The Design Process

Announcements, Questions

- S1, P0 due Today!

- Questions?

Sketching Critiques – 20 minutes

- Break into groups of 3 or 4 people
- Take turns showing and explaining your 3 sketches with each other
- Critics should offer advice and feedback about the idea
  - Strengths, Weaknesses, Originality, Feasibility
  - Sketcher: take notes about what feedback was offered
  - Critic: be critical, but constructive and courteous!
  - Each critic should sign and date the page after the sketches

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DESIGN PROCESS

Why a design process?

- It helps us get started with a proven tack
- It prevents "designer's block"
- It keeps us directed toward a final product
- It helps us stay on schedule and within cost
- It helps us measure design progress
- It helps us communicate where we are to others
- It prevents us from omitting important steps
- It is more reliable than intuition
- It forces us to *iterate!*
- It helps us keep the *user first!*

Designers' expertise…

- …lies not in the thing he or she is designing
- You do not have to be a *widget expert to be a designer* of a *widget-manufacturing interface*
- Instead, you must be an expert in the *process of design*
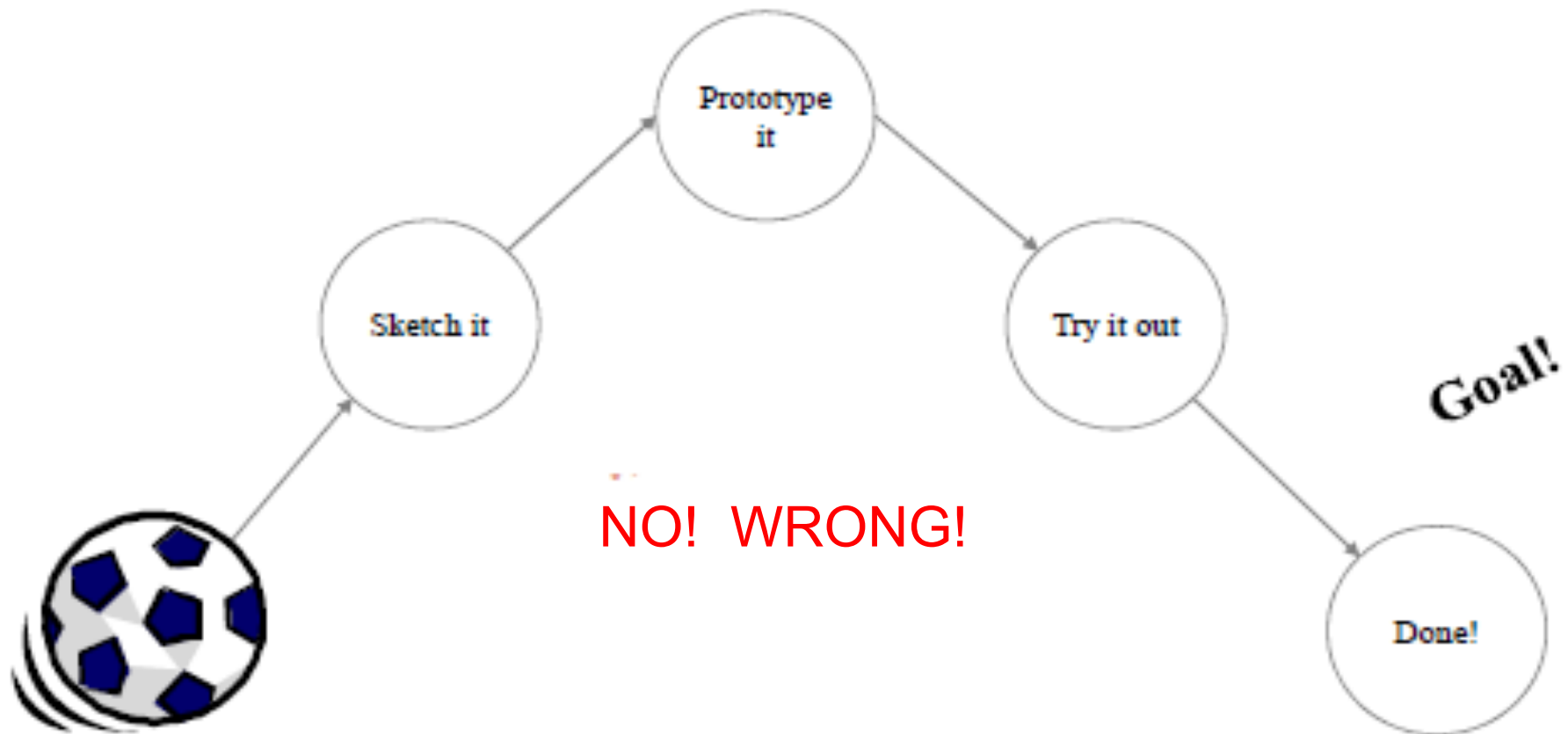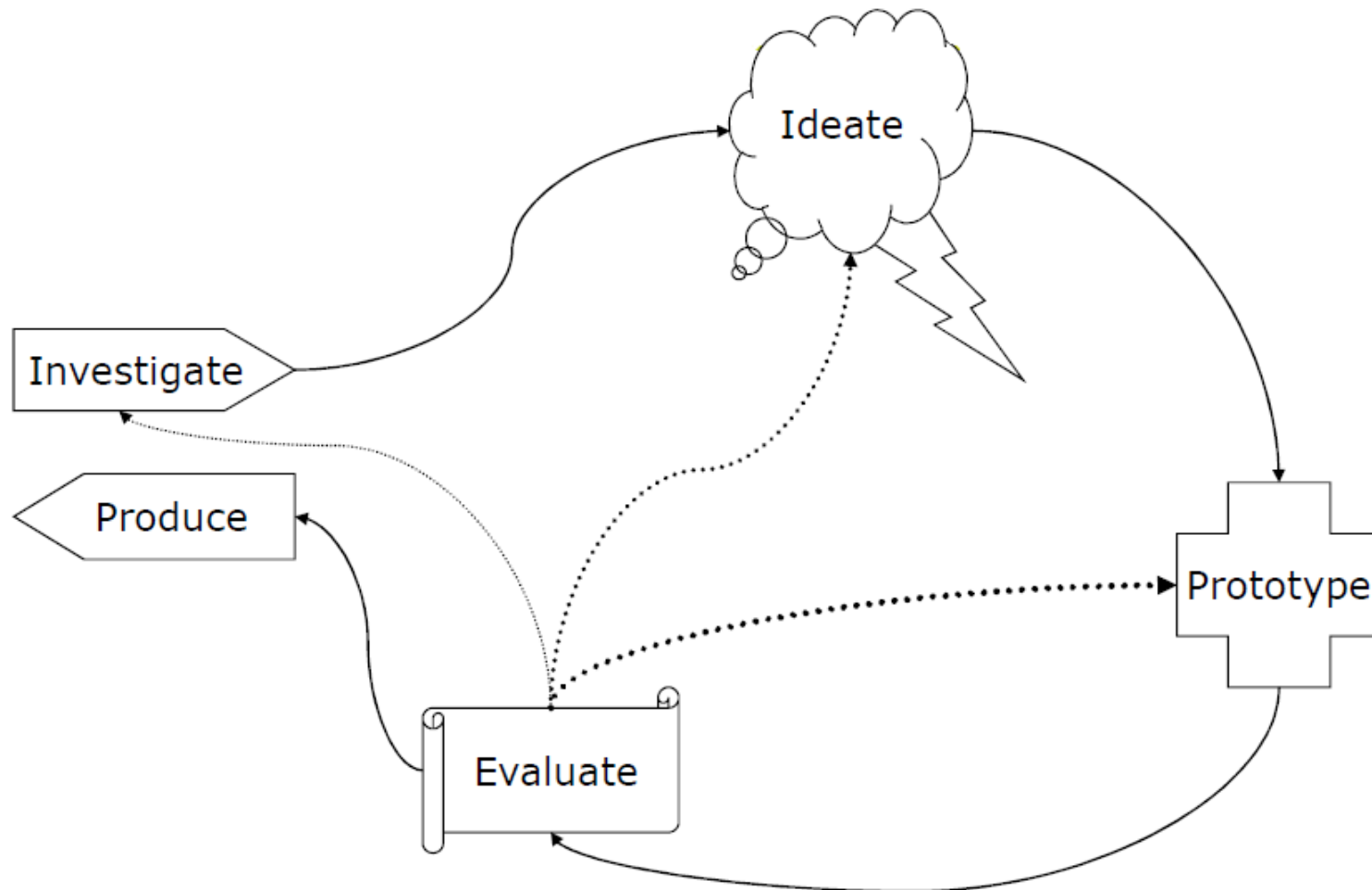
What is designed?

- **Artifact view:** The object, device, or system that is designed

- **Holistic view:** The interaction, the flow, the user's experience is designed

- Think in terms of users' goals
  - Artifacts have no goals
  - People have goals!
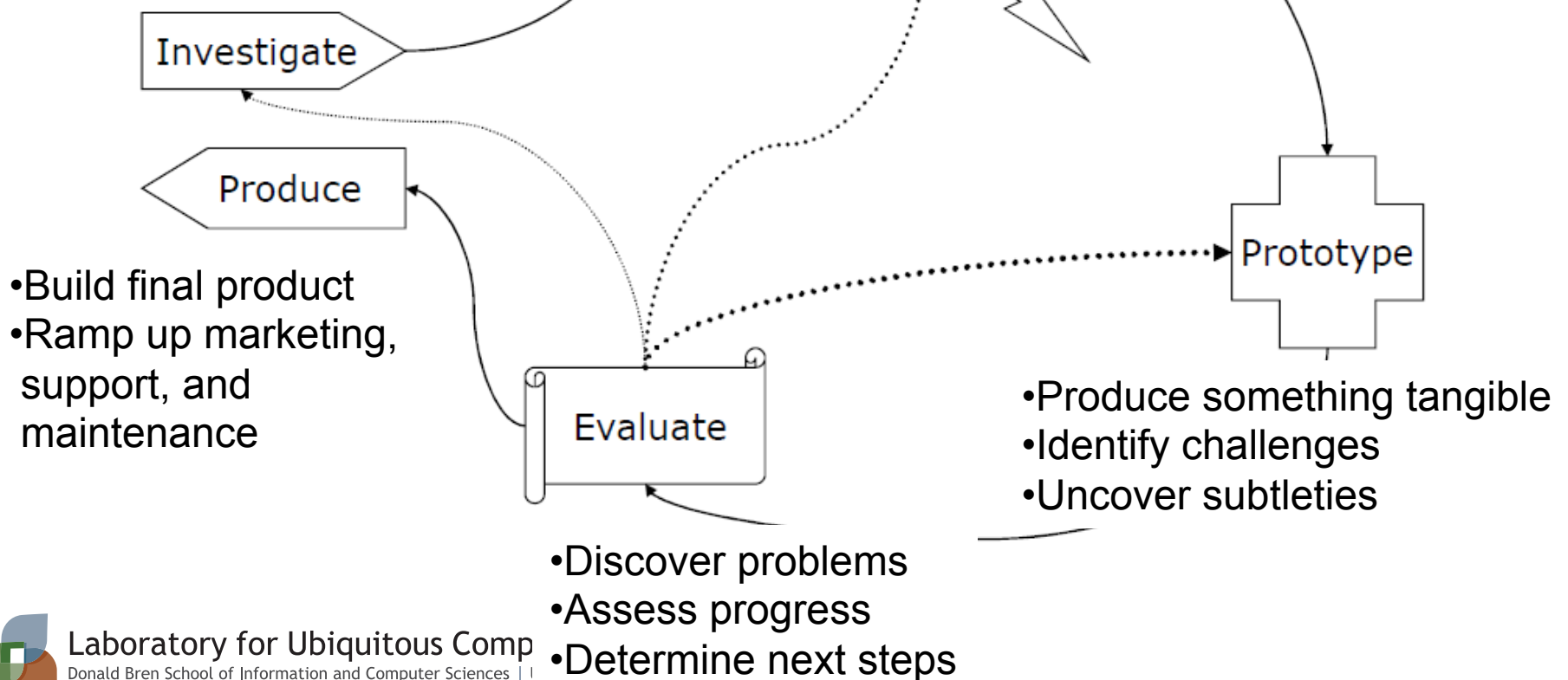 - Keep users in the center in the beginning, middle, and end
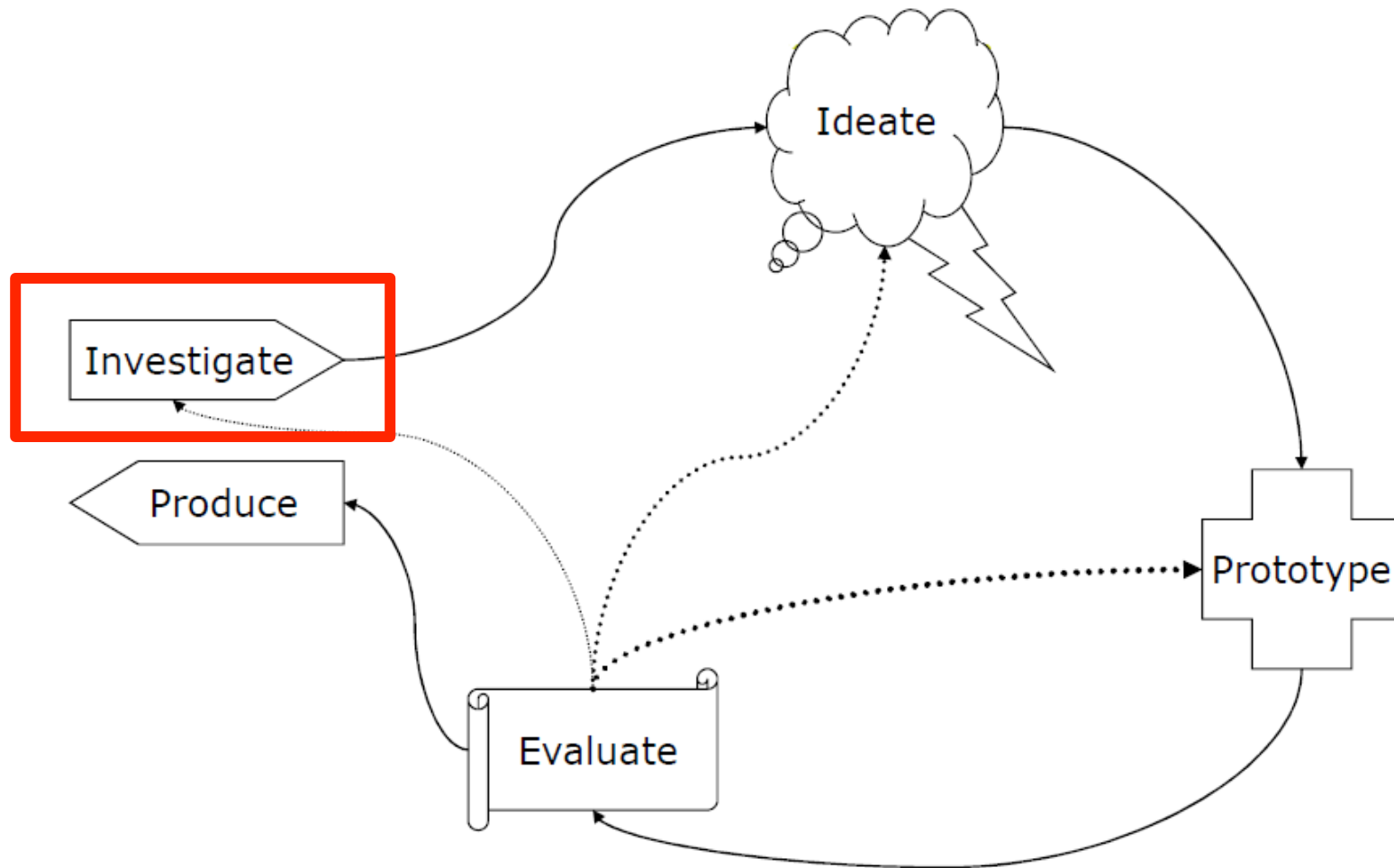
Design Process?

NO! WRONG!

Design Requires Iteration

Stage Goals

•Generate lots of ideas
•Grasp issues and
 potential solutions

•Learn about stakeholders
•Discover goals and needs
•How is it done now?
•What is wanted?
•What else has been tried?

Ideate

Investigate

Produce

•Build final product
•Ramp up marketing,
 support, and
 maintenance

Prototype

Evaluate

•Produce something tangible
•Identify challenges
•Uncover subtleties

•Discover problems
•Assess progress
•Determine next steps

Investigate

Why investigate?

- You cannot design apart from the world in which your users and design will live

Investigation Questions

- Identify users
- Identify stakeholders
- What are the requirements?
- How do they do it now?
- How long does it take?
- What do they want?
- What do they need?
- What else have they tried?
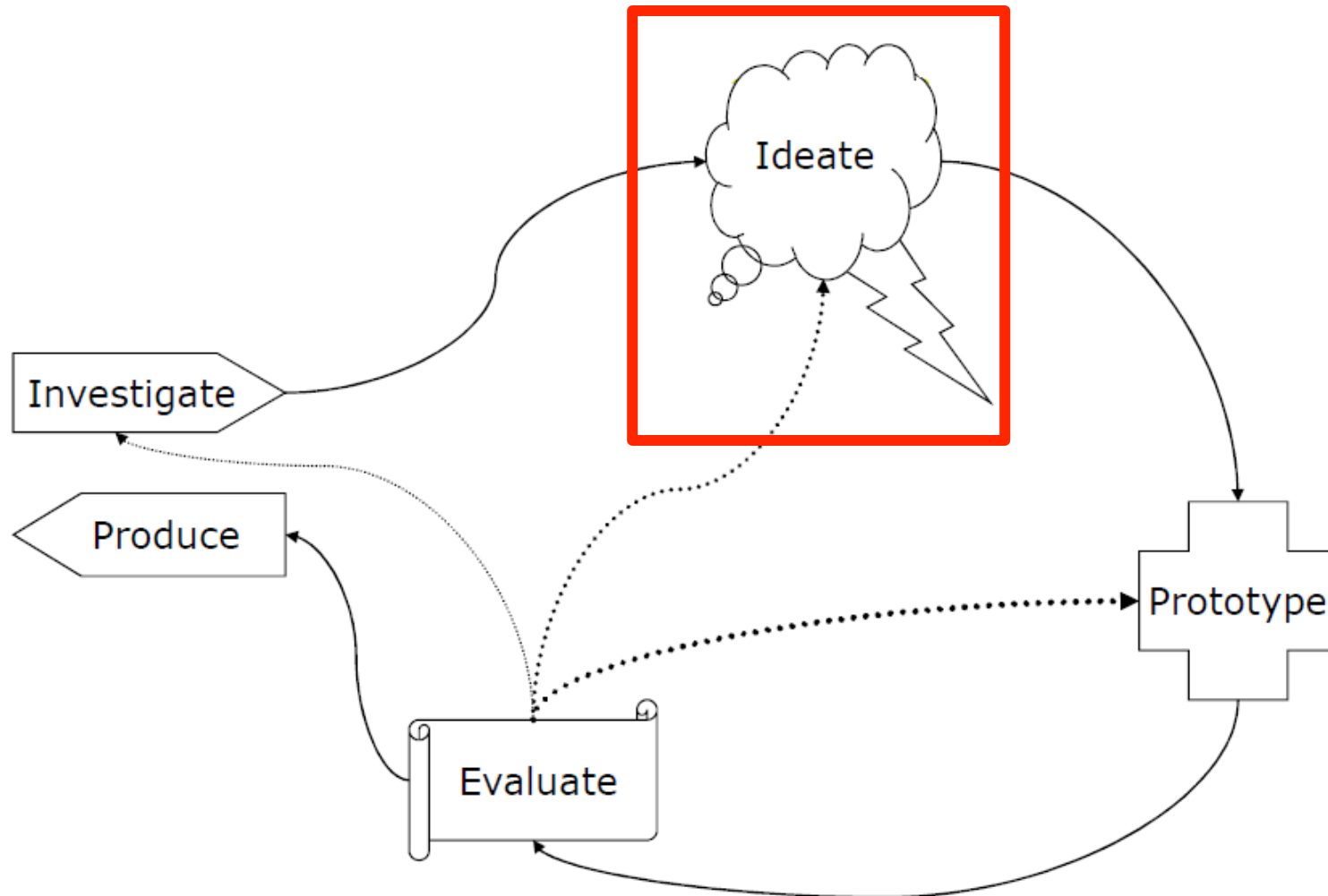- Is there already another solution?

Investigation Methods

- User surveys

- Focus groups

- Interviews

- Analysis of competition

- Contextual inquiry

- Design Ethnography

- We'll get to this next week

Ideate

Ideation

- Ideation = "idea generation"
  - Volume matters most!
- To increase the chances for success by considering a huge volume of ideas in a ***systematic way***
- One of the worst things you can do is go with the first idea that you get
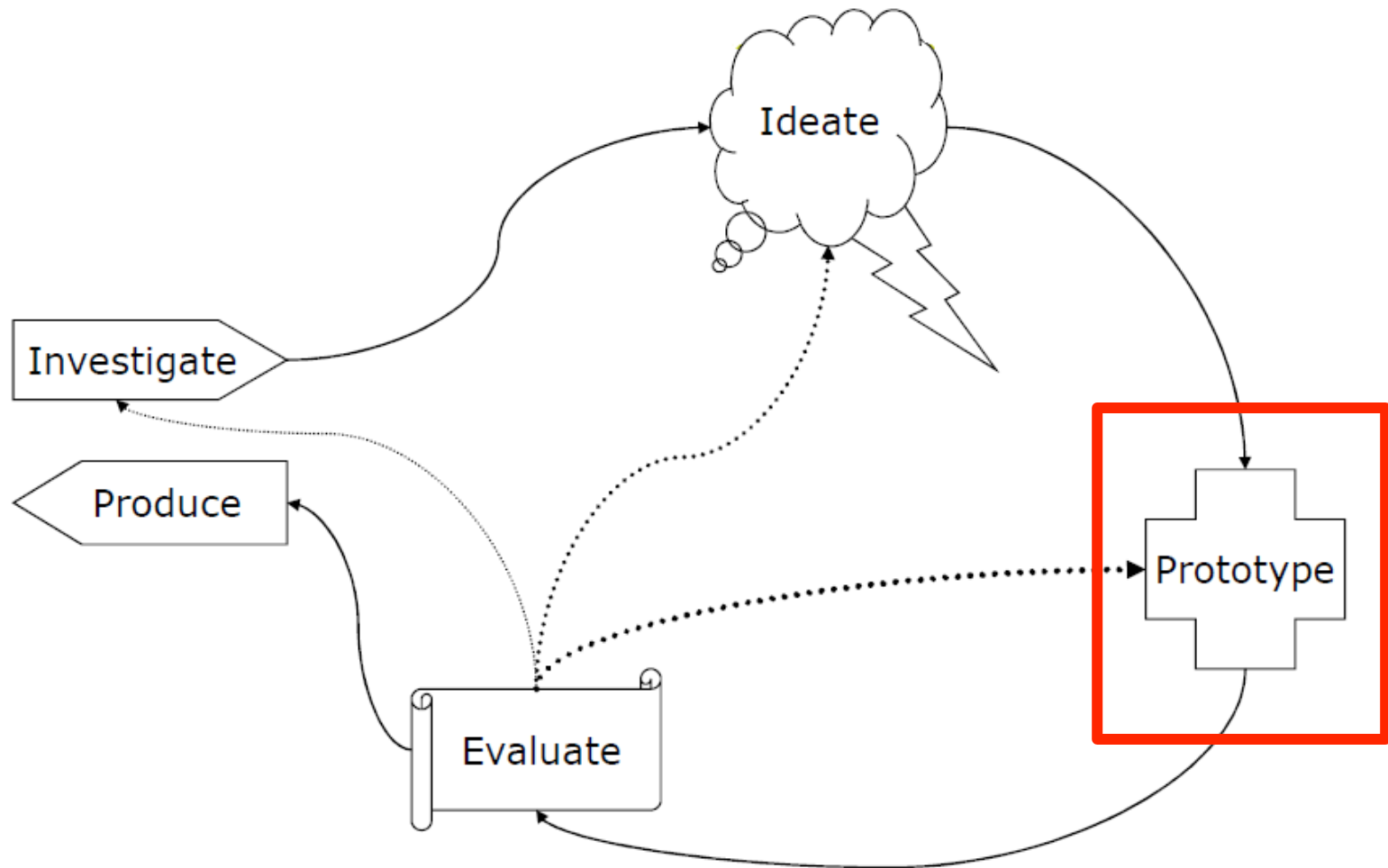 - *You can always come back to it later*

Ideation Methods

- Affinity diagramming

- Personas

- Scenarios

- Role-playing, play-acting, scripts, props

- Card sorting

- Structured Brainstorming

- Sketching

- This will happen in a few weeks

Prototype

Why prototype?

- It is hard to evaluate something that does not exist

- It is hard for users to react to abstract concepts

- Prototyping brings subtleties and nuances into the light

- Begin to wrestle with the technical constraints

Prototyping Fundamentals

- Build it *fast!*

- Prototype at the right fidelity

  - Stick with low-fidelity paper prototypes early in the process, and transition to higher-fidelity software prototypes later

- Don't over-engineer!

- Concentrate on the unknowns

- Don't become attached to it

  - Prepare to throw it away

- Build multiple concurrently (even if just two)

  - Users can compare two things much better than consider one in isolation

Evaluate
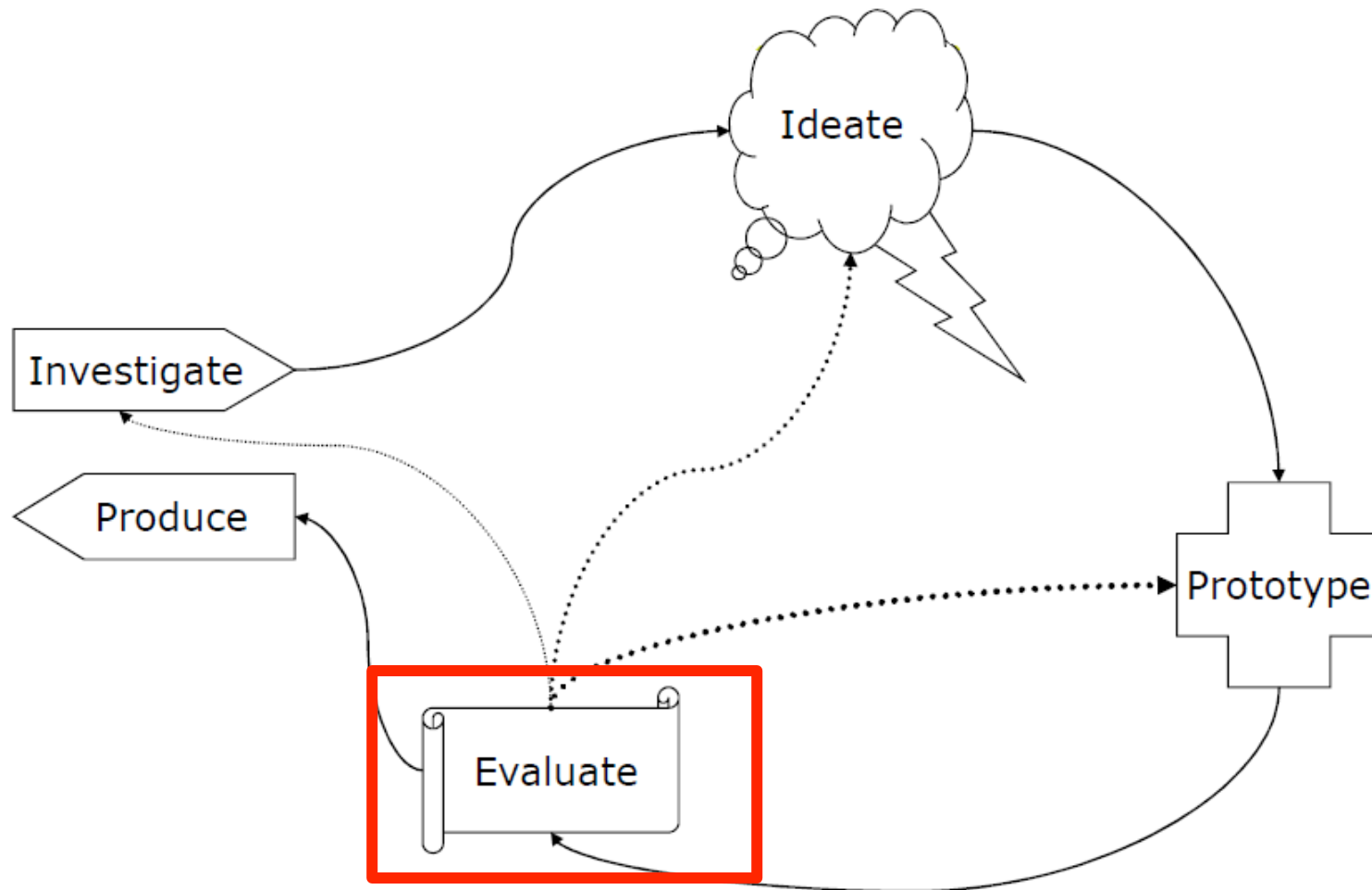
Evaluation, why do we need it?

- Automated procedures can find bugs, but not usability problems
  - (active research area, but hard!)
- You can't iterate without knowing what to fix, leave, or remove
- Answers both questions:
  - Did we build the right thing?
  - Did we build it right?

Evaluation Methods

- Heuristic Evaluation

- Guidelines Review

- Cognitive Walkthrough

- Usability Testing

- Laboratory Experiments

- Real World Deployments

- Week 8 lectures

Evaluation Drives Iteration

- If problems are in user performance

  - Probably need to return to prototyping phase

- If problems are in conceptual model and how users understand it

  - Probably need to return to ideation phase

- If problems are in usefulness or appropriateness

  - Probably need to return to investigation phase

Produce
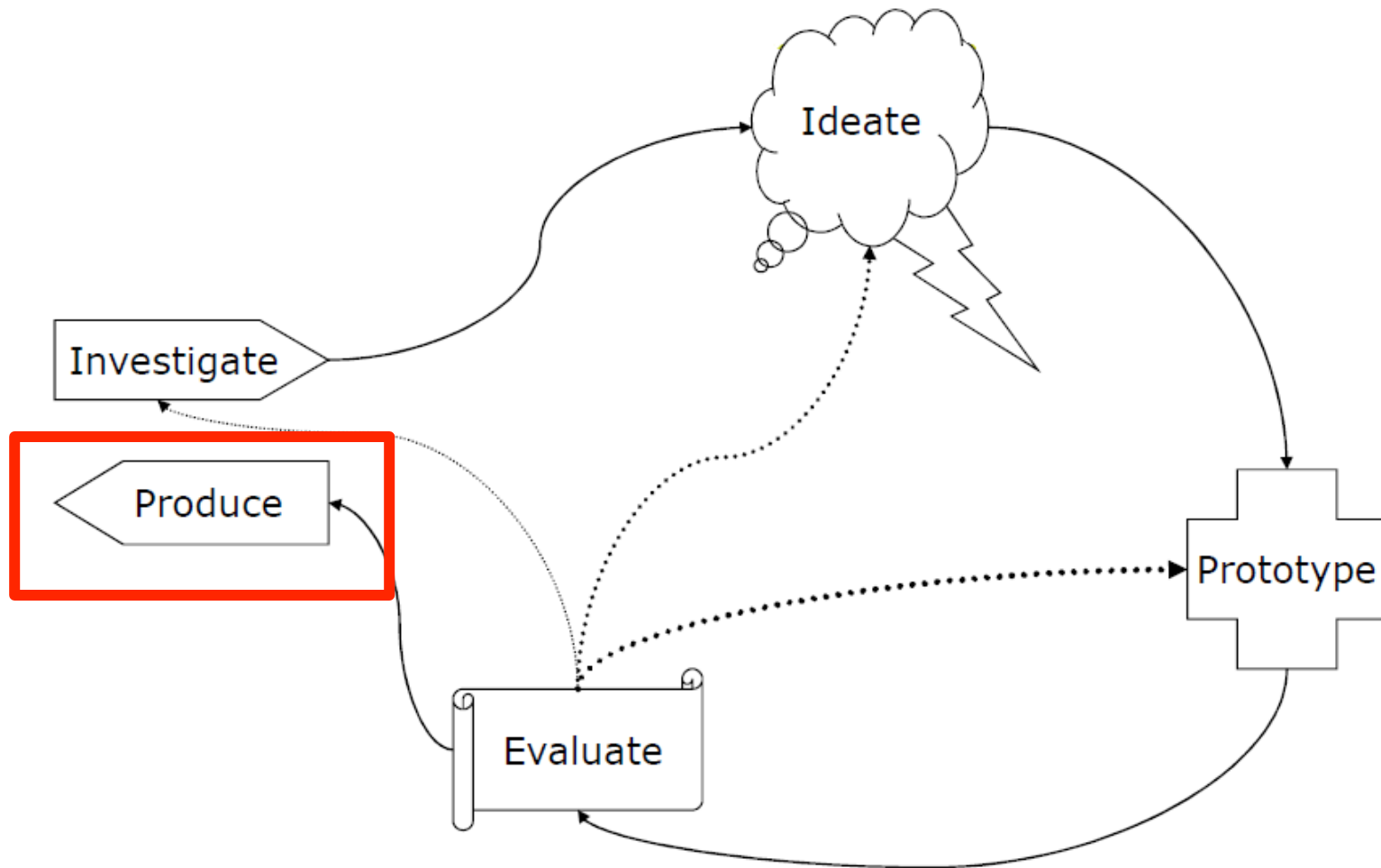
Production

- "Production" refers to all steps required to go from a functional prototype to a ***final product***
  - Software architecture
  - Programming, building
  - Manufacturing
  - Packaging
  - Help systems
  - Manuals
  - Training
  - Customer support
  - Marketing
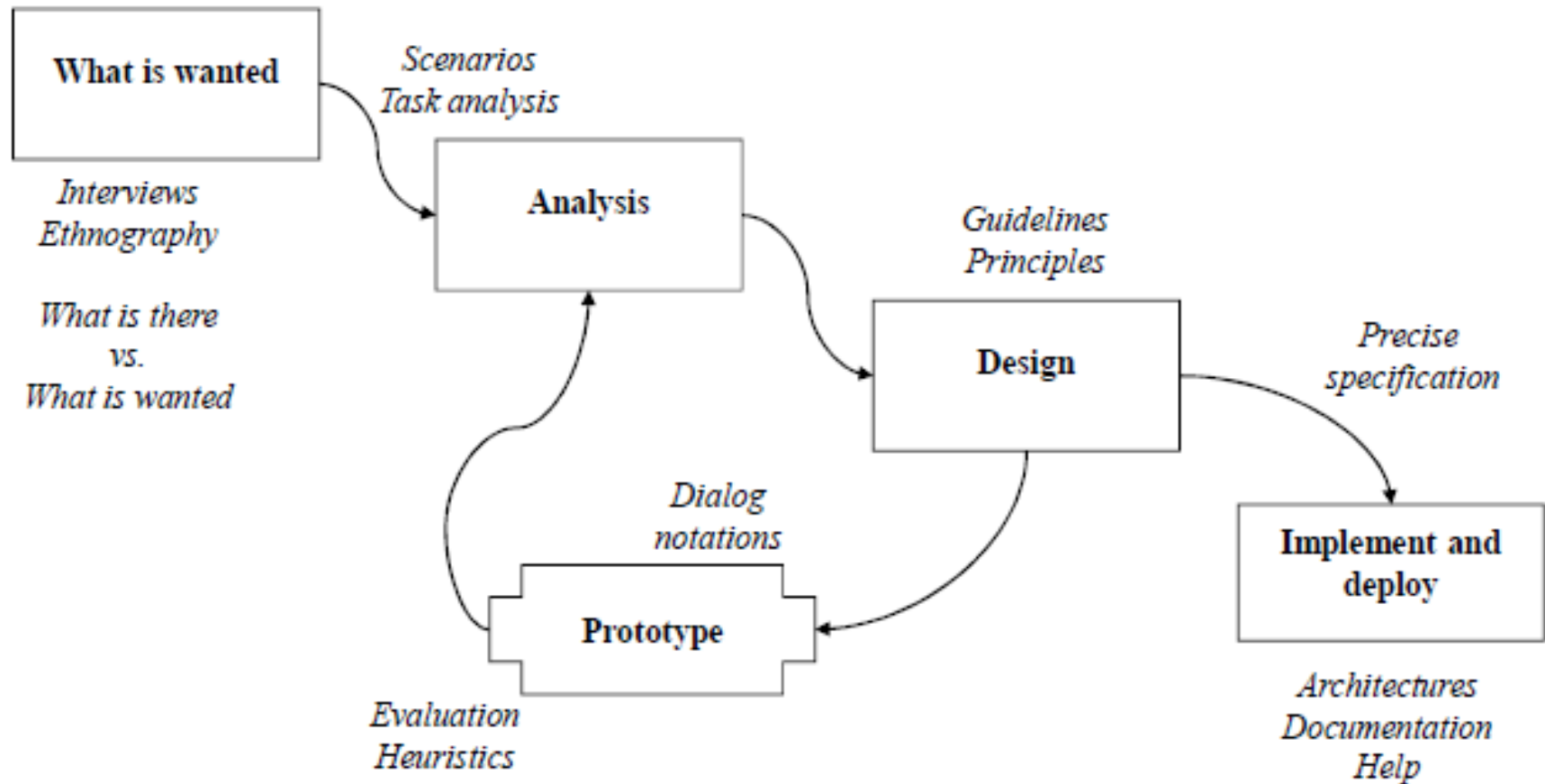 - Branding
  - Distribution

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Design Processes

- There is no agreement on an exact design process

DFAB

What do you like about it?
What do you not like about it?
What is missing?
What is superfluous?

What is wanted

Scenarios
Task analysis

Interviews
Ethnography

What is there
vs.
What is wanted

Analysis

Guidelines
Principles

Design

Precise
specification

Dialog
notations

Prototype

Implement and
deploy

Evaluation
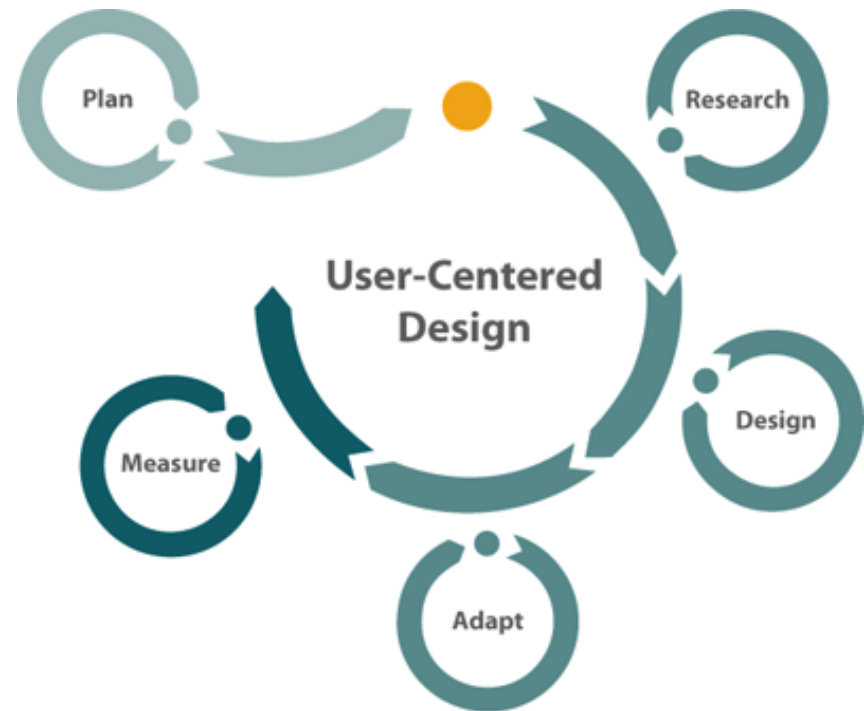Heuristics

Architectures
Documentation
Help

SAP (2 versions)
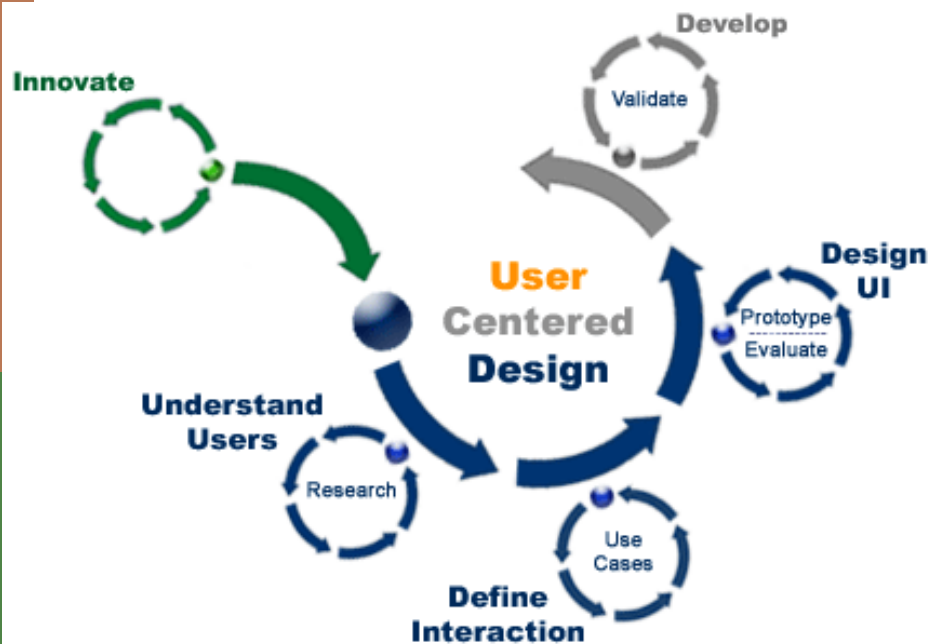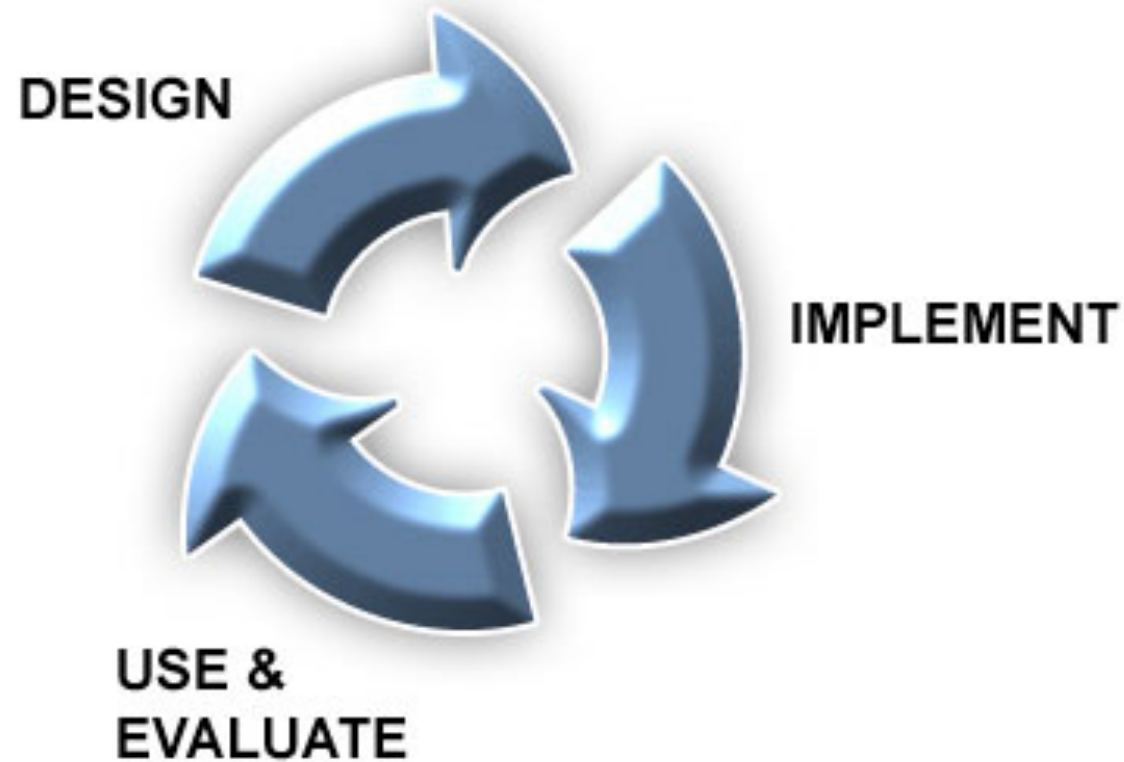
What do you like about it?
What do you not like about it?
What is missing?
What is superfluous?

Simple View

What do you like about it?
What do you not like about it?
What is missing?
What is superfluous?

Comparing the Processes

- What do they all have in common?

- What seem to be the main components?

Summary

- Design is a highly iterative process
- Design processes must keep the user's interests central
- Design starts with understanding the user
- Designs are never truly perfect - They can always be improved.
- It is a skill to know when to stop iterating and call a design "finished"

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A1: Thinking about Design: Due in One Week

- Think about the objects with which you interact and how they're designed

- Derive design principles

- Assignment description posted online (A1)

- Due next Thursday!

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Your Next Sketching Theme

- Due Next Thursday

- *Theme: Health:* Sketch three ideas relating to health, wellness, rehabilitation, therapy, exercise, nutrition, etc.

Next Class Topics

- **Next Week**
  - Fundamentals of Interaction
  - Look, Learn, Ask, Try

- **Upcoming Work Due Tuesday**
  - R2 – Comment on the design and usability principles in the DFAB chapters. What do you agree with? Think is useful? What is missing? Out of data?