24th Annual Software Engineering Workshop

Software Past, Present, and Future: Views From Industry

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Industry Viewpoint: S/W Past

Significant Achievement: Process and Process as a Criterion

Then (1960s, 1970s)

- Cost and schedule unpredictable
- Error rates too high
- Deliveries made possible by heroes
- Heroes get burned out

Now (1990s, 2000s)

- Processes well defined, more standardized
- Processes are major discriminator in assessing contractor qualifications
- Processes adopted as common tool by development companies

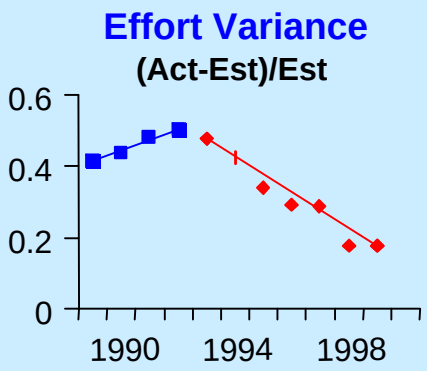
Significant Disappointment: Integrated Development Tools and Processes

Technologies have advanced in the small

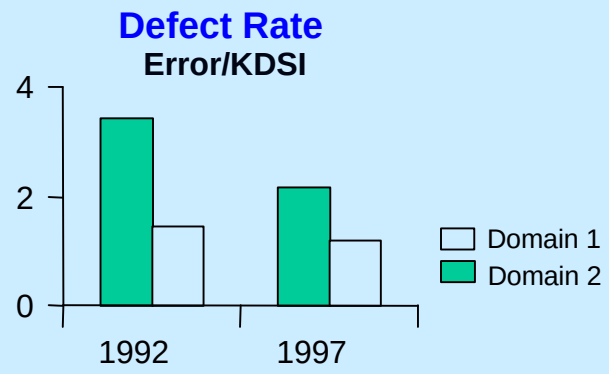
- When we attempt to solve large problems, new approaches easily hit limits
- Today's problems are no more complex than problems 20 years ago

Product-Driven Improvement Supported by Process*

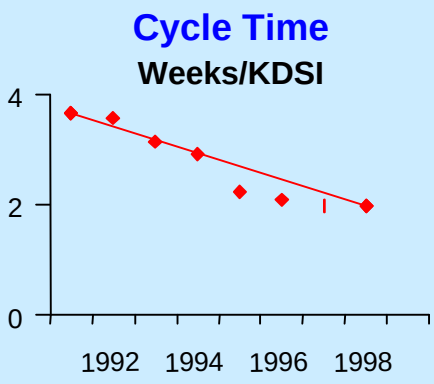
Estimate Better



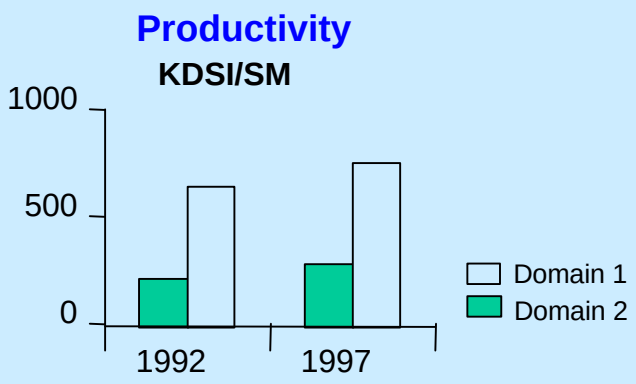
Improve Quality



Finish Faster



Reduce Costs



* SEAS Center data for over 90 projects 1988 - 1998

Industry Perspective: S/W Present

- **Good**

  A significant paradigm shift has facilitated rapid development of broader, newer applications

  - Driven by COTS, Reuse, 4GLs, Internet, ...

- **Bad**

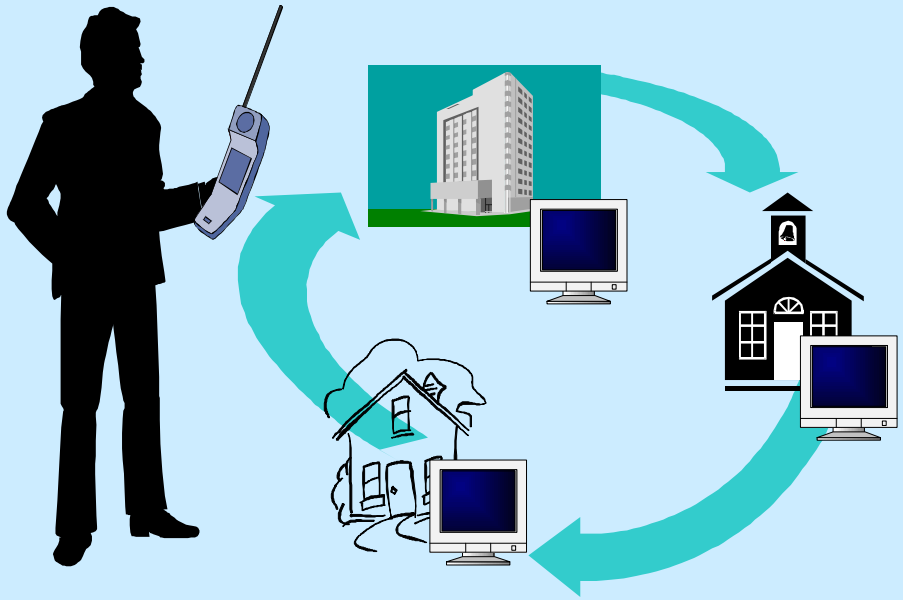
  Shift has caused impact on recruiting, training, marketing, and has antiquated established processes

  - Process paradigm has been outpaced by the development paradigm

- **Challenge**

  Research and development to define new processes and tools

Industry Perspective: S/W Future

Significant Breakthroughs

- **Enabling Technologies**
  - Voice-activated programming
  - Wireless communication
- **Challenges**
  - Voice pattern recognition
  - Security concerns
  - Retraining of staff