Software Engineering
Lecture 4/5
Intro to Processes

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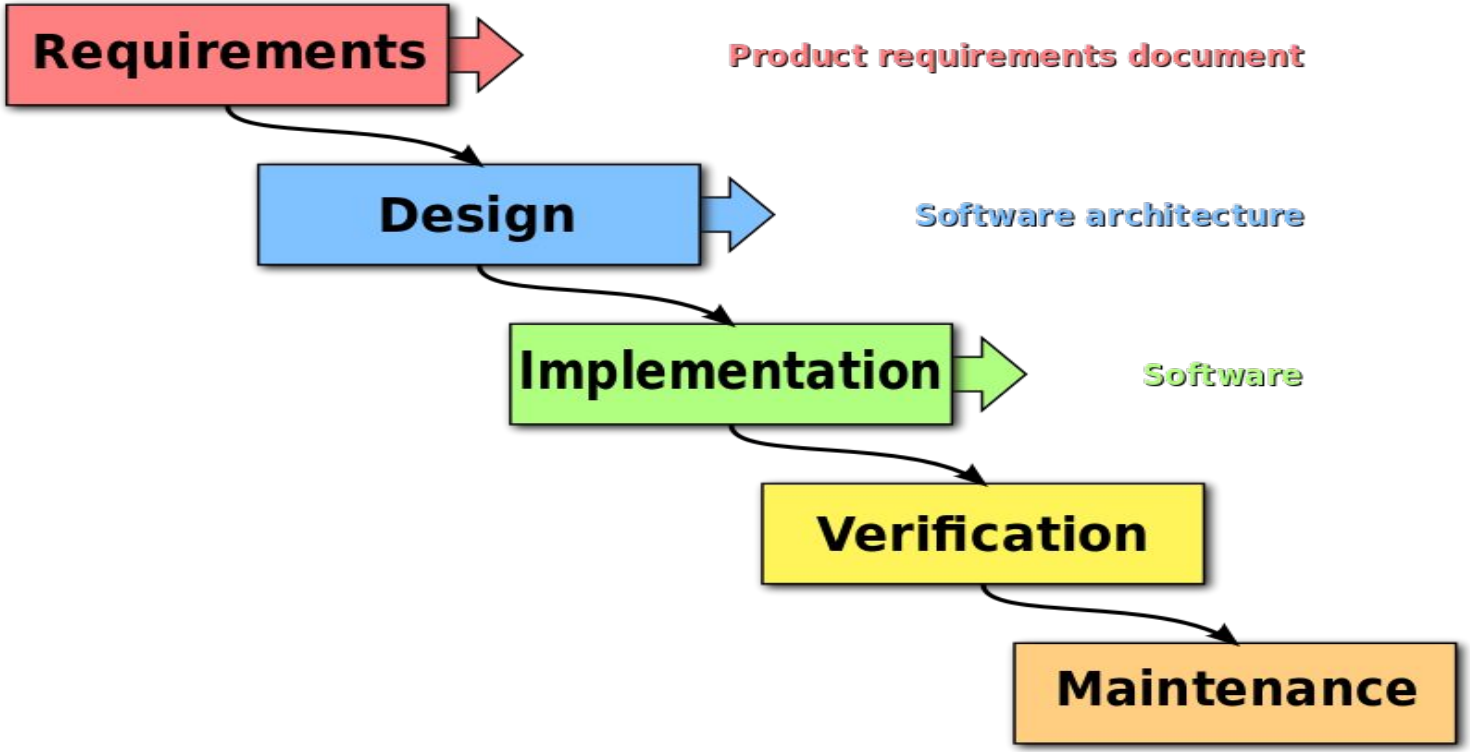
Processes

"In software engineering, a **software development methodology** is a splitting of software development work into distinct phases (or stages) containing activities with the intent of better planning and management." -wikipedia

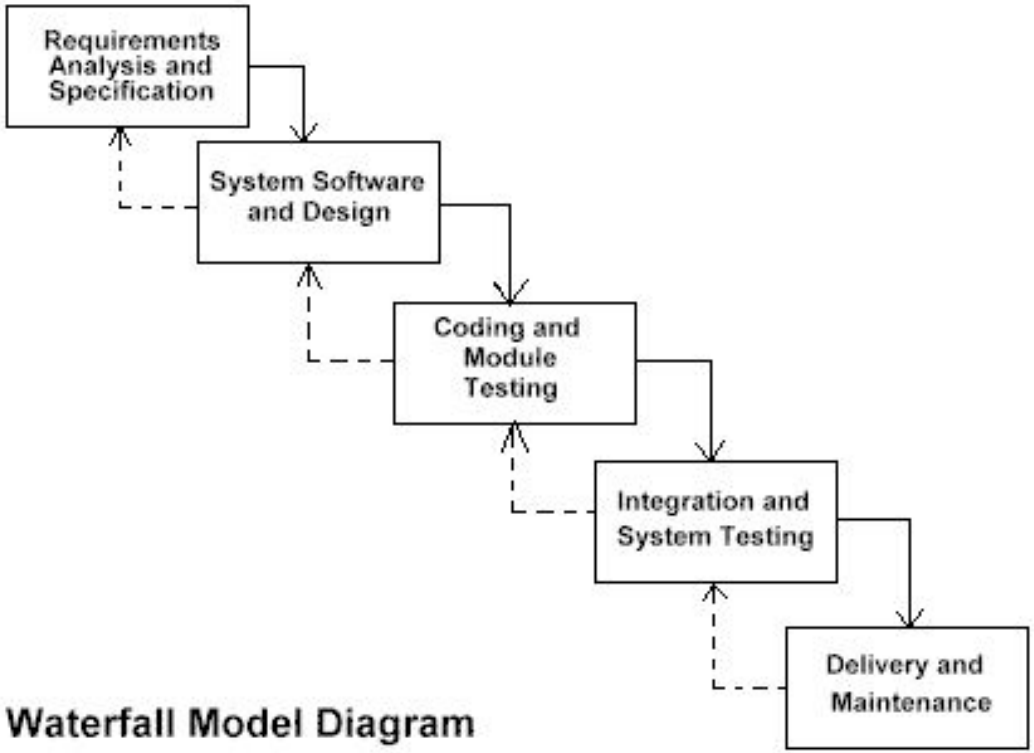
Waterfall

- Divide process into sequential phases
- Classical approach to manufacturing
- Get one stage done completely before moving on

Waterfall


Requirements
Product requirements document
Design
Software architecture
Implementation
Software
Verification
Maintenance

Waterfall with Loops

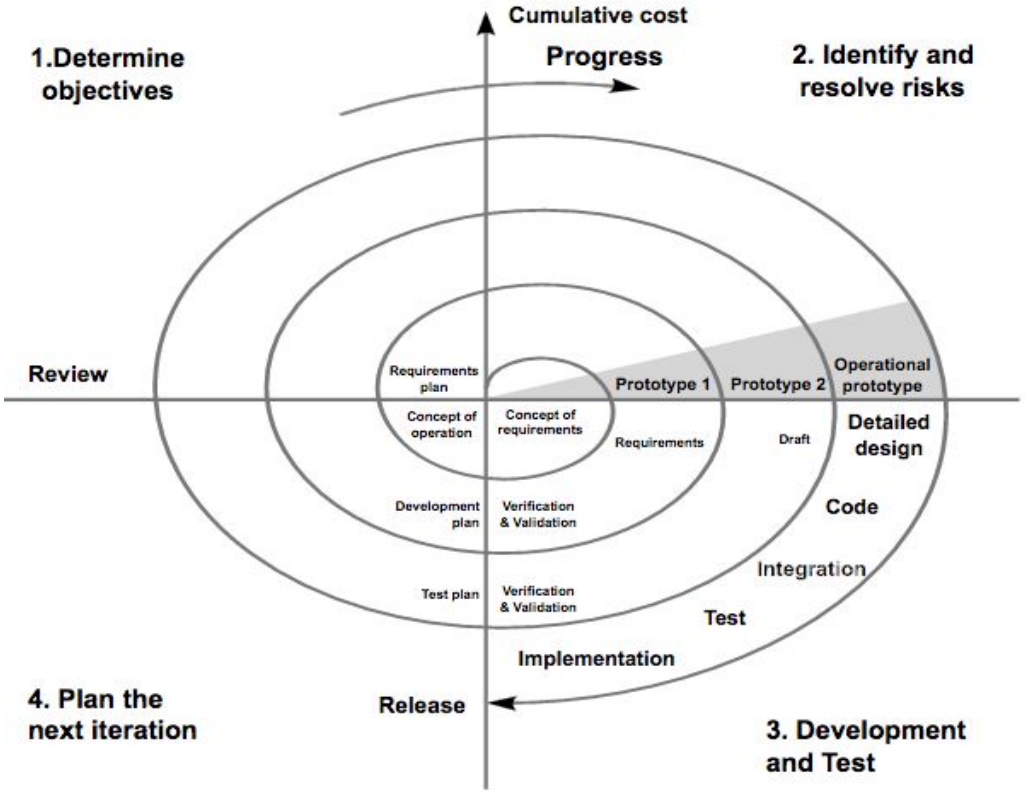


Waterfall Model Diagram

Spiral Models...

- Start with a prototype
- Move through learning, design, implementation, test.
- Each iteration gets more formal

Spiral Models...



Spiral Models...

- Moves from useless prototype to useful product...

Agile Processes

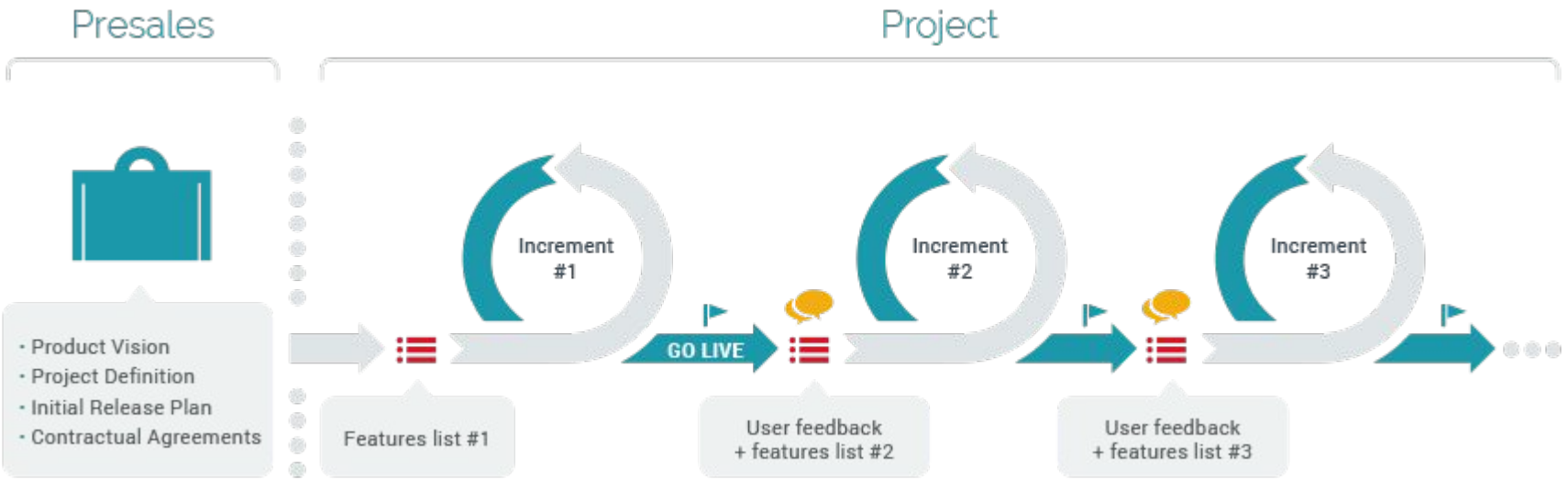
- Move from useful state to useful state
- Think about that
    - What is useful about 10% of a car?
    - Can you make 10% of an airplane? Of a house?
    - Software is unusual this way?

Agile Processes

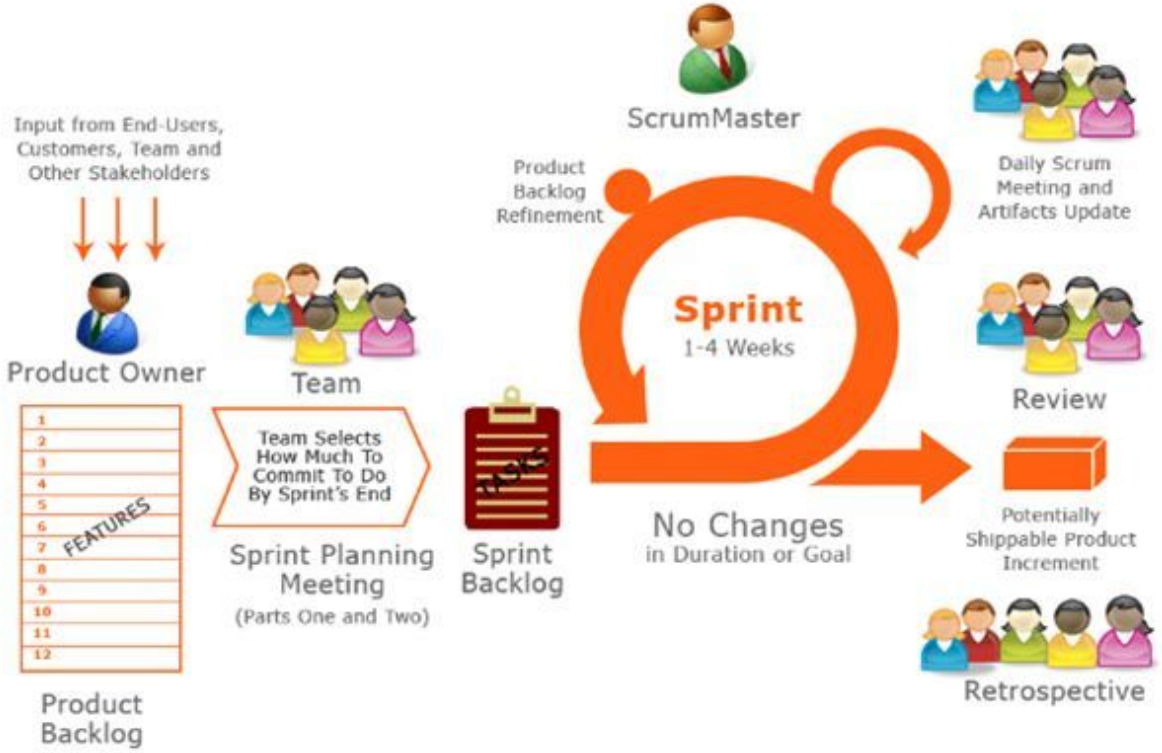
- Build a simple product to completion
- Decide what enhancements to make
- Build the next simple product to completion
- Decide what enhancements to make
- Build the next…

- Eventually, there are no more enhancements worth doing

Agile Processes



Scrum As Agile



Scrum Roles

- Product Owner
  - represents customer interests
  - maintains the backlog

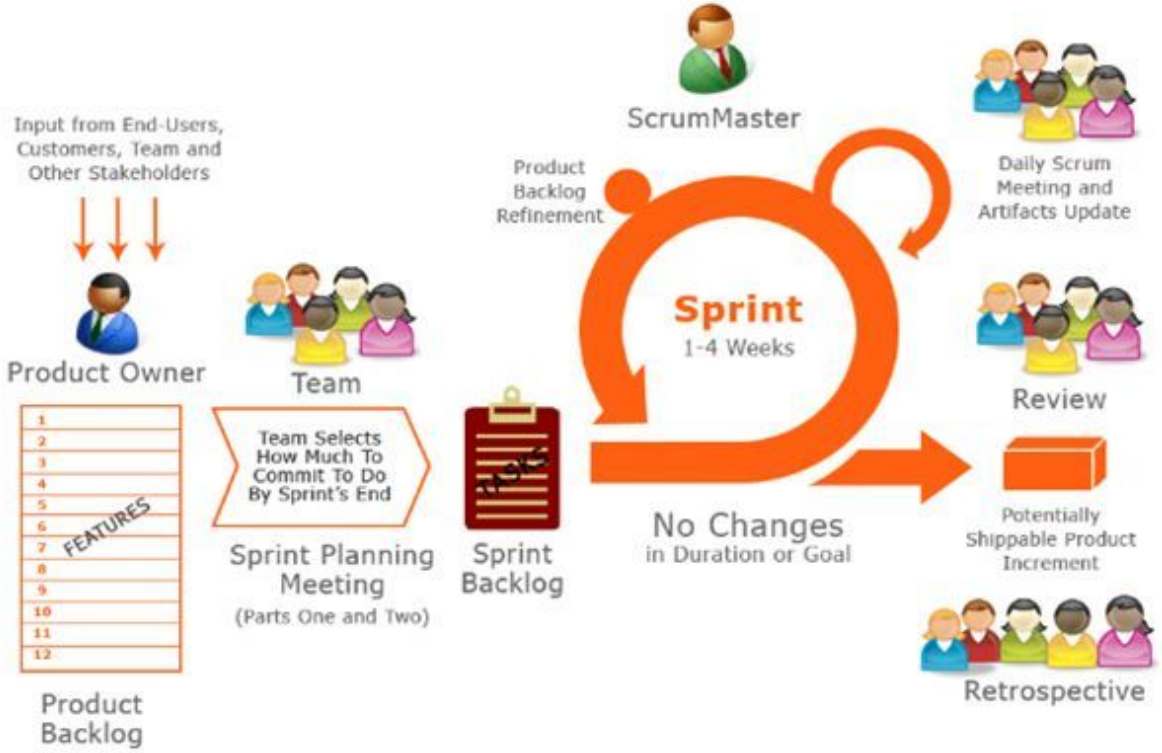
- Development Team
  - Creates the products in the backlog as PSI

- Scrum Master
  - Removes impediments
  - Facilitates delivery
  - Manages the ceremonies

Scrum Ceremonies

- Planning Meeting
  - Review backlog, plan sprint
- Daily Scrum (During Sprint)
  - What did I do yesterday?
  - What will I do today?
  - What impediments exist?
- Sprint Review
  - What did we do?
- Sprint Retrospective
  - How can we improve?

Scrum As Agile



Planning Exercise

1. Create a product backlog for web todo list
    - Add a todo item
    - List the todo items
    - etc.

2. Prioritize the items in the backlog

3. "Task out" a one-week sprint
    - How long will each thing take?
    - How many resources do you have

4. Turn in your team's sprint plan and other artifacts

Reading

- https://en.wikipedia.org/wiki/Software_development_process
- https://en.wikipedia.org/wiki/Scrum_(software_development)