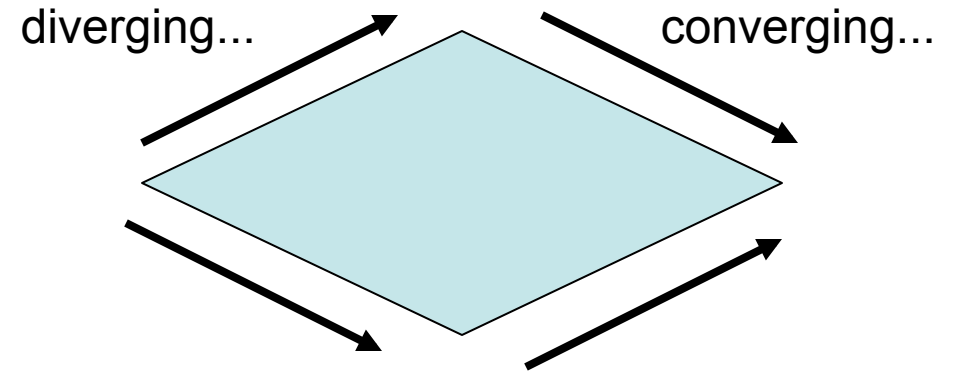


21 marzo - 4 aprile

Today
From
Benchmarking
to
*Functional and
Experience
Prototyping*



Meanwhile...
**continue meetings
with teams**

A black and white photograph of a person reading a book. The person's hands are visible, holding the book open. The book is the central focus, with a spotlight effect illuminating it against a dark background. The text on the book is mostly illegible due to the low resolution and lighting.

benchmarking:

research, interviews, previous work

- *What is the current state of the technology?*
- *What similar products are already on the market?*
- *What needs do people have?*

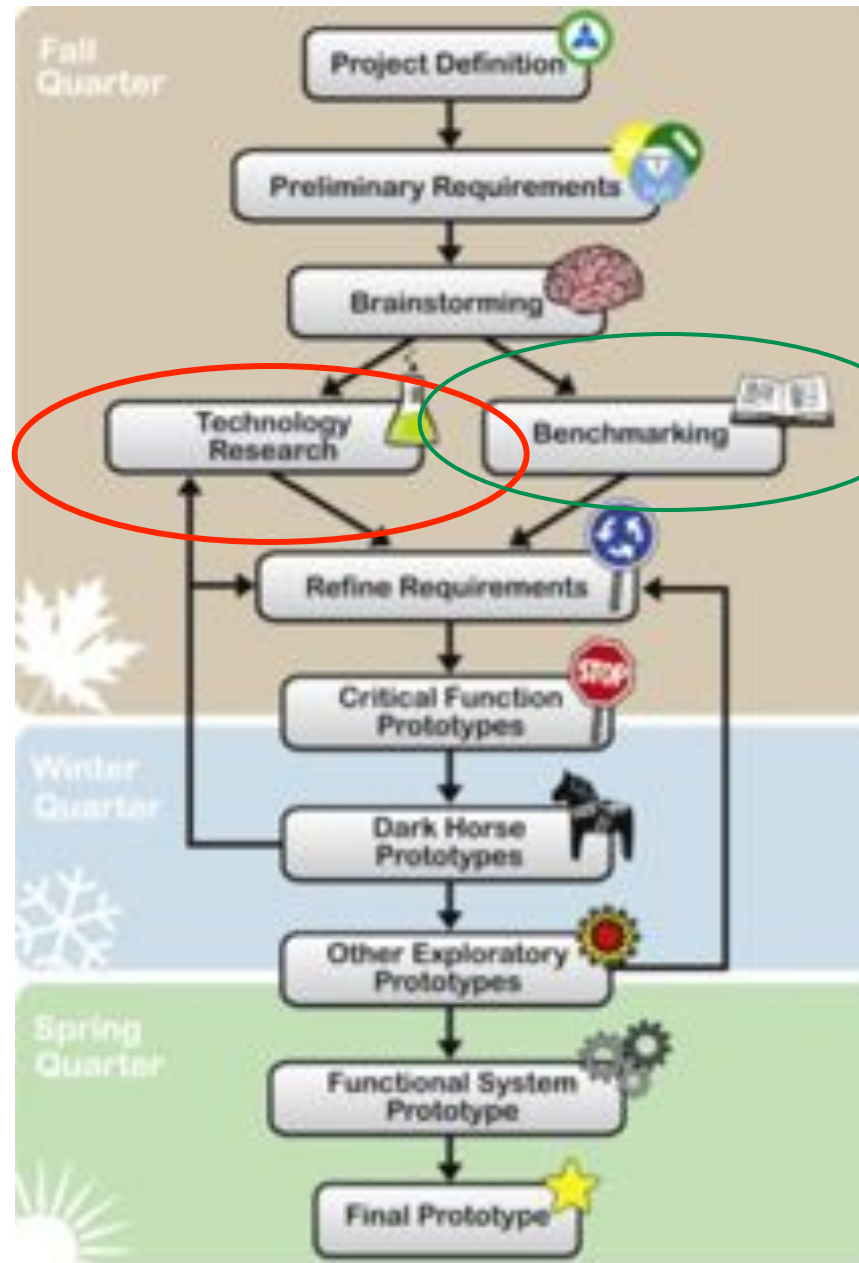
Technology Benchmark Example: ME310 Immerse Global (2008)

Provide potable water *anywhere*.



Immerse Global Design Process

Functional,
physical



User,
experiential

Immerse Global (brainstorming)



Possible functional approaches:
 Water from exhaust
 Water purifier
 Reverse osmosis
 Filters
 Desiccants
 Solar power
 Wind
 Thermal storage
Vapor cycle:
AC
Refrigerator
Dehumidifier

Immerse Global: technology benchmarking



Figure 17: Condensing experiment and disassembly of Kenmore dehumidifier



Figure 19: Disassembled refrigerator



DILBERT®



BY
SCOTT ADAMS

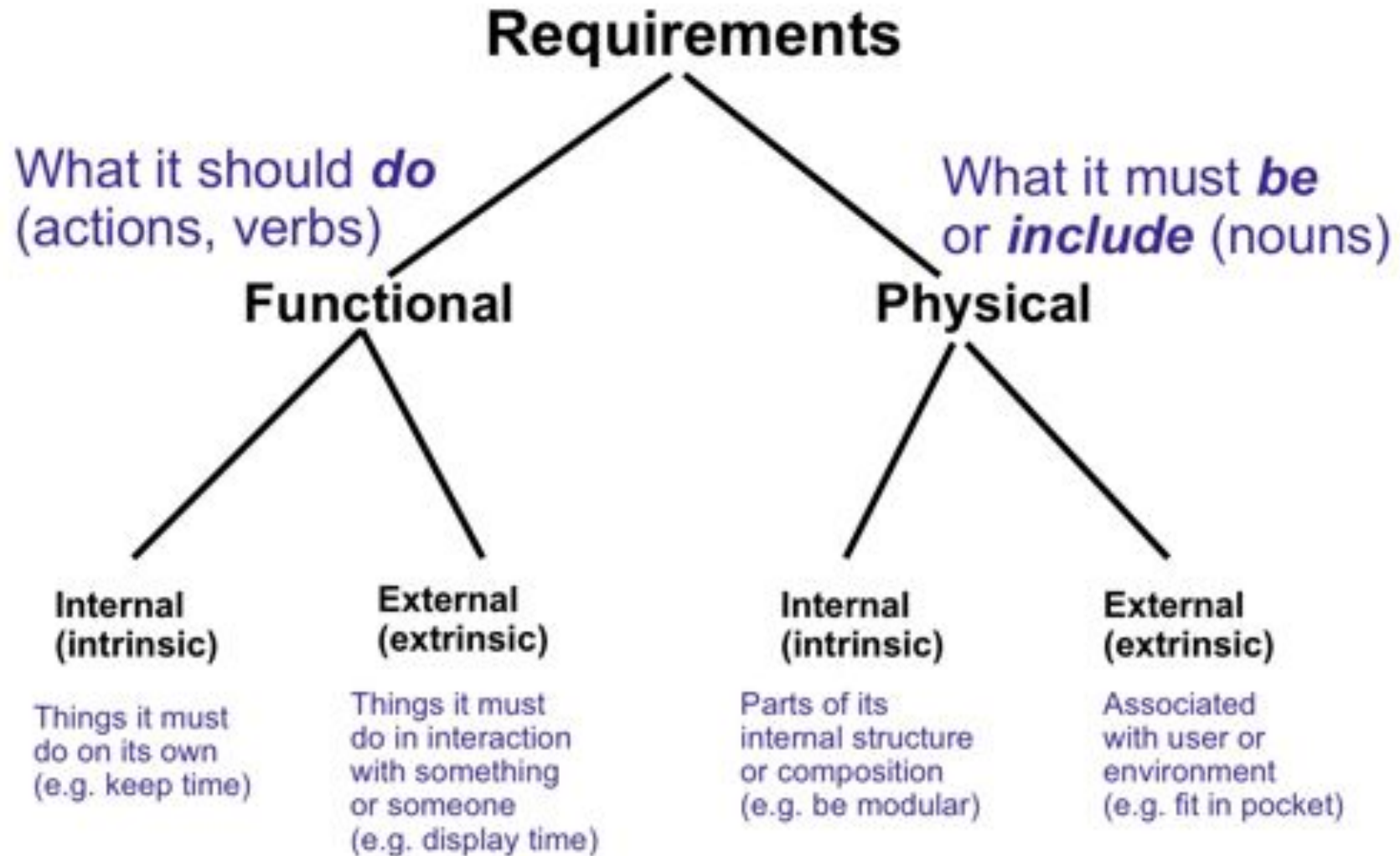
requirements definition: (who is at fault here?)



the point is...

When defining a novel product you need to figure out your own requirements.

Types of requirements: Sometimes a Functional/ Physical decomposition is useful:



Critical *Function* Prototype

Critical *Experience* Prototype

- Due: 11 aprile
- *Starts* the synthesis phase of a project
 - Build something
 - Do something
 - Learn something
- *What it's not*: Not a mockup. Not a paper study.
Not a survey...
- ✘ **dimostrare**
- ✓ **informarsi**

CFP (critical function prototype) CEP (critical experience prototype)

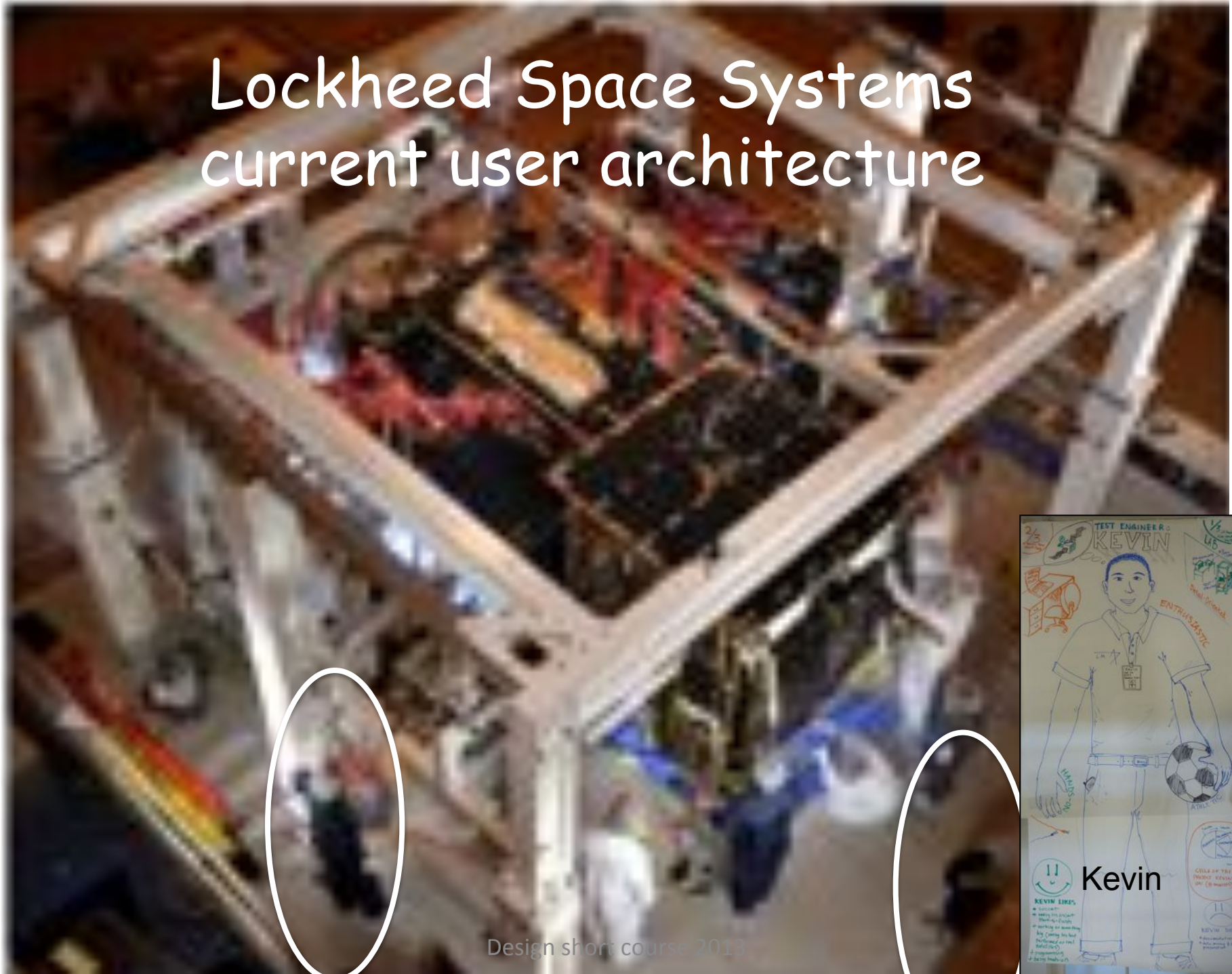


- a prototype designed to explore one important functionality or requirement

What is a Critical Function Prototype?

- **Create a physical thing** or system that lets you explore some interesting part of the design space.
 - Is not a total solution. Focus on one specific component or function.
 - Really prototype. (Buying several things at Carrefour or UniEuro and throwing them together will not suffice...)
 - *It can be very rough!* (cartone, elastici, nastro americano...)
- Talk about what you chose
- talk about design insights you gained

Lockheed Space Systems current user architecture



Explaining your CEP/CFP (Lockheed 2010)

CFP/CEP Review

Users ☺ Benchmarking

- Bacem
- CubeSat

Experience ☺

- Lockheed
- SS/L
- CubeSat

Personna ☺

- Engineering

Questions ?

- Can you do this manual?
- How to wiring?
- How to maintain?
- Reliable? disconnector?
- loops?

Learned ☺

- Installation
- Wiring
- Out-of-subc
- Balance
- Strain
- Transparent
- Smoother
- Color-coding

Next Steps ☺

- Orientation
- Wiring
- Structure
- Breadboard
- Wagon

Test Equip. wiring?

Local diving boards?

CFP

Lockheed

CFP/CEP

CFP/CEP

Standard large scale UTM/AM electronics

Current process

What is a Critical Experience Prototype?

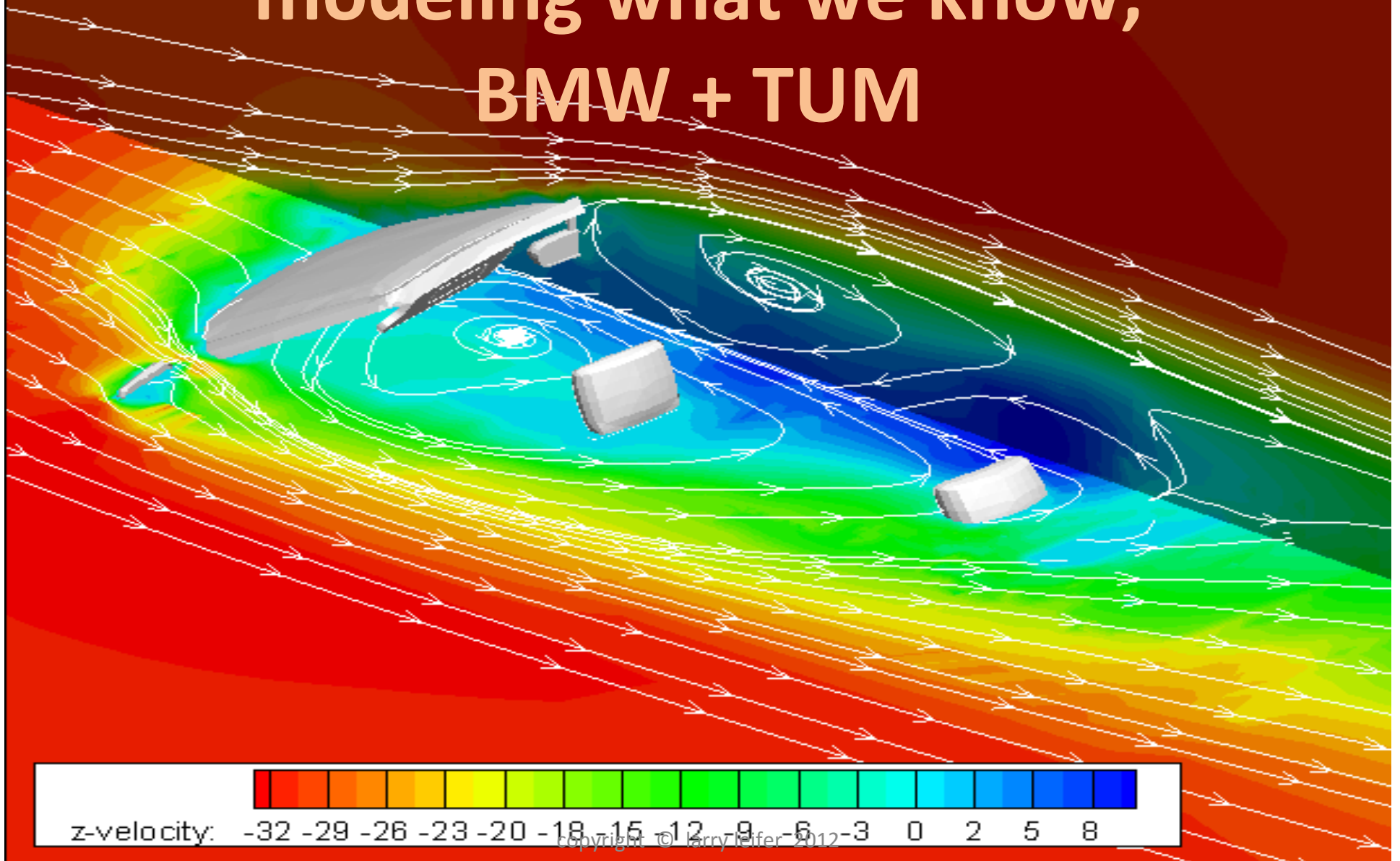
- **Create an experience** that is “real enough” to gather some insights (*intuitzione*).
 - Many implementation details can be “smoke and mirrors” or “Wizard of Oz” (*effetti teatrali*).
 - Focus on the effect and what you can learn from watching people experience it.
- For fall report: Document it via Storyboard, Video, Process Flow Diagram, etc.
- Also document findings (need not have all results by CEP/CFP review day).

project challenge

improve the open air experience



Benchmarking: modeling what we know, BMW + TUM



critical experience prototype

testing what we don't know



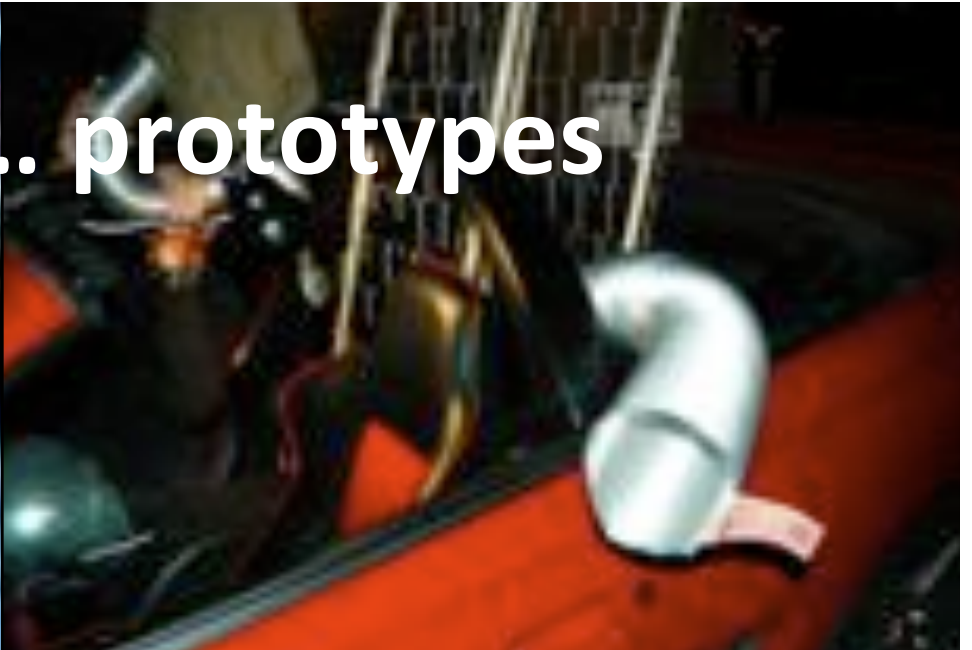
copyright © larry leifer 2012

airflow revisited



copyright © larry leifer 2012

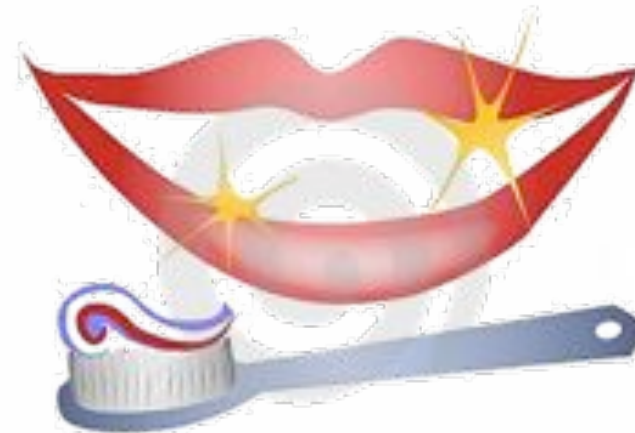
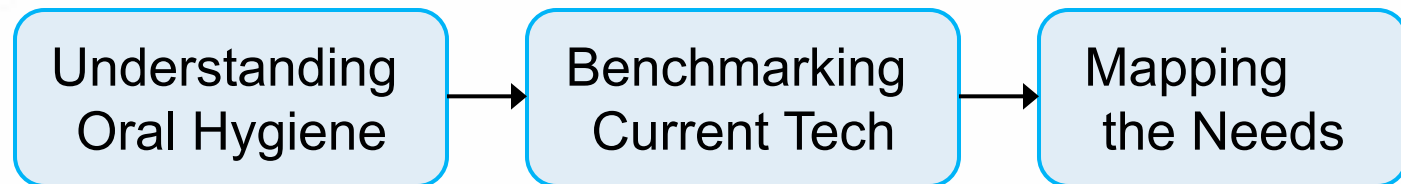
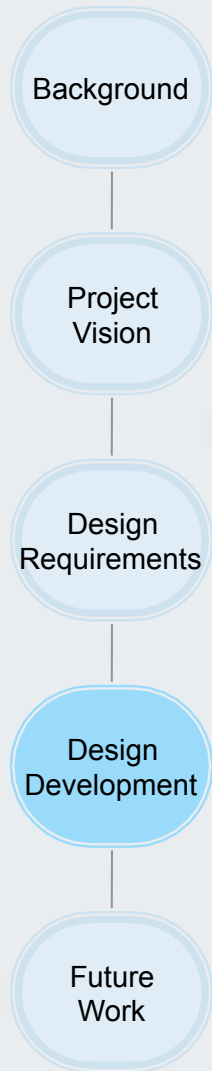
prototypes ... prototypes



many prototypes later...



Design Development



CEP – Motivational Calendar + Game

Background

Project
Vision

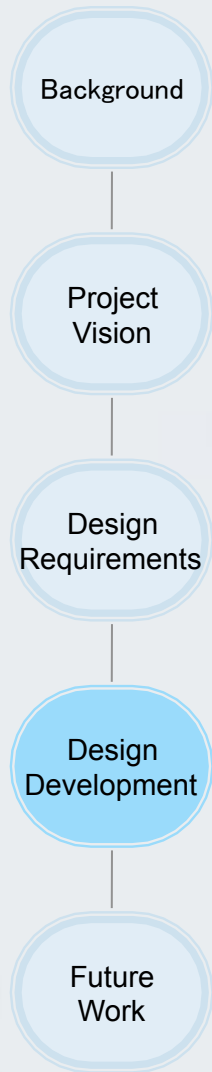
Design
Requirements

Design
Development

Future
Work



CFP – Feedback



WiiBrush



Accelerometer Brush

Accelerometer Brush

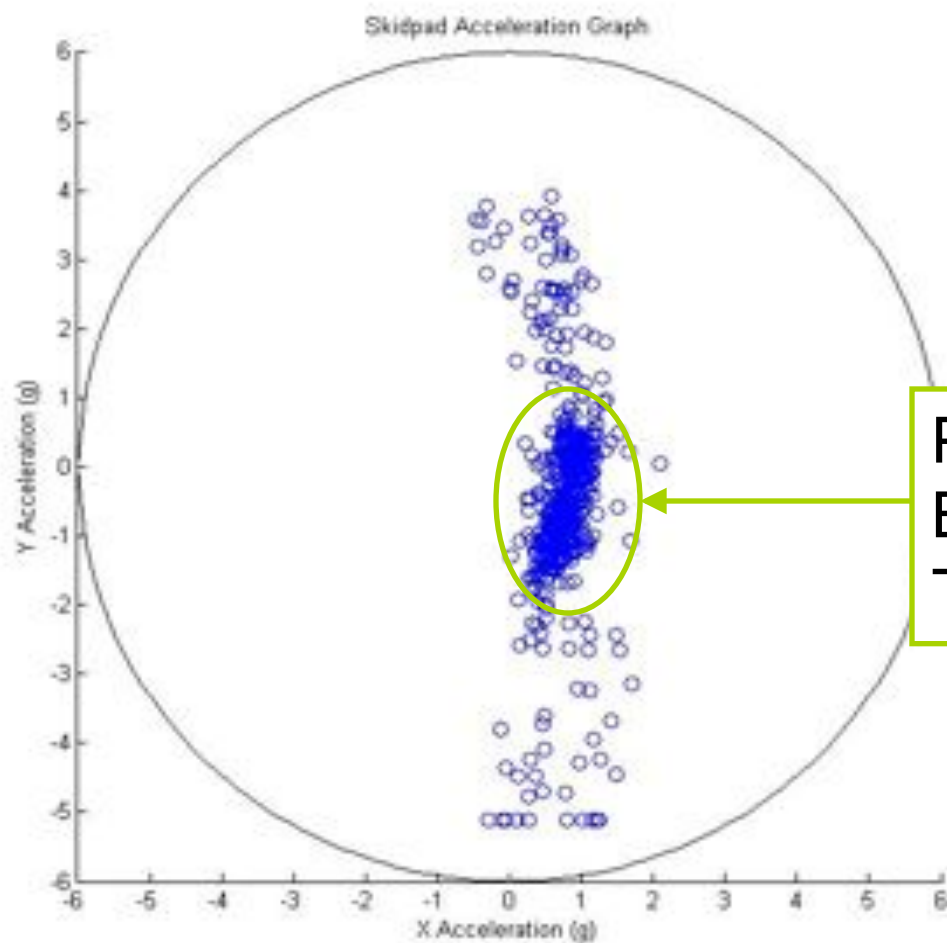
Background

Project
Vision

Design
Requirements

Design
Development

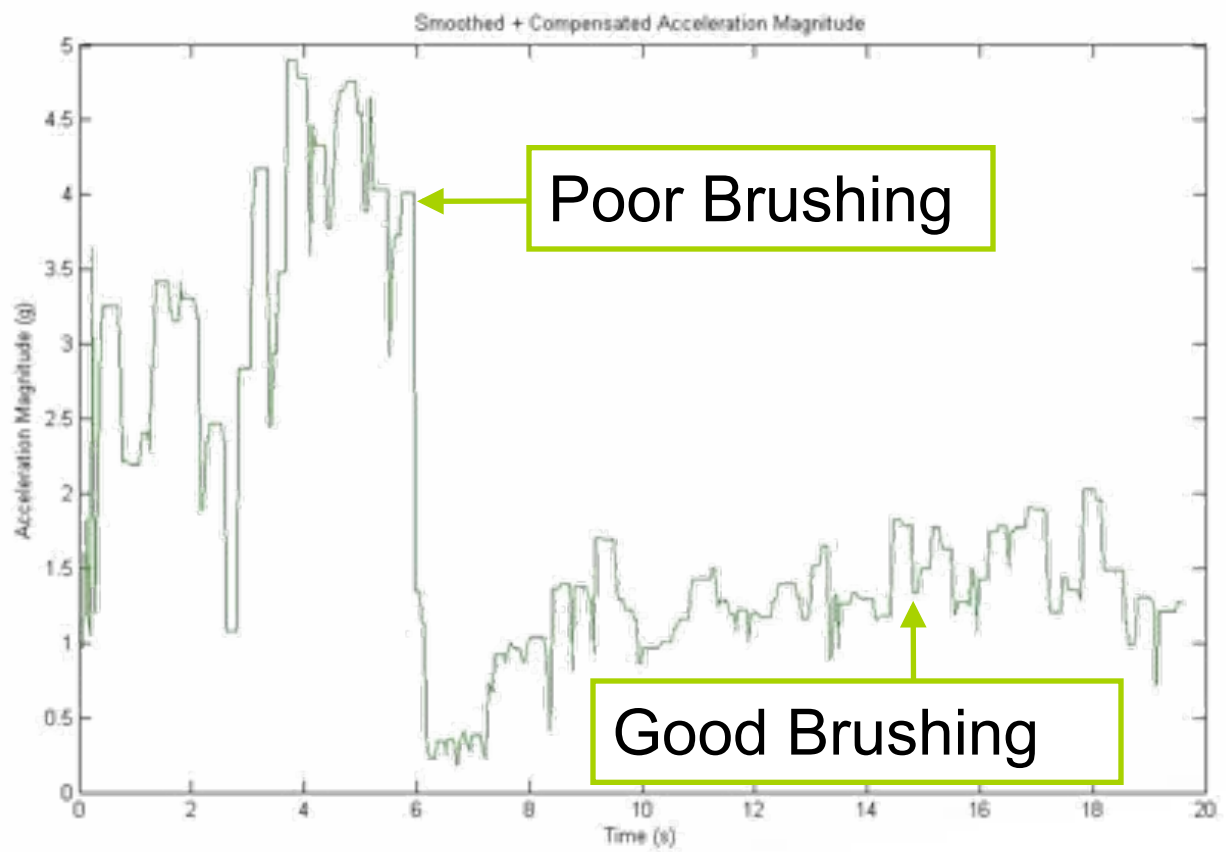
Future
Work



Proper
Brushing
Technique

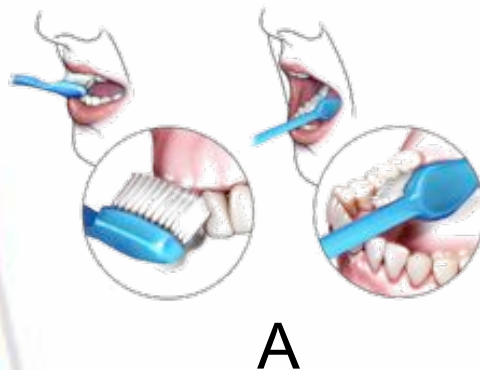
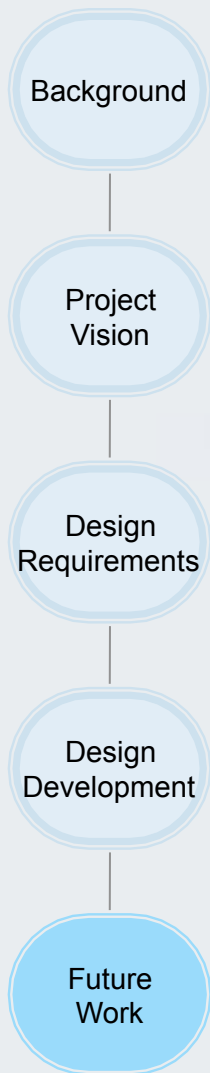
- Background
- Project Vision
- Design Requirements
- Design Development
- Future Work

Accelerometer Brush



Future Work

- Refine target user identity
- Discover optimal engagement level for target group



everything
is worth
trying.

(Greg Kress)

