

Internet of Things

User-driven Development

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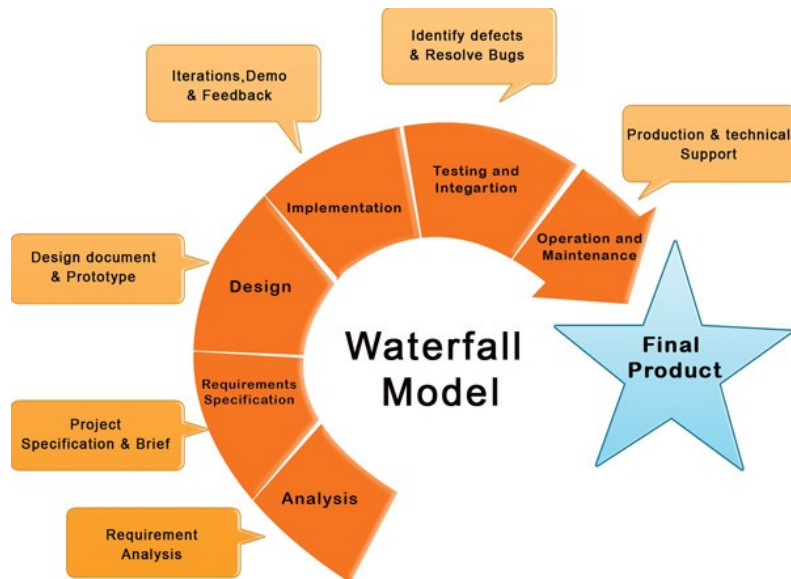
Lecture 2: User-driven Development

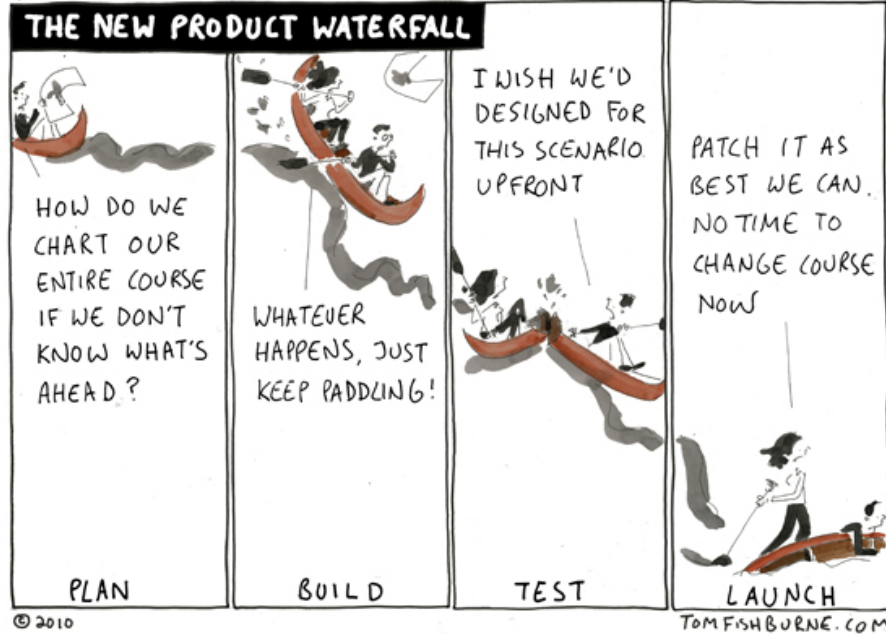


How do we build an IoT system?



Product Development Lifecycle





What should
the IoT system do?



What do the users expect
from our IoT system?

The Definition of User Experience (UX)

“User experience” encompasses all aspects of the end-user’s interaction with the company, its services, and its products.

Don Norman and Jakob Nielsen



The Definition of User Experience (UX)

- ▶ Meet the exact needs of the customer
- ▶ without fuss or bother
- ▶ Next comes simplicity and elegance:
produce products that are a joy to own, a joy to use.
- ▶ ... goes far beyond giving customers what they say they want
- ▶ ... go beyond checklist of features



The Definition of User Experience (UX)

“In order to achieve high-quality user experience in a company’s offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design.”

Don Norman and Jakob Nielsen



How do we build an IoT system?

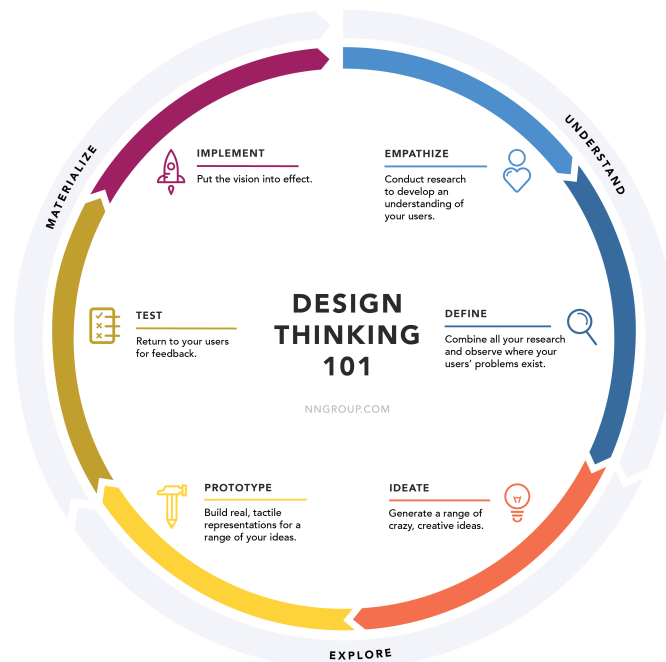


We are not our users.
We need to design for them
and not for ourselves.

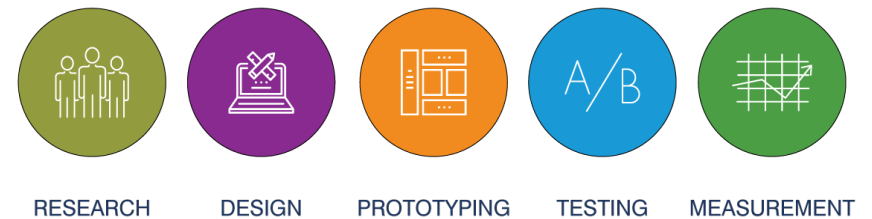


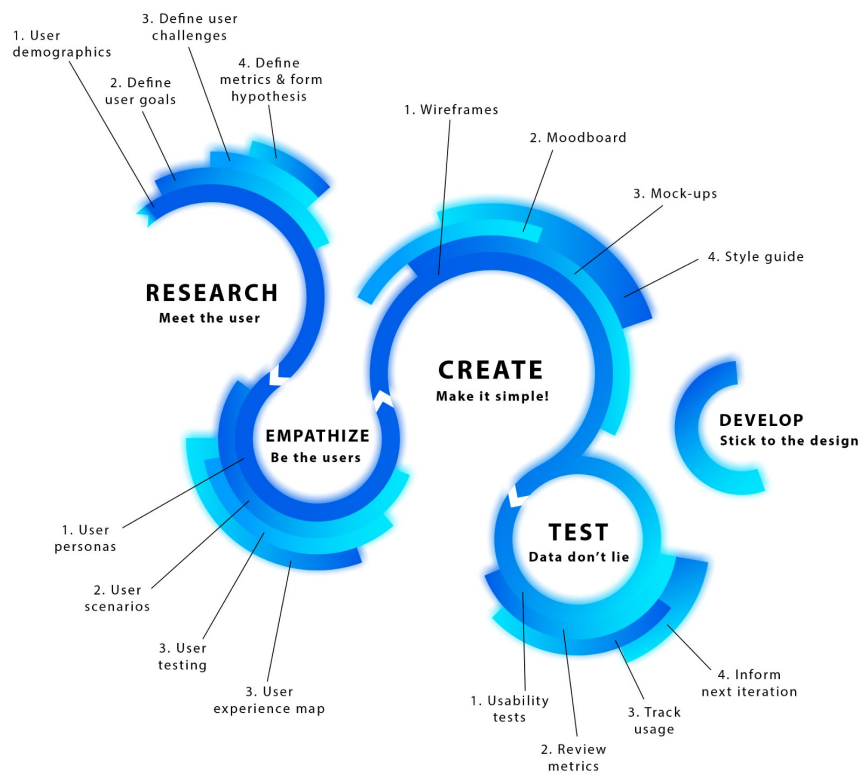
- ▶ There are methods to ensure we create products tailor made for the specific needs and goals of our users.
- ▶ How can we build better software?
- ▶ **By better understanding our users**

Design Thinking

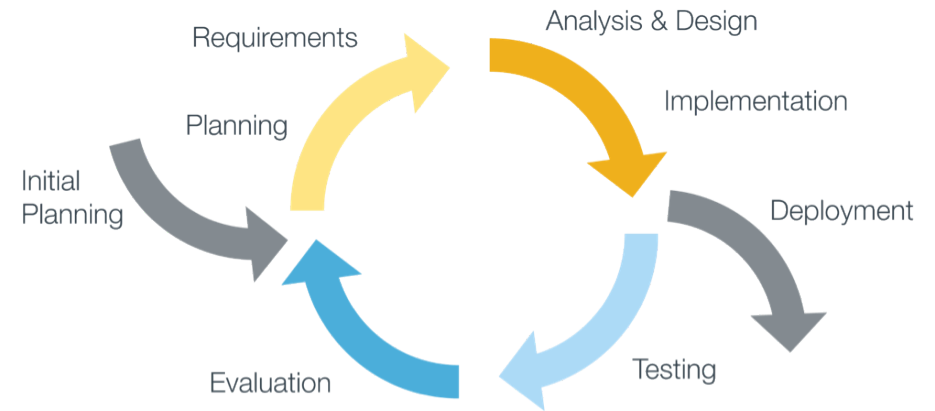


UX Design Process





Product Development Lifecycle



We have lots of users!

How can we possibly design for every one of them?

Personas as a tool for User-driven development

- ▶ Design for specific types of users.
- ▶ Personas are fictional characters.
- ▶ Represent an archetypal user that represent **real users**.
- ▶ Represent the needs of many who have **similar attributes**.
- ▶ Created based on research conducted during **Emphasize** phase.
- ▶ **Encapsulate and explain** the most critical data about users.

PERSONAS



Iggy the Influencer

Age: 36-45
Gender: M
Marital Status: Married
Education: Bachelors
Readability: Grade 18+
Career Type: Freelance
Career Stage: C-Level or higher
Income Range: \$41k-\$70k

Iggy is an influencer who lives online, no decision is made in his life without first checking the web, and thus he has earned a very strong following in the content marketing industry. He works as a freelancer but has a background in web development, SEO, PR and digital marketing.



Wendy the Writer

Age: 26-35
Gender: F
Marital Status: Single
Education: Some College
Readability: Grade 18+
Career Type: Steadily Employed
Career Stage: Entry_Level
Income Range: \$41k-\$70k

Wendy is a freelance writer and content curator. She has a base knowledge of content marketing, but identifies as a creative writer first. She runs her own blog and is always looking for actionable tips on how to increase engagement on her blog and through social media, tips and tools to manage work flow and SEO.



Marketing Mark

Age: 26-35
Gender: M
Marital Status: Single
Education: Bachelors
Readability: Grade 13-15
Career Type: Steadily Employed
Career Stage: Senior Management
Income Range: \$71k-100k

Mark is a marketer and is always looking for trending content and industry news. Mark is connected to the internet all day, every day, so to get his attention, you either need brand news, actionable information or a completely unique approach. Mark loves workflow-tool pieces and data backed case studies.



CEO Cecilia

Age: 26-35
Gender: F
Marital Status: Single
Education: Bachelors
Readability: Grade 16-18
Career Type: Steadily Employed
Career Stage: Senior Management
Income Range: \$71k-100k

Cecilia runs a big company and is on the lookout for ways for her company to run more efficiently. She gravitates towards articles that offer ways to simplify your workflow, basic management tips, and tools to improve day-to-day efficiency. Cecilia always keeps ROI in mind and articles she reads do too.



The need to define Personas

- ▶ Do we really need to create personas to design fantastic, innovative, user-centered solutions?
- ▶ Absolutely NO.
- ▶ The process of creating personas helps us:
 - ▶ **Understand users' needs, experiences, behaviours and goals.**
 - ▶ **Step out of ourself.**
 - ▶ Recognise that different people have different needs and expectations.
 - ▶ Identify with the user we're designing for.
 - ▶ Make the design task at hand less complex.
 - ▶ Guide our ideation processes.



Some benefits

- ▶ Developing Personas is time consuming.
- ▶ Absolutely NO.
- ▶ The process of creating personas helps us:
 - ▶ **Understand users' needs, experiences, behaviours and goals.**
 - ▶ **Spend time with users.**
 - ▶ **Step out of ourself.**
 - ▶ Recognise that different people have different needs and expectations.
 - ▶ Reveals current behaviors and priorities.
 - ▶ Identify with the user we're designing for.
 - ▶ Make the design task at hand less complex.
 - ▶ Guide our ideation processes.



How much to time it takes?

- ▶ Conduct Field Research to collect data.
 1. Numbers of participants?
 2. Research techniques?
 3. Meeting time?
- ▶ Analyze Data and develop personas.
 1. Identify key findings.
 2. Create personas.
- ▶ Usually time to conduct Field Research is approximately equal in duration with time it takes to Analyze the data.



A negative critique

- ▶ Personas do not design products.
- ▶ Personas are not actionable.
- ▶ We understand users, great.
- ▶ What's next?

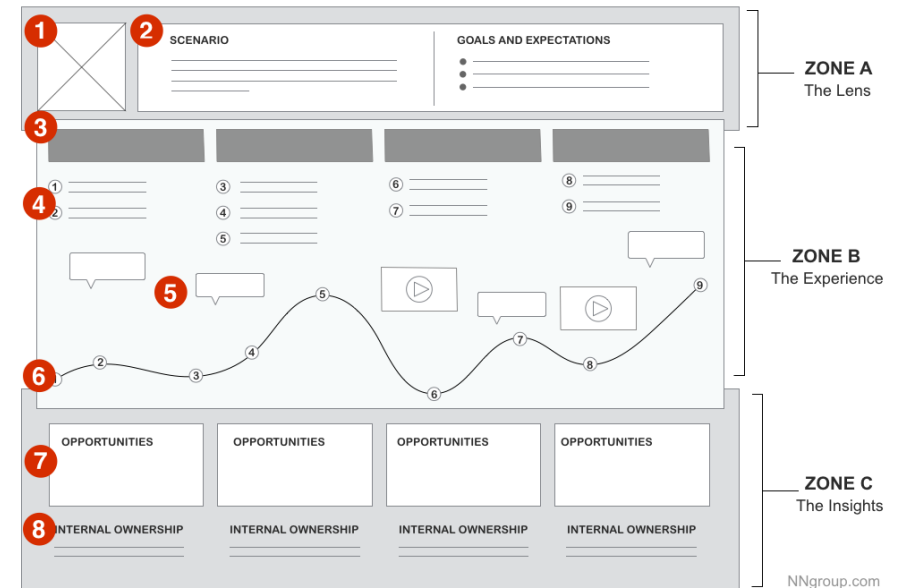
but

- ▶ Personas help us create scenarios.
- ▶ Personas help us communicate design solutions.

How do people actually use our product?

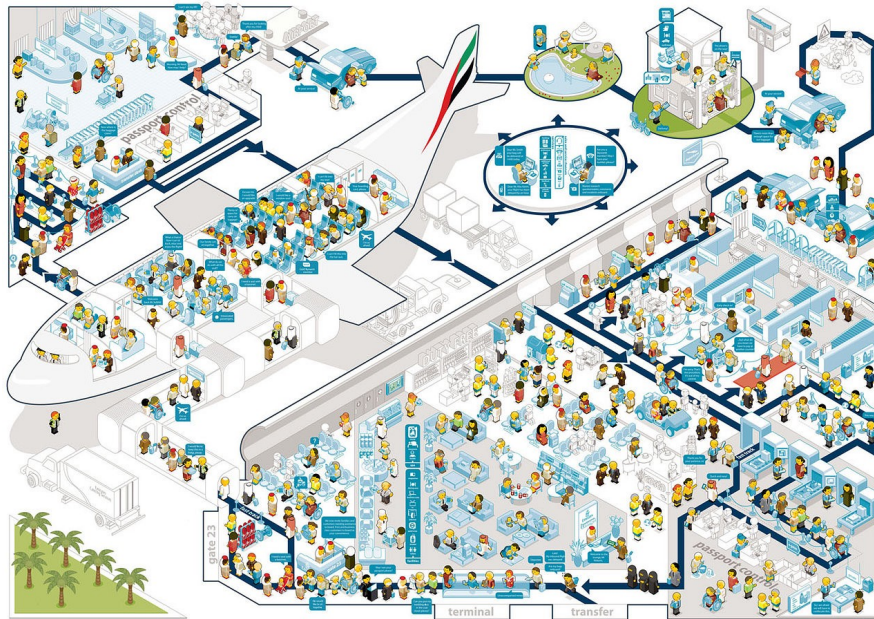
User Journey Maps

- ▶ Allow use to see a product from a user's point of view.
- ▶ Visualization of an individual's relationships with a product/brand over time and across different channels.
- ▶ Usually represented as a timeline of all touch points between a user and a product.
- ▶ We understand users, great.
- ▶ Timeline contains information about all channels that users use to interact with a product.
- ▶ Process also known as "User Experience Mapping".



User Journey Maps vs Storyboard

- ▶ Storyboards is a technique used in the film-making industry.
- ▶ A way of conveying a story
- ▶ Explore the best way to tell the story visually before spending a lot of money producing it.
- ▶ Storyboards are a static, sequential art form.
- ▶ Storyboards can show visually what happens during each step.



Source: Emirates (<http://www.theemiratesgroup.com/english>)



User's emotional state

- ▶ What is the state of mind of our users?
- ▶ Connect with users on a human level.
- ▶ Identify the areas of experience that require refinement.
- ▶ Integrate emotional aspects in the User Journey Map.
- ▶ Create an empathy map to better understand how the user feels.

