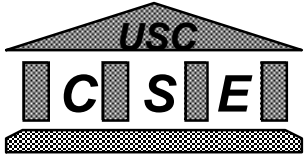




# **Overview: Focused Workshop on Software Empirical Research and COCOMO Extensions**

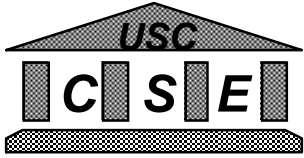
**Barry Boehm, USC-CSE**

**October 24, 2000**



# Outline

- **USC-CSE Highlights, 2000**
- **USC-CSE Affiliates and Calendar**
- **Objectives of This Workshop**
- **Candidate Breakout Groups and Procedures**



# USC-CSE Highlights, 2000

- **New Affiliates: Auto Club of So. Calif., Galorath, Group Systems.com, IBM, JPL, Marotz**
- **New Ph.D.'s: Alex Egyed (Teknowledge), Jongmoon Baik**
- **Boehm honorary Sc.D. (UMass), INCOSE Fellow, IEEE Mills Award**
- **COCOMO II book and CD**
- **Commercially-based EasyWinWin (GroupSystems.com)**
- **NSF-ITR CeBASE grant with UMaryland**



# USC-CSE Affiliates (35)

- **Commercial Industry (16)**
  - Automobile Club of Southern California, C-Bridge, EDS, Fidelity Group, Galorath, Group Systems.Com, Hughes, IBM, Lucent, Marotz, Microsoft, Motorola, Rational, Sun, Telcordia, Xerox
- **Aerospace Industry (10)**
  - Boeing, Draper Labs, GDE Systems, Litton, Lockheed Martin, Northrop Grumman, Raytheon/East, Raytheon/West, SAIC, TRW
- **Government (4)**
  - FAA, USAF Rome Lab, US Army Research Labs, US Army TACOM
- **FFRDC's and Consortia (5)**
  - Aerospace, IDA, JPL, SEI, SPC
- **International (1)**
  - Chung-Ang U. (Korea)



# USC-CSE Affiliates' Calendar

**May 24, 2000**

**LA SPIN, Manny Baker and Karen Owens,  
"Changing Processes"**

**May 2000**

**Annual Affiliates' Renewal**

**June 22, 2000**

**Easy WinWin Web Seminar**

**July 25-26, 2000**

**Easy WinWin Hands-on Tutorial**

**July 27, 2000**

**Tutorial: Transitioning to the CMMI via  
MBASE**

**August 24-25, 2000**

**Software Engineering Internship Workshop**

**September 13-15, 2000**

**Workshop: Spiral Development in the DoD  
(Washington DC; with SEI)**

**October 24-27, 2000**

**COCOMO/Software Cost Modeling Forum  
and Workshop**

**February 6-9, 2001**

**Annual Research Review, Executive  
Workshop, Focused Workshop: COTS-Based  
Systems**



# Center Organization

- **Research center sponsored by**
  - NSF Information Technology Research Program
- **Co-Directors**
  - Victor Basili (UMD), Barry Boehm (USC)
- **Co-PI's**
  - Marvin Zelkowitz (UMD), Rayford Vaughn (MSU), Forrest Shull (FC-MD), Dan Port (USC), Ann Majchrzak (USC), Scott Henninger (UNL)
- **Initial 2-year funding: \$2.4 M**

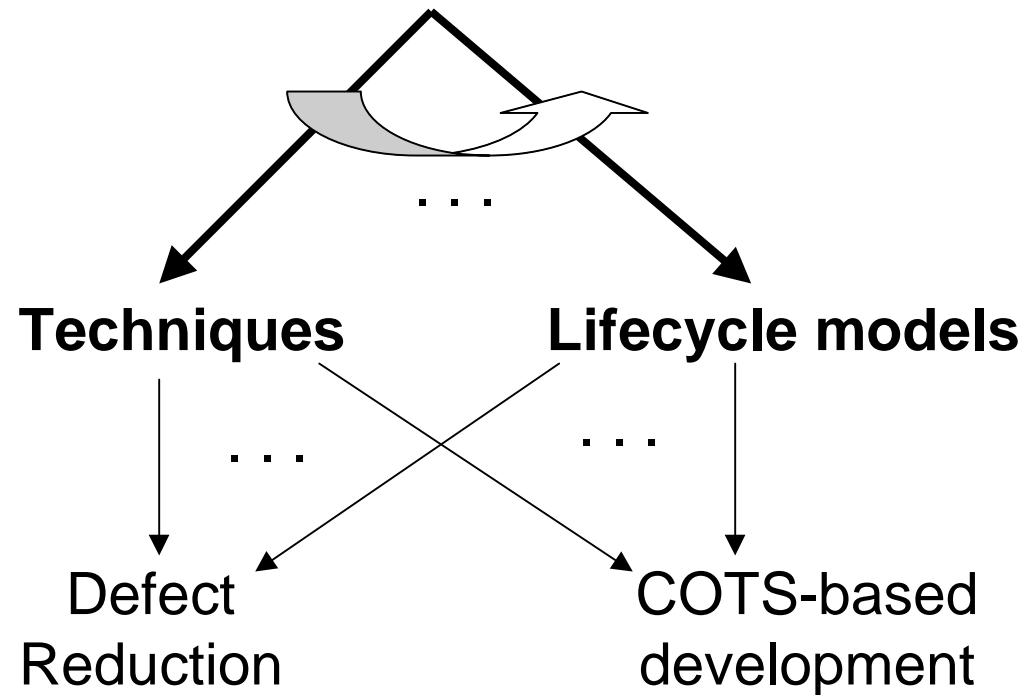


# CeBASE Approach

Empirical Software Engineering Research

*Investigates a spectrum of activities...*

*Initially we will focus on two areas ...*





# CeBASE Research Collaborator Activities

- **Coordinate definitions of data, models**
- **Coordinate experimental, observational methods data collection & analysis**
- **Share data and results (to the extent possible)**
- **Improve scoping, composability of results**
- **Collaborate on implications, packaging, dissemination of results**
- **Participate in research workshops**



# CeBASE Practice Collaborator Activities

- **Coordinate definitions of data, models**
- **Provide data; participate in experiments**
- **Collaborate on implications, packaging, dissemination of results**
- **Use results; provide feedback for improvement**
- **Participate in practice workshops**
  - **evaluation of results, technology transition**
  - **issue identification**
  - **priorities for future research**



# Outline

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# Workshop Objectives

- **Address key empirical research and COCOMO extensions**
- **Assess new directions in COTS-based development, defect reduction, and rapid development technology, strategies, and empirical research**
- **Provide guidelines for USC-CSE research, Affiliate activities**
  - Needs, priorities, risks, opportunities
- **Stimulate further USC-CSE/Affiliate collaboration**



# Top Level Agenda

- **Tues. pm: Dinner and kickoff meeting**
- **Wed. pm, Thurs. am: Affiliate and USC-CSE presentations at Forum**
- **Thurs. pm: Breakout groups**
  - 12:00-1:30 pm: Lunch and plenary session
  - 1:30-5:30 pm: Breakout groups
- **Fri. am: Breakout group reports; USC-CSE response; wrap-up**
  - End by 11:30 am



# Proposed Breakout Groups

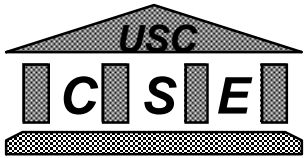
## (Moderator; Scribe)

- **COTS-Based Development and COCOTS**  
(Chris Abts, Betsy Bailey)
- **Defect Reduction Strategies and COQUALMO**  
(Sunita Chulani, Keun Lee)
- **RAD Phenomenology and CORADMO**  
(Ray Madachy, Cyrus Fakharzadeh)



# Breakout Group Guidelines

- **Product: briefing, preferably with notes and priorities**
- **Topics should include:**
  - **Most critical issues in area**
  - **Most promising opportunities**
  - **Results from DELPHI surveys**
  - **Research suggestions: general, CSE, CSE Affiliates**
- **Thurs. afternoon plenary session to finalize breakout groups**



## USC Research Issues

1. Describe/justify what is unique in RAD drivers over and above COCOMO II drivers (given a domain and business model). I-H, D-L
2. Explain/confirm research strategy not tool extension fait accompli. ["Calibration can not replace thinking in defining a proper model for an area."] Strategic D-L, I-L; tactical D-L, I-H
  - 2b. How can we get feedback on "value" of model/tool even if they have accuracy/reliability drawbacks. D-M, I-L
3. Run/gather COSSEMO/CORADMO against existing data. I-H, D-L
4. Build practical/theoretical models for how [parametric] models/tools evolve. I-L, D-H
5. COCOMO Balance-sheet: Effort investment for effort or schedule or quality or ... improvement. I-H (if successful), D-M
6. Organization balance sheet: hard and soft capital investments (added to effort investments) for effort or schedule or quality or ... improvement. Note: like SE environment or tooling; different time scale (not project's); for Sr. Mgt. and corporate strategy. D-H, I-M.

