

Interaction Design & the User Centred Design Cycle

Lecture 2

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What is Interaction Design?

“designing interactive products to support the way people communicate and interact in their everyday and working lives”

(Rogers, Sharp & Preece, 2011)

The Purpose of Interaction Design

Making things that are usable

The Purpose of Interaction Design

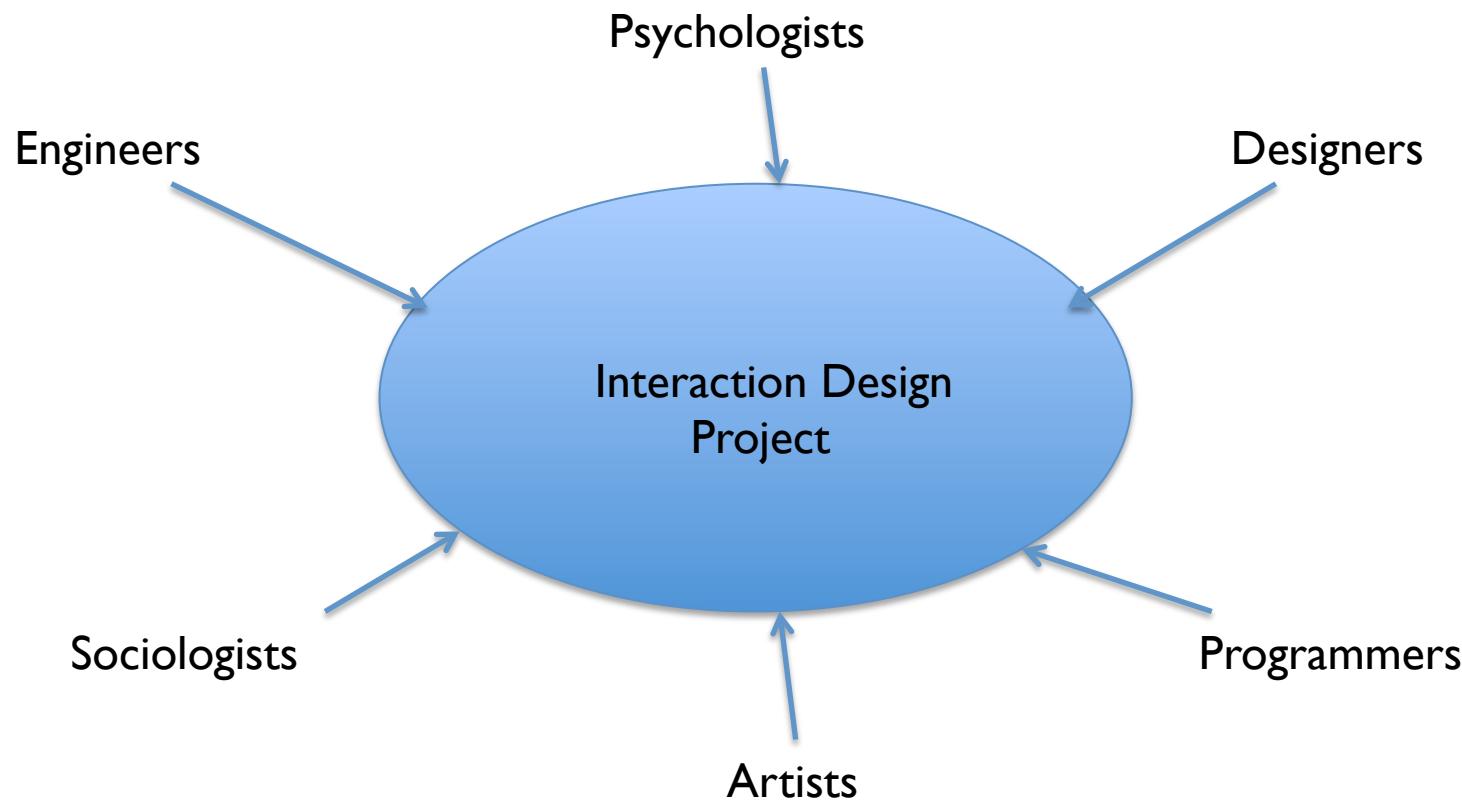
Making things that are usable

Making things user centred

ID & Software Engineering

- Architect (Interaction Designer)
 - peoples interactions within the building
 - relationship with the building
- Civil Engineer (Software Engineer)
 - Realising the project- cost
 - durability, structural, construction methods
 - fire regulations
- They are inter-dependent

Who is involved in ID?



Approaches to Interaction Design

User Centred Design

- Designer makes user needs & goals into solution

Activity Centred Design

- Behaviour around task guides design

Approaches to Interaction Design

Systems Design

- System is focus and user's role = set goals

Genius Design/Rapid Expert Design

- Relies of experience/flair of designer

Process of Interaction/User Centred Design

- I. Requirement Gathering
2. Designing alternatives
3. Prototyping
4. Evaluating

Process of Design

- These requirements inform each other
- They are not meant to be done just once in a project
- User centred design approach
 - Interviews, co-designers, observing users

Requirement Gathering Mantra

Know thy users!





Smartphone wars: Apple v Samsung heads for the courtroom again

The latest chapter in Apple's battle with Samsung opens in a federal court in San Jose, California

Associated Press
theguardian.com, Tuesday 12 November 2013 09.05 GMT



Apple Inc CEO Tim Cook unveils the iPhone 5C in California on 10 September: the company is involved in a protracted legal battle with Samsung. Photograph: Stephen Lam/Reuters

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Who are the users?

- Ones with direct task that use the system
- Other stakeholders
- Who might they be in Dunnes Stores eg?

Who are the users?

- Ones with direct task that use the system
- Other stakeholders
- Who might they be in Dunnes Stores eg?
 - Cashiers, warehouse staff, local shopkeepers, Food selectors and you!

Know Thy Users

- Who are they?
 - More than just you!!
- Find out about your users
 - Interviews, questionnaires, participatory design
 - Observation, ethnography
 - Manage expectations
- Personas
 - Imagining the user
 - When hard to get access to real users
 - Should be based on data from actual users, studies, observations etc.

Know thy users!

What exactly do they need/want?

What do they currently do?

What do we mean by needs?

- Users might not know possibilities
- Need understand:
 - User characteristics
 - User capabilities/physical characteristics
 - User task & current methods of execution
 - Whether design would lead to improvements





<http://tech.uk.msn.com/mobiles/retro-mobile-phones-social-memories?page=3>



<https://corp.sonic.net/ceo/2010/09/09/why-include-phone/>

Why is it important?

Ensures user taken into account

Designers gain better understanding of user goals => more usable product

User expectation management

Give user sense of ownership

How much involvement?

- Users as designers
 - Part of the design team
 - Participatory design
 - Part time or Full Time involvement?
 - Time costs to the users
 - They are not design experts

How much involvement?

- Users as informers
 - Designer gathers info about user
 - This guides design
 - User involved in testing of prototypes
 - This most common involvement in HCI
 - Can be effortful or low effort for user

How much involvement?

- Users as interested consumers
 - Given newsletters
 - Invited to workshops/events etc
 - Not so involved in the design as the other options



OR

Microsoft Internet Explorer

Microsoft Internet Explorer has encountered a problem and needs to close. We are sorry for the inconvenience.

If you were in the middle of something, the information you were working on might be lost.

[Restart Microsoft Internet Explorer](#)

Please tell Microsoft about this problem.

We have created an error report that you can send to help us improve Microsoft Internet Explorer. We will treat this report as confidential and anonymous.

To see what data this error report contains, [click here.](#)

[Send Error Report](#) | [Don't Send](#)

Too much involvement?

- Kujala & Mantyla (2000)
 - Early user tests = benefit
- Heinbokel et al (1996)
 - Lead to fewer innovations, low team effectiveness (only later in project)
 - Increased demands late in project

Design

Who is going to use the design?

How do they think about it?

What will they do with it?

Designing alternatives



[http://en.wikipedia.org/wiki/
Linus_Pauling#mediaviewer/File:L_Pauling.jpg](http://en.wikipedia.org/wiki/Linus_Pauling#mediaviewer/File:L_Pauling.jpg)

“....the best way to get a good idea, is to get lots
of ideas” (Linus Pauling)

Designing alternatives

- Process of generating ideas to meet requirements
- Conceptual design
 - What people can do with product
 - What concepts needing to be known to interact with it
- Physical Design
 - Colours, sounds, image, menu and icon design

How do we come up with designs?

- Design flair...but not always
- Innovations come from:
 - Seeking different perspectives
 - Evolution of existing products
 - Looking at other designs for inspiration
- May be constraints e.g. OS look, legacy of previous system



<http://www.iainclaridge.co.uk/blog/9674>



Braun T3 Radio (1958)

<http://www.iainclaridge.co.uk/blog/9674>



<http://www.gizmodo.com.au/2009/08/apple-still-selling-the-original-ipod-for-130/>

Be careful though.....

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How do you choose designs?

- Info about users and tasks
- Technical feasibility
- UCD tends to focus on
 - the external (look)
 - how internal decisions affect user

How do you choose designs?

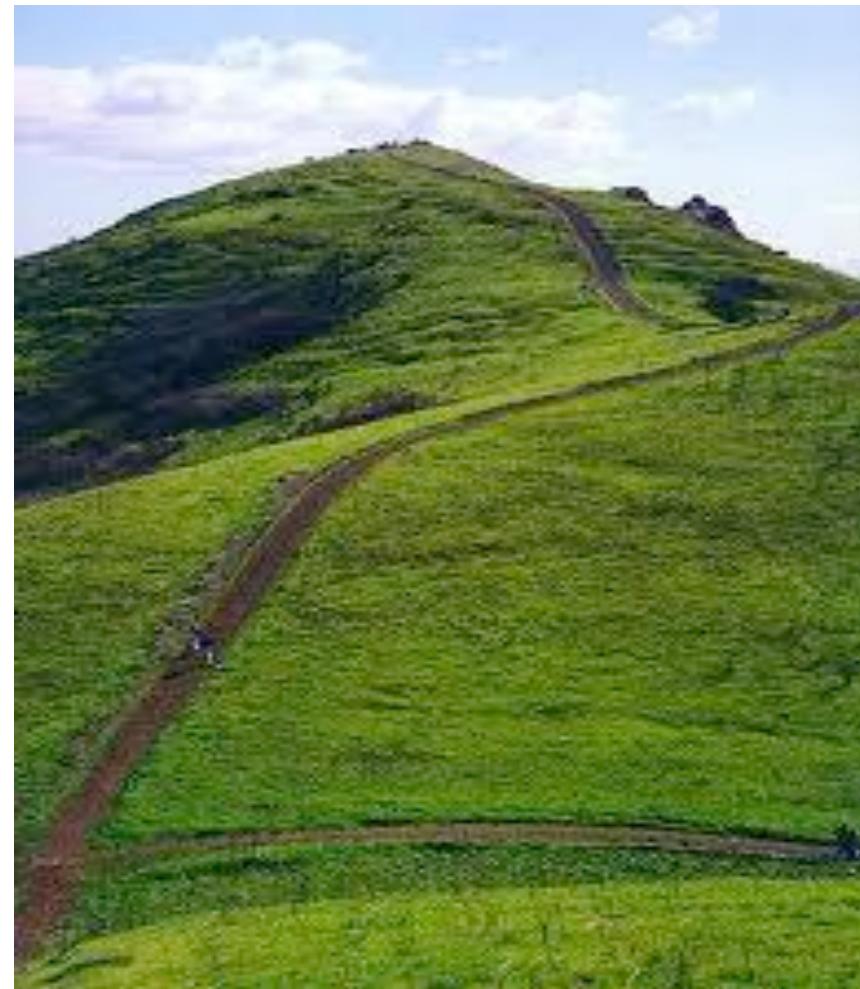
- Prototyping & testing crucial
- Clarify benchmarks & expectations
- Assessing against usability goals
 - Usability Engineering

Prototyping and Iteration

- First design will not be perfect
- Lo Fi
 - Paper based (early in the process)
- Hi Fi
 - Interactive, closer to the end product

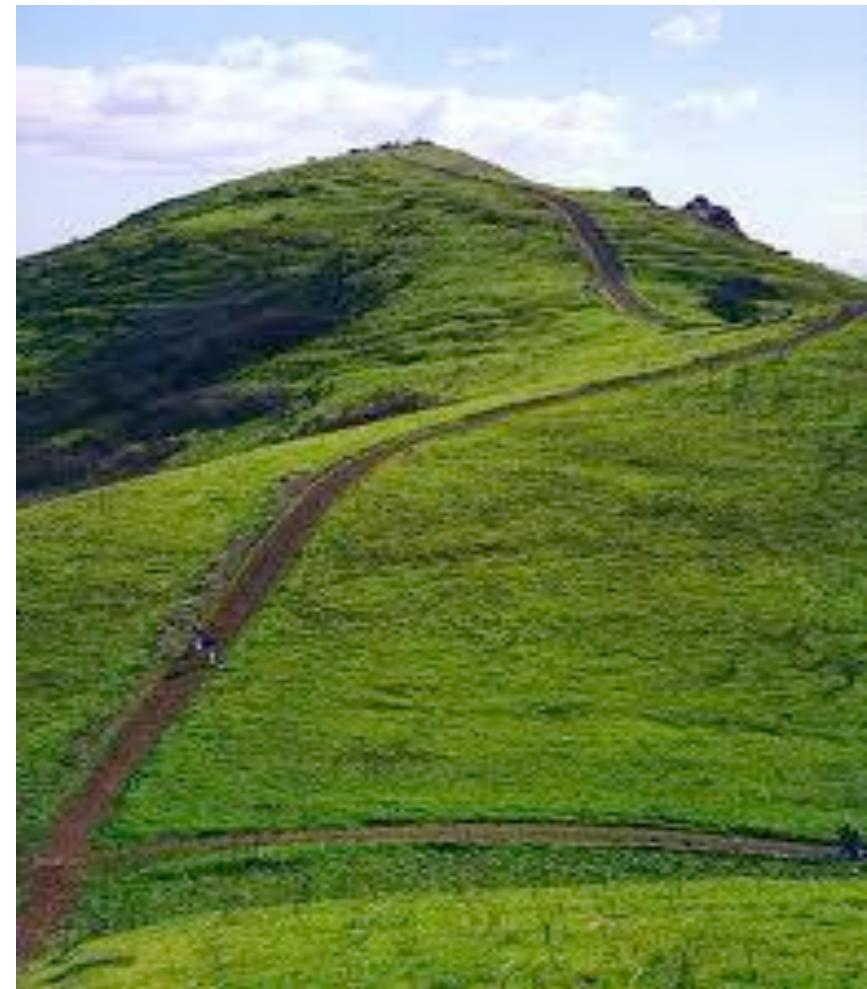
The Hill Climbing of Prototyping

- Start somewhere
- Evaluate designs to make better
- Keep on doing it until you can't get any better
- Sounds ok?.....



The Hill Climbing of Prototyping

- Depends on your starting position
 - Fundamentally bad design
- Must understand what is wrong and how to improve it
- Have a good start point



Evaluation

- **Formative**
 - Identify issues in the design and areas for improvement
- **Summative**
 - Determine whether product is good enough/ meets requirements

User Centred Design Process

It is iterative

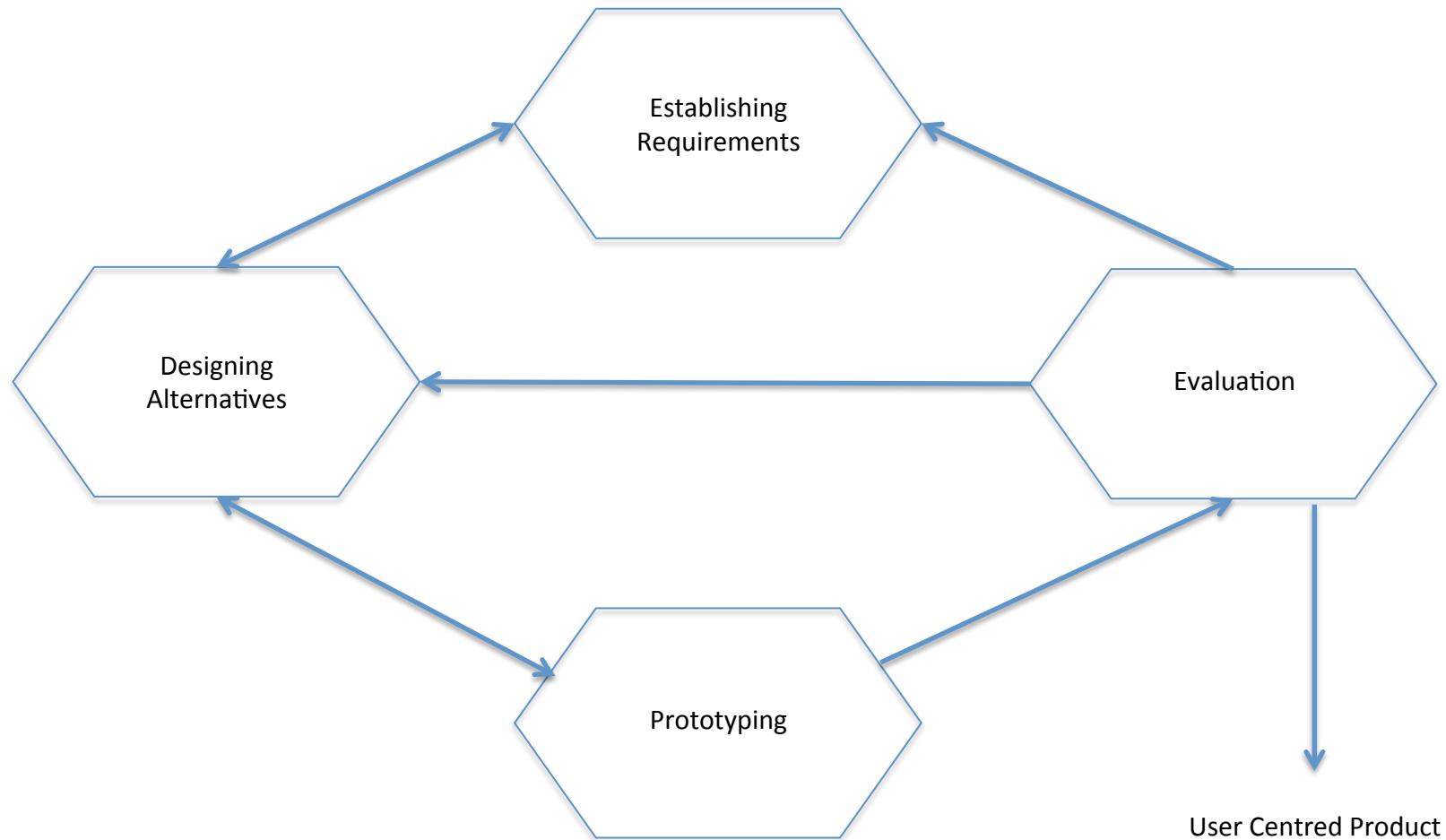
User Centred Design Process

It is iterative

Prototypes evaluated and feedback to further design

Evaluations may identify missed requirements

Interaction Design Lifecycle



User Centred Design Principles

I) Early focus on users and tasks

- Tasks & goals driving force
- User behaviour & context of use studied
- Take abilities/limitations of users into account
- Users consulted throughout process
- All design decisions consider user, their work, their environment

User Centred Design Principles

2) Empirical measurement

- Goals identified, documented & agreed
- Agree criteria & methods for assessment
- Evaluate designs against these goals

User Centred Design Principles

3) Iterative Design

- Refine design based on feedback
- This needs to be done several times
- Innovation takes time, trial & error

References

- Sharp, Preece & Rogers (2011). Interaction Design (Chapter 1 & 9)
- Dix et al., (2004). Human Computer Interaction (Chapter 5), p.220-222
- Norman (1998). The Design of Everyday Things