Rapid prototyping & other stuff

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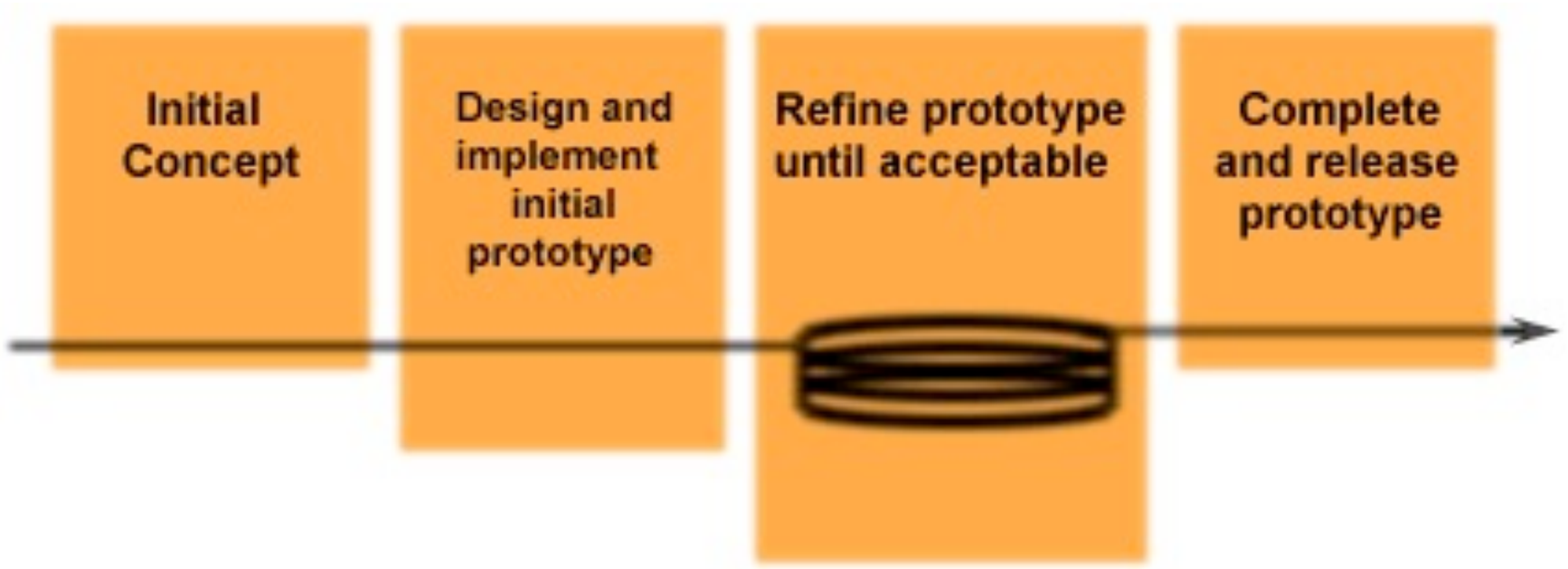
Metropolia

Generic Project Life Cycle

Phase	Tasks
Defining (or Scoping)	Defining the high-level objectives and requirements of the project
Planning	What, who, when? With what resources?
Executing	Organising people Allocating resources Scheduling the work
Monitoring/Controlling	Tracking of progress Taking corrective actions Reflecting and improving continuously (lean)
Closing	Evaluation of what was done Information for later projects

Prototyping



Develop a prototype, show it to your customer, and refine it based on the feedback

Strenghts

Flexibility (with changing requirements)

Reduced time and cost

Weaknesses

Can distract developers from properly analyzing the complete project

Can easily result in the code-and-fix development.

- Good for applications with lots of user interaction
- Most Agile Methods rely heavily upon prototyping techniques.

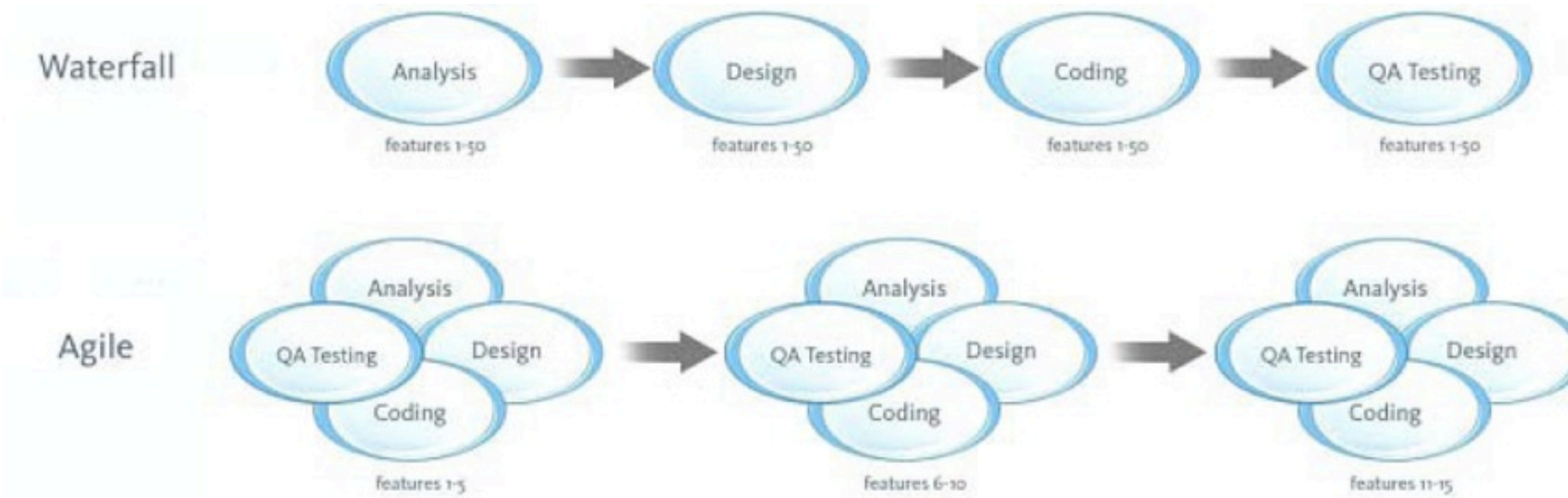
Lean software development

- Lean software development is an adaptation of Lean manufacturing principles and practices
  - Based on the Toyota Production System
- Core lean principles
  - Eliminate waste
    - Extra features (unnecessary functionality)
    - Partially done work
    - Task switching
    - Delays (waiting for work)
    - Bureaucracy
    - Defects
  - Focus on learning and improvement
  - Build quality in the process
  - Decide as late as possible
  - Deliver as fast as possible (customer value)
  - Empower the team

Outline

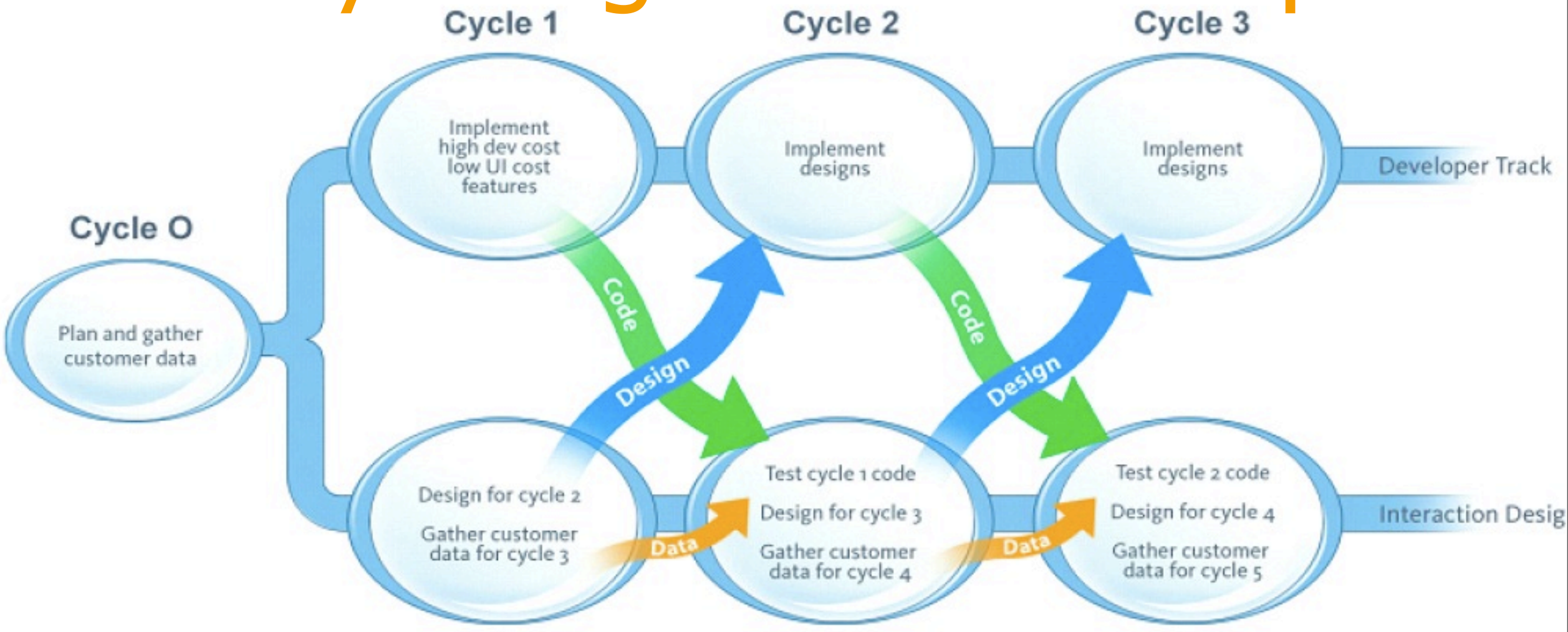
- Process = UX + Agile ideas
- Wireframes -> mock-ups, prototypes
  - Method: parallel design
  - Rapid prototyping
  - General testing method(s): user testing (+ think aloud), walk through,

Process - UX + Agile ideas



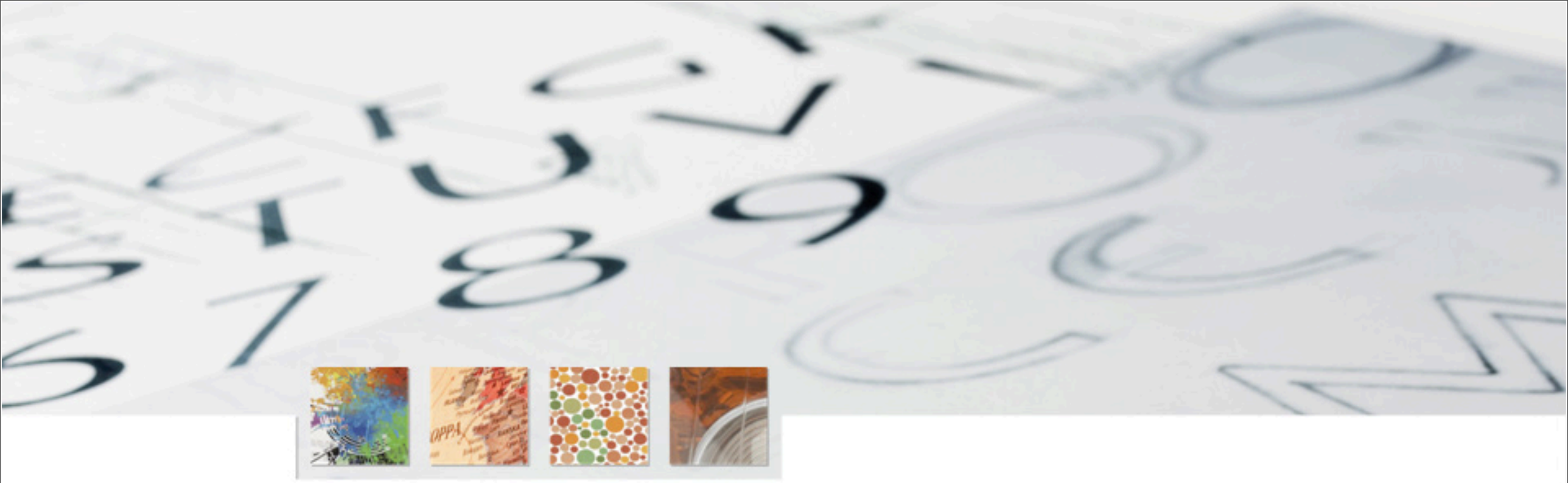
Adapting Usability Investigations for Agile User-Centered Design. Desiree Sy . Journal of Usability Studies, Volume 2, Issue 3, May 2007, pp. 112-132 Last retrieved October 4, 2009 from: http://www.upassoc.org/upa_publications/jus/2007may/agile-ucd.html

Usability in Agile - broken apart



3 parallel tasks going on:

1. To iterate on designs, usability tests on mock-ups one cycle ahead of developers– after OK, implement
2. Continue contextual inquiry for the future components
3. Usability test the implemented working version

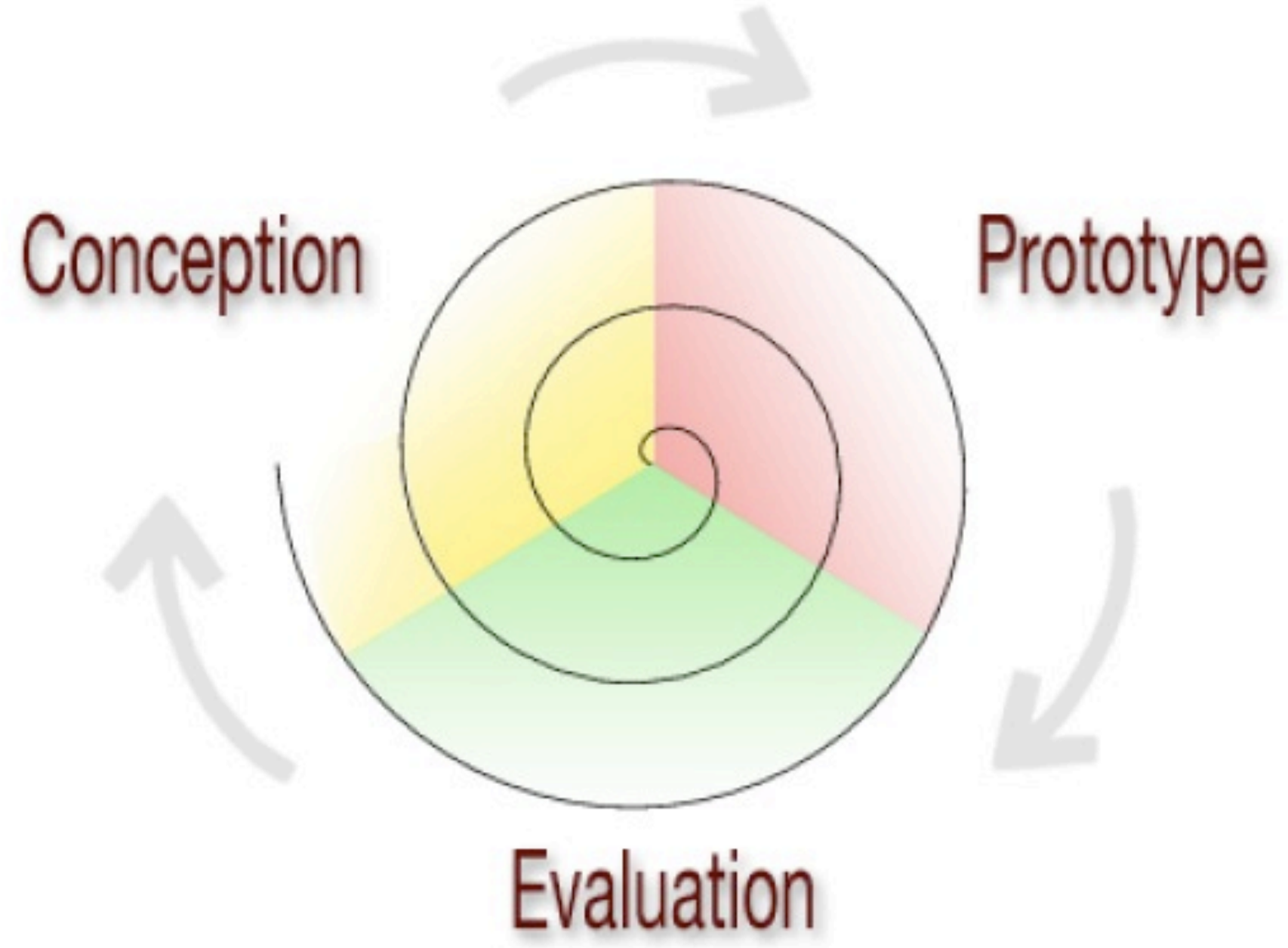


Wireframes -> mock-ups, prototypes

Wireframes -> mock-ups, prototypes

- Prototypes can range from extremely simple sketches (low-fidelity prototypes) to full systems that contain nearly all functionality of the final application (high-fidelity prototypes)
- Prototypes are cheap, must be created in a short amount of time
- For large projects, they are often mandatory.
- Righetti Xavier(2006). “What is rapid prototyping ? Study of Prototyping Tools for User Interface Design”. Bachelor Thesis. http://thefabric.com/articles/RapidUIProto.pdf

Wireframes -> mock-ups, prototypes



Wireframes/mock-ups

- http://theresaneil.wordpress.com/2009/09/16/iphone3g-design-resources/

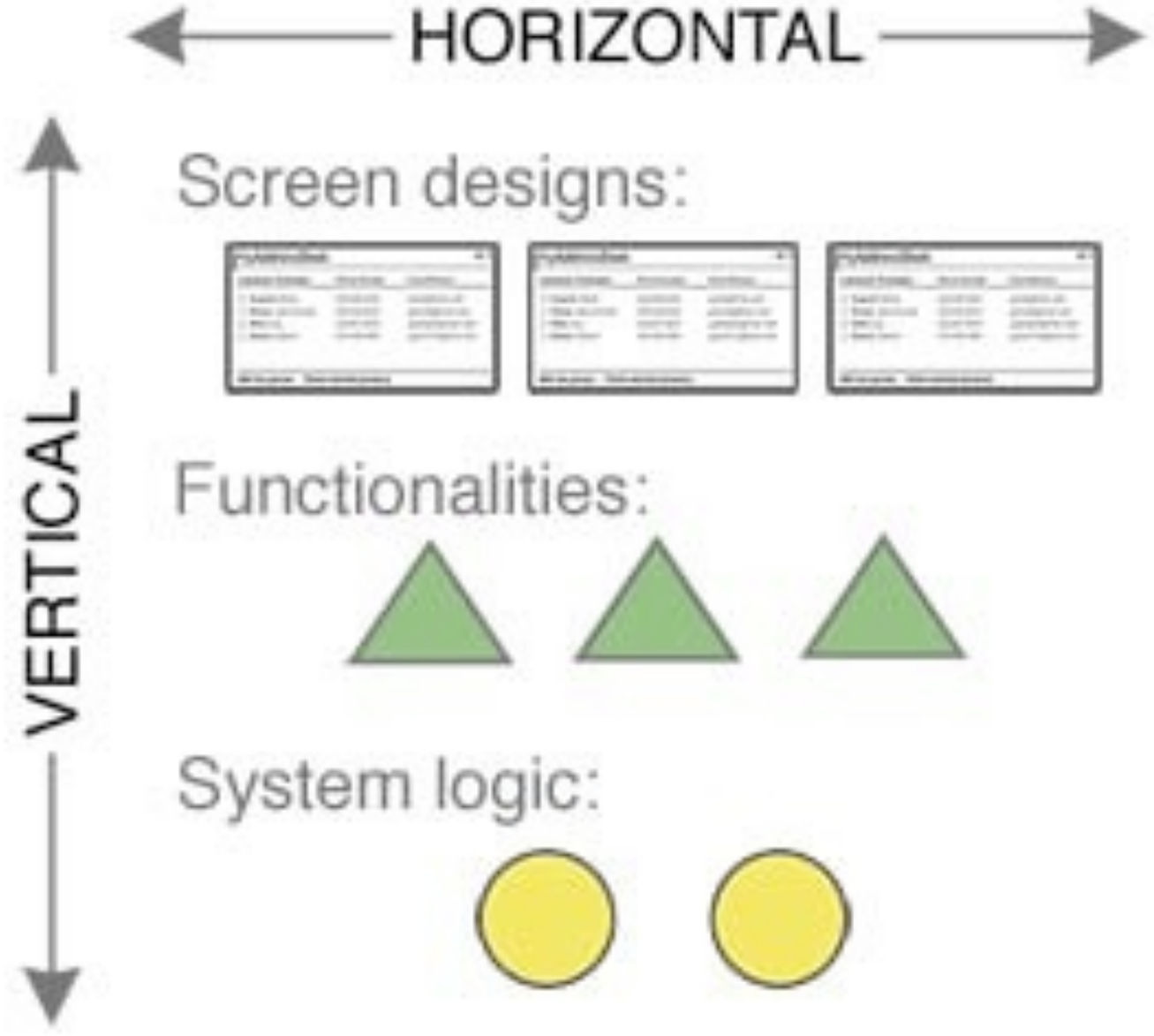
Concept design + planning

- Paper prototypes or other mock-ups are used to clarify **requirements** and enable draft interaction designs, logic design and screen designs **to be very rapidly simulated and tested**
- These can be made out of paper, cardboard, line drawing in vector graphics programs, as bit map images, from collages, etc

Benefits of prototyping

- Potential usability problems can be detected at a very early stage in the design process before any code has been written.
- Communication between designers and users is promoted.
- (Paper) prototypes are quick to build / refine, thus enabling rapid design iterations.
- Only minimal resources and materials are required.

Horizontal / vertical



Stages in design

- Concept Design: Every possible approaches are sketched out.
  - The validity of each sketches is verified following the usability requirements and the goals agreed.
  - At the end, the best approach is selected.
- Interaction Design: In this step, the structure of the UI must be set by naming interaction flows. Method: e.g. Affinity Diagramming, each action can be written on a Post-It note, and organised in clusters.
  - The Post-It notes are then rearranged to simplify user tasks.
- Screen Design: Creating rough designs of the screens' structure.
  - These layouts are linked together and usability test is performed with a user.
- Testing: A user is asked to follow a **realistic scenario/tasks** on the sketched out prototype.

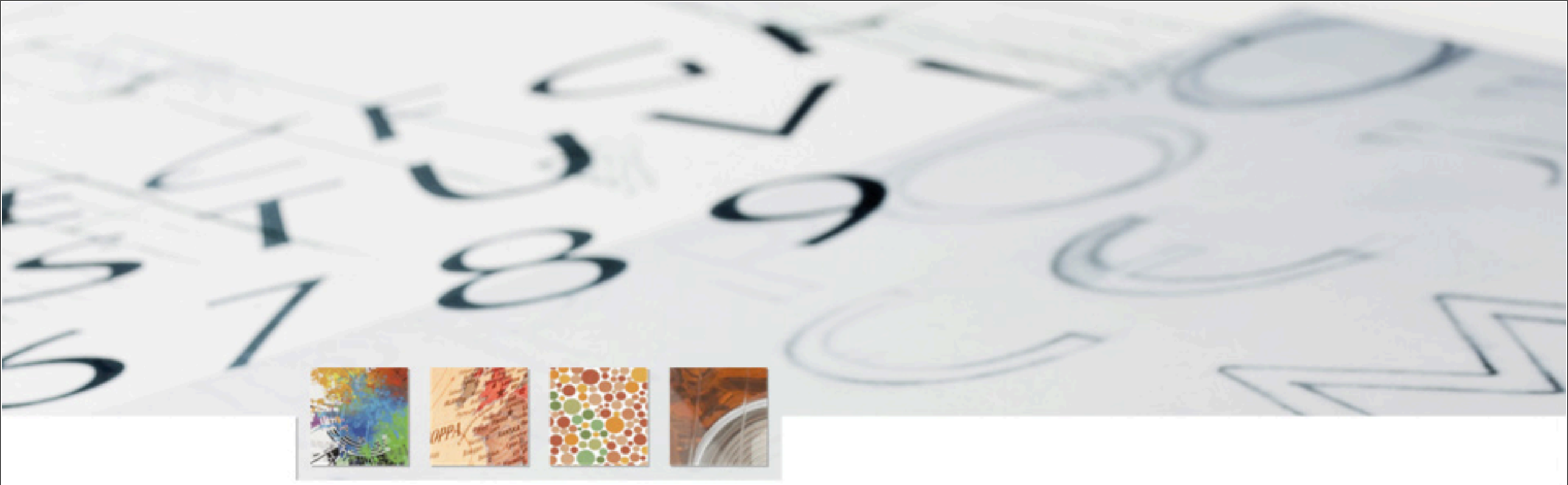
Parallel design

Parallel design

- http://www.usabilitynet.org/tools/parallel.htm
- http://www.ucc.ie/hfrg/projects/respect/urmethods/parallel.htm
- http://www.useit.com/papers/parallel_design/
- http://www.usability.gov/methods/design_site/parallel.html
- GUI TIPS: http://www.humanfactors.com/downloads/keytips3.asp
- http://designmodo.com/mobile-patterns/

Design Libraries

- http://wiki.fluidproject.org/display/fluid/Design+Patterns
- http://ui-patterns.com/
- http://uipatternfactory.com/
- http://quince.infragistics.com/UX-Design-Patterns.aspx
- http://developer.yahoo.com/ypatterns/
- http://www.welie.com/patterns/
- http://www.designingsocialinterfaces.com/patterns.wiki/index.php?title=Main_Page



Testing

Using things is Easy.....

Testing with prototypes

http://www.youtube.com/playlist?list=PL518DCFBAB129139D&feature=view_all

What methods do we have...

- Competitor analysis:http://www.usabilitynet.org/tools/competitoranalysis.htm
- Interviews:http://www.usabilitynet.org/tools/interviews.htm
- User observation:http://www.usabilitynet.org/tools/userobservation.htm
- Evaluate existing system:http://www.usabilitynet.org/tools/existing.htm
- Heuristic evaluation:http://www.usabilitynet.org/tools/expertheuristic.htm
- Evaluate prototype:http://www.usabilitynet.org/tools/evaluate.htm
- Diagnostic evaluation:http://www.usabilitynet.org/tools/diagnostic.htm
- Performance testing:http://www.usabilitynet.org/tools/testing.htm
- Subjective Assessment:http://www.usabilitynet.org/tools/subjective.htm