What's Influential?

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Mission

- Provide leadership in advancing the state
  of the practice of software engineering to
  improve the quality of systems that depend
  on software.

- Practice includes
  - process
  - methods
  - tools
  - experience

SEI Initiatives

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<th>Initiative</th>
<th>Exploratory</th>
<th>Emerging</th>
<th>Strategic</th>
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<td>Software Engineering Management Practices</td>
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<td>Software Engineering Technical Practices</td>
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<td>Transition/Measurement Support</td>
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- Team Software Process™
- Personal Software Practice™
- Capability Maturity Model™ Integration
- Predictable Assembly from Certifiable Components
- Architecture Trade-off Analysis
- COTS-Based Systems
- Dependable Systems
- Upgrade Product Line Practice
- Survivable Systems
- Accelerating Software Technology Adoption
- Software Engineering Measurement & Analysis

SM Team Software Process and Personal Software Process are service marks of Carnegie Mellon University.
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Product Line Systems Program

I work in all of these areas but spend most of my time on PACC and Architecture Representation

PACC Exploratory Initiative
Architecture Trade-off Initiative
Product Line Practices Initiative
Product Line Systems Program (Linda Northrop)

Judith Stafford
Software Engineering Institute
Carnegie Mellon University

Architectures for Software Systems
CMU-CS 17-655, 17-755
April 17, 2001
Now... What about Dave Parnas

Parnas's Talk(1)

- "Most Influential Papers" have not been influential
  - They may have influences researchers but
  - They have not changed the way programs are written
- Practitioners do not attend ICSE
- "We Must Be Doing Something(s) Wrong!"
  - We are Talking to Ourselves
  - We are Ignoring Engineering Organizations
    - Professional software engineers
    - Identify and teach basic information
  - We are Ignoring History
    - Selling what is not ready for prime-time
  - We are becoming "Snake Foot" Salespeople
    - Hucksters selling practitioners stuff they don't need

Parnas's Talk(2)

- "We need to Change Something"
  - Software engineering is a part of engineering not c.s.
  - Distinguish conferences for scientists from those for practitioners
  - Dialogue with professional engineering societies
  - Stop misusing the word "engineer"

ICSE's Most Influential Papers (2001)

- Configuration Management
- Analysis (3)
- Requirements Capture
- Maturation
- Modularity (3)
  - (1975) D.L. Parnas, "Designing Software for Ease of Extension and Contraction"
- Processes (2)
- Environment
- No award
- Tolerating Inconsistency
What was Dave really upset about?

◆ Did he feel
  – the wrong papers are being published?
  – the wrong research is being done?
  – the wrong courses are being taught?

What does Influential mean?

◆ Parnas: Paper is considered influential if it influenced the way that programs are written.
  – He wants to see a direct influence from the paper at ICSE to the work of programmers.

◆ "ISI Essential Science Indicators is based on total citations-references to prior influences that are published within scholarly journal articles. Using citation data from papers indexed from 1991 through February 2001, ISI Essential Science Indicators has identified four California universities that rank among the top 10 worldwide in 22 fields in science and the social sciences—" (http://www.isinet.com/isi/news)

What does Influential mean?

◆ Impact Project
  – Seeks to identify cross-cutting threads of research ideas
  – Based primarily on literature search but also interviews when necessary

◆ Panel at ICSE
  – Lee Osterweil (Moderator)
    » Dave Thomas, Bedarra Corp. and Carleton University
    » Richard Gabriel, Sun Microsystems, Inc.
    » Alexander L. Wolf, University of Colorado, Boulder
    » Barbara G. Ryder, Rutgers University

Science or Engineering

◆ Debate over whether SE is engineering
  – Is ICSE
    » a conference on the science of software engineering or
    » a meeting place for software engineers to improve their craft?
  – Are WE software engineers or software scientists?
  – My bias is that we are software scientists working at creating an engineering discipline for developing software.
ICSE1996

- Technical Papers (this was assumed)
- Tutorials
- Workshops

ICSE2003

- Submission Categories
  - Technical Papers
  - Education Reports
  - Experience Reports
  - State-of-the-Art Reports
  - Tutorial Proposals
  - Workshop Proposals
  - Doctoral Symposium
  - Demos and Posters
  - Industry Participation
  - Student Volunteers

What does Influential mean?

- What do we think about that?
- What other metrics can we come up with to define influence?