CSSE 372 Software Project Management:
More Agile Project Management

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

ROSE-HULMAN
INSTITUTE OF TECHNOLOGY


Schrödinger's cat is alive.
And very angry.

Learning Outcomes: Plan (verb)

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

Introduce some more Agile Methods

- Extreme Programming (XP)
- Feature Driven Development
- Crystal Methodologies
- Agile Project Management
- SCRUM

eXtreme Programming (XP)

- Early and widely used Agile Method developed by Kent Beck et al

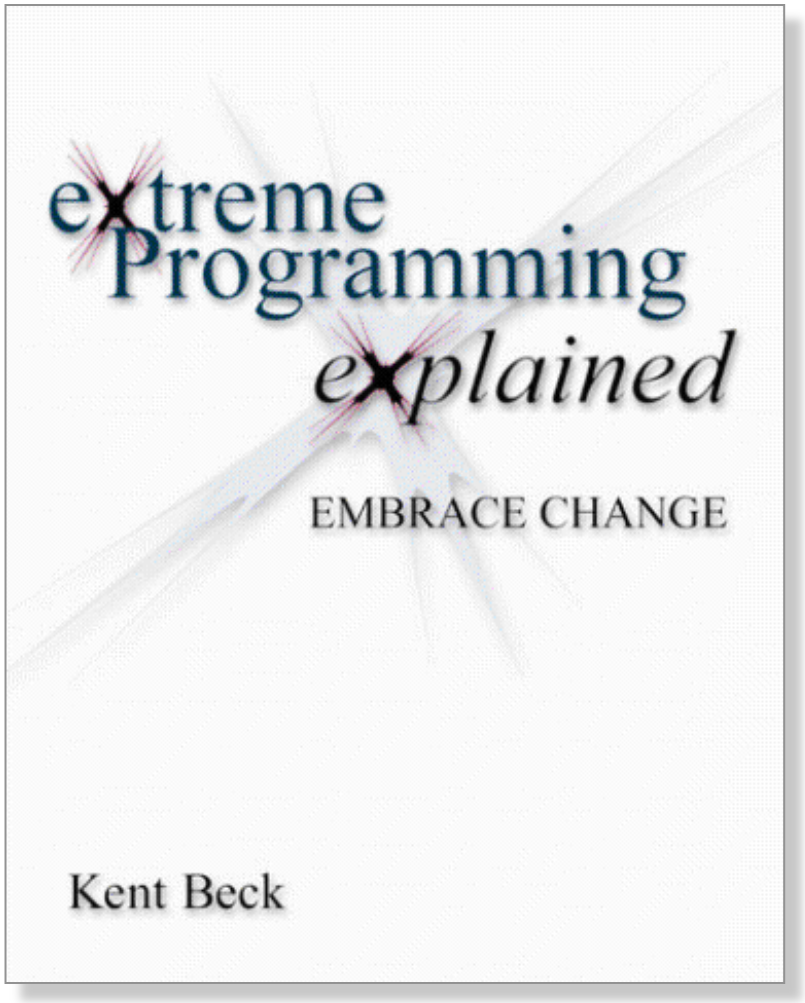
- XP Planning
  - Begins with creation of user stories
  - Team assesses each story and assigns a cost
  - Stories are grouped to for a deliverable increment
  - A commitment is made on delivery date
  - 1st increment → project velocity
    - Used to help define subsequent delivery dates

Some eXtreme Perspectives

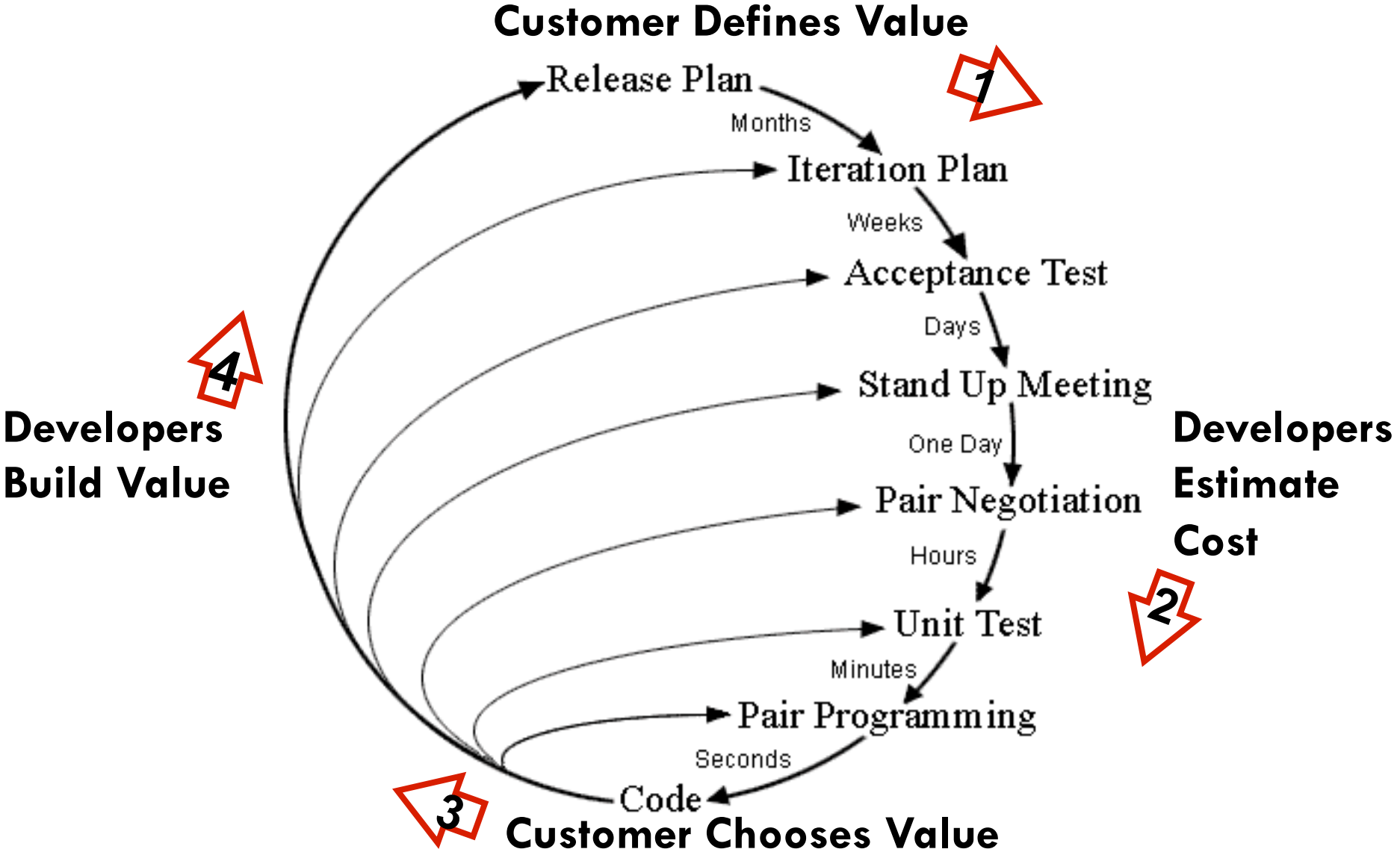
- Are code **inspections good**?
  Then code in pairs—all code is inspected all the time!

- Is **testing good**?
  Then write the unit test before the code, automate testing, and run all tests all the time.

- Is **customer contact good**?
  Then locate a customer representative in the team, so that you have access to them all the time.



eXtreme Programming (XP) Cycles



Twelve XP Practices

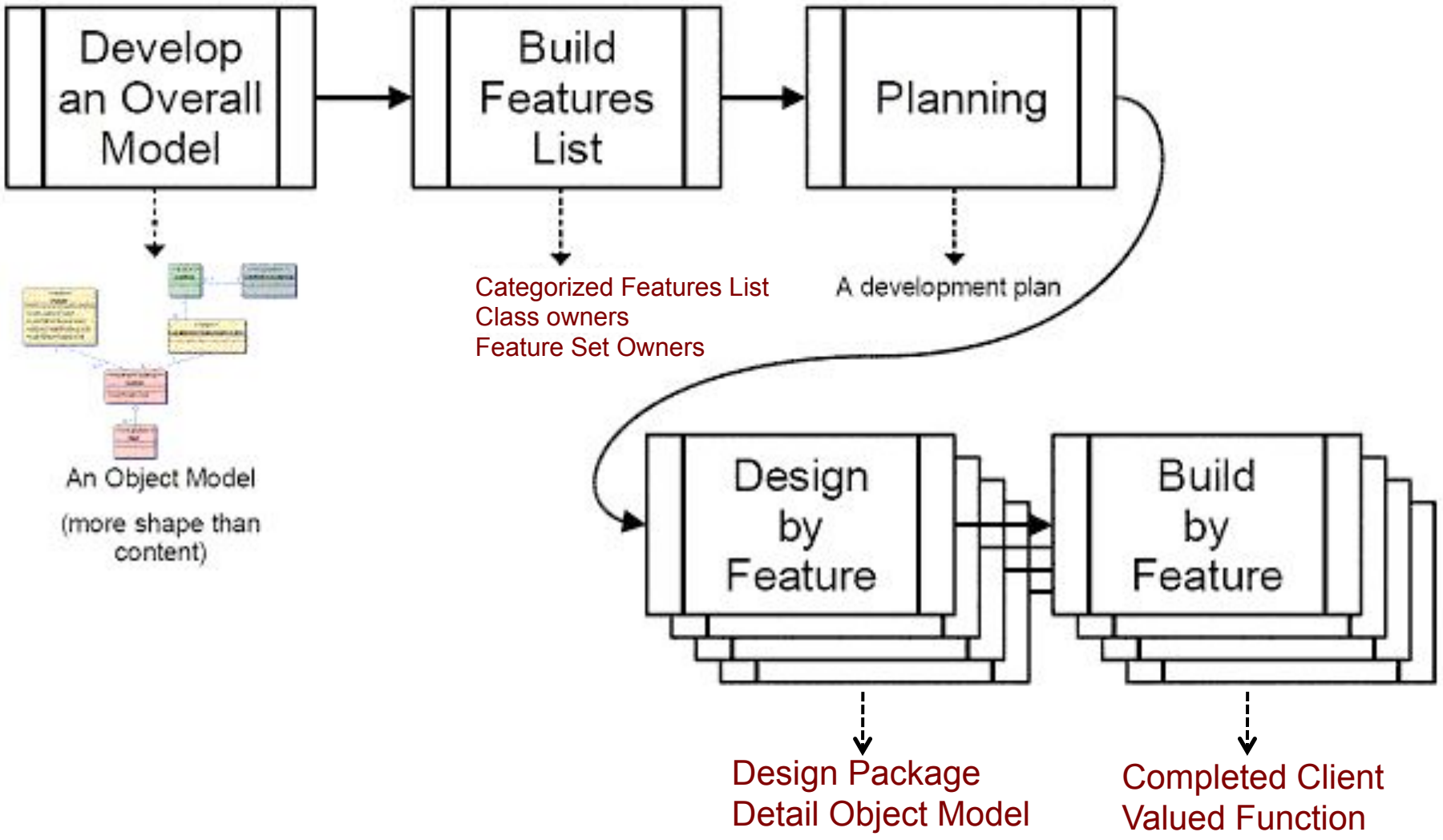
1. Planning Game
2. Short Releases
3. Simple Design
4. Continuous Testing
5. Refactoring
6. Pair Programming
7. Collective Ownership
8. Continuous Integration
9. On-site Customer
10. Sustainable Pace
11. Metaphor
12. Coding Standards

Feature Driven Development (FDD)

- Originally proposed by Peter Coad et al and promoted later by Jeff DeLuca

- FDD—distinguishing features
  - Emphasis is on defining "features"
    - a *feature* "is a client-valued function that can be implemented in two weeks or less"
  - Uses a feature template
    - <action> the <result> <by | for | of | to> a(n) <object>
  - A features list is created and "plan by feature" is conducted
  - Design and construction merge in FDD

Feature Driven Development (FDD)



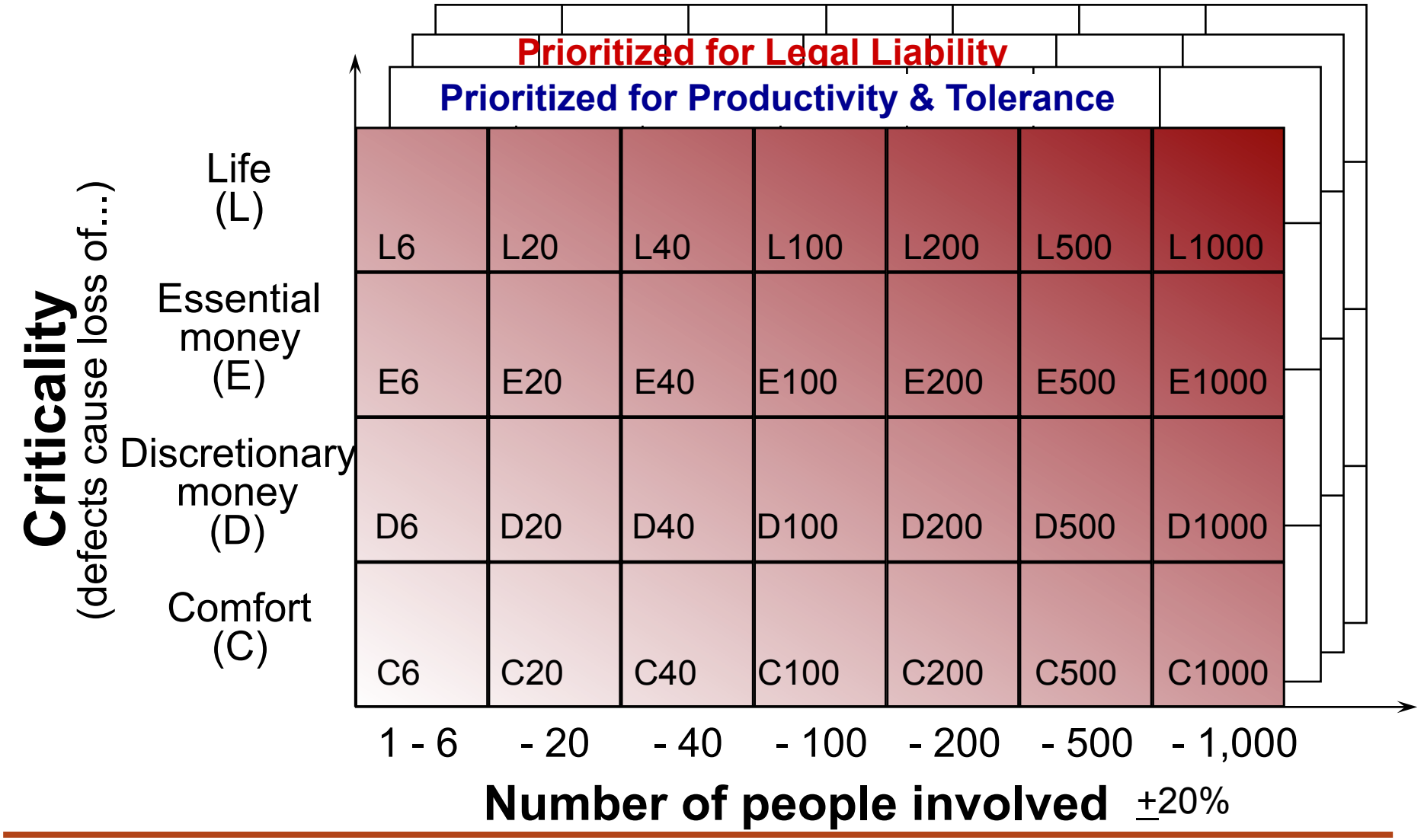
Crystal Methodologies

- Alistar Cockburn (with Jim Highsmith)
- Premises:
  - "Software development is a (resource-limited) finite, goal-seeking cooperative game of invention and communication"
  - Easier to tune a methodology than to invent one

- Crystal—distinguishing features
  - Family of process models allow maneuverability/agility in appropriate places based on problem characteristics
  - Face-to-face communication
  - Reflection workshops to review work habits of team

Selecting an Agile Software Methodology

(based on project size, system criticality, priorities, fears)



Doctor Delivery harkens back to his former career as a software developer.

Scrum

- Originally proposed by Ken Schwaber and Mike Beedle
- Project-management oriented
- Development work partitioned into packets executed in sprints & derived from a backlog of existing requirements
- Testing & documentation on-going as product is constructed
- Meetings are very short (standup meetings)
- Demos delivered to customer (within time-box allocated)
- Manages noise, allows overhead to wither
- Delivers business level functionality in 30 days
- Scalable

Scrum – Agile Method

An agile, lightweight process for managing and controlling software and product development in rapidly changing environments.

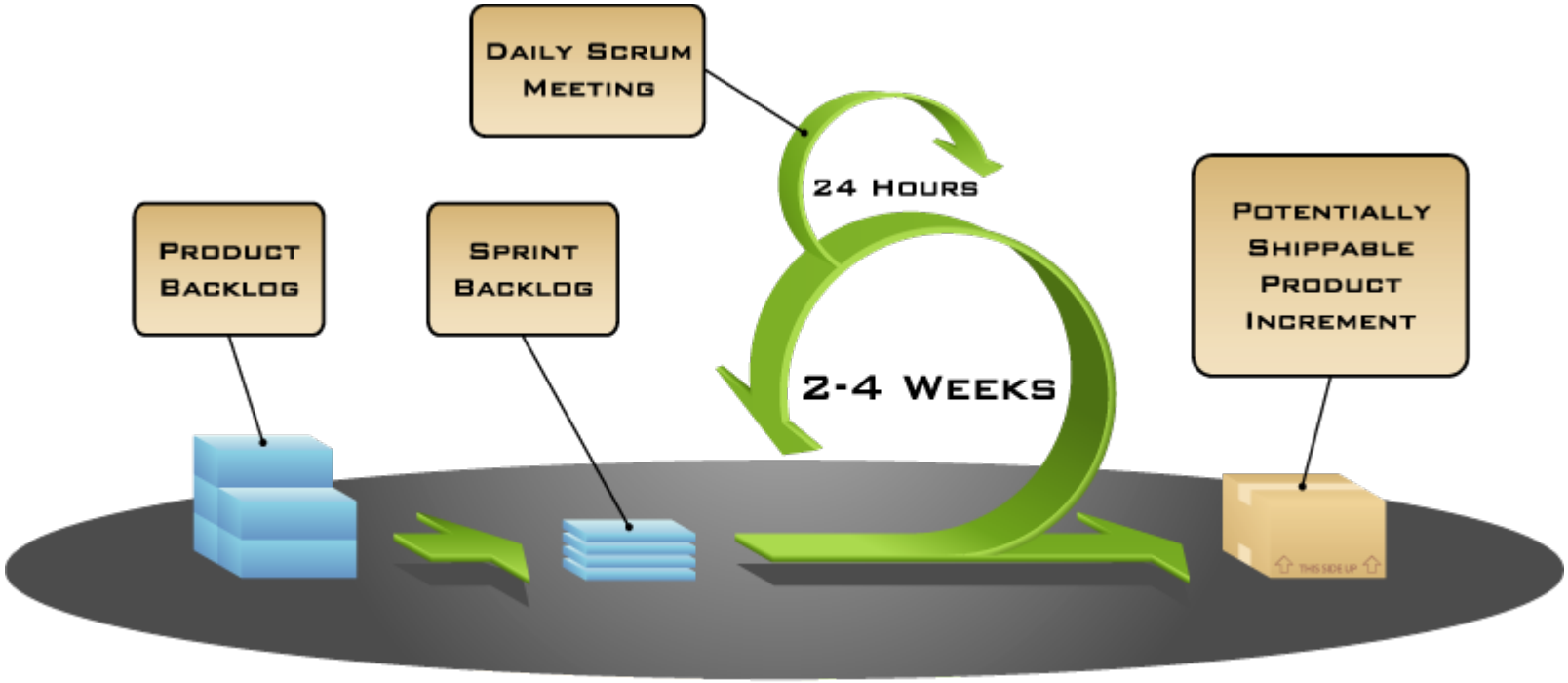
- Iterative, incremental process
- Team-based
- Develop systems/products with changing requirements
- Controls the chaos of conflicting interest and needs
- Improves communication and maximizes cooperation
- Protects team from disruptions and impediments

Scrum Roles

- Product Owner
  - Maintains, prioritizes Product Backlog
  - Make decisions for customers and users
  - Responsible for vision, ROI, and releases
- Team
  - Self-organizing, 7 +/- 2 people, cross-functional
  - Best experts available
  - Cost and commit to work, and responsible for delivering
- Scrum Master
  - Project manager, Coach, and/or Player-Coach
  - Responsible for process and maximizing team productivity
  - Sets up and conducts meetings
    - Sprint Planning, Daily Scrum, and Sprint Release

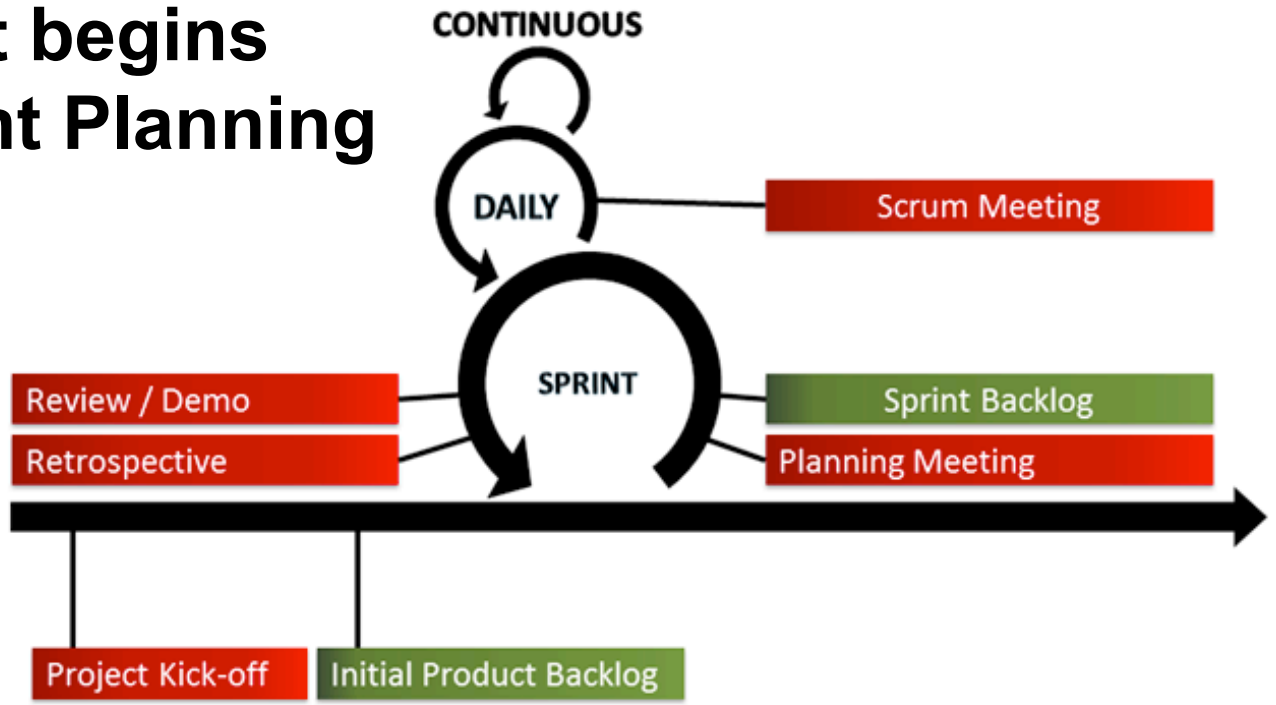
Scrum Process

- Sprint Planning Meeting
- Sprint
- Daily Scrum
- Sprint Review Meeting



Sprint

- A 2-4 week iteration, during which an increment of product functionality is produced
- Scrum master protects team from outside interferences during the Sprint
- Each Sprint begins with a Sprint Planning Meeting

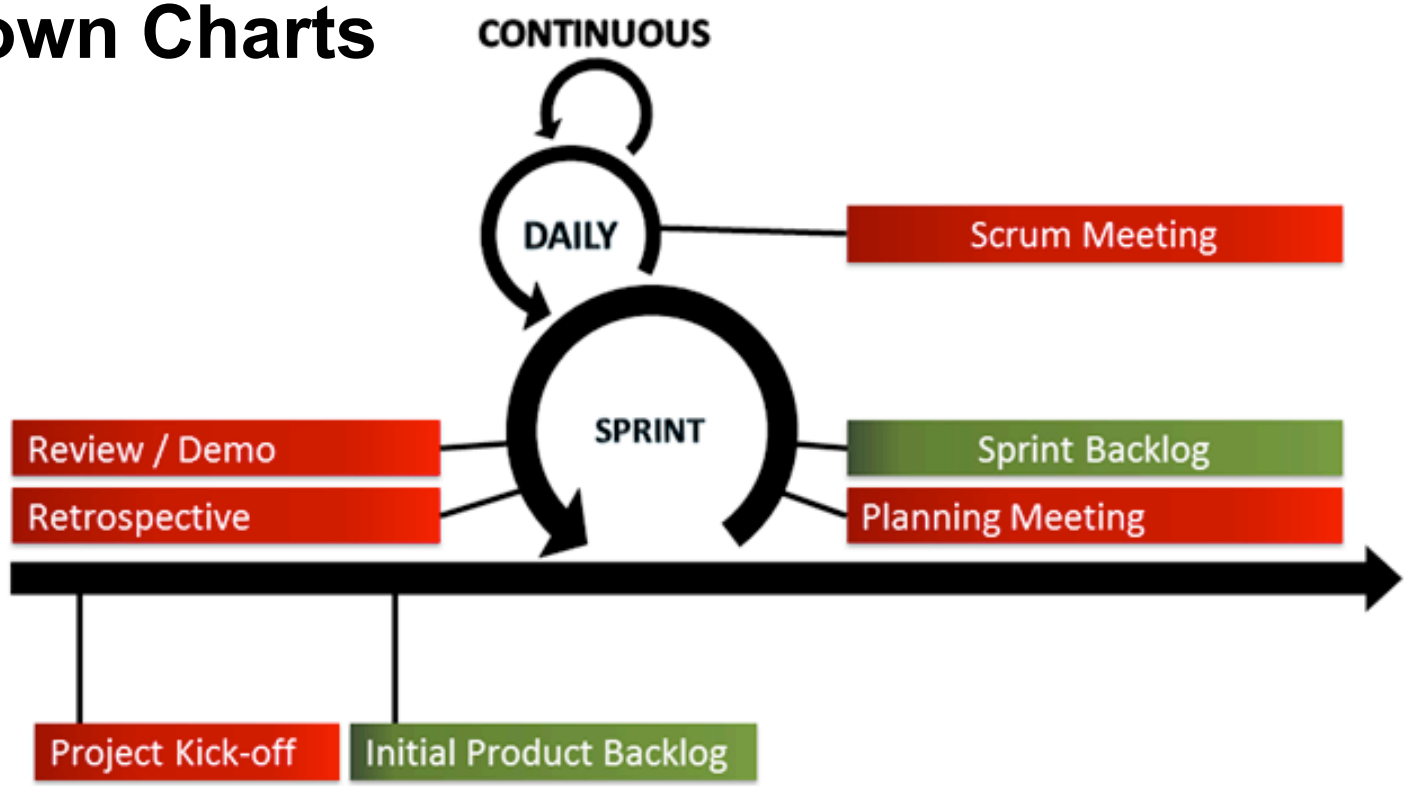


Daily Scrum

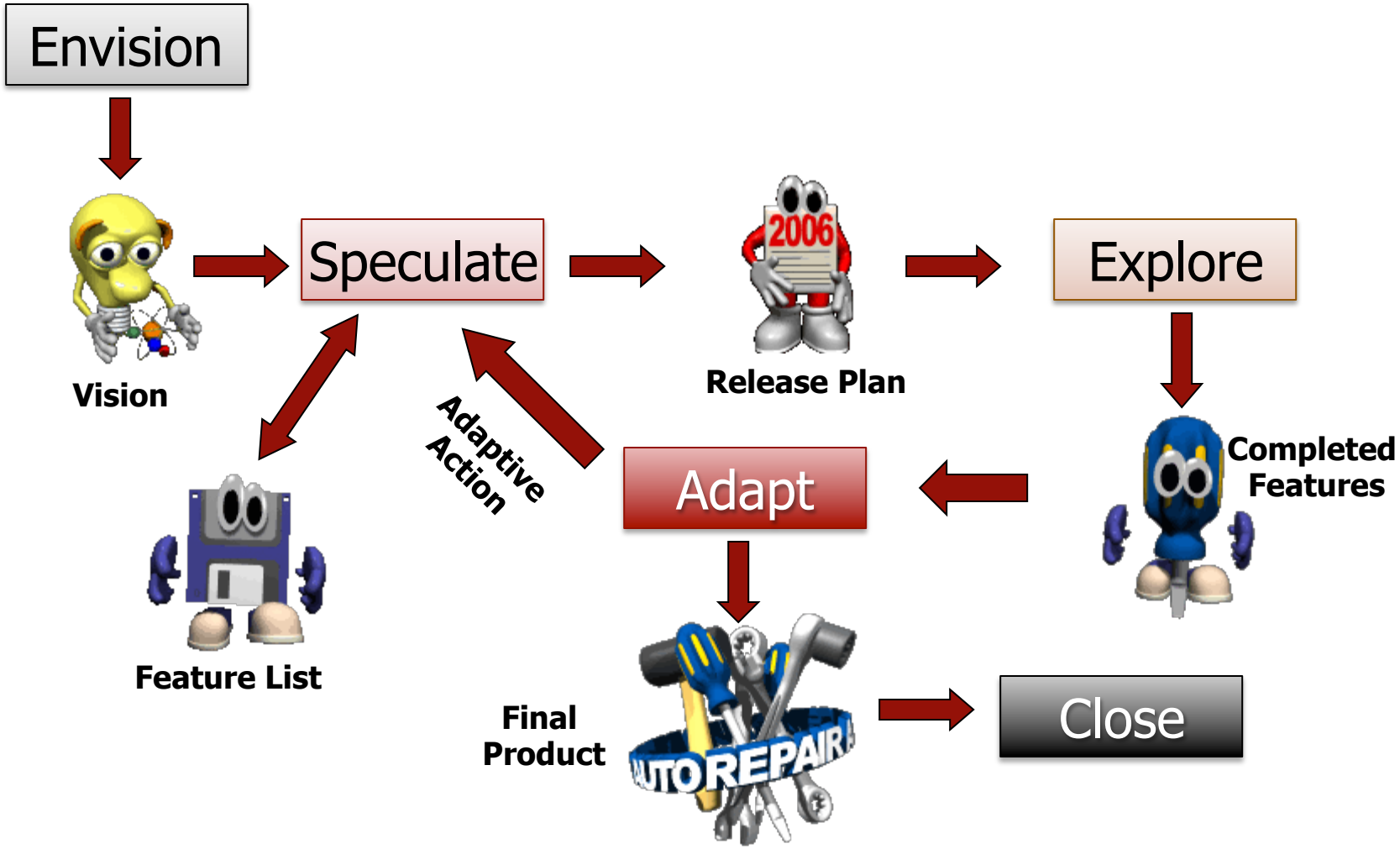
- Is a short (15 minutes long) meeting, which is held every day before the Team starts working
  1. What did you do since the last Scrum?
  2. What are you doing until the next Scrum?
  3. What is stopping you getting on with the work?
- Participants: Scrum Master (which is the chairman), Scrum Team
- “Chickens” and “Pigs”

Scrum Artifacts

- Product Backlog
- Sprint Backlog
- Burn down Charts



Agile Project Management Framework



Envision

Create a Vision for Customers and Project Team

- **Product Vision**
  - Product vision box and elevator test statement
  - Product architecture and guiding principles
- **Project Scope**
  - Objectives and Constraints
  - Project data sheet
- **Approach**
  - Collaboration between project team members
  - Process and practice tailoring
- **Who**
  - Community of customers
  - Product Managers
  - Project Team Members
  - Stakeholders
- **Project Community**
  - Get the right people
  - Customer team-development team interface

Speculate

- Gather initial general requirements
- Define workload
- Create a delivery plan
- Incorporate risk mitigation strategies
- Estimate project costs
- Generate other required administrative and financial information

- Feature Breakdown Structure
  - Product feature list
  - Feature (cards)
  - Performance requirements (cards)
- Release Planning
  - Release, milestone, iteration plan
    - Iteration 0
    - Project Risk Analysis
    - Next Iteration Plan

Explore

- Project Team Perspective
  - Deliver on Vision & Objectives
  - Deliver product features
- Project Mgr. Perspective
  - Manage workload
    - Technical practices
    - Low-cost change
    - Risk mitigation strategies
  - Facilitate
    - Collaboration
    - Self-organizing community
  - Manage team's interactions
    - Customers, product management and other stakeholders
- Project Community
  - Coaching and team development
  - Daily team integration meetings
  - Participatory decision making
  - Daily interactions with the customer team

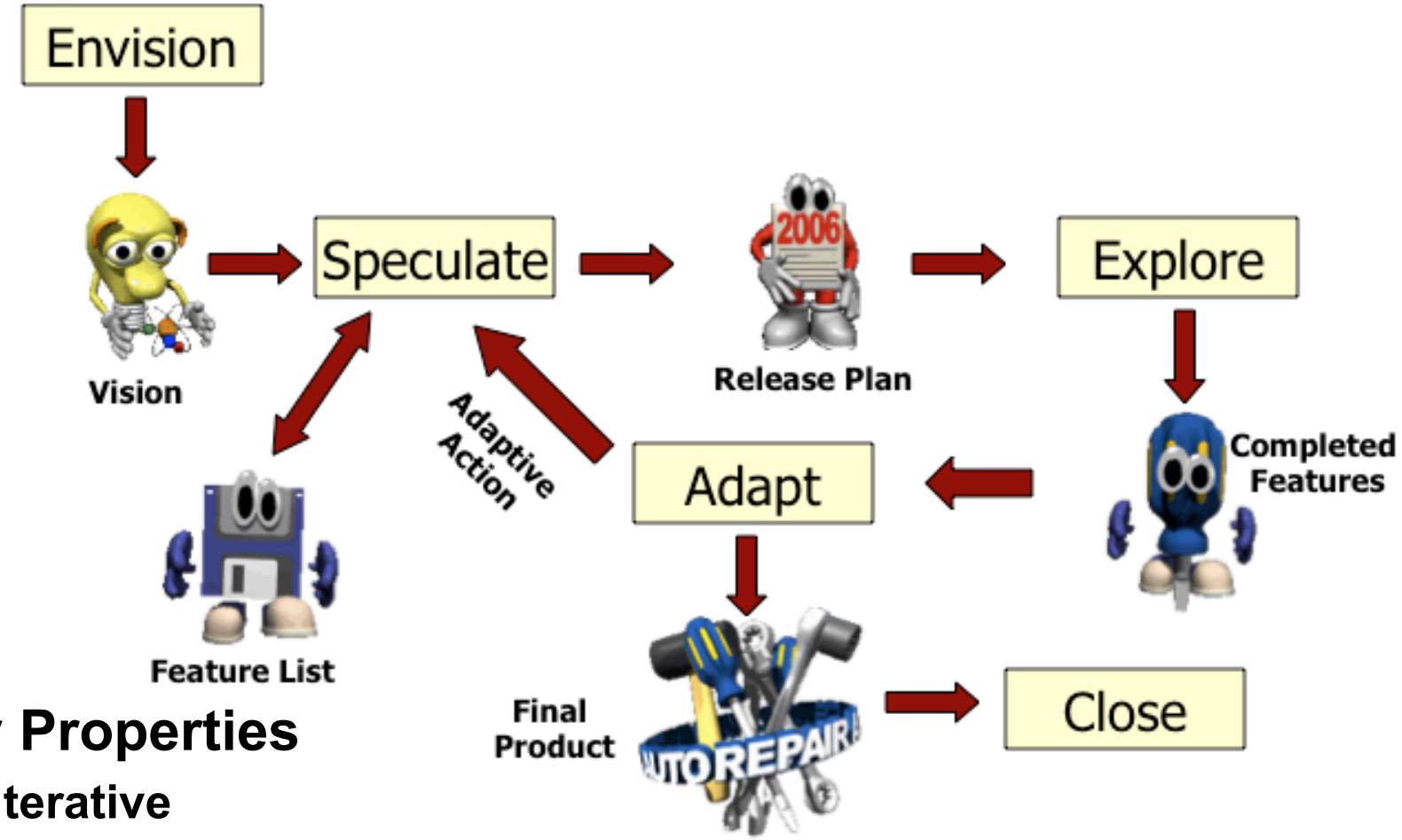
Adapt

- Monitor plans and "Adapt"
  - Control and Correction
- Evaluate and make adaptations
  - Product Functionality
  - Product Quality
  - Team Performance
  - Project Status
- Feed results into next iteration plan
- Customer Focus Groups
- Technical Reviews
- Team Performance Evaluations
- Project Status Reports
  - Parking Lot Reports by Business Activity & Month
  - Delivery Performance (Features vs. Iterations)
  - Features / Value Delivered
  - Product and Technical Quality Assessment
  - Technical Risk and Uncertainties Assessment (Risk Exposure vs. Iterations)
  - Project Schedule (Predicted Finish Week vs. Iterations)

Close

- Project closing is both a Phase & Practice
- End of each iteration
  - Mini project retrospective
    - Intra-team learning of process and team dynamics
- End of project
  - Celebration
  - Clean up open items
  - Project retrospective
    - Inter-team learning shared within organization

Tying it Together



Key Properties

1. Iterative
2. Feature-Driven
3. Value-based

Homework and Reading Reminders

- 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

Final Project Lab

- What is the Assignment?
  - Develop a rational and relatively complete software project management plan for a Junior Project
- What resources do you have?
  - At least one person from the Jr. Project Team
  - Time of 3 people on team
  - Project Advisor and instructor
  - Time (lab, team meetings, …)
- Remember to prepare presentation too…