Interaction Design & PACT analysis

Unit 4

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Organizational info

New lesson schedule:

Tuesday: 13:30 – 15:30 (A105)

Thursday: 13:30 – 15:30 (A206)

Thursday 11th October NO LESSON

Advertisement: UX challenge

https://www.trentinoinnovation.eu/it/area/innovazione-e-mercato/iniziative-e-servizi-per-linnovazione/innovation-challenge/ux-challenge/

Interaction Design & PACT analysis

Unit 4

Learning outcomes

- Interaction Design (IxD)
- PACT analysis

“Design” is an umbrella term

- Automotive design
- Communication design
- Engineering design
- Fashion design
- Game design
- Graphic design
- Interaction design
- Interior design
- Product design
- Sound design
- UX design
- …

Similarities & differences

Philippe Starck's lemon squeezer (Alessi)

Similarities & differences

Eames Lounge Chair (1956)

Similarities & differences

Nokia

–

Your thoughts about design

- Is product design different from service design?
- What differentiates good design from bad design?
- What factors should a designer consider when developing a new product?

Your thoughts about design

- What does an interaction designer design?
- A new version of an existing interactive technology
  - E.g. re-design of ticket machines for public transport
- An interactive technology for an existing human activity
  - E.g. the Kindle for the activity of “reading books”
- A new human activity thanks to a new technology
  - E.g. Instagram stories

Interaction Design

IxD is a process:

- a goal-directed, problem-solving activity informed by intended use, target domain, materials, cost, and feasibility
- a creative activity (proposes new solutions)
- a decision-making activity to balance trade-offs

IxD Key characteristics

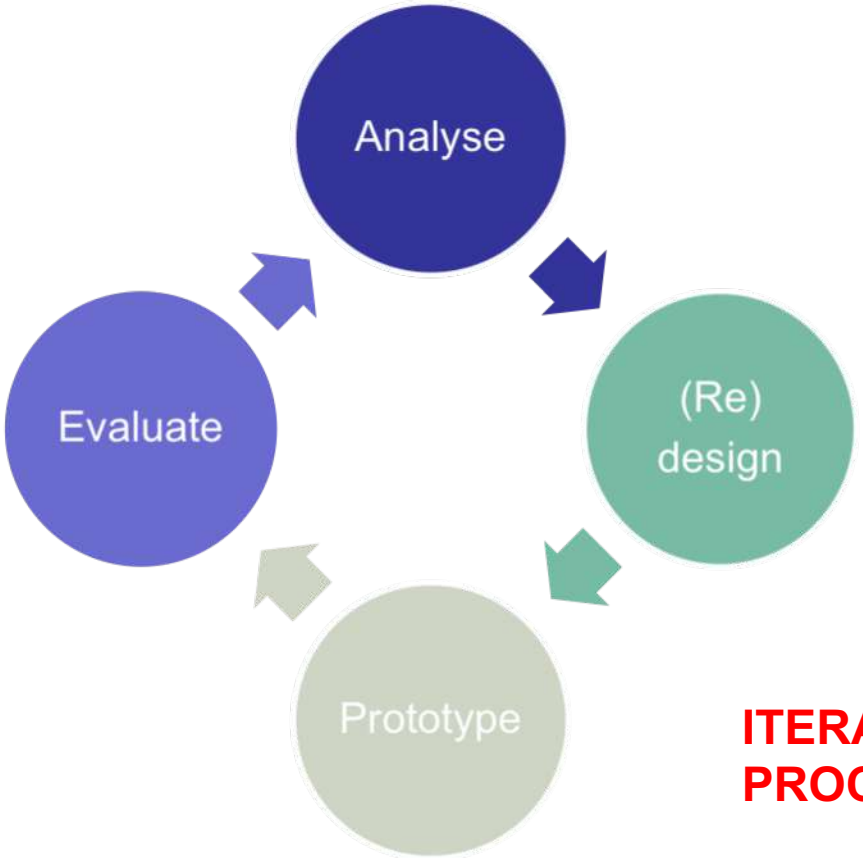
- Focus on **users since the very beginning of the design process**
- **Identify, document, and agree** on specific usability and UX goals at the beginning of the project
- Nevertheless, **iteration is inevitable**. Designers never get it right first time

Goals of ID

- Develop usable products as well as an enjoyable experience
- Involve users in the design process i.e., user-centred system design

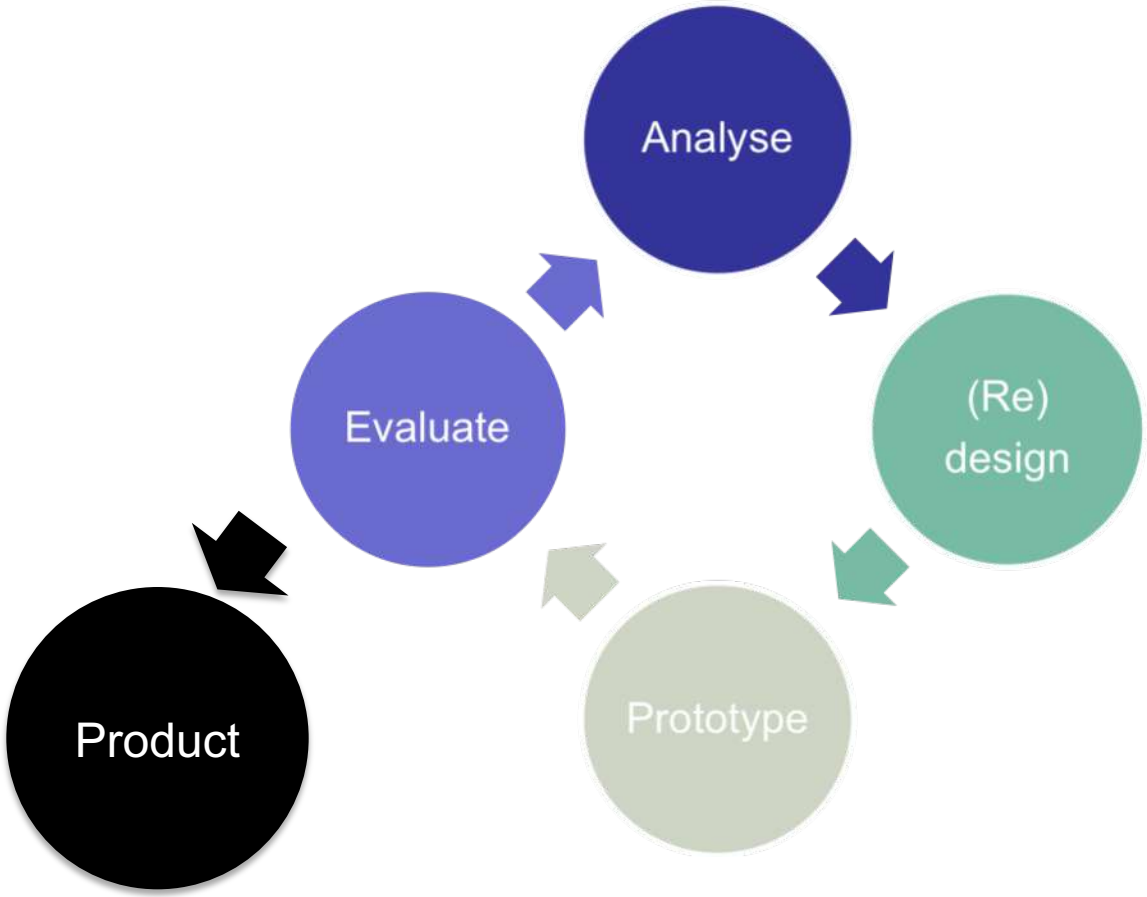
User-centred design process

1. **Analyse:** identify needs and establish requirements
2. **Design:** generate solutions
3. **Build** interactive prototypes that can be communicated and assessed
4. **Evaluate:** analytically, with users



ITERATIVE PROCESS

User-centred design process

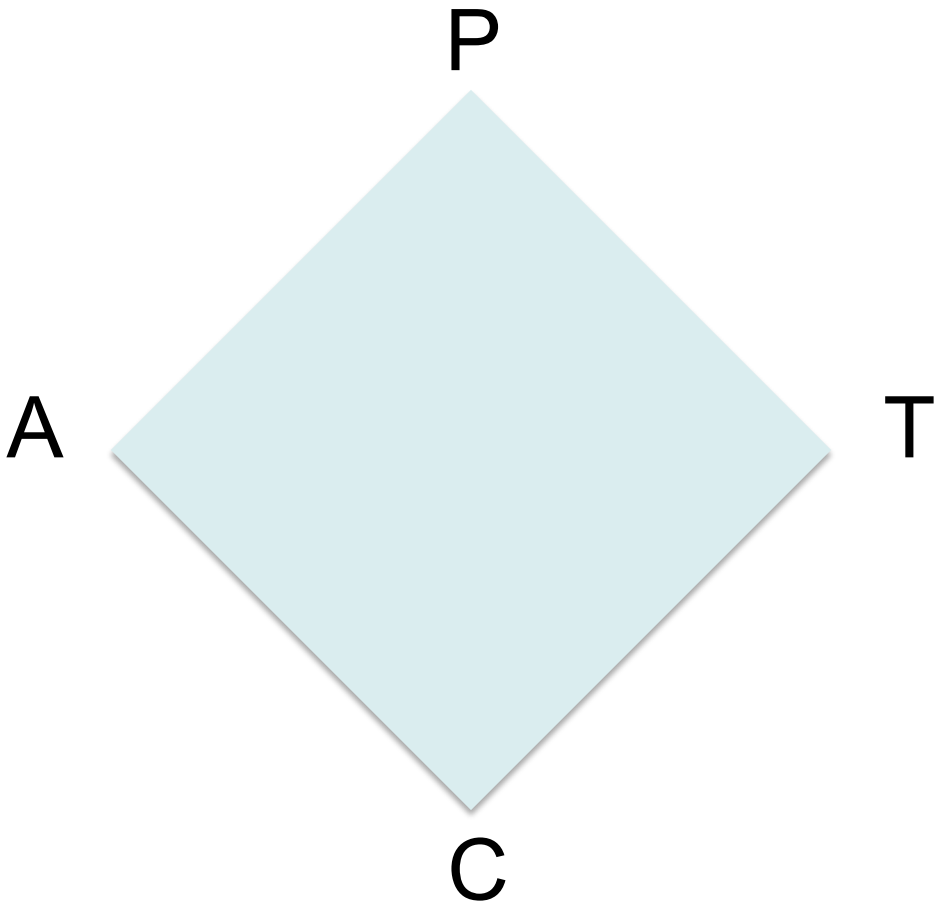


Good design

- Takes into account:
  - **Who** the users are – **People**
  - **What activities** are carried out by users- **Activities**
  - **Where** the interaction takes place - **Context**
  - **What technologies** are used - **Technologies**

- User-centric understanding of design problems: ***PACT Analysis***

PACT Analysis



PACT Analysis

- User-centric framework for breaking down a design problem
- Take each category - People, Activities, Context and Technology - and work through it
- The analysis helps focus/orient **early design** thinking
- Important: revisit the analysis
  - As you get deeper into the problem the analysis should change and/or get richer

Exercise

Product

A software for tracking and monitoring the mental decline of people at high risk of dementia

For each category of the PACT framework:

1. I present the category
2. You have 3-4 minutes for pen and paper individual reasoning
3. Short “discussion” on the category

People: Who are the users/stakeholders?

Three categories of users (Eason, 1987):

- **Primary**: direct interaction, frequent use
- **Secondary**: occasional use or via someone else
- **Tertiary**: affected by its introduction, or will influence its purchase

People: Exercise

Who are the **primary / secondary / tertiary** users of our product?

(Product: a software for tracking and monitoring the mental decline of people at high risk of dementia)

People: Exercise

Who are those who:

- interact directly with the product?
- manage direct users?
- receive output from the product?
- who will propose the purchase?
- make the purchasing decision?
- use competitor’s products?

People: Exercise

Elderly

Doctors

Care givers

Relatives

People: variability

- Physically
  - Age differences, physical abilities
- Psychologically
  - Attention, perception, memory > Ability to forming the right ‘conceptual model’ of the machine
- Socially and Culturally
  - Level of education
  - Level of familiarity with technology

People: Physical variability

Humans vary in many aspects, e.g.:

- **Motor abilities** may affect the suitability of certain input and output devices
- Size of **hands and dexterity** may affect the size and positioning of input buttons
- Consider **height** if designing a physical kiosk
- **Strength** - a child's toy requires little strength to operate, but greater strength to change batteries
- Different **sensory abilities** (e.g. sight, hearing)

People: Cognitive variability

Humans vary in many aspects, e.g.:

- Level of **cognitive development** due to age (children vs. adults vs. elderly)
- Cognitive **impairments**
- Momentary deficit: **fatigue, stress**

People: Cultural/Social variability

Humans vary in many aspects:

- Income
- Digital divide (at different levels)
- Literacy
- Familiarity with technology

Reflection

Is it possible to Design for All?

Activities / 1

- What is the overall purpose of the activity?
  - What has to be satisfied
  - Hedonic vs. Pragmatic
- Temporal aspect
  - Regular or infrequent
  - Time pressure
  - Continuous or interruptions
  - Processing time
- Cooperation
  - One or more actors

Activities / 2

- Complexity
  - Well defined or vague?
- Safety critical
  - Impact of error (how much?)
- The nature of the content
  - Type of data to be processed
  - Type of media

Activity: Exercise

Thinking of the goal of our product, i.e. a software for tracking and monitoring the mental decline of people at high risk of dementia…

Activity: Exercise

- Pragmatic / hedonic?
- Regular / infrequent?
- Time pressure?
- Continuouos / interrupted?
- Processing time?
- Cooperative or not?
- Well-defined / Vague?
- Safety critical?
- Nature of the content?

Context

- Where does the activity/interaction occur?

- Context can be
  - Physical
  - Social
  - Psychological

Context

- Physical context
  - At home, in the office, on the move
  - Noise, light, weather
- Social context
  - Individual activity VS. group activity (e.g. training with the Wii)
  - Computer-mediated social activity (e.g. Co-writing a Google doc)
  - Social norms
- Psychological context
  - Motivation, attitudes
  - Stress
  - Emotions

Context: Exercise

What is the physical / social / psychological context of the use of our product?

Context: Exercise

- Physical: at home / elderly-care centre
- Social: individual (social afterwards)
- Psychological: stressful?

Technology

- Input
  - Getting data in, security issues
- Output
  - video vs. photographs; audio speech vs. screen
- Communication
  - Between people, between devices, web-based
- Content
  - What content to show?

Technology: Exercise

What type of technology for our software?

Exercise - Technology

- Computer and/or mobile
- Multi-media support
- Internet

Key points

- ID is concerned with designing interactive products to support people in their everyday and working lives

- ID involves taking into account a number of interdependent factors including context of use, type of task and kind of user and available technology

Key points

- Four basic activities in the UCD process:
  - Analyse: Identify needs and establish requirements
  - Design potential solutions (re-design)
  - Build the artefact
  - Evaluate
- PACT framework

Exercise

- How does making a call differ when using:
  - Smart phone
  - Public phone box
  - Home phone
- Brainstorm the variety of P, A, C and Ts
- Explore design implications
  - Write detailed concrete stories…
  - Think about how these might affect design

Reading

- Sharp et al. (2015)
  - Chapter 1: What is Interaction design
  - Chapter 9: The process of Interaction design
    - (Chapter 6 in 1st Edition)

- Benyon D. (2013). “Designing Interactive Systems: A Comprehensive Guide to Hci, Ux & Interaction Design"
  - Chapter 2