

{ .NET Coding School - Oct 2017 }

INTRODUCTION TO UI & UX

Research & Usability Principles

Dr. John Pagonis

Sotiris Sotiropoulos



Zanshin
Labs

ABOUT US



software production
consultants



we help teams & organizations

define | **design** | **develop**

software their **users need**



John Pagonis, Phd, UXC

John Pagonis invested many years in developing smartphone OS software and having fun programming mobile VoIP, machine learning and recommender systems. He also used to teach university students how to program.

John helps organisations produce better software and discover what they really ought to focus on. John has a PhD, MSc and BEng from the University of Essex and is a certified UX researcher from Nielsen Norman Group.



Sotiris Sotiropoulos, UXC

Sotiris Sotiropoulos spent his early professional life creating user interfaces and graphics for videogames and later for Web and mobile apps. In his quest to justify everyday design decisions, he discovered that user experience design provided answers; very good answers.

To Sotiris, it is apparent that designs aimed at people can only be crafted by understanding ...people. He is also a certified UX researcher from Nielsen Norman Group.

ABOUT UX & UI



What is UX?

UX

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

- Don Norman

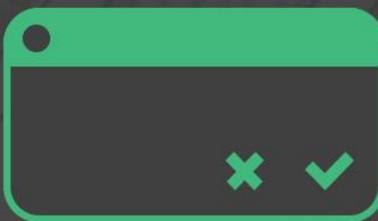
CONTEXT

Cognitive Factors
& Behavioral Drivers



USER

Communication
& Feedback



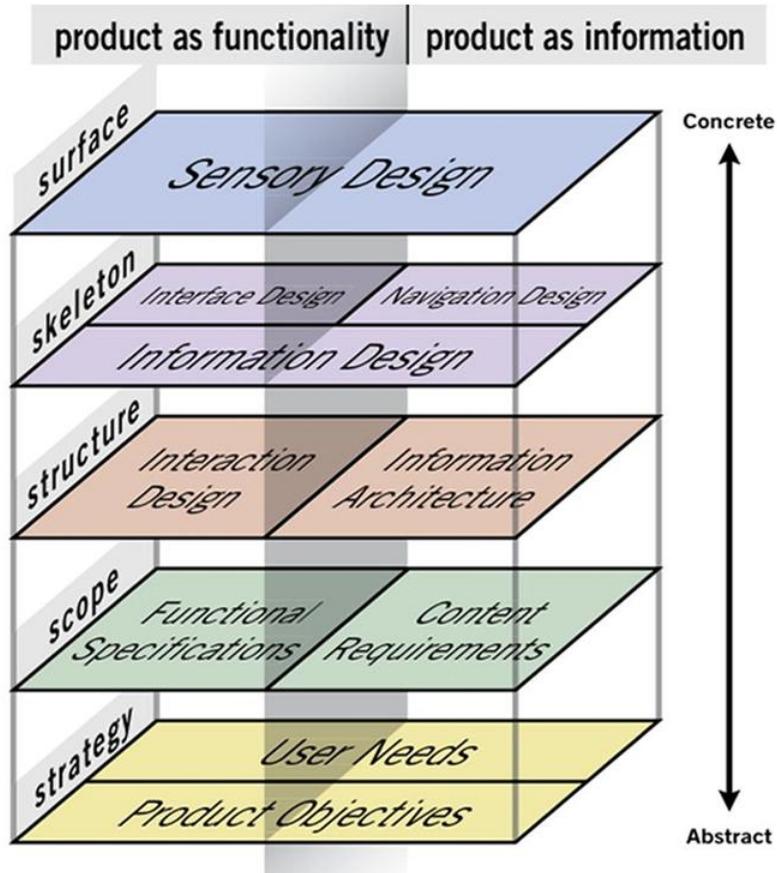
INTERFACE

Functionality
& Usability



SYSTEM

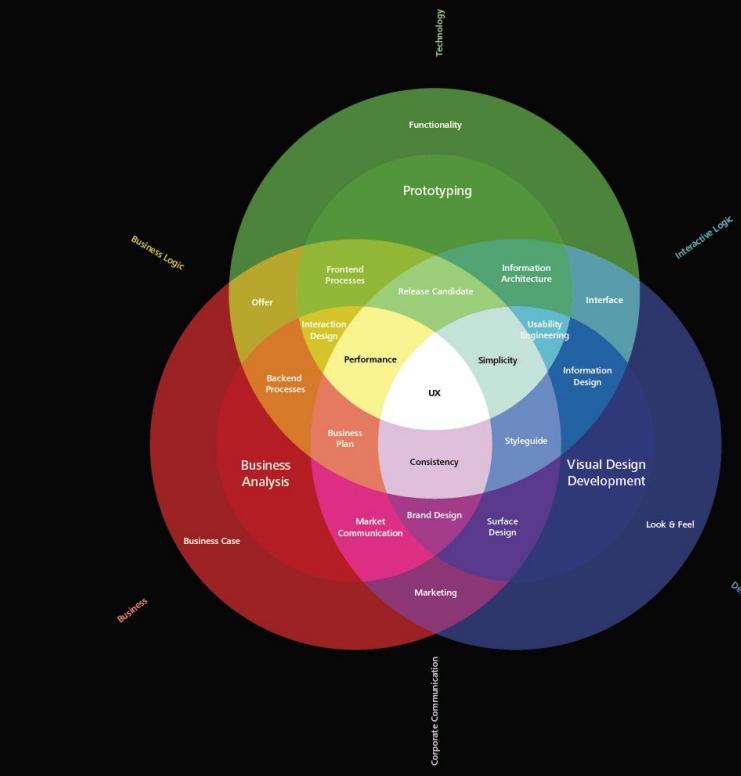
Layers of UX



The UX Design spectrum is vast

Information Architects, 2009
“The Spectrum of User Experience”

The Spectrum of User Experience



V0.5 (c) 2009 by Information Architects, Inc.



Why even bother with UX design?

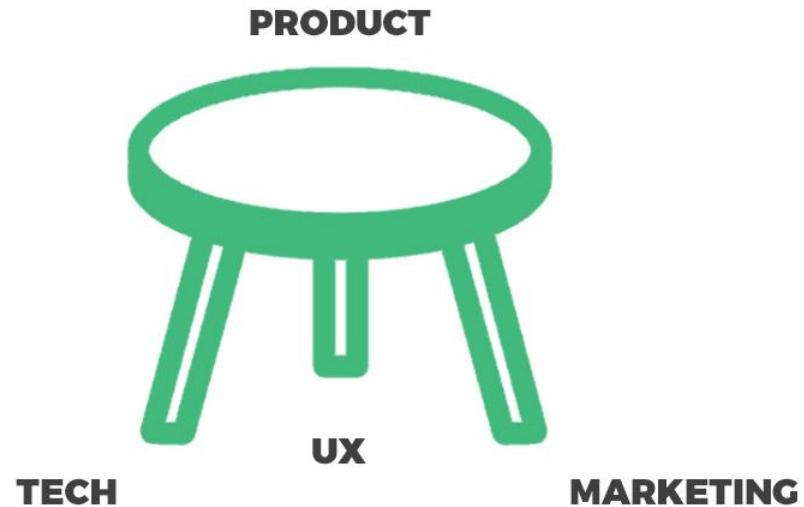
Why do UX design?

**We do UX design in order to effectively
create products that users
really need, can and want to use**

Do we want to build things that people don't, can't or won't use?

Product Considerations

UX Design is not the only thing
that influences **UX**



ABOUT DESIGN

How many different designer

types

are you familiar with?

CHOOSE YOUR FIGHTER



UXD



UID



VD



GD



IA



IxD



PD



DESIGN

What's the first thing that comes to mind?

VISUAL DESIGN

Visual design is the use of imagery, color, shapes, typography, and form to **enhance** usability and improve UX.

- UX Booth

What is the difference with **UI**?

UI =  + **VISUAL DESIGN**

What is the difference with **UI**?

UI = **INTERACTION** + **VISUAL DESIGN**



PRETTY
DOES NOT
MEAN
FUNCTIONAL



reddit

what's hot

new

controversial

top

more ▾

antibiotic (1) | preferences | stats | help | blog | logout

search



↑ "the only thing more dangerous than ignorance is arrogance" A.E.
• (climatechangefraud.com)
↓ submitted 4 minutes ago by tat2ts to science

[what's this?](#)

- ↑ Don't mess with motherfuckin' scientists (news.yahoo.com)
1 616 submitted 8 hours ago by jaems to science
↓ 129 comments share save hide report

- ↑ City-owned fiber network a go as judge tosses telco lawsuit (arstechnica.com)
2 748 submitted 12 hours ago by emberjohnny to technology
↓ 91 comments share save hide report

- ↑ Waiting for dinner [Pic] (lh3.ggpht.com)
3 1147 submitted 14 hours ago by Mastrmind to pics
↓ 215 comments share save hide report

- ↑ You Fell Asleep Watching a DVD (youfellasleepwatchingadvd.com)
4 602 submitted 12 hours ago by jmw to WTF
↓ 281 comments share save hide report

- ↑ I feel sorry for the fat one. (gmilburn.ca)
5 965 submitted 15 hours ago by billmeyersriggs to funny
↓ 360 comments share save hide report

- ↑ The Bush administration this month is quietly
6 921 control supplies to some of the world's poorest countries (nytimes.com)
↓ submitted 19 hours ago by aenea to worldnews
325 comments share save hide report

- ↑ The Daily WTF: Out of All the Possible Answers... (thedailywtf.com)
7 165 submitted 10 hours ago by shenglong to programming
↓ 173 comments share save hide report

- ↑ Ohhhhh shiitttttttt [GIFs] (koehnline.com)

Customize your reddit

Select which communities you want to see

- | | |
|--|---|
| <input checked="" type="checkbox"/> PICS | <input checked="" type="checkbox"/> WTF |
| <input checked="" type="checkbox"/> FUNNY | <input checked="" type="checkbox"/> PROGRAMMING |
| <input checked="" type="checkbox"/> TECHNOLOGY | <input checked="" type="checkbox"/> SCIENCE |
| <input checked="" type="checkbox"/> WORLDNEWS | <input type="checkbox"/> POLITICS |
| <input type="checkbox"/> REDDIT.COM | <input type="checkbox"/> BUSINESS |
| <input type="checkbox"/> ECONOMICS | <input type="checkbox"/> ENTERTAINMENT |
| <input type="checkbox"/> COMICS | <input type="checkbox"/> OBAMA |

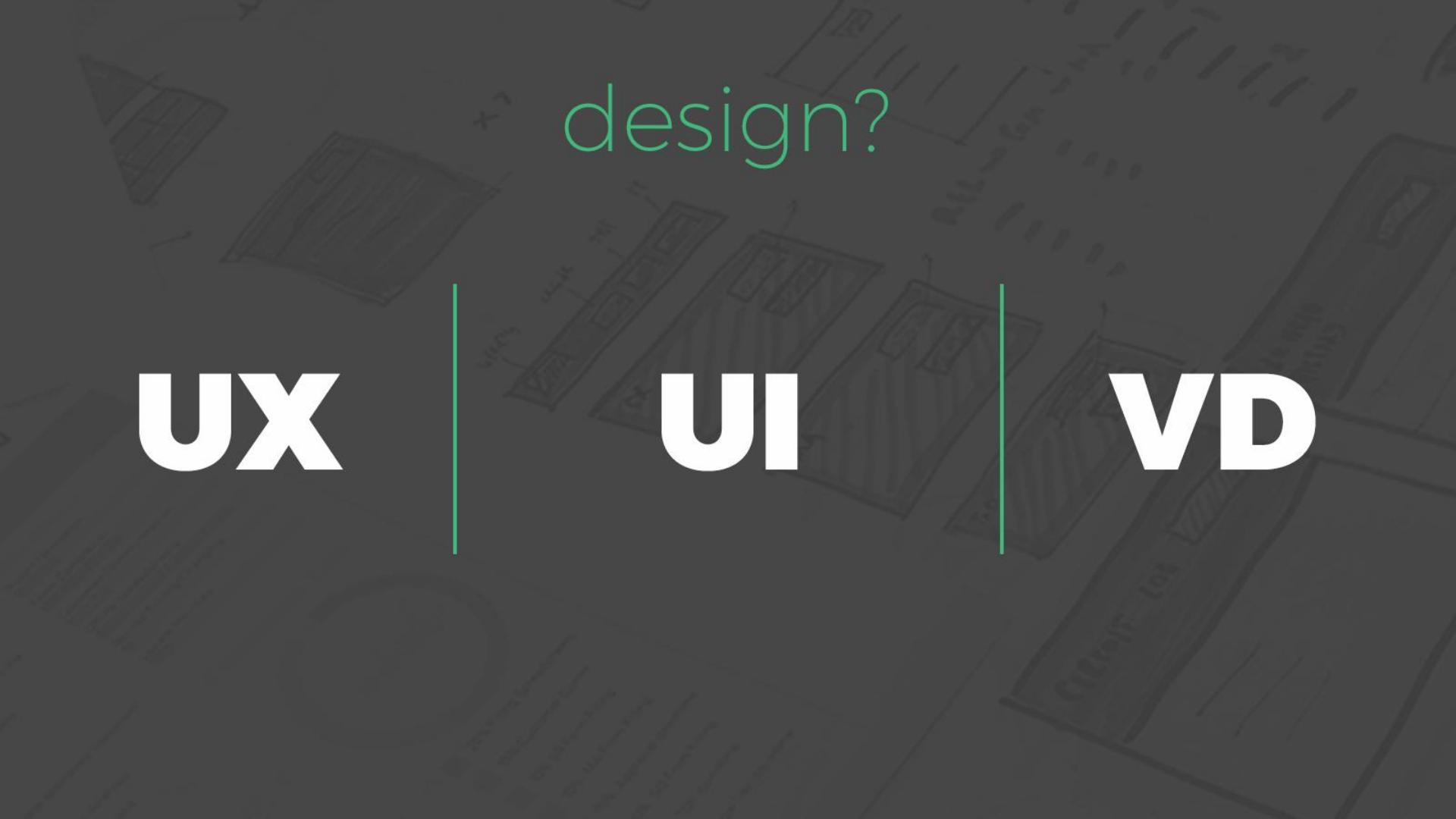
it might be
UGLY
but it works **well**



...because this room is full of win!

23

...because 4chan is getting overcrowded.



design?

UX

UI

VD



**Can you tell the difference between
UX and UI?**

UX
VS
UI



UX
VS
UI

UI



UI



UX
VS
UI



Worse UX



Better UX

UX
VS
UI



Worse UX?



Better UX?

An **interface**
always comes
with a certain
experience ,
either good
or bad.



GOOD UX



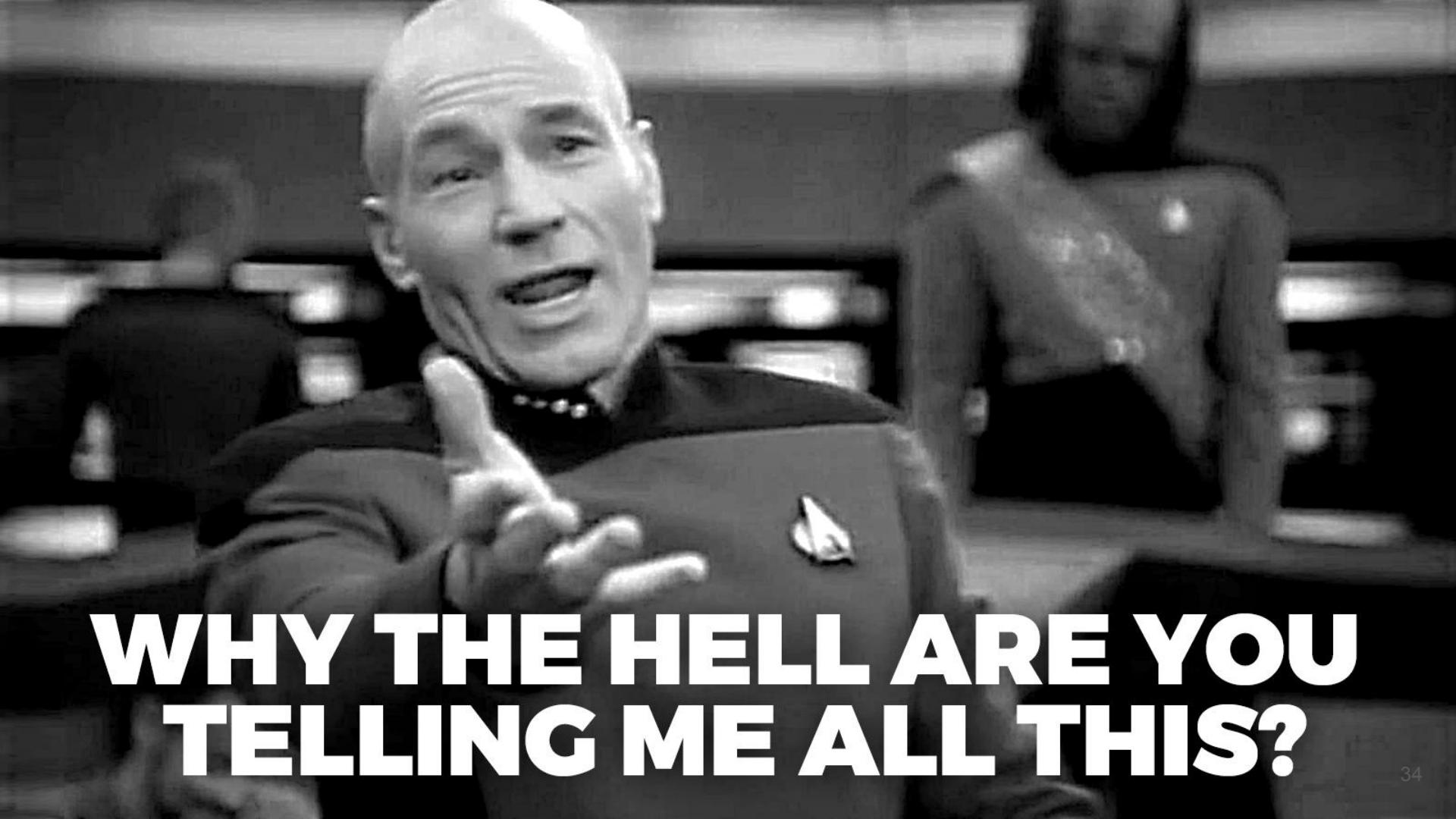
Is UX a matter of **opinion and/or **taste**?**

VD

is typically based on taste and preference,
so it's **not quite measurable**

UXD

is based on metrics and evidence,
making it fully **measurable**



**WHY THE HELL ARE YOU
TELLING ME ALL THIS?**

**GOOD
UX
DESIGN**

IS EVIDENCE-BASED



EVIDENCE
CRASHES
OPINIONS



What is **evidence** in UX all about?

EVIDENCE IS ABOUT PLEASURE & DELIGHT



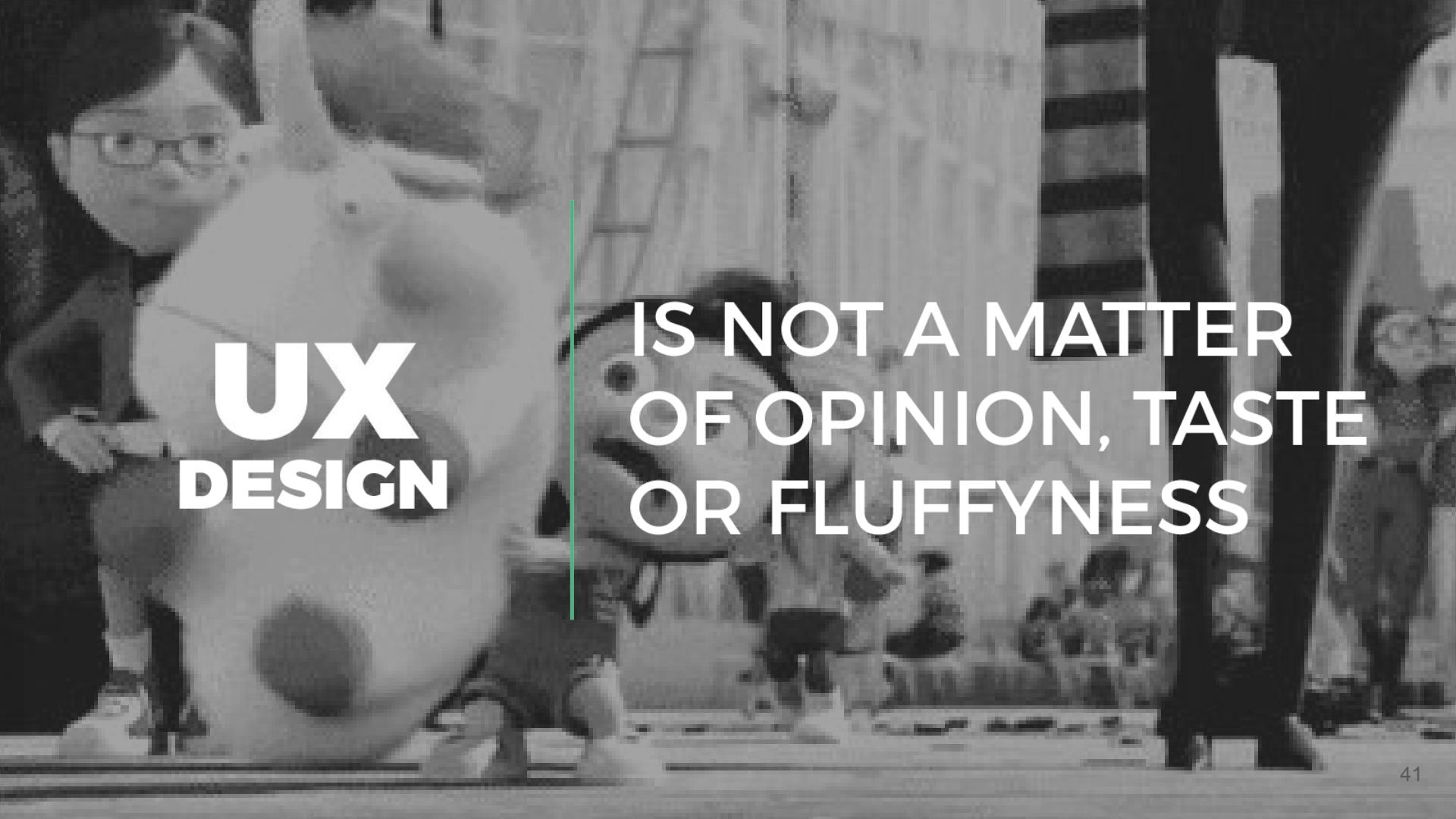
NO! FACTS!

Motivation over “feelings”

Emotional invocation through design happens with the single purpose of **motivating users** to consciously perform a task in order to **fulfill a certain need**, rather than just have pleasurable feelings



The butterflies come from the need
being **effectively covered** by using a product



UX DESIGN

IS NOT A MATTER
OF OPINION, TASTE
OR FLUFFYNESS



UX | **IS MEASURABLE**

MEASURING UX



HOW CAN WE **MEASURE** UX?

How do we measure UX ?

We measure UX by **conducting**
UX research

Otherwise one just drives blindfolded!

What is UX research?

Body of **research methods
that deal with informing
the design of a user experience**

What is UX research?

Body of **research methods
that deal with informing
the design of a user experience**

with **facts and **insights** about users,
their **motivations** and their **behaviours****

**"WE KNOW
WHAT OUR
USERS
WANT"**

- ANONYMUS STAKEHOLDER



Why do UX research?

UX research
is how you do UX **design**

Otherwise one just designs their **opinions!**

Why do UX research?

**UX design is done
by **conducting** and **responding**
to UX research**

Otherwise one just drives blindfolded!

USER RESEARCH IS A REALITY CHECK

It tells you what really happens
when people use computers.

You can **speculate** on what customers want,
or you can **find out**

- Jacob Nielsen



Quantitative

Qualitative

Quantitative: What?

Qualitative: Why?

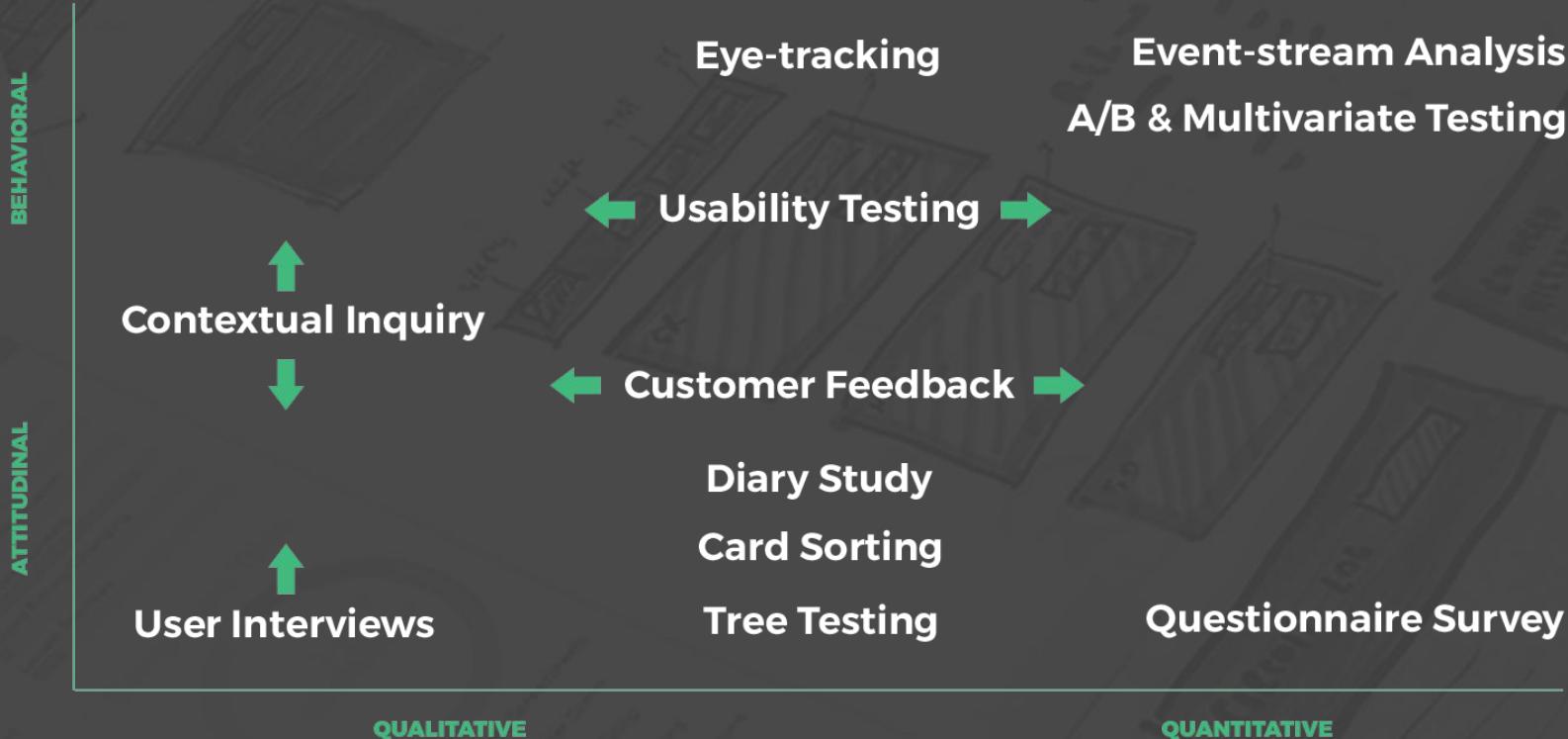
Quantitative studies are **indirect** and **metrics** based

You get back **numerical** data

Qualitative studies are **direct** and **observation** based

You get back **testimonies, reactions** and **patterns** of behaviour

Major UX Research Methods Landscape



Why do UX research?

**UX design without research on Users,
is Uninformed speculation!**

The best you can hope for, when speculating, is to get **lucky**!

**UX design without research on Users,
is Uninformed speculation!
...and speculation is waste!**

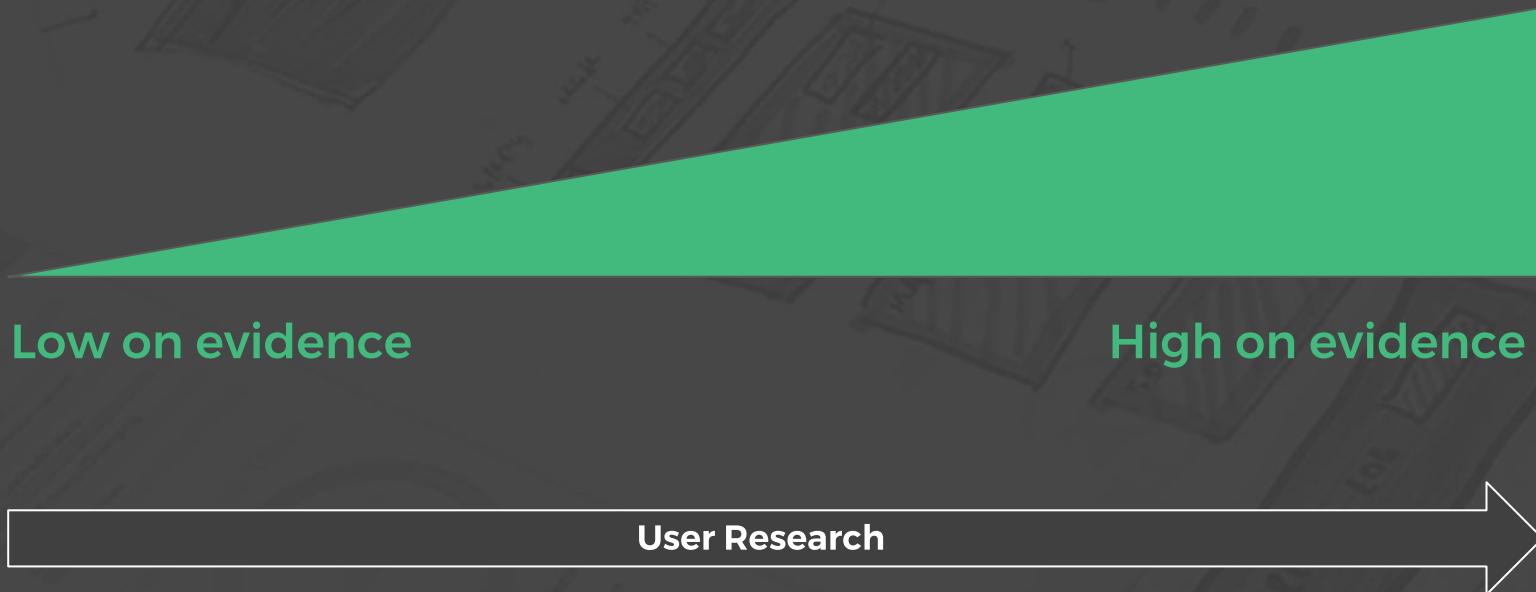
Because effort is wasted on building the **wrong things**
or building things for the **wrong people**

Why do UX research?

**Don't speculate,
do UX research and find out!**

**Go to the users!
Discover, explore, test, listen...**

When is UX research complete?



Why do UX research?

**UX research also helps with the
evaluation of existing systems**

You can use it to baseline!

GOOD
UX

| IS METHODICALLY
DESIGNED



How do we **do** UX design?

IT IS A PROCESS

UX design is...

An **iterative** process of
discovery, design and **implementation**

UX design is...

An **iterative** process of **discovery, design** and **implementation**

During which we do a lot of
evidence gathering, analysis, experimentation and testing



From "The Lean Startup"
by Eric Ries
2011



Where do you **start UX design?**

BUSINESS

USERS

**EVIDENCE
(KPIs)**

SYSTEM

BUSINESS

Stakeholder Interviews
Requirements Gathering
Competitor Analysis

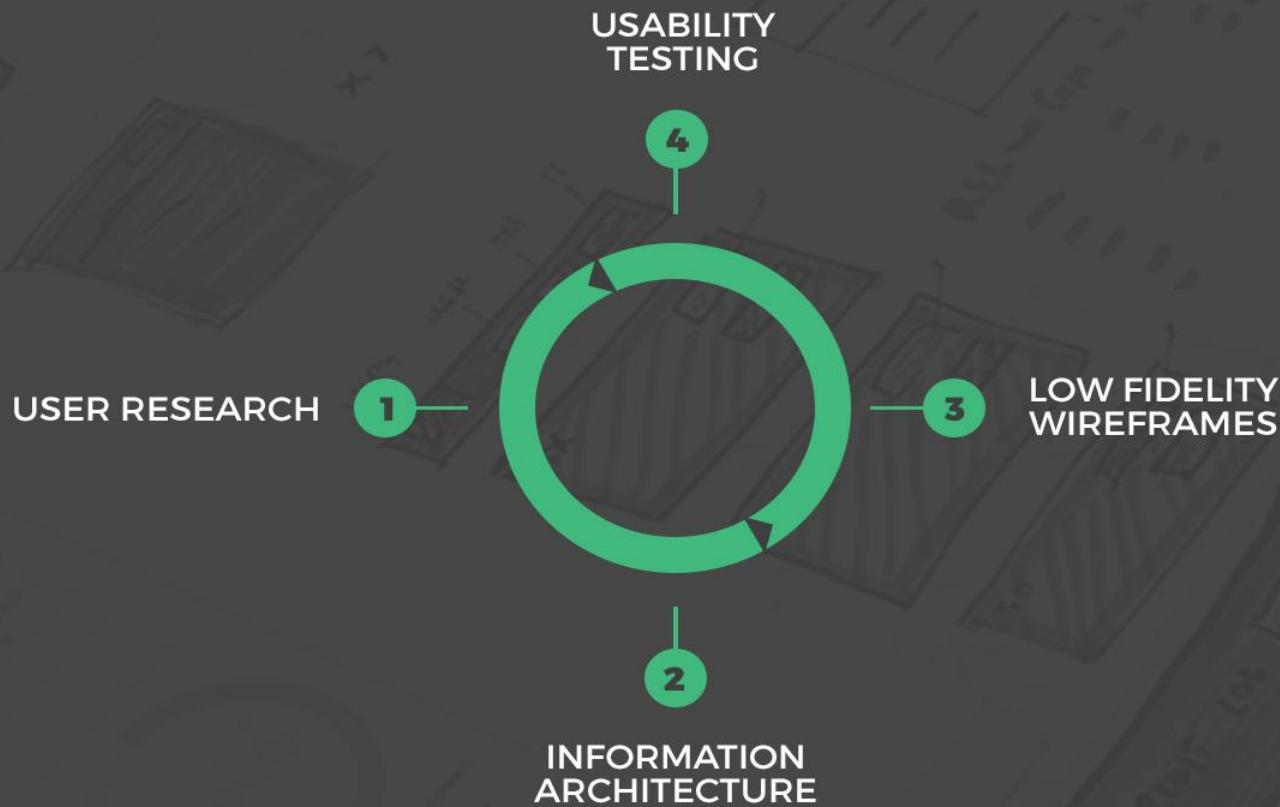
USERS

Qualitative Interviews
Quantitative Surveys
Usability Testing

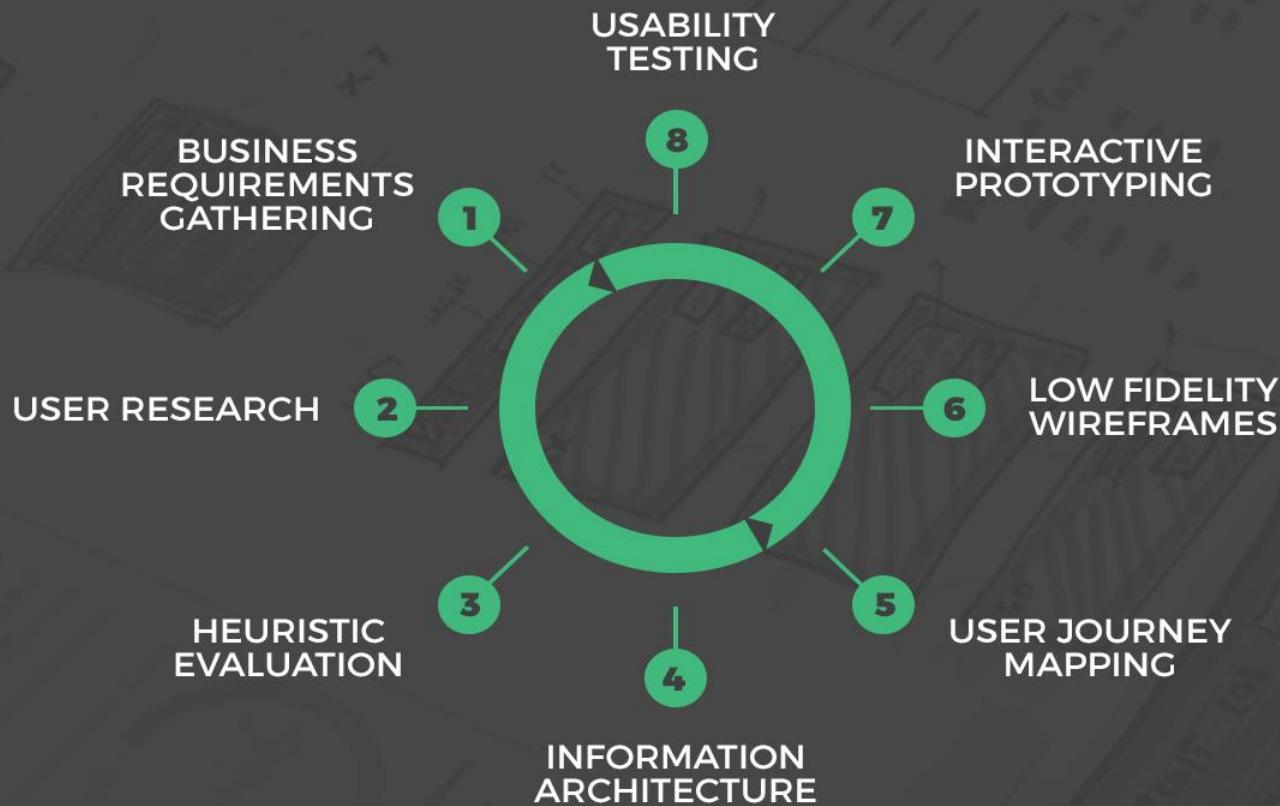
EVIDENCE
(KPIs)

SYSTEM

Heuristic Evaluation
Content Auditing
User Analytics



TYPICAL ACTIVITIES OF UX DESIGN (NON-EXHAUSTIVE LIST)



TYPICAL ACTIVITIES OF UX DESIGN (NON-EXHAUSTIVE LIST)



Which activity should come **first**?

Which UX design activity should come first?

It depends!

Which UX design activity should come first?

It depends!

However, typically you need to baseline first!

Which UX design activity should come first?

Baseline and iterate!



How would you **baseline?**

Which UX design activity should come first?

Baseline and iterate!

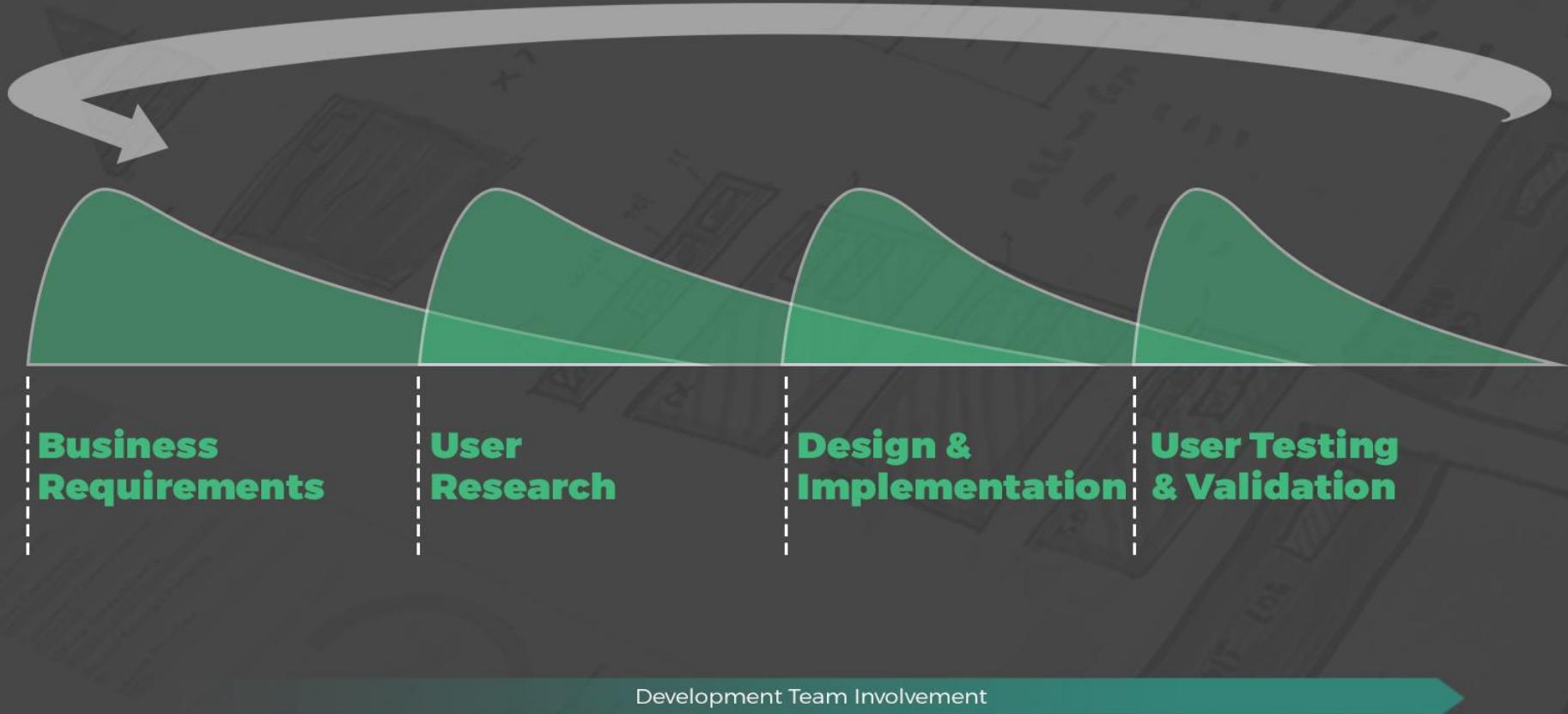
Iterate, in order to learn, adapt and improve.



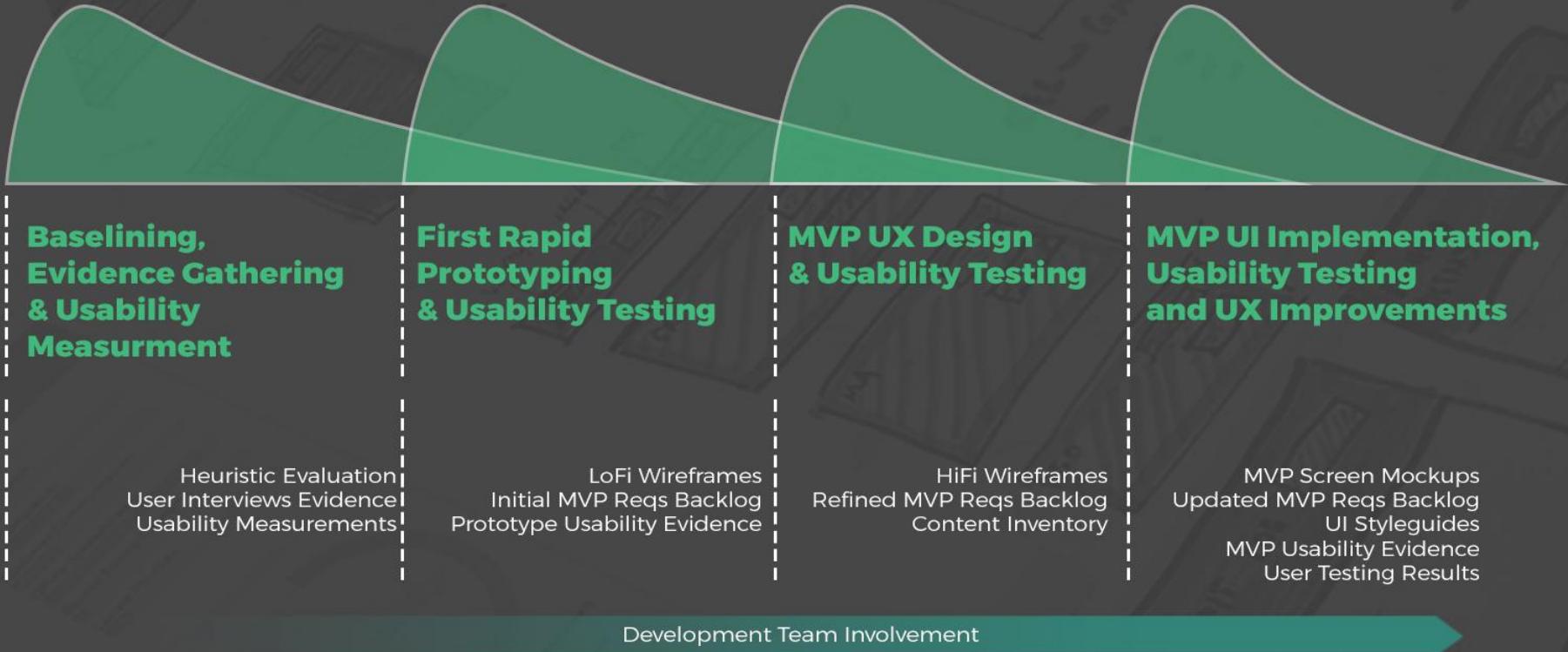
How would you **iterate?**



From "The New New Product Development Game"
by Hirotaka Takeuchi & Ikujiro Nonaka,
HBR, Jan 1986



UX PROCESS FROM A BIRD'S EYE VIEW



A RECENT EXAMPLE FROM AN EXISTING PRODUCT

UI DESIGN GUIDELINES

USABILITY

Usability is a quality attribute that assesses how **easy** user interfaces are to use

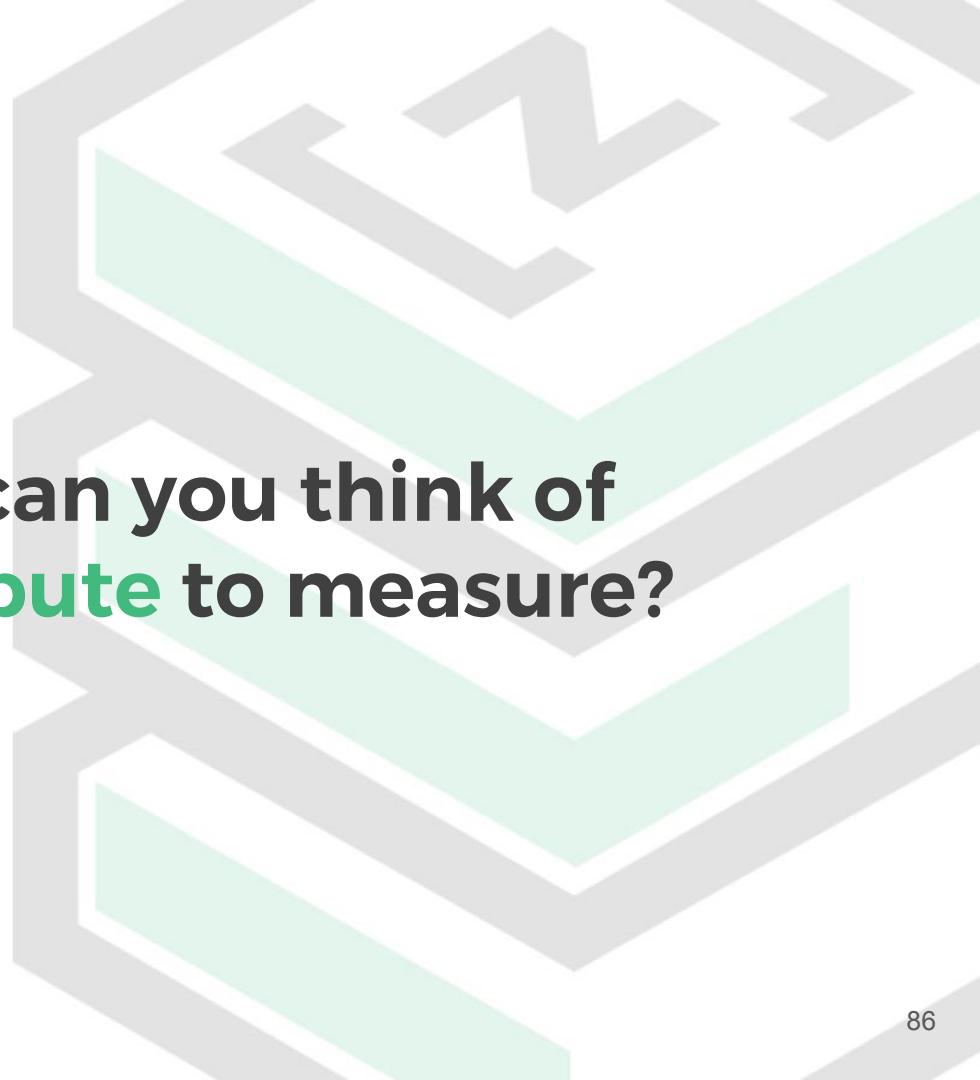
- Don Norman

ways to ensure & enhance

USABILITY

USER
TESTING

USABILITY
GUIDELINES
(aka Heuristics)



**For example, can you think of
a **usability** attribute to measure?**

EFFICIENCY

BEFORE



ITERATION



AFTER

Task Completion
Measurement

Improve
User Journey

Task Completion
Comparison

**Efficiency, effectiveness,
satisfaction, etc**

ways to ensure & enhance

USABILITY

USER
TESTING

USABILITY
GUIDELINES
(aka Heuristics)

INDEX

- | | |
|----|-------------------------|
| 01 | VISIBILITY |
| 02 | MAPPING |
| 03 | CONTROL |
| 04 | CONSISTENCY |
| 05 | ERROR PREVENTION |
| 06 | RECOGNITION |
| 07 | FLEXIBILITY |
| 08 | MINIMALISM |
| 09 | ERROR RECOVERY |
| 10 | HELP |

01 VISIBILITY



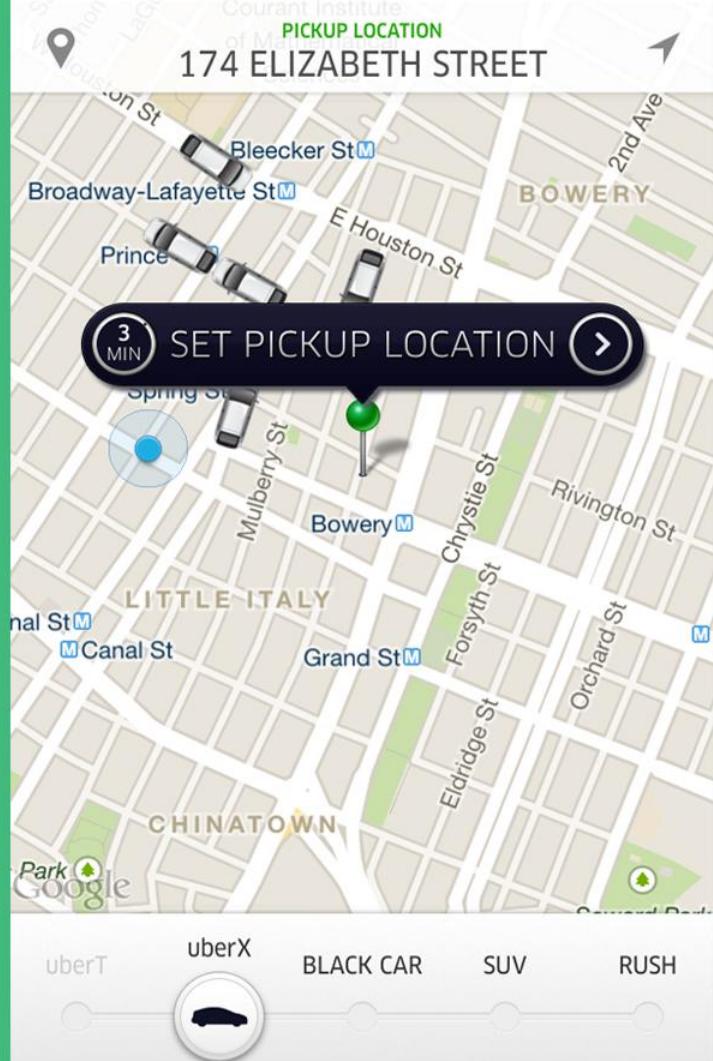
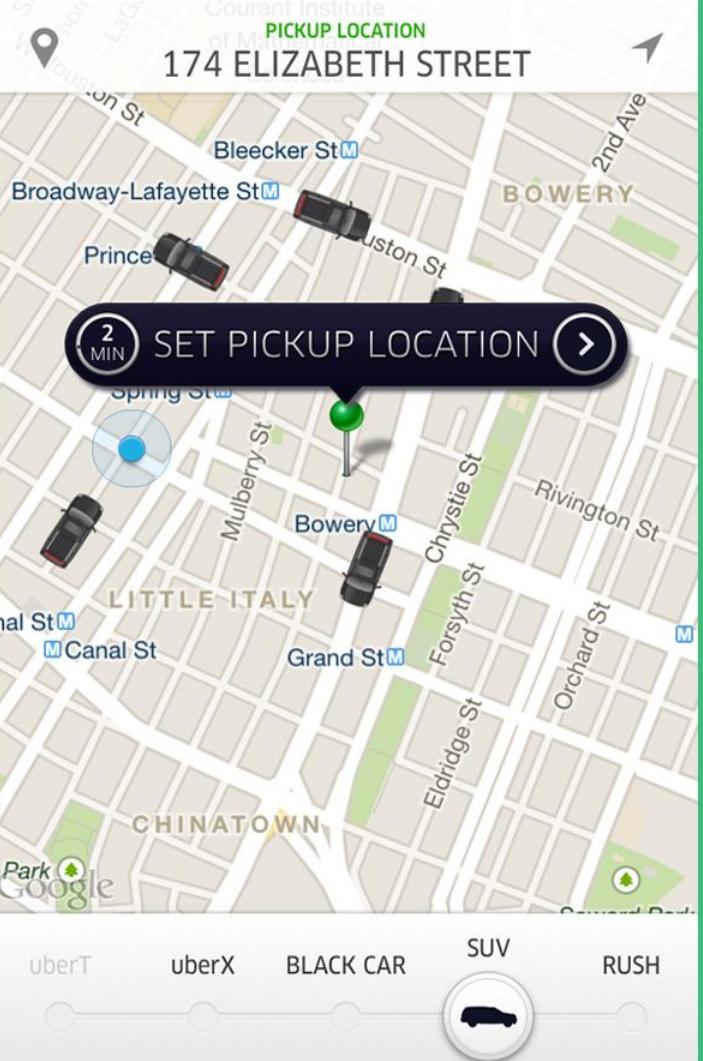
VISIBILITY

Provide feedback
on **current system state**
& on **user interactions**

e.g.

01

Uber Mobile App



02 MAPPING



MAPPING

Employ user-familiar **language**
and natural, real-life **conventions**

02

Insurance Mobile App Registration

e.g.



Group membership found

Thanks. That was a group policy to which you are a member. Give us your membership number to setup your online account.

Membership
Card



5563-8792-2259

Membership No.

Back

Submit

all relevant invoices and receipts are attached – photocopies only.
If you have any questions regarding this form or any other
1892 503 856. Fax: +44 1892 503 189.

Membership number:

Claim number:

Date of birth:

Daytime/evening phone number: Country code Area code Number

Fax number/email address:

Date patient was first aware of symptoms/condition:
Day Month Year

Telephone number: Country code Area code Number

Fax number:

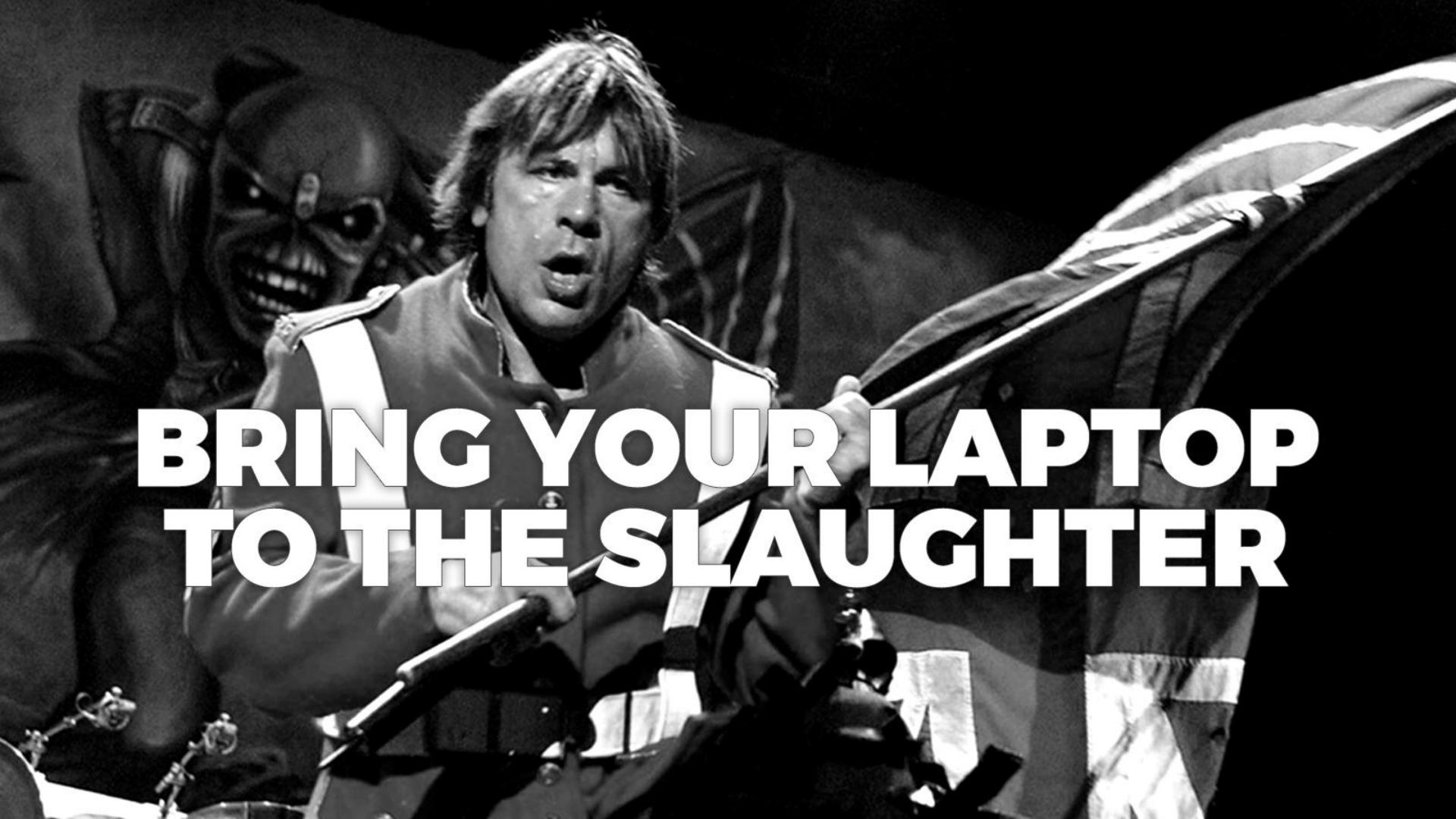
bills direct with the hospital and medical practitioner concerned. If the accounts we have paid the accounts then we will require receipts and reimburse you direct.

If you are claiming for treatment received outside your Area of Cover, please answer the following questions.

- (a) Country where treatment took place
- (b) The reason for the patient being abroad
- (c) Dates of departure and return to own Area of Cover
From _____ To _____

Are you claiming cash benefit for in-patient treatment received without charge?
Please tick ✓ Yes No

If Yes please ensure the doctor clearly indicates the admission and discharge dates and that a certificate confirming this is supplied by the hospital.
Admission date and time _____ Discharge date and time _____



**BRING YOUR LAPTOP
TO THE SLAUGHTER**



**LET'S BOOK
SOME TICKETS**

VISIBILITY

Provide feedback
on **current system state**
& on **user interactions**

MAPPING

Employ user-familiar **language**
and natural, real-life **conventions**



**LET'S BUY A
TOASTER**

VISIBILITY

Provide feedback
on **current system state**
& on **user interactions**

MAPPING

Employ user-familiar **language**
and natural, real-life **conventions**



03

CONTROL

CONTROL

Provide “**emergency exit**” options,
undo/redo functions
and remove **dead-ends**

03

Gmail Notification

e.g.

A screenshot of a Gmail inbox interface. At the top, there is a search bar with a magnifying glass icon and a dropdown arrow. Below the search bar, a yellow banner displays the text "Your message has been sent. Undo View message". Underneath the banner are three buttons: a square with a downward arrow, a circular refresh icon, and a "More" button with a downward arrow. To the right of these buttons is the text "1-9". Below this header, there are three main categories: "Primary" (indicated by an envelope icon), "Social" (indicated by a people icon), and "Promotions" (indicated by a gift tag icon). The "Promotions" category has a small "2" next to it, indicating two messages. The main body of the inbox shows three messages, each represented by a row with a checkbox, a star icon, and a double arrow icon.



04 CONSISTENCY

CONSISTENCY

Follow similar **patterns** & conventions
across screens.

Place related items **together**.

e.g.

04

Aspis Real Estate Search Input

Sales

- Apartments
- Maisonettes
- Houses
- Land
- Stores
- Offices
- Office Buildings
- Development

Rentals

- Apartments
- Maisonettes
- Houses
- Land
- Stores
- Offices
- Office Buildings
- Development

The screenshot shows the Aspis Real Estate website's search functionality. At the top, there is a navigation bar with the Aspis logo and the text "Real Estate". Below the navigation bar is a large, modern building photograph with the text "Greece's Top Realtor" overlaid. The main search form is centered below the image, featuring radio buttons for "Sales" and "Rentals" (with "Sales" selected), a dropdown menu for "Property Type", and input fields for "Area", "Price", "Sq. Meters", "Construction Year", and a "Search" button. To the right of the search form, there is a sidebar with the text "and become an EU resident" and a small sketch of a house.

NEW SEARCH

Search by property code :

Home | Career opportunities | Assign your property to us | Contact us Copyright 2011 - Aspis Real Estate

ASPIS
Real Estate



05 ERROR PREVENTION

ERROR PREVENTION

Eliminate **error-prone** conditions
& provide **confirmation** options

05

Online Fantasy Football Betting Service

e.g.

The screenshot shows a mobile application interface for a fantasy football betting service. It features two main sections: 'M.UNITED' on the left and 'CHELSEA' on the right. Both sections include a table with three rows of statistics, each showing a 'Statistic Name' and a value of '999'. In the 'M.UNITED' section, the first two rows are in light grey, and the third row is highlighted in dark grey. Below the table, there are two large bold numbers: 'Team Total Pool' at £999 and 'Your Bet Total' at £999. Below these numbers are two blue buttons labeled 'BET ON M.UNITED' and 'BET ON CHELSEA'. Each button has a yellow 'X' icon on the left, a text input field in the center containing 'Type or select amount', and a yellow 'BET' button on the right. A green horizontal bar spans across the bottom of the screen.

Statistic Name	999	999
Statistic Name	999	999
Statistic Name	999	999

Statistic Name	999	999
Statistic Name	999	999
Statistic Name	999	999

Team Total Pool Your Bet Total

£999 **£999**

BET ON M.UNITED

BET ON CHELSEA

CHANGE PASSWORD

We recommend to change your Password often. Never share your Password with other people.

Old Password

New Password

Retype New Password

CANCEL

CONFIRM



TO THE LAPTOPS!

A black and white photograph of Zlatan Ibrahimović, a Swedish professional footballer, in his national team kit. He is looking directly at the camera with a serious expression and is giving a thumbs-up with his right hand. His left arm is bent, showing a tattoo on his bicep. He is wearing a captain's armband on his left wrist. The background is dark and out of focus.

**LET'S BUY SOME
FURNITURE**

CONSISTENCY

Follow similar **patterns** & conventions
across screens.
Place related items **together**.

ERROR PREVENTION

Eliminate **error-prone** conditions
& provide **confirmation** options



BRING IT ON!

CONSISTENCY

Follow similar **patterns** & conventions
across screens.

Place related items **together**.

ERROR PREVENTION

Eliminate **error-prone** conditions
& provide **confirmation** options



06 RECOGNITION

RECOGNITION

Remove user **memory load**
& make important info **retrievable**

06

Wind MyF2G User Profile

e.g.

The screenshot shows the Wind MyF2G User Profile application interface. At the top, there are navigation icons (back, home, search, etc.) and system status icons (signal strength, battery level 78%, time 14:29). Below this is a header bar with three horizontal lines, the word "Status", a blue profile icon, and a refresh icon.

The main content area displays the following information:

- Το υπόλοιπο του λογαριασμού σου είναι:** **16,98€**
- Ο υπολειπόμενος χρόνος ομιλίας λήγει: 19-01-2017
- Η τελευταία ενημέρωση έγινε: 28-10-2016 | 14:29:08
- A button labeled **Δες τώρα τα Log n Win δώρα!**
- Υπόλοιπο από Bonus**
- 101' 43"** προς WIND & Q τα 101' 43" λήγουν 19-11-2016
- 334' 37"** προς όλους τα 34' 37" λήγουν 31-10-2016
- 1488'** Προς Magic Number τα 1488' λήγουν 20-11-2016
- 1023.96 MB** MB τα 1023.96 MB λήγουν

e.g.

06

Wind MyF2G User Profile



Status



Το υπόλοιπο του λογαριασμού σου είναι:

16,98€

Ο υπολειπόμενος χρόνος ομιλίας λήγει: 19-01-2017
Η τελευταία ενημέρωση έγινε: 28-10-2016 | 14:29:08

Δες τώρα τα Log n Win δώρα!

Υπόλοιπο από Bonus

προς WIND & Q

101' 43"

τα 101' 43" λήγουν

19-11-2016

προς όλους

334' 37"

τα 34' 37" λήγουν

31-10-2016

Προς Magic Number

1488'

τα 1488' λήγουν

20-11-2016



MB

1023.96 MB

τα 1023.96 MB λήγουν



Λογαριασμοί



X ιωαννίδης (89443134379)



X ιωαννίδης (89443134379)



A black and white photograph showing a row of U-Scan Genesis self-service kiosks. The machines are made of stainless steel and feature touchscreens. One screen displays the message "Lane Open". Other screens show various service options like "Self Scan", "Fuel Scan", and "Pay Scan". There are coin slots and bill acceptors labeled "Cash In" and "Change Out". A small green circular graphic containing the number "07" is overlaid on the left side of the image.

U-Scan Genesis

07

FLEXIBILITY

FLEXIBILITY

Provide **accelerators** & shortcuts for frequent user actions and **advanced** users

07

Sourcelair Online IDE Project Creation

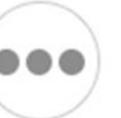
e.g.

Basic **Custom**

Project Name

Random_Name001 *Project Name should contain only alphanumeric characters*

Preset Selection

 HTML  Node.js  PHP  Django  Generic

Preset Details

- Lorem Ipsum dolor sit amet
- Lorem Ipsum dolor sit amet
- Lorem Ipsum dolor sit amet

Create

08

MINIMALISM



MINIMALISM

Provide information **relevant** to user task
and diminish **visibility** on irrelevant ones

08

SparkWorks HR Patient Monitoring Dashboard

e.g.

Latest traces

Show 10 entries Search:

DATE	PATIENT			
Dec, 11 2015 15:40:09	John Snow			
Dec, 22 2015 15:13:05	Jon Snow			
Feb, 08 2016 15:27:32	Yasmin Beyer			
Mar, 16 2016 10:42:57	Eduardus			
Mar, 16 2016 11:53:57	Eduardus			
Mar, 16 2016 23:37:55	Jonas Aragon			

Patients

NAME	DATE OF BIRTH	EMAIL
John Snow	Mar, 01 1941	JohnSnow@icloud.com
Yasmin Beyer	Nov, 25 1941	YasminBeyer@icloud.com
Connor Wilson	Apr, 01 1967	ConnorWilson@icloud.com
Edmund Blackadder	Jan, 14 1977	EdmundBlackadder@icloud.com
John Doe	May, 23 1978	JohnDoe@gmail.com
Constance Agnes	Jul, 28 1988	ConstanceAgnes@icloud.com
Eduardus	Jan, 01 2000	eduardus@icloud.com

Previous 1 Next

TRACE LOG

Search... PATIENT NAMES

▼ TRACE DATE	PATIENT NAME	SV EVENTS	V EVENTS	TOTAL EVENTS	OPTIONS	STATUS
Dec 15, 2016	Jon Snow	5	1	125		0% Reviewed
Dec 14, 2016	Jon Doe	0	1	132		100% Complete
Nov 27, 2016	Jane Doensvil	0	0	98		12% Reviewed
Nov 5, 2016	Jane Snowington	2	0	277		80% Reviewed

“It doesn’t matter how **many times** I have to click,
as long as **each click** is a mindless,
unambiguous choice”

- Steve Krug





09 ERROR RECOVERY

HUMAN

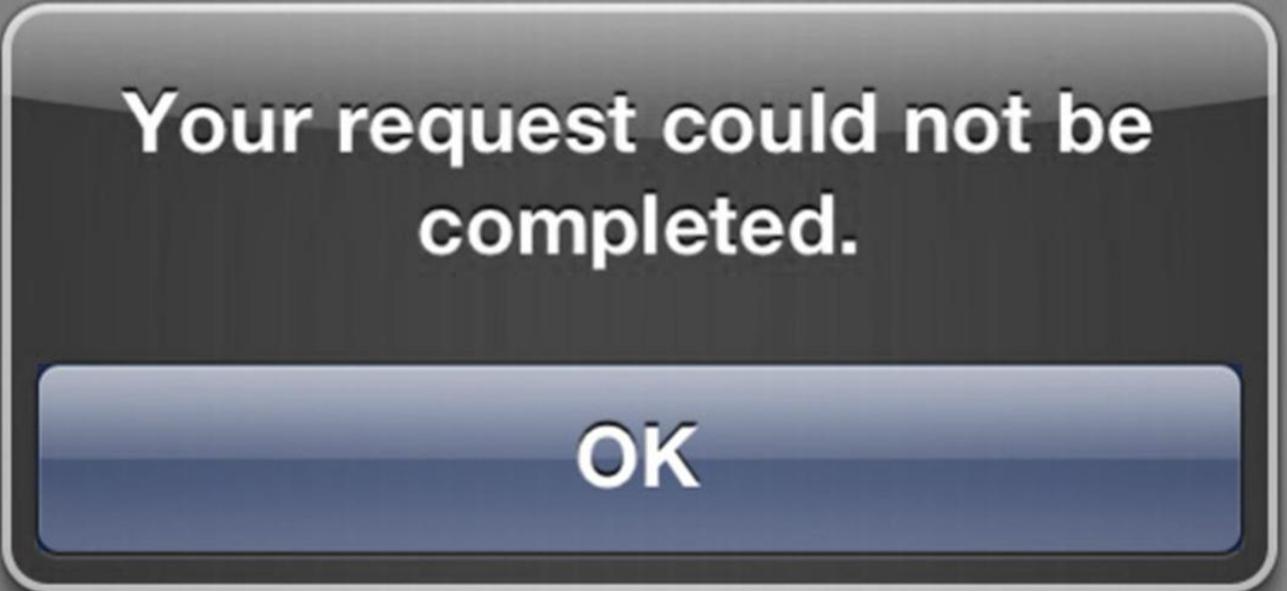
ERROR RECOVERY

Use plain language for **errors**
& provide possible **solutions**

09

iTunes
Modal
Dialogue

e.g.



A screenshot of an iPhone's iTunes-style modal dialogue box. The box has rounded corners and a dark gray gradient background. In the center, the text "Your request could not be completed." is displayed in a large, white, sans-serif font. At the bottom of the box is a blue rectangular button with the word "OK" in white capital letters.

Your request could not be completed.

OK



10

HELP

HELP

Provide **assistance** and **tips** to users,
in order to carry them through their tasks

10

Mailchimp Password Creation

e.g.

Change password

Verify current password

New password [generate strong password](#)

.....

- One lowercase character
- One uppercase character
- One number
- One special character
- Eight characters minimum

Confirm new password

Update

RECAP



DO TRY THIS AT HOME

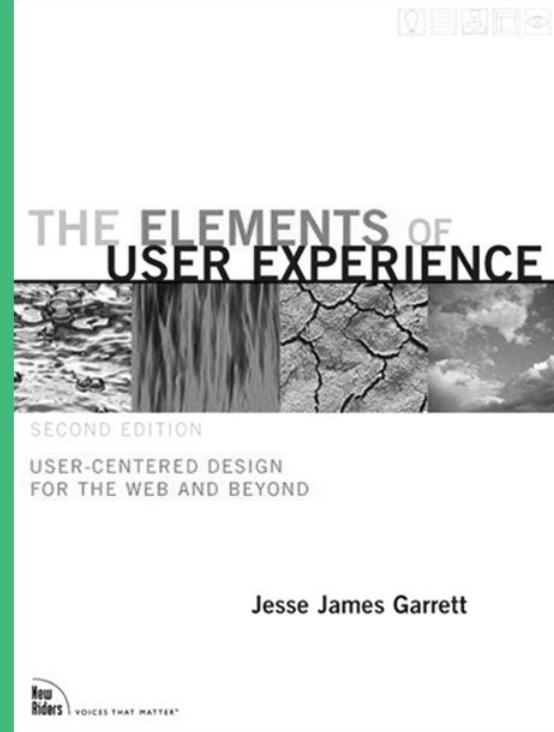
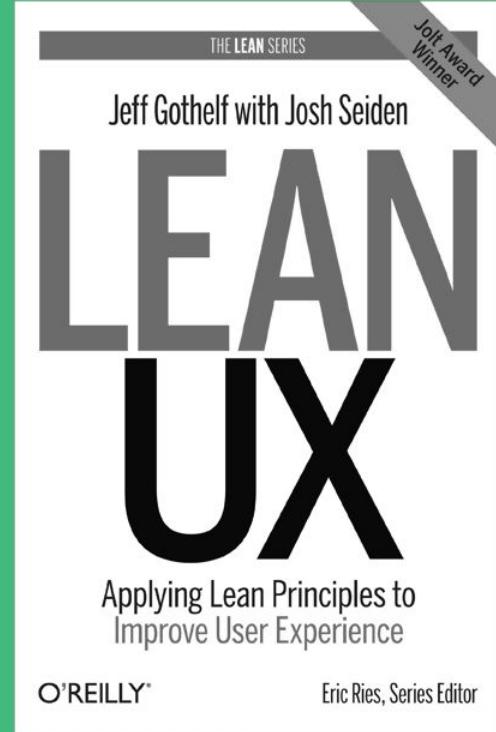
Steve Krug



DON'T MAKE ME THINK

Revisited

A Common Sense Approach to Web Usability
and Mobile



READING MATERIAL

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thank you