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Just Another Way To Learn

A UX process lifecycle template



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INTRODUCTION

- Lifecycle

- is a structured framework consisting of a series of stages and corresponding activities—such as analysis, design, implementation, and evaluation—that characterize the course of evolution of, in this context, the full evolution of an interaction design or a complete system or product.

- Iterative Process

- An iterative process is one in which all or part is repeated for the purpose of exploring, fixing, or refining a design or the work product of any other lifecycle activity. It is the “wash, rinse, and repeat” characteristic of HCI.

The Concept of Process

- What process means to us and others
 - the term “process” connotes a set of activities and techniques
 - the term “lifecycle” suggests a skeleton structure on which you can hang specific process activities, imbuing them with temporal relationships
- What is a process?
 - Process provides a *repeatable formula* to create a quality product. Process also alleviates risk by externalizing the state of development for observation, measurement, analysis, and control—otherwise, communication among the project roles about what they are doing is difficult because they do not have a shared concept of what they should be doing.

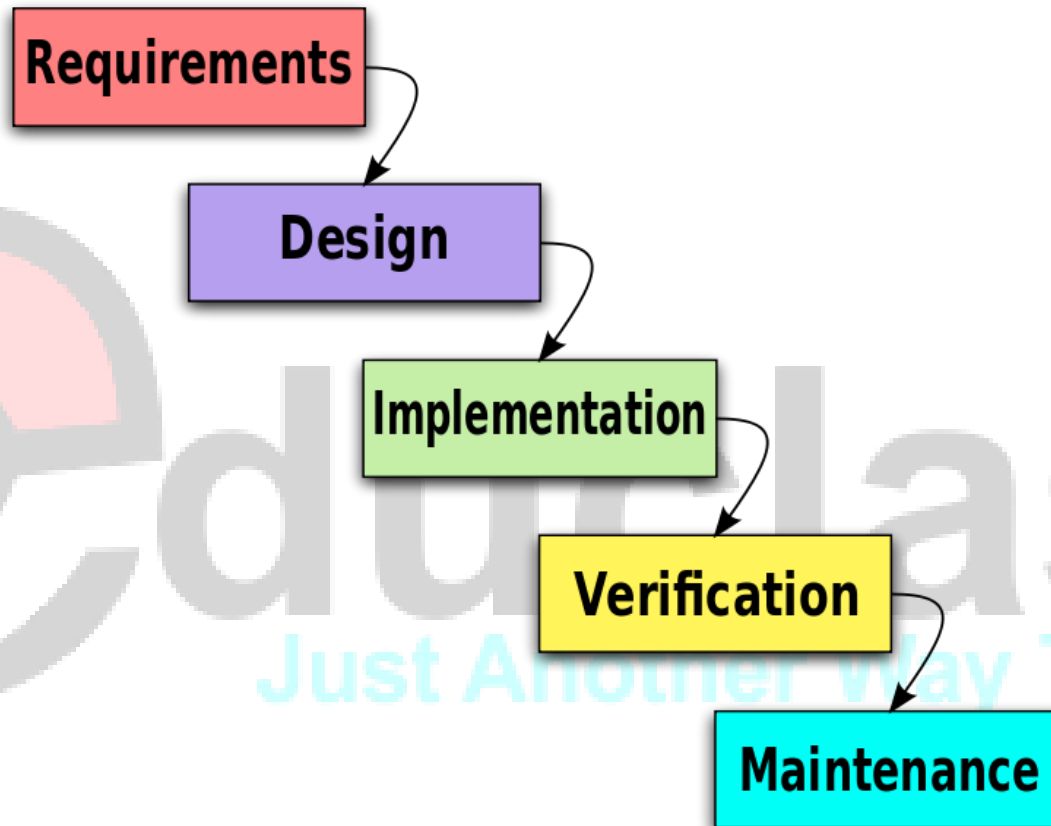
The Concept of Process

- Why do we need a process?
 - An approach without a process will be idiosyncratic; practitioners will emphasize their own favorite process activities while other important process activities fall through the cracks. What they do is dictated and limited by their own experience. They will try to apply the activities and techniques they know as much as possible; they have hammers and everything looks like nails.
- A process is not necessarily rigid
 - Remember that a process does not necessarily imply a rigid structure or even a linear one.
 - we should add that experts with lots of experience can interpret a process and take appropriate shortcuts and other creative liberties with it

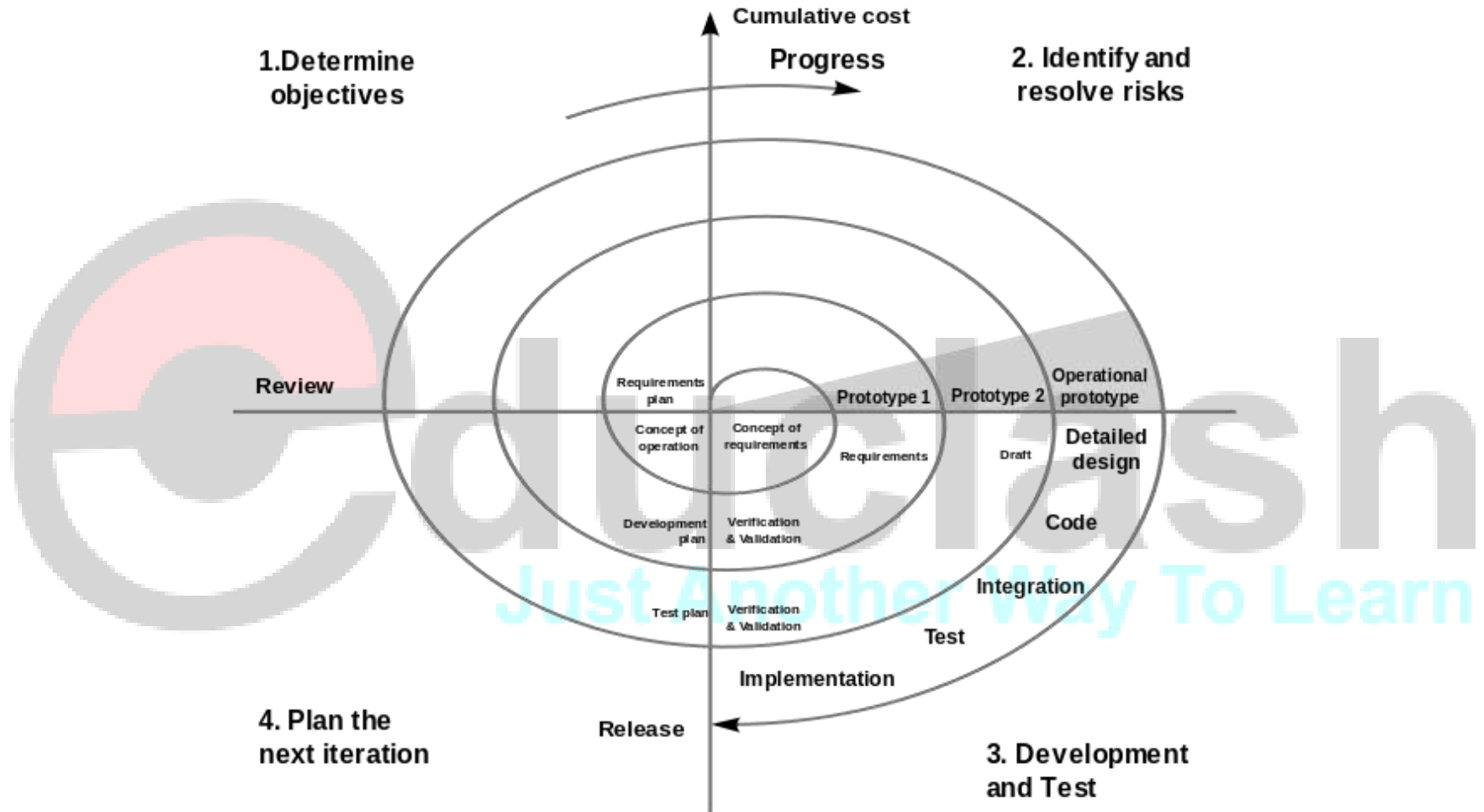
The Concept of Process

- Influences on Our Lifecycle Process
 - the Waterfall (Royce, 1970) software engineering lifecycle
 - the Spiral Model (Boehm, 1988) of software engineering
 - Mayhew's usability engineering lifecycle (Mayhew, 1999b)
 - the Star lifecycle of usability engineering (Hartson & Hix, 1989)
 - the Wheel (Helms et al., 2006) lifecycle concept
 - the LUCID framework of interaction design (Kreitzberg, 2008)

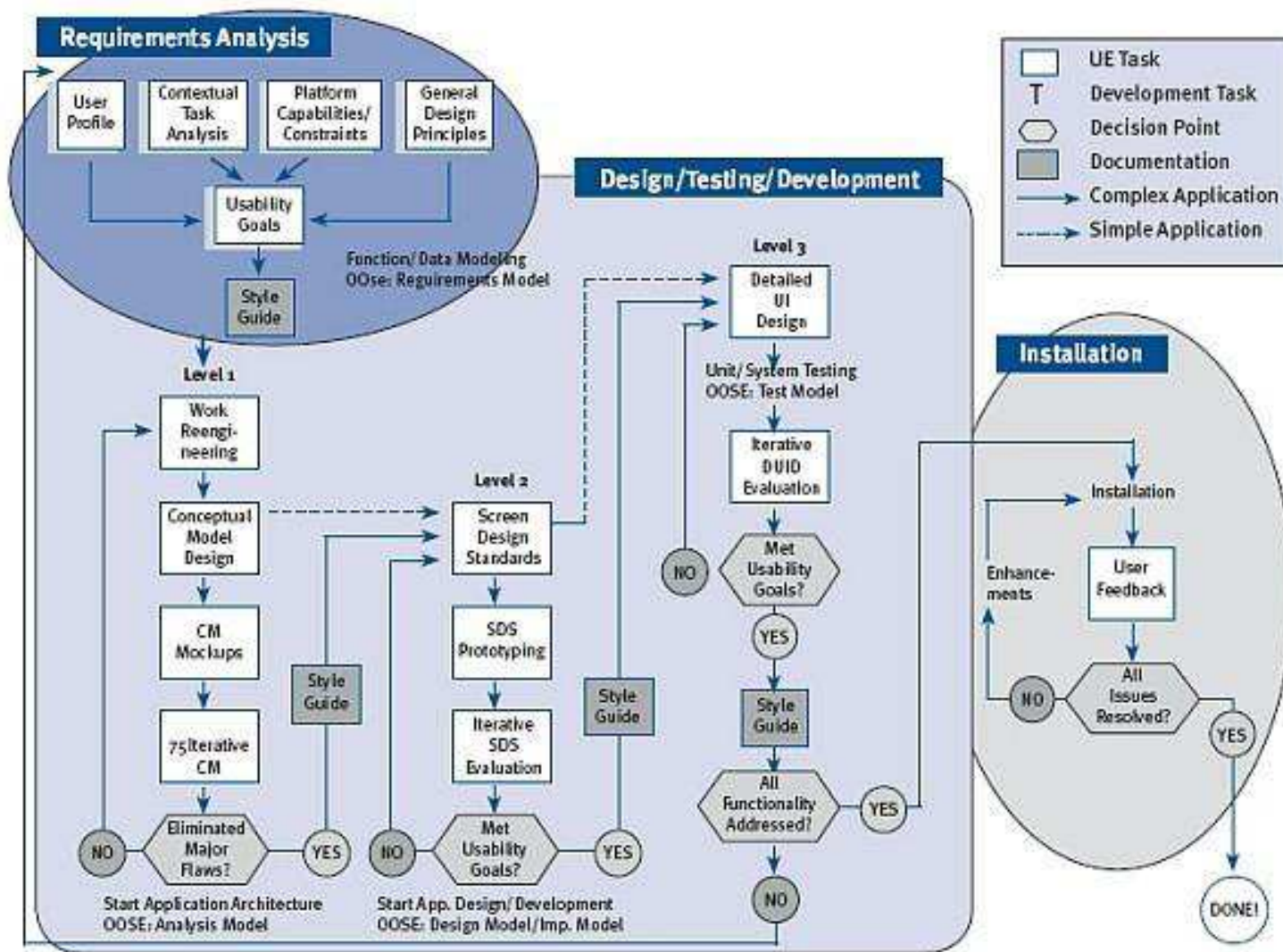
the Waterfall (Royce, 1970) software engineering lifecycle



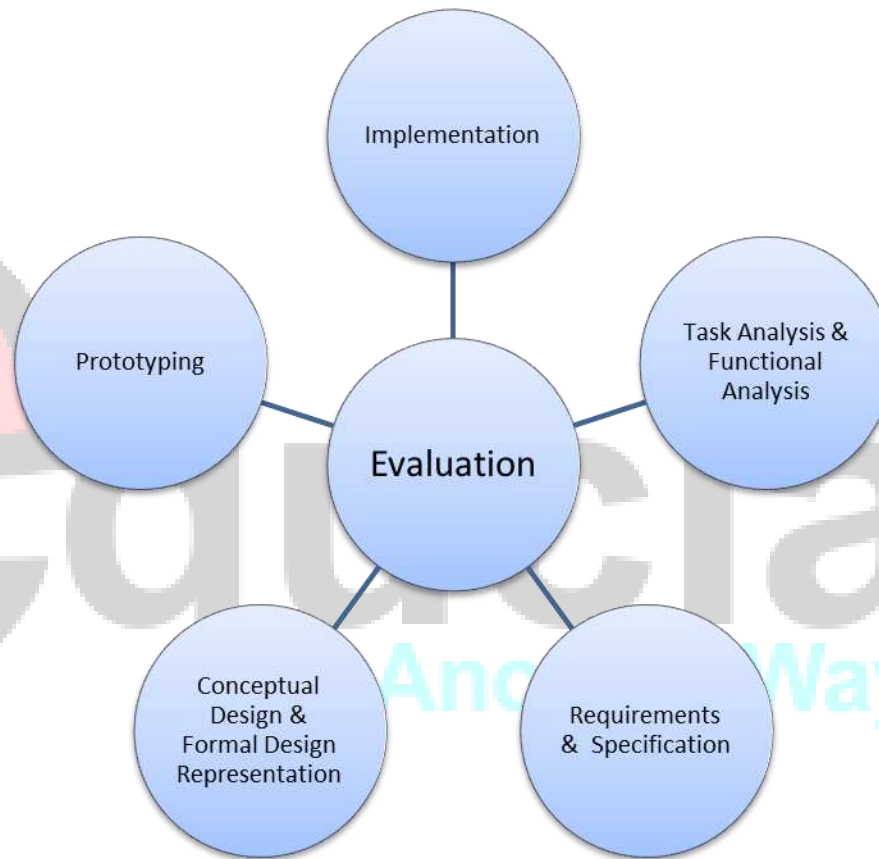
the Spiral Model (Boehm, 1988) of software engineering



Mayhew's usability engineering lifecycle (Mayhew, 1999b)

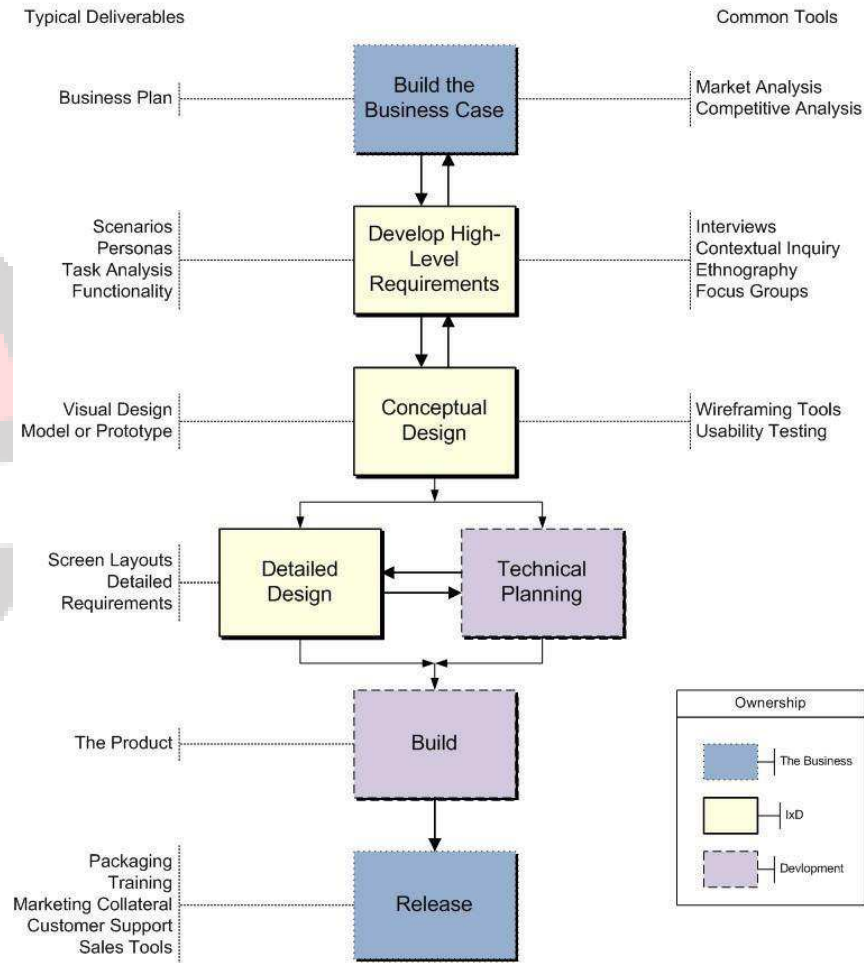


the Star lifecycle of usability engineering (Hartson & Hix, 1989)



the LUCID framework of interaction design (Kreitzberg, 2008)

LUCID Framework: Product Development Process



A UX PROCESS LIFECYCLE TEMPLATE

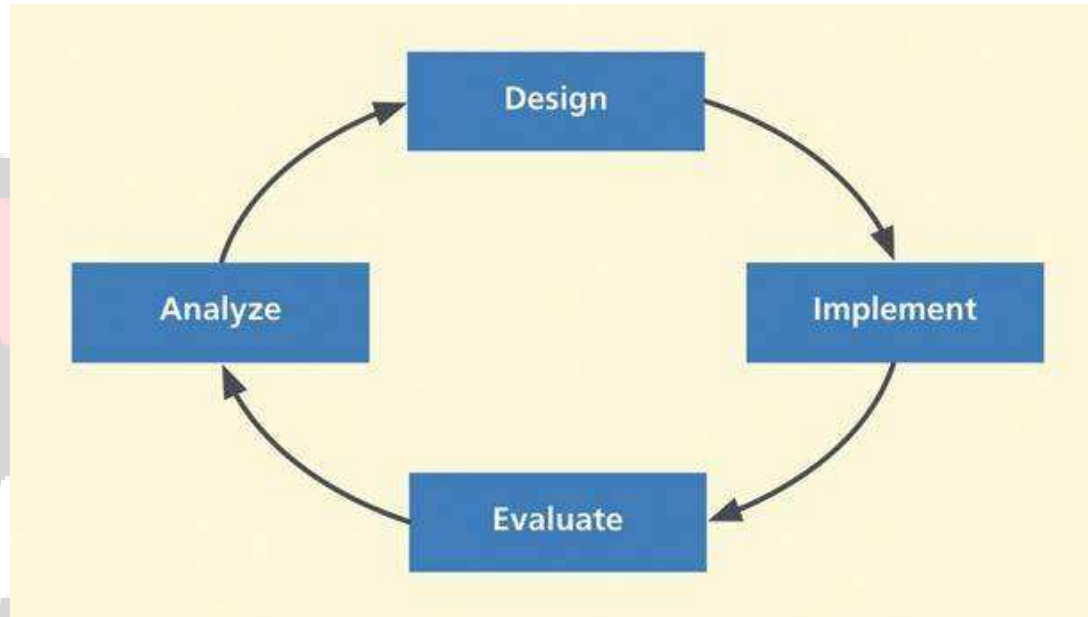
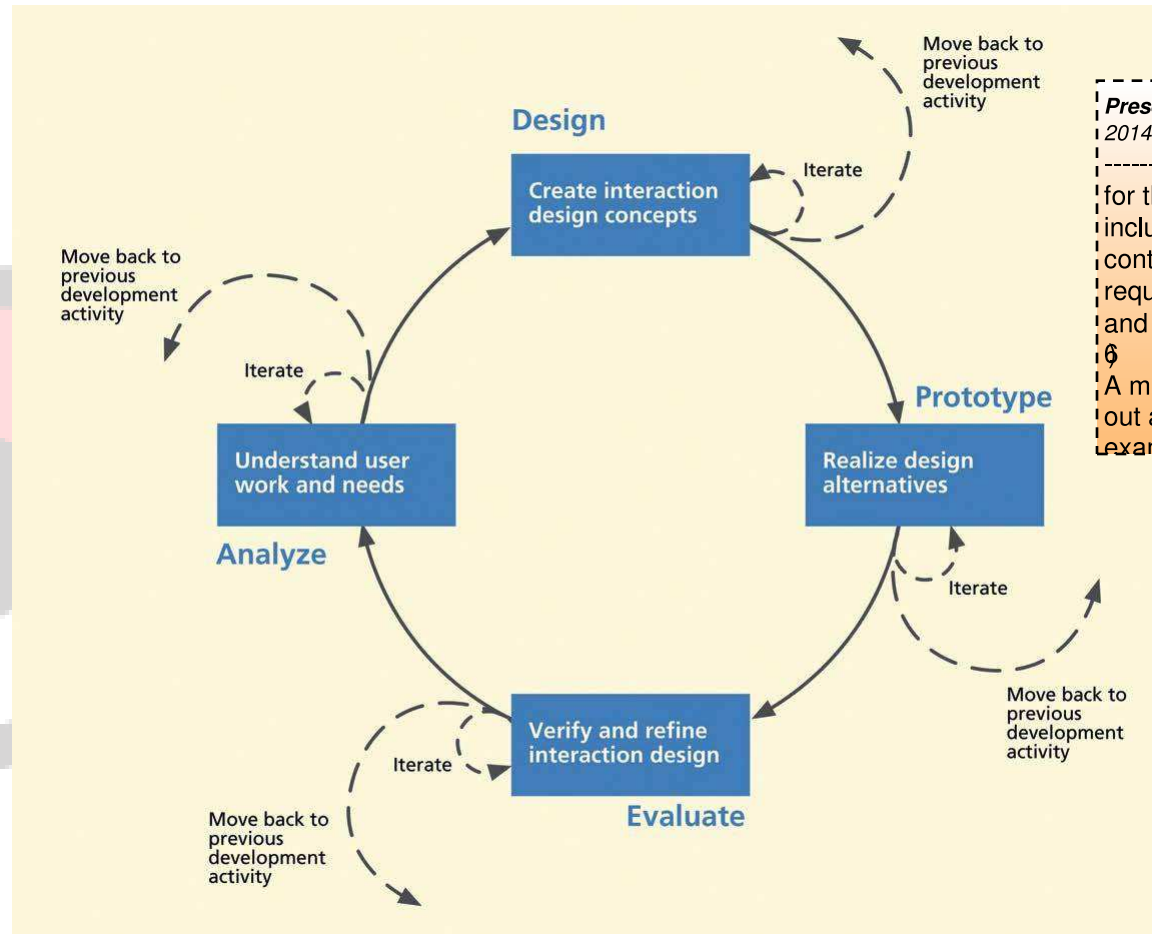


Figure 2-1
Universal abstract activity cycle of Analyze, Design, Implement, and Evaluate.

A UX PROCESS LIFECYCLE TEMPLATE



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for the analysis activity, possible methods include contextual inquiry (Chapter 3), contextual analysis (Chapter 4), requirements extraction (Chapter 5), and contextual data modeling (Chapter 6).

A method is a general approach to carrying out an activity or sub-activity. For example

Figure 2-2

The Wheel: A lifecycle template illustrating the process part of this book.

A UX PROCESS LIFECYCLE TEMPLATE

- **UX Process Activities**

- **Analyze:** Understanding the business domain, user work, and user needs
 - Chapter 3. contextual inquiry, 4. contextual analysis, 5. Extracting requirements, 6. Design-informing models
- **Design:** Creating conceptual design, interaction behavior, and look and feel
 - Chapter 7. design ideation and sketching
- **Prototype:** Realizing design alternatives
 - Prototype building is often done in parallel with, and in conjunction with, design.
- **Evaluate:** Verifying and refining the interaction design
 - Chapter 13. rapid evaluation methods, Chapter 12., 14~17. fully rigorous methods

A UX PROCESS LIFECYCLE TEMPLATE

- Think Aloud Technique

- The think aloud technique is a qualitative data collection technique in which user participants verbally externalize their thoughts about their interaction experience, including their motives, rationale, and perceptions of UX problems. By this method, participants give the evaluator access to an understanding of their thinking about the task and the interaction design.

A UX PROCESS LIFECYCLE TEMPLATE

- **Horizontal Prototype**
 - A horizontal prototype is very broad in the features it incorporates, but offers less depth in its coverage of functionality.
- **Vertical Prototype**
 - A vertical prototype contains as much depth of functionality as possible in the current stage of the project, but only for a narrow breadth of features.
- **T Prototype**
 - In a “T” prototype much of the design is realized at a shallow level (the horizontal top of the T), but a few parts are done in depth (the vertical part of the T). A “T” prototype combines the advantages of both horizontal and vertical, offering a good compromise for system evaluation.
- **Local Prototype**
 - A local prototype represents the small area where horizontal and vertical slices intersect. A local prototype, with depth and breadth both limited, is used to evaluate design alternatives for a particular isolated interaction detail.

A UX PROCESS LIFECYCLE TEMPLATE

- Flow among UX Process Activities

- Flow not always orderly

- Managing the process with activity transition criteria

- when to leave an activity

- where to go after any given activity

- when to revisit a previous process activity

- when to stop making transitions and proceed to production

- Why do we even need iteration?

- the UX process must be, and always will need to be, iterative. The design domain is so vast and complex that there are essentially infinite design choices along many dimensions, affected by large numbers of contextual variables.

A UX PROCESS LIFECYCLE TEMPLATE

- Flow among UX Process Activities

- Iteration is not enough

- the answer is about balance of all four process activities of Figure 2-1—analyze, design, implement, and evaluate—for a given amount of resources.

- Start iteration early

- The earlier the interaction design iteration begins, the better.
 - Typically, early cycles of iteration are devoted to establishing the basic underlying essentials of the design, including look and feel, and behavior, before getting into design details and their refinement.

CHOOSING A PROCESS INSTANCE FOR YOUR PROJECT

- **Project Parameters: Inputs to Process Choices**

- Among the many possible factors you could consider in choosing a process to instantiate the lifecycle template are:

- risk tolerance
- project goals
- project resources
- type of system being designed
- development organizational culture
- stage of progress within project

- **Process Parameters: Outputs of Process Choices**

- Process parameters or process choices include a spectrum from fully rigorous UX processes (Chapters 3 through 17) through rapid and so-called discount methods.
- Choices also can be made from among a large variety of data collection techniques.
- Finally, an agile UX process is available as an alternative choice for the entire lifecycle process, a process in which you do a little of each activity at a time in a kind of spiral approach.

CHOOSING A PROCESS INSTANCE FOR YOUR PROJECT

- Mapping Project Parameters to Process Choices

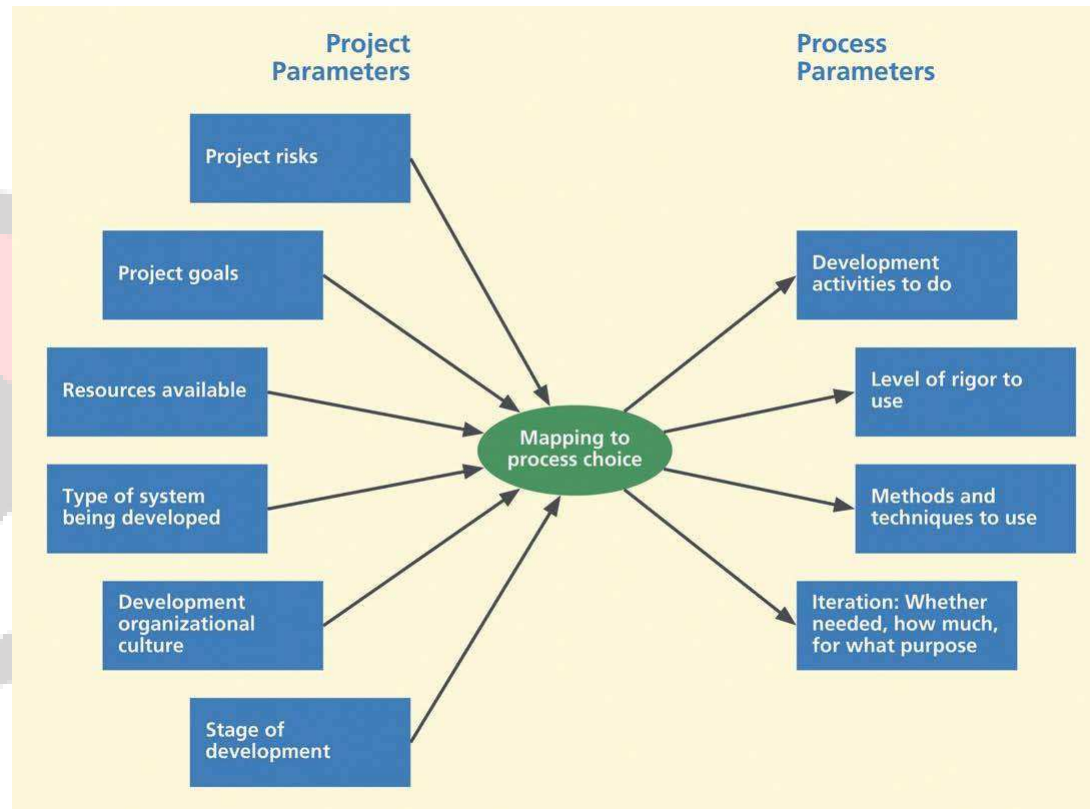


Figure 2-4
Mapping project parameters to process parameter choices.

THE SYSTEM COMPLEXITY SPACE

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In Figure 2-5 we show such a “system complexity space” defined by the dimensions of interaction complexity and domain complexity.

Interaction complexity, represented on the vertical axis, is about the intricacy or elaborateness of user actions, including cognitive density, necessary to accomplish tasks with the system.

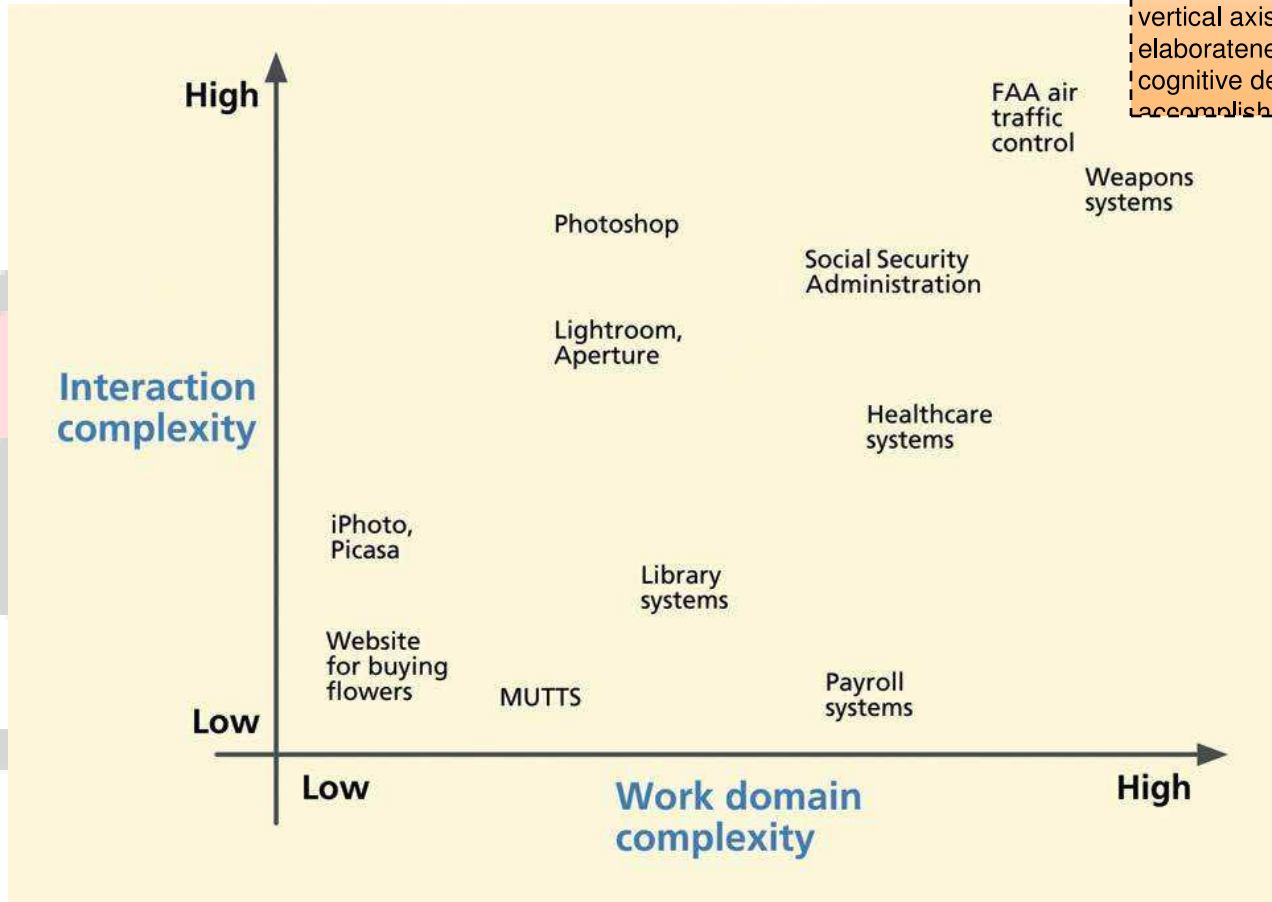


Figure 2-5
Example systems within the system complexity space
(interaction complexity vs. domain complexity).

THE SYSTEM COMPLEXITY SPACE

- **The Influence of System Type on Process Choice**

- **Complex interaction, complex work domain**

- Systems appearing in this quadrant are often associated with the greatest need to manage risk. Such projects will usually entail doing all the process activity boxes in detail, along with lots of iteration. These are the development projects with the greatest compliance requirements, the most weight given to traceability, and the highest importance of error avoidance.

- **Simple interaction, complex work domain**

- In the UX process, interaction simplicity means that less attention to tasks descriptions is needed, but the domain complexity calls for more attention to contextual inquiry and analysis, modeling, and requirements for insight into internal system complexity and workflow among multiple work roles. Physical modeling and the social model of Chapter 6 become more important to gain access to the essentials of how people and information interact within the system.

THE SYSTEM COMPLEXITY SPACE

- **The Influence of System Type on Process Choice**

- Simple interaction, simple work domain

- Projects in this quadrant are far less engineering oriented; design will be based almost entirely on a design-thinking approach.

- Complex interaction, simple work domain

- Attention in this quadrant is needed for interaction design—myriad tasks, screen layouts, user actions, even metaphors. Rigorous formative evaluation is needed for conceptual design and detailed interaction.

- The commercial product perspective within the system complexity space

- where you find relatively low domain complexity but variable interaction complexity. The more interaction complexity, the more sophisticated users can be.

MEET THE USER INTERFACE TEAM

- **User researcher**: involved with contextual inquiry and other work domain analysis activities. You may also need other roles even more specialized, such as a social anthropologist to perform in-depth ethnographic field studies.
- **Users, user representatives, customers, and subject matter experts**: used as information sources in contextual inquiry and throughout the lifecycle.
- **User interaction designer**: involved with ideation and sketching, conceptual and detailed design, and low-fidelity prototyping activities.
- **UX analyst or evaluator**: involved in planning and performing UX evaluations, analyzing UX problems, and suggesting redesign solutions.
- **Visual/graphic designer**: involved in designing look and feel and branding and helping interaction designers with visual aspects of designs.
- **Technical writer**: involved in documentation, help system design, and language aspects of interaction designs.
- **Interactive prototype programmer**: involved in programming interactive high fidelity UX design prototypes.
- **UX manager**: someone with overall responsibility for the UX process.

MEET THE USER INTERFACE TEAM

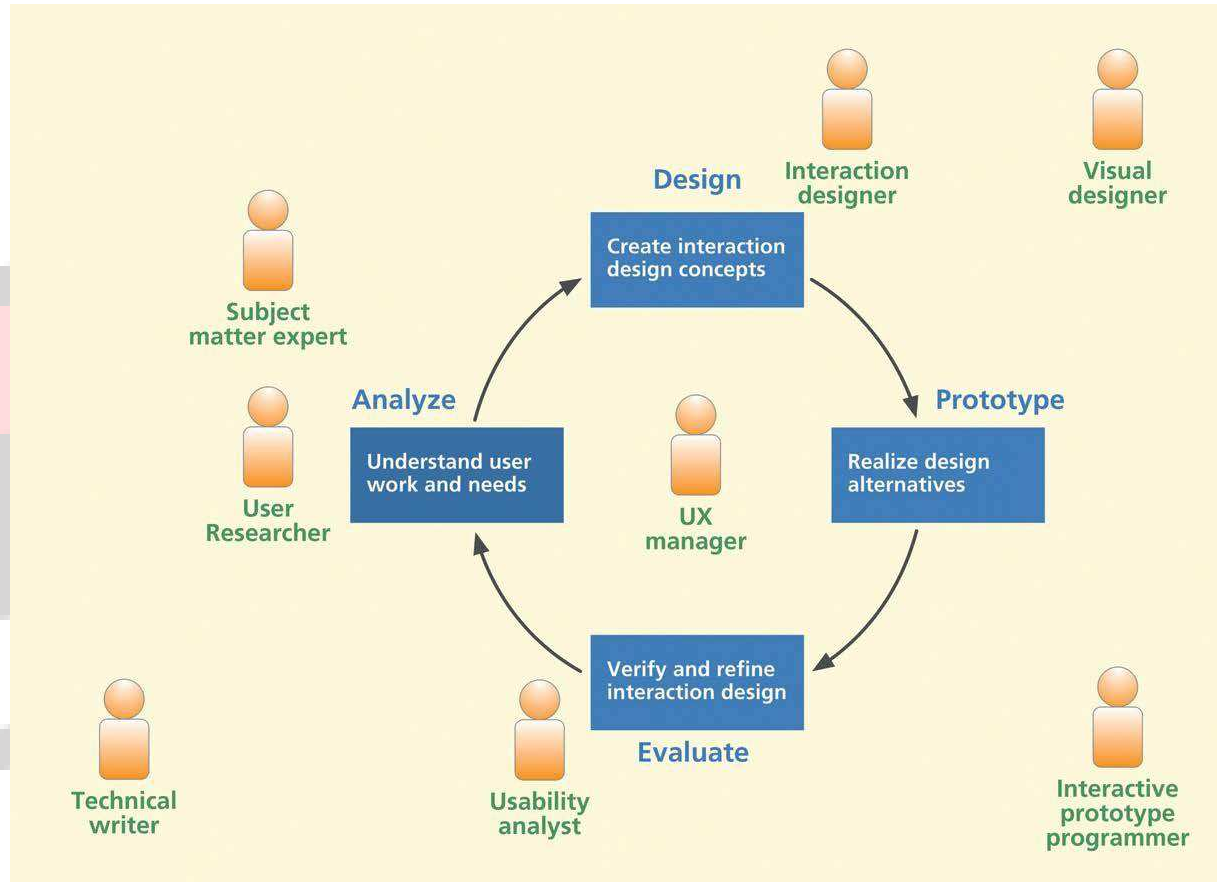


Figure 2-6
Example UX team roles in the context of the Wheel lifecycle template.

MORE ABOUT UX LIFECYCLES

Whitney Quesenbery (2005) describes the ISO 13407 standard (1999) reflected the “general industry approach to UCD” at the time. It describes four principles of user-centered design, including “active involvement of customers (or those who speak for them),” but apparently did not speak for the users directly.

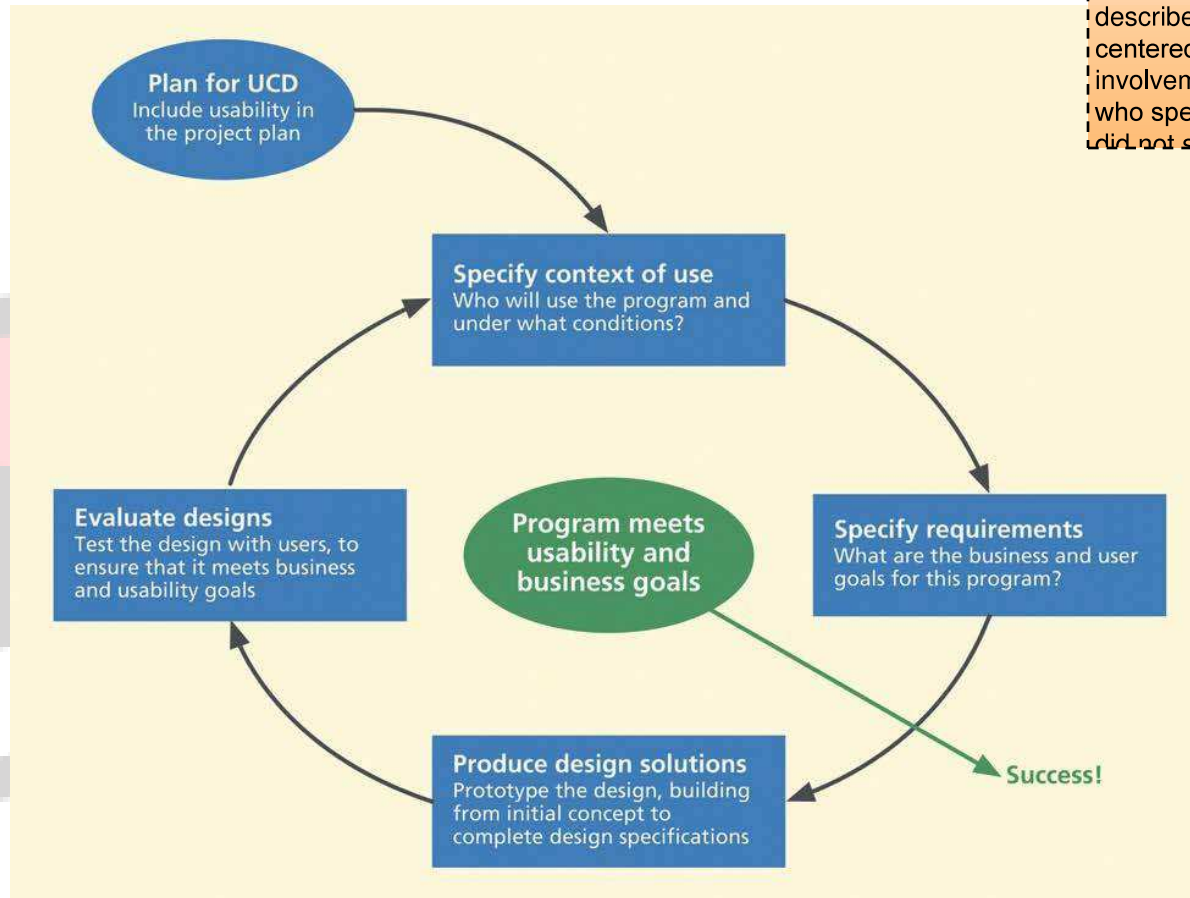


Figure 2-7
Lifecycle diagram from the ISO 13407 standard, adapted with permission.

MORE ABOUT UX LIFECYCLES

- **Much More Than Usability Testing: The Need for a Broad Lifecycle Process**
 - “Usability testing and evaluation make contributions to product quality, but testing alone does not guarantee quality.” They contended that approaches using only post hoc testing should be expanded to incorporate other UCD activities into earlier parts of the UX process.
- **Fundamental Activities Involved in Building Anything**
 - In the simplest sense, the two fundamental activities involved in (i.e., a process for) creating and building something, be it a house or a software product, are almost always the same: design and implementation.
 - As complexity of the target system or product increases, so does the need for additional steps in your process to manage that complexity.

MORE ABOUT UX LIFECYCLES

- Parallel Streams of Software and Interaction Process Activities

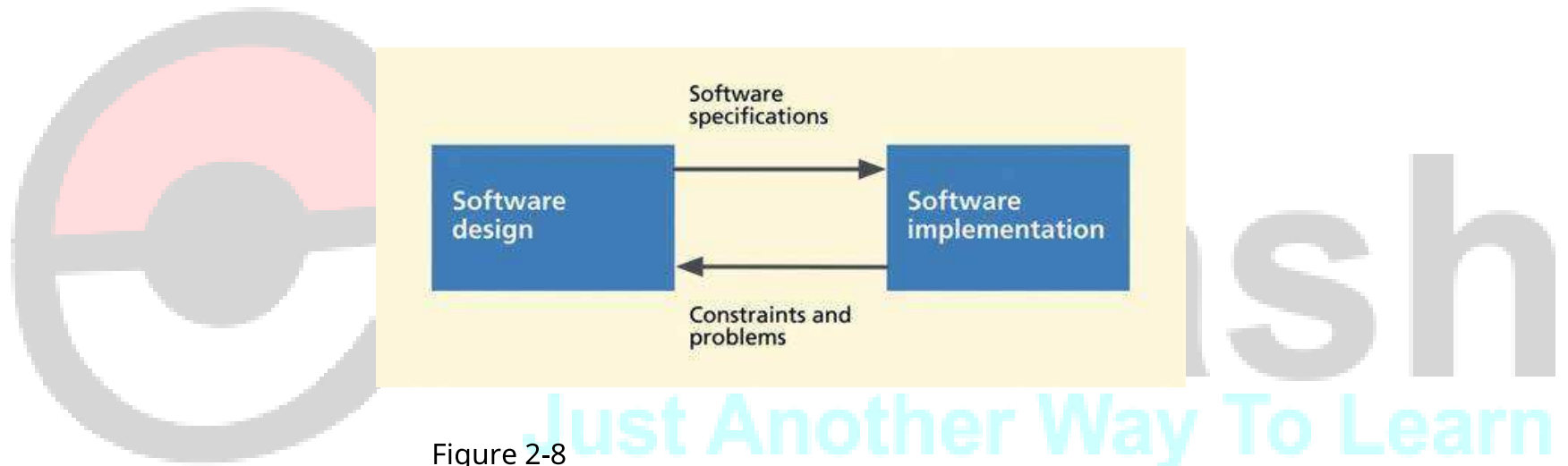


Figure 2-8
Distinction between software design and implementation.

MORE ABOUT UX LIFECYCLES

Design in the work domain, or the user domain, in the second box from the left (Figure 2-9), is the place where the real contents of the system are crafted. If the program is a software support tool for bridge building, for example, this is where all the subject matter knowledge about civil engineering is over-constrained in

- Parallel Streams of Software and Interaction Process Activities

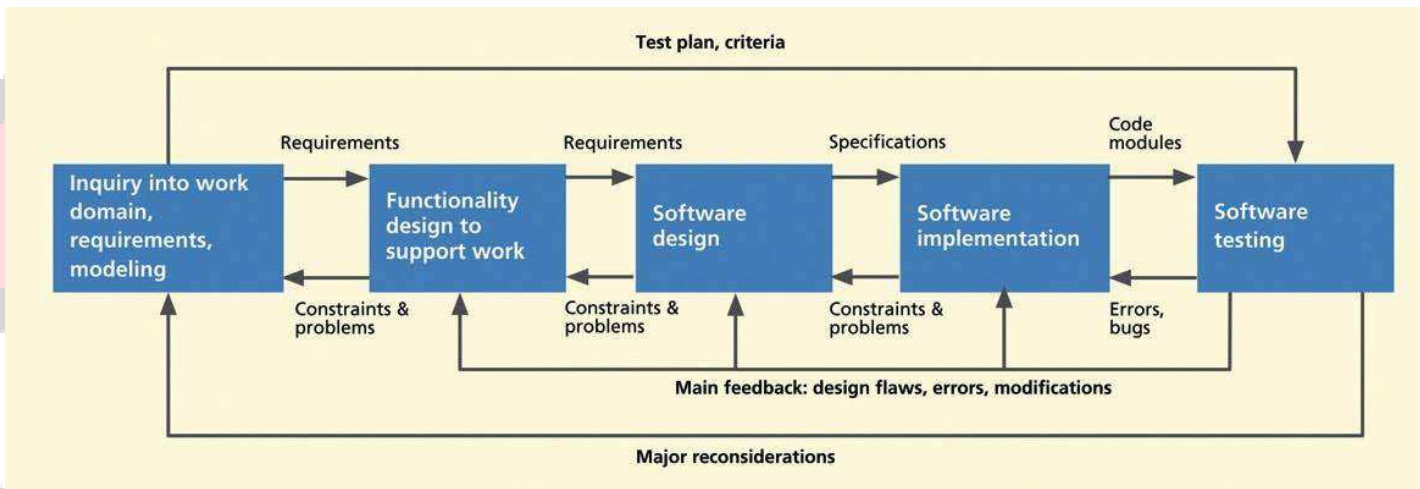


Figure 2-9
Software development workflow diagram.

The analogous activities for user interface (this time, including the user interface software) development are shown in Figure 2-10.

MORE ABOUT UX LIFECYCLES

- Parallel Streams of Software and Interaction Process Activities

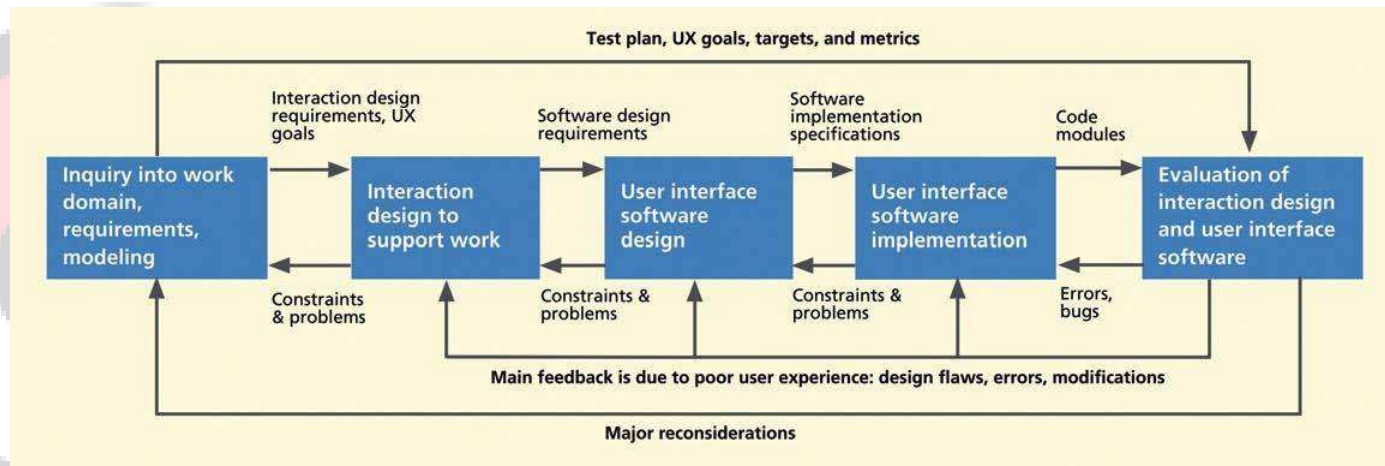


Figure 2-10
Analogous user interface development workflow.

MORE ABOUT UX LIFECYCLES

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Connecting the processes together and rapid prototyping, to get the big picture, we get the overall development workflow diagram of Figure 2-11.

- Iteration for Interaction Design Refinement Can Be Very Lightweight

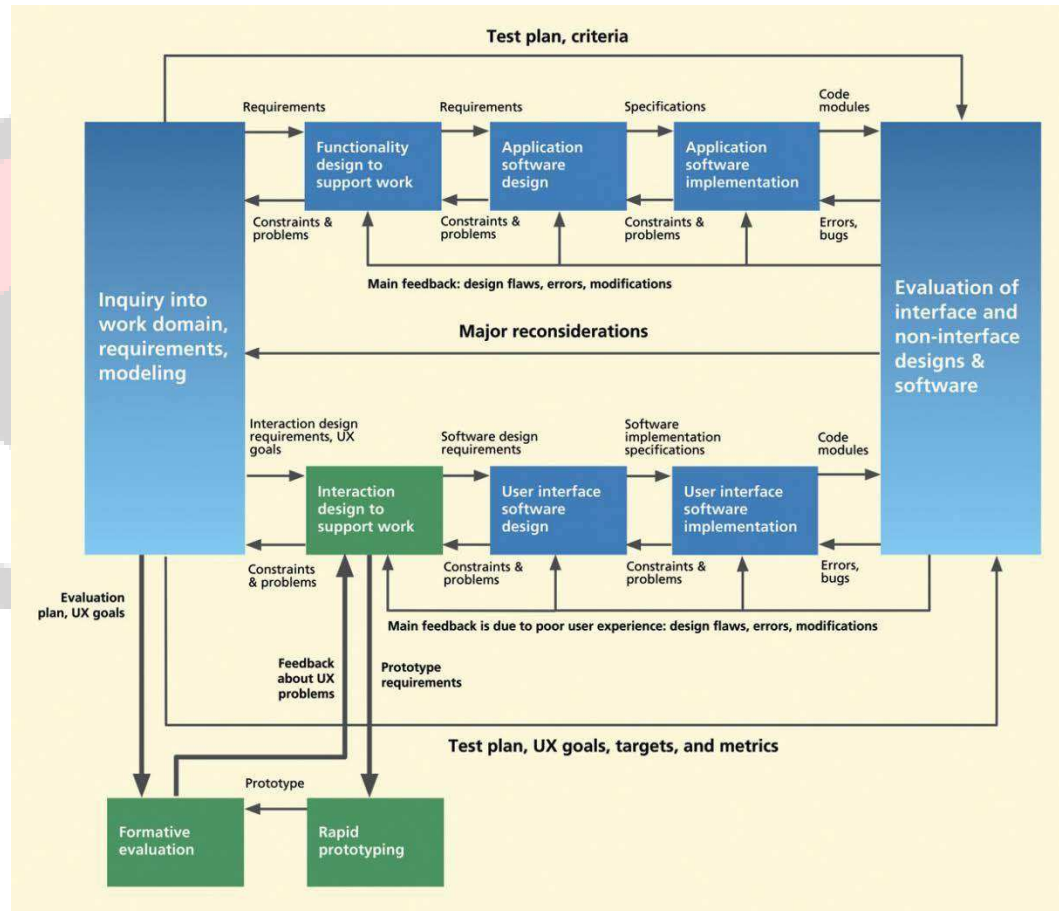


Figure 2-11
Overall interactive system development workflow diagram.

MORE ABOUT UX LIFECYCLES

- Iteration for Interaction Design Refinement Can Be Very Lightweight
 - Iterating this small sub-process is far from ponderous and costly; in fact, it:
 - is only a very small and very lightweight iteration
 - does not have to be expensive because it involves only a very small part of the overall process
 - can occur early in the overall lifecycle when design changes cost little
 - can have minimal impact on schedule because it can be done in parallel with many other parts (especially the software engineering parts)

The perceptive reader will see that we come full circle; the process in Figure 2-12 is a variation of the Wheel lifecycle template of Figure 2-2.

MORE ABOUT UX LIFECYCLES

- Iteration for Interaction Design Refinement Can Be Very Lightweight

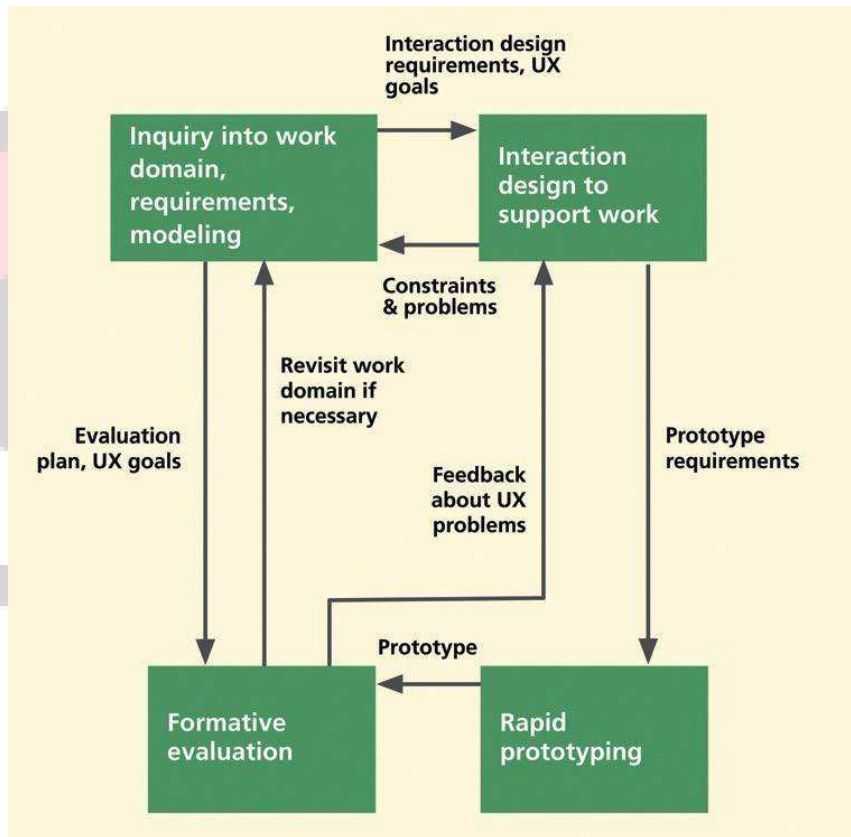


Figure 2-12
The small lightweight sub-process to be iterated for the interaction design.

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Contextual inquiry (Chapter 3), is an empirical process to elicit and gather user work activity data.
Contextual analysis (Chapter 4) is an inductive (bottom-up) process to organize, consolidate, and interpret the user work activity data in the next chapter.
Chapter 5 is about a deductive analytic process for extracting needs and

