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 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)

- FFRDC’s and Consortia (5)
  - Aerospace, IDA, JPL, SEI, SPC

- International (1)
  - Chung-Ang U. (Korea)
## USC-CSE Affiliates’ Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>May 2000</td>
<td>Annual Affiliates’ Renewal</td>
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<td>June 22, 2000</td>
<td>Easy WinWin Web Seminar</td>
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<td>July 25-26, 2000</td>
<td>Easy WinWin Hands-on Tutorial</td>
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<td>July 27, 2000</td>
<td>Tutorial: Transitioning to the CMMI via MBASE</td>
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<td>August 24-25, 2000</td>
<td>Software Engineering Internship Workshop</td>
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<td>September 13-15, 2000</td>
<td>Workshop: Spiral Development in the DoD (Washington DC; with SEI)</td>
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<td>October 24-27, 2000</td>
<td>COCOMO/Software Cost Modeling Forum and Workshop</td>
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<tr>
<td>February 6-9, 2001</td>
<td>Annual Research Review, Executive Workshop, Focused Workshop: COTS-Based Systems</td>
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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

Investigates a spectrum of activities...

Initially we will focus on two areas ...

Empirical Software Engineering Research

Techniques

Lifecyle models

Defect Reduction

COTS-based development

...
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
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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 acompli. [“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
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.