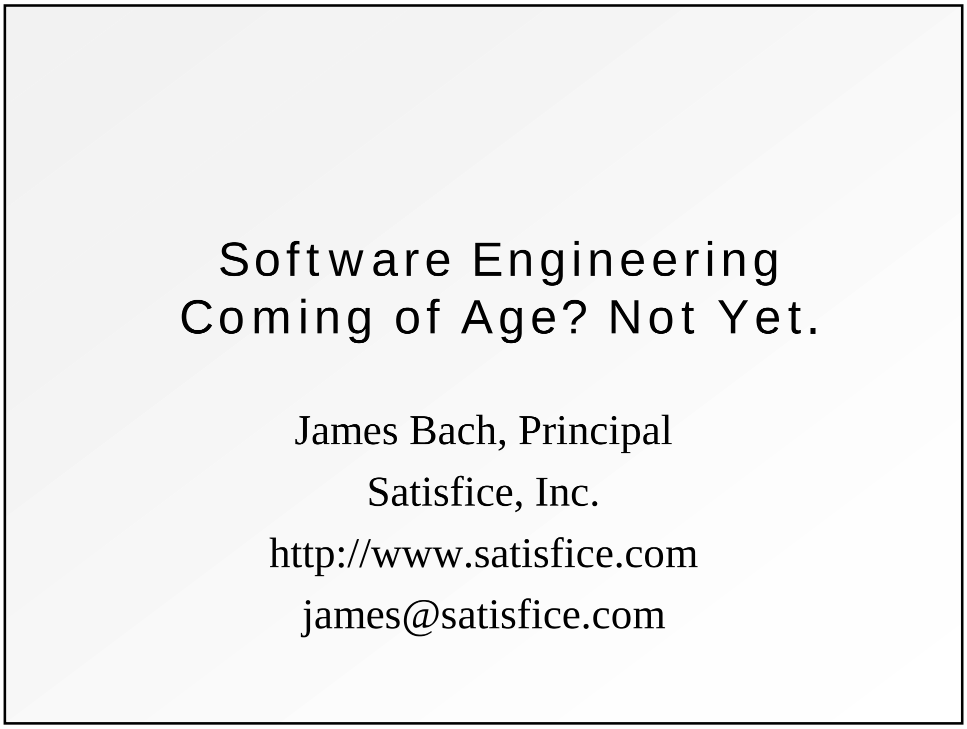

Software Engineering Coming of Age? Not Yet.

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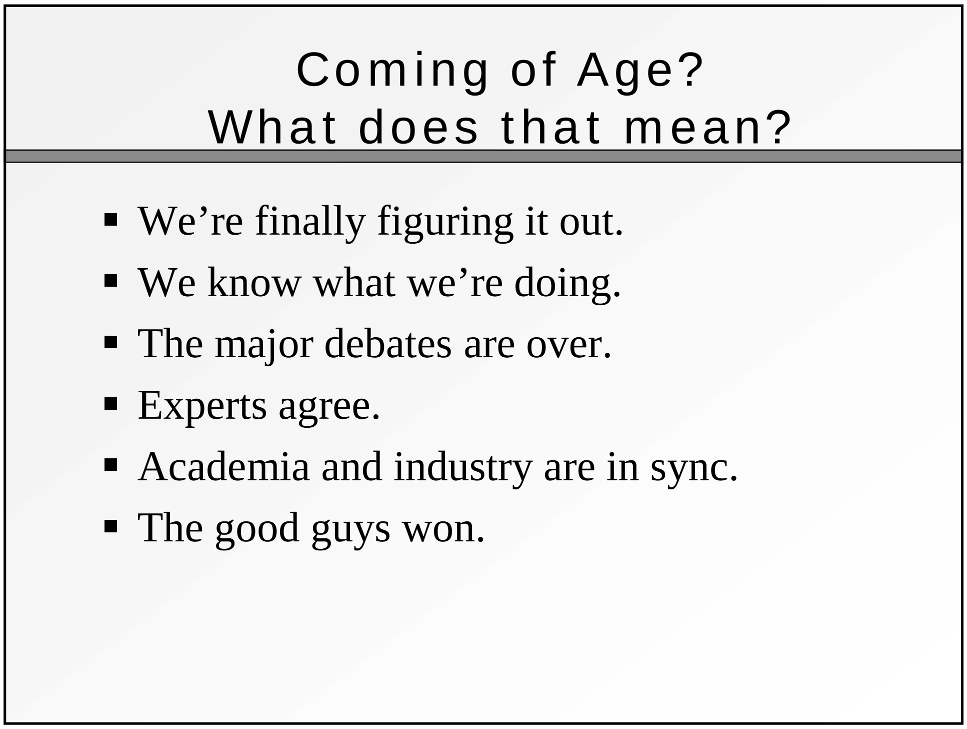
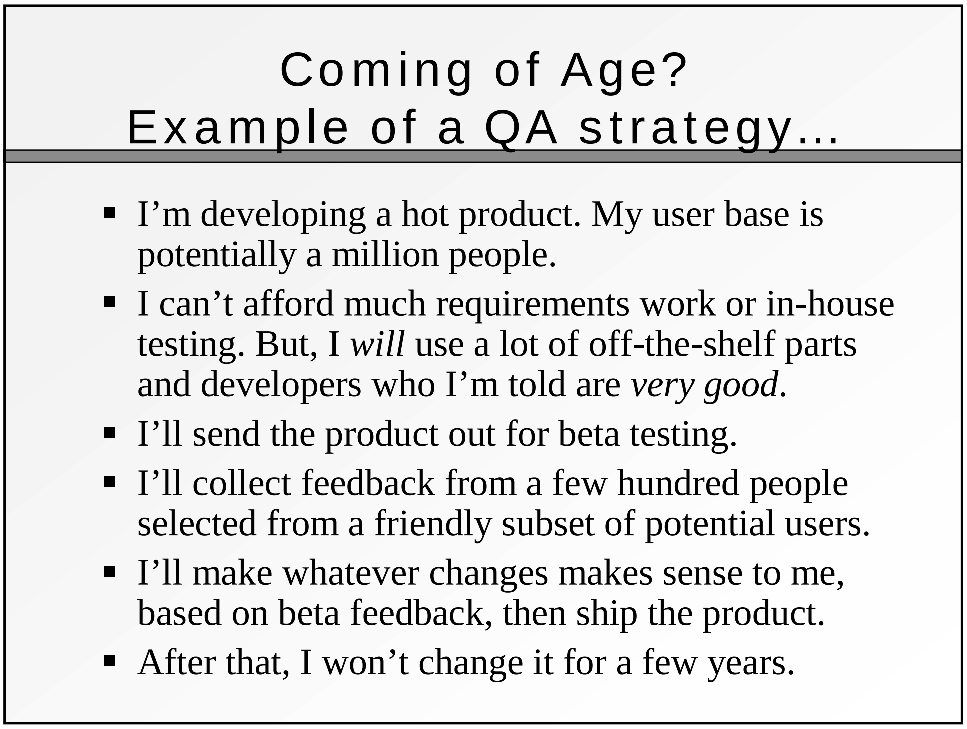


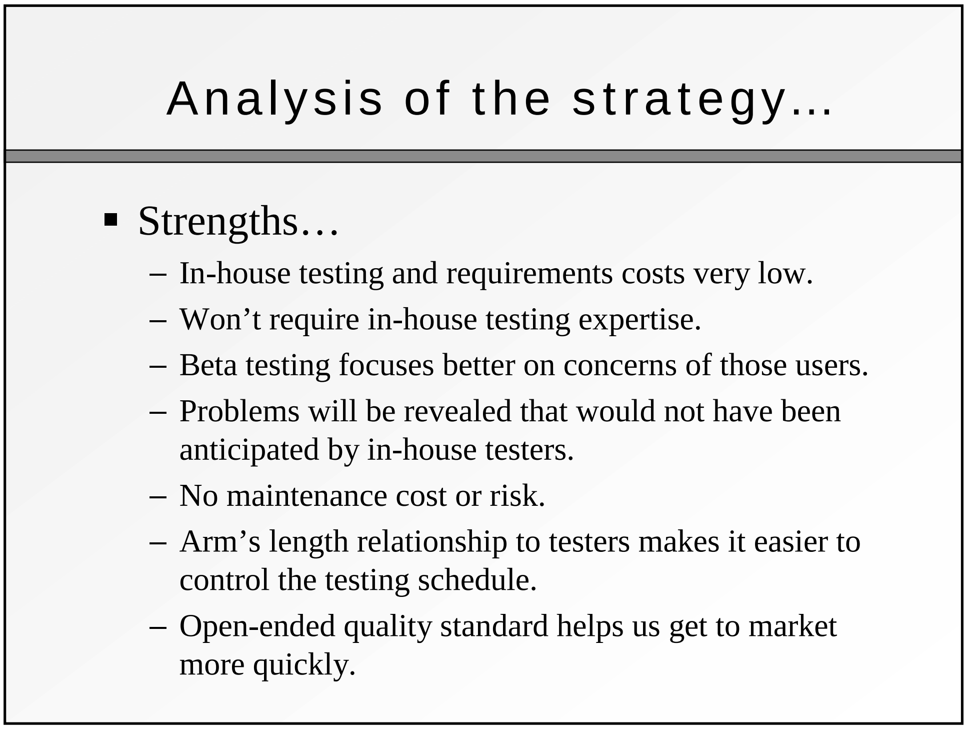
Coming of Age? What does that mean?

- We’re finally figuring it out.
- We know what we’re doing.
- The major debates are over.
- Experts agree.
- Academia and industry are in sync.
- The good guys won.



Coming of Age? Example of a QA strategy…

- I’m developing a hot product. My user base is potentially a million people.
- I can’t afford much requirements work or in-house testing. But, I *will* use a lot of off-the-shelf parts and developers who I’m told are *very good*.
- I’ll send the product out for beta testing.
- I’ll collect feedback from a few hundred people selected from a friendly subset of potential users.
- I’ll make whatever changes makes sense to me, based on beta feedback, then ship the product.
- After that, I won’t change it for a few years.



Analysis of the strategy…

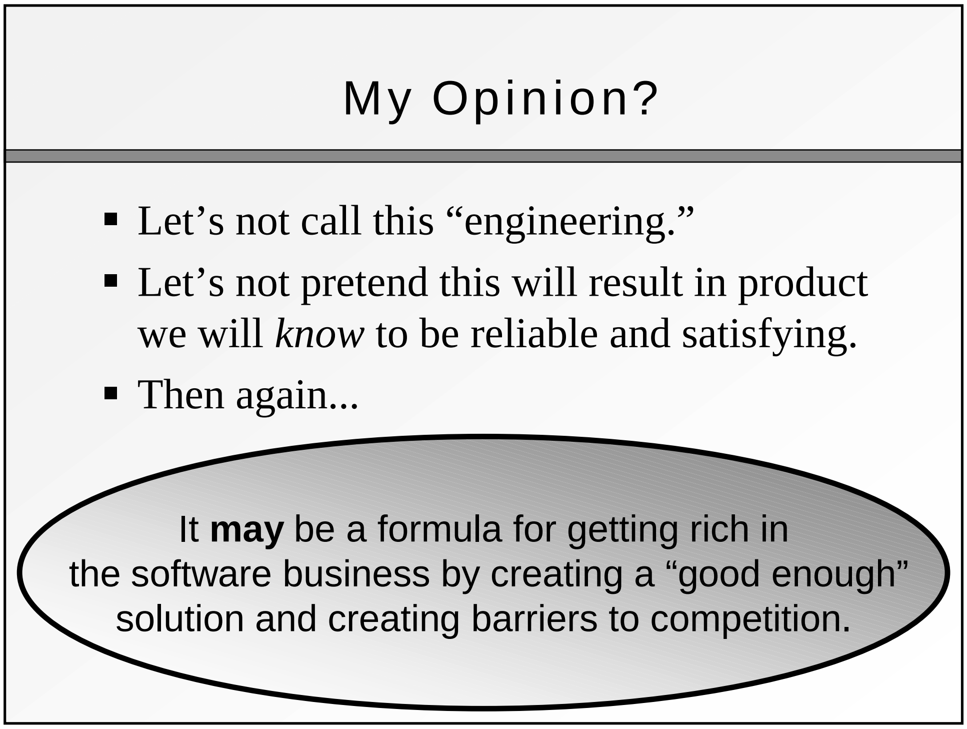
- Strengths…
  - In-house testing and requirements costs very low.
  - Won’t require in-house testing expertise.
  - Beta testing focuses better on concerns of those users.
  - Problems will be revealed that would not have been anticipated by in-house testers.
  - No maintenance cost or risk.
  - Arm’s length relationship to testers makes it easier to control the testing schedule.
  - Open-ended quality standard helps us get to market more quickly.

Analysis of the strategy…

- Weaknesses
  - Off-the-shelf components may not work
  - Our developers may not possess the right skills or tools.
  - Beta tester selection is biased toward less critical users.
  - Beta tester response will be biased in favor of those testers who have more time.
  - We won’t know much about the quality of the actual testing that beta testers do.
  - Beta testers may not effectively communicate the problems they find.
  - We may not fully appreciate the problems reported.
  - The feedback loop to developers is windy and narrow.

What about the cost of bugs curve?

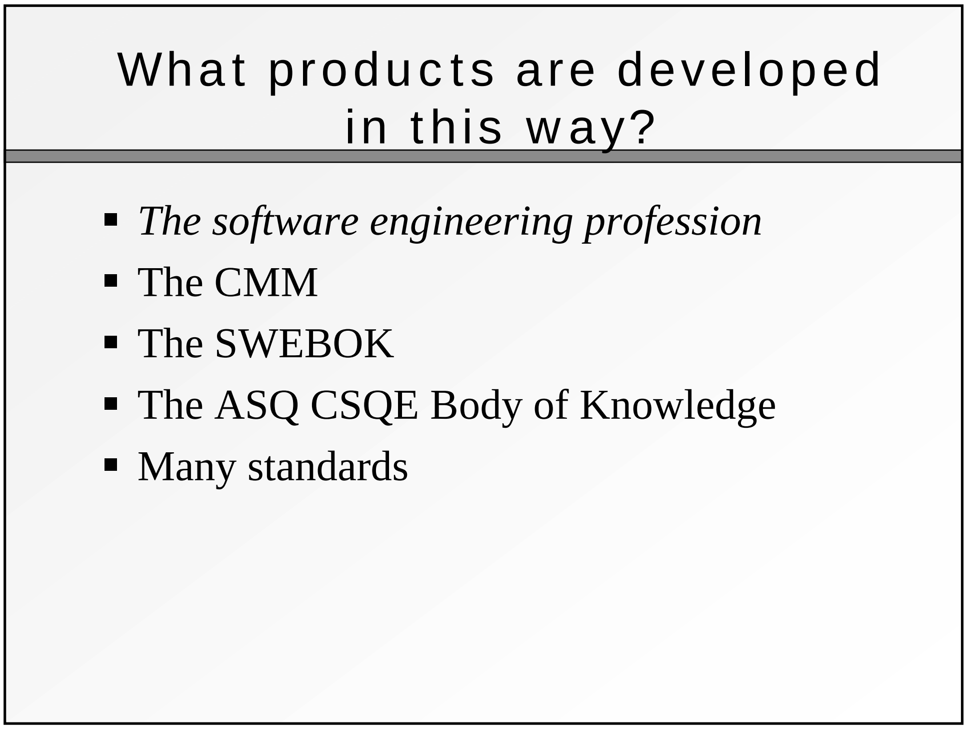
- Isn’t this QA plan a prime example of false economy? Not necessarily…
  - The famous “cost of bugs curve” only applies to defects that we choose to *fix.*
  - Failure costs in the field may be high, but *we* will not necessarily have to *bear* those costs.
  - Despite the risks, this plan may help us get to market quicker and achieve *market share.*
  - And if we fail? We’ll *learn* from that and move on.



My Opinion?

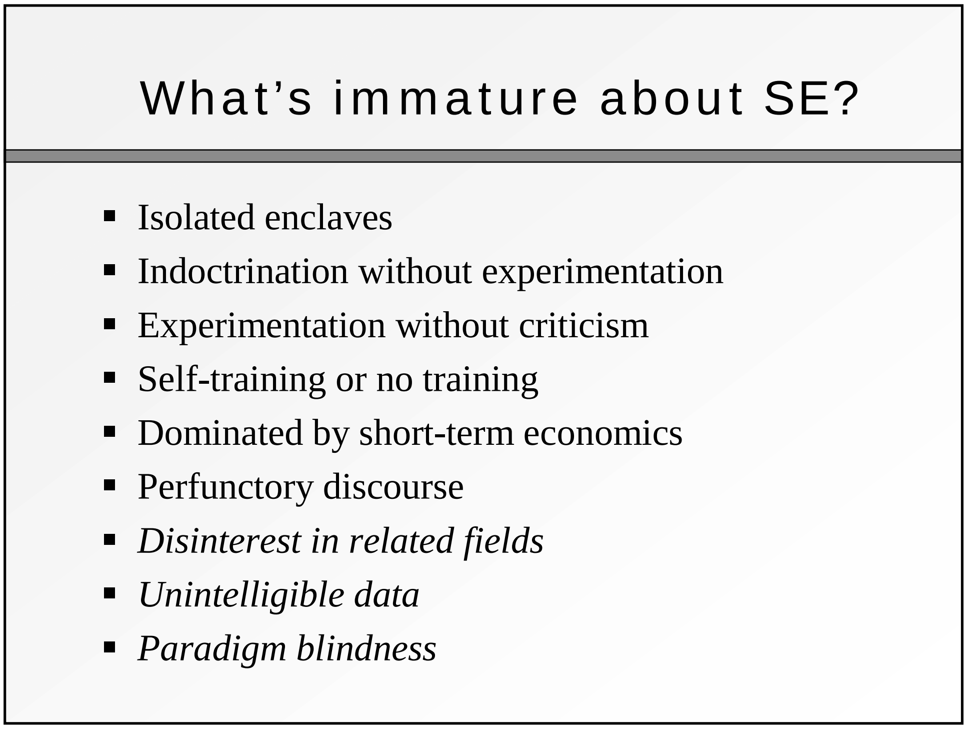
- Let’s not call this “engineering.”
- Let’s not pretend this will result in product we will *know* to be reliable and satisfying.
- Then again...

It **may** be a formula for getting rich in the software business by creating a “good enough” solution and creating barriers to competition.



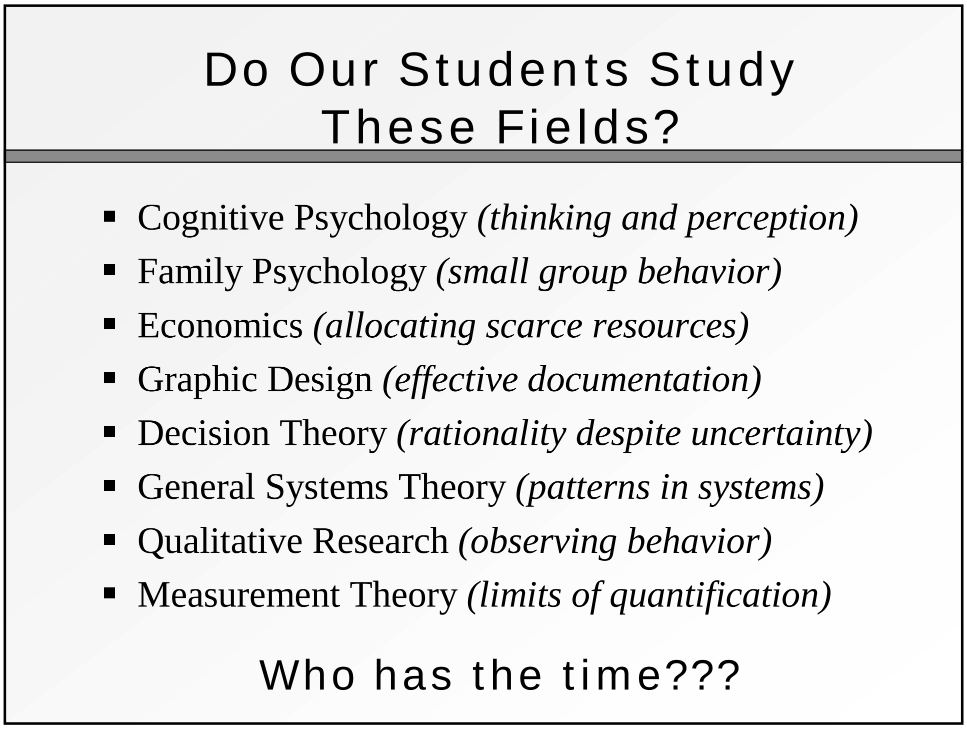
What products are developed in this way?

- *The software engineering profession*
- The CMM
- The SWEBOK
- The ASQ CSQE Body of Knowledge
- Many standards



What’s immature about SE?

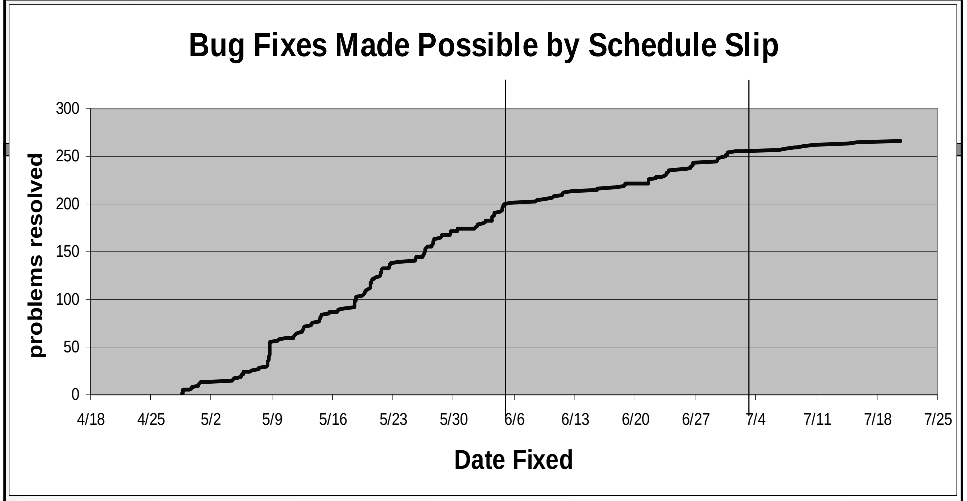
- Isolated enclaves
- Indoctrination without experimentation
- Experimentation without criticism
- Self-training or no training
- Dominated by short-term economics
- Perfunctory discourse
- *Disinterest in related fields*
- *Unintelligible data*
- *Paradigm blindness*



Do Our Students Study These Fields?

- Cognitive Psychology *(thinking and perception)*
- Family Psychology *(small group behavior)*
- Economics *(allocating scarce resources)*
- Graphic Design *(effective documentation)*
- Decision Theory *(rationality despite uncertainty)*
- General Systems Theory *(patterns in systems)*
- Qualitative Research *(observing behavior)*
- Measurement Theory *(limits of quantification)*

Who has the time???



- **During 4 additional weeks we were able to fix:**
  - 10 crash/data loss bugs
  - 33 failures w/no workarounds
  - 22 failures w/workarounds
  - Not counting installation bugs

Contrasting Paradigms

- **Objective**
  - defined process
  - measurable progress
  - traceability to specs
  - documented work
  - repeatable work
  - organization focused
  - compliance praised

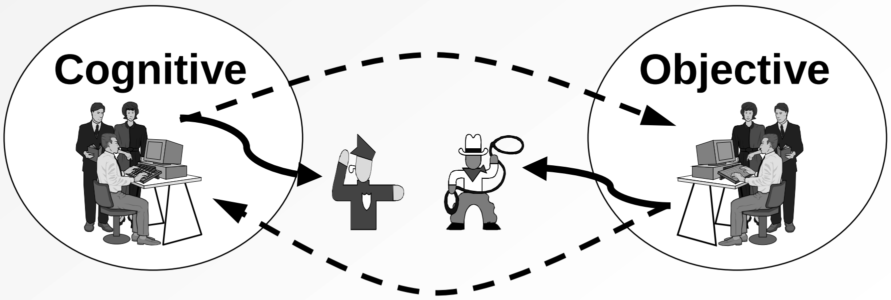
- **Cognitive**
  - problem-solving
  - meaningful results
  - relevance to mission
  - peer communication
  - effective work
  - people focused
  - technical insight praised

Popular in Contract and Regulated communities

Popular in Market community

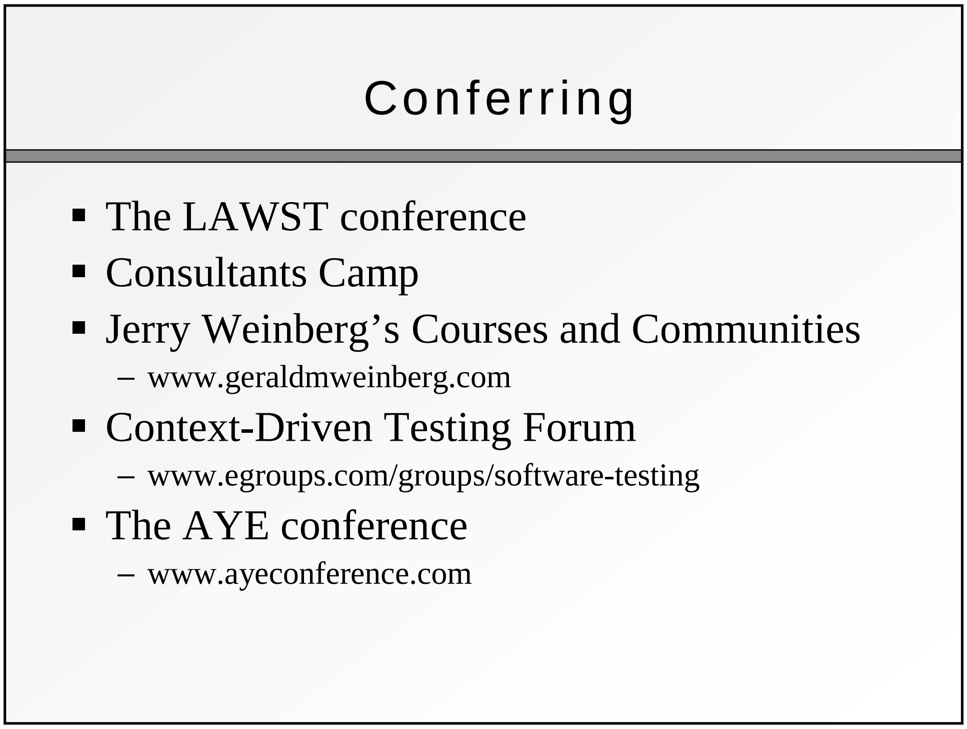
Paradigm Blindness

- *Objective:* process accountability matters
- *Cognitive:* solution accountability matters



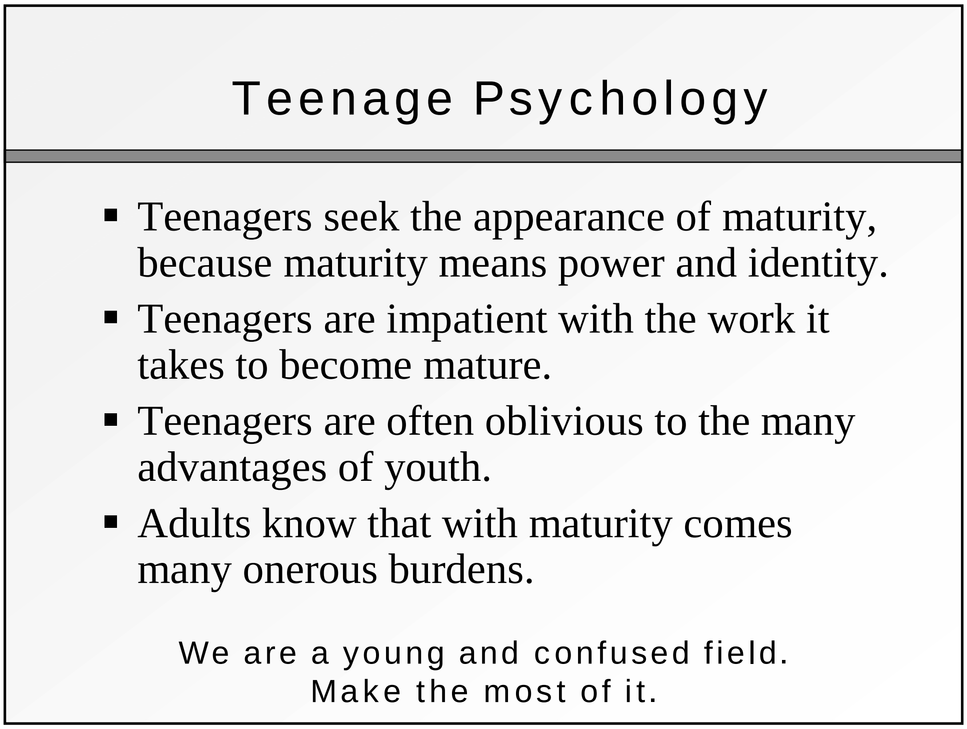
What Should We Do?

- Oppose premature convergence on a BOK.
- Develop an ethnography of SE communities.
- Recognize the CMM as a cultural artifact of a particular sub-community of our field-- not natural law.
- More fieldwork.
- Study and catalog software project dynamics.
- Study *naturally situated cognition* in software teams.
- Study exploratory and heuristic process definition.
- Study the arts of conferring.
- Bring some critical rationalism into our field.



Conferring

- The LAWST conference
- Consultants Camp
- Jerry Weinberg’s Courses and Communities
  - www.geraldmweinberg.com
- Context-Driven Testing Forum
  - www.egroups.com/groups/software-testing
- The AYE conference
  - www.ayeconference.com



Teenage Psychology

- Teenagers seek the appearance of maturity, because maturity means power and identity.
- Teenagers are impatient with the work it takes to become mature.
- Teenagers are often oblivious to the many advantages of youth.
- Adults know that with maturity comes many onerous burdens.

We are a young and confused field.
Make the most of it.