Experience Prototyping for Connected Products

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Martin Charlier

@marcharlier

m@marcharlier.com

Hello

I'm an ==independent design consultant== & ==co-founder of Rain Cloud==.

Previously:
- ==FJORD==
  (Digital strategy, UX, Service design)
- ==Random International==
  (New media art, physical-digital)
- ==Frog Design==
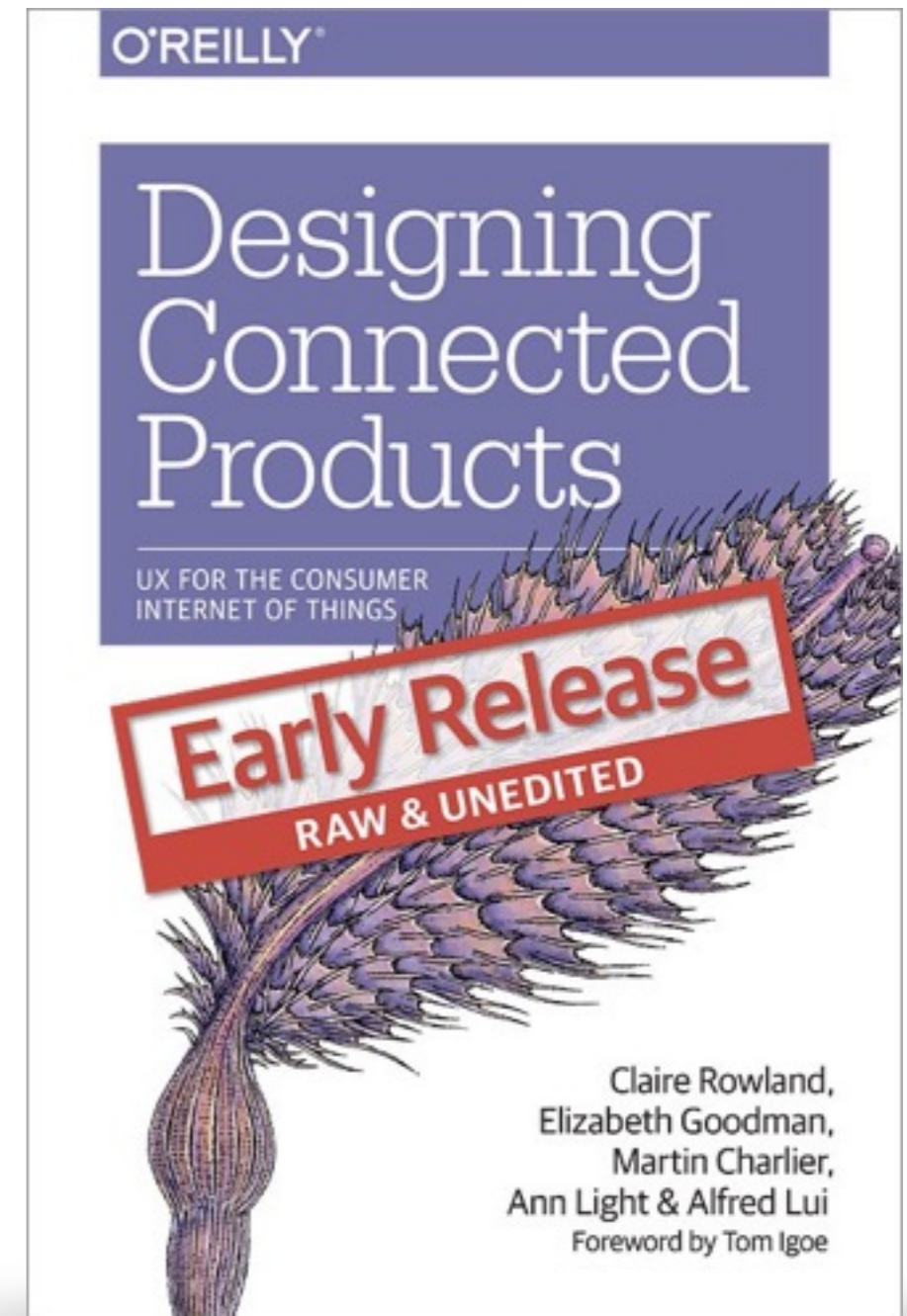 (Industrial design, Design research)

Designing Connected Products

I'm a co-author of 'Designing Connected Products'.

I've written two chapters: One about industrial design and one about interface types.

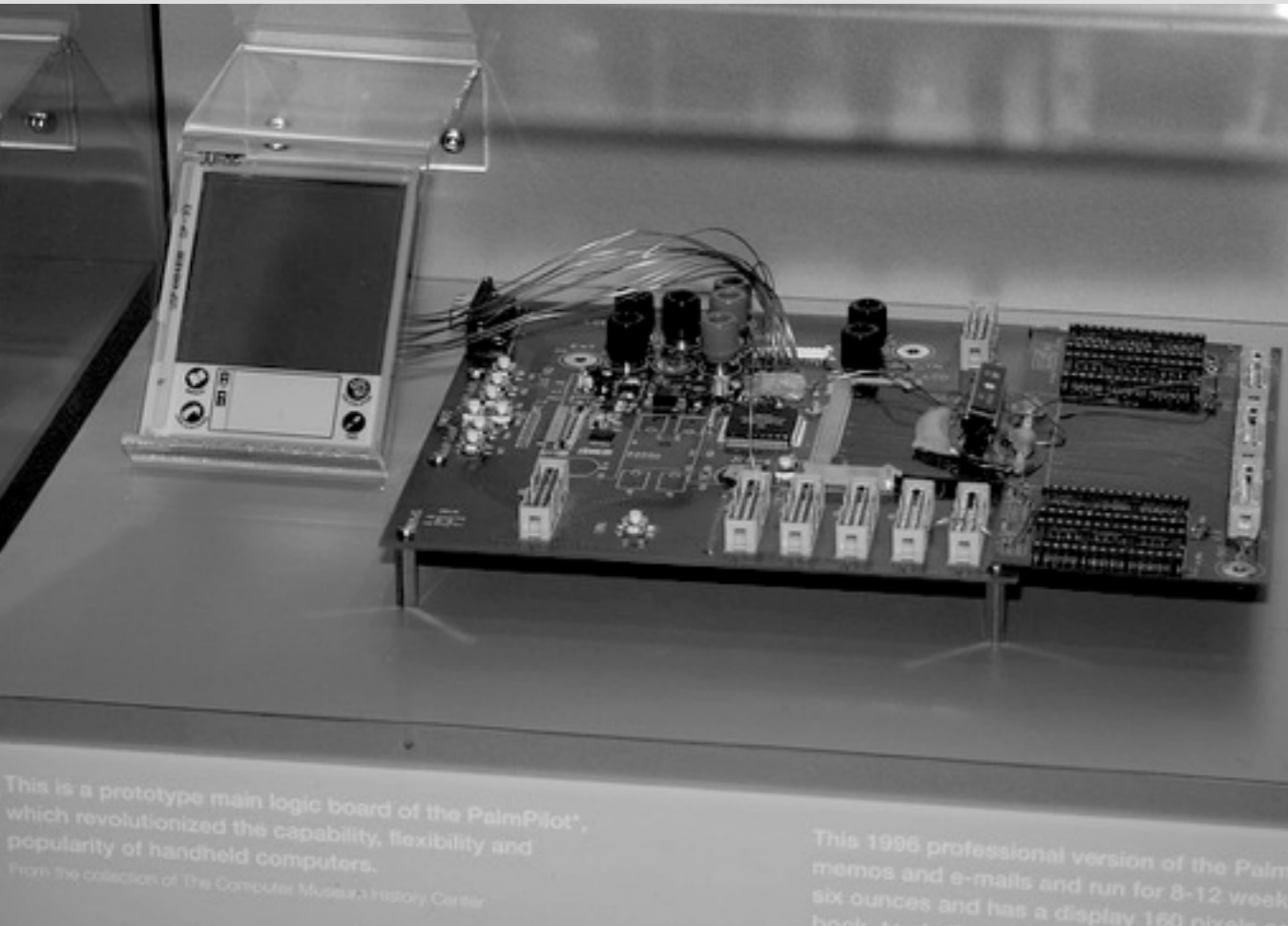This talk includes much of the work from my co-author Elizabeth Goodman's chapter 14.

This talk

- Prototyping VS. Experience prototyping

- What's the point of experience prototyping?

- Examples and techniques

"PROTOTYPE"

Experiment designed to answer specific questions.

PROTOTYPE

This is a prototype main logic board of the PalmPilot*, which revolutionized the capability, flexibility and popularity of handheld computers.
From the collection of The Computer Museum History Center

This 1996 professional version of the Palm memos and e-mails and run for 8-12 weeks six ounces and has a display 160 pixels

PalmPilot wooden model, Jeff Hawkins, 1995

Jeff Hawkins tested the PalmPilot's design with this model, using a chopstick for a stylus. He took pretend notes in meetings, and counted the steps it took to perform common tasks.

Gift of Jeff Hawkins, 102619074

PROTOTYPE

EXPERIENCE PROTOTYPE

PalmPilot wooden model, Jeff Hawkins, 1995

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Gift of Jeff Hawkins, 102619074

Building the thing right.

Building the right thing.
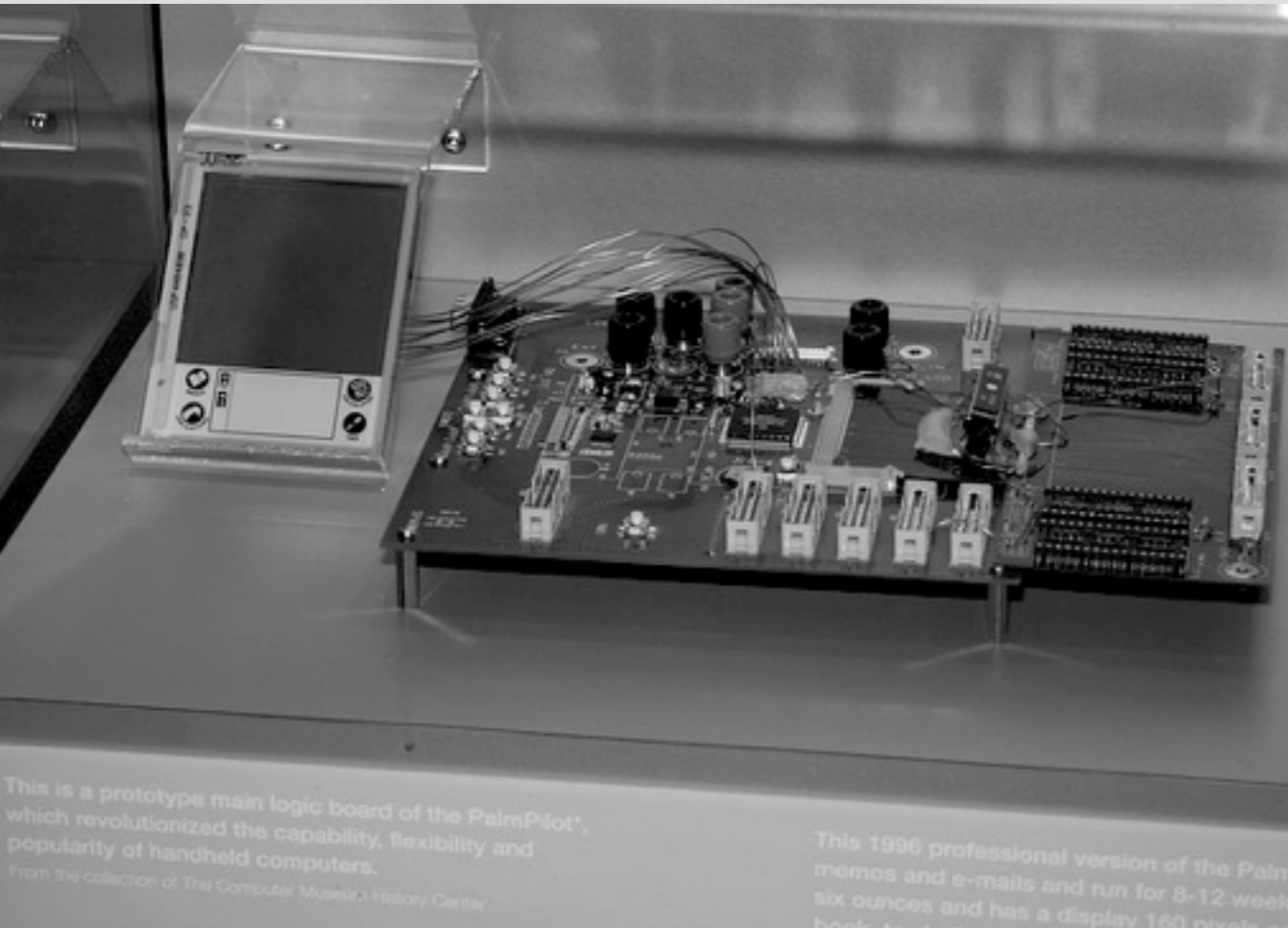
PROTOTYPE	EXPERIENCE PROTOTYPE
Building the thing right.	**Building the right thing.**

What are the tech challenges we will face?

Would people use this?

Can we actually make this work with the tech we have?

How would it have to work to be desirable?

Should we build this at all?

Will it meet the requirements?

What would it feel like to use this?

Product development

COST

Engineer for
scale (*)

Delight your
customer (*)

Deliver real
value (*)

Understand
the context (*)

STAGE IN YOUR DEVELOPMENT

Product development

COST

You don't want to be asking big, fundamental questions here.
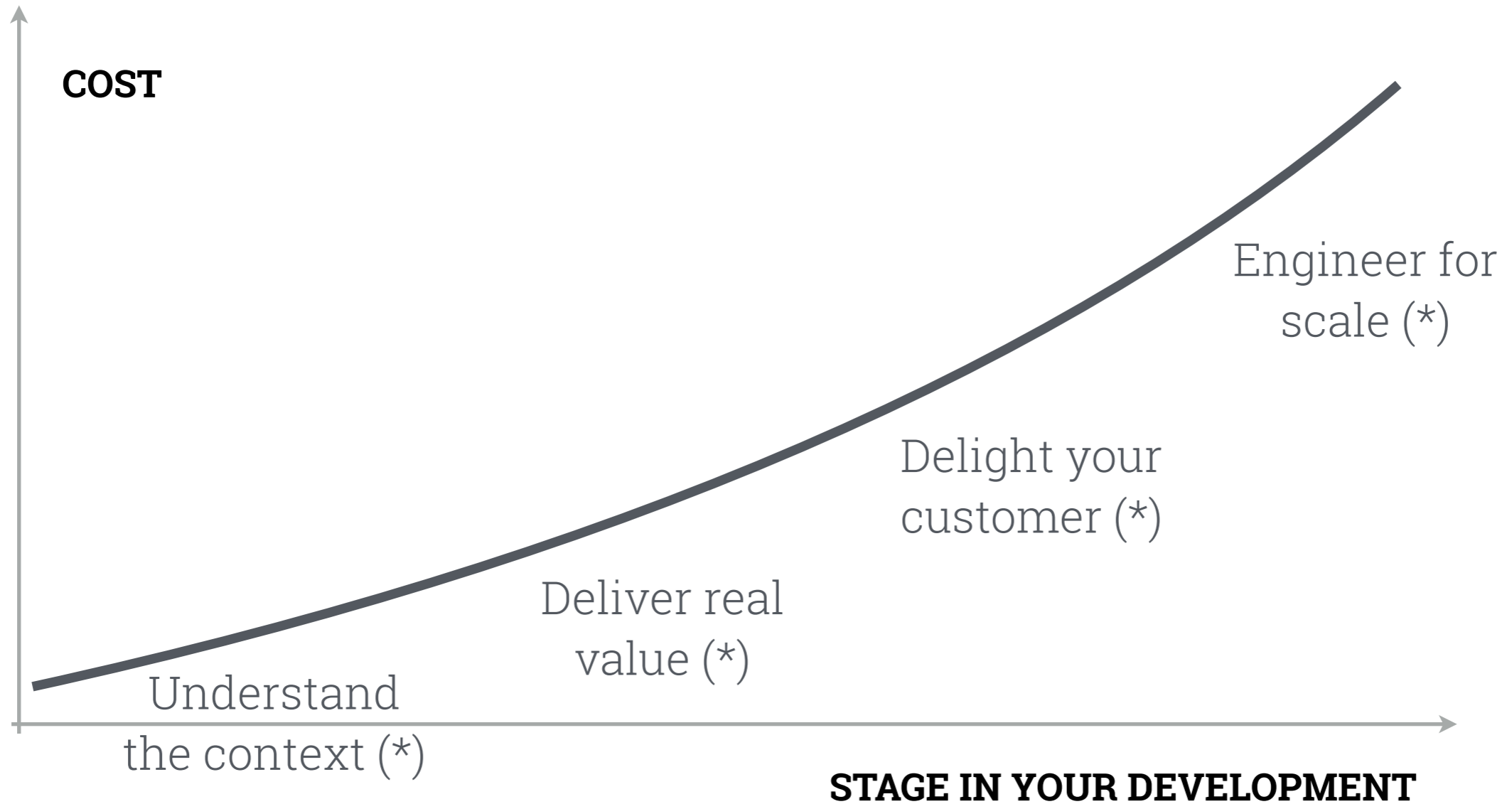
STAGE IN YOUR DEVELOPMENT
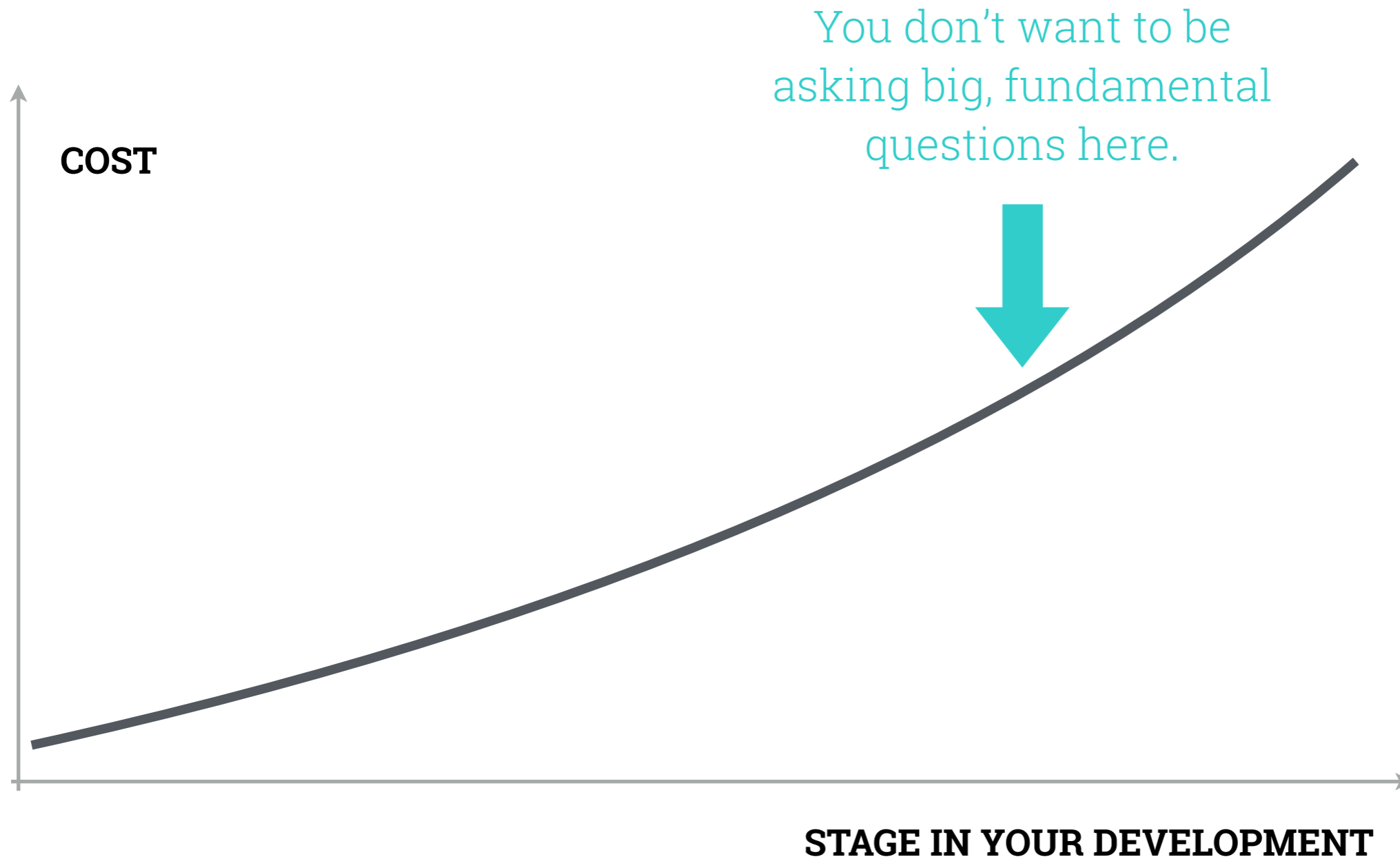
Are we building the right thing? → Are we building the thing right?

	PROTOTYPE	**EXPERIENCE PROTOTYPE**
Cost	**significant**	**negligible**
Time	**weeks**	**hours or days**
Answers	**few & precise**	**many & rough**
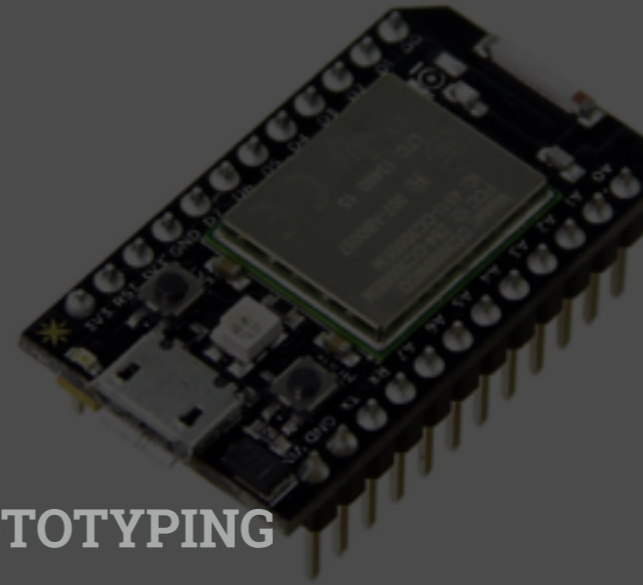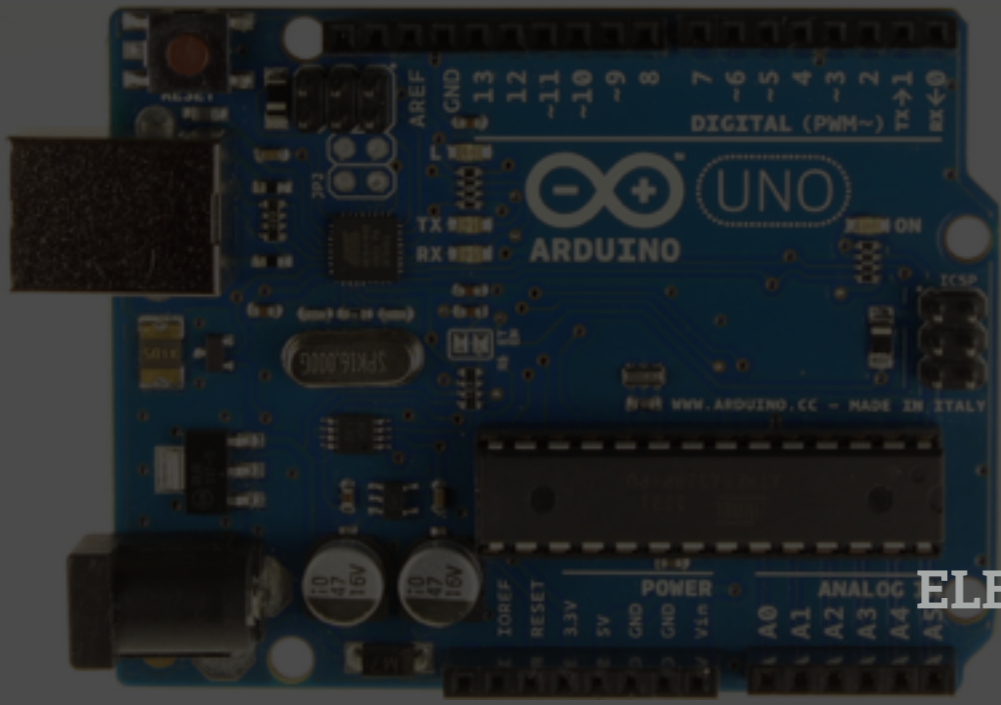
ELECTRONICS PROTOTYPING

Even electronics prototyping platforms can sometimes distract and waste time.

"Uh-oh! I've just spend an entire day getting a certain library to work."

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IBM & SPEECH-TO-TEXT

Let's not bet the company on it…

Prototyping techniques

Media from the future

Storyboards

Physical props

Wizard of Oz

Video prototypes

Media from the future

Storyboards

Physical props

Wizard of Oz

Video prototypes

Newspaper article

Questions

- Can this service, idea or product be plausibly conveyed?

- Are we able to convey the idea in simple terms?

Press release

- Forces you to clearly and simply convey the value and why anyone should care.
- Can be iterated quickly.

Amazon product development: http://www.quora.com/What-is-Amazons-approach-to-product-development-and-product-management/answer/Ian-McAllister

More on Amazon: http://brendansterne.com/2013/11/21/amazon-product-management-working-backwards/

Writing structures to get started

Inverted pyramid

MUST KNOW FACTS

NEED TO KNOW FACTS

NICE TO KNOW
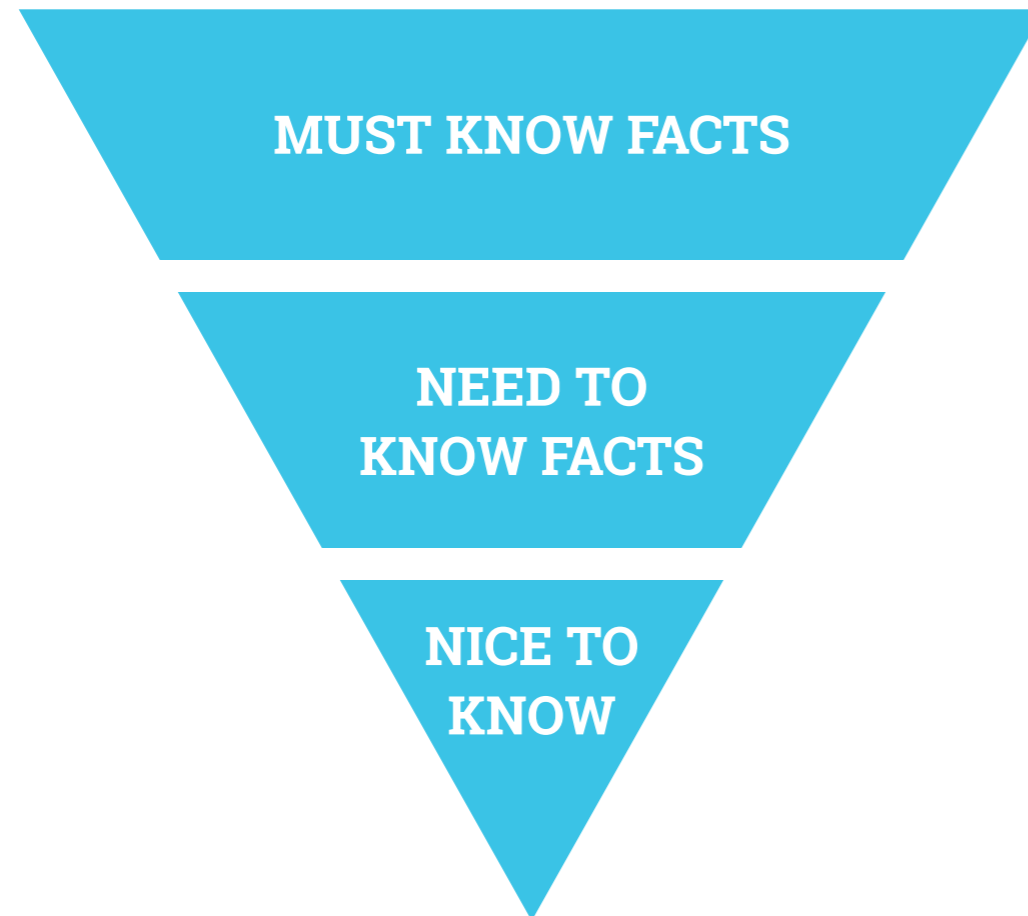
- **Press release**
- **Audience might stop reading any time**

Doug McGill's Four-Box structure

ANECDOTAL LEAD

NUT GRAF / WHY SHOULD I CARE

**BODY
STATISTICS,
QUOTES,
ANECDOTES,...**

THE KICKER
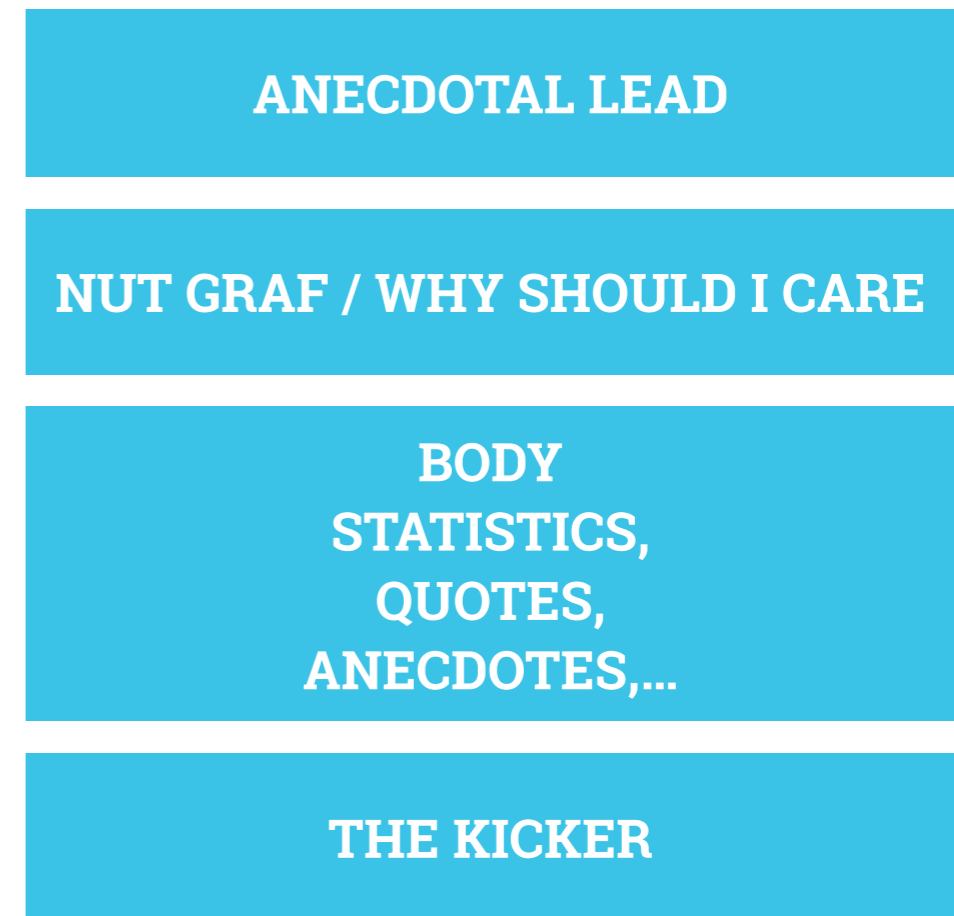
- **Feature article**
- **Reader is persuaded in by a compelling narrative**
- **Nut Graf: Nutshell Paragraph, why should you care?**

Sketch-the-box / Sketch an advert
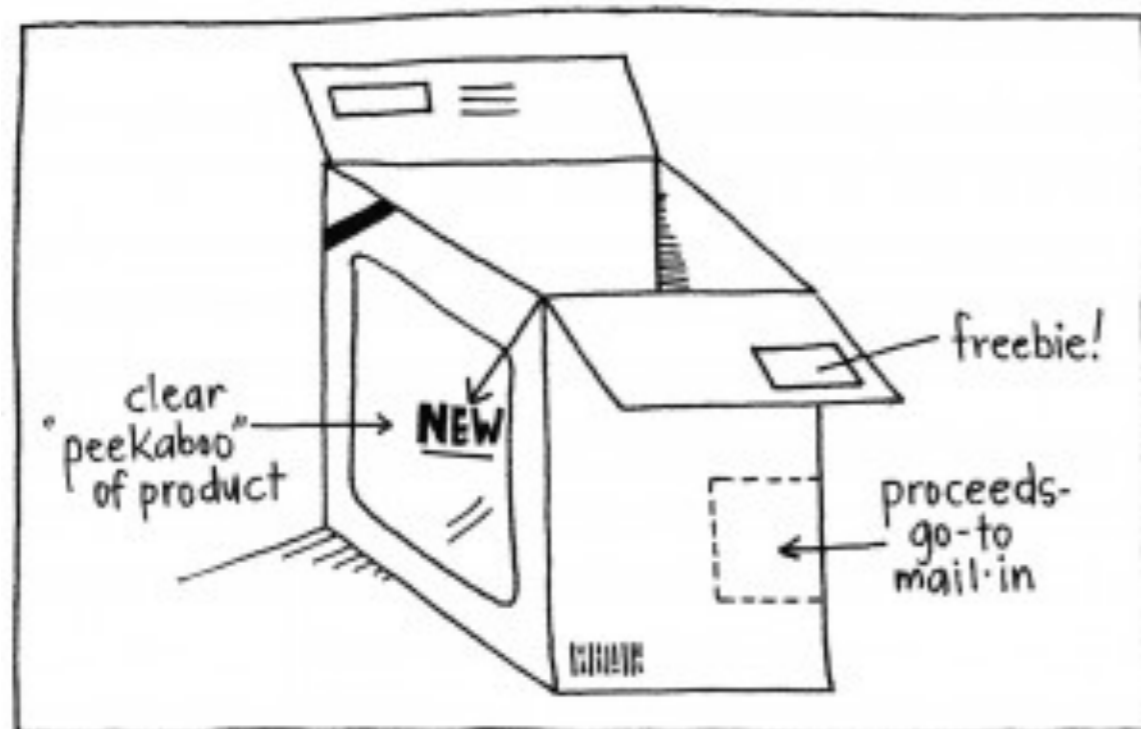
Questions

- Why should people care?
- How do you persuade them?
- How can you proof your claims?

Reading sequence of a shopper

THE SHOPPER:

❶ Notices the package

❷ Asks "What is it?"

❸ Wonders "Why should I care?"

❹ Wants to be persuaded

❺ Needs proof

Once you're happy with what you produced, these media can also be a great way to capture the vision behind a project.

Media from the future: Summary

- "If you can't explain it simply, you don't understand it well enough yet"

- Test if an idea can be plausibly explained or conveyed

- Iterate quickly

- Capture the ambition/vision of the project

Media from the future

Storyboards

Physical props

Wizard of Oz

Video prototypes

Storyboard

Credit: Deb Aoki

Credit: Robert André
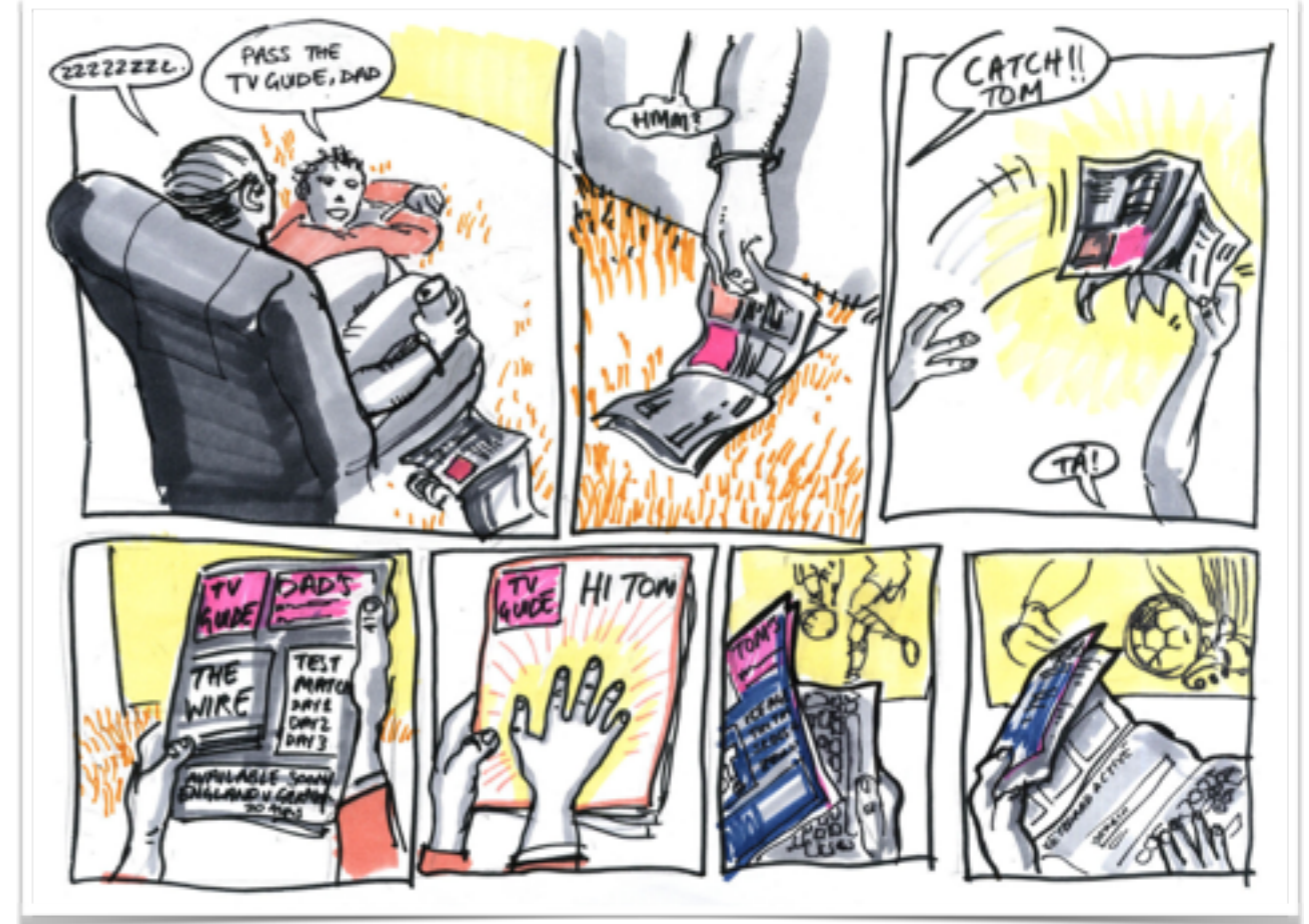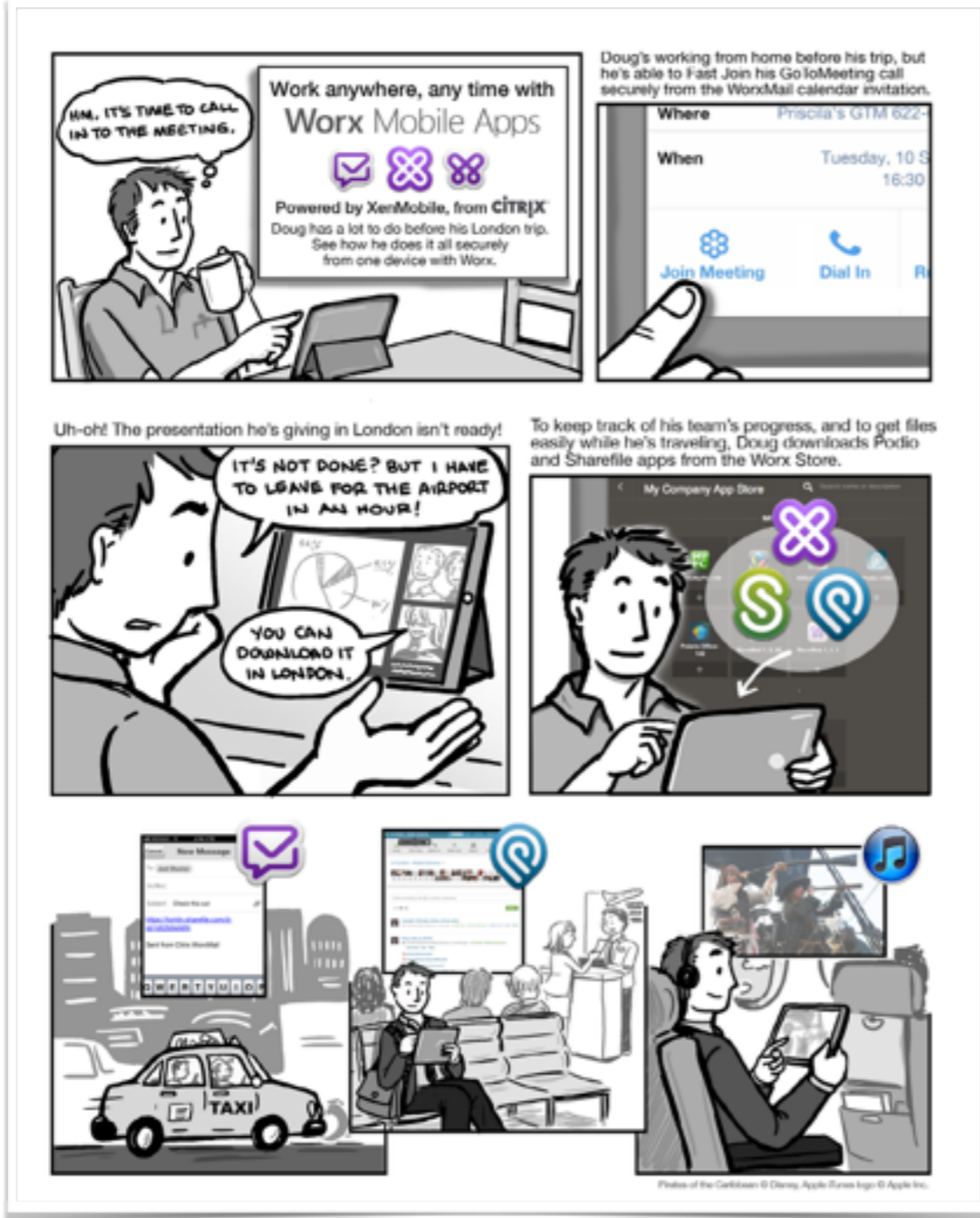
Storyboards: Summary

- In making it, you work through how different systems work together.

- Forces you to think about context of use

- Useful foundation for video prototype.

Media from the future

Storyboards

Physical props

Wizard of Oz

Video prototypes

Physical props / 1:1 mockups

Credit: Stimulant

Credit: D-LABS

Physical props / 1:1 mockups

Physical props: Summary

- Work in 1:1 scale to experience the context and uncover ergonomic considerations.

- Don't waste time over-designing them. This also risks drawing attention to the wrong areas.

- Adapt working devices instead of building custom electronics prototypes.

- Internal to iterate, but also a great foundation for user research, Wizard of Oz, or Video Prototypes.

Media from the future

Storyboards

Physical props

Wizard of Oz / Mechanical Turk

Video prototypes

Wizard Of Oz

- A (hidden) human plays the role of the system or technology.

- The user can experience and react to a product concept even though its technology is unproven.

User experiencing the prototype.

Behind the scenes triggering based on user action.

Lessons about the UX can inform the technical requirements, not the other way round.

Experience prototyping in research

Wizard of Oz: Summary

- (Hidden) human simulates part of the system

- Can be used in a few ways:

    - Live enactment to test with users

    - Demonstrate to onlookers / stakeholders

    - Across multiple days and locations to do user research.

    - Filmed and turned into a video prototype showing the experience in a plausible way

Media from the future

Storyboards

Physical props

Wizard of Oz

Video prototypes

These are NOT video prototypes.
(These are concept videos...)

Vine prototype
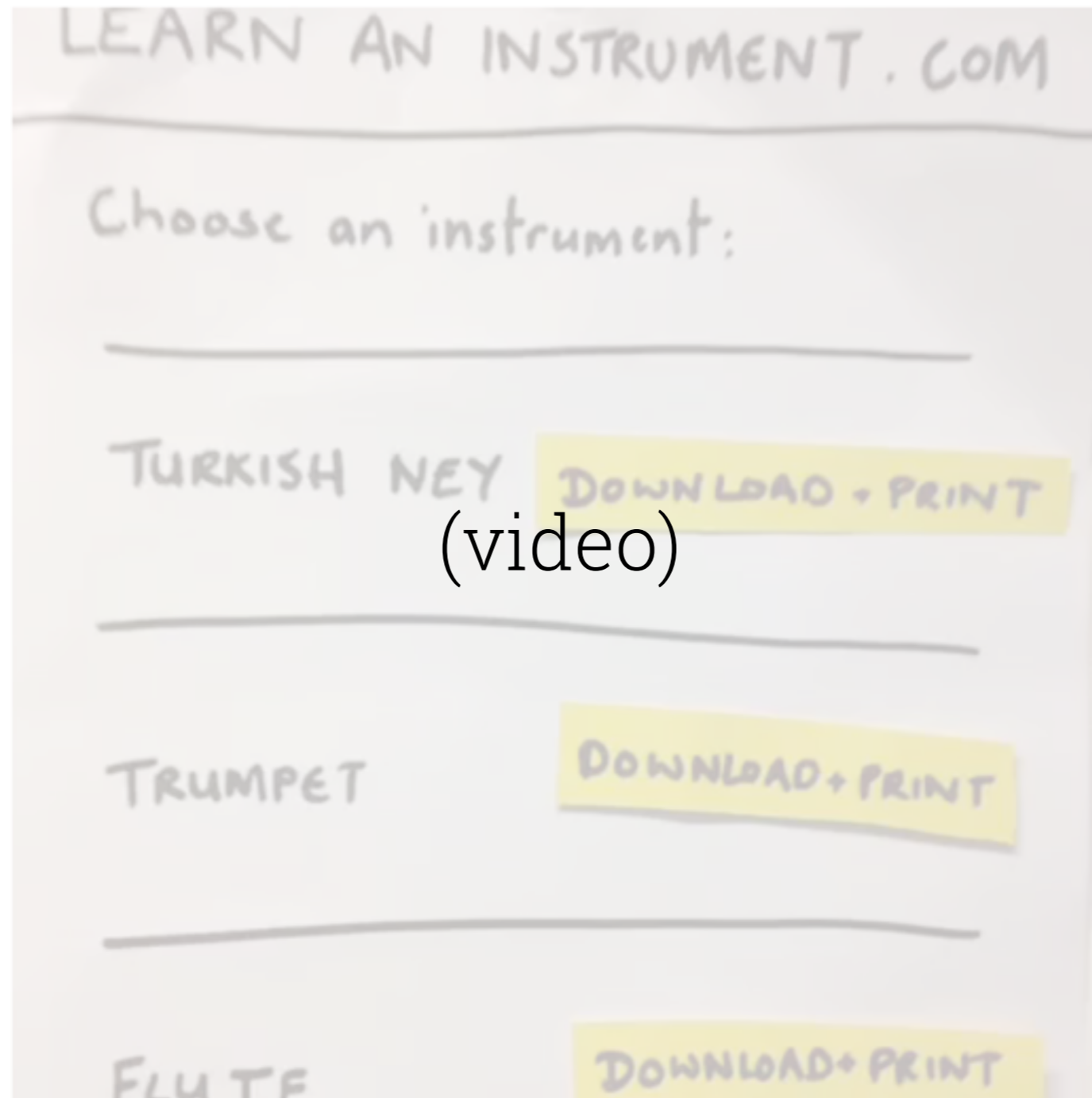
(video)

Video prototyping

(video)
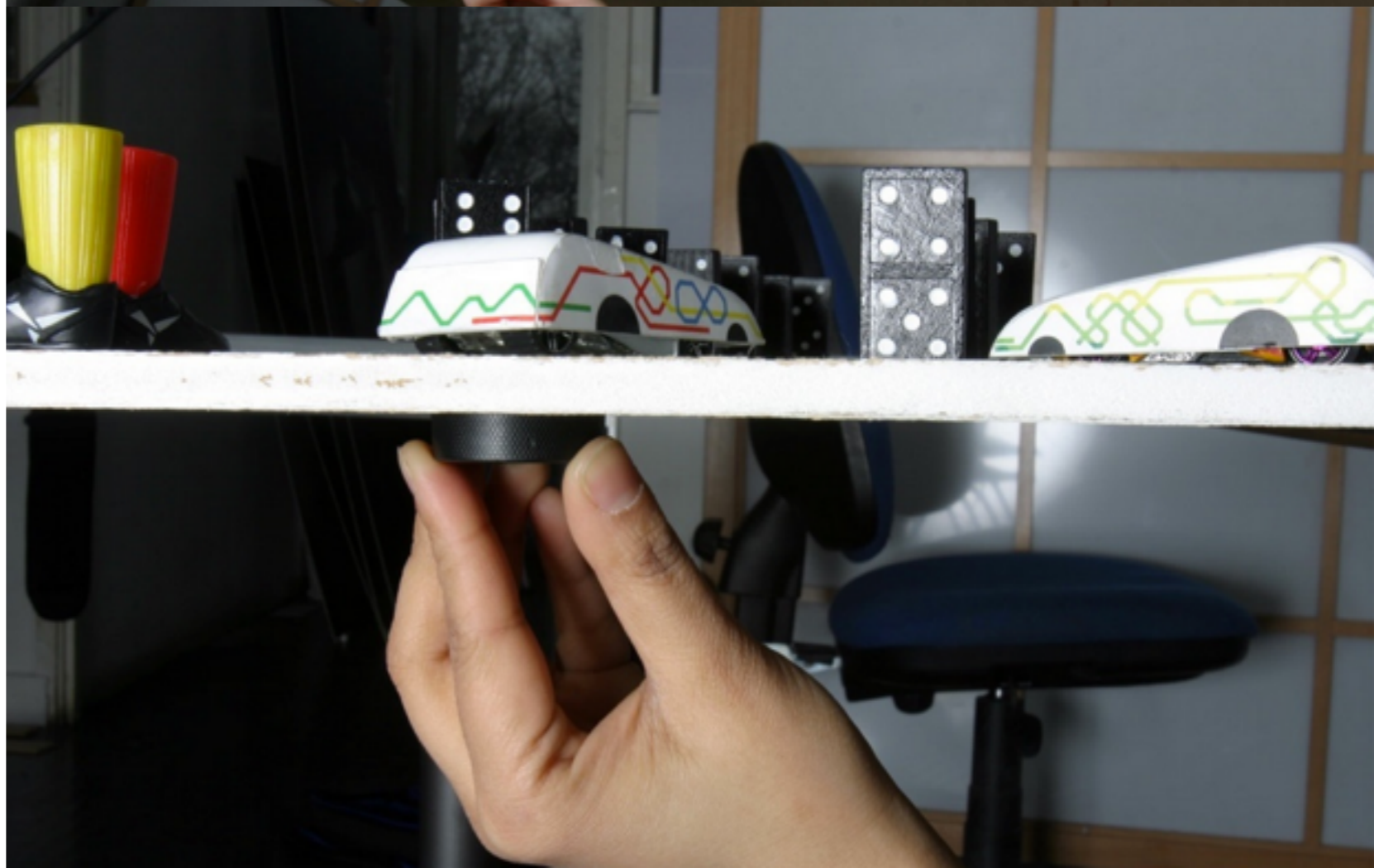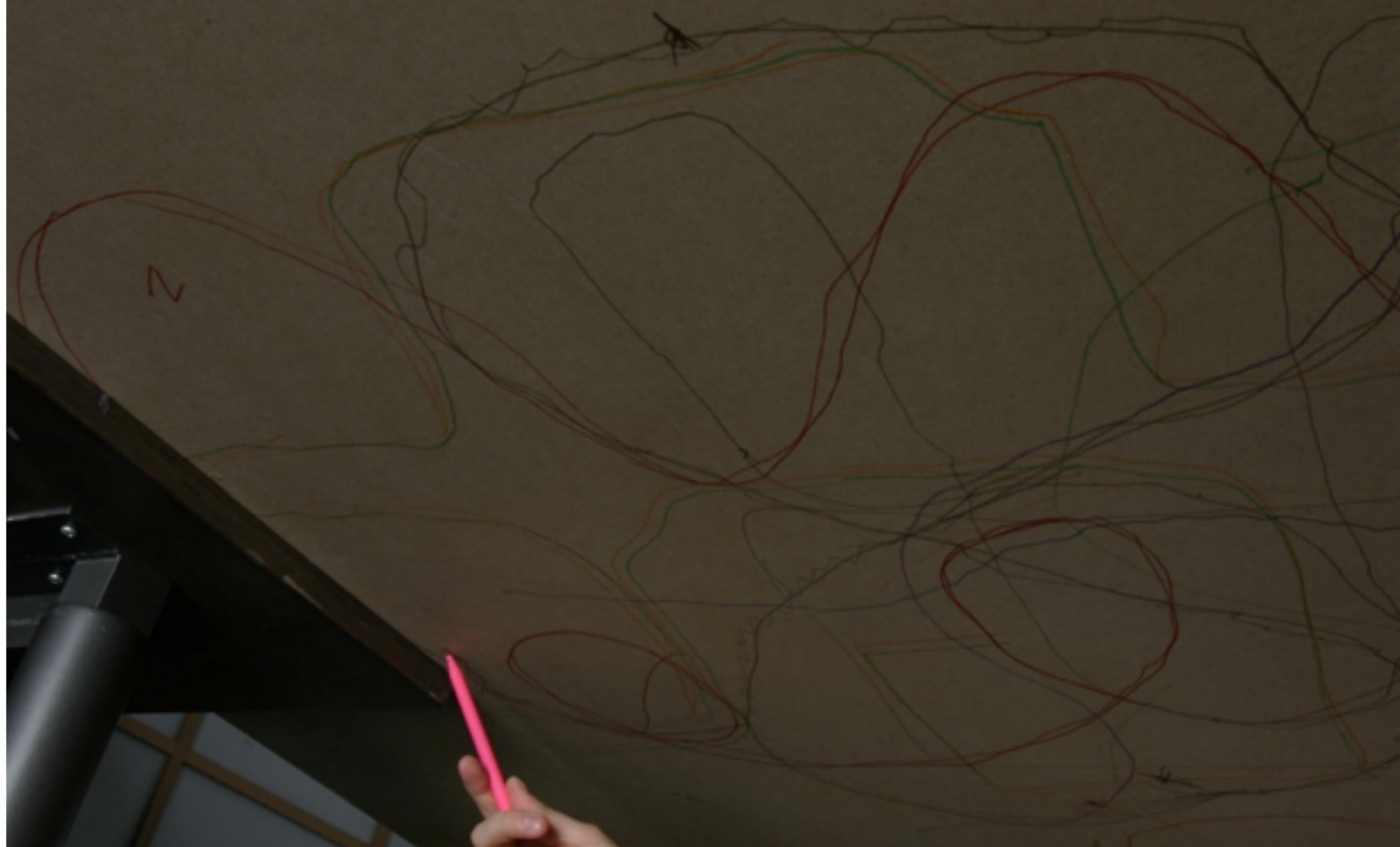
Video prototyping

This can be a powerful way of capturing the ambition and uniting a team. The video then becomes inspiration and goal post during the further development.

Rough prototypes inspired by the initial video prototype

Video prototyping

(video)

A storyboard or video prototype can guide the tech requirements
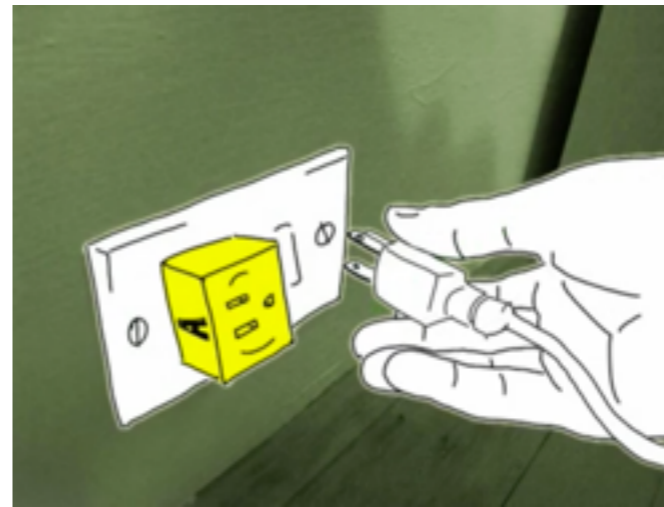
Technology requirements

Technology requirements

Technology requirements

Technology requirements

More info: http://www.cooper.com/journal/2008/12/economizer

Video prototyping: Summary

- Builds on Physical props and Storyboards
- Can be:
    - Live action role playing
    - Stop motion with Lego, etc
    - Still montages turned into a film
- Keep it sketchy: Don't over-design or mis-direct attention.
- Helps you experience the physical context.
- Can be a vision to inspire and unite the team.
- Can be used to derive tech requirements.

Summary

Investigating and iterating interactions with specific touch points.	• Physical props at 1:1 scale
Investigating how many systems play together across time and contexts.	• Storyboards • Media from the future
Testing if an audience understands an idea and sees value in it.	• Media from the future • Wizard of Oz • Video prototypes
Describing and sharing an idea easily.	• Props based / Wizard of Oz demonstration • Video prototypes
Documenting the vision for a product to set the goal.	• Media from the future • Video prototypes
Informing technology requirements and decision making.	• Breaking down Wizard of Oz, Videos or Storyboards into key moments that require particular technology.

Further reading

- Designing Connected Products (esp. Chapter 14)
- Sketching User Experiences - Bill Buxton
- Pretotype It - Alberto Savoia (Free ebook)
- About Face 3 - Alan Cooper

Thank you.

Martin Charlier

@marcharlier

m@marcharlier.com