A Bit of Rigor Goes a Long Way
Making Small Changes to Software Process for Large Gains

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Software Developers in a Nutshell

- must chase a very dynamic discipline
- dislike changing how they work
- love to code, but hate to document
- use the same set of tools that they became comfortable with when they “matured”
- understanding of the field mutates and evolves over time, but sometimes stalls
## Populist Trends in Software Engineering

<table>
<thead>
<tr>
<th>concept</th>
<th>key tech</th>
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<tbody>
<tr>
<td>OO</td>
<td>C++</td>
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<tr>
<td>CORBA</td>
<td>Iona</td>
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<tr>
<td>UML</td>
<td>Grady</td>
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<td>aspects</td>
<td>AspectJ</td>
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<td>unit testing</td>
<td>jUnit</td>
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<td>XP</td>
<td>Ward &amp; Kent</td>
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<tr>
<td>SOAs</td>
<td>IBM &amp; BEA</td>
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Hypocrisy in Software Engineering

- Meyer’s OOSC sits on many of our shelves
- and yet very few programmers have read it
- we spend $10Ks on tools from Rational
- and yet design rarely happens and our architectures have no documentation
- everyone talks about unit testing
- but very little software ships with tests
Improving Quality

- perform concept and domain analysis
- understand the continuum between logging and assertions
- carefully document public interfaces
- always find a way to reuse work
Concept Analysis
Logging and Assertions
Carefully Document Public Interfaces
Always Find a Way to Reuse Work
Concrete Suggestions

- BONc
- JavaDoc
- CheckStyle
- PMD and FindBugs
- Metrics
- JML and ESC/Java2
More Information

- Mobius Program Verification Environment
  - [http://mobius.ucd.ie/](http://mobius.ucd.ie/)
- the JML Tool Suite
  - [http://www.jmlspecs.org/](http://www.jmlspecs.org/)
- ESC/Java2, BONc, and other tools