Center for Software Engineering

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1999

Mission

To advance the state of the art and practice of software engineering.
Center for Software Engineering -
history, growth, relationships, and accomplishments '89-'99

- ODC - A new concept for process measurement, '89
- ODC - the early pilots '90-'92
- Butterfly model - A family of predictive algorithms, '93
- The MYSTIQ analysis tool, '94
- Real failure rate measurements, '94
- Relating customer satisfaction and process control '95
- Dynamic managing change team resources, '96
- ODC crosses the 1000 software engineer mark '96
- Test Efficiency measurement methods, '97
- Automating test case generation '98
- Understanding and automating scenario based testing '98

How does ODC turn defect semantics into a measurement?

- The defect type distribution tells us "where we are"
- And the data is actionable to recommend corrective decisions

Bar chart showing defect type distribution with categories Function, Assignment, Interface, and Timing.
ODC Triggers capture customer usage

Exploiting the ODC Trigger:

- Distribution specific to product and captures customer usage
- Helps validate test plans against field usage
- The refinement yields Butterfly prediction > 90% accuracy
- Facilitates dynamic staffing with appropriate skills to manage workload.
Product Success:

- A host product
  - 6 releases in 7 years
  - 1.4 Millions lines of code to 4 M
  - Large reduction in resources

Standard methods plateaued with diminishing ROI
- Major effort, large investment, little information
- ~100 PY gave 4x, and hit a stone wall

ODC and Butterfly changed the game to "smart methods"
- ~5-15 PY gave additional 20x

ODC - Summary

ODC is efficient and low cost
- 2 minutes per defect

A bedrock of measurement opens new doors
- Analysis driven management
- Field defect prediction > 90% accuracy

Feedback that developers and managers like
- creates understanding
- actionable results
- reinforces process

Fastpath to maturity improvement