT added significant new content to its website at www.mpict.org this quarter. The ICT Employment section now includes web pages on:

- The ICT Framework
- ICT Industries
- ICT Employment
- ICT Industry and Employment Research
- Links to ICT employment resources and job listings
- ICT Education and Workforce Pathways

The ICT Framework can help people better and more consistently understand:

- the various technologies and fields within ICT,
- how they inter-relate and are inter-dependent,
- what ICT industries are and why they are important,
- what ICT employment is, in any industry,
- levels of ICT expertise, and
- why all of this is so strategically important.



Information and Communications Technologies (ICT) is simply an umbrella or catch-all term to encompass everything related to computing, software, information, networking and communications technologies. If it has or uses software controlled electronic circuitry or is a technology that helps people or devices communicate with each other, it's ICT.

That doesn't mean existing ICT related terms go away. ICT doesn't replace computer hardware or software, information technology, information sciences, computer science, telecommunications or any other existing terms. However, all these fields or terms are related, and at a high level, we should be aware how they are inter-related, inter-dependent, co-evolving and converging. At a high level, we need to be able to fit these various pieces together and understand what they are, what they do and how they are used.

ICT Industries

Information and communications technologies industries are broadly engaged in:

- Producing, selling and supporting **computing and communications equipment, peripherals and components** (computers, cellular phones, networking and telecommunications equipment, telephony products, smart phones, printers, scanners, data storage systems, etc.)
- Producing, selling and supporting **software for computing and communications equipment and enterprise and user systems** (operating systems, enterprise applications, user applications)
- Providing, selling and supporting **computing, information, communications, software and hardware services** (cable and telecom service providers, value added service providers, management services, value added resellers, call center operations, help desk, etc.)

ICT industries are a big and strategically important part of U.S. economies, not only because they provide meaningful and comfortable livelihoods for many people, generate good returns for investors, pay lots of taxes, and generate lots of business for other industries, but also, importantly, because ICT goods and services enable and empower individuals and organizations of all types and sizes to work more effectively and efficiently. Sources of ICT industry data are provided.

ICT Employment

Rewarding information and communications technologies jobs and careers support high quality lifestyles - not just within ICT related industries. ICT knowledge and skills are in high demand at most companies, no matter what industry.

At a very high level, there are 3 dimensions of ICT employment knowledge and skills:

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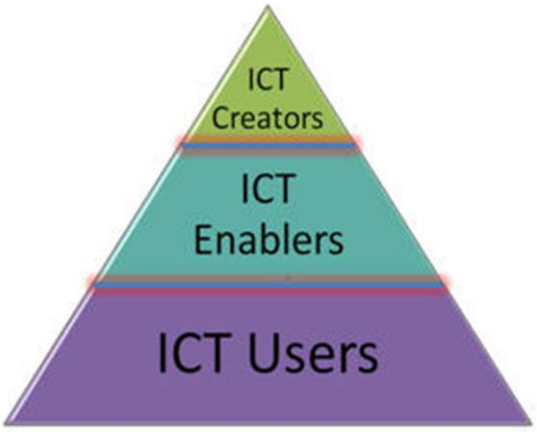


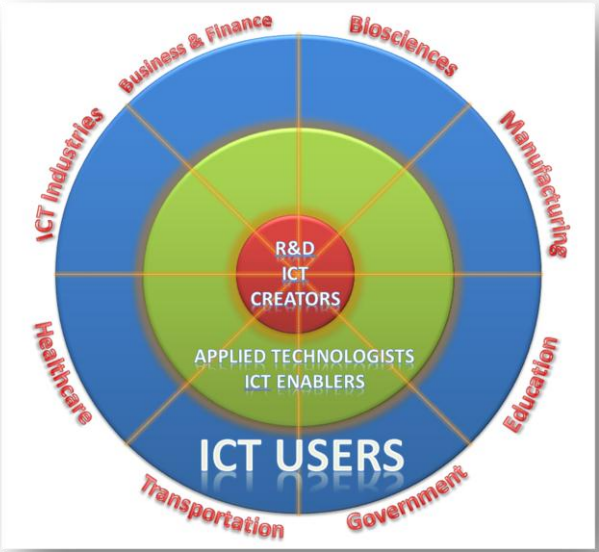
- **ICT Users** – Today, most employees are expected to have basic knowledge and competencies with ICT. In nearly all jobs, people are expected to be able to use computers, computer operating systems and applications, telephone systems, electronic communications tools, and the Internet. They are expected to be able to conduct electronic research and organize, analyze and present information. We do not count ICT users as part of the ICT workforce, but ICT user knowledge and skills are required for most jobs. Your local community college can help you develop those "digital literacy" knowledge and skill sets.

- **ICT Enablers** – ICT jobs include entry-level through professional positions, in roles that enable ICT users. People with greater ICT skills can guide ICT users in technical support roles. Workers with deeper knowledge of enterprise systems deploy, monitor, manage and support ICT infrastructure and systems, for ICT industry enterprises and for enterprises in most sectors of the economy. People with deeper knowledge and skills in ICT, and specialized knowledge and skills in other fields, work with specific implementations and applications of ICT in their fields. Diverse community college programs affordably provide many ICT knowledge and skill sets for a large variety of ICT-enabler workforce roles, useful to students seeking their first jobs and to working professionals far into their careers.

- **ICT Creators** – At the highest level, the ICT workforce includes people with deep and advanced theoretical knowledge of math, engineering and science, who develop scientific theories, invent technologies and create new companies and applications of technology. These advanced and high level positions frequently require advanced academic degrees and employ people in academia, R&D operations of ICT industry companies and roles developing specialized applications of ICT in other industries. Community colleges help students affordably prepare for this pathway through transfer relationships and pathways with 4 year colleges and universities.

ICT employment is a big and strategically important part of U.S. economies, not only because it provides meaningful and comfortable livelihoods for many people, but also importantly because the ICT workforce enables productivity and efficiency in all kinds of organizations and in virtually all industries. There is a pyramid like the one above for all industries. Each has a slice of the ICT pie. ICT employment exists and is strategically important in virtually all industries.

There are knowledge and skill sets that generally apply to each layer of the pyramid above, and academic and workforce development programs provide a variety of educational and training services to help people develop those knowledge and skills sets. They are generally transferable across industries. However, there are also peculiarities with how ICT is developed and used in specific industries.



Imagine the pyramid above as a cone or pie. Each industry slices into that pie and adapts and infuses it with specialized equipment, software, applications and services to meet the unique needs of its operating and regulatory environments, scientific field, user, supplier and customer characteristics, products and services.

Biotech companies for example use specialized ICT devices to sample and test biological specimens and DNA. They generate and manage large databases and have specialized analytical and reporting tools. They have special operating and regulatory requirements, like keeping samples clean and uninfected and securing biologically active agents and information. Financial services firms have very important information security requirements that are both business critical and legal requirements. Healthcare organizations have to secure patient information and meet various recordkeeping requirements. While the requirements, designs and applications in industries vary, the fundamentals of ICT remain the same across industries.

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Web Content - continued from page 6

No matter the industry or organization, employees need a good general education and the benefits from experiences doing real things in the real world to really add value. Business and industry consistently demand of all employees: an ability to communicate effectively, diverse problem definition and problem solving skills, an ability to work well in diverse groups, an understanding of social, cultural and business contexts, motivation, an ability to find information and resources, time management skills, analytical abilities, and social skills. Academic programs and students who do not address these important needs will be less successful than those who do.

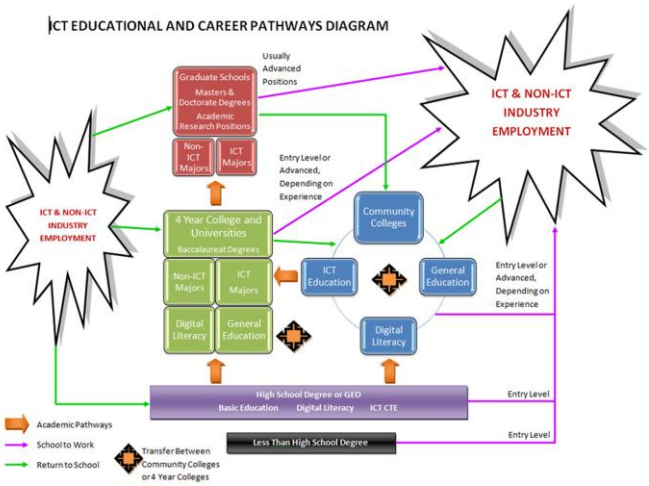
ICT Industry and Employment Research

This section of the website is primarily devoted to the 3 phase MPICT/COE ICT study in California, which is described in the article beginning on page 1 of this newsletter. However, the ICT Industries section includes international, national and state sources of ICT industry data and information and a report on ICT Primary Industries using EMSI data and the same methodology as the California report for California, Oregon, Nevada and Hawaii. The ICT Employment section includes international, national and state sources of ICT employment data and information and a report on ICT Primary Occupations using EMSI data and the same methodology as the California report for California, Oregon, Nevada and Hawaii.

ICT Job Posting Websites

This section includes links to good online ICT job listings.

ICT Education and Workforce Pathways



This section currently includes a graphic to help describe the many pathways people take through our public educational systems as they enter the ICT workforce and grow within it. It is useful in describing the many roles of community college ICT education and the many paths students take through community college ICT education. For example:

- High school students take community college courses to get ahead with their studies.
- High school graduates and non-graduates find ICT related entry-level jobs if they have adequate skills, but to advance they need to improve their knowledge and skills, and CCs help with that.
- Many high school or GED grads gain knowledge and skills for entry level ICT jobs at CCs.
- Though high school grads may go directly to 4-year colleges and universities, many also go through community colleges for cost-effective transfer pathways to baccalaureate degrees.
- Many baccalaureate and more advanced degree holders find they lack practical, applied knowledge and skills demanded by employers and cycle through community college for that.
- Many working professionals take ICT related courses at community colleges to keep up with rapidly changing technologies and to acquire knowledge and skills to advance in their careers.

ICT is relevant to everyone, at least as an ICT User. ICT enablers apply ICT technologies to enable users and enterprise productivity. ICT creators advance the field. Community college ICT programs serve all of these groups.

IT Innovation Summit at DeAnza College

October 15, 2010, leading Information Technology (IT) Innovation Experts and Education Professionals are meeting to Discuss Innovation Strategies, Ways to Improve Operational Effectiveness and How to Overcome Barriers to IT and Education Pathways to Jobs. This first annual IT Innovation Summit – Silicon Valley will take place from noon to 5pm at DeAnza Community College in Cupertino, CA.

"Many of the most significant corporate success stories have been because of IT innovations," said Bill Cullifer, event chair, session moderator, and chair of the WhyITNow.org initiative. "Leading executives understand that IT innovation is a major factor for their companies' bottom lines and future growth. Unfortunately, not all organizational decision-makers understand or do a good job evaluating or implementing the strategic importance of IT innovation." "We believe what is special about our IT Innovation Summit is that it occurs in a community college setting," Cullifer said. With an emphasis on education, training and jobs, he noted, "this IT innovation summit in the heart of the Silicon valley, is at the right place and at the right time."

"IT Innovation has been a top priority for businesses over the last decade," said Bob Haas, partner and Strategic IT director at A.T. Kearney and event executive committee member. "Yet, most companies consistently talk about the need for IT Innovation, but don't follow through with consistent, focused investments and executive commitment."

The IT Innovation Summit " panel, including MPICT's James Jones, will focus on IT innovation during a weak economy, thriving in a chaotic economy, gearing up for prosperity and learning about current industry studies, best practices and efforts to improve education and career opportunities in IT.

For additional information and to register visit the event website at http://www.itinnovationsummit.org

Winter ICT Educator Conference Dates Announced

January 6-7, 2011, the National ICT Center and the Mid-Pacific ICT Center will for the 3rd year in a row co-host a Winter ICT Educator Conference in San Francisco.

This year's theme is "Improving ICT Education in Challenging Times." Even in difficult times, we can improve ICT education if we get together, get to know and support each other, share quality practices, information, curriculum and resources that are delivering good results today, and learn to make better use of resources that are already available.

This event will include presentations relevant to anyone in ICT education, presentations from industry ICT educational resource providers, and presentations from ICT educators across the country on quality practices, resources, efforts and curriculum that are already yielding good results. Hands-on demonstrations with ICT technologies will be available throughout most of the event.

More information on this event, including its San Francisco location, agenda, travel subsidy opportunities and presentation proposal solicitations will be provided later.

For now, please save the dates!