DISCOVERING PHYSICAL-DIGITAL SPACES

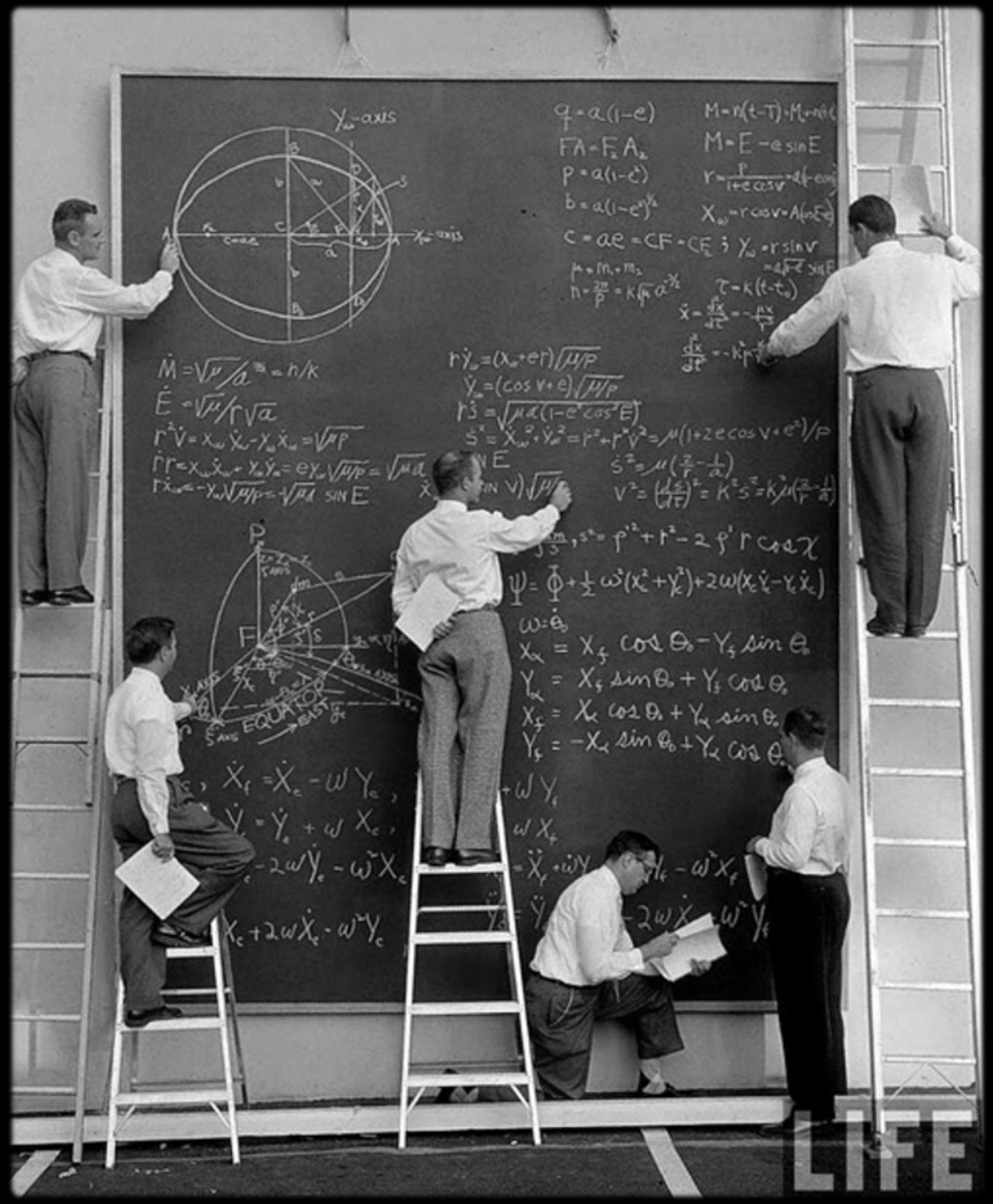
Llewyn Paine, Ph.D.

LLEWYN PAINE CONSULTING

Today you'll learn

- What a physical-digital space is
- The assumptions that go into flat-screen design
- How to evolve your processes and tools for physical-digital spaces

Calculations at NASA, 1961

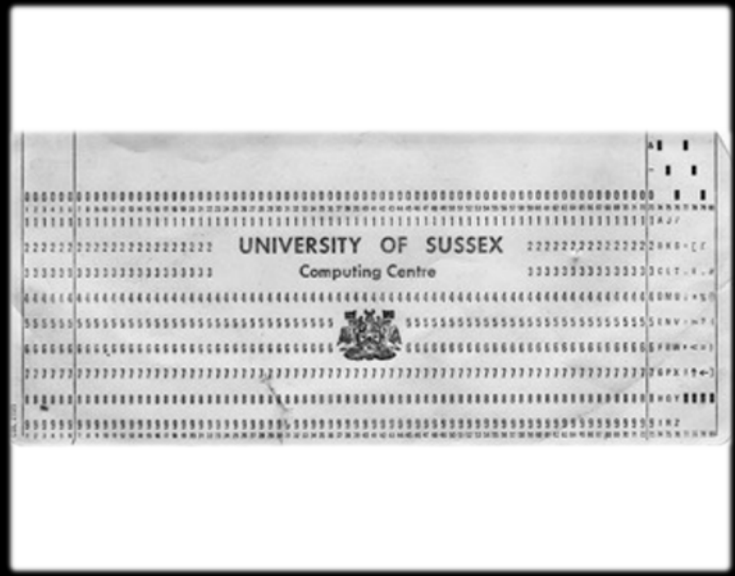


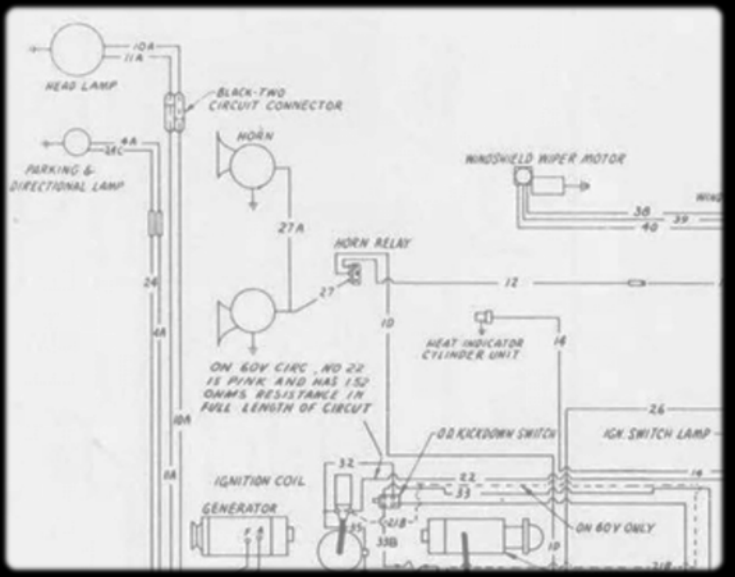
→ *J. R. Eyerman / LIFE magazine.*
Image courtesy of RareHistoricalPhotos.com.

Typing pool, ca. 1965

→ *Image from the Missouri State Archives*

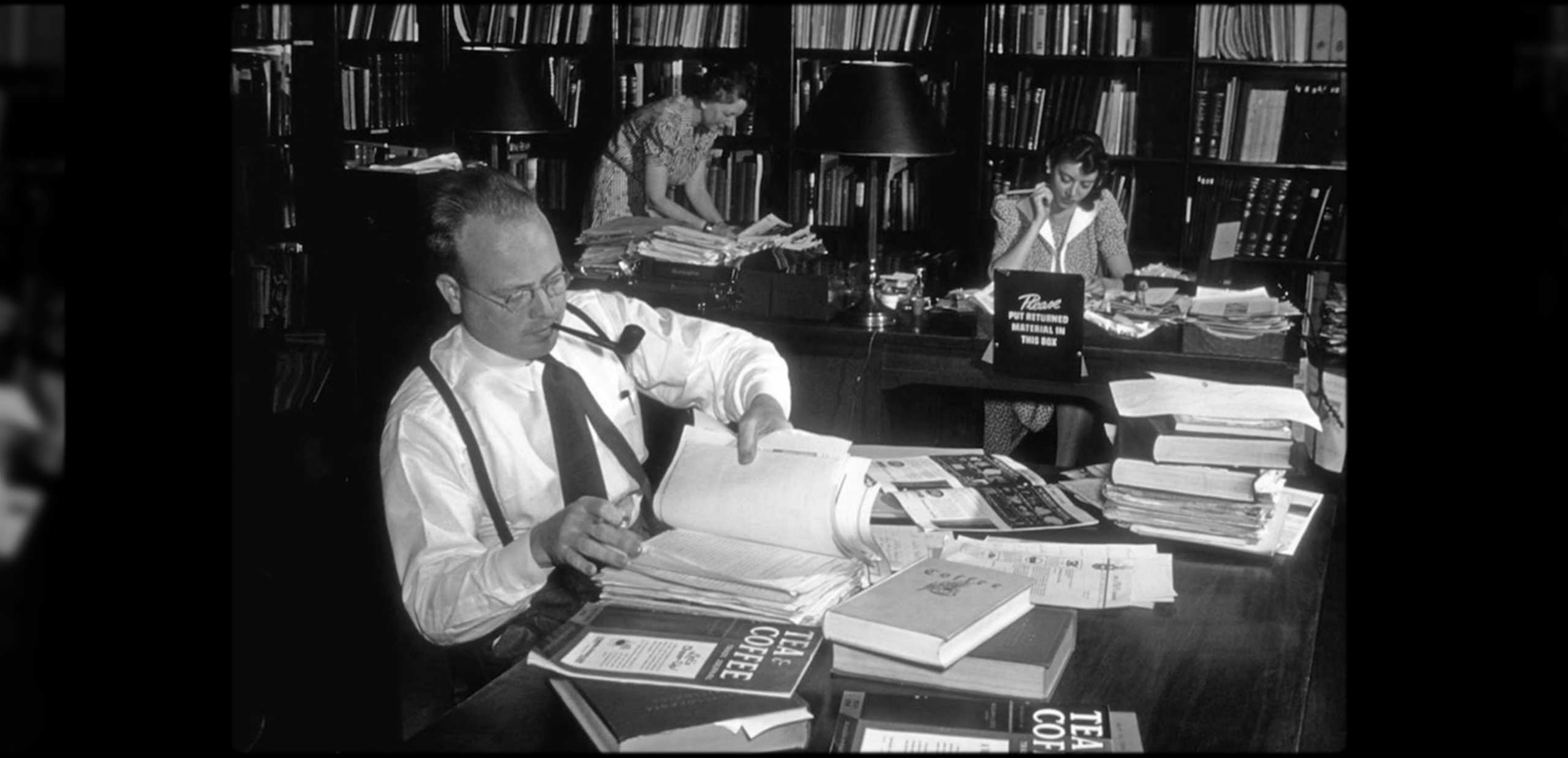
Xerox Alto



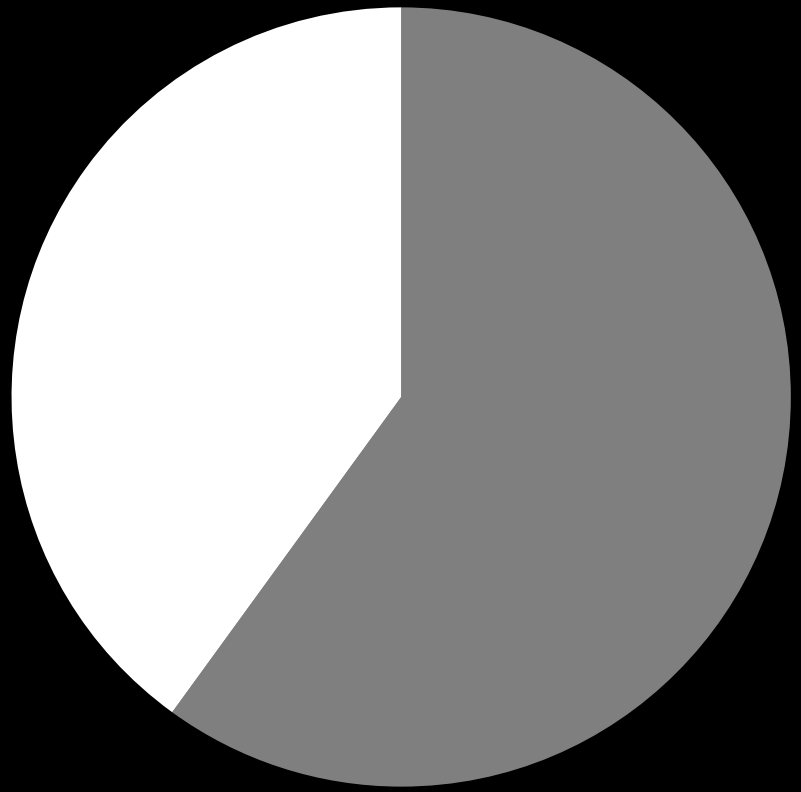


→ *(CW) RareHistoricalPhotos.com, Joho345, Chris Limb (Flickr), RareHistoricalPhotos.com, Archive.org*

“Knowledge worker,” ca. 1960s



→ Image from RareHistoricalPhotos.com



40%

of US workforce
are **“knowledge workers”**

Per US Bureau of Labor Statistics

The Organizational Context of User-Centered Software Designs*

By: Rob Kling

Abstract

Many computer programs that are technically well designed fail to meet the human or organizational purposes they were expected to serve. Prevailing design methodologies stress either special technical devices or policies of involving people in the design of software they will use. Several user-oriented design strategies and their limitations are discussed. An expanded conceptual framework which includes both the personal characteristics of designers and features of the organizational settings in which they work is presented. The

The Problem

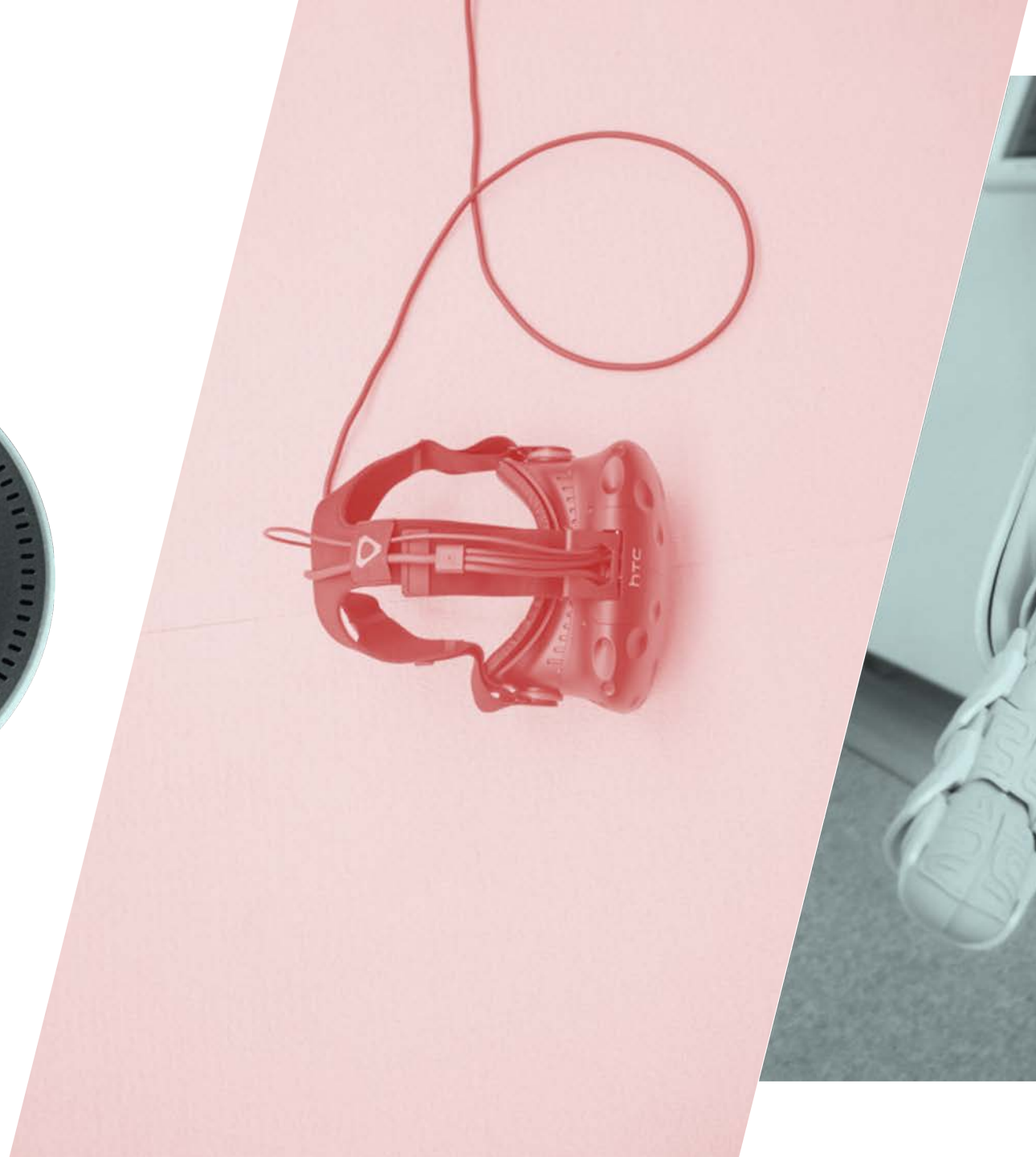
This paper focuses upon users, the forgotten people in software design. It develops a framework to analyze the conditions under which software design groups are most likely to produce systems that meet the needs of their users.

Computers have been applied to an immense variety of managerial, engineering, industrial, and scientific applications during the last decade. Unfortunately, many computer programs that are well designed in terms of technical criteria, such as run-time efficiency, fail to meet the human or organizational needs they were expected to serve [38]. While the technical computer literature describes algorithms and systems that are technically effective, computer specialists have developed an informal, more private folklore of systems that were underused or abandoned because they were ineffective person/machine systems. Systems can be ineffective when they are not well understood by the people who use them [27], provide inaccurate data [13, 19], demand unusual precision and attention [3, 20], or are difficult to modify when the kinds of information users want changes [11].

These difficulties can undermine the utility of a computer system even when its users are relatively homogeneous and welcome computational assistance. When the "users" of a system have different or conflicting needs, political dynamics have an even greater impact on the use of a system than do its sheer technical qualities. Developing usable designs remains a subtle art even when the users of a system are not in

Bell Labs usability test, ca. 1972

→ *Image from WebUsability.com*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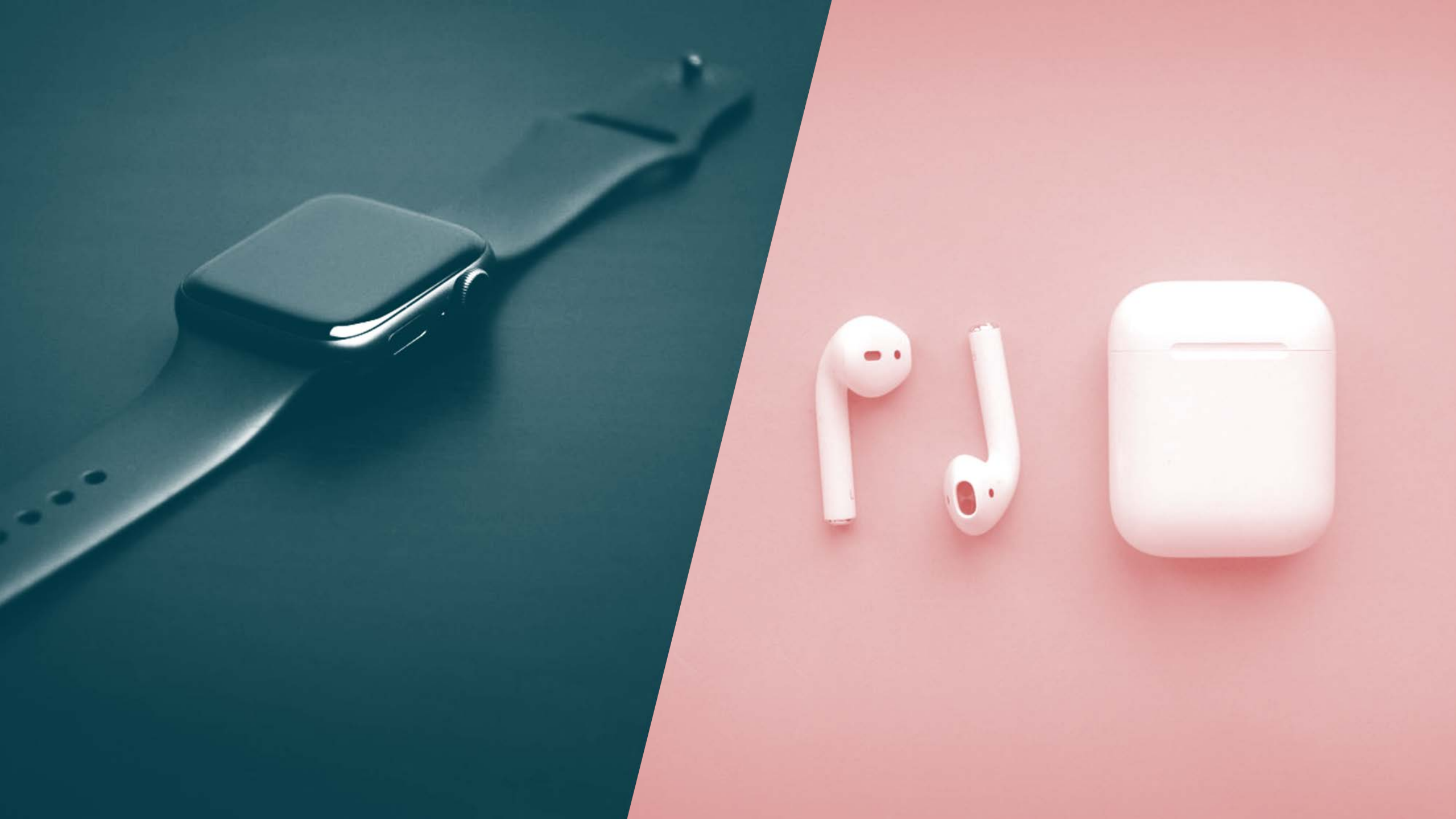
From paper to spaces

What is a physical-digital space?

Image courtesy of Microsoft


hello
LOCALS SEAFOOD

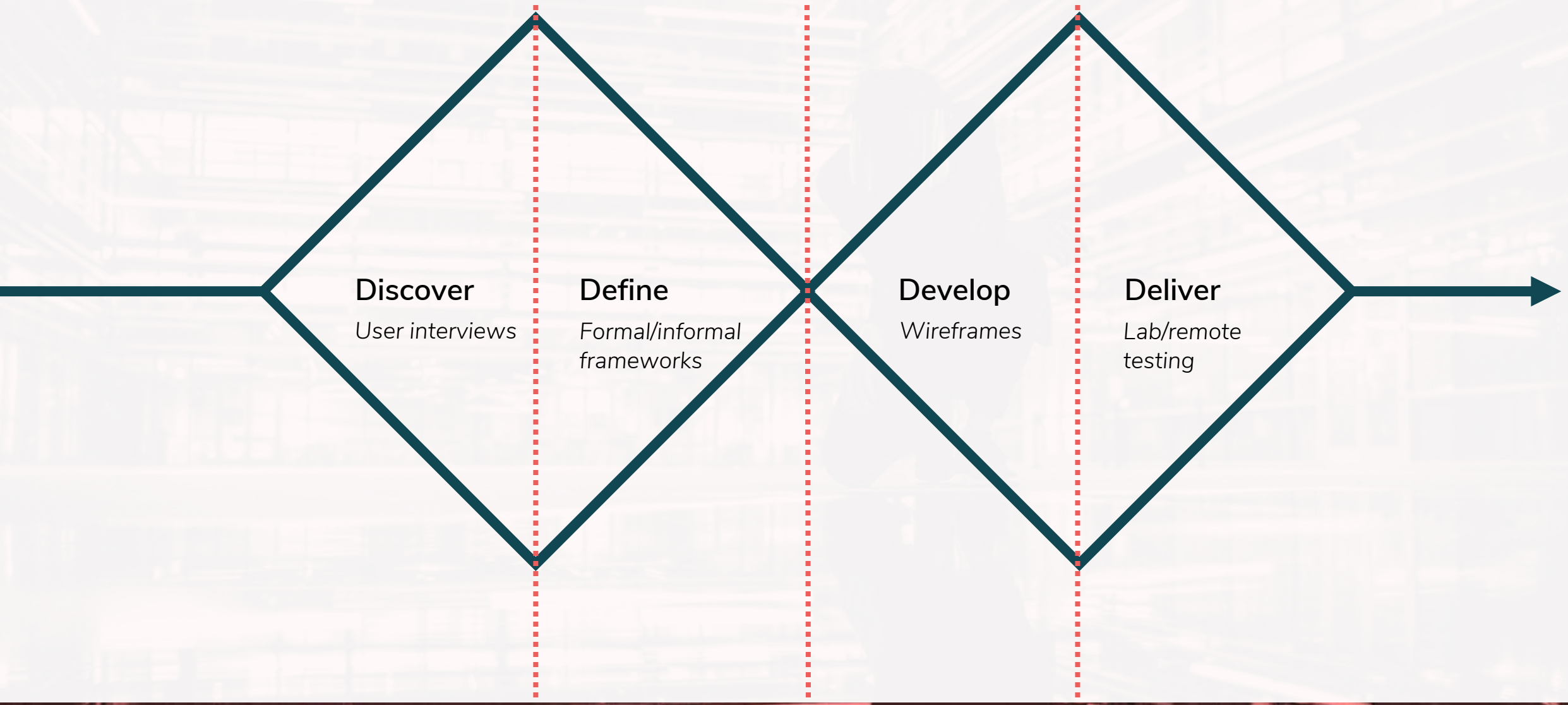

FOUND



What this means for design

Norman's 7 Fundamental Design Principles

1. Discoverability
2. Feedback
3. Conceptual model
4. Affordances
5. Signifiers
6. Mappings
7. Constraints


Discover
User interviews
Define
Formal/informal frameworks
Develop
Wireframes
Deliver
Lab/remote testing

Issues

1. There’s a missing first step.

2. Our tools are optimized for flat-screen design.

Assumption #1

The physical interface can be taken for granted.

Assumption #2

The customer will be one of your usual suspects.

“Strange, then, that we always begin our projects with a research phase, as if we know nothing, as if the problem hasn’t existed in some other form, as if the client has all the time and money in the world… But what about the vast majority of our projects? Or the vast majority of the problems that we solve within a project? ***I’ll wager you or your colleagues have seen these problems before – and there’s a fair chance that the solution is documented elsewhere in some form.”*** [emphasis added]

–Jon Whipple (2012), “What Designers Know”

“When to Skip UX Research”

(Taylor Palmer, 2021)

1. There’s an existing knowledge bank.
2. You’ve already done research.
3. The project is low-risk and low-cost.

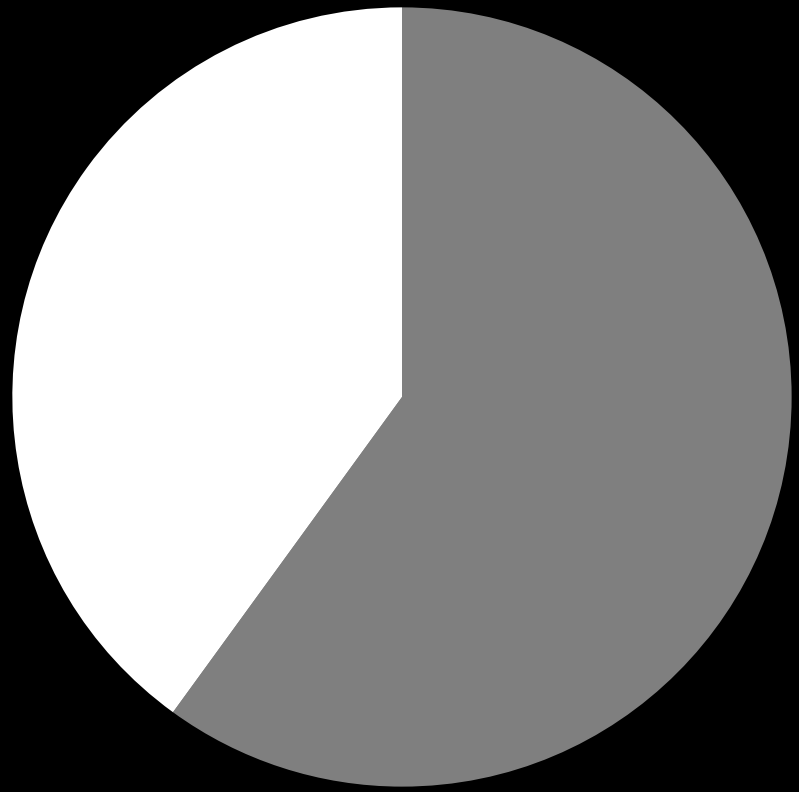
“When to Skip UX Research”

(Taylor Palmer, 2021)

~~1. There’s an existing knowledge bank.~~ **No knowledge bank**

~~2. You’ve already done research.~~ **No proven solutions**

~~3. The project is low-risk and low-cost.~~ **High risk & high cost**



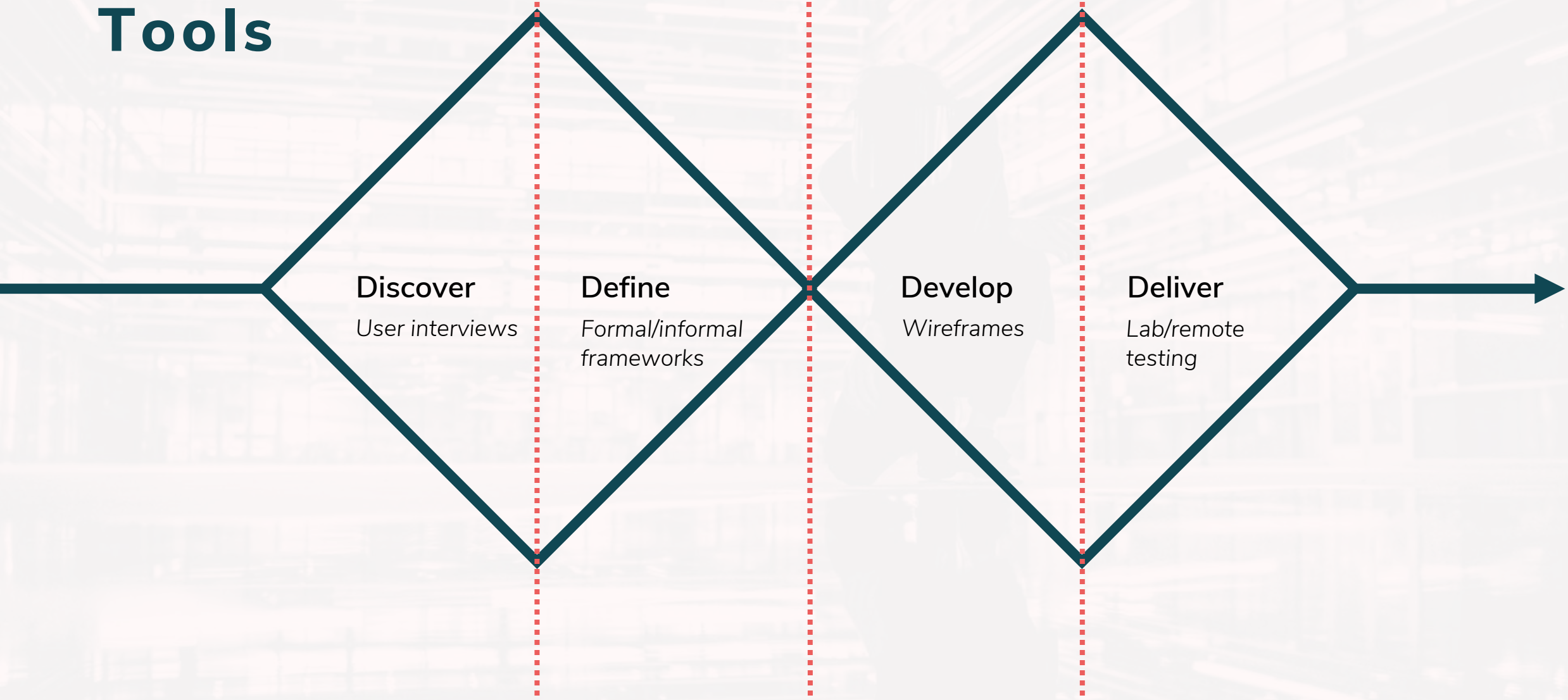

FRIDAY

The missing first step

- Audit your technology.
- Check your customer blind spots.

Resources at llewyn.net/adw2021

Tools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AEIOU Framework

(Doblin Group, 1991)

Activities

Environments

Interactions

Objects

Users

“Context Into Context”

(Jared Spool, 2005)

- Goals
- Process
- Inputs & Outputs
- Experience
- Constraints
- Physical Environment
- Tools in Use
- Relationships

Example: AEIOU Framework + Constraints for Hand Tracking Tech

Activities

Environments

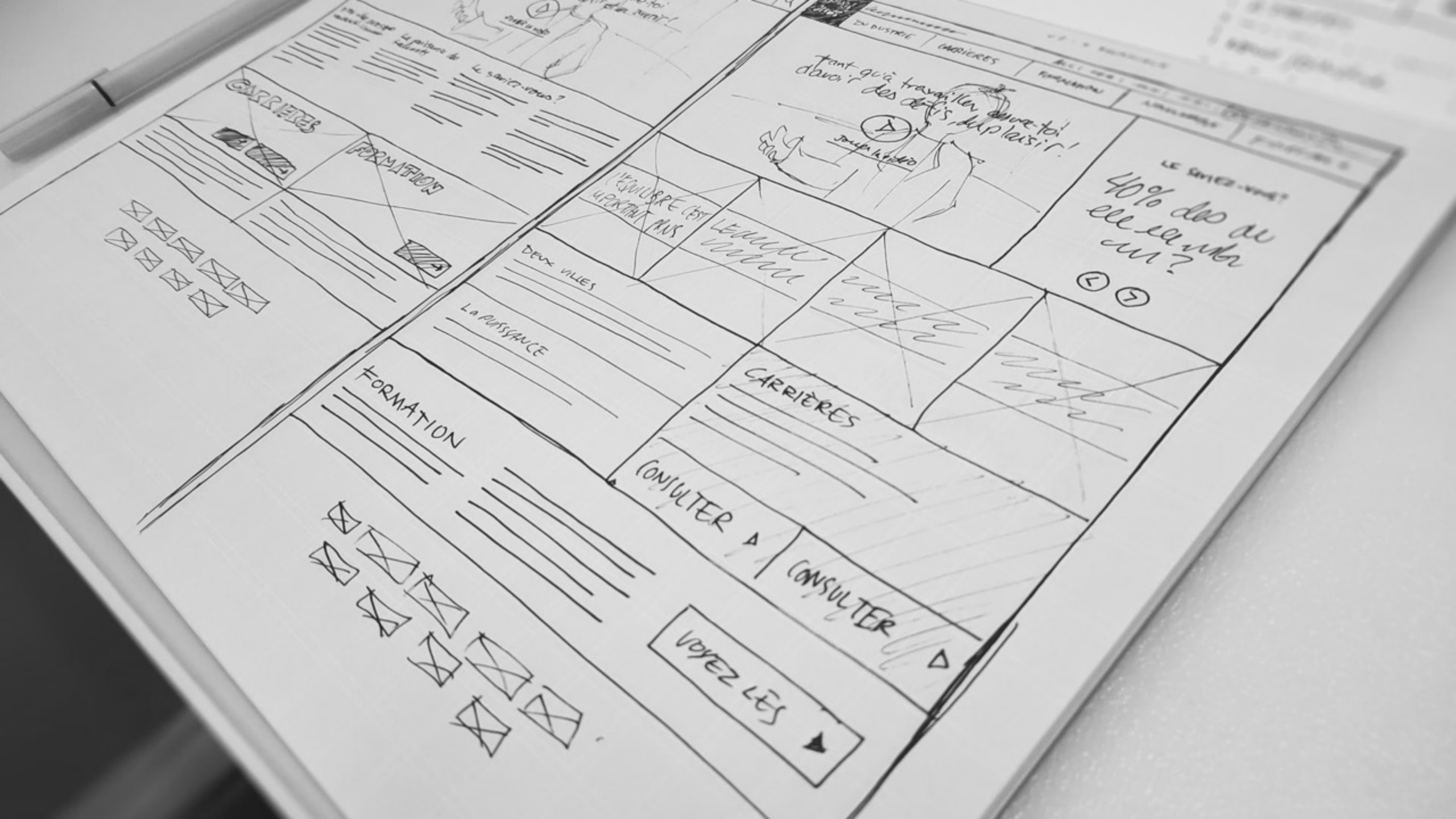
Interactions

Objects

Users

- Workflows requiring hand positioning
- Workarounds for detecting gestures

- Lighting level (for sensor function)


CARRIÈRES
FORMATION
Deux villes
La puissance
FORMATION
CARRIÈRES
CONSULTER
CONSULTER
VOYEZ LES

MVP

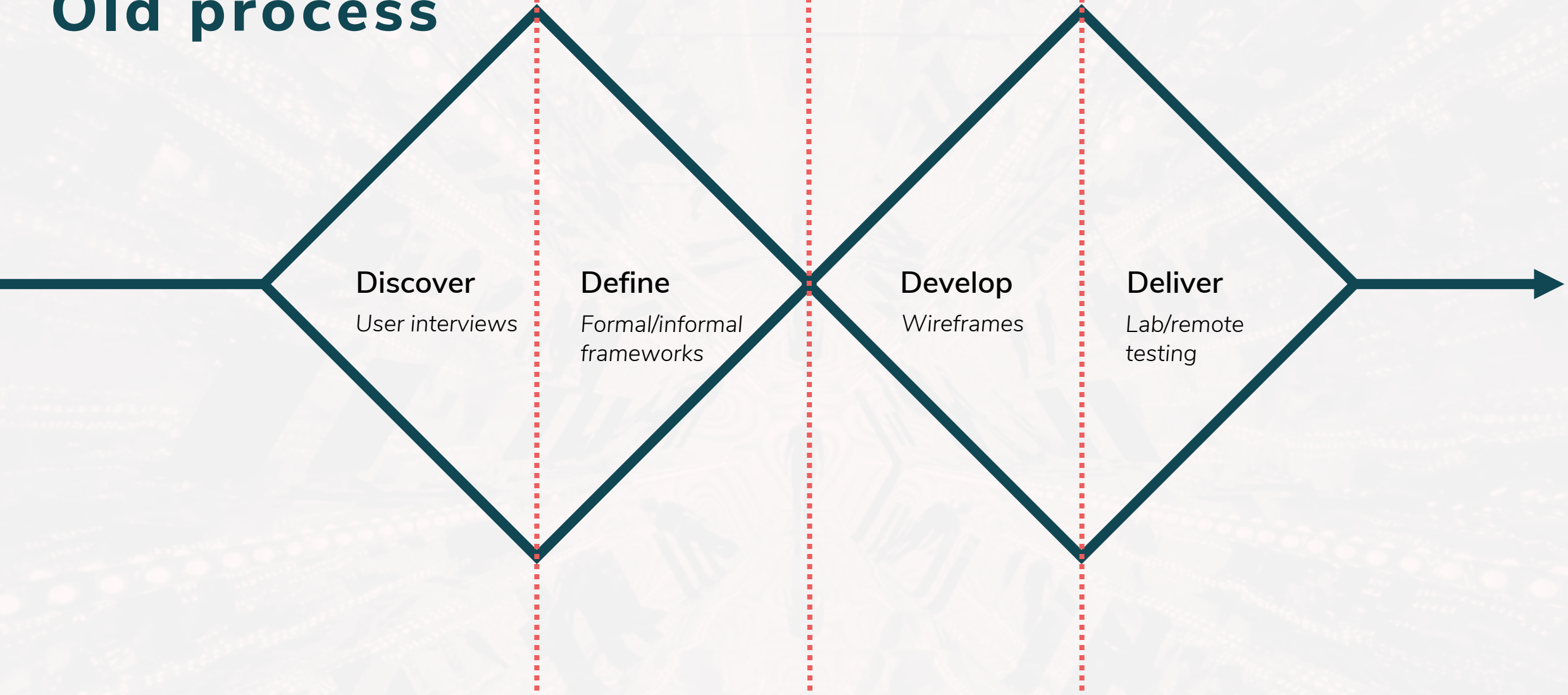
"A version of a new product which allows a team to collect the **maximum amount of validated learning** about customers **with the least effort**." *(Eric Ries, The Lean Startup)*

The Secret to VR Development? Cardboard Box Forts

Schell Games' Shawn Patton has a remarkably low-fi way to develop VR games: build your environments in reality with arts and crafts, known as brownboxing.

By Will Greenwald March 21, 2018

Old process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New process

Prepare
Audit the technology

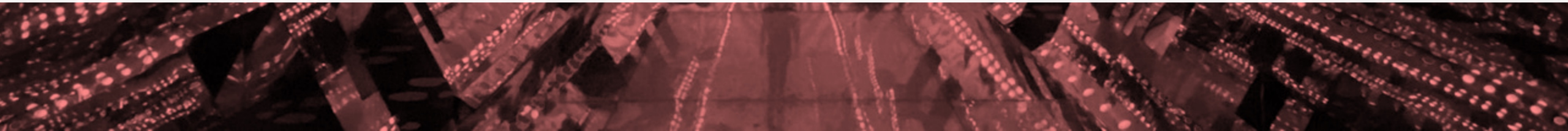
Check customer blind spots

Discover
Observation

Define
Tailored frameworks

Develop
MVPs
Lo-fi prototypes

Deliver
In situ testing



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Thank You!

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Download presentation and other resources:
https://llewyn.net/adw2021

Thank You!

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Acknowledgements

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