



# **MPICT**

**ICT Pathways: Bay Area Regional Consortium**

**Fall 2008 CCCAOE Conference**

**October 22, 2008**

**Pierre Thiry, City College of San Francisco**

**Richard Grotegut, Ohlone College**



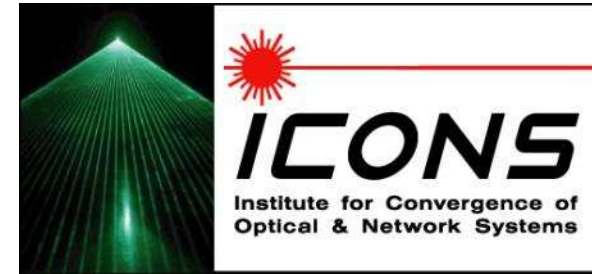
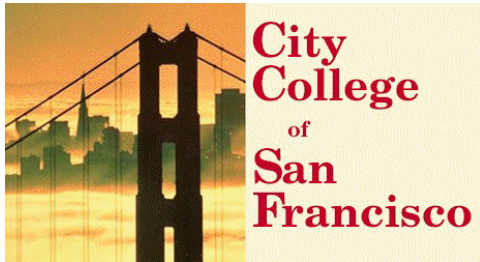
*This material is funded in part by the National Science Foundation Grant DUE 0802284*



# **MPICT**

- **Launched with National Science Foundation Grant**
- **Advanced Technological Education (ATE) Program**
- **\$3 Million over 4 Years**
- **Hosted by City College of San Francisco**
- **Funded 9/08**





*CNIT Chair Carmen Lamha with  
San Francisco Mayor Gavin Newsom  
At Press Event Announcing ICONS*



## **Institute for Convergence of Optical & Network Systems (ICONS)**

- **ATE Project**
- **\$750,000 over 3 years**
- **Convergence Technician Training**
- **Dr. Pierre Thiry**, Principle Investigator
- **Carmen Lamha**, Chair CNIT Department  
& Co-Principle Investigator
- **Tim Ryan**, Network Manager & Co-  
Principle Investigator

# Curriculum Accomplishments



Goal was to create an AS degree, 1 new certificate and 6 new courses.  
It delivered:

- A Computer Networking and Information Technology **AS Degree**
- A new **certificate** in Digital Home Technology Integration (DHTI)
- A new **certificate** in Convergence Technology
- A new Fiber Optic Technology **course**
- A new Introduction to Network Convergence **course**
- A new Digital Home Technology Integration (DHTI) **course**
- A new Ethical Hacking and Network Defense **course**
- A new Advanced Ethical Hacking **course**
- A new Fundamental of Voice over IP (VoIP) **course**
- A new Operating Juniper Networks Routers in the Enterprise **course**
- A new Advanced Juniper Networks Routers in the Enterprise **course**



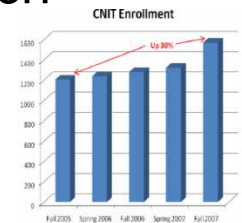
An AS degree, 2 new certificates and 8 new courses exceeded the expectations of the grant.



# Additional Accomplishments



- Developed **website** to share project progress and outcomes
- Became a National Center for Telecommunications Technology (**NCTT**) **Regional Partner** and acquired and disseminated much of its curriculum, courses and best practices
- CNIT **increased enrollment 25%**
- Developed an exceptional, collaborative **advisory panel**
- Became **1<sup>st</sup> Juniper Networks Academic Alliance Member** in North America and disseminated that relationship nationally through NCTT
- **Hosted NCTT Winter 2007 Conference** for 100 technical educators and industry representatives from around the country
- **Contributed to** NCTT's other summer and winter **workshops**
- Participated as exhibitor/presenter at IEEE Communications Society **Globecom 2006** as one of only community college participants ever
- Conducted **high school training and informational events**





# Additional Accomplishments



- Formed CCSF [IEEE student chapter](#)
- Developed Collaborative [International Relationships](#) (France, Brazil)
- Conducted [Summer Convergence Workshops](#) to expose students, faculty and community to developing technologies
- Presented success with “Ethical Hacking and Network Defense” at the 2007 Las Vegas [DEFCON](#) conference
- Collaborated to develop [next generation of CCNA and CCNP training](#), now delivered via CCSF Cisco Regional Networking Academy
- Became [mentee of the Convergence Technology Center \(CTC\)](#)
- Collaborated with the Institute for Women in Trades, Technology and Science (IWITTS) in its NSF-funded [CalWomenTech](#) program as initial pilot school to develop and disseminate best practices for recruiting, retaining and serving women in technical education





# Key Findings



- Computer, Networking and Information Technologies have, to at least some extent, evolved separately and involved separate staff, departments, organizations.
- Those previously separate areas are converging rapidly.
  - Previously separate telecommunications, networking and computer support organizations and departments are merging.
- This trend is frequently referred to as





# What is ICT?

- **An umbrella term, widely used in the rest of the world and the United Nations, to encompass all rapidly converging:**
  - **computer,**
  - **software,**
  - **networking,**
  - **telecommunications,**
  - **Internet,**
  - **programming and**
  - **information systems technologies.**





# Key Findings (cont.)



- Community College ICT program (whatever they're called) students have very diverse backgrounds and goals:
  - High school students seeking college credit
  - High school graduates and non-graduates seeking technical skills that lead quickly to paying jobs
  - High school graduates seeking AS degrees and academic and industry certifications
  - High school graduates seeking an affordable pathway to 4-year degrees at colleges and universities
  - Working professionals seeking knowledge & skill updates
  - People wanting to learn ICT for advancement in other fields



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# Key Findings (cont.)



- ICT educational programs have largely been developed at each educational institution from scratch, with **tremendous duplication of effort** and with important **differences** between them in:
  - **Nomenclature (use of terms and titles of programs, courses and degrees)**
  - **Course Content**
  - **Packaging of Certifications and Degrees**
  - **Quality**
  - **Industry Relationships**
  - **Focus**
  - **Division into Various Departments**
  - **Success in Serving Various Population Needs and Desires**
  - **Articulation and Transfer Successes**



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# Key Findings (cont.)



- Partially as a result of that, there is a lot of **confusion in the “market-place”** about ICT:
  - Nomenclature
    - use of terms and titles of programs, courses and degrees
  - Educational Pathways
  - Career Pathways
  - Technologies
  - Program Graduate Knowledge, Skills & Competencies
  - Credential Value



## Key Findings (cont.)



- Industry wants to work with education to improve technical education in California.
- But they can not or will not engage with 100+ community colleges, plus 4-year colleges and universities, plus private educational institutions individually.
- It is too costly and inefficient.



# Key Findings (cont.)



- Employers consistently report problems with adequate **employability or soft skills**.
  - Communication skills
  - Social skills
  - Motivation and drive
  - Problem identification and solving skills
  - Responsibility for continued learning & growth
  - Conscientiousness & pride in work
  - Entitlement & willingness to work hard



# Key Findings (cont.)



- America retains a myopic false impression it still leads the world in ICT industry and infrastructure.
- In fact, the U.S. has been overtaken by many countries and educational institutions abroad.
  - The US has fallen from 1<sup>st</sup> to 15<sup>th</sup> in “broadband” penetration in the past few years, and it is still falling fast. Between 2005 and 2006, the U.S. fell to 7<sup>th</sup> in the World Economic Forum *Global Information Technology Report* “Network Readiness Index.”
- Increasingly, the best knowledge, experience and practices in ICT are found abroad, and we need to better understand them and learn from them.



# Why is ICT Important?

**Directly and/or indirectly, in the information and knowledge economies of the 21st century, we all increasingly depend on information and communications technologies and the increased connectivity and productivity they enable.**

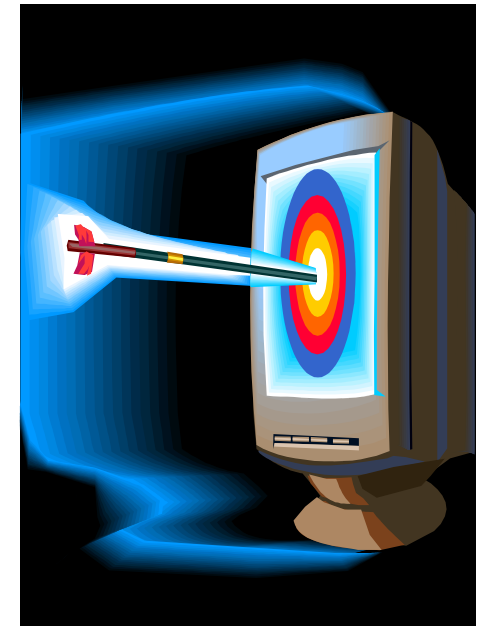




# MPICT's Mission

**MPICT's mission is to coordinate, promote and improve the quality of ICT education, with an emphasis on 2-year colleges, in a region consisting of:**

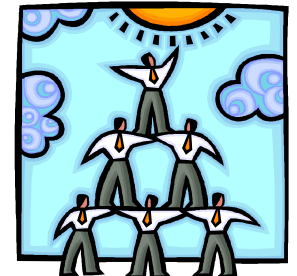
- Northern California,
- Northern Nevada,
- Southern Oregon,
- Hawaii and
- the Pacific Territories.





# MPICT's Goals

1. Develop **partnerships among higher education institutions** to increase and improve the region's ICT education capacity.
2. Deepen and expand **collaboration with industry** to create an ICT workforce that fully meets the region's economic needs.
3. Identify, implement and **disseminate ICT education best practices** in the region, working towards a standardization of ICT competencies, skills and education approaches.
4. Develop **fully articulated ICT education pathways** and work to implement it throughout the region.
5. Expand and diversify the region's **ICT workforce**.
6. Enhance linkages to **global** ICT educators and employers.





# MPICT's CCSF Team

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# **MPICT Center Goal and Activity Prospects**



- **Model Successful Partnerships & Cooperation Between Institution IT Departments and ICT Academic Departments**
- A big factor in ICONS success has been coordination and engagement between the college ITS department and its infrastructure with the academic department teaching ICT.
- Work on developing similar success stories at associated institutions.



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# MPICT's Regional Partners



[www.ohlone.cc.ca.us](http://www.ohlone.cc.ca.us)

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*Harmonization & High School Outreach*



[www.foothill.edu](http://www.foothill.edu)

*Mike Murphy*

[MurphyMike@foothill.edu](mailto:MurphyMike@foothill.edu)

*High School Outreach & Recruitment*

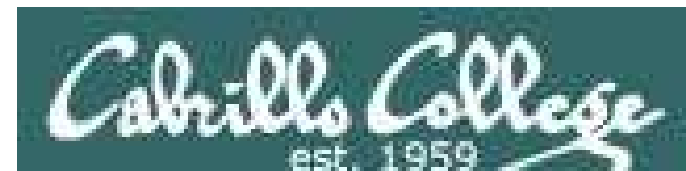


[www.santarosa.edu](http://www.santarosa.edu)

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*Collaborative Technologies*



[www.cabrillo.edu](http://www.cabrillo.edu)

*Rick Graziani*

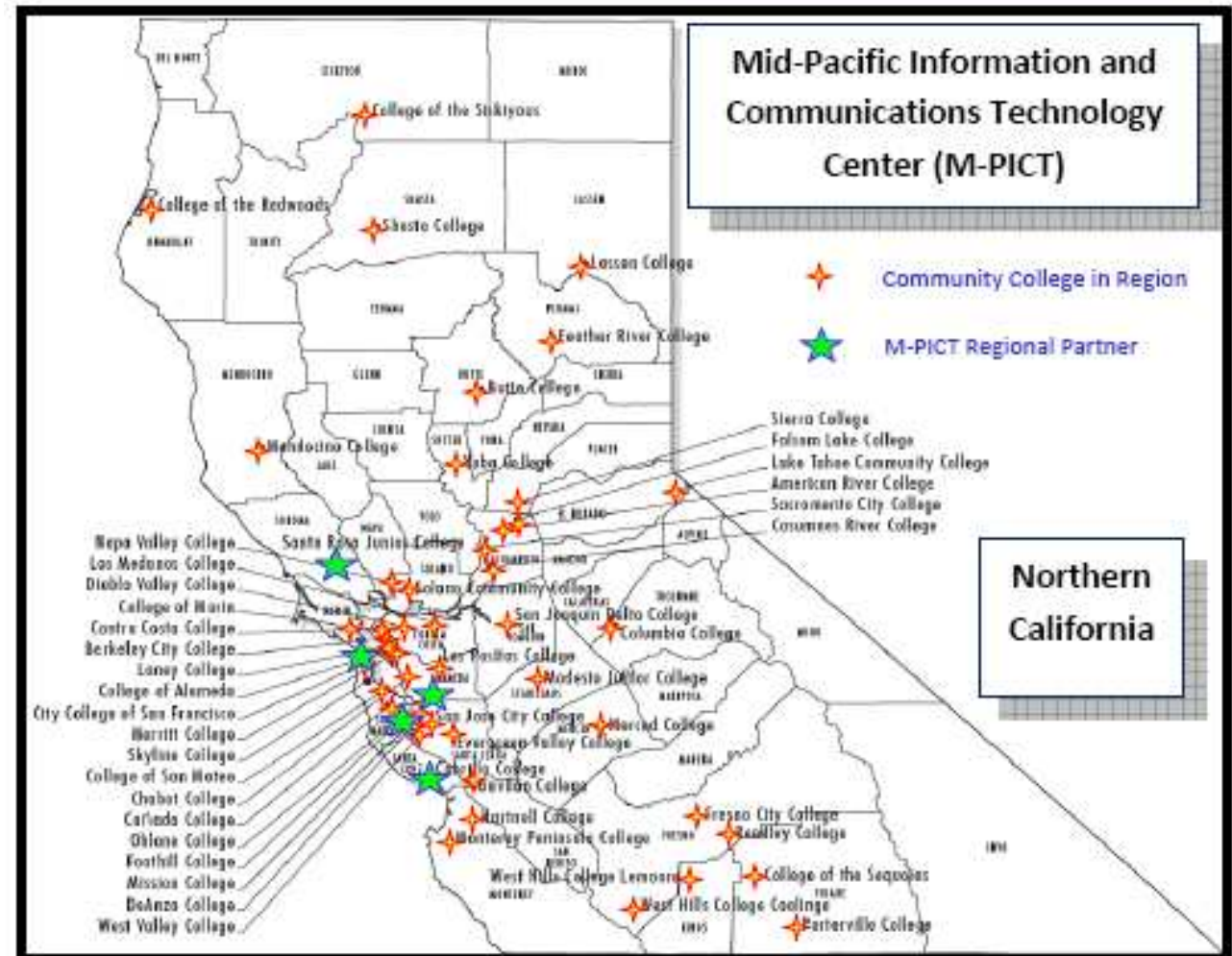
[graziani@cabrillo.edu](mailto:graziani@cabrillo.edu)

*Articulation & Transfer*



# Population Served

- > 50 CCs in Norcal Alone
- + 4-year Colleges & Universities
- + High Schools
- + Schools out of Region via Other NSF Centers



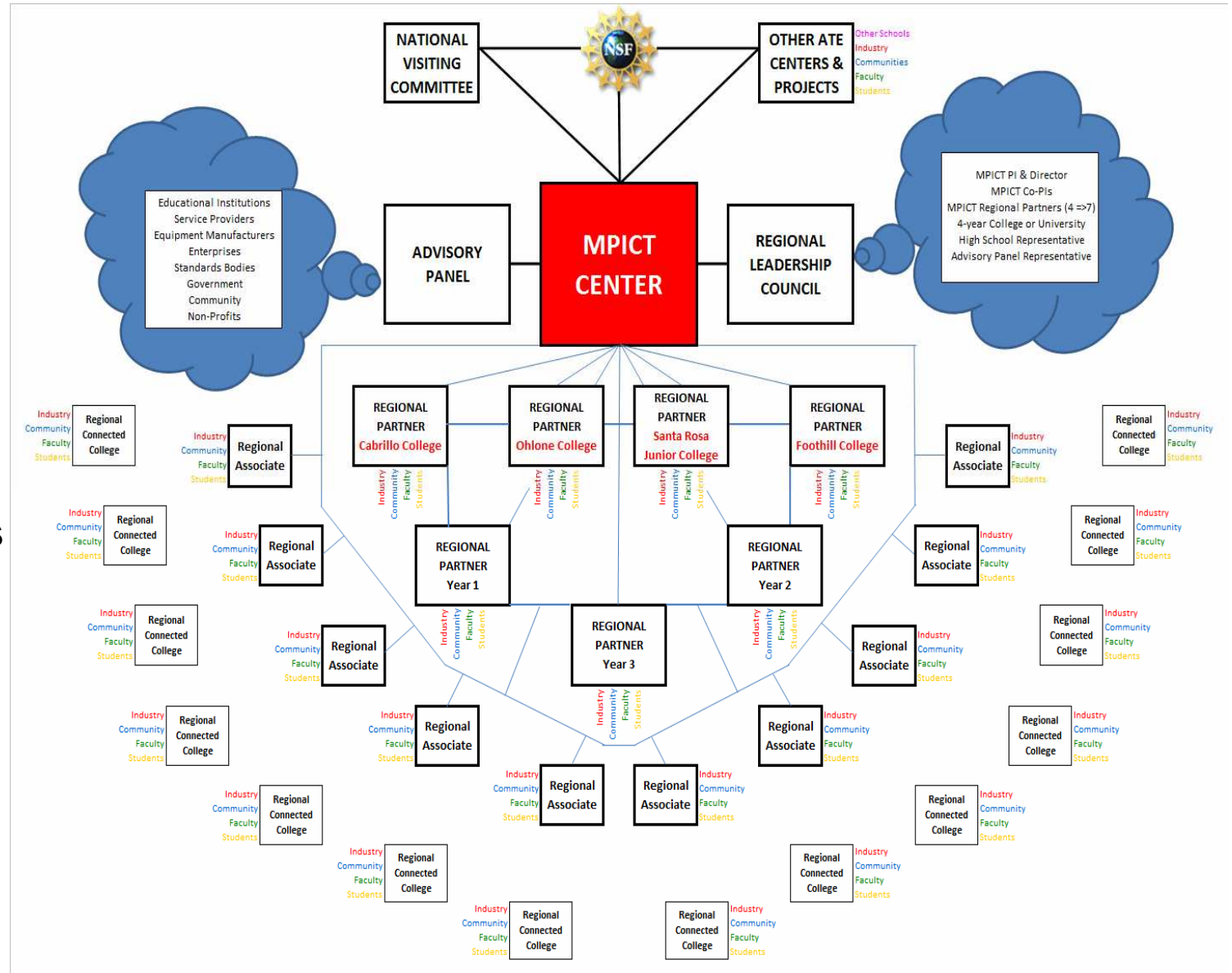




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# MPICT Organization

- Director
- PIs/Co-PIs
- Regional Partners
- Regional Associates
- NVC
- RLC
- Advisory Panel



# MPICT Center Educational Institution Engagement



- **Regional Partners**
  - Co-lead major Center Effort
  - Obtain a Sub-Award from the Grant for Support
  - Assist in Other Center Efforts and Attend Center Events
- **Regional Associates**
  - Assist in Center Efforts
  - Participate in Center Events
- **Regional Connected Colleges**
  - Benefit from Center Efforts and Access Center Work Products
- **Other Regional Centers and Global Institutions**
  - Collaborate with Center Efforts & Access Center Work Products

# **MPICT Center**

## **Call for Proposals for Collaboration!**

- Additional Center Funding and Resources**
- Participation in Center Advisory Panel**
- Development of ICT Lab & Equipment Resources**
- Dissemination of Technician Training Programs & Courses**
- Network Resource Sharing & Interactions via Internet/Internet2**
- Articulation and Transfer Relationships**
- Presentations and Demonstrations at Center Events**
- Showcasing ICT Technologies and Best Practices**
- Internship, Mentoring and Service Learning Opportunities...**

**MPICT – Improving Education of Tomorrow's ICT Workforce Today!**



# Invitation and Call for Presentations

*National and Mid-Pacific ICT Centers*



*Winter 2009  
ICT Educator Conference  
San Francisco  
January 8-9, 2009*

## Presentation Tracks On:

- ICT Industry Educational Programs
- ICT Educator Successes
- MPICT Center Efforts
- ICT for Underserved Populations

