Product Ecology for the Elicitation of Requirements

ruudcox
ruud.cox@improveqs.nl
A pacemaker for the brain

- A Deep Brain Stimulation system that features an advanced DBS lead with 40 individual stimulation points
- This advanced system is designed to allow more precise stimulation of the intended target in the brain and may potentially result in reduced procedure time and fewer stimulation-induced side effects

Search YouTube for “dbs surgery actual procedure”.
The context is a blur

How to evolve a Context-Driven test plan by James Bach.
Who are the stakeholders?
Understanding context

“Whenever we’re trying to figure out what one thing means in relation to something else, we say we’re trying to understand its context.”
Context-Driven Testing

“People evaluating a product by learning about it through experimentation in a manner organized and motivated by a systematic consideration of all the factors that significantly influence the problems and solutions that lie within the scope of their mission.”

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The Product Ecology method

To make the context clear

• Analyze the environment of the product from different perspectives

• Make the invisible visible
Face it

Draw some shapes on a piece of paper. They should be closed curves but otherwise can be as weird and irregular as you want.
Face it

Now, convert each shape into a face by adding the following shape.
Your brains are a belief engine
The power of visualization

Mental model

Explicit model
Reasons I build visual models

- Promote understanding
- Discover hidden requirements
- Provide measure of progress
- Discover new insights
- Discover new questions
- Support explaining
- Analyze impact of changes
- Train new people
- ...
See *An Example of a Product Ecology for Testers* by Ruud Cox.
Product Ecology of apple pie

I need apples.

Apples for sale.

Can we have apple pie?

Sure, you can.
Boundary of the product ecosystem
Heuristics

• Problems, Solutions
• Producer, Market, Consumer
• Product, People, Process
• Value Chain
• Supply Chain
• Product Life-cycle
• User Scenarios
• Focus, De-focus
A lighting system for car parks

- Design a lighting system for car parks that consumes less energy than current systems
- Don't compromise on comfort feelings and safety
- ROI <= 2 years
Heuristics

Problems, Solutions
What is the problem that we are trying to solve?
What is our solution to the problem?
What other solutions were proposed or evaluated?

Producer, Market, Consumer
Who has a problem and who provides a solution for it?
Any market related factors that should be taken into account like competitors, standards or regulations?

People, Process, Product
Products are made for people by people according a process.
How are the people organized i.e. projects, departments, responsibilities.
Who and where are the domain experts?
What does the product development process look like?
What are the elements of the product?
Things I do to gather factors

- Study artifacts which are available
- Interview domain experts
- Explore existing products
- Hang out at the coffee machine
- Site visits
- ...

...
Heuristics

Value chain

Supply chain

Product life-cycle

User scenarios
A value chain is a set of activities that a company operating in a specific industry performs in order to deliver a valuable product or service for the market.
Supply chain activities involve the transformation of natural resources, raw materials, and components into a finished product that is delivered to the end customer. Supply chains link value chains.

Wikipedia
Product life-cycle
User scenarios

Describe a person's interaction with the product e.g. people move around in a car park in different ways. How should the lighting system behave?
Expose circuit elements on silicon

A scanner is part of the complex process, called photolithography, that creates millions of microscopic circuit elements on the surface of tiny chips of silicon.

- Critical dimension, overlay, imaging, throughput.
- It takes months to fully process a wafer.
Product Ecology
People, Process, Product
People, Process, Product
People, **Process, Product**
Heuristic

De-focus

Focus
Summary

Product Ecology is about making the context of the product clear. Identify important factors that influence the value of the product and the product risks by analyzing the context from different perspectives by applying heuristics and making the invisible visible. and creating visual models.
Heuristics

- Problems, Solutions
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- Product, People, Process
- Value Chain
- Supply Chain
- Product Life-cycle
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- Focus, De-focus
Different representations...

...in different situations.
How to start

Develop the skill to identify factors.

Apply these heuristics
• Problem, Solution
• Producer, Market, Consumer
• Product, People, Process

Create a diagram.
Thank you

James Bach
http://satisfice.com/

Michael Bolton
http://www.developsense.com/

Prof. Steve Easterbrook
http://www.cs.toronto.edu/~sme
Ruud Cox

ruud.cox@improveqs.nl

ruudcox