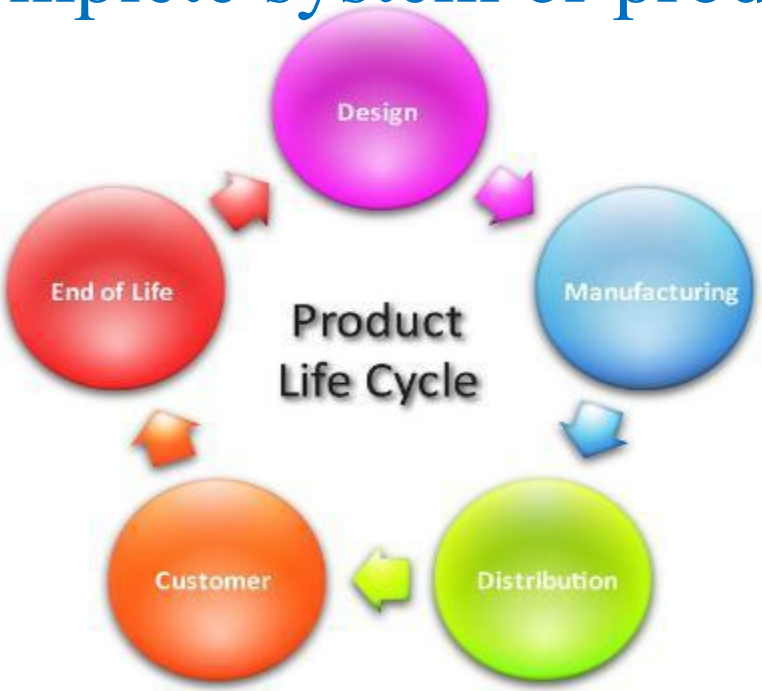
UNIT - 02
The UX Design-Life Cycle

1. Introduction

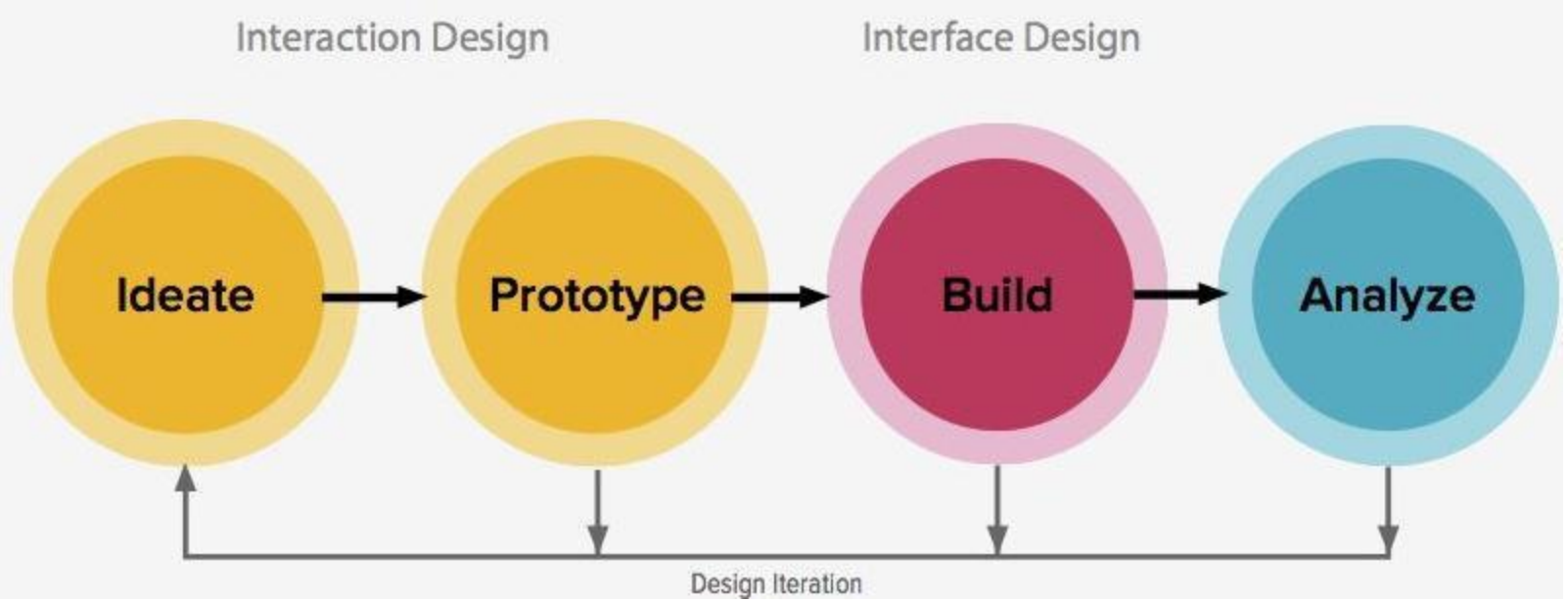
Life Cycle

A lifecycle is a structured framework consisting of a series of stages and corresponding activities—such as analysis, design, implementation and evaluation— the full evolution of an interaction design or a complete system or product.



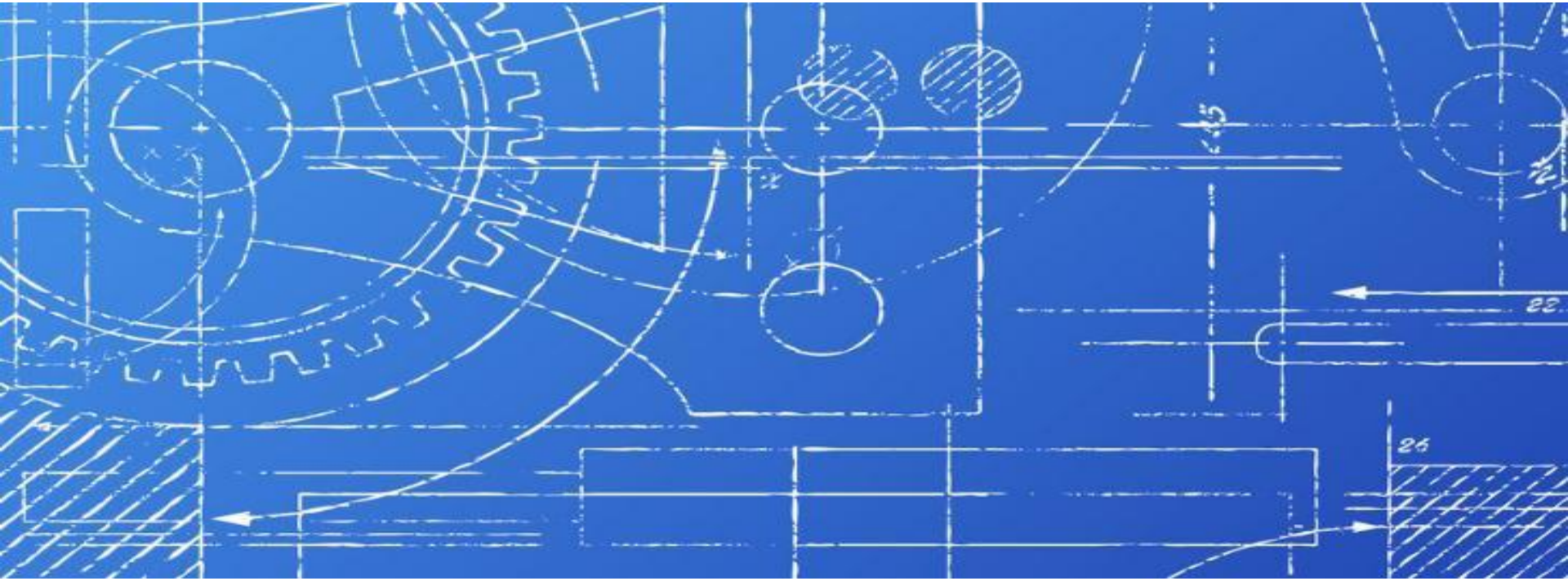
Iterative

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.



1.1 Flying without a Process

Before developing a new product, assess your idea



Working on new product development without first assessing potential risks will almost certainly lead you to failure..

1.2 The Concept of Process

- What is a process?

- A process is a guiding structure that helps both novices and experts deal with the complex details of a project.

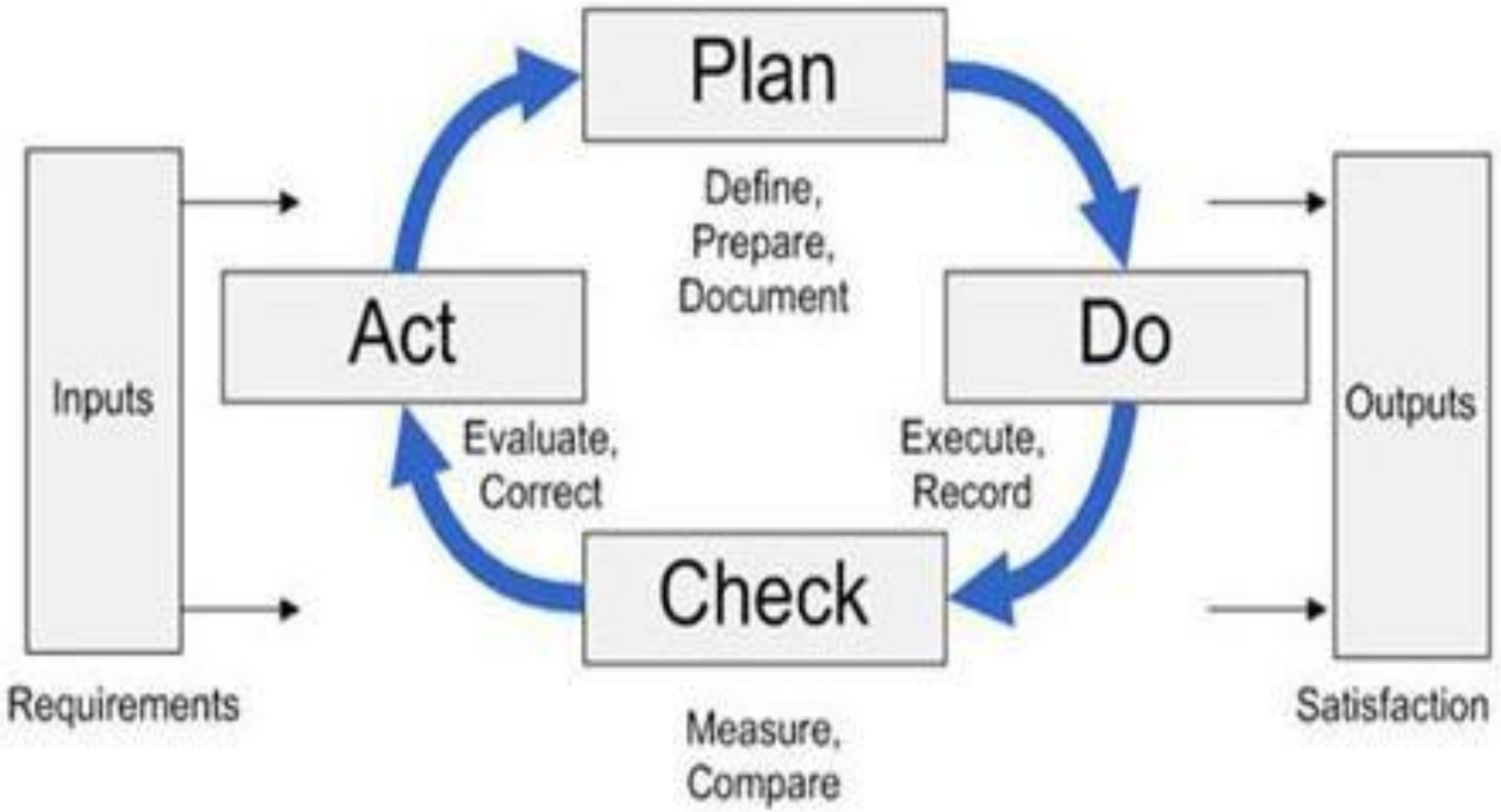
- Process acts as scaffolding, especially for novice practitioners, to ensure that they are on track to a quality product and on the path to becoming experts.

- Process acts as a checklist for experts to make sure they do not miss any important aspects of the problem in the heat of productivity.

- A process helps designers answer questions such as “Where are we now?” and “What can/should we do next?”

In engineering a process is a set of interrelated tasks that, together, transform inputs into outputs.

- In other words, process provides a repeatable formula to create a quality product.



- Why do we need a process?

 Using standard processes does create more structure in a business .

Even the most creative businesses should have processes for dealing with customer enquiries and how to handle the finance site of the business.

 Good processes therefore provide a way to communicate and apply consistent standards and practices within the business.

 When flowcharts are included, they provide a visual element to learning and understanding the process task at hand

- The procedure will define things like what activities are to be done, who performs them, what is the purpose, how it is performed and then who is responsible for the procedure.

- Once worked through, it provides an efficient way of performing the task in a consistent way.

- Learning is a Process not an event.


VISION
GOAL SETTING
PROFESSIONAL LEARNING DESIGN
LESSON DESIGN
MODELS OF PRACTICE
SAFE PRACTICE
COACHING & FEEDBACK
REFLECTION & REVISION
ANALYZE IMPACT & DEVELOP NEXT STEPS
COLLABORATION

- A process is not necessarily rigid..

Remember that a process does not necessarily imply a rigid structure or even a linear one.

A process can be as lightweight or heavyweight as appropriate.

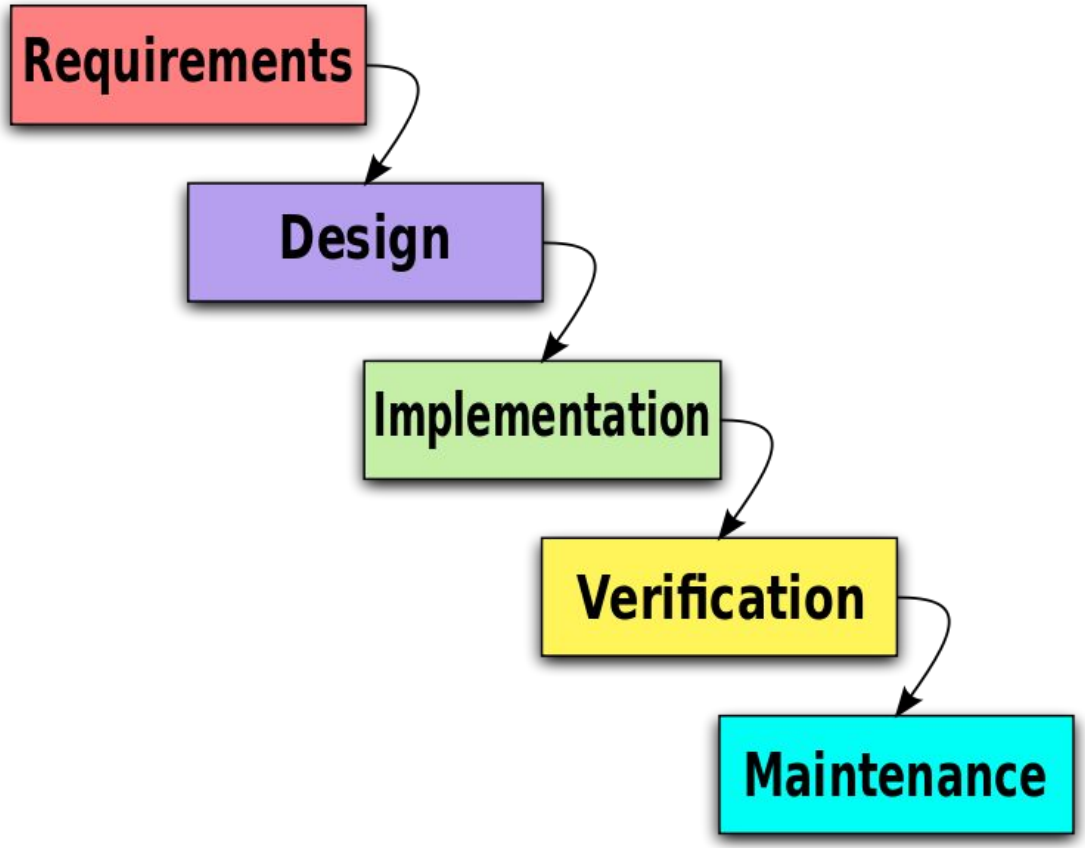
In other words, even an incremental and iterative lifecycle approach in the software engineering world (such as an Agile methodology) is still a process.

1.3 Influences on UX Lifecycle Process

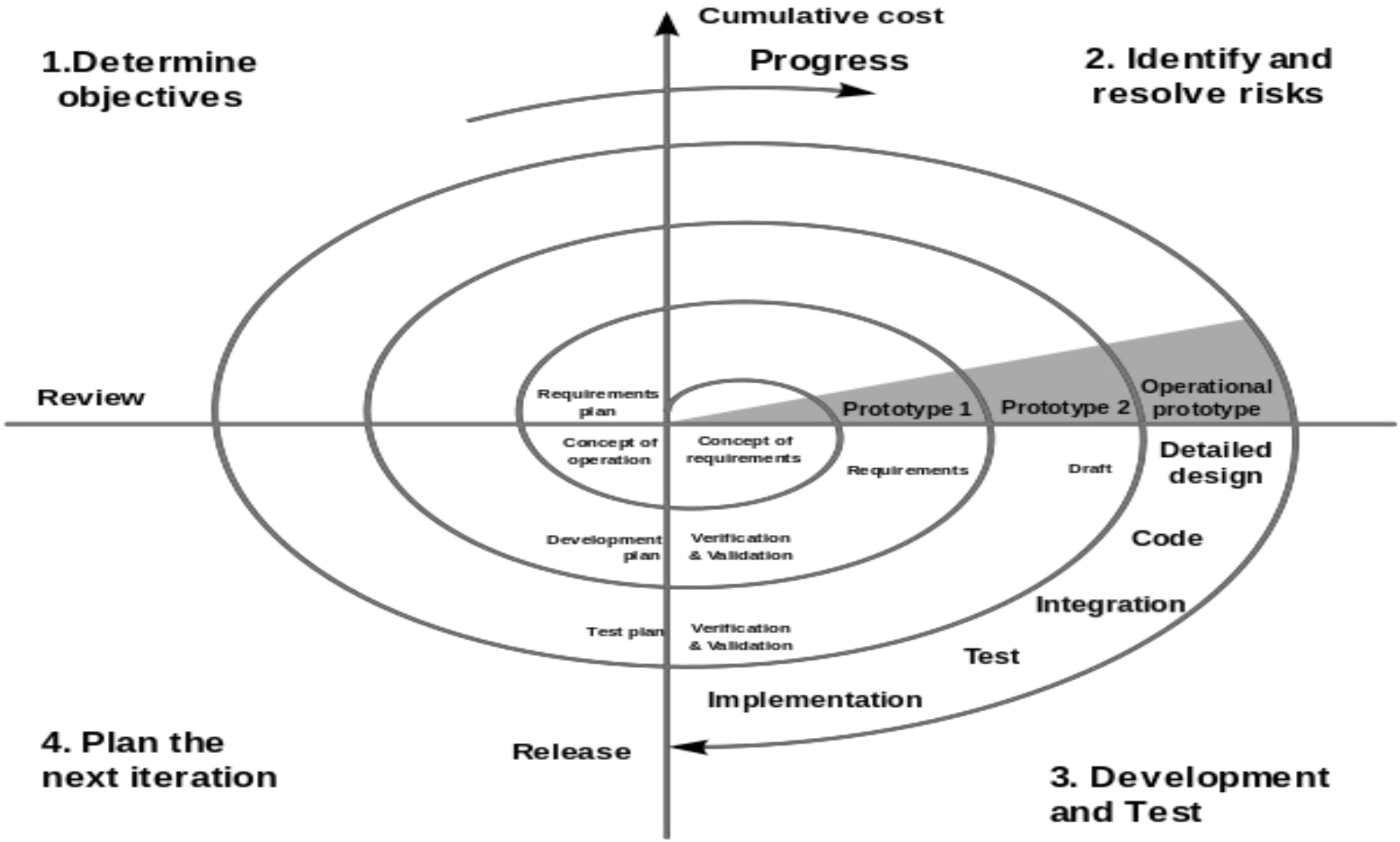
The methods that most significantly guided the creation of UX own lifecycle template are:

1. Waterfall (Royce, 1970) software engineering lifecycle
2. Spiral Model (Boehm, 1988) of software engineering
3. Mayhew's usability engineering lifecycle (Mayhew, 1999b)
4. Star lifecycle of usability engineering (Hartson & Hix, 1989)
5. Wheel (Helms et al., 2006) lifecycle concept
6. 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 1999)

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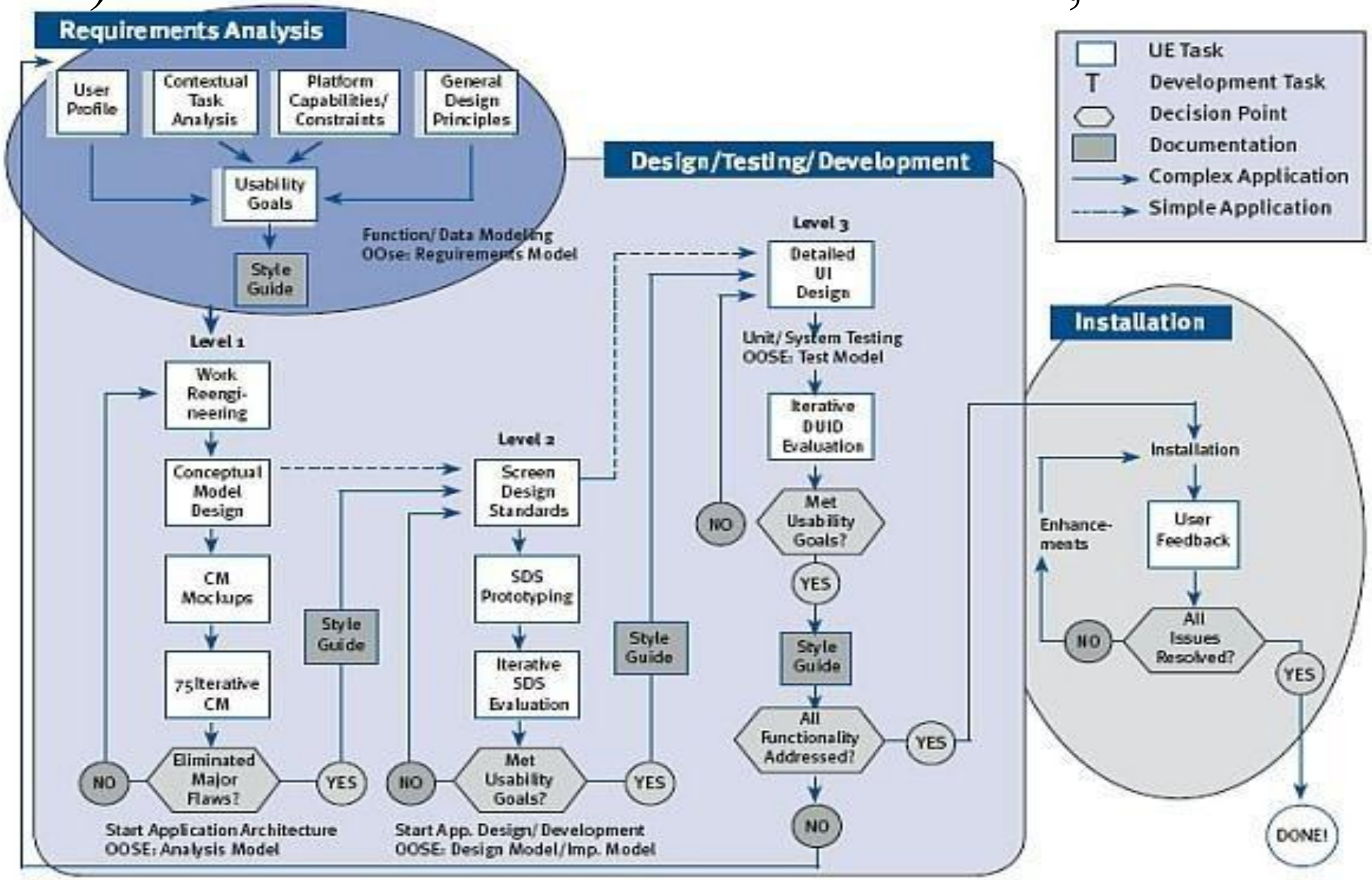
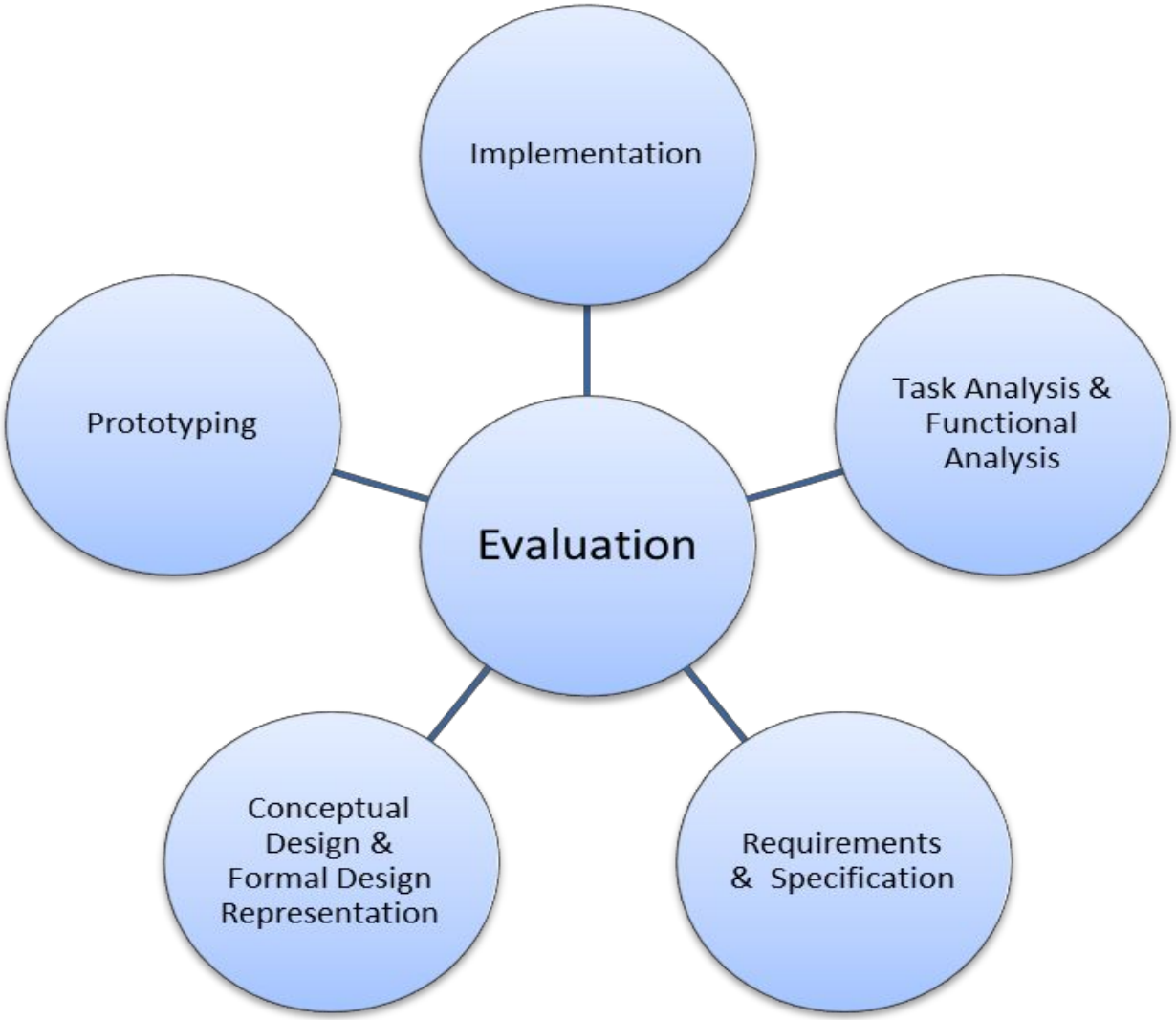
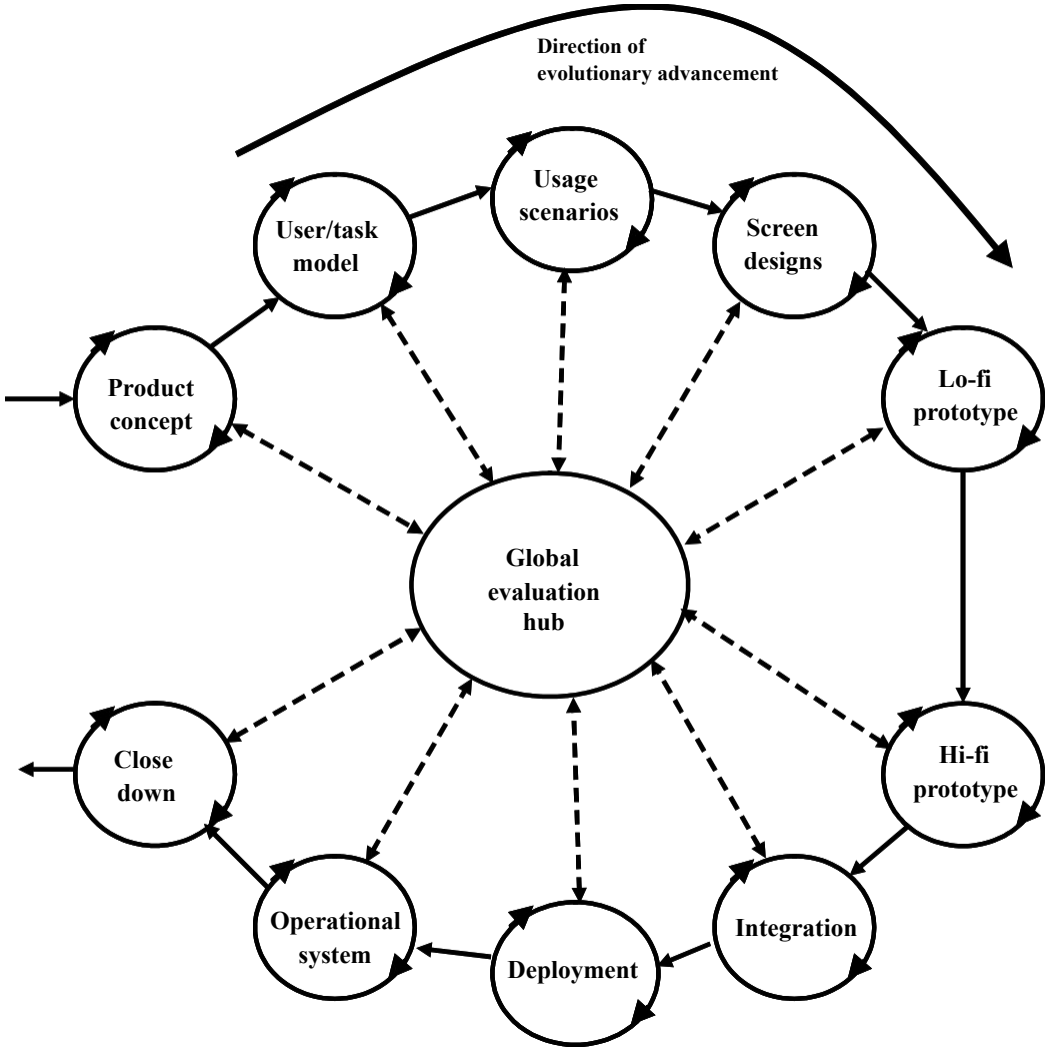


the Star lifecycle of usability engineering (Hartson & Hix, 1989)

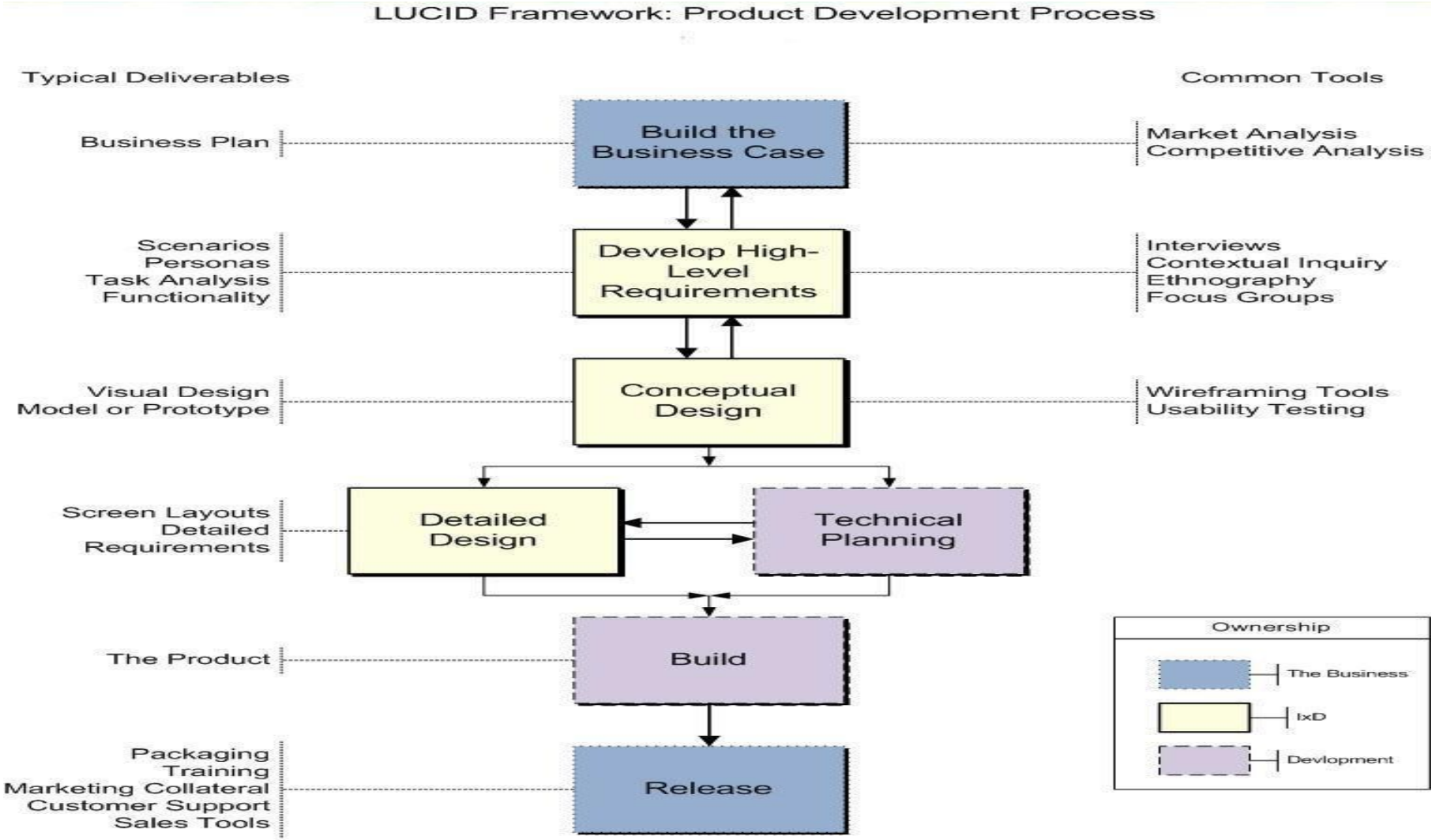


the Wheel (Helms et al., 2006) lifecycle concept



- Close

the LUCID framework of interaction design (Kreitzberg, 2008)



2. A UX Process Lifecycle Template

2.1A UX PROCESS LIFE CYCLE TEMPLATE

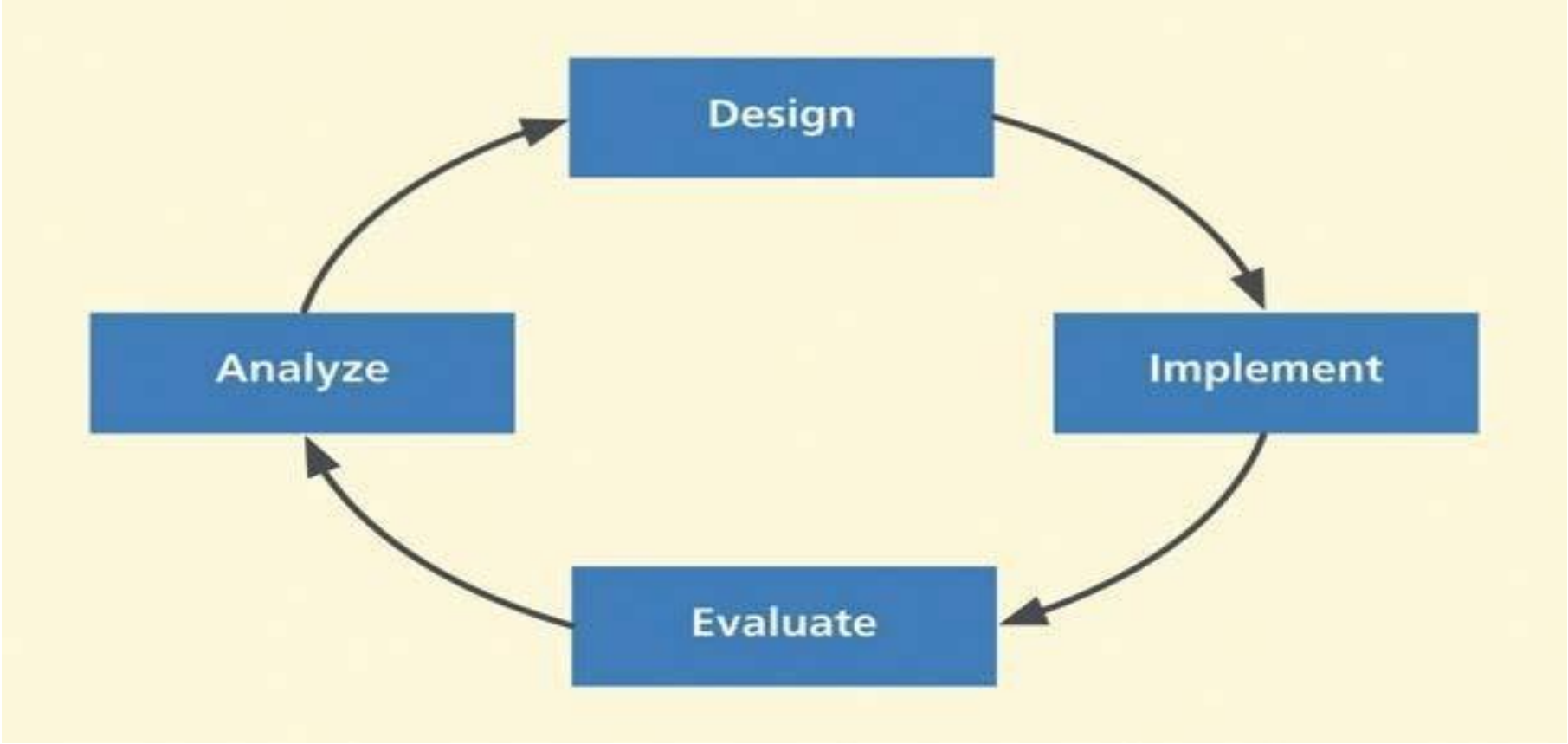


Figure . a
Universal abstract activity cycle of Analyze, Design, Implement, and Evaluate.

- Figure. depicts a basic abstract picture of activities for almost any kind of design, a cycle of the four elemental UX activities—Analyze, Design, Implement and Evaluate—that we refer to generically as analysis, design, implementation, and evaluation.

- These four activities apply whether you are working with an architectural design, a hardware design, or a new car concept.

A UX PROCESS LIFECYCLE TEMPLATE

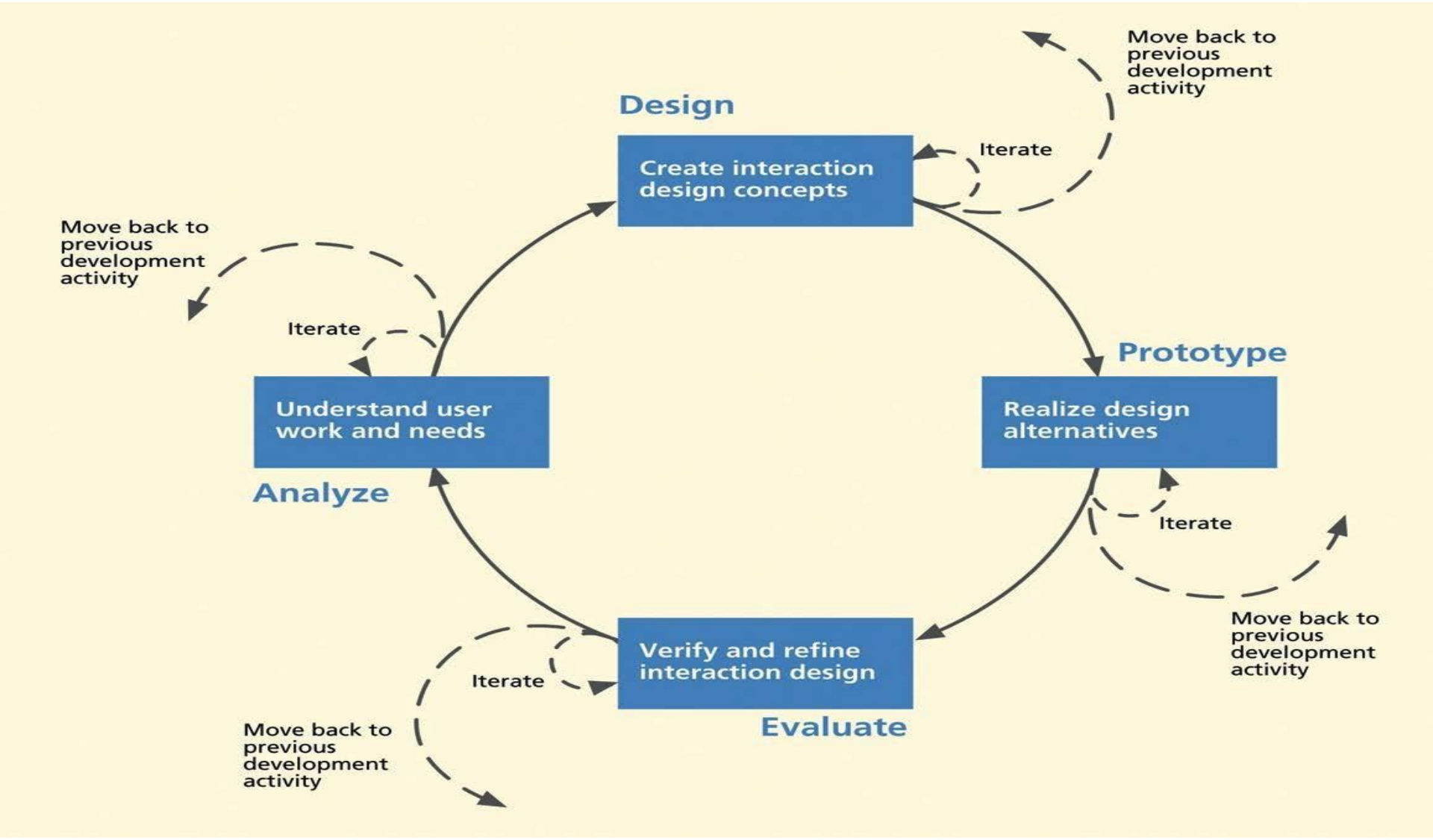


Figure
.6 *The Wheel:Alifecycle template illustrating the process part of*

- In our lifecycle concept, specific to a UX process,

  1) Analysis translates to understanding user work and needs.

  2) Design translates to creating conceptual design and determining interaction behavior and look and feel.

  3) Implementation translates to prototyping,

  4) Evaluation translates to ways to see if our design is on track to meet user needs and requirements.

- In a larger system view, Implementation includes a final production of hardware and software, including the user interface.

- However, Implementation is limited to the interaction design component and prototyping is the design manifestation we use for evaluation before it is finalized for production.

- The Evaluation activity shown in Figure b. includes both rigorous and rapid evaluation methods for refining interaction designs.

- Beyond that Evaluation activity, the entire lifecycle is evaluation centered in the sense that the results of potentially every activity in the lifecycle are evaluated in some way, by testing, inspecting, analyzing, and taking it back to the customers and users.

- As you see, this is not a lifecycle that must be followed arbitrarily, nor must any particular activity, sub-activity, or iteration be performed—this is just a template showing all the possibilities.

- Think Aloud Technique

  It 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.

2.2 UX Process Activities

Analyze: Understanding the business domain, user work, and user needs

Design: Creating conceptual design, interaction behavior, and look and feel

Prototype: Realizing design alternatives

1) Horizontal Prototype A horizontal prototype is very broad in the features it incorporates, but offers less depth in its coverage of functionality.

2) 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.

3) 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).

4) Local Prototype : A local prototype represents the small area where horizontal and vertical slices intersect, and is used to evaluate design alternatives for a particular isolated interaction detail.

Evaluate: Verifying and refining the interaction design

2.3 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

- Iteration is not enough

  the answer is about balance of all four process activities of Figure. a—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.

3. Choosing A Process Instance For Your Project

- Project Parameters: Inputs to Process Choices

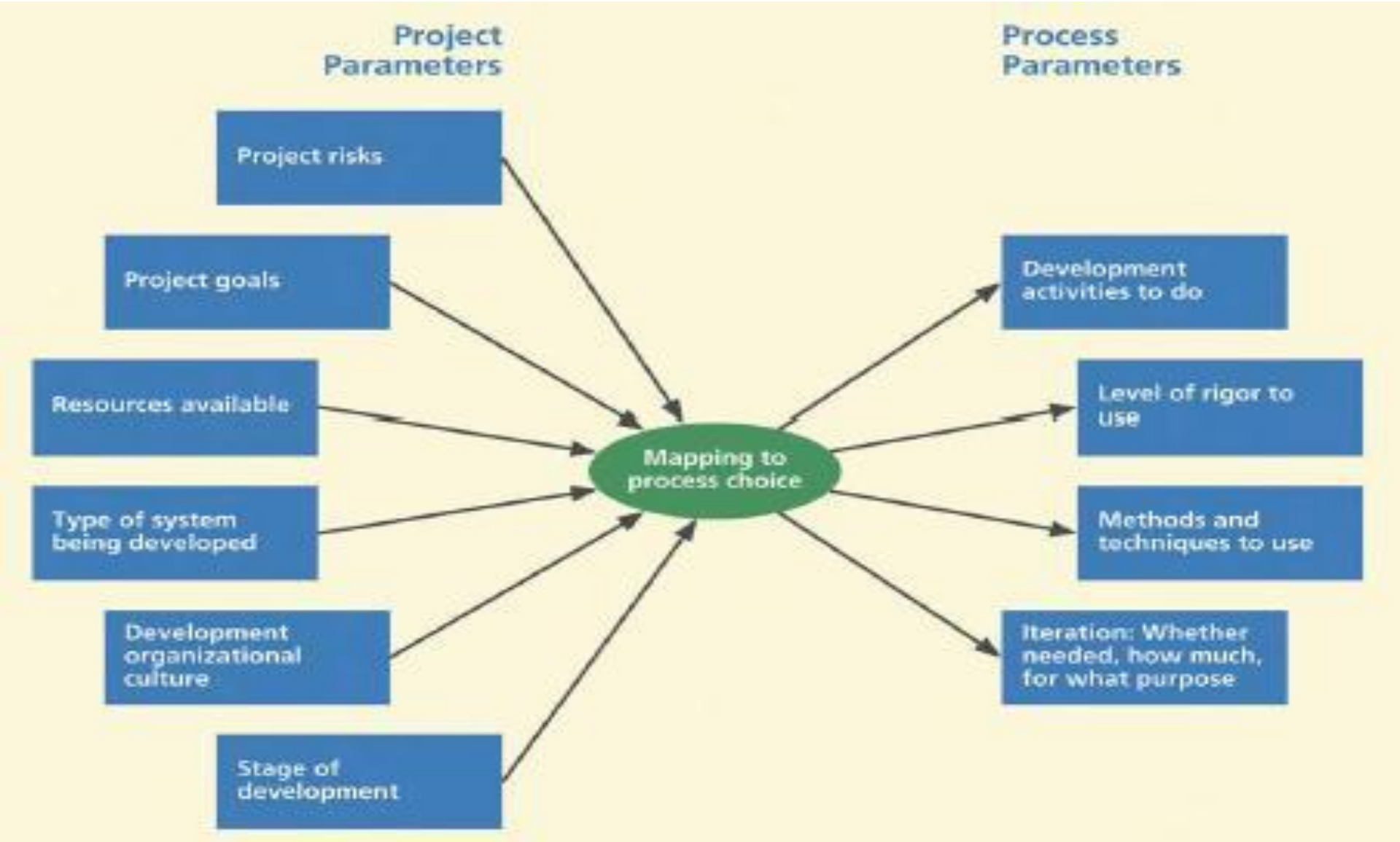
Among the many possible factors you could consider in choosing a process to instantiate the lifecycle template are:

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

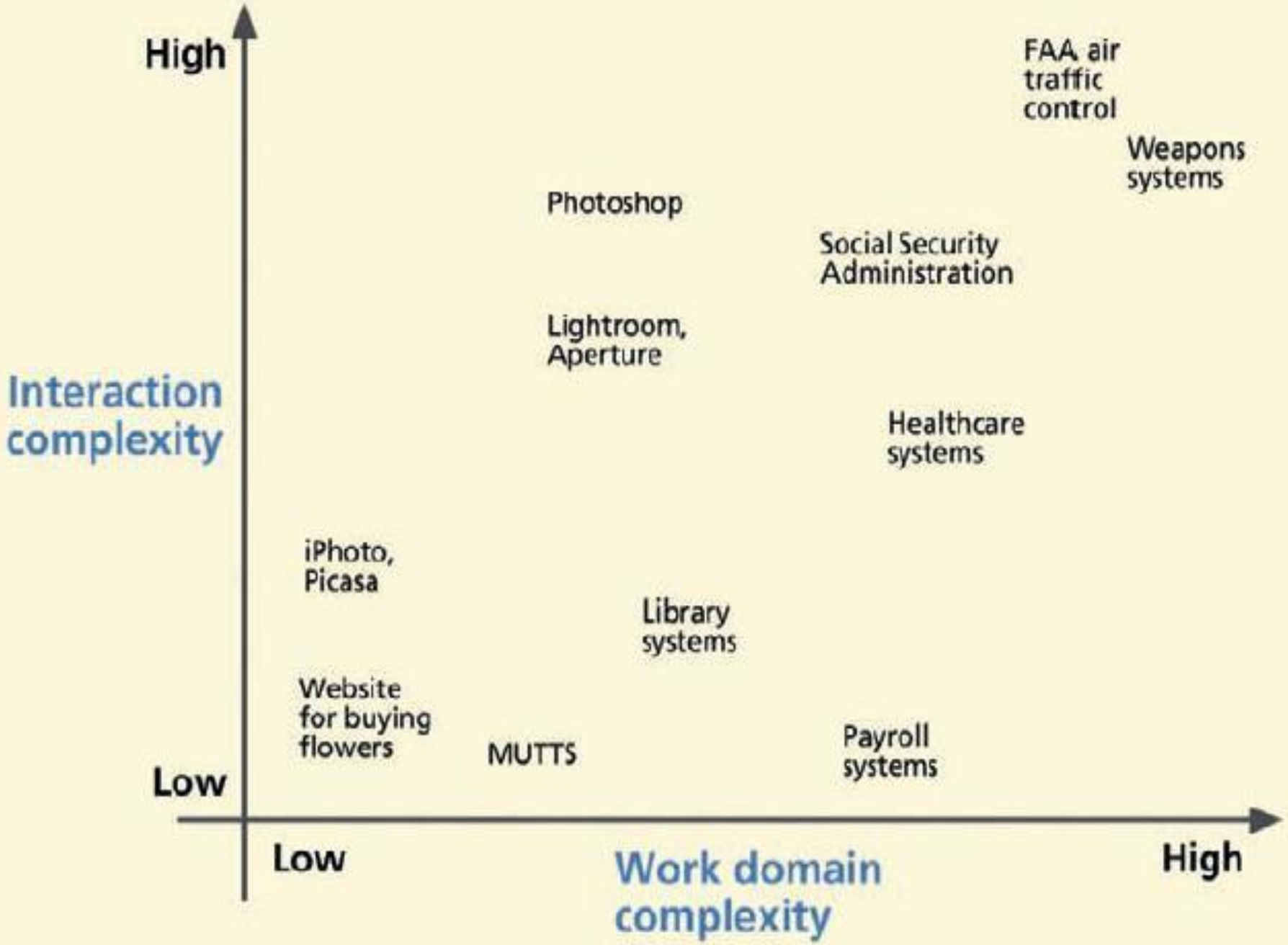
• Process Parameters: Outputs of Process Choices

- Process parameters or process choices include a spectrum from fully rigorous UX processes through rapid 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.

- Mapping Project Parameters to Process Choices



4. The System Complexity Space


High
Low
Low
High
Interaction complexity
Work domain complexity
FAA air traffic control
Weapons systems
Photoshop
Social Security Administration
Lightroom, Aperture
Healthcare systems
iPhoto, Picasa
Library systems
Website for buying flowers
MUTTS
Payroll systems

- 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.

  Low interaction complexity

  High interaction complexity

- Work domain complexity - represented on the horizontal axis which is about the degree of intricacy and the technical nature of the corresponding field of work

  Low Work Domain Complexity

  High Work Domain Complexity

The Influence of System Type on Process Choice

- Complex interaction, Complex work domain
- Simple interaction, Complex work domain
- Simple interaction, Simple work domain
- Complex interaction, Simple work domain

5. 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.

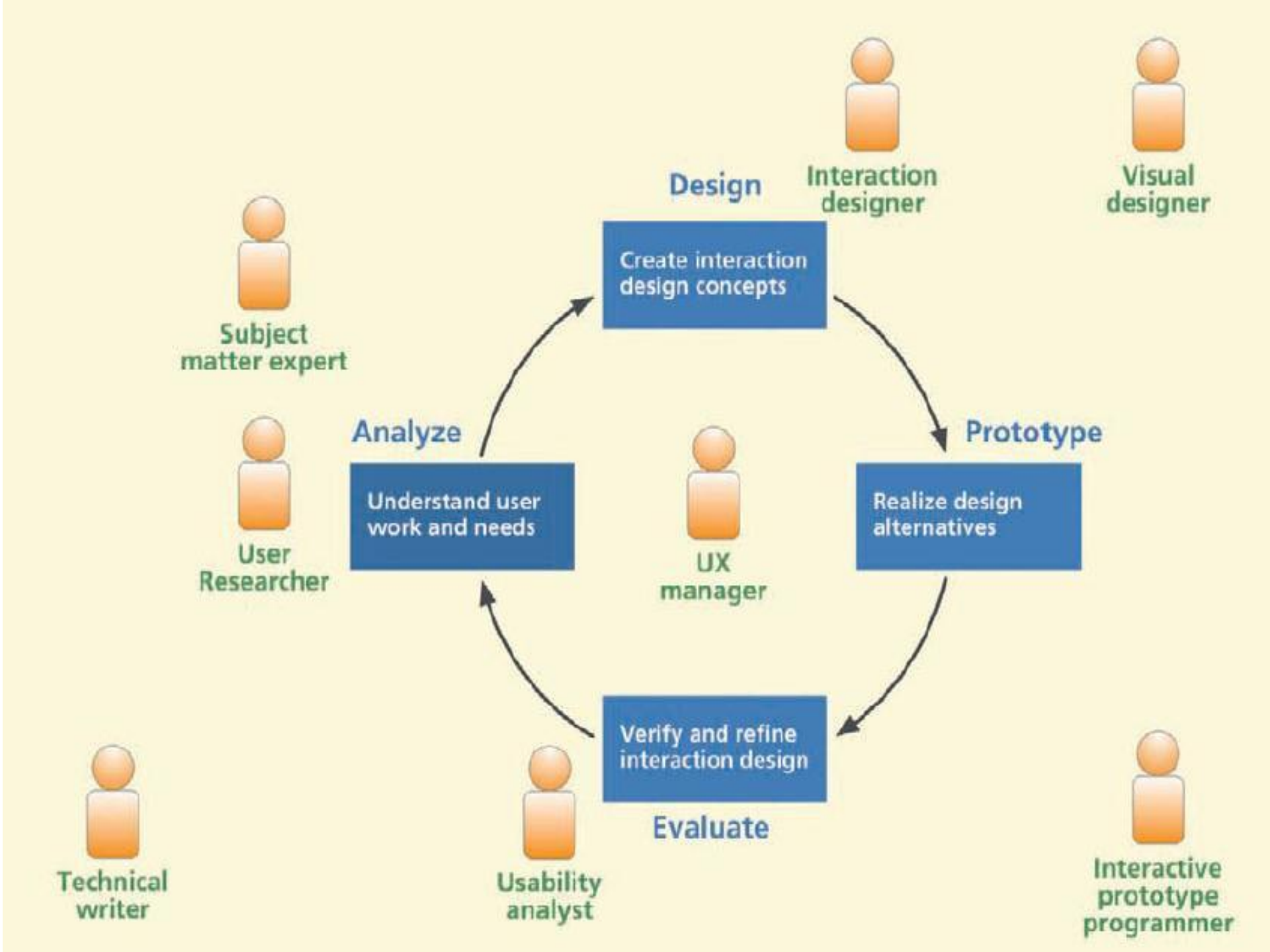
- UX analyst or evaluator: involved in planning and performing UX evaluations, analyzing UX problems, and suggesting redesign solutions.

- Technical writer: involved in documentation, help system design, and language aspects of interaction designs.

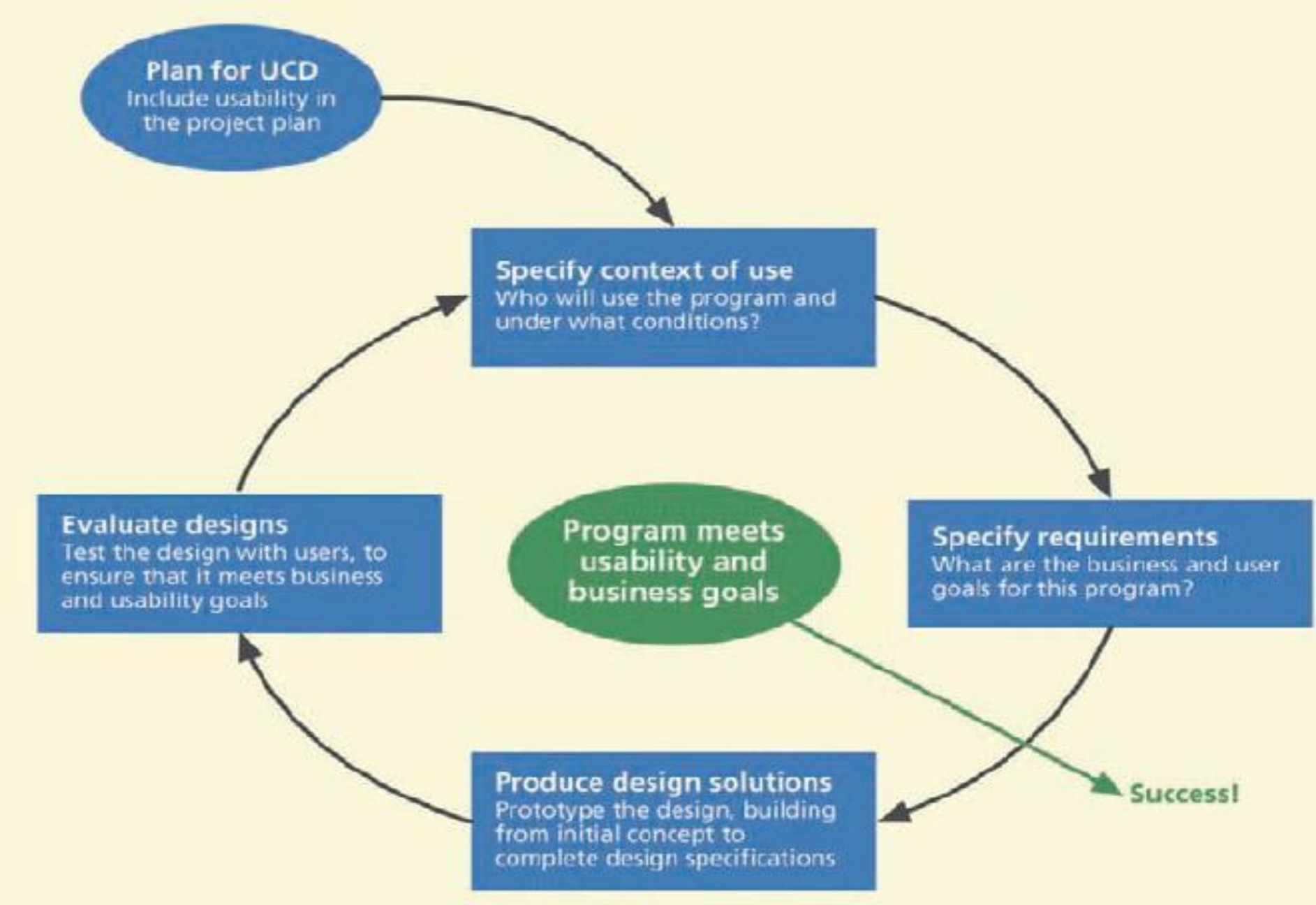
- Visual/graphic designer: involved in designing look and feel and branding and helping interaction designers with visual aspects of designs.

- Interactive prototype programmer: involved in programming interactive high fidelity UX design prototypes.

- UX manager: someone with overall responsibility for the UX process.


Design
Interaction designer
Visual designer
Subject matter expert
Create interaction design concepts
Analyze
Prototype
User Researcher
Understand user work and needs
UX manager
Realize design alternatives
Verify and refine interaction design
Evaluate
Technical writer
Usability analyst
Interactive prototype programmer

6. More About UX Lifecycles



Lifecycle diagram from th[Ce][om]I[pi]S[led]O[By...]1[Pr]3[of.]4[Sh]0[a] adapted with permission.

6.1 Much More Than Usability Testing: The Need for a Broad Lifecycle Process

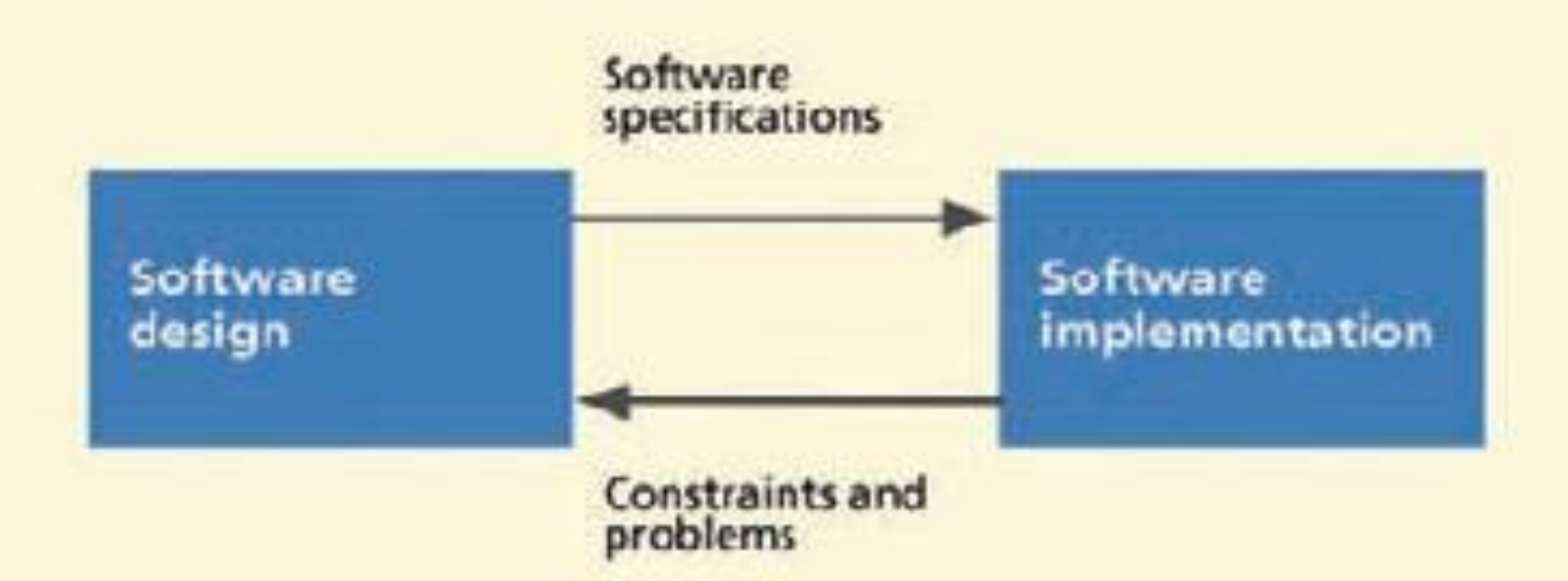
"Usability testing and evaluation make contributions to product quality, but testing alone does not guarantee quality." They contended that approaches using only post hoc testing should be expanded to incorporate other UCD activities into earlier parts of the UX process.

6.2 Fundamental Activities Involved in Building Anything

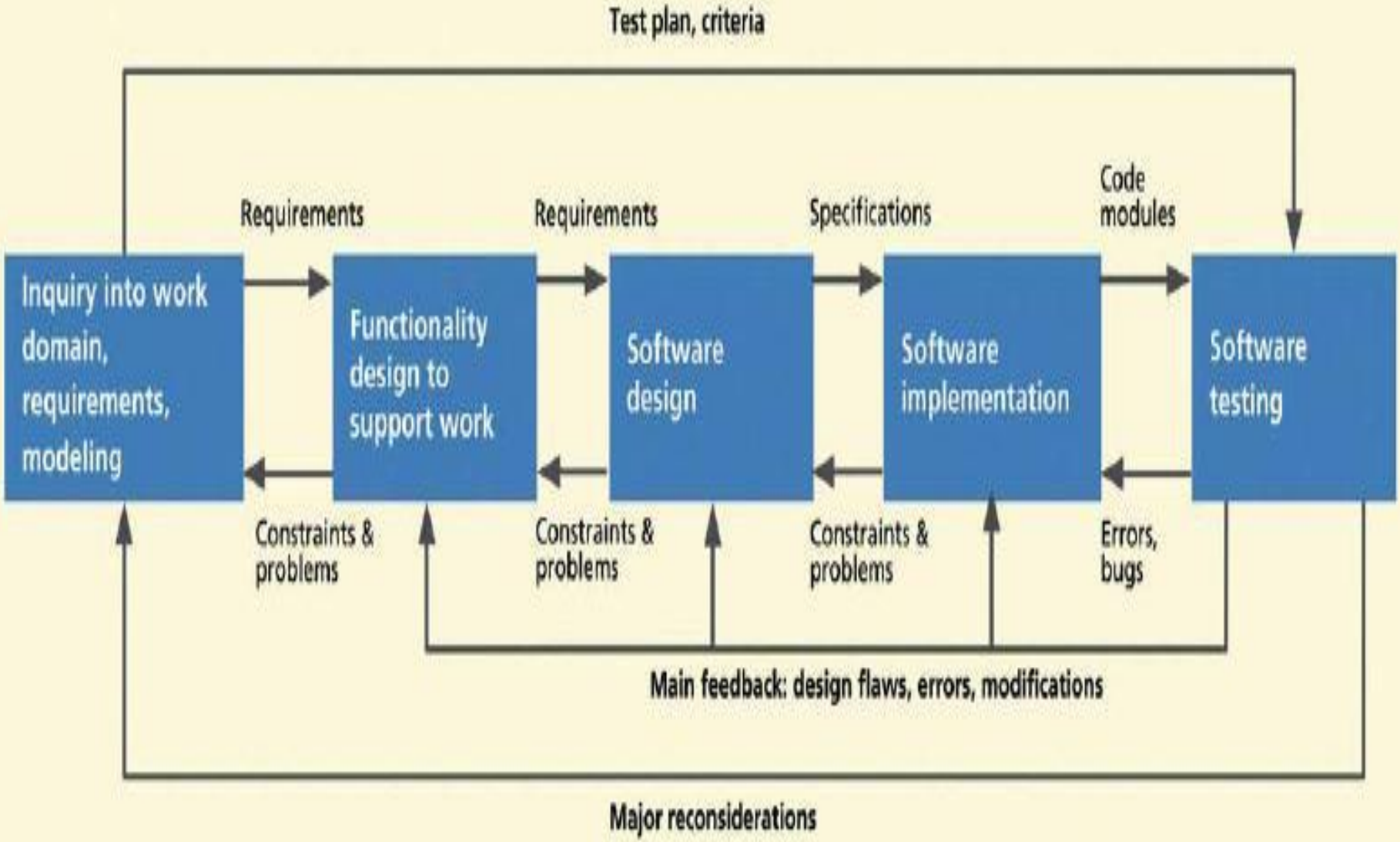
- In the simplest sense, the two fundamental activities involved in (i.e., a process for) creating and building something, be it a house or a software product, are almost always the same: design and implementation.

  As complexity of the target system or product increases, so does the need for additional steps in your process to manage that complexity.

6.3 Parallel Streams of Software and Interaction Process Activities

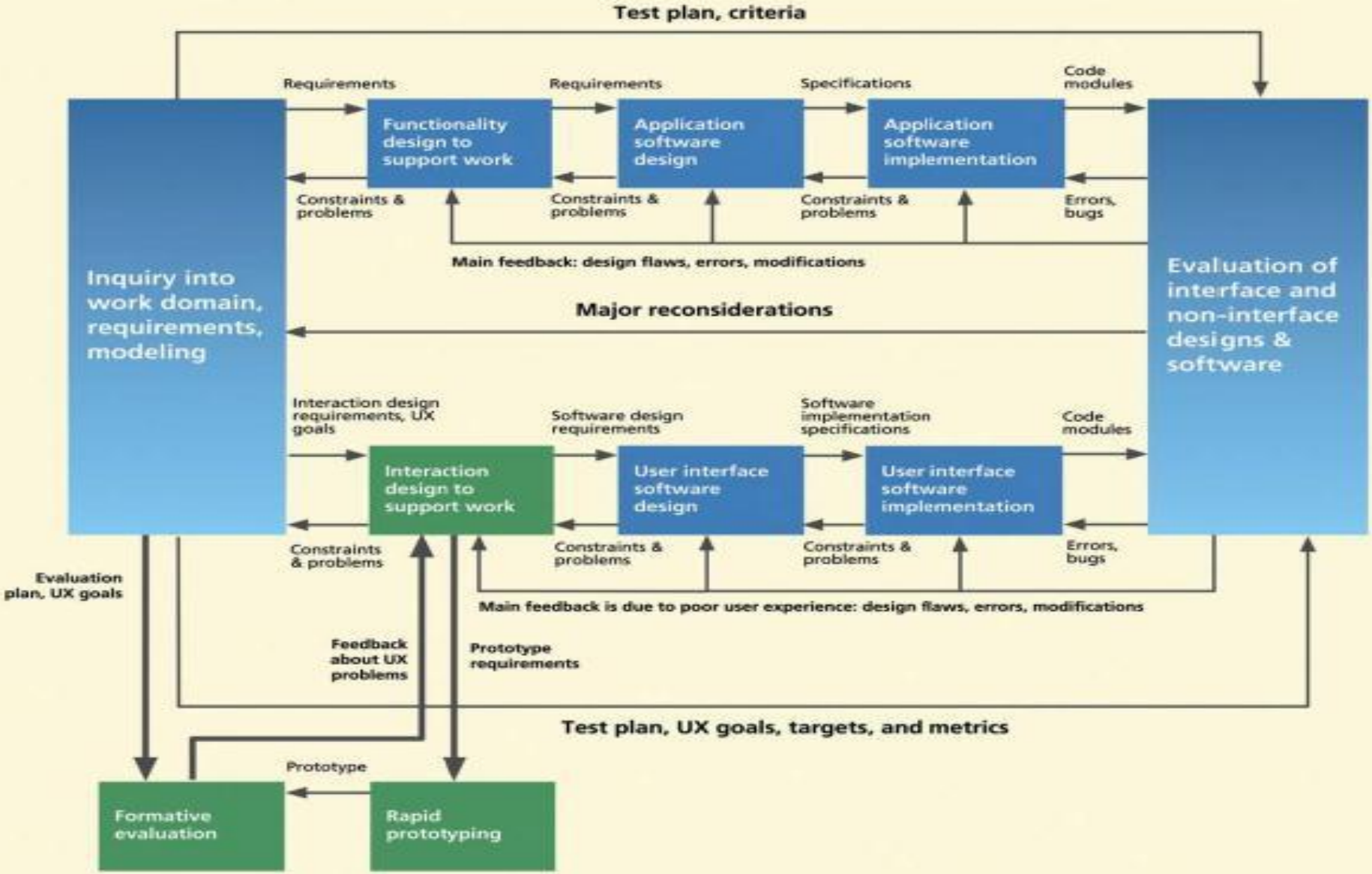


Distinction between software design and implementation.



Software development workflow diagram.

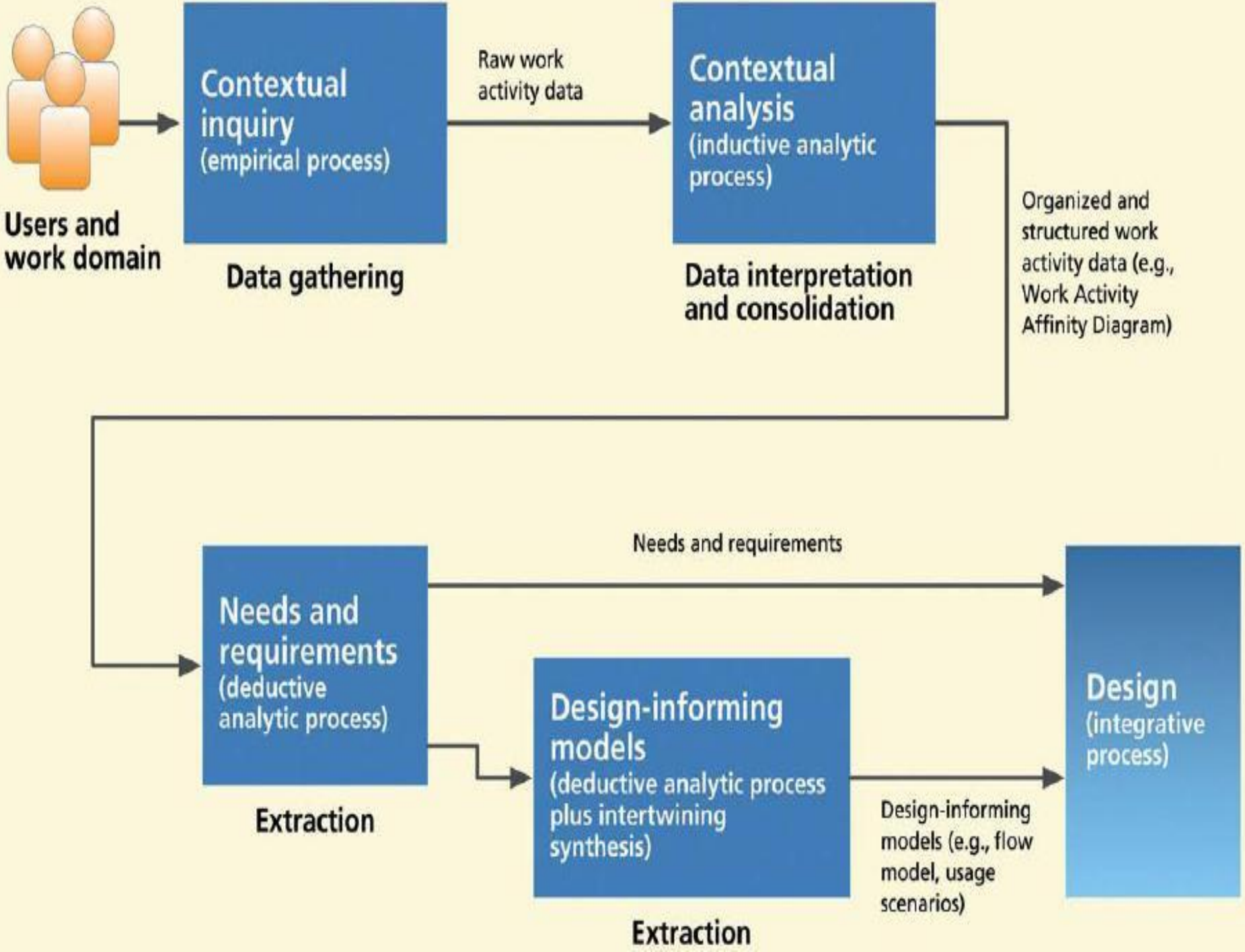
6.4 Iteration for Interaction Design Refinement Can Be Very Lightweight



- 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 a little
- can have minimal impact on schedule because it can be done in parallel with many other parts (especially the software engineering parts)

6.5 The Pre-Design Part of the UX Lifecycle

Here is an overview of how contextual inquiry, contextual analysis, needs and requirements extraction, and modeling lead up to design:


Users and work domain
Contextual inquiry (empirical process)
Data gathering
Raw work activity data
Contextual analysis (inductive analytic process)
Data interpretation and consolidation
Organized and structured work activity data (e.g., Work Activity Affinity Diagram)
Needs and requirements (deductive analytic process)
Extraction
Needs and requirements
Design-informing models (deductive analytic process plus intertwining synthesis)
Extraction
Design-informing models (e.g., flow model, usage scenarios)
Design (integrative process)