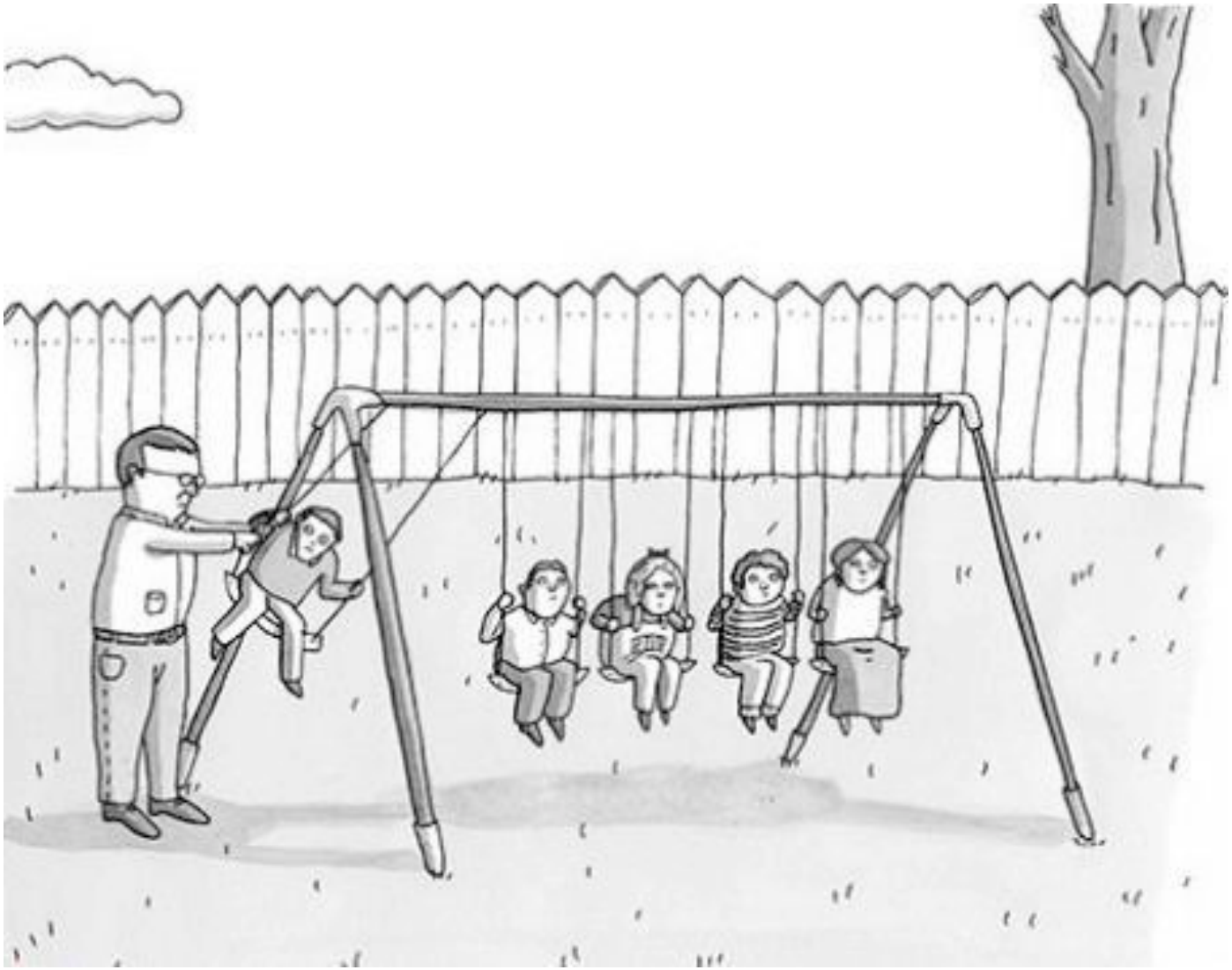
CSSE 372 Software Project Management:
From Traditional to Agile Project Management

Shawn Bohner
Office: Moench Room F212
Phone: (812) 877-8685
Email: bohner@rose-hulman.edu

ROSE-HULMAN
INSTITUTE OF TECHNOLOGY

Academic's Weekend with the Kids



Learning Outcomes: Plan (verb)

Create a plan for an intermediate size software project & manage to the plan as project evolves.

- Finish up Friday's Exercise
- Examine Win-Win approach
- Review iterative process and traditional project mngt.
- Introduce Agile project mngt.

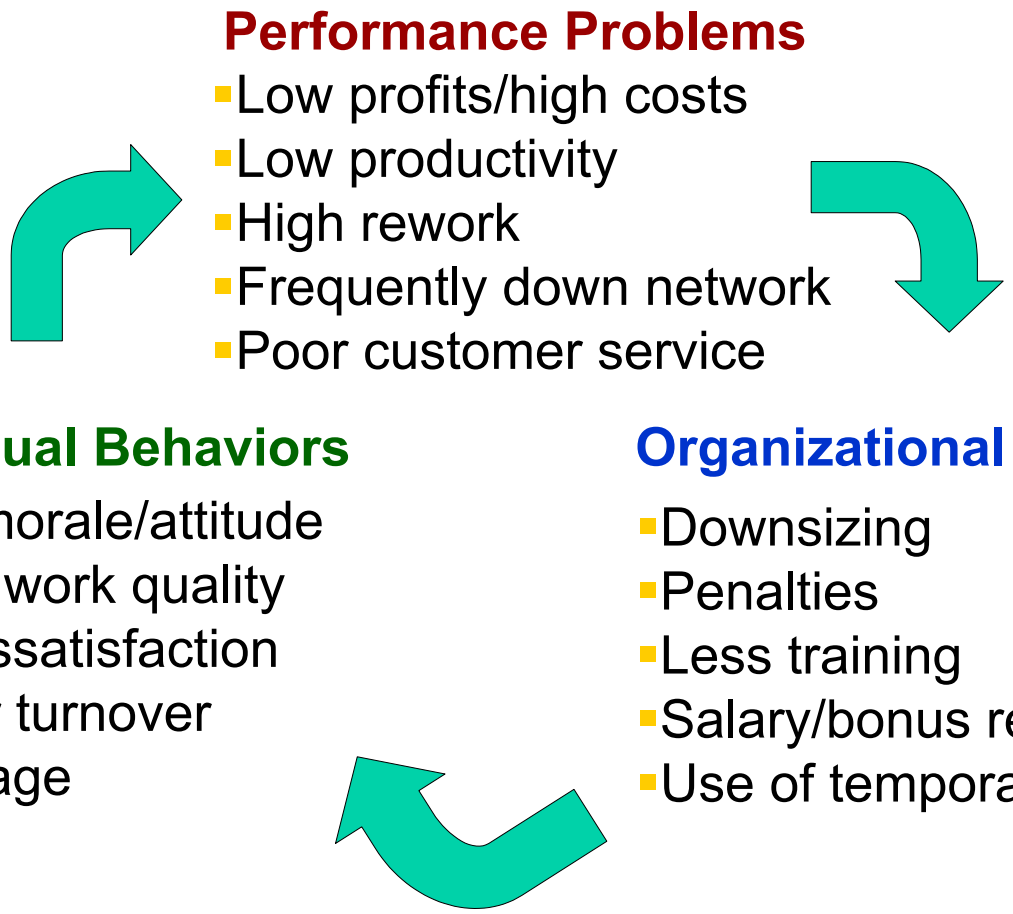
RECALL: Solve Supplier Problem

- **Problem Description**: Our standard preferred supplier of camera bodies and housings has been purchased by one of their competitors in a hostile takeover. As a result the purchase/quantity agreements we had in place have now been reopened by the new owner with the intent of renegotiating new agreements.
- **Impact**: Performance impacted due to production costs exceeding the measure of $30/unit.
- **Alternatives**
  1. Renegotiate all purchase orders with the supplier representatives
  2. Find entirely different supplier
  3. Change part specs by using less expensive materials
  4. Decrease lens cost by renegotiating terms for volume discounts
- **…select a recommendation & rationale**

Organize the Solution Alternatives

		Alternatives			
Impact on	Current Problem	1 Renegotiate	2 New Suppliers	3 Change Specs	4 Vol. Discounts
Cost			$15K – travel to view facilities of potential new vendor	60 hrs	35 hrs
Sch		1 week	3 weeks	2 weeks reengineering	1.5 weeks
Prod	Production cost increase of $30/unit	Maintain current component knowledge with current vendor	However there is a quality risk due to unknown supplier capabilities	Perceived quality of camera by consumer down by 2 points	Risk that lens inventories will be higher than demand for cameras

Organizational Hurdles for Team Performance



In the Human Side of Project Management we discussed Win-Win. What do you suppose Win-Win means for a software project?

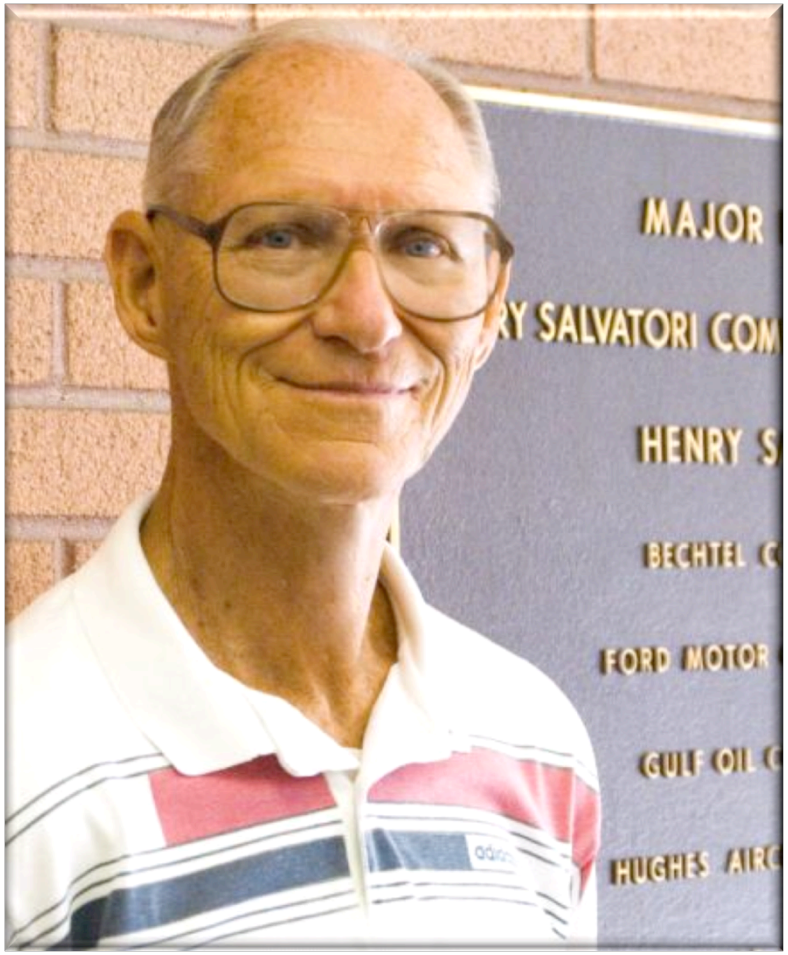
- Think for 15 seconds…
- Turn to a neighbor and discuss it for a minute

Productivity Management Theories

- Theory-X: Fredrick Taylor (1911) professes that more productivity with efficient production
- Theory-Y: Evans, Piazza, and Dolkas (1983) profess that stimulating more creativity and individual initiative brings better results
- Theory-Z: Gellerman (1978) professes that corporate culture and conflict resolution bring better results
- Theory-W: Boehm (1990) professes Win-Win conditions & process for systems production

Theory-W: Win-Win?

- Establish a set of win-win preconditions
- Structure a win-win software process
- Structure a win-win software product



Barry Boehm

Why do “Agile” strategies now dominate Business & Technology?

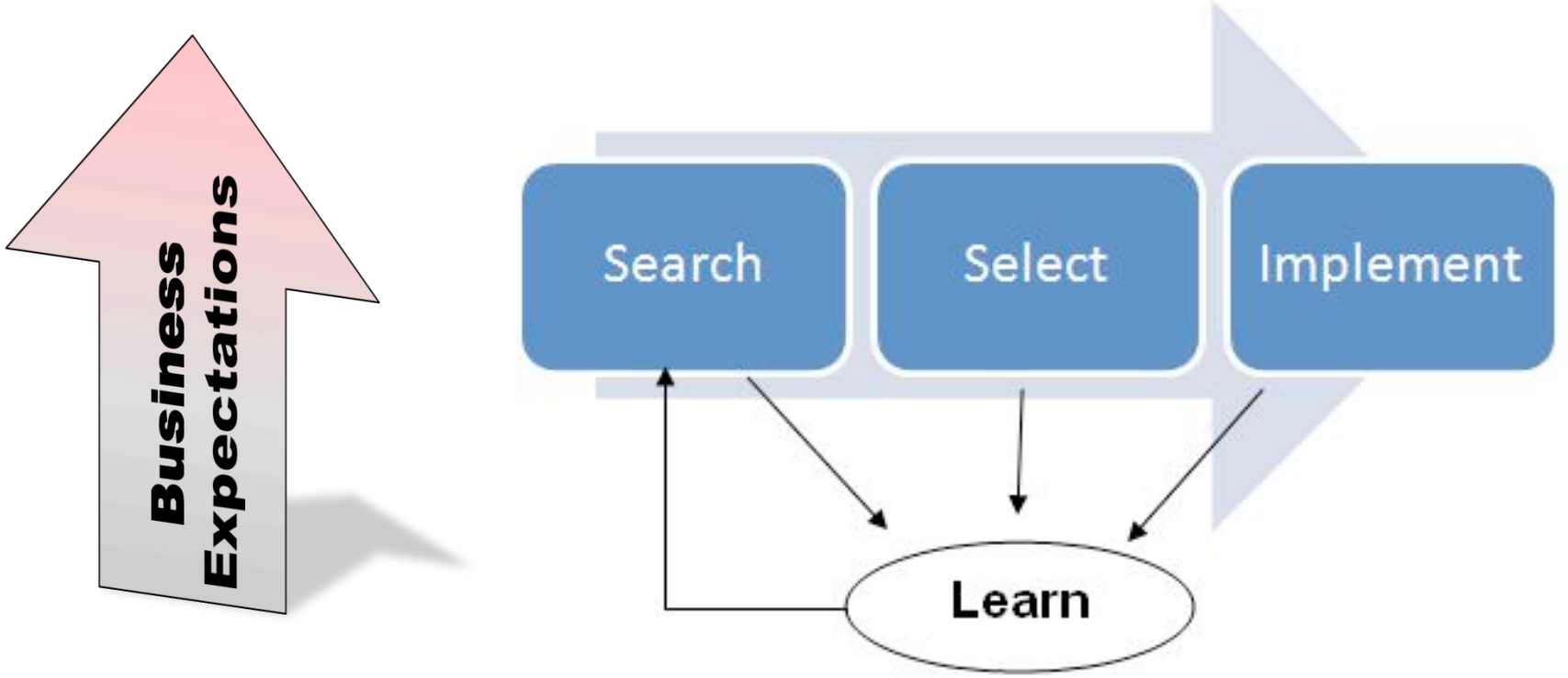
- Think for 15 seconds…
- Turn to a neighbor and discuss it for a minute

Increasing Consumer Expectations

Consumers expect innovative products: *faster*, *cheaper* and with *better quality* than those offered in the past.

Business Cycles Shortening…

With more knowledge workers, business tools have improved the *capability to be productive*, raising work expectations. More innovative…



Agile Perspective → Customer Value

Delivering Customer Value with Agile Project Management

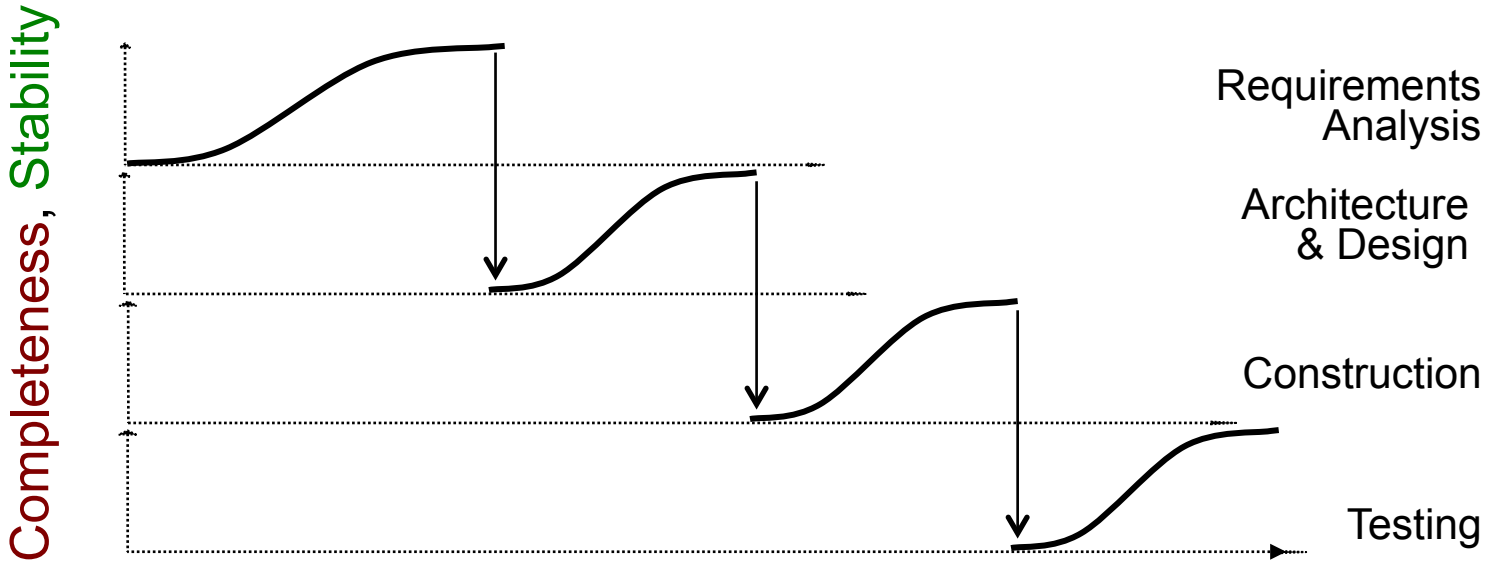
The right product, at the right time, for the right price.

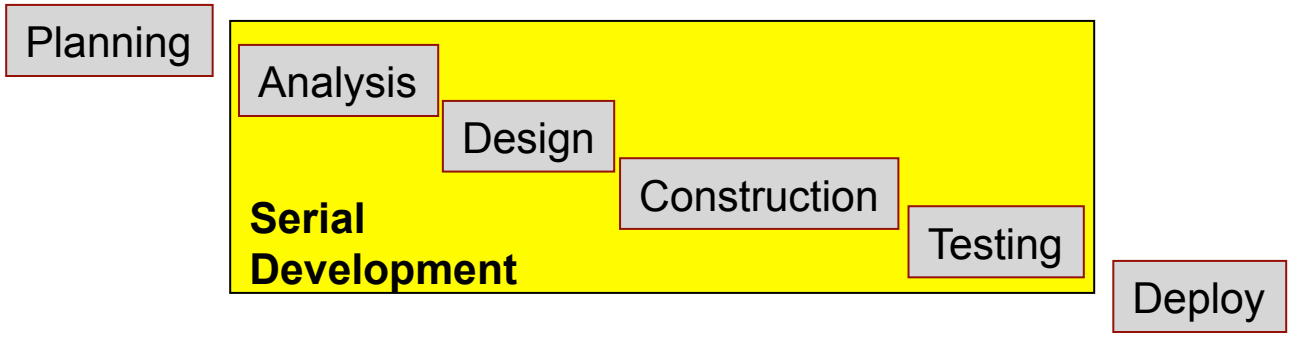
Higher Quality: "Designed-to-fit" product with flexibility to change.

Increased Throughput: Iterative and incremental project and product "chunks" with earlier value delivery.

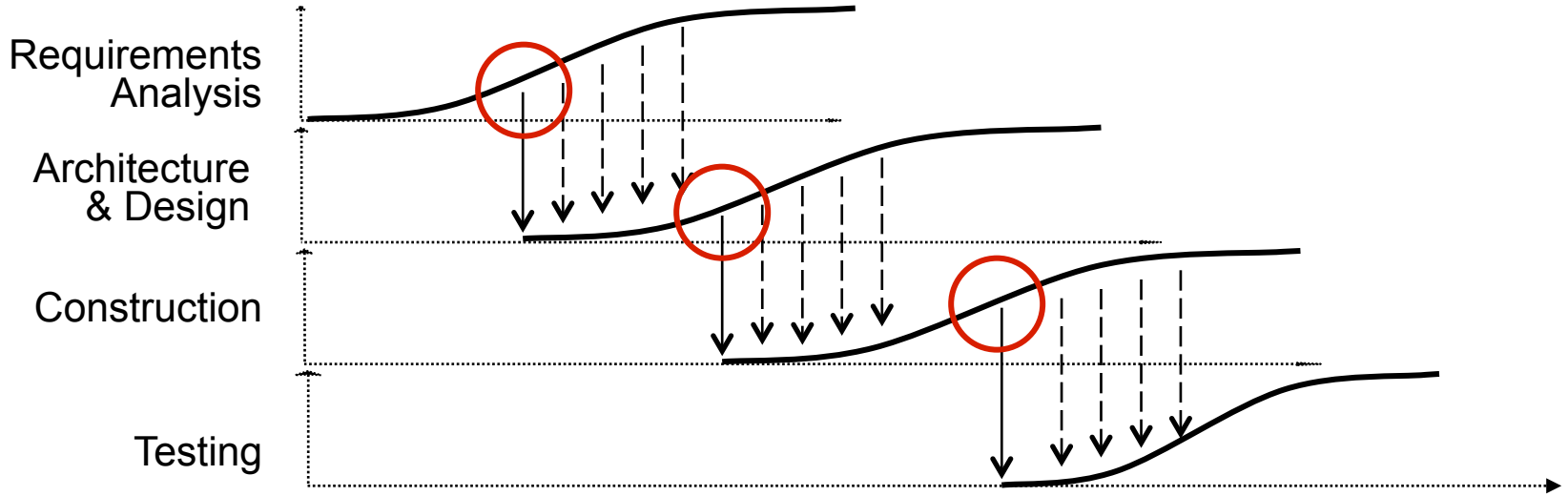
Reduced Waste: Lean, efficient processes with lower costs and higher productivity.

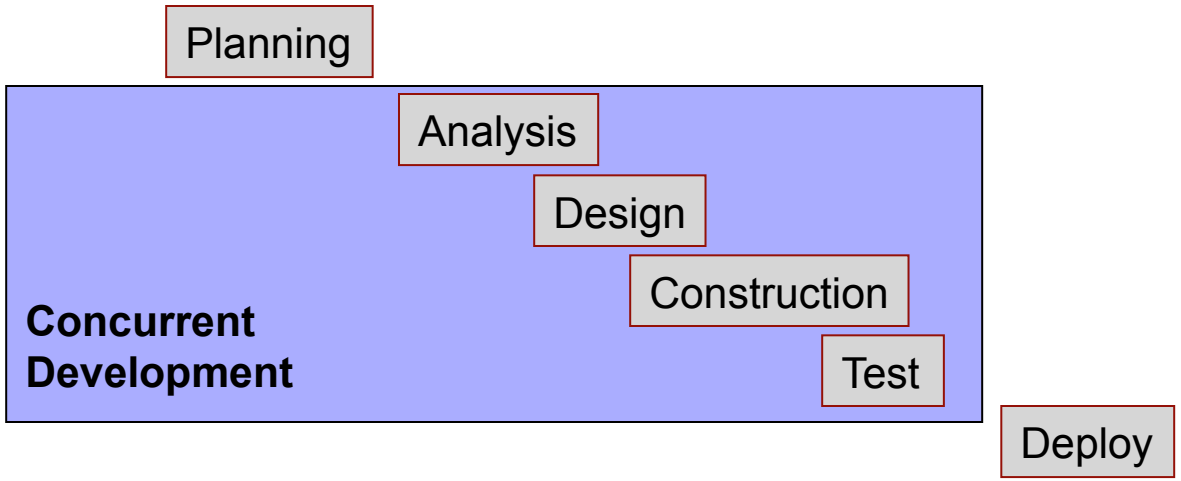
Recall: Serial Process (Waterfall Model)



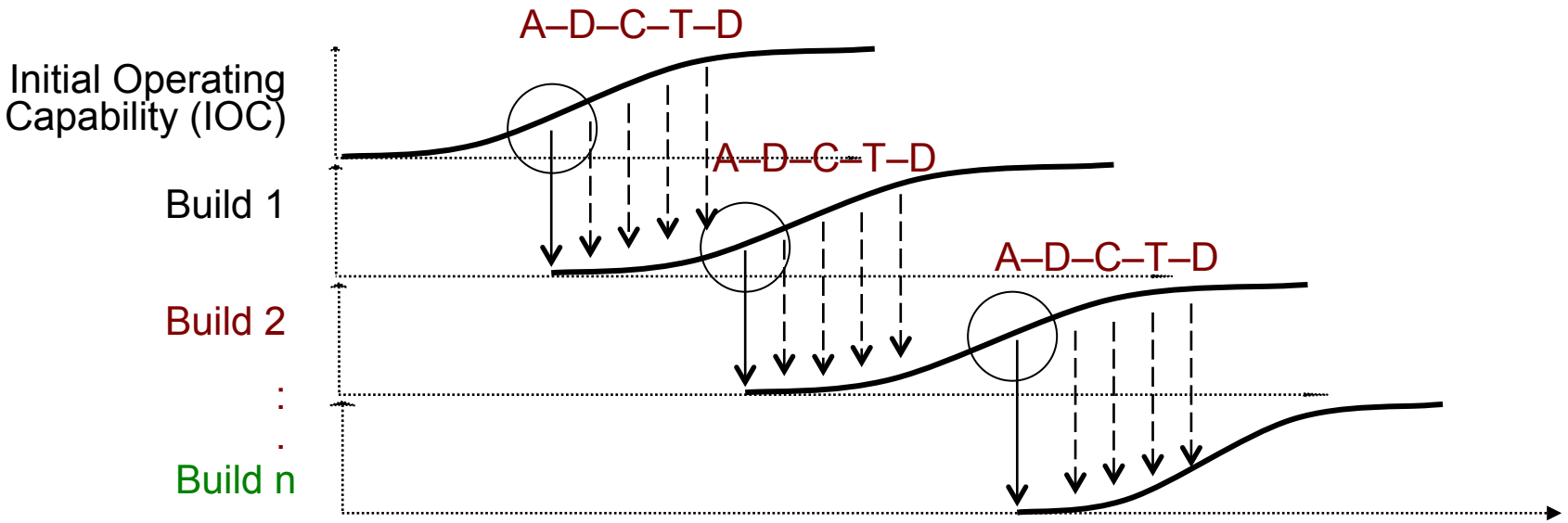


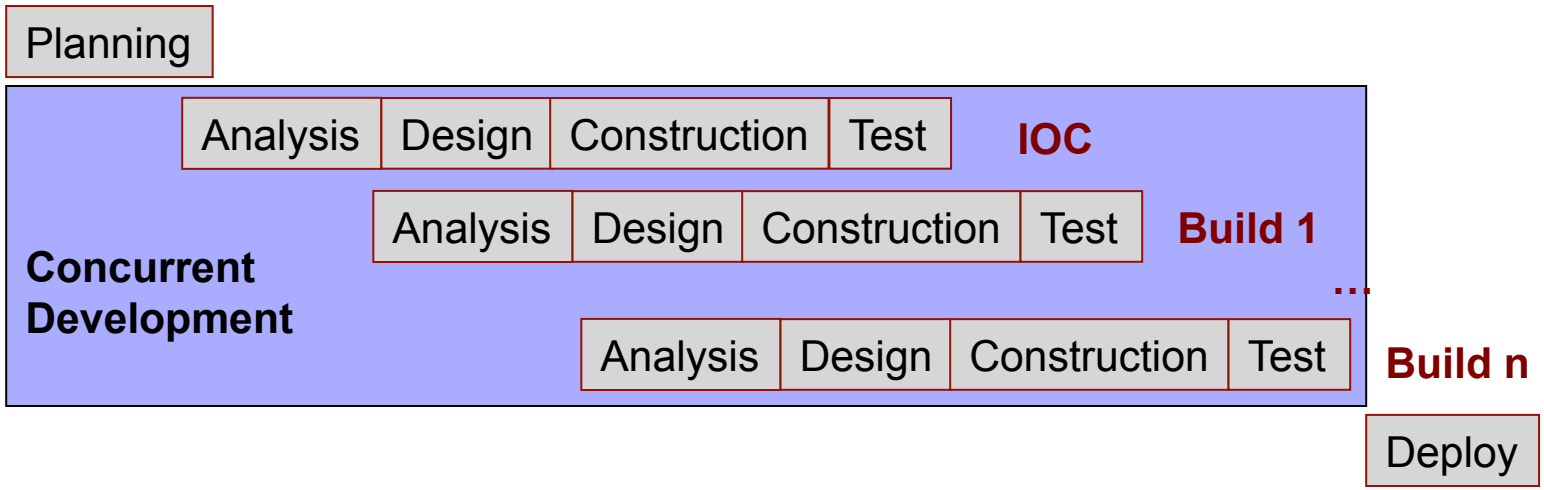
Concurrency in the Software Process





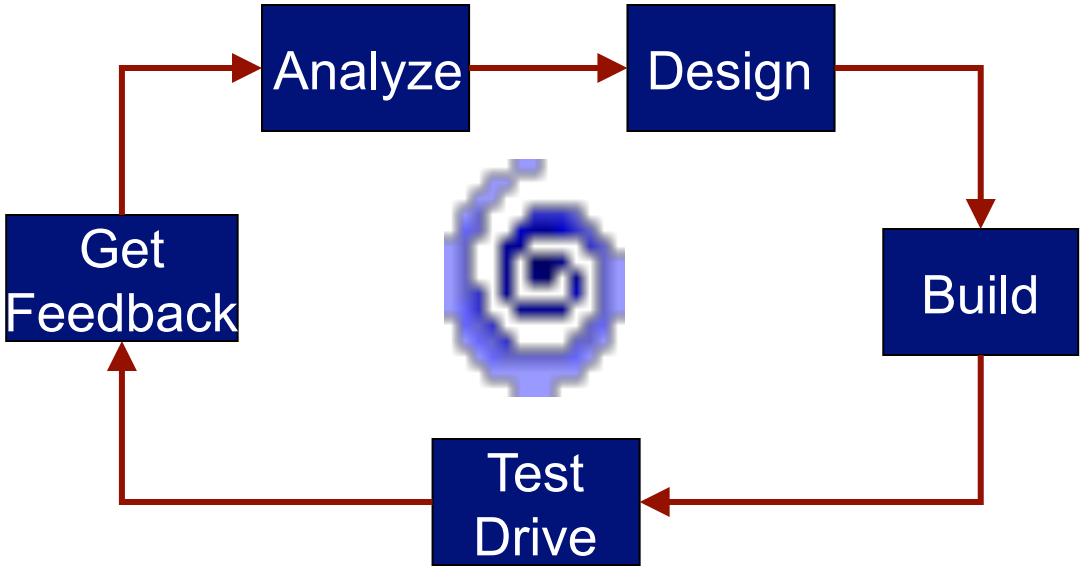
Concurrency in Process (Incremental)





Iterative Life Cycle Model

Iterative Models consists of phases that are repeated in groups with a feedback loop after each group is completed

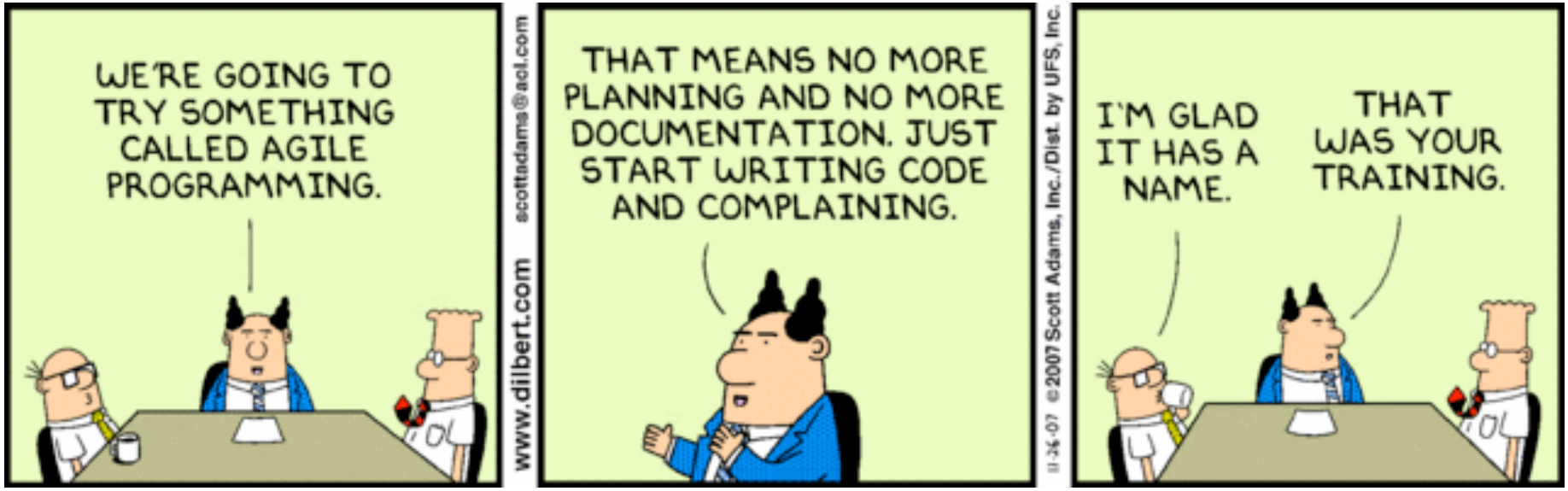


- **Client decides if the last phase in a group may release a partial solution**
  - **Solution known, but not all features complete**
  - **Prototypes to discover complete solution**

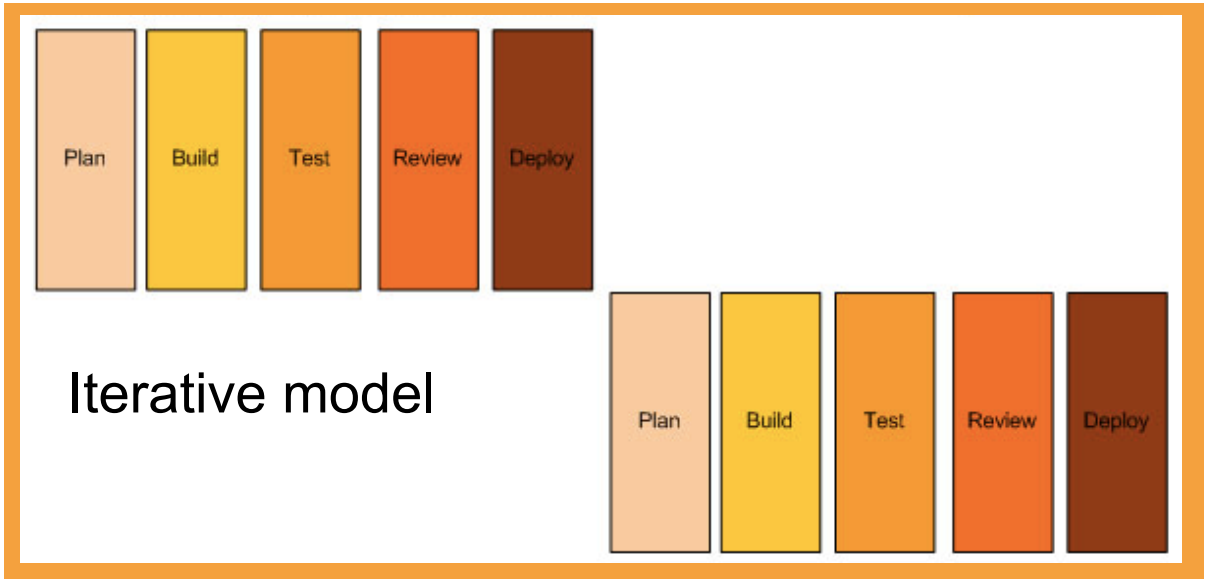
Iterative Strengths and Limitations

- Strengths
  - Reduces risks with learn/clarify as you go
  - Client test drives solution for feedback/improvements
  - Accommodates scope changes between iterations
  - Adapts to changing business conditions
- Limitations
  - Final solution cannot be specified at start of project
  - Overhead of managing iterations (releases)
  - Requires actively involved client
  - Works significantly better with co-located teams (and to some degree, clients too)

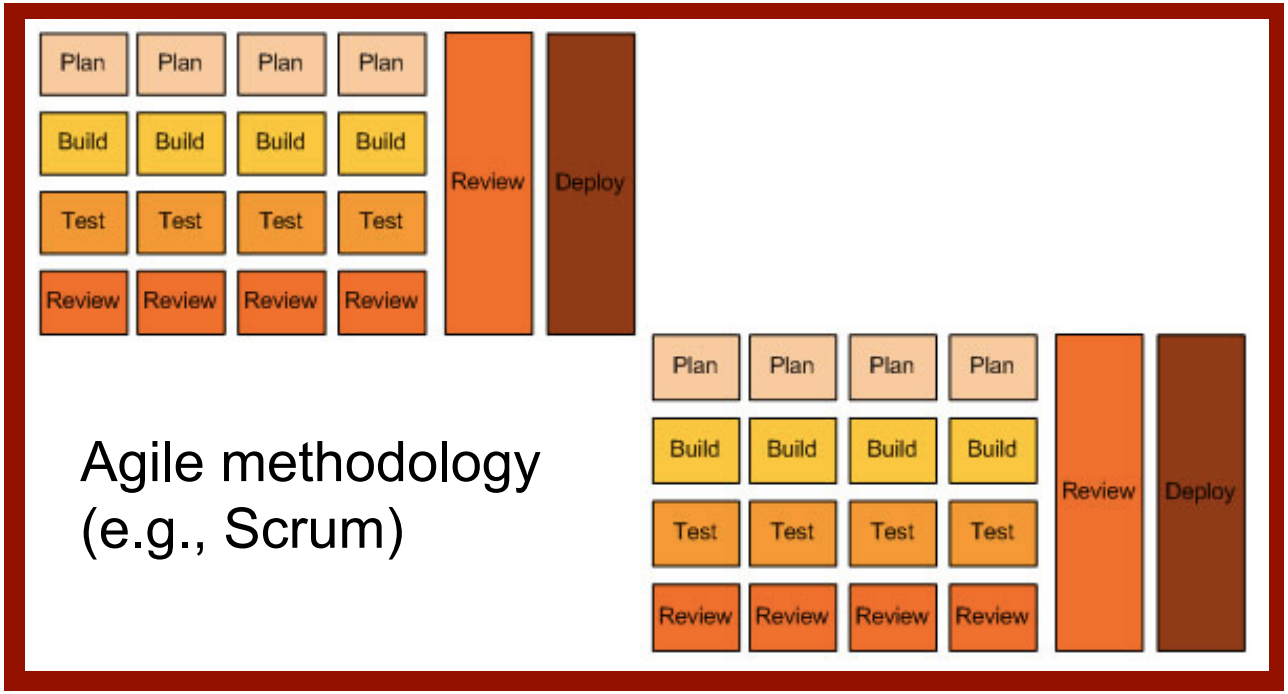
“Agile Management” according to Dilbert



How is Agile different?



Iterative model



Agile methodology (e.g., Scrum)

Evolution of Agile

- Early 1990s
  - Crystal Methods
  - Lean Software Development
  - Dynamic Software Development Method (DSDM)
- Mid 1990s
  - Feature Driven Development (FDD)
  - eXtreme Programming (XP)
  - Adaptive Software Development
- 2001: Manifesto for Agile Software Development
  - http://www.agilemanifesto.org
- 2005: Declaration of Interdependence
  - http://www.pmdoi.org/

Manifesto for Agile Development of Software

"We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

1. *Individuals and interactions* over processes and tools
2. *Working software* over comprehensive documentation
3. *Customer collaboration* over contract negotiation
4. *Responding to change* over following a plan

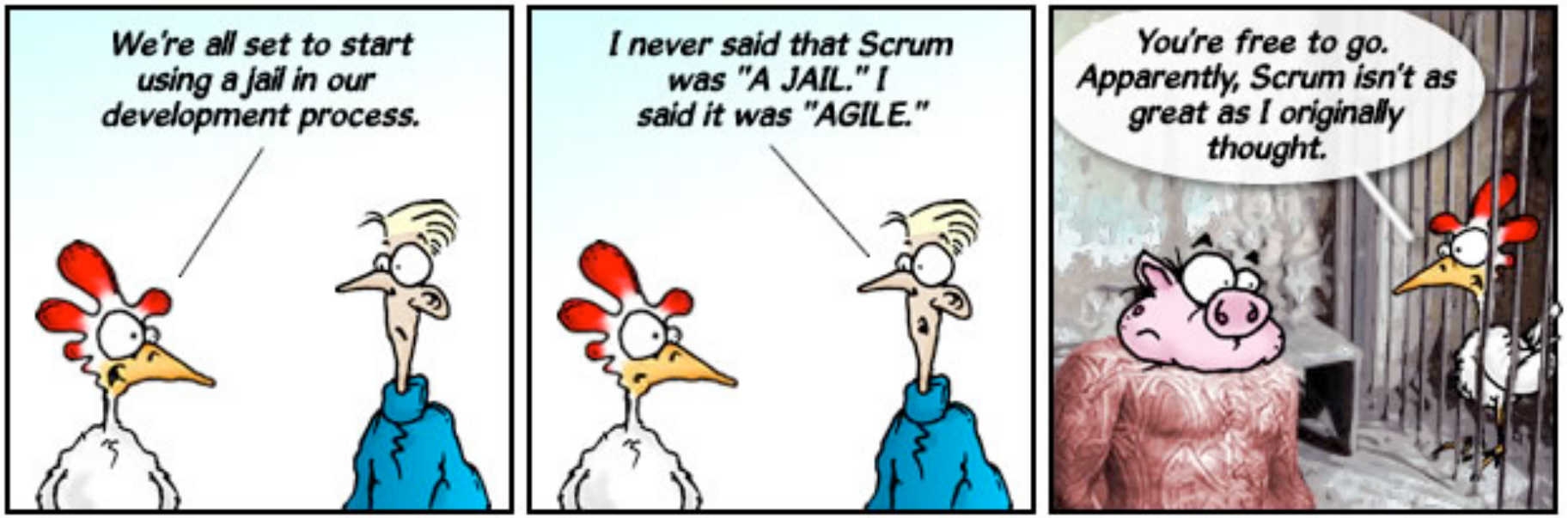
Source: Kent Beck et al

Declaration of Interdependence

We are a community of project leaders that are highly successful at delivering results. To achieve these results:

- **We increase return on investment by making continuous flow of value our focus.**
- **We deliver reliable results by engaging customers in frequent interactions and shared ownership.**
- **We expect uncertainty and manage for it through iterations, anticipation, and adaptation.**
- **We unleash creativity and innovation by recognizing that individuals are the ultimate source of value, and creating an environment where they can make a difference.**
- **We boost performance through group accountability for results and shared responsibility for team effectiveness.**
- **We improve effectiveness and reliability through situationally specific strategies, processes and practices.**

Don’t be confused by the Jargon…



Homework and Reading Reminders

- Read Chapters 1 and 2 of Agile Book (PDF off of Class Schedule Page)

- Final Project – SW Proj. Mgt. Plan (SPMP)
  - Completed by team…
  - Due by 11:55pm, Friday, November 2nd, 2012.
  - No late days –review swap with another team