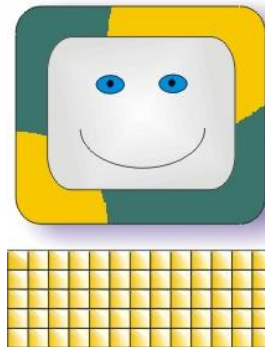


Process of interaction design

User-centred design
dr Kristina Lapin



Contents

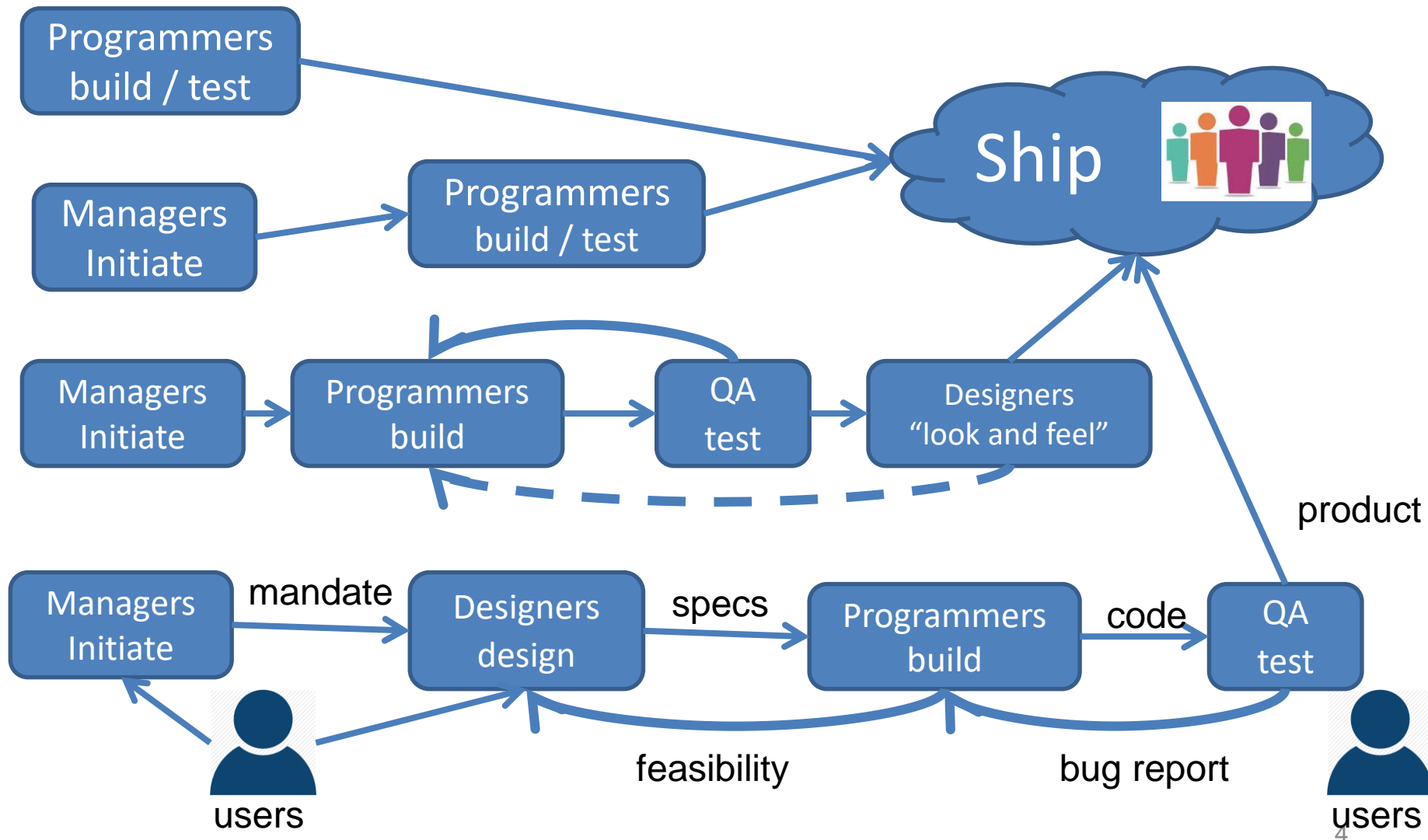
- The nature of interactive systems design
- The four processes involved in design:
 - understanding, design, envisionment, evaluation
- The centrality of evaluation in human centred design
- Understand the scenario-based design approach
- Develop scenarios and personas
- Understand the scenario-based design method.



Digital products ...

- are rude
 - ask patronizing questions like “Are you sure”, “Do you really want”?
- require people to think like computers
- Why is so?
 - ignorance about users
 - conflicting interests
 - the lack of a process

The evolution of the software development process



A successful product

Desirable

Viable

Buildable

Designers

User model

- motivations
- behaviors
- attitudes

Product design

- Design schedule
- form and behavior spec

User effectiveness &
Customer adoption

Management

Business model

- funding model
- income/expense projections, etc

Business plan

- marketing plan
- launch plan
- distribution plan

Sustainable
business

Technologists

Technology model

- Core technologies
- technology components
- build vs. buy

Technology plan

- engineering schedule
- engineering spec

Product
delivery

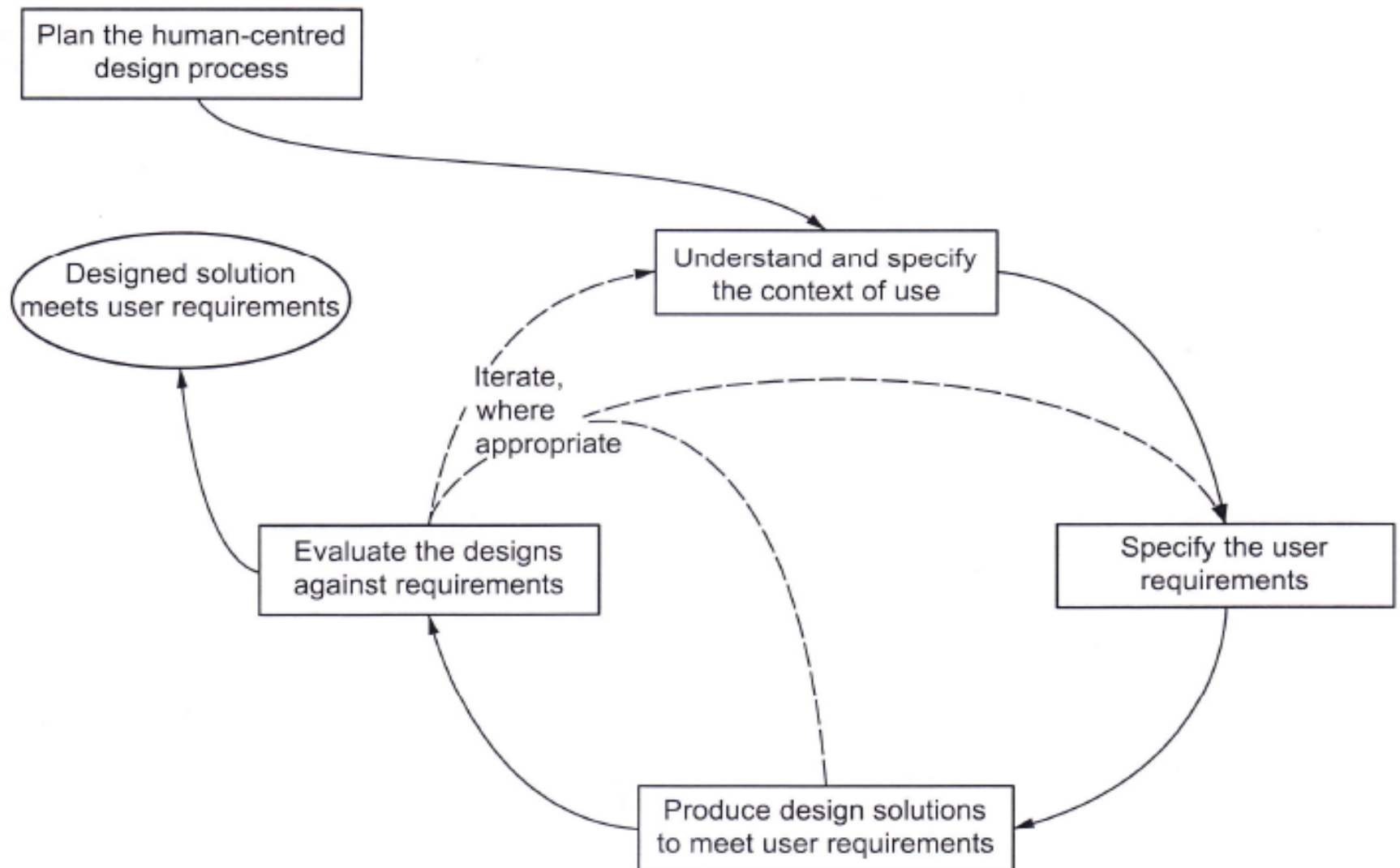
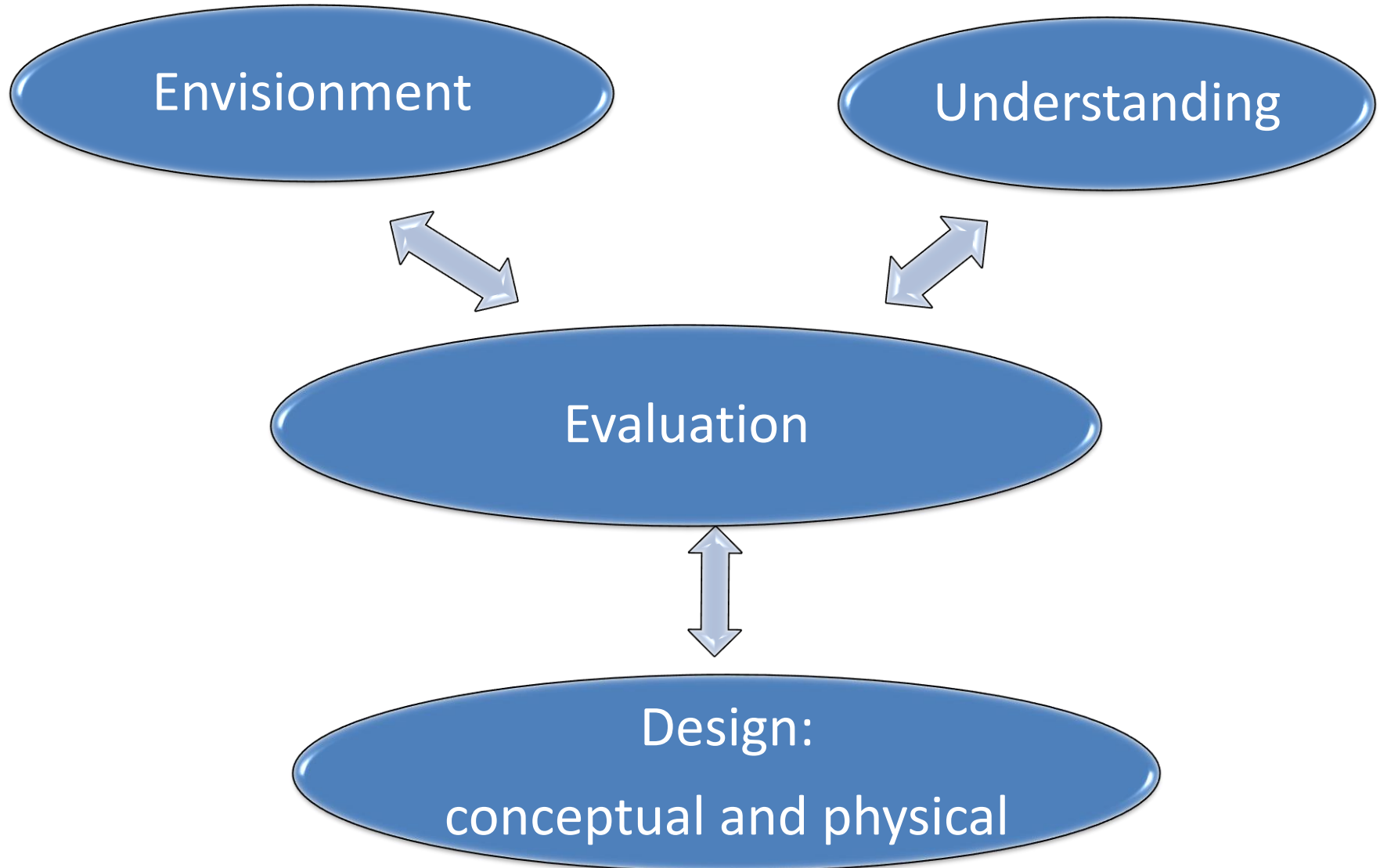
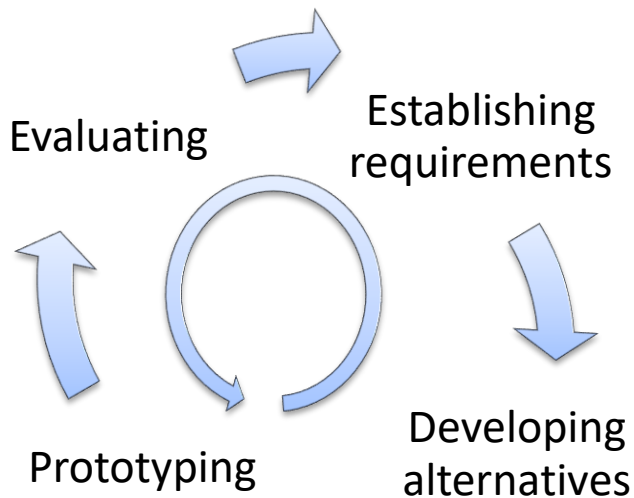


Figure 1 — Interdependence of human-centred design activities

User-centered design (UCD)



Core characteristics of UCD



**Users involved
through the
development**

**Clearly
documented user
goals**

Iterations

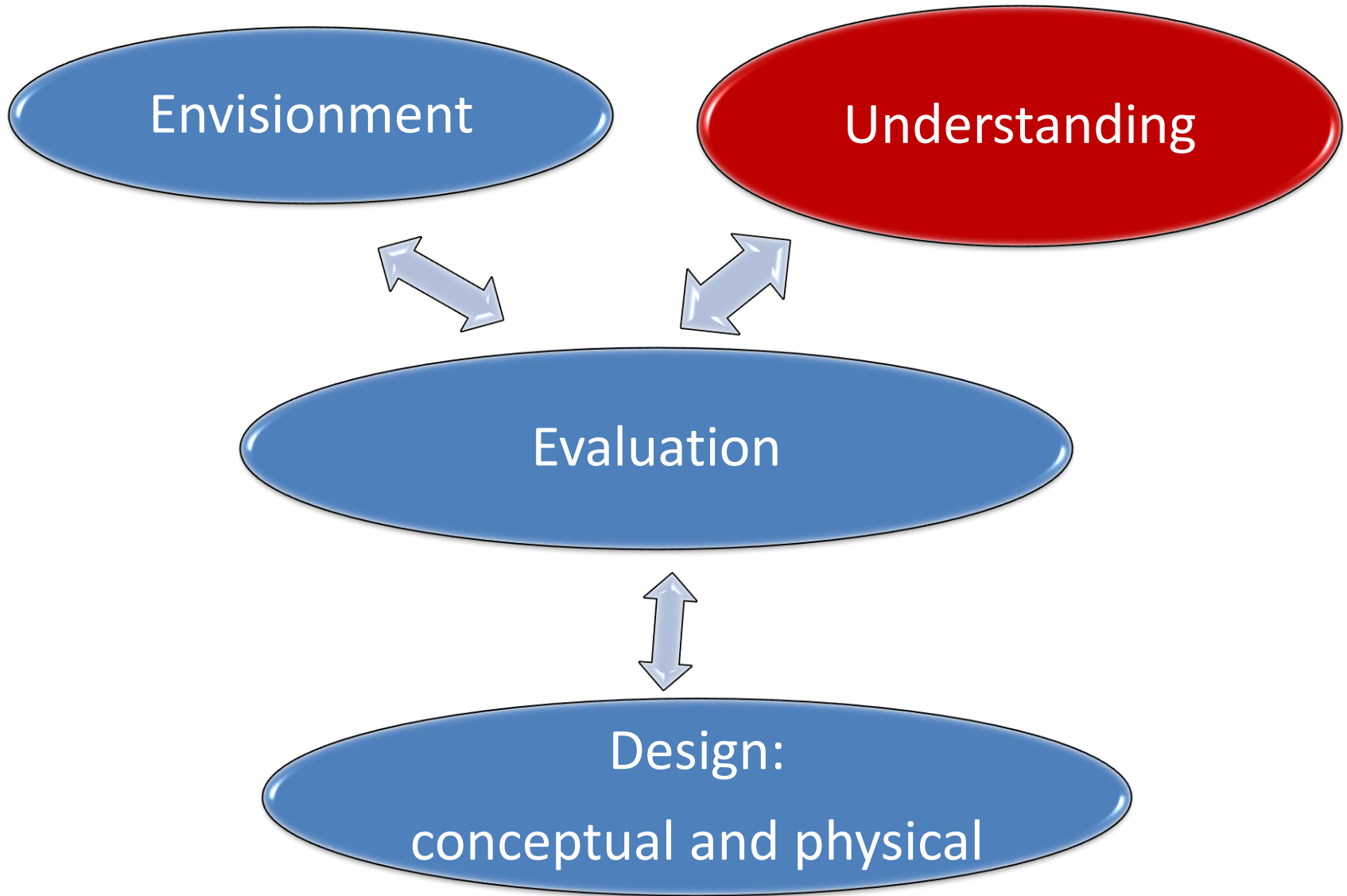
What is human-centered design?

- Approach to systems design and development that aims
 - to make interactive systems more usable
 - by focusing on the use of the system and
 - applying human factors/ergonomics and usability techniques
- Human-centred term is used to emphasize the impacts on a number on stakeholders
 - „user-centred“ and „human-centred“ are used synonymously

What is a user-centered approach?

User-centered approach is based on:

- Early focus on users and tasks
 - User's strength, limitations, preferences and expectations are taken into account when specifying which activities are carried out
- Empirical measurement
 - users' reactions and performance to scenarios, manuals, simulations & prototypes are observed, recorded and analysed
- Iterative design
 - problems are found in user testing, fix them and carry out more tests



Degrees of user involvement

- Member of the design team
 - Full time: constant input, but lose touch with users
 - Part time: patchy input, and very stressful
 - Short term: inconsistent across project life
 - Long term: consistent, but lose touch with users
- Newsletters and other dissemination devices
 - Reach wider selection of users
 - Need communication both ways
- User involvement after product is released
- Combination of these approaches

Importance of involving users

- Expectation management
 - Realistic expectations
 - No surprises, no disappointments
 - Timely training
 - Communication, but no hype
- Ownership
 - Make the users active stakeholders
 - More likely to forgive or accept problems
 - Can make a big difference to acceptance and success of product

Understanding users' needs

- Taking into account
 - what people are good and bad at
 - what might help people in the way they currently do things
 - what might provide quality user experiences
- Listen to what people want and get them involved
- Use tried and tested user-centered methods

Some practical issues

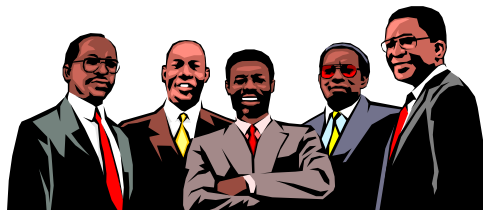
- Who are the users?
- What do we mean by 'needs'?
- How to generate alternatives
- How to choose among alternatives
- How to integrate interaction design activities with other models?

Who are the users/stakeholders?

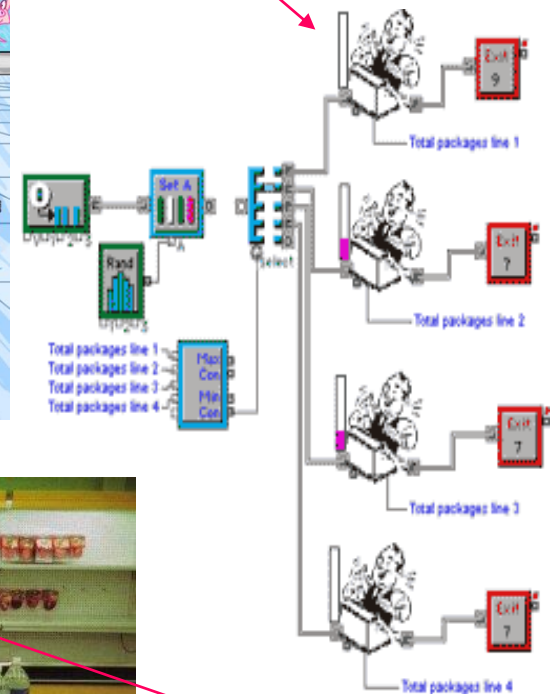
- Stakeholder
 - individual or organization having a right, share, claim or interest in a system or in its possession of characteristics that meet their needs and expectations (ISO 9241-210:2010)
- Not as obvious:
 - those who interact directly with the product
 - those who manage direct users
 - those who receive output from the product
 - those who make the purchasing decision
 - those who use competitor's products
- Three categories of user (Eason, 1987):
 - **primary**: frequent hands-on
 - **secondary**: occasional or via someone else
 - **tertiary**: affected by its introduction, or will influence its purchase

Who are the stakeholders?

- Suppliers
- Local shop owners



Check-out operators



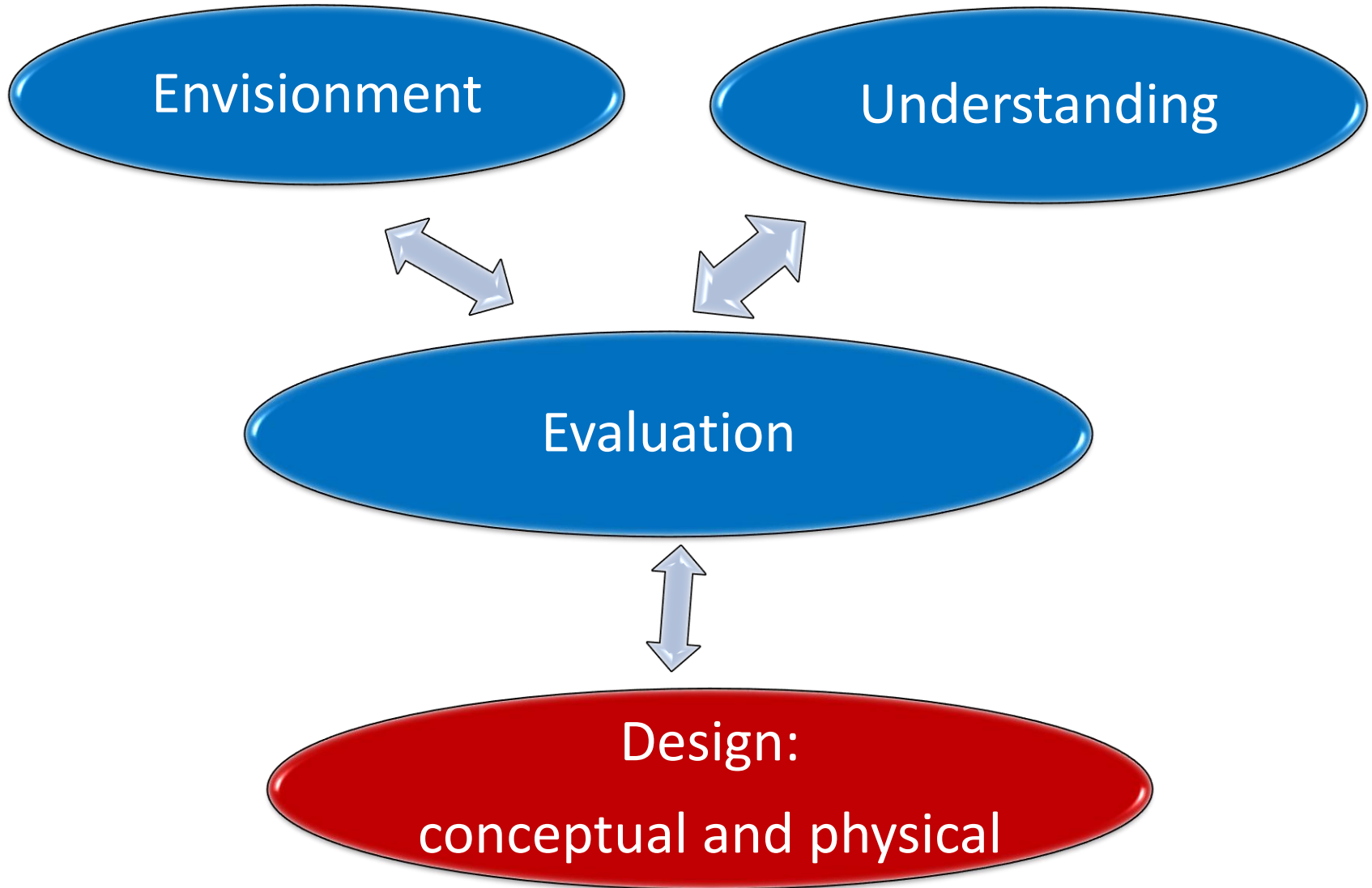
Customers

Managers and owners

What do we mean by 'needs'?

- Users rarely know what is possible
- Users can't tell you what they 'need' to help them achieve their goals
- Instead, look at existing tasks:
 - their context
 - what information do they require?
 - who collaborates to achieve the task?
 - why is the task achieved the way it is?
- Envisioned tasks:
 - can be rooted in existing behaviour
 - can be described as future scenarios



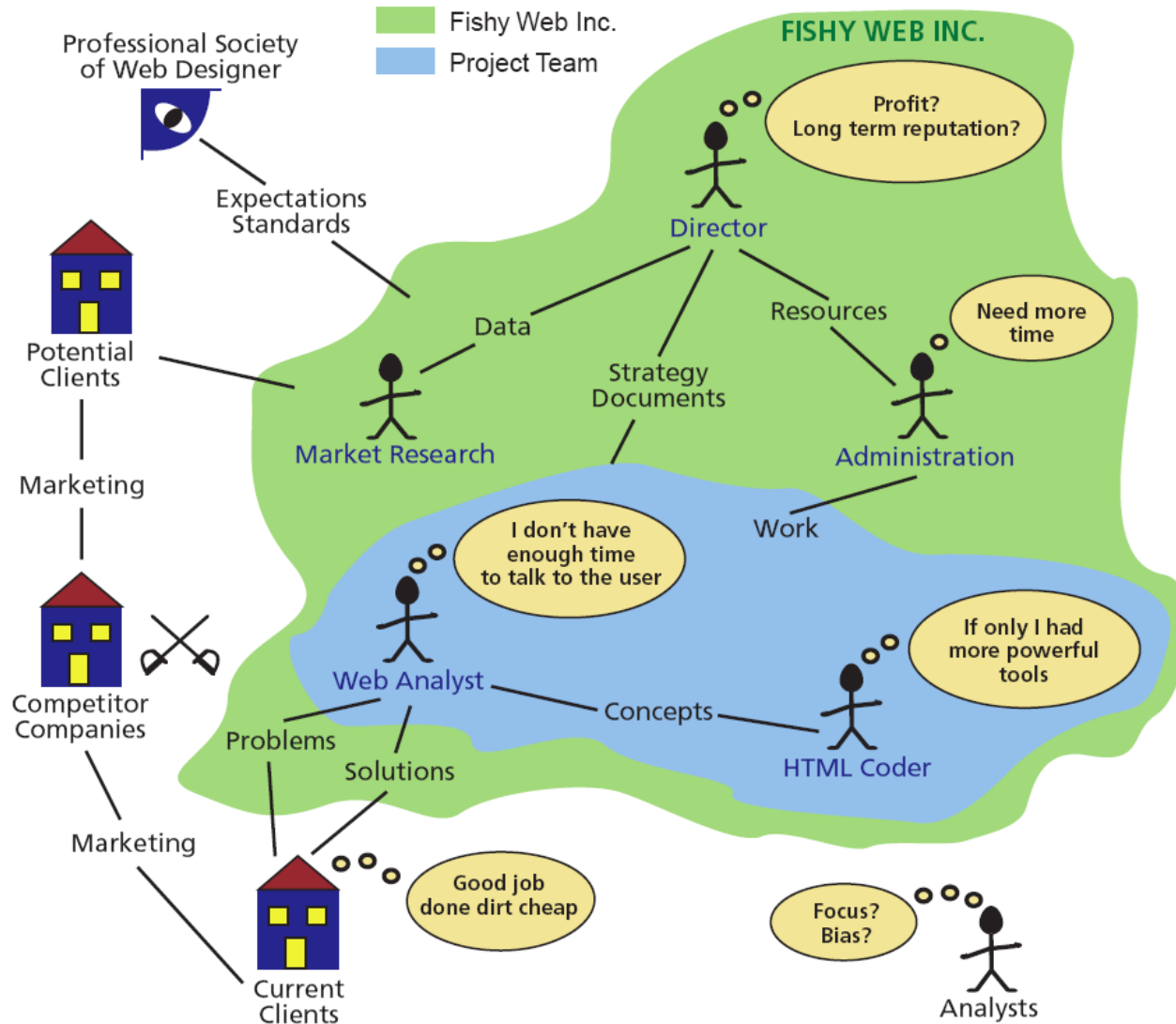


Conceptual design

- What?
 - what information and functions are needed for the system to achieve its purpose
 - what someone will have to know to use the system.
- Clear conceptualization of a design solution and how that conceptualization will be communicated to people
 - User story, rich picture
 - Use-cases, entity-relationship models

Conceptualization of needs: rich picture

Figure 2 Rich Picture of Web Design Consultancy

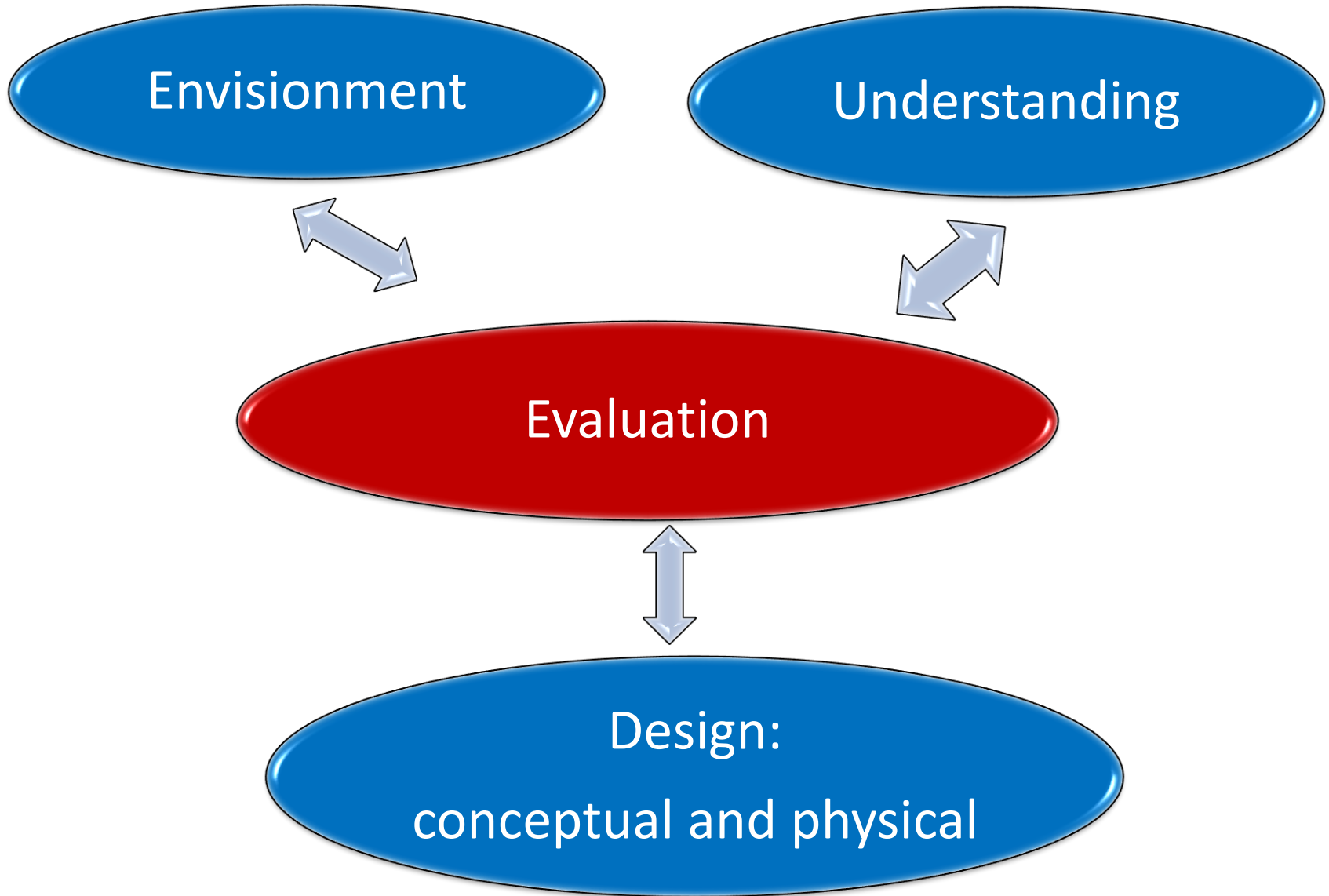


Physical design

- How?
 - how people will work: the look and the feel
 - structuring interactions into logical sequences
 - clarifying and presenting the allocation of functions and knowledge between people and devices.

Envisionment

- Designs need to be visualized
 - to help designers clarify their own ideas
 - to enable people to evaluate them
- Appropriate medium for
 - the stage of the process,
 - the audience and
 - available resources
- Sketches, mockups, prototypes



Evaluation

- Tightly couples with envisionment
- Analytical evaluations
- Field studies
- Testing with users



"This is what I need in order to do my job."

NAME: Vivica Parker

AGE: 32

OCCUPATION: Journalist

PROFILE:
 Born in Washington, DC
 Lives and works in New York City (far from family)
 Lives by herself in a small apartment
 Has a driver's license
 Calls parents and older brother on weekends
 Works for an online art magazine and is currently in charge of writing a blog about graffiti. In order to do that she needs to do the following tasks:

- Walk/drive around the city
- Take pictures
- Talk with artists and keep record of that info (place, time, people)
- Work day/night
- Share the collected information with editor and magazine's readers

To do her job, usually carries notebooks, camera and cell phone to keep in touch with her editor.

INTERESTS:
 Amateur theater actress since she was 23
 Travel and merge in different cultures
 Architecture

ACTIVITIES:
 Did research on ancient Egyptian architecture
 Member of the Art Society of NY

TECH EXPERIENCE:
 Basic knowledge about operating systems
 Uses the Internet frequently either for personal or business purposes

TECH ATTITUDE:
 Always open to new technology, but she feels annoyed with complex applications and discards them very often
 Tends to feel numb using the latest high-tech gadgets and needs time to get used to them

GOALS & SITUATED BLOGGING NEED:
 Needs to keep track of her location and time when she (a) finds and photographs graffiti and street art for her blog and (b) conducts audio interviews of artists and enthusiasts
 Needs to have a quick way of keeping track of content gathered from separate locations in order to post articles before editorial deadlines

PERSONAS AND SCENARIOS

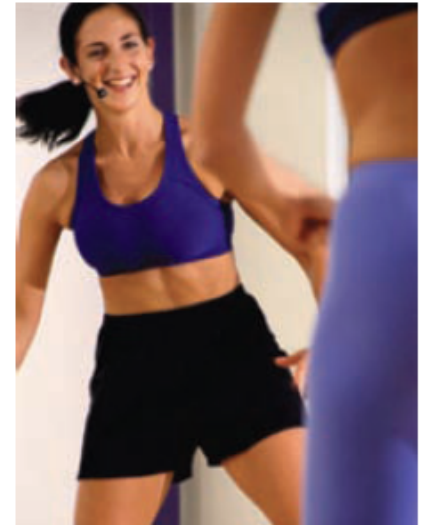
Personas

- Personas are concrete representations of the different types of people that the system or service is being designed for.
- Indicate aims, meaningful activities
- Designers create personas so that they can envisage whom they are designing for.

Mari

- age 23
- aerobics instructor
- training seriously for first marathon
- her usual training partner has moved away
- she leads a wild social life and tends to burn the candle at both ends
- she's got a targeted schedule
- companion is very proactive in pace making and motivation

1. She's set up a long-term schedule with her HFC to enable her to run her first marathon in under 4 hours.
2. This includes target goals such as what times she should be running long distances by which stage of the regime.
3. The HFC adapts to maintain the regime when Mari's social circumstance impacts her ability to train.
4. If she runs too far or too fast the companion will advise that this may have a negative impact on her training and may result in potential injury.
5. Explicit instructions in real time run ('ok, now we're gonna push hard for 2 minutes....ok, well done, let's take it easy for the next 5....etc.')
6. The HFC has access to her social schedule (through social companion?) and suggests going to a party the night before a long run may not be a great idea.
7. At the actual marathon her HFC becomes a motivating force and gives her real-time advice (eg, 'there's a hill coming up, pace yourself', it knows this from a run plug-in she bought for the HFC).

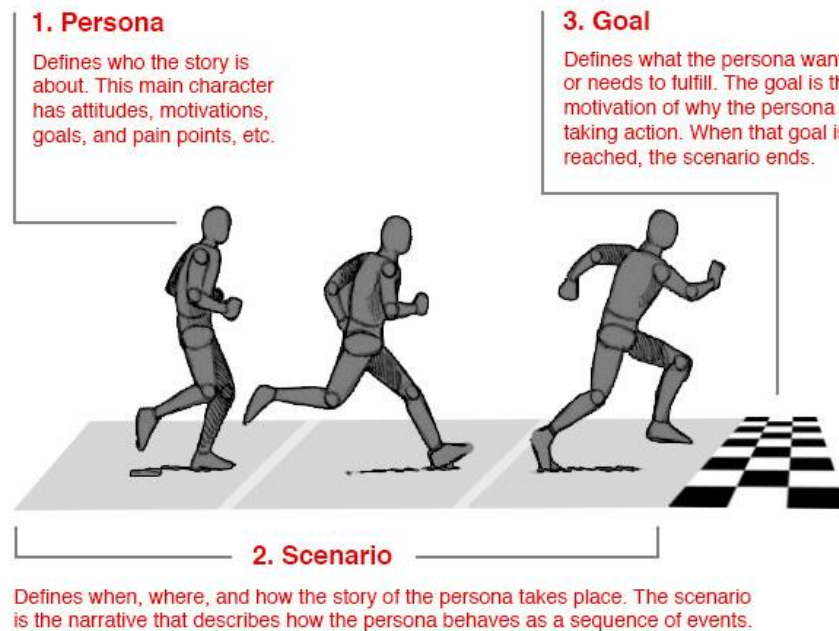


The types of personas

- Goal-directed persona
- Role directed persona
- Engaging persona
- Fictional persona

Goal directed persona

- What user will do while using product?
 - the process of achieving their goals

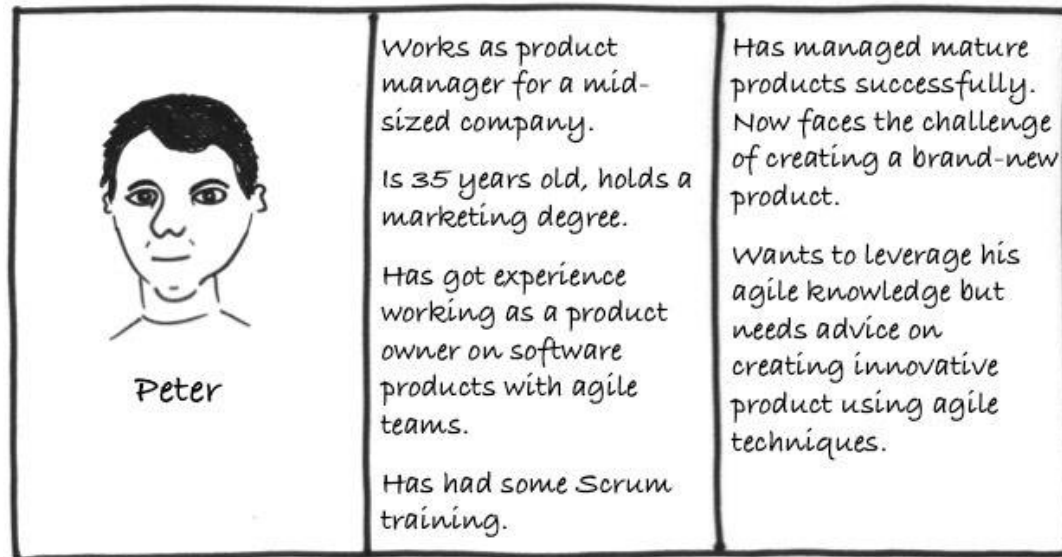


Role persona

- reflects the part that users play in their organizations or wider lives
- Where will the product be used?
- What's this role's purpose?
- What business objectives are required of this role?
- Who else is impacted by the duties of this role?
- What functions are served by this role?

Engaging personas

- incorporate both goal and role directed personas
 - examine the emotions of the user, their psychology, their backgrounds and make them relevant to the task in hand



Fictional Personas

- Emerges from the experience of the UX design team
- Designer makes assumptions based on the past interactions with the user and products to deliver a picture of what, perhaps, typical users look like.
- An initial sketch of user needs rather than a detailed portrait

USING SCENARIOS THROUGHOUT DESIGN

Scenarios

- Scenarios are stories about people undertaking activities in contexts using technologies.

1. The user is moving from a standard view of their photos to a search mode. This is a voice driven function.
2. Here the user narrows down the field by establishing a search parameter again by voice. Note that the user could search for any metadata parameter or combination of parameters that the system has established. Indeed the system could proactively suggest additional ones.
3. Having used voice to establish the smaller field, the user now applies touch to quickly flick through the pictures. Additional touch functionality could include scaling, cropping or editing.
4. Having found the photo they want to send, the user now combines speech with touch to indicate that the gesture of flicking to the left means email that specific image to the user's uncle.

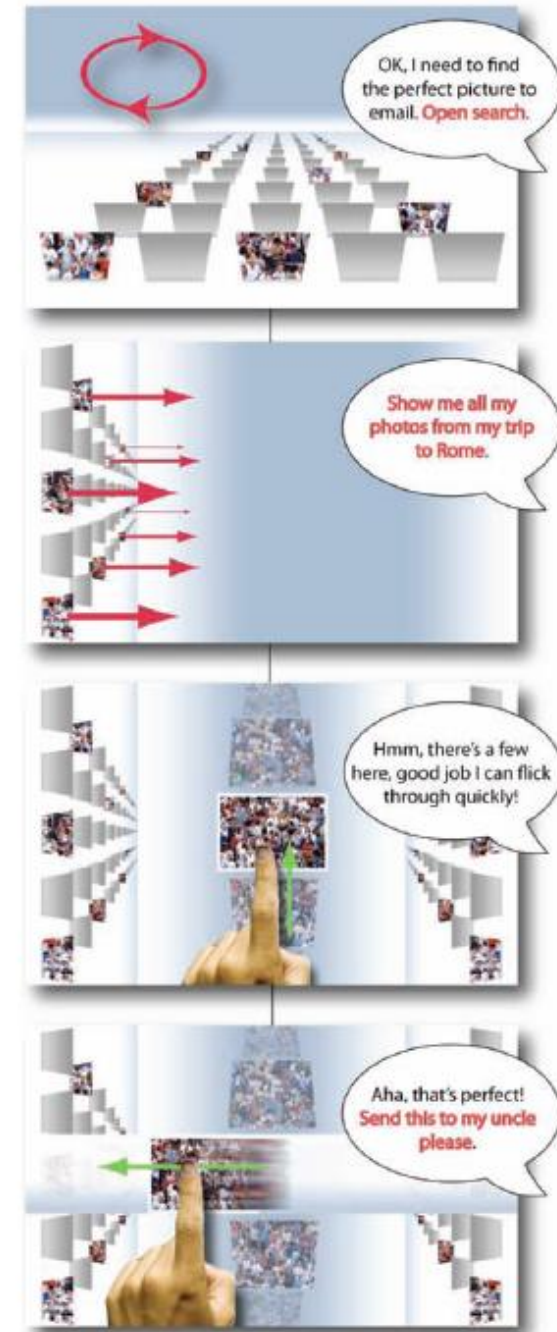


Figure 3.7 An scenario of multimodal interaction with a Photo Companion

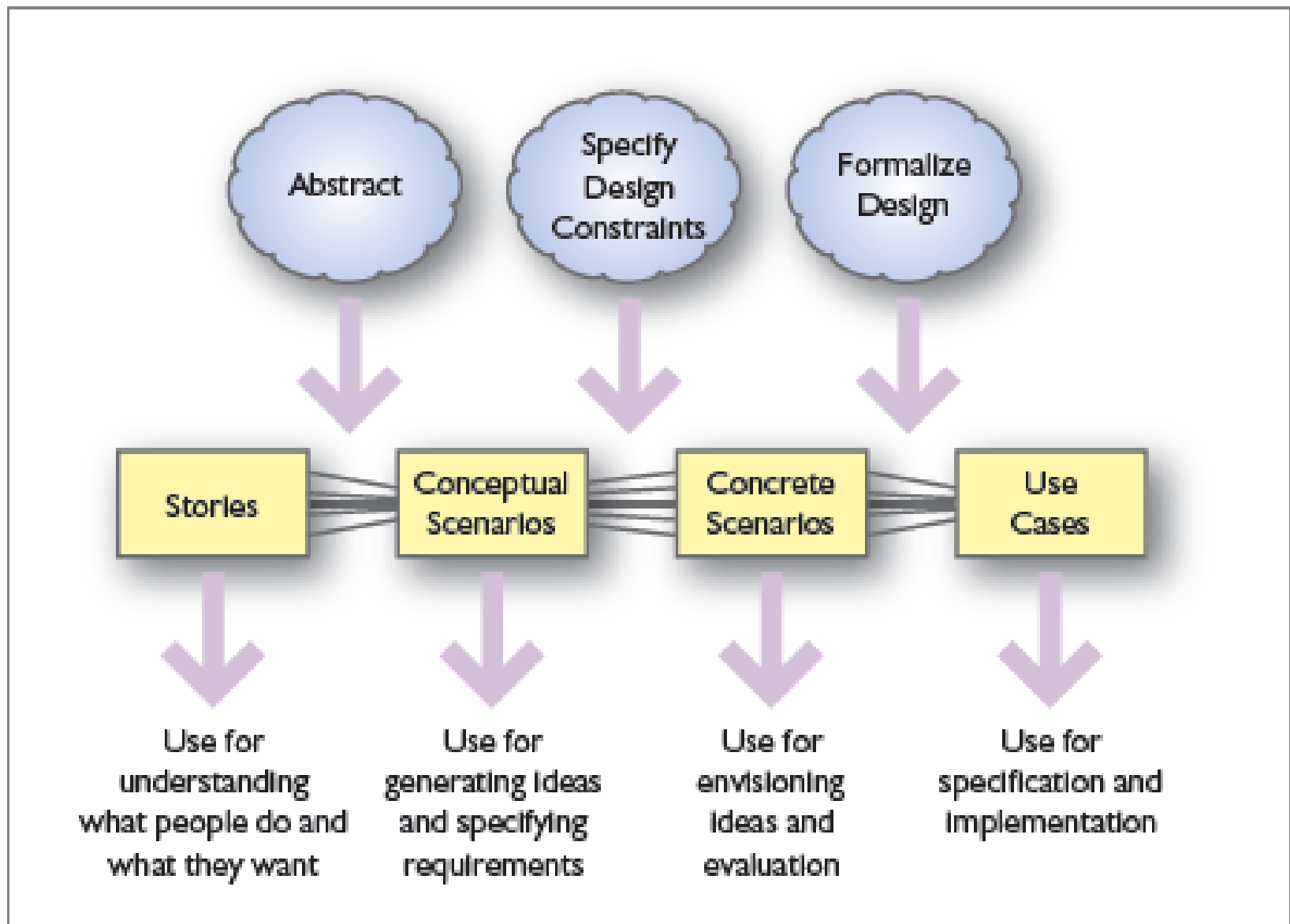


Figure 3.10 Scenarios throughout design

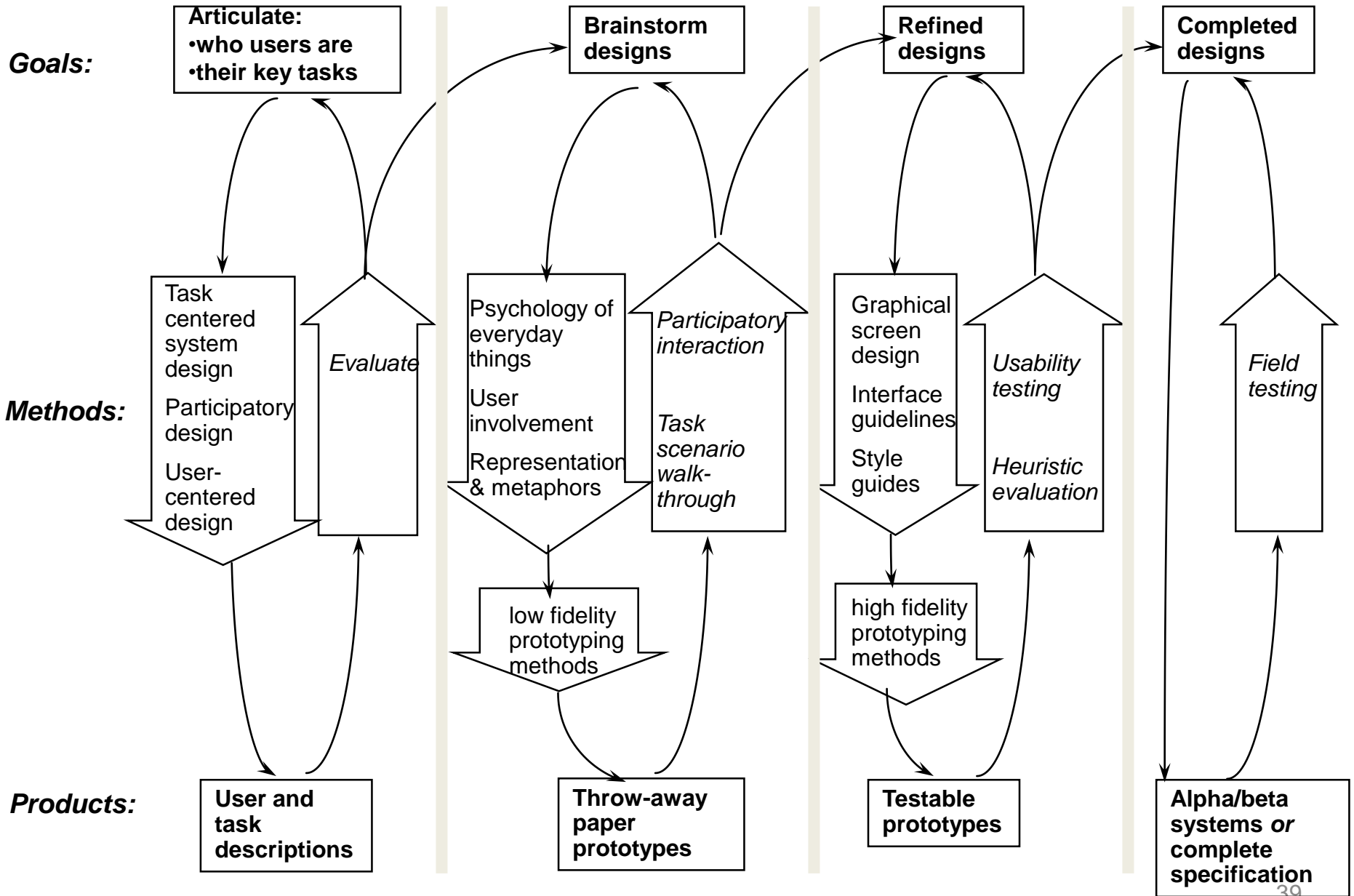
1 assignment

CONTEXT OF USE DESCRIPTION

Context of use

- User goals in the developed project
- Characteristics
 - Demographical information
 - what IT they uses, motivation to learn more, etc.
 - User experience level
- Analysis of computerized activities (time,)
- Current user stories
- Problems and opportunities of each scenario
- Conceptual scenarios of the developed product

Usability engineering life cycle (Soul Greenberg)



Why go to this length?

- Help designers:
 - understand how to design interactive products that fit with what people want, need and may desire
 - appreciate that one size does not fit all
 - e.g., teenagers are very different to grown-ups
 - identify any incorrect assumptions they may have about particular user groups
 - e.g., not all old people want or need big fonts
 - be aware of both people's sensitivities and their capabilities

Mobile Apps Life Cycle

1. Discovery
2. Adoption
3. Trial
4. Abandonment or Long-Term Usage
many apps are abandoned

[MTV Networks' Mobile Apps Study Reveals the Life Cycle of an App: From Discovered to Discarded](#)

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