Where Is The 'Discipline' In Disciplined Agility?

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About the Consortium

Systems and Software Engineering Practices

Realizing value from process improvement
- Value-driven process improvement
- Quantifiable business performance measures
- CMM®, CMMI® appraisals

Implementing integrated engineering
- Requirements analysis & automated testing
- Architecture and design
- Security
- Measurement & analysis
- Verification and validation/Mission assurance

Life cycle strategies for complex systems
- Project management
- Agile development
- Distributed development approaches
- Systematic reuse / Product lines

Applied to Member Needs

As a Consortium
- Shared challenges/co-funded development
- Practitioner-led training
- Technology transfer

As a Teammate
- Subject matter experts
- Process consulting
- Technology consulting

As an Industry Association
- Voice of Industry
- Influence govt. agencies
- Best practices/guidelines
- Neutral ground/honest broker

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Outline

- Introducing Agile
  - Motivation
  - Tenets and key concepts
  - Agile development, briefly
  - An agile process
  - Value proposition
- A few lessons learned
  - Discipline in agile practices
  - Consortium's Disciplined Agility
  - Agile and CMMI
  - Value-oriented goals
  - Actual team empowerment

Customers Are Demanding....

- ...more "responsiveness"
  - Quicker delivery of working system versions
  - Better support for new or changed requirements
  - Faster time to value
- Despite
  - Vague, volatile requirements
  - Demanding high system quality, process maturity
  - Greater risk from increasing project complexity, unfamiliar technologies and off-the-shelf components

Better-Faster-Cheaper is not a cliché!

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Essence of Agile Development

- Evolving systems in short iterations
  - Each release is a working system
  - Evolve both practice and product
  - Feedback guides convergence on best value

~2-4 weeks!
(13 weeks max)

Comparing various interpretations of agile development, these themes seem to be common and essential

- Communicating **efficiently**

- Leveraging human strengths
  - Engage, align, and empower the team
  - Team takes responsibility for overall process and project goals

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Tenets of Agile Development

We* believe in practices that emphasize
- *Individuals and interactions* over processes and tools
- *Working software* over comprehensive documentation
- *Customer collaboration* over contract negotiation
- *Responding to change* over following a plan

*That is, while there is value in the items on
the right, we value the items on the left more.*

* Paraphrased from "Manifesto for Agile Software Development"
   at www.agilealliance.org

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What Is Agile Development?

- Umbrella term covering many interpretations and practices (XP, Scrum, Feature-Driven Development, Crystal Methodologies, …)
- Philosophy and model of development
  - Development projects as learning via exploration
  - Learning maximized by increased feedback
- Agile development as a manifesto emphasizing
  - *Individuals and interactions* over processes and tools
  - *Working software* over comprehensive documentation
  - *Customer collaboration* over contract negotiation
  - *Responding to change* over following a plan
- But what about iterative, evolutionary, incremental and spiral development/acquisition?

What really distinguishes agile development?

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Disciplined Agility—Process
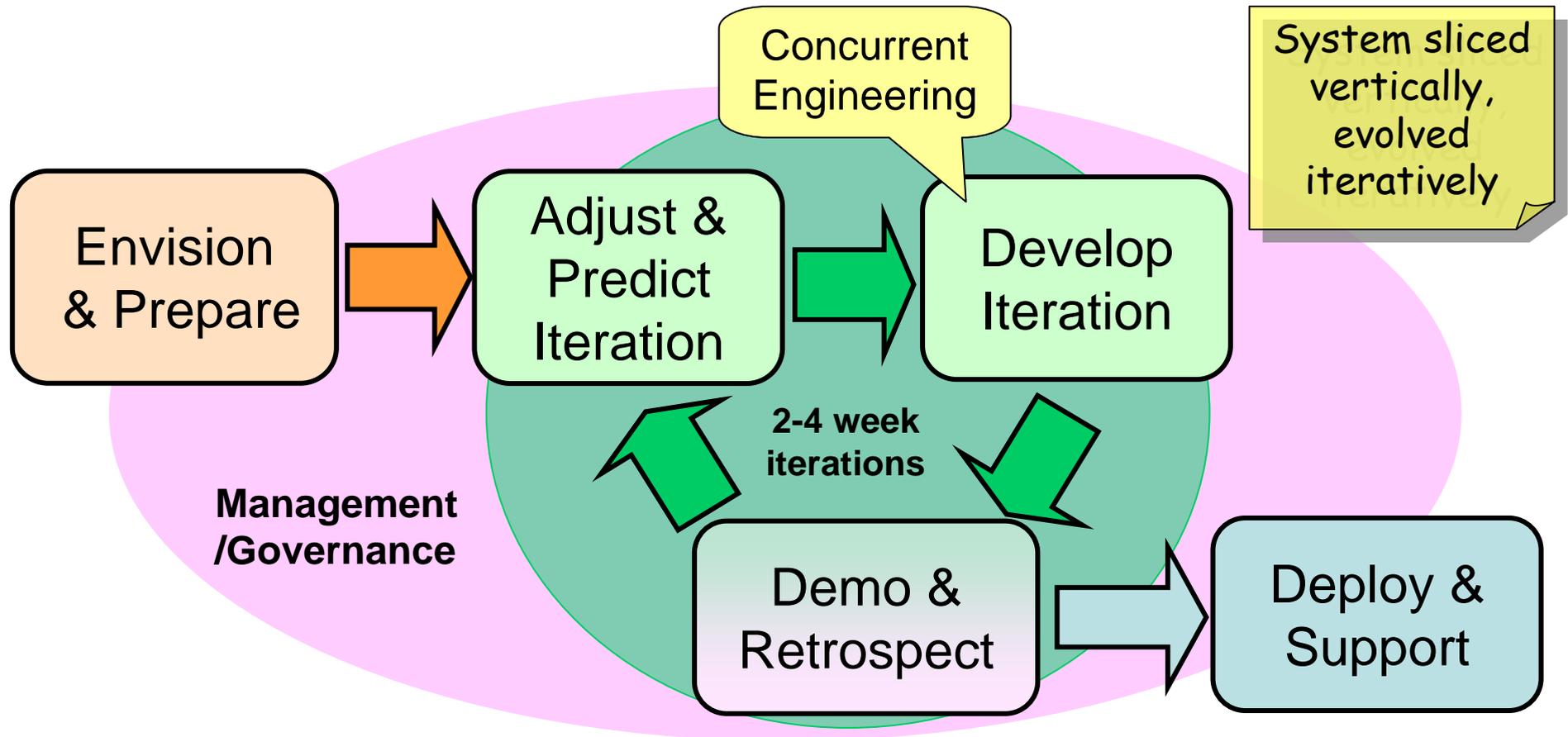
Agility's Value Proposition

The **Pareto principle** (also known as the 80-20 rule): 80% of consequences stem from 20% of the causes

- In agile, we build the most important features first
- Based on Pareto, most of the value is delivered early, at a fraction of the overall planned cost
- We can stop building the system when the customer says it is good enough

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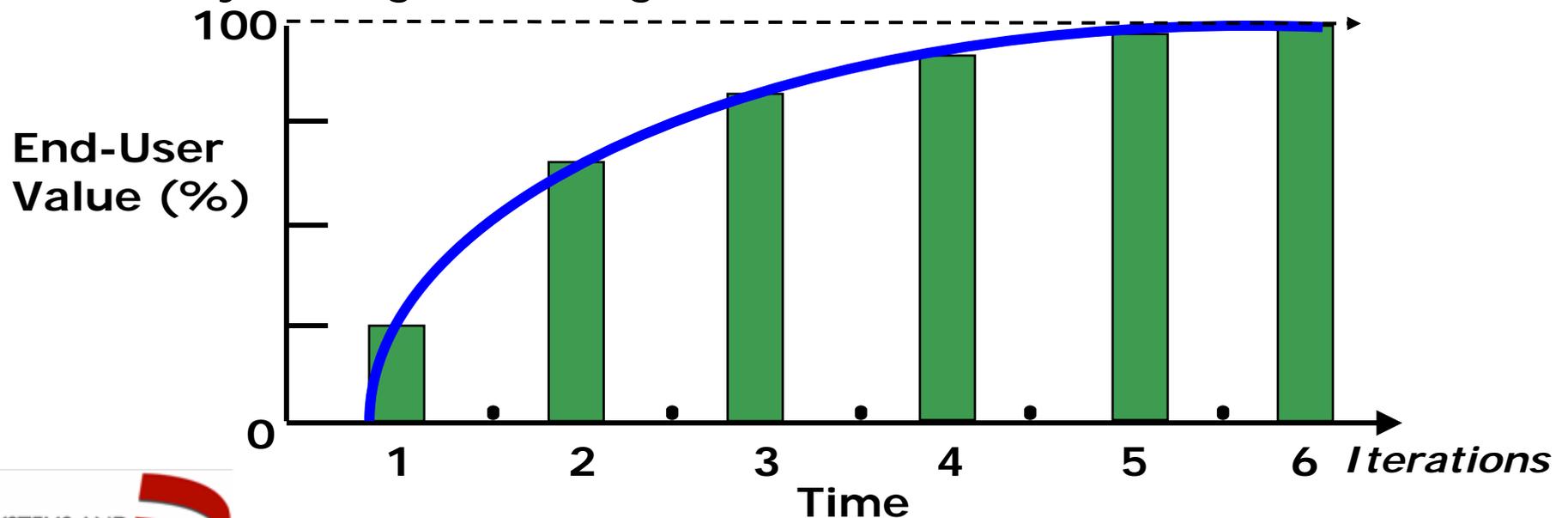
A Few Lessons Learned

- Discipline in agile practices
- CMMI and organizational standards
- Value-oriented goals
- Actual team empowerment: cost and value

There is no litmus test for being agile;
be as agile as you can be

Discipline in Agile Practices

- Focus via features: customer's perspective of value
- Planning, status, control, risk: reality check each iteration
- Test discipline: extensive testing at multiple levels
- Design discipline: convergence to robust design because the cost of poor design is too painful (hard to test, evolve)
- Integration discipline: cross-team integration is frequent (daily-weekly), confirmed by regression testing
- Process discipline: each iteration is a process check, too
- Internal discipline:
  - Trust and pride drive the team dynamic
  - Continuously visible status encourages peer pressure to reinforce team's own high standards

Feedback mechanisms enable extraordinary results

CMMI and Local Process Standards

- Agile development is consistent with CMMI®
  - Over 150 people at CMMI and SEPG Conference workshops agreed
- Organizational process standard often a bigger challenge
  - Needlessly detailed, waterfallish, heavy-weight
  - Tailoring difficult in practice—either discouraged or only defined options allowed
- Promote value-based tailoring
  - Appeal to the goals rather than the letter of the process definition
  - Waterfall activities can be mapped to agile process—concerns of process stakeholders negotiated

Value-Oriented Goals

- "Adopt agile development" is the *wrong* goal
  - Focus on value outcomes, not compliance
  - Treat agile development as a tool, not a standard
- Appropriate measures of success
  - Features done, tests passing
  - Time from feature request to delivery
  - Defects discovered in operation
  - Customer satisfaction
- Other reasonable measures of risk include
  - Time between developer-customer/user interactions
  - Test coverage of code
  - Overtime

But beware careless comparisons of "earned value" on agile and non-agile projects

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Actual Team Empowerment

- The *development team* has primary responsibility and authority over its own plans, processes, and results
  - Organizational standard must be very light
  - Development team tailors its practices (for good or ill)
  - Bad choices indicates a poor team composition, not inadequate process
- Development team has "permission to fail" (in an iteration), but responsibility to improve across iterations
- Any independent process organization provides coaching and other support, it does *not* impose and enforce process

Transforming from a compliance culture
to empowerment is the greatest challenge

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Questions? Comments?

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For More Information

- *Balancing Discipline and Agility.*
  ISBN 0-321-18612-5. Rich Turner and Barry Boehm, 2003
- "Should You Be More Agile?"
  Rich McCabe and Mike Polen, *Crosstalk*, October 2002
  http://www.stsc.hill.af.mil/crosstalk/2002/10/mccabe.html
- *For members*
  - 1st technical exchange workshop in March 2005
    (*Agile Adoption Workshop Report*, SSCI-2005011-MC)
  - *Disciplined Agility Guidebook,* SSCI-2005028-MC, Jan 2006
  - "Disciplined Agility" white paper, SSCI-2005019-MC, June 2005
  - *Managing Agile Software Development*,
    1½-day course, SPC-2002007-MC, Version 3.4
    June 2006

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