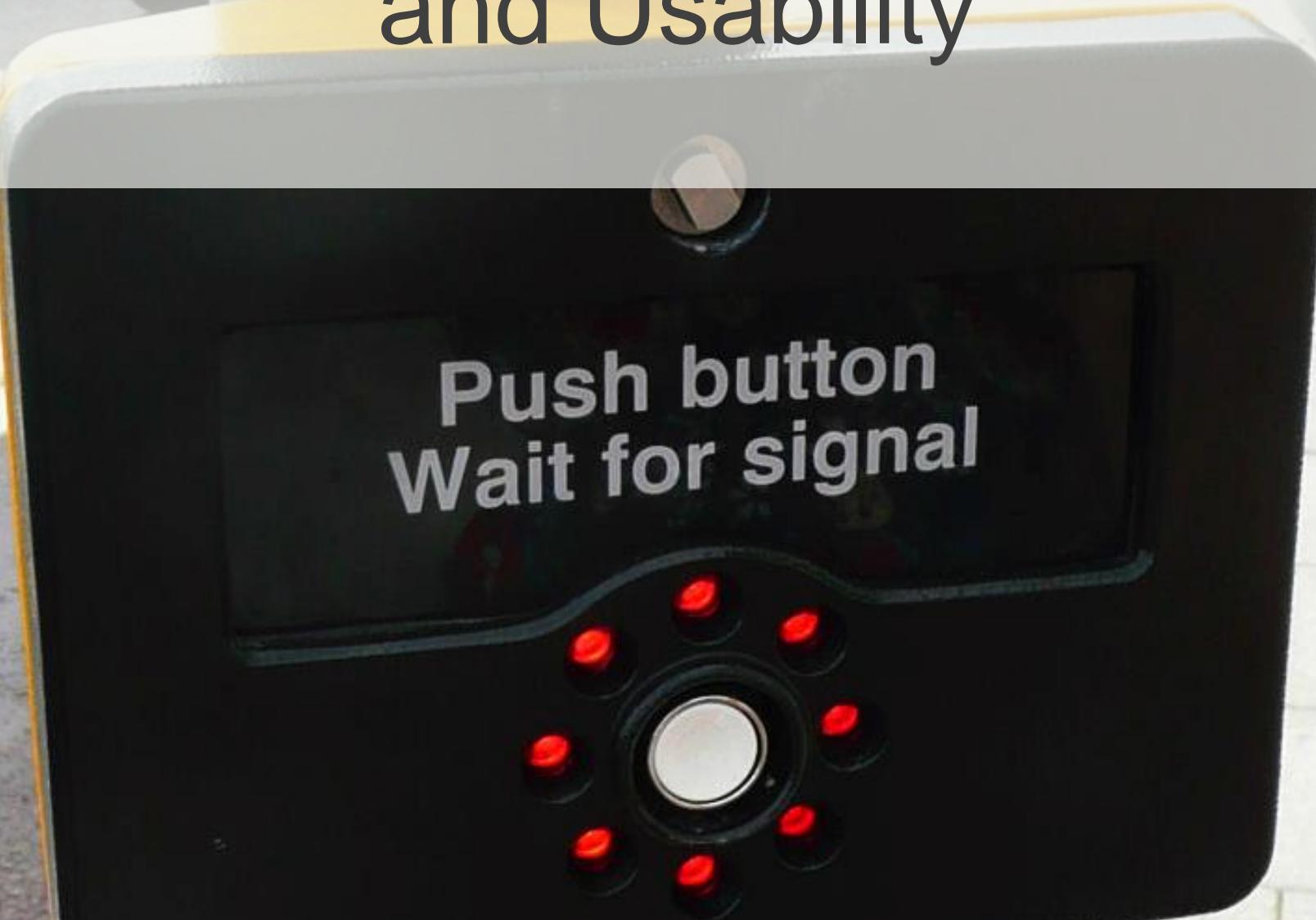
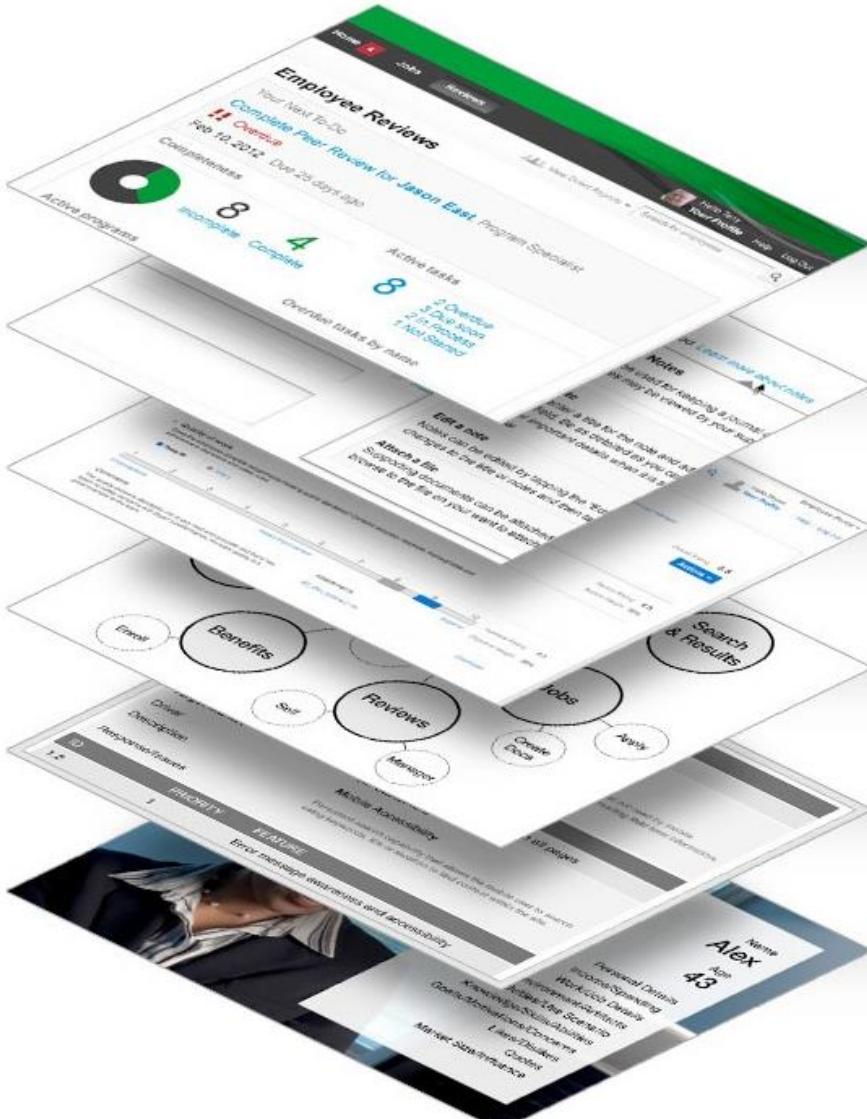


Interaction Design Principles and Usability



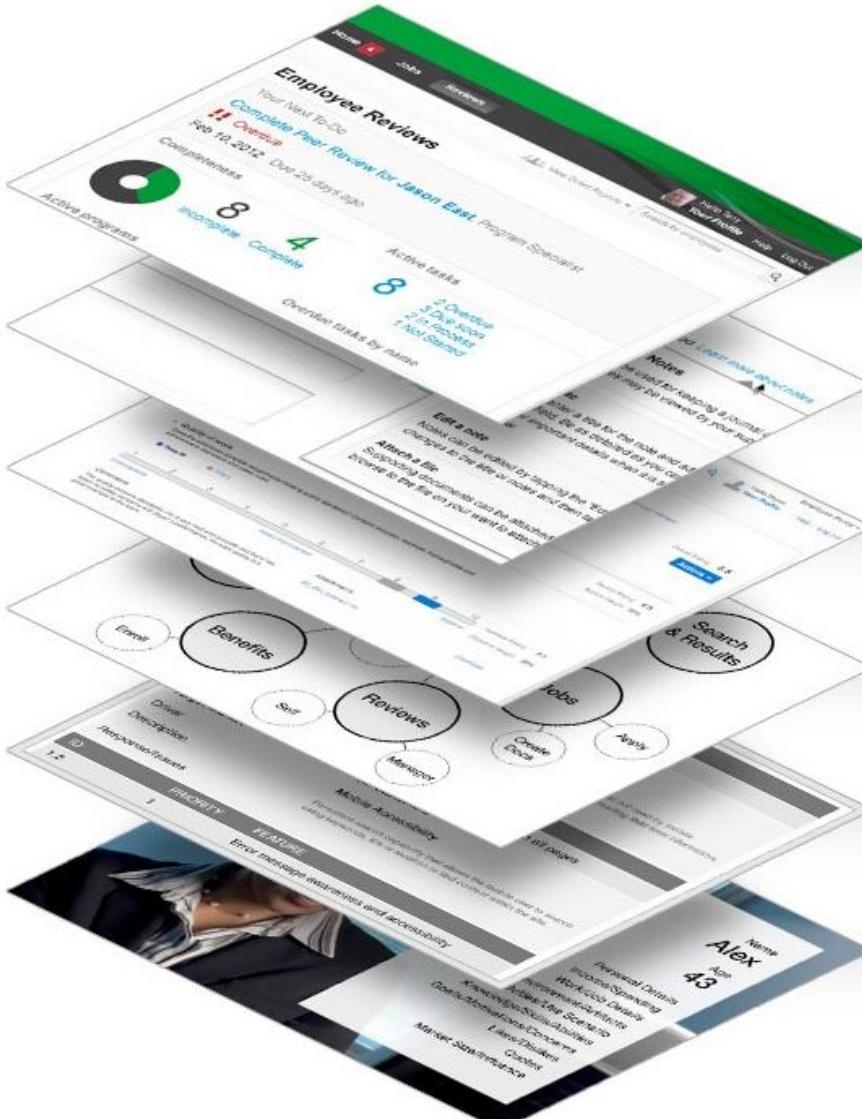
Push button
Wait for signal

UX Layers



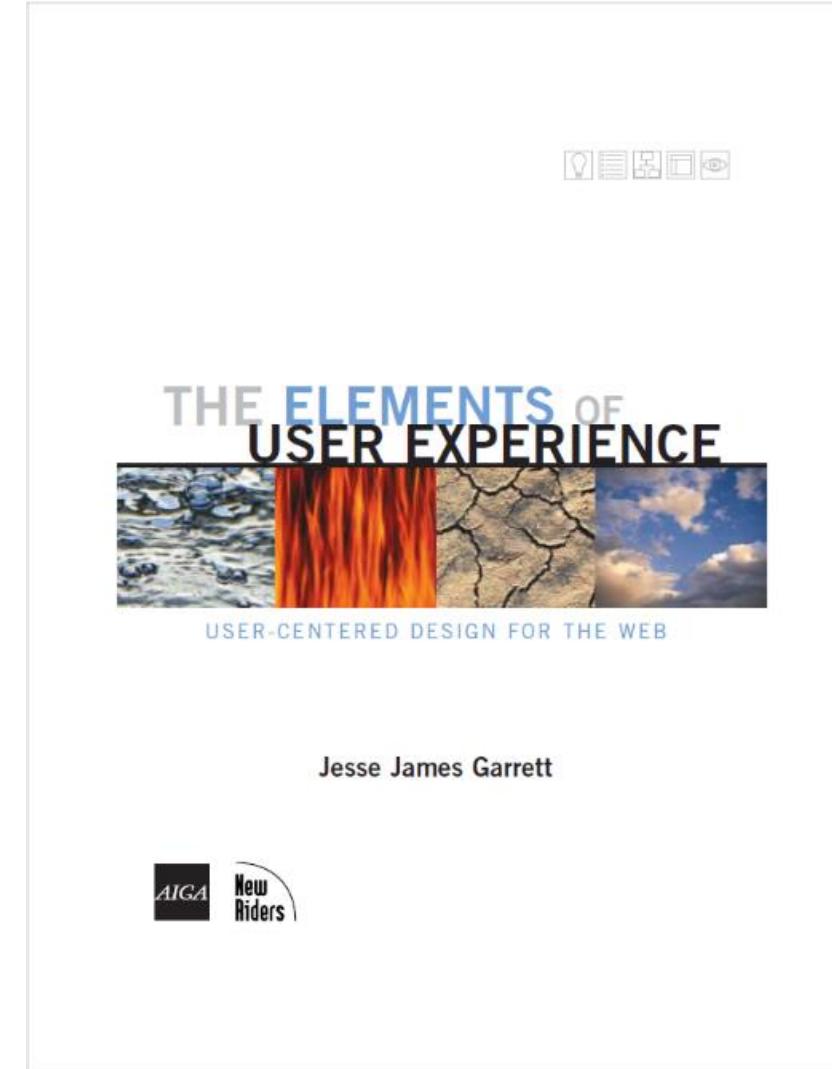
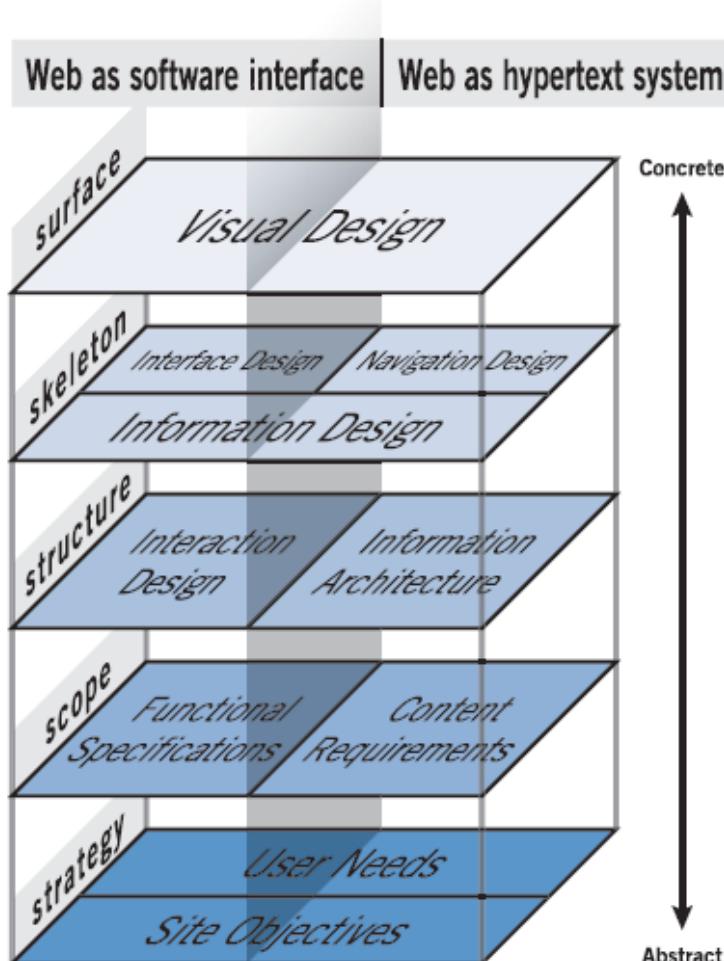
- Visual design
- Content & terminology
- Detailed interactions & UI design patterns
- Information architecture & global navigation
- Functionality
- User audience

UX Roles



- Visual Designer
- Copy Writer/Content Writer
- Interaction Designer, UI Designer
- Information Architect
- Product manager (not a UX role)
- User Researcher

What's Interaction Design?

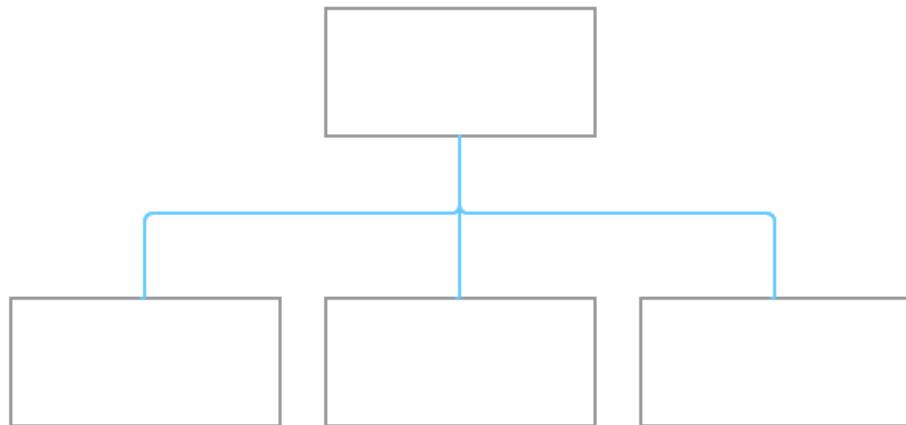


IA vs. IxD

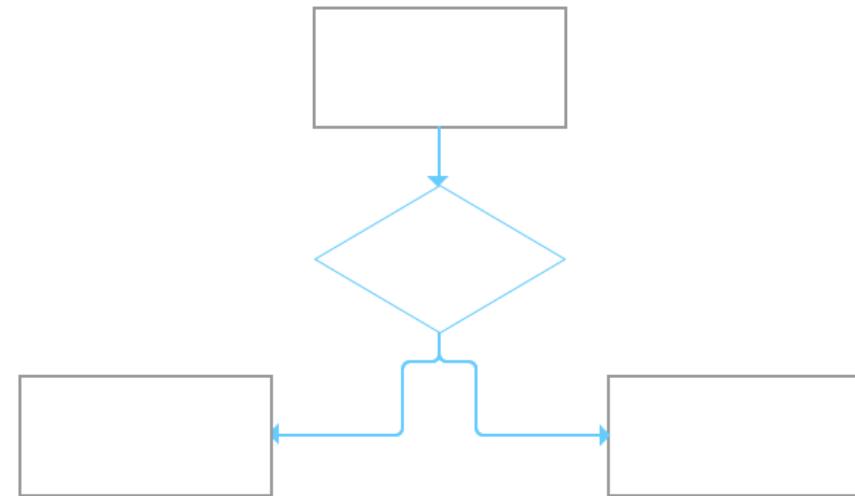
Information Structure Systems, taxonomies	Goals Behavior Tasks, actions, process flows
Organization of information	Process of exploration

IA vs. IxD

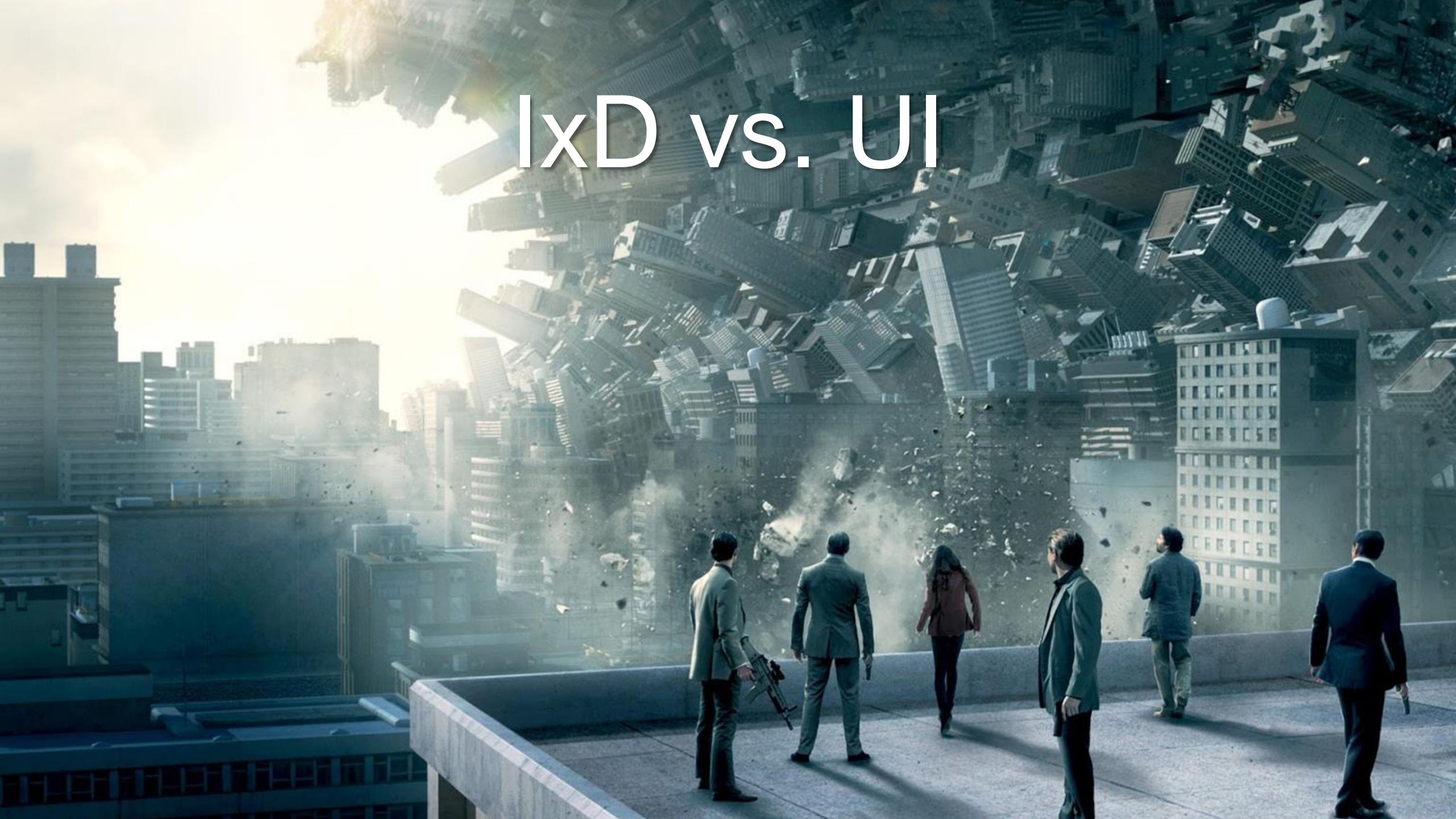
Sitemaps



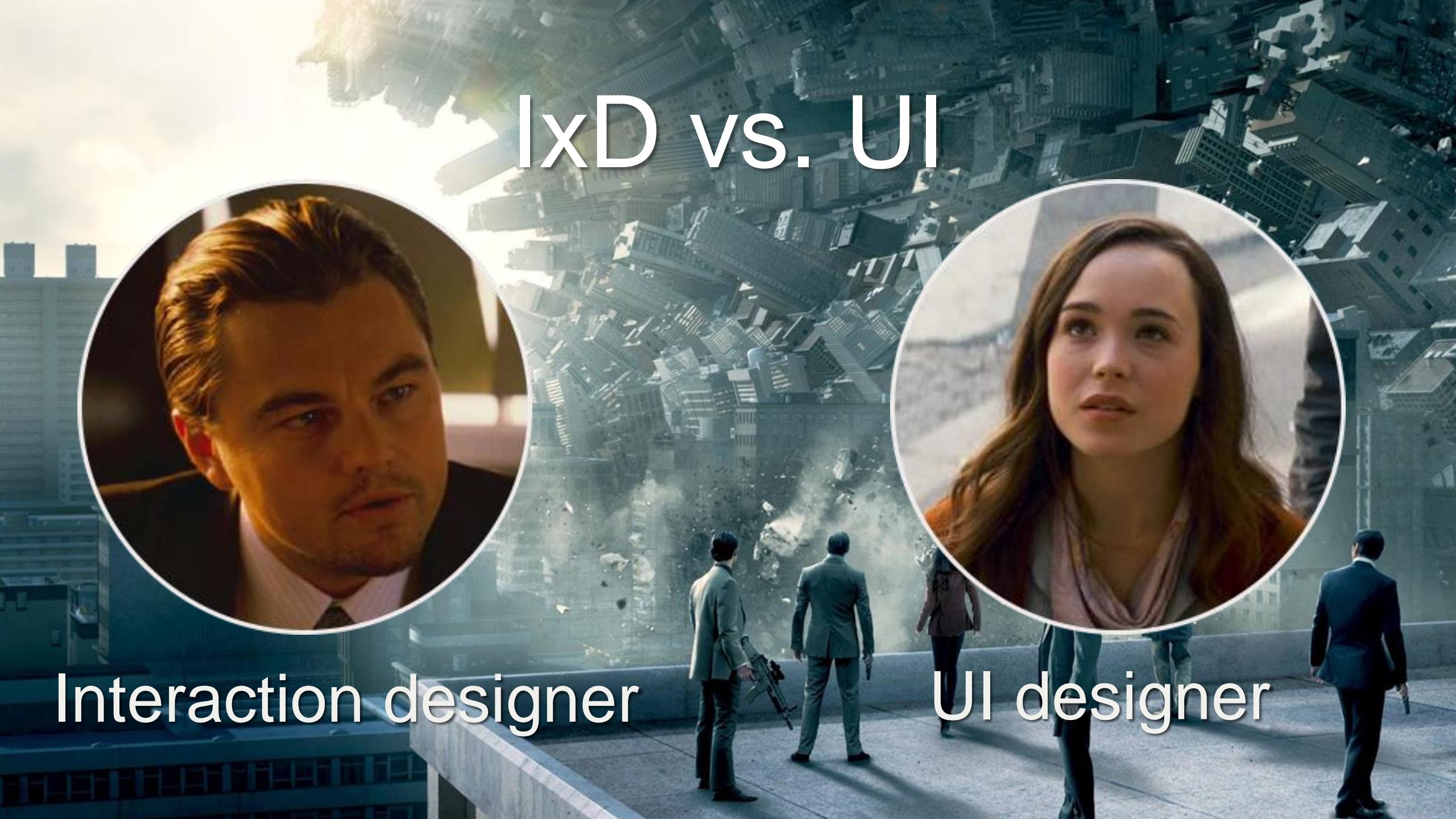
Workflows



IxD vs. UI

A dramatic scene from the movie Inception. In the foreground, six people in business suits stand on a rooftop, looking out over a vast, sprawling city that has been completely destroyed. The city is composed entirely of twisted metal and concrete debris, with no intact buildings left standing. The sun is low in the sky, casting a bright light over the rubble and illuminating the smoke and dust still rising from the destruction. The overall atmosphere is one of despair and the scale of human impact.

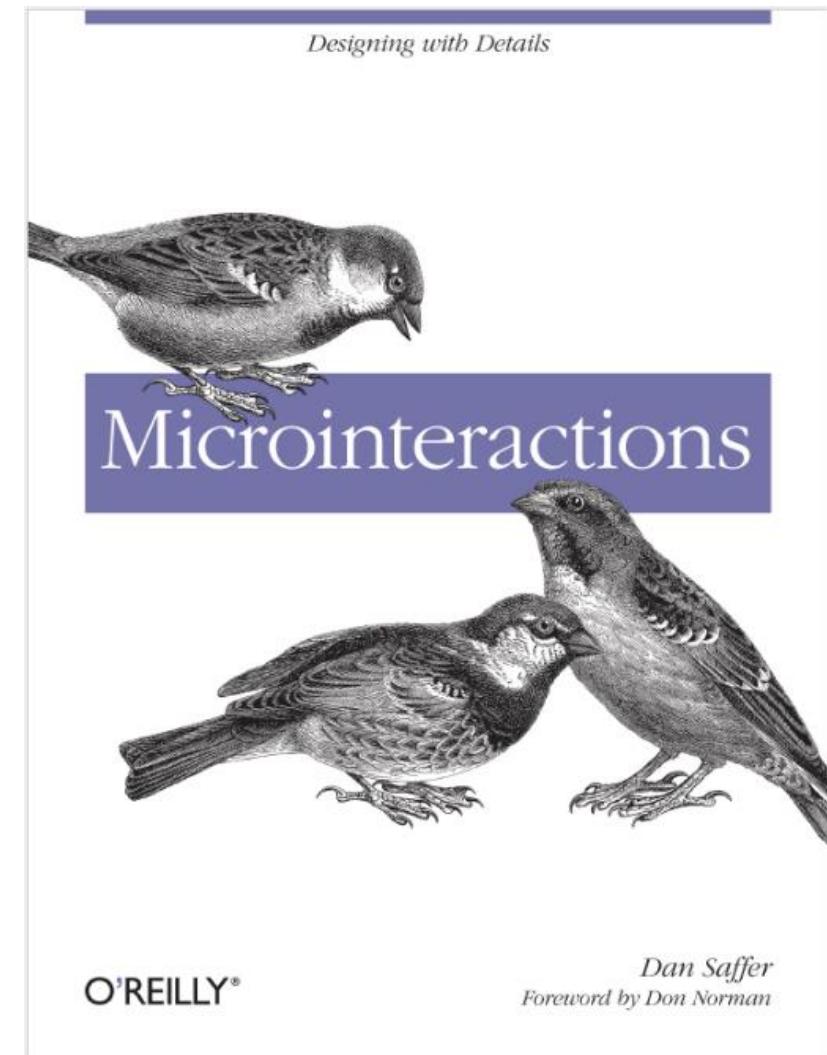
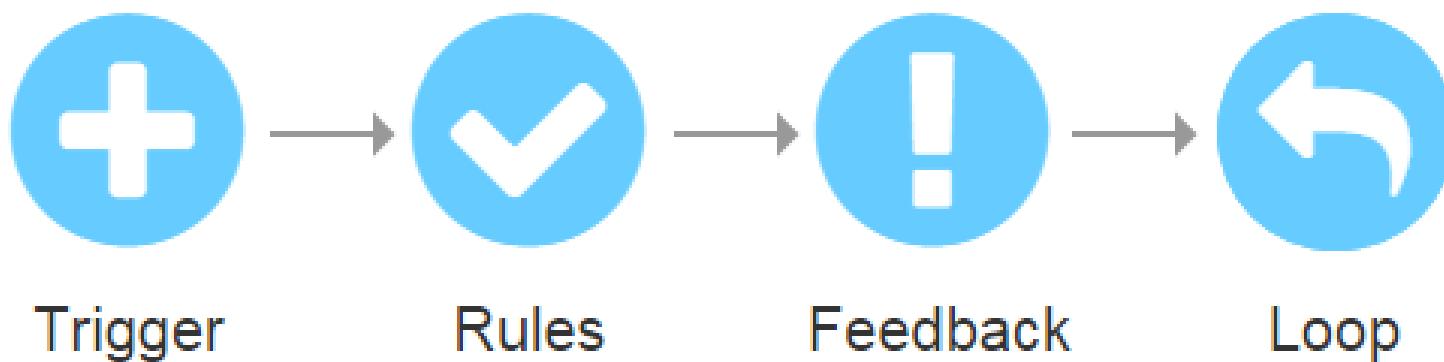
IxD vs. UI



Interaction designer

UI designer

What's Interaction?



What's Interaction Design?

IxD deals with user actions leading to certain reactions from the device or application they are working on to complete a specific task or achieve a certain goal.



IxD Principles

Conceptual principles

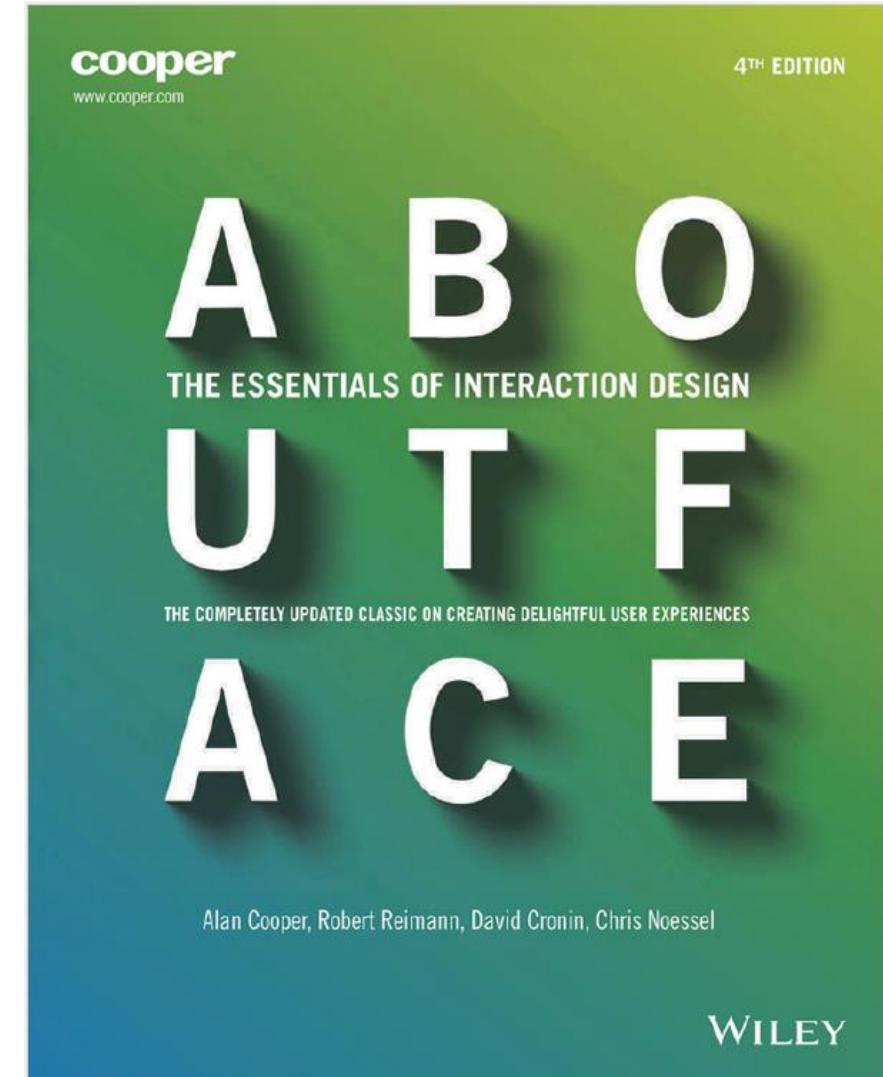
Define what digital products should be like and how they fit structurally into the broad context of use required by their users.

Behavioral (functional) principles

Describe how a product should behave—in general and in specific contexts.

Interface-level principles

Describe effective strategies for the organization, navigation, and communication of behavior and information.



IxD Principles

What

Who

Why

Where

When

How

Conceptual principles

Functional principles
Interface-level principles

Gathering Requirements

Design Research

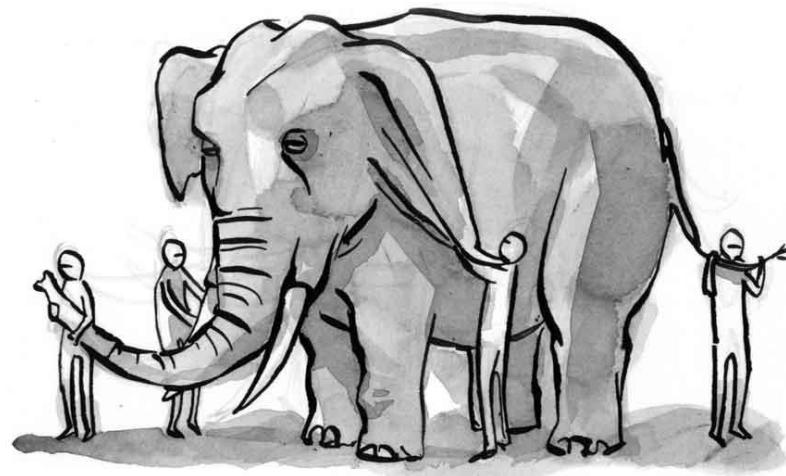
Observation, User interviews

Surveys, Analytics data

Heuristics evaluation

Content inventory

Competitive analysis



Product Scoping

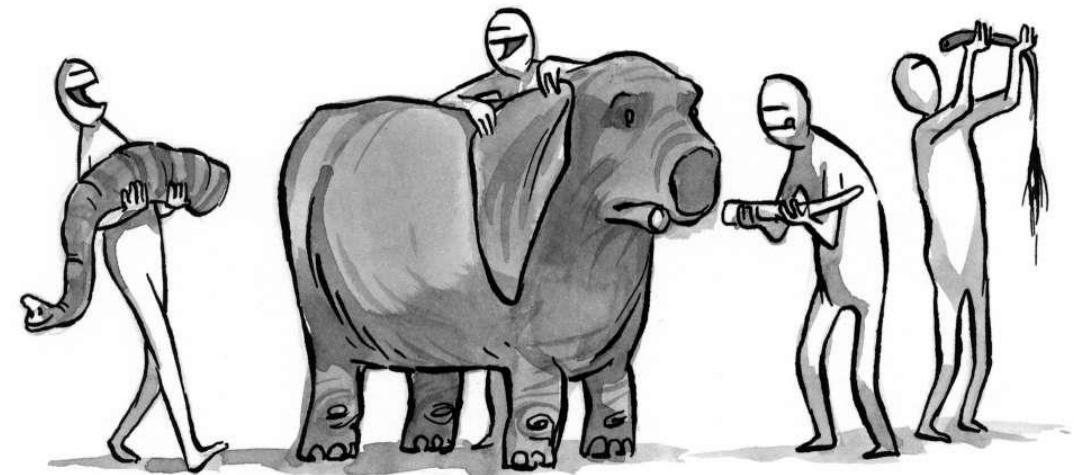
Product strategy

Business requirements

Functional requirements

SEO requirements (for web)

Technical constraints



Conceptual Interaction Design

Application goals • Target audience • Content and messaging • Context of use

Application Goals

- What's the purpose of your application
- What problems does it solve, what needs does it address
- What's the business value of your application - what do you want to achieve by designing it
- What's the users' benefits of your application – why would anyone use it, what incentives do you offer
- Do you have competition, how is your application different than the competition, what are you advantages
- How do you measure your application success



Good design is good business.
THOMAS WATSON, JR.

Target Audience

- Who are your users
- Who's your primary persona, secondary personas
- What are their needs, drivers, pain-points
- What are your users' demographics – age, sex, region, occupation, etc.
- What are their attitudes and expectations
- What is their experience – newbies, power-users



Design for somebody, alienate nobody.
PAUL BOAG

Persona Example

Merchant (first time user)



Key Characteristics

37 years old
Married with two kids, lives in Munich, Germany.
Affiliate Marketing expert working in retail sector (what is a typical job title?) for independent, privately run company?
4 people in the company
Has 4 years experience in the industry, 2 years in current role
He has a degree in Marketing from University
Current salary is £38,000
Monthly earning from Affiliate Marketing is ?

Claudia

"This year we're looking to double our sales, we had a disappointing year last year and currently we're looking to find a Network to help us find more suitable affiliates."

Background

Was recommended by a business acquaintance to take a look at what Webgains offer to Affiliates on their network. Has some basic HTML coding knowledge and sort of understands what CSS does. Needs to know more about exactly how cookies work but gets the basic idea of them. Has been using his iPhone for the last two years waiting to upgrade when the iPhone 4S when it comes out. Uses it a lot each day, at work and in leisure time. Has heard only good things about Webgains but wants to make up his own mind so needs to check the website to fully understand how joining Webgains network would benefit his business. Claudia works in the company office in the middle of town. The company has 200 employees throughout Europe and are eventually look to expand globally. She enjoys most of her work duties and is very thorough in her approach to matters of business. She is a very busy person and so doesn't tend to have too much time to spare. She appreciates it when information is easily available rather than requiring more effort and time.

Goals

Wants to work with Merchants (Advertisers) that offer: good commission level, high conversion rate, details on cookie period, high level of transparency, good data-feed quality, various incentives and competitions.

Is looking for an Affiliate Network that offers: reliable tracking, impressive variety of merchants (advertisers) and reliable frequent payments.

Frustrations

Not offering enough statistics
Service doesn't feel very personal
Don't feel like we are improving
Communication can seem a little slow
Lack of help in connecting us with suitable merchants
No help in securing non-cpa deals

Questions

Questions over WG

User Types According to Their Approach

Experts

Willing adopters

Mainstreamers

Experts

Happy to explore new products. Want feature-rich never-before-seen technology that is customized for them.

Willing adopters

Already use similar products. Tempted to use something more sophisticated, but need to be given easy ways to adopt new features.

Mainstreamers

Don't use technology for its own sake; Tend to learn a few key features and rarely add to their repertoire.

**Simple and
Usable**

web, mobile, and interaction design

Giles Colborne

Complex Applications User Types

Domain Experts

do complex problem-solving at work



Enthusiasts

are extremely knowledgeable about a subject outside their profession



Content and Messaging

- What content do you present – topics and genres (articles, photos, products, etc.)
- What is the message your application convey
- Do you use the proper language - with words, phrases and concepts familiar to the user

“ Content is king!
BILL GATES

“ Content precedes design. Design in the absence of content is not design, it's decoration.
JEFFREY ZELDMAN

Messaging Example

The screenshot shows the homepage of the Telerik UI for ASP.NET AJAX website. At the top, there's a navigation bar with links for Telerik by Progress, PRODUCTS, ENTERPRISE, FREE TRIALS, PRICING, SUPPORT & LEARNING, ABOUT US, a search bar, a user profile for 'Hi, Elina', and a 'Telerik Platform' link. The main header features the text 'UI for ASP.NET AJAX' in large white letters, followed by a subtext: 'Build ASP.NET apps for any browser and device in half the time'. Below this, there are three mobile devices (laptop, tablet, smartphone) displaying different applications built with Telerik's controls. Handwritten-style annotations are overlaid on these devices: '1000's of built-in features' points to the tablet screen showing a travel booking interface; 'Touch and mobile support' points to the smartphone screen showing a nature-themed app; and 'Desktop-like performance' points to the laptop screen showing a complex sales dashboard with multiple charts and data grids. At the bottom of the page, there's a footer navigation bar with links for UI for ASP.NET AJAX, Features, Controls, Support & Learning, New Features & Roadmap, Demos (which is highlighted in a grey box), Pricing, and Try now (which is in an orange box).

Key Features



Complete Set of Features and Controls

Benefit from 100 ASP.NET controls for every need.



Mobile Support and Responsiveness

Telerik ASP.NET controls work on mobile just as well as they do on desktop web.



21 Built-In Professional Grade Skins

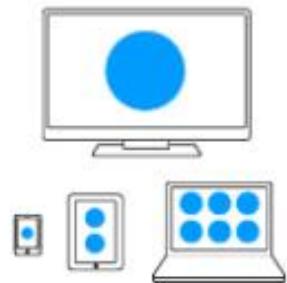
Theme your sites or apps by changing a single property.

Context of Use

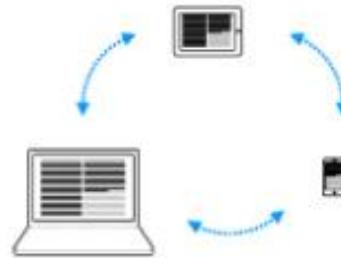
- Where is your application used
- What's users' location when using it – home, office, outside, etc.
- Is it used for professional purposes or for leisure
- What device will be used to access your application – desktop, mobile, wearables, kiosks, smart tv, game console, etc. One or multiple devices.

 If content is king, context must be the kingdom.
ERIC REISS

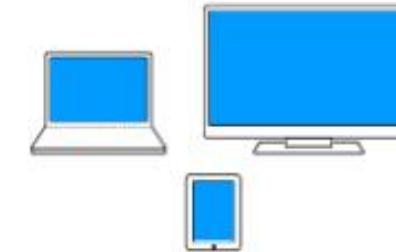
Multi-Device Usage Examples



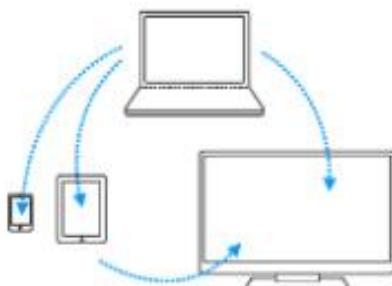
Coherence



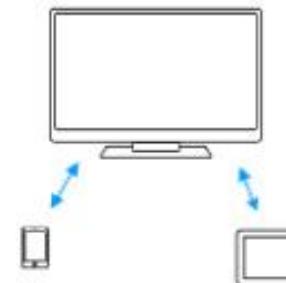
Synchronization



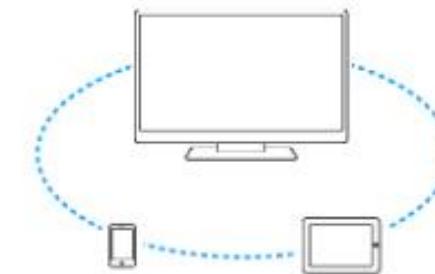
Screen sharing



Device shifting



Complementarity



Simultaneity

Functional Interaction Design

User scenarios ▪ User stories ▪ Use cases ▪ Workflows ▪ Wireframes and low-fidelity prototypes

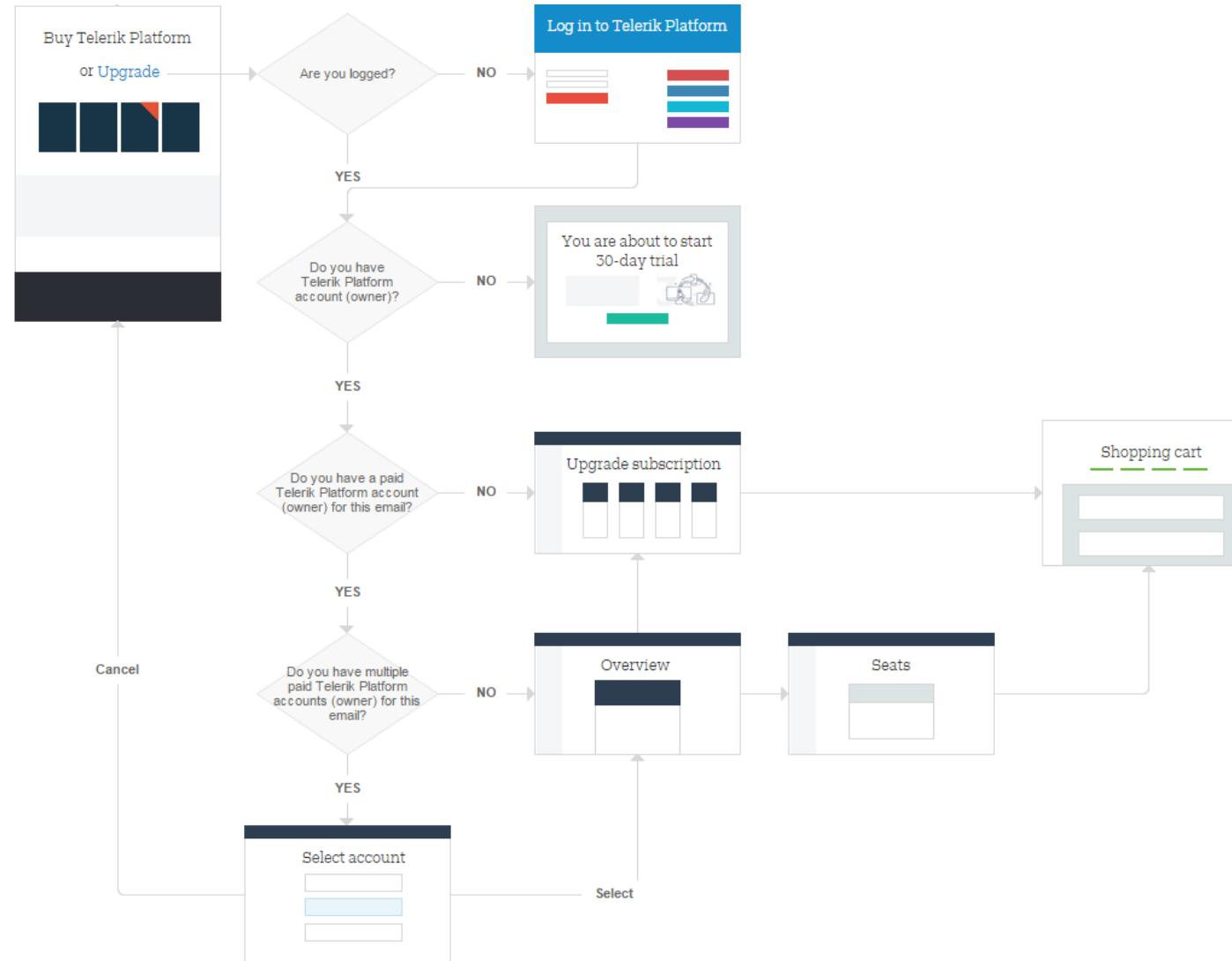
User Scenarios

A narrative for the interactions between a user and the application towards achieving a certain goal. Describe the context and steps, events, and/or actions which occur during the interaction. If personas are the characters – the user scenarios are the plot.

Example scenarios:

- Downloading a trial
- Purchasing a product
- Upgrading a product
- Contacting support

User Scenario - Example



User Stories

A high-level definition of a requirement in agile software development methodologies. Contains one or more sentences in the everyday or business language of the end user that captures what the user wants to achieve.

"As a <role>, I want <goal/desire> so that <benefit> (optional)"

"As a customer, I want to be able to use my existing account to buy a product, so that I can reuse my existing shipping and billing info."

User Stores Example

The screenshot shows a backlog board in Telerik TeamPulse with the following columns:

- NOT STARTED**: Contains 100 items.
- IN PROGRESS**: Contains 7 items.
- READY FOR TEST**: Contains 15 items.
- IN TESTING**: Contains 1 item.

Filters applied: type: Story, Feature..., status: Not Started,..., team: any (Your Ac...), Sort By: Backlog Priority, Rows: No rows, Columns: Status.

Key items visible:

- NOT STARTED**:
 - 232631: Improve shopping cart form validation (State vs ZipCode)
 - 258574: YA: As a Telerik Platform user, I want to quickly and easily download the files I am licensed to use
 - 270169: YA: Implement CreditCard Problem Messages
 - 258875: As a user, I want to be able to request extension of my expired trials from within Your Account
 - 267307: As an AppBuilder/Everlive/etc user, I want to view only the relevant upgrade options when I hit a license limitation in Appbuilder/Everlive/etc
 - 258881: As a license holder, I want to be able to change my billing/shipping addresses through My Account, so that I receive my invoices at the right address, if it gets
- IN PROGRESS**:
 - 292119: [UI] Manage License Users page
 - 299619: Rework Manage Payment Profiles page in YourAccount
 - 299621: Rework Online Shopping Cart payment profiles functionality
 - 293532: Google Analytics tracking
 - 299351: Your Account Release notes page in YA
 - 300703: Revamp Order history page
 - 300867: Progress bar is missing when select from existing users + no check how many user can be added to the license
- READY FOR TEST**:
 - 288595: Exception when sending support ticket with large attachment (>20MB)
 - 298825: When holder has only 1 license that he is not licensed user of -> Add message on the when group by user
 - 299498: Rework Edit Profile page
 - 300951: Failed Testing: When License User delete themselves from the only 1 license they are added in -> message for no licenses should be shown
 - 300986: Invited user should be counted for real user when deciding whether to hide or not "Assign user to license"
 - 300987: Invited users for TAP should be counted when deciding whether to show license in the grid as available to add
- IN TESTING**:
 - 299656: GroupedByUser - "Expires" column header should be "Valid Until" in order to for UI to be consistent

Use Cases

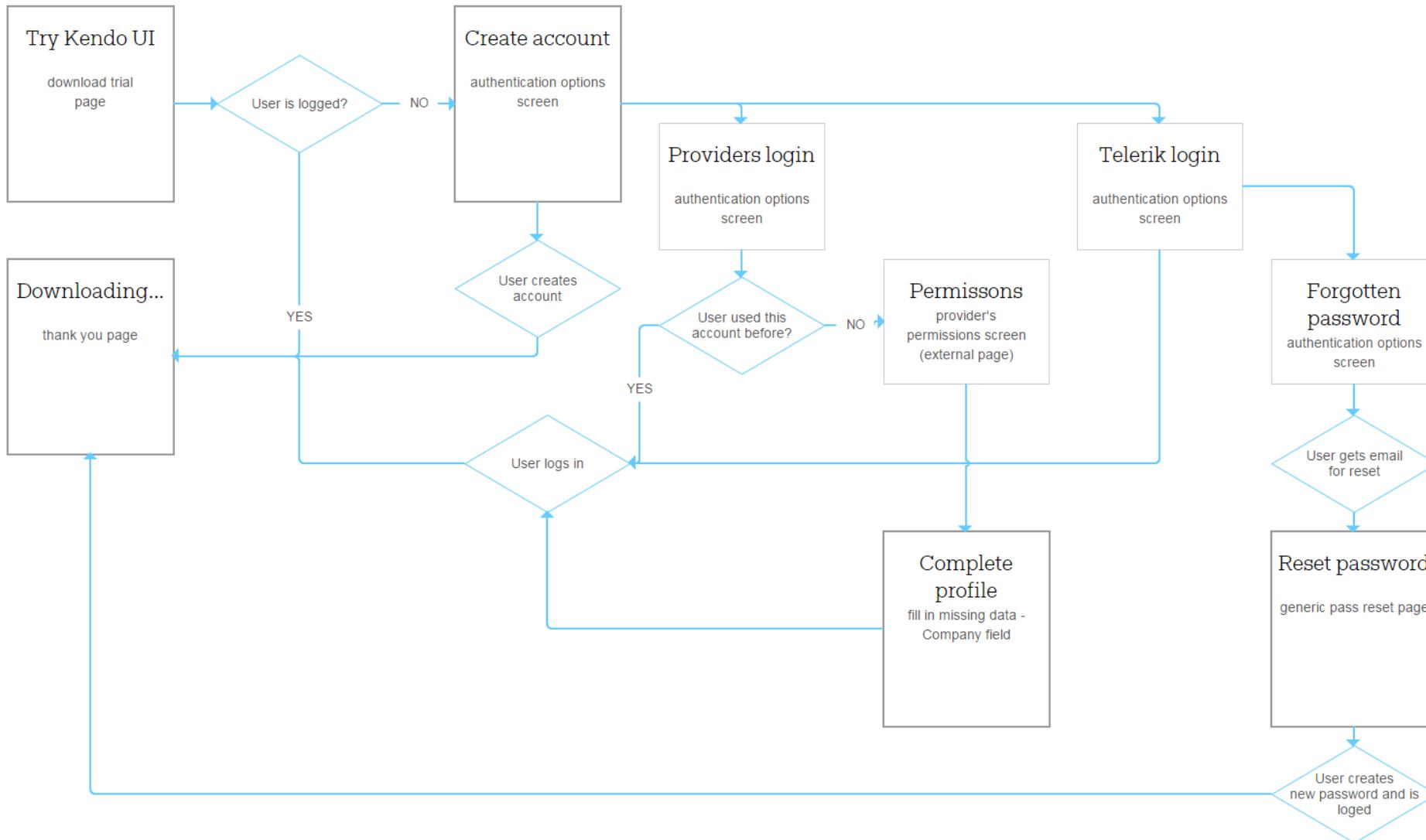
Describes the behavior you need to build into the software to meet user's needs from the user story. It is detailed, clear and unambiguous. It may have pre-conditions and post-conditions. One user story can have many use-cases.

- Happy path / Sunny day cases
- Alternative paths
- Exceptions
- Edge cases

Workflows

- Workflow in interaction design is the series of activities that are necessary to complete a task.
- Easy way to visualize the process described in the user scenario, user stories and use cases.

Workflow Example



Wireframes and Low-Fidelity Prototypes

- Wireframes are a quick way to arrange a webpage or interface layout.
- Easy way to present basics of your concept, to prioritize features and content.
- When linked into a clickable prototype they communicate and validate the logic, sequence and relations between pages or interface screens.

Wireframes Example

Telerik Platform

App Marketplace

Get a head start and deliver exceptional experiences, faster, with pre-built app templates.

FEATURED APP
Purchase Order

B2E Applications

Sales Order App by Telerik Purchase Order by Telerik Plant Maintenance by Telerik Purchase Requisite by Telerik

TELERIK PLATFORM APP MARKETPLACE

B2E Applications B2C Applications

B2E Applications

Purchase Order by Telerik

Capture and view purchase orders using our template app that comes with seamless integration to your existing SAP data. Capture and view purchase orders using our template app that comes with seamless integration to your existing SAP data.

Get this app

Contact Us to Get Application

First name

Last name

Company

Email

Phone

Job title (optional)

Country (optional)

Purchase Order by Telerik

Submit

Interface-Level Interaction Design

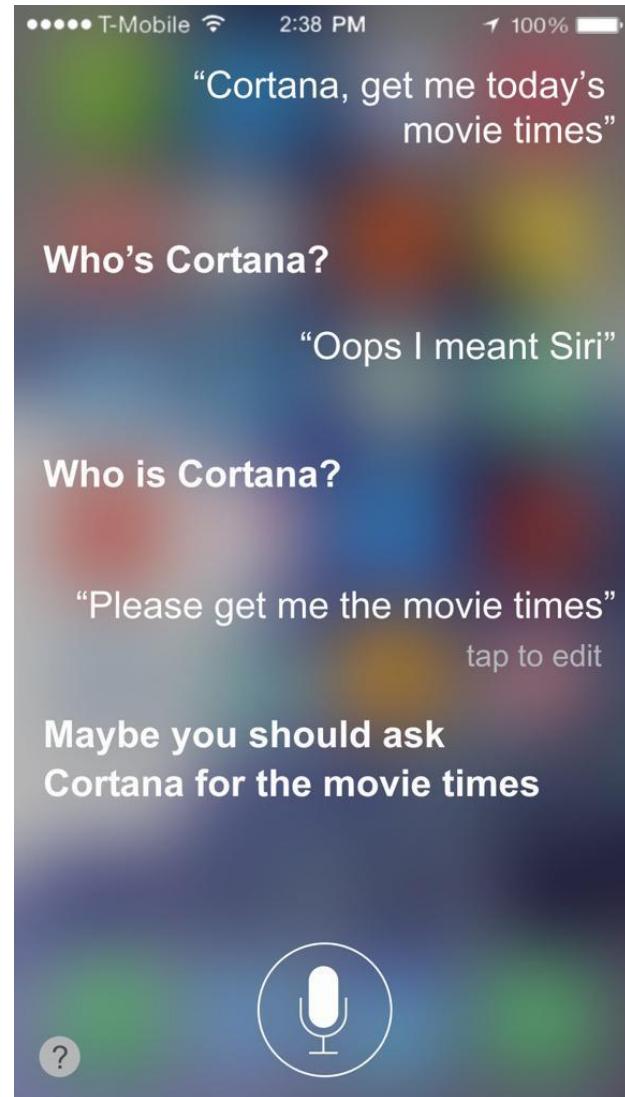
Input tools • Navigation types • Interface organization and UI patterns •
High-fidelity designs and interactive prototypes

Input Tools

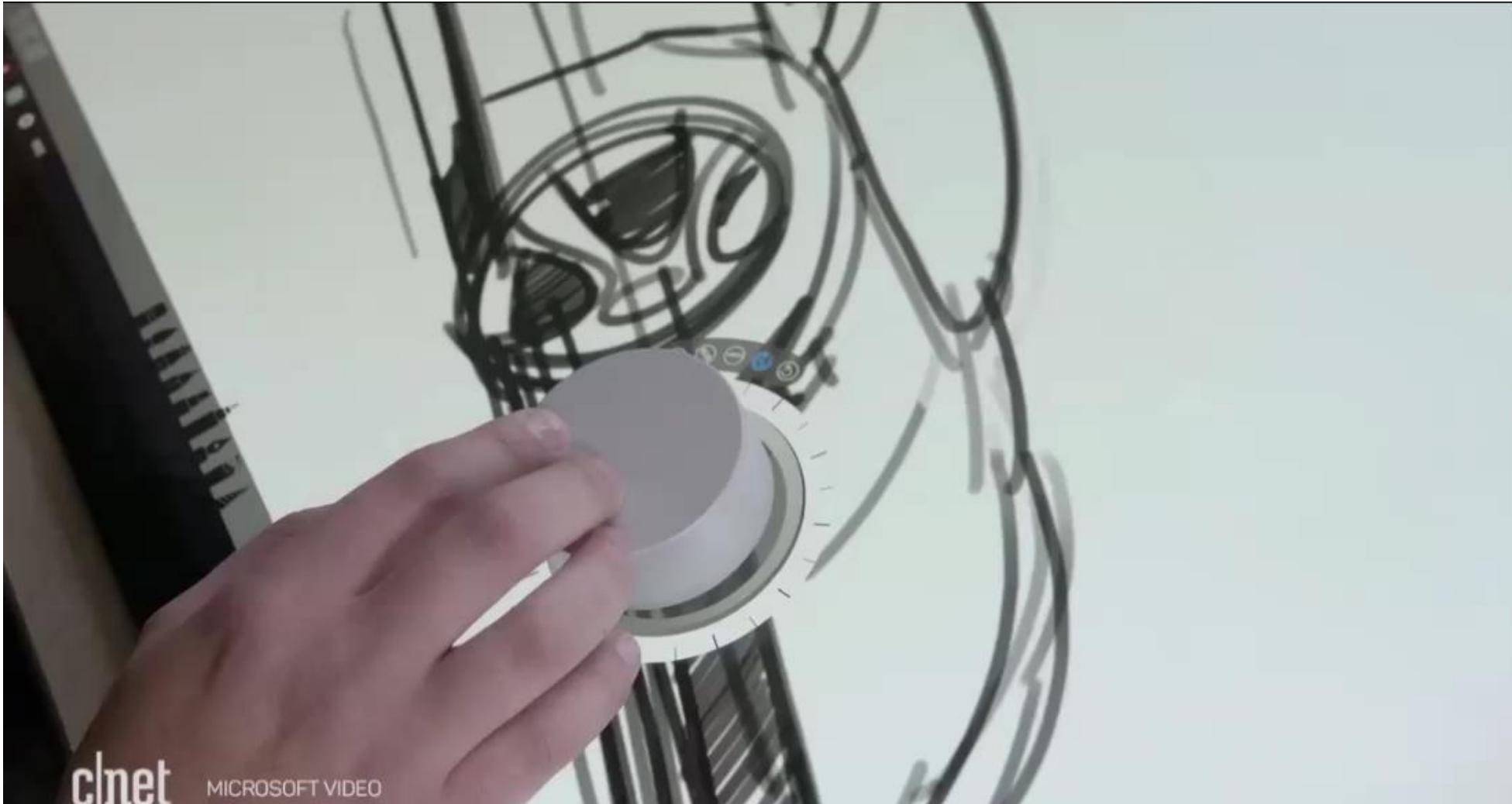


Input Tools

- Mouse
- Keyboard
- Stylus
- Voice
- Touch
- Remote control
- Joystick
- Other technologies



Input Tools

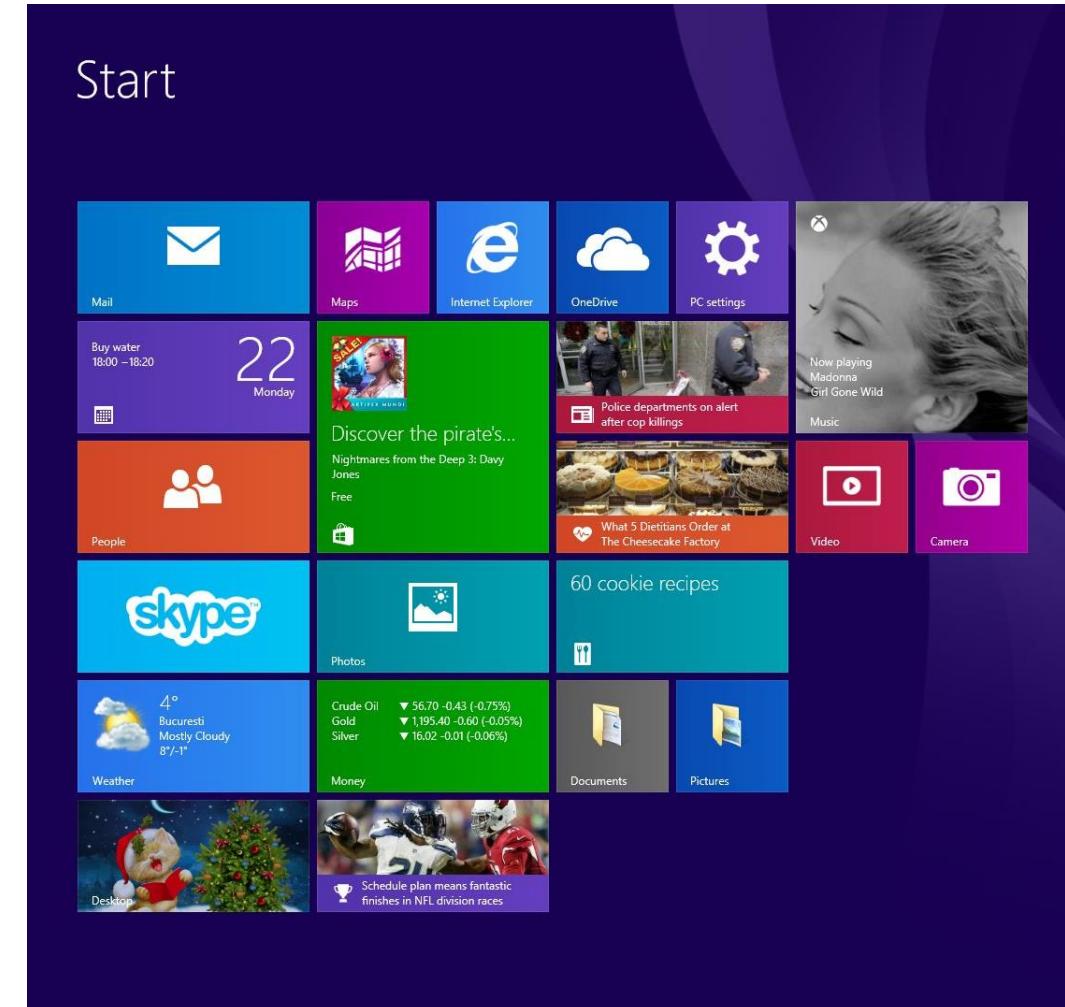
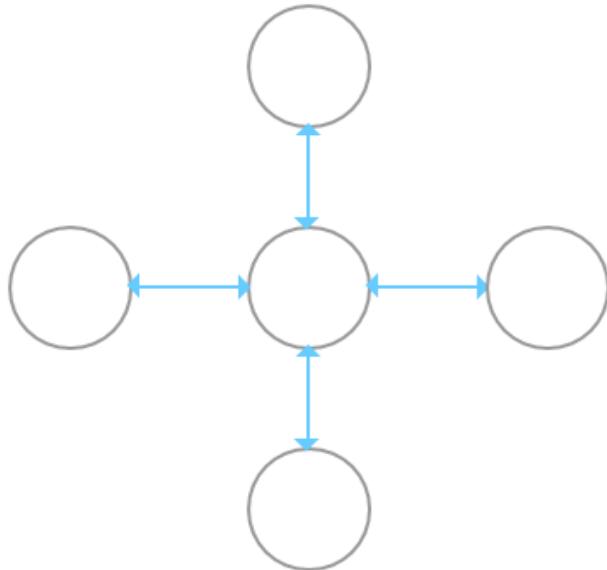


c|net

MICROSOFT VIDEO

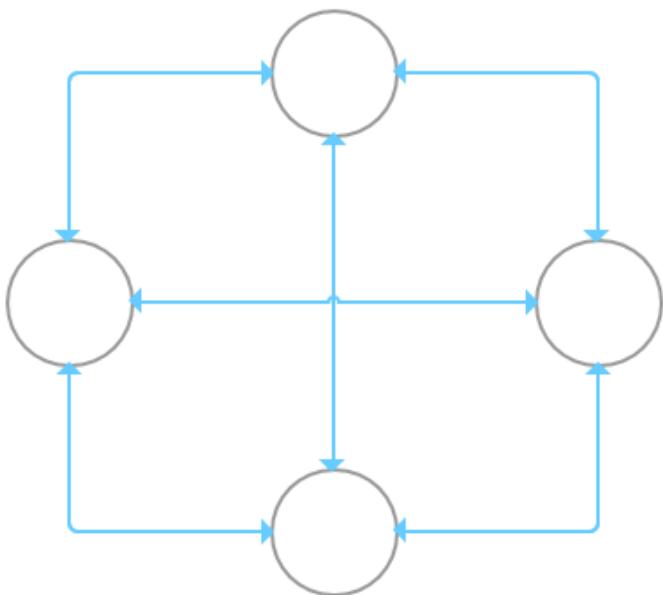
Navigation Types

Hub and spoke



Navigation Types

Fully connected



hotjar

Product Tour Pricing Careers Support TRY IT FOR FREE SIGN IN

Hotjar HOTJAR LTD BUSINESS Tracking Active

Heatmaps > Plans Page - Feb 3 Share Heatmap

DEVICE 4,730 75 195 Click Move Scroll Download

This heatmap is based on a sample of your total visitors. [Learn more.](#)

hotjar

Complete and affordable insights for any organization size.

Every organization package includes **unlimited sites and users!**

Work with clients? **CLICKS RECORDED 7,376**

HEATMAPS

Understand what users want, care about and interact with on your site by visually representing their clicks, taps and scrolling behavior.

RECORDINGS

CONVERSION FUNNELS

FORM ANALYSIS

FEEDBACK POLLS

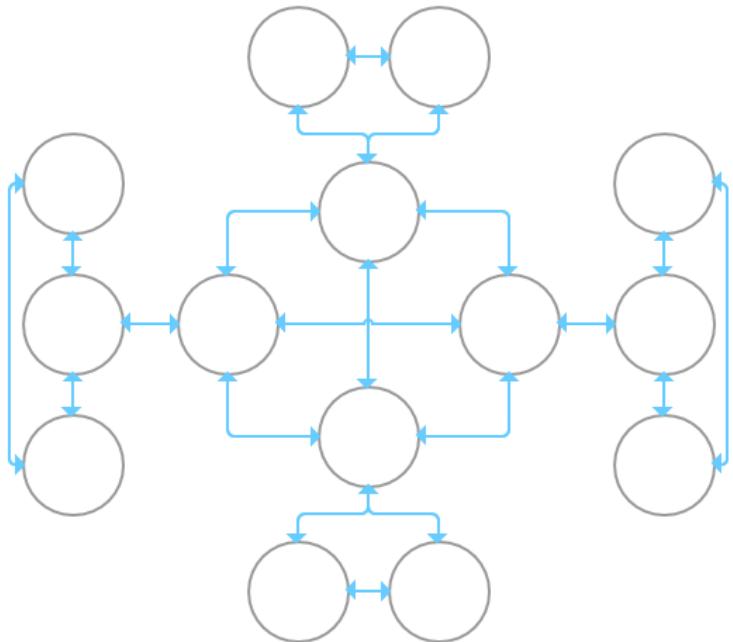
SURVEYS

RECRUIT USER TESTERS

Take a Product Tour

Navigation Types

Multi-level



The smartest JavaScript IDE

WebStorm is a lightweight yet powerful IDE, perfectly equipped for complex client-side development and server-side development with Node.js.

Download WebStorm

```
var querySelector = document.querySelector.bind(document);
var navdrawerContainer = querySelector('.navdrawer-container');
var body = document.body;
var appBarElement = querySelector('.app-bar');
var menuBtn = querySelector('.menu');
var main = querySelector('main');

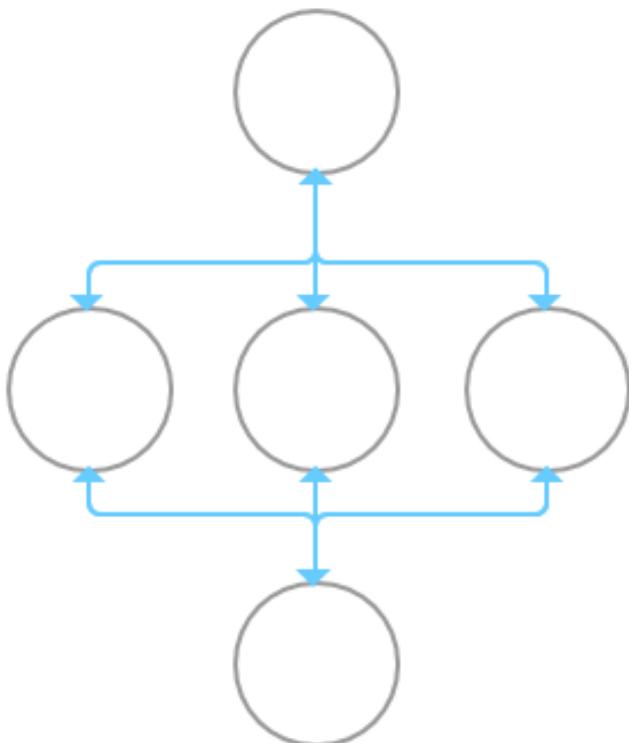
function closeMenu() {
  body.classList.remove('open');
  appBarElement.classList.remove('open');
  navdrawerContainer.classList.remove('open');
}

function toggleMenu() {
  body.classList.toggle('open');
  appBarElement.classList.toggle('open');
  navdrawerContainer.classList.toggle('open');
}

main.addEventListener('click', function(event) {
  if (event.target.nodeName === 'A') {
    closeMenu();
  }
});
```

Navigation Types

Facets



desktop.bg

онлайн чат 02 490 11 11

Продукти · Промоции

търси компютърни аксесоари

Моят профил ·

Монитори (307)

Начало > Монитори

Показани са 1 - 23 от 307 продукта

Подреди по: Промоции

ЦЕНА:

- Нови модели (3)
- Промо модели (8)
- Модели с подарък (7)
- Всички
- 140 - 199 лв (24)
- 200 - 299 лв (65)
- 300 - 499 лв (87)
- 500 - 699 лв (51)
- 700 - 999 лв (27)
- 1000 - 1999 лв (39)
- 2000 - 11999 лв (13)
- от до

МАРКА:

- Всички
- Acer (41)
- AOC (21)
- Apple (1)
- Asus (35)
- BenQ (22)
- Dell (39)
- Eizo (12)
- Fujitsu (6)
- HANNSpree (8)

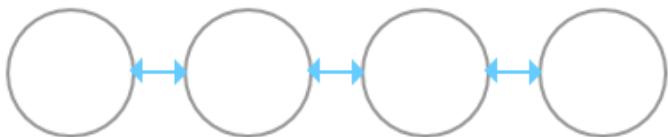
ФИЛТРИ:

Показай всички

 -10% Philips 203V5LSB2 19.5" 1600 x 900 VGA	 -10% ASUS VH228DE 21.5" TN Full HD D-Sub наклон: 20° ~ -5°	 промо BenQ 21.5" Full HD тегладени говорители	 -13% Dell P2214H с подарък Dell Soundbar... 21.5" IPS Full HD завъртане в пропретна по...
179 лв. 499 лв. (-10%)	187 лв. 299 лв. (-10%)	249 лв. 260 лв. (-10 лв.)	339 лв. 399 лв. (-13%)
 -6% ASUS VX279H 27" IPS	 -5% Eizo EV2336WFS3-BK 23" IPS	 -5% Eizo EV2450-BK 23.8" IPS	 -5% Acer Predator XB270HAbprz

Navigation Types

Step-wise



Shopping Cart

CONFIGURE CHECKOUT BILLING INFO PAYMENT

Product	Unit price	Quantity	Discount	Price
Telerik Platform Developer Edition - Monthly Subscription		1		\$49.00
Telerik Platform Developer - Monthly Subscription	\$49.00	1		\$49.00

Have a promotional coupon?
Enter it here Apply coupon

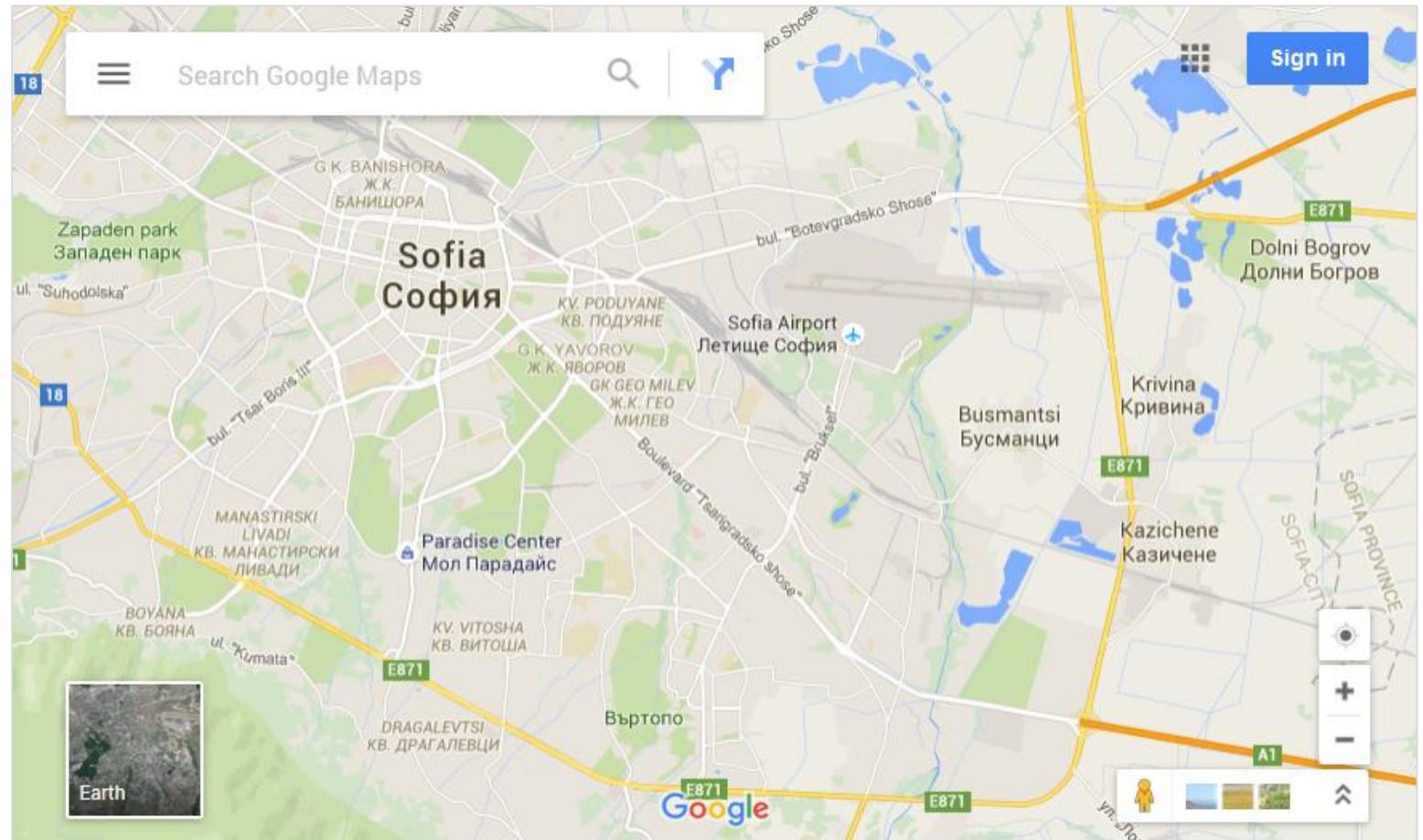
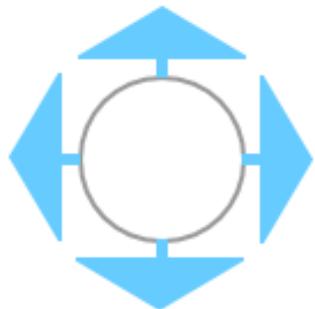
TOTAL \$49.00

I have read and agreed to the License Agreement(s) listed above

Add More Products

Navigation Types

Pan and zoom



Interface organization and UI Patterns

- Learn about them in the UI Design lecture
- Useful books for UI patterns

Designing Web Interfaces: Principles and Patterns for Rich Interactions
(By Bill Scott, Theresa Neil)

Designing Interfaces (By Jenifer Tidwell)

Mobile Design Pattern Gallery (By Theresa Neil)

- **Pattern libraries**

Collection of user interface design patterns and components, that you use in your application.

May include rules for their use for specific cases. Help to maintain consistency of the interface.



Pattern Libraries Examples

Google

Components – Tabs

Material design

Motion

Style

Layout

Components

- Bottom navigation
- Bottom sheets
- Buttons
- Buttons: Floating Action Button
- Cards
- Chips
- Data tables
- Dialogs
- Dividers
- Expansion panels
- Grid lists
- Lists
- Lists: Controls
- Menus
- Pickers
- Progress & activity
- Selection controls
- Sliders
- Snackbars & toasts
- Steppers

Mobile tabs

Default app bar and fixed tab bar

Extended app bar and fixed tab bar

Fixed tab bar pinned to top with scrolled content

Inset search, app bar, and fixed tab bar

Default app bar and scrollable tab bar

The text color is the same as the tab indicator.

Pattern Libraries Examples

VMware Starlight Pattern Library

Get Started Patterns Style Guide

Enter Keyword(s)

Web Patterns

Common Controls

- Auto Complete
- Buttons
- Calendar Date Picker
- Checkbox
- Combo Box
- Dropdown Selector
- Radio Buttons
- Slider
- Text Field

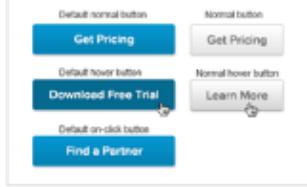
Data Display

- Accordion Containers
- Carousel - Bottom Rail 1
- Carousel - Bottom Rail 2
- Carousel - Hero
- Content Rating
- Empty State
- Form Elements & Structure
- Form Templates
- Form Validation
- Header Inline Editing
- Inline Editing
- Pagination
- Tool Tip
- Messaging

Buttons

A Command Button is a control that when clicked causes an application to...

Updated: 3 months 2 weeks ago



Checkbox

- Checked
- Unchecked
- Checked Disabled
- Unchecked Disabled

Wizard Progress Bar

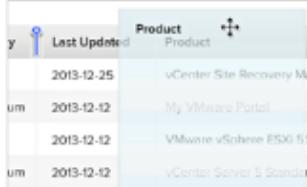
The Wizard Progress Bar can set expectations for process length, provide a...

Updated: 3 months 3 weeks ago



Table Drag & Drop

Table Drag and Drop allows the



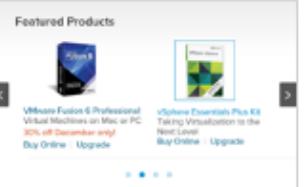
Slider

A slider allows the user to



Carousel - Bottom Rail 1

Enables a user to visually



Pattern Libraries Examples

salesforce

Search

Getting Started

Platforms >

Guidelines >

Components > **Datepickers**

Utilities >

Touch >

Activity Timeline

App Launcher

Badges

Breadcrumbs

Buttons

Button Icons

Button Groups

Cards

Data Tables

Datepickers

Docked Composer

Datepickers

Component Overview

A datepicker is a non text input form element. You can select a single date or date range from a popup or inline calendar.

VARIANTS & STATES

Base

Default

Date selected

Multiple Date Range Selected

DOCUMENTATION

Base

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

Today

High-Fidelity Designs and Interactive Prototypes

- Learn more about design in the Graphic design lecture
- Interactive prototypes

Linked together high-fidelity screens that may incorporate many functional details and use-cases, may include the visual design. Can be tested with users to discover issues in terms of navigation, functionality, logic, content messaging, etc. Can be used as proof-of-concept, or serve as a specification for developers.

The image displays two screenshots of a software application interface, likely for managing subscriptions to a platform like Telerik.

Subscription Overview Screen:

- Header:** Phoenix Projects, Subscription, Getting started, Elina Racholova.
- Main Content:** Titled "Telerik Platform Developer Edition".
 - Renewal:** NEXT RENEWAL 14 Feb 2015.
 - Holder:** LICENSE HOLDER Elina Racholova | elina.racholova@telerik.com
 - Price:** ANNUAL SUBSCRIPTION \$4,752.
 - Upgrade Button:** Upgrade edition.
- Seat Summary:** TOTAL SEATS 7, ASSIGNED SEATS 3, REMAINING SEATS 4.
- Data Plans:**
 - Backend Services Small Data Plan:** 1 GB Database, 5 GB File storage, 25 GB Bandwidth / month, 2,000,000 Push notifications / month.
 - Analytics Starter Data Plan:** 100 Concurrent devices.

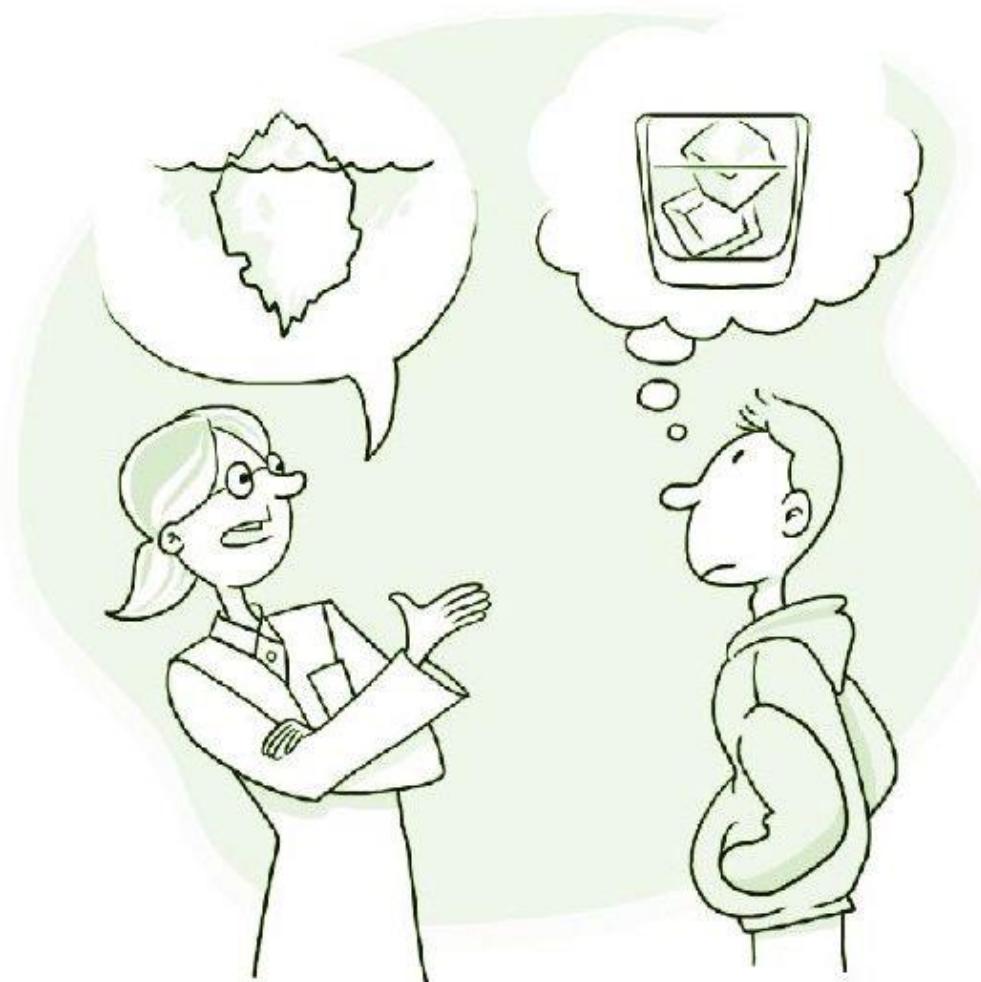
Upgrade Edition Screen:

- Header:** Phoenix Projects, Subscription, Upgrade edition, Getting started, Elina Racholova.
- Main Content:** Upgrade your subscription.
 - Upgrade Options:** Monthly (selected) and Annual.
 - Subscription Options:**
 - Telerik Platform Developer:** Your current subscription. Renewal price: \$343. Includes Core Platform, Hybrid UI, Limited web support.
 - Telerik Platform Professional:** Renewal price: \$733. Includes Core Platform, Hybrid & Native UI, Unlimited web support.
 - Telerik Platform Business:** Renewal price: \$1,268. Includes Pro Platform, Web, Hybrid & Native UI, Unlimited web support.
 - Telerik Platform Enterprise:** Enhanced enterprise capabilities, alternative deployment options and Service Level Agreements.

Intuitive Design



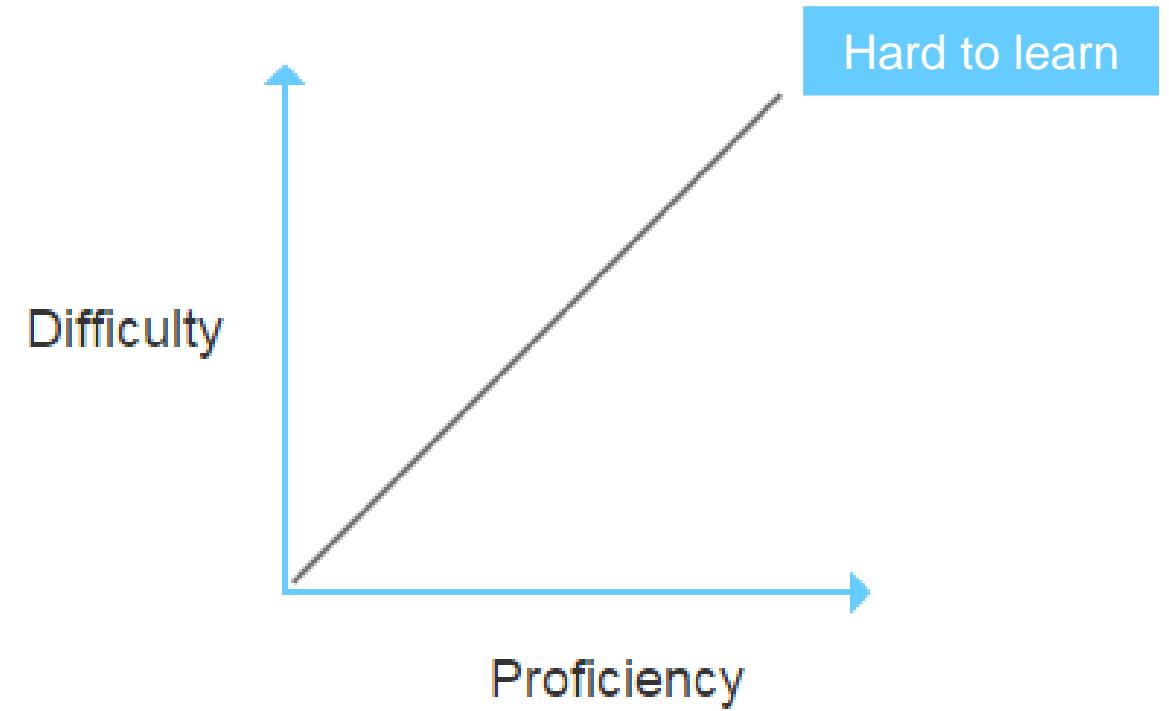
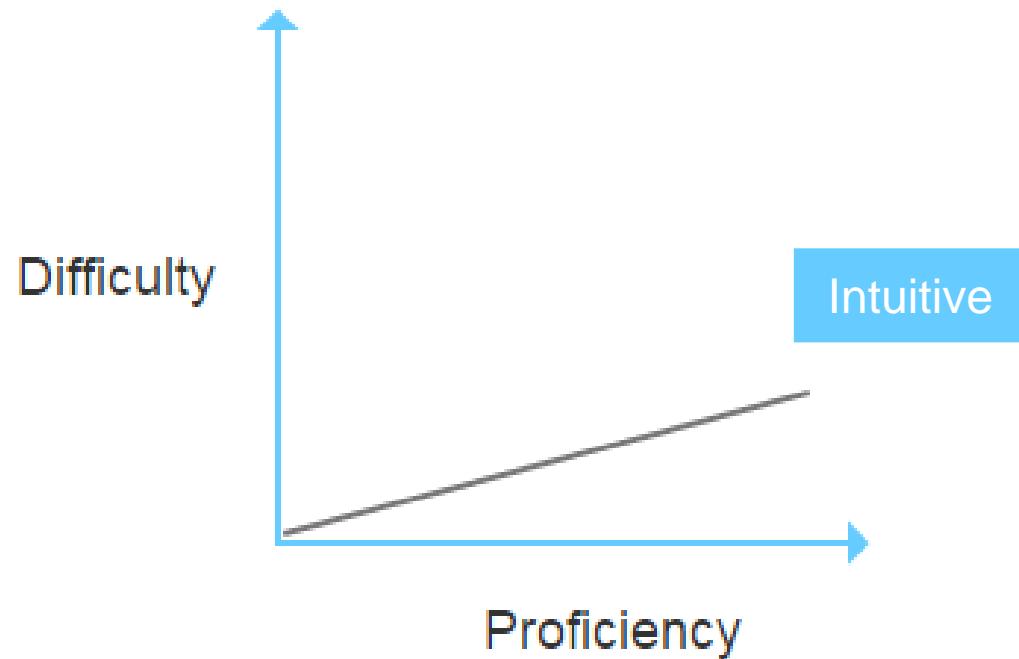
Mental Model vs. Concept Model



Mental Model vs. Concept Model

- Representation of a device or software that a person has in mind before they even use it.
 - People use it to predict how the system behaves.
 - Comes from prior experience with similar software or devices, assumptions they have, things they've heard others say.
 - Not everyone has the same mental model.
 - Mental models are subject to change.
-
- Actual model that is given to the person through the design and interface of the actual product.
 - If there is a mismatch between the person's mental model and the product's conceptual model, then the product will be hard to learn, hard to use, or not accepted.
 - Concept model should match the persona you are designing for.
 - Concept model matching the mental model makes the design intuitive.
 - Use the Principle of least surprise - users interacting with applications have certain expectations and should not be surprised with the way application is working.

Learning Curve



Learning Curve

- Graphical representation of how hard it is to acquire proficiency.
- Intuitive products and websites have a shallow learning curve.
- Specialized software can have a steep learning curve, but still be usable. After proficiency comes efficiency and sometimes shallow learning curve and efficiency cannot be reconciled.

What about Usability?

Marketto

My Marketo Marketing Activities Design Studio Lead Database Analytics

Nur Mktg A Std Smart List Flow Schedule Results

New Campaign Actions View Campaign Members Active Campaign — changes take effect immediately

Collapse All Expand All Auto-Save: no changes

1 - Add to SFDC Campaign Campaign "Nurturing 2009" with Status "P"

2 - Send Email Email "Nur LM Best Practices" and Email

3 - Wait Duration "2 weeks"

4 - Send Email

Choice 1 If: Member of List not in Lead Nurturing Email: Nur Lead Nurtu

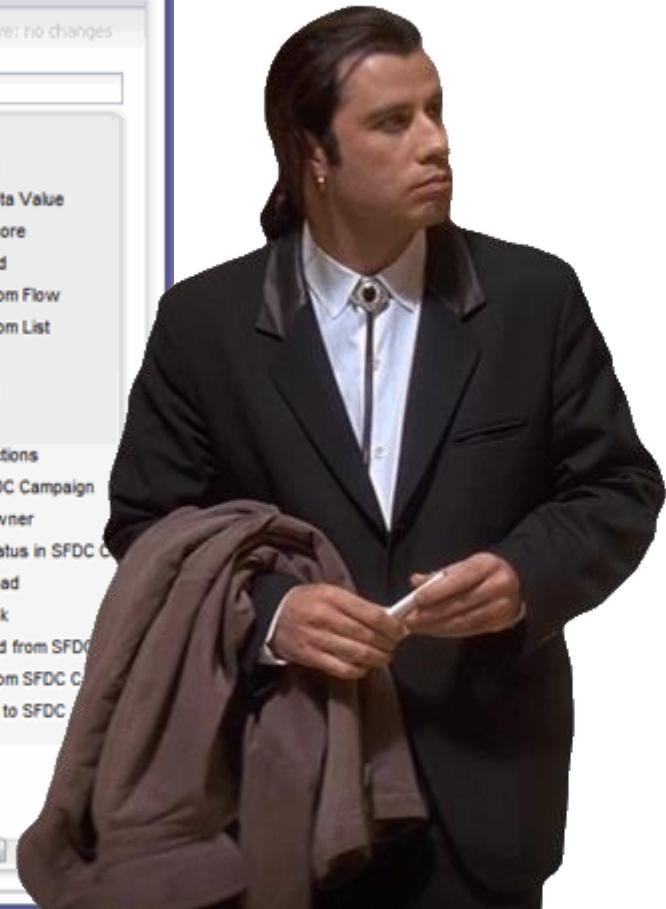
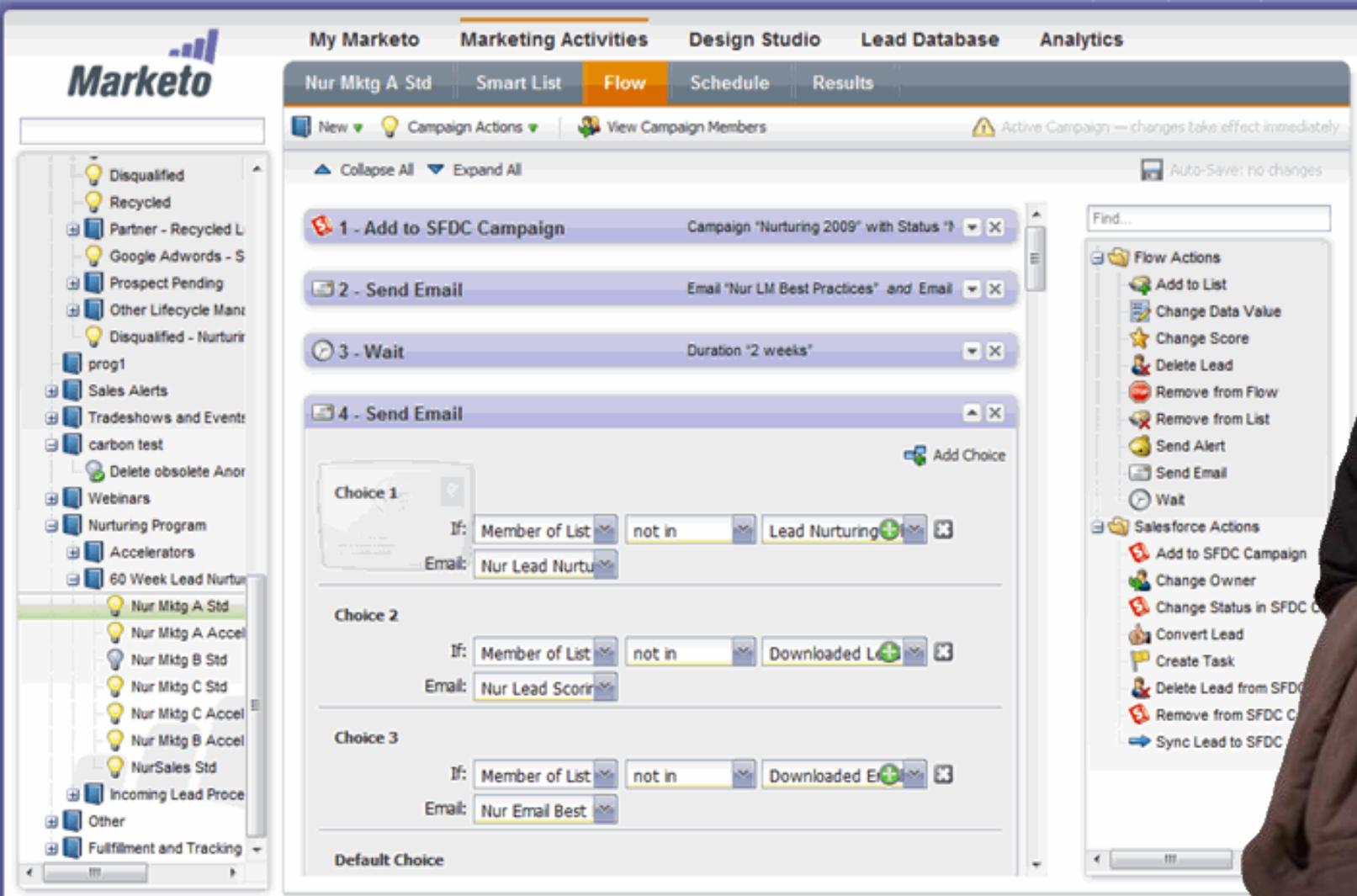
Choice 2 If: Member of List not in Downloaded L Email: Nur Lead Scorin

Choice 3 If: Member of List not in Downloaded E Email: Nur Email Best

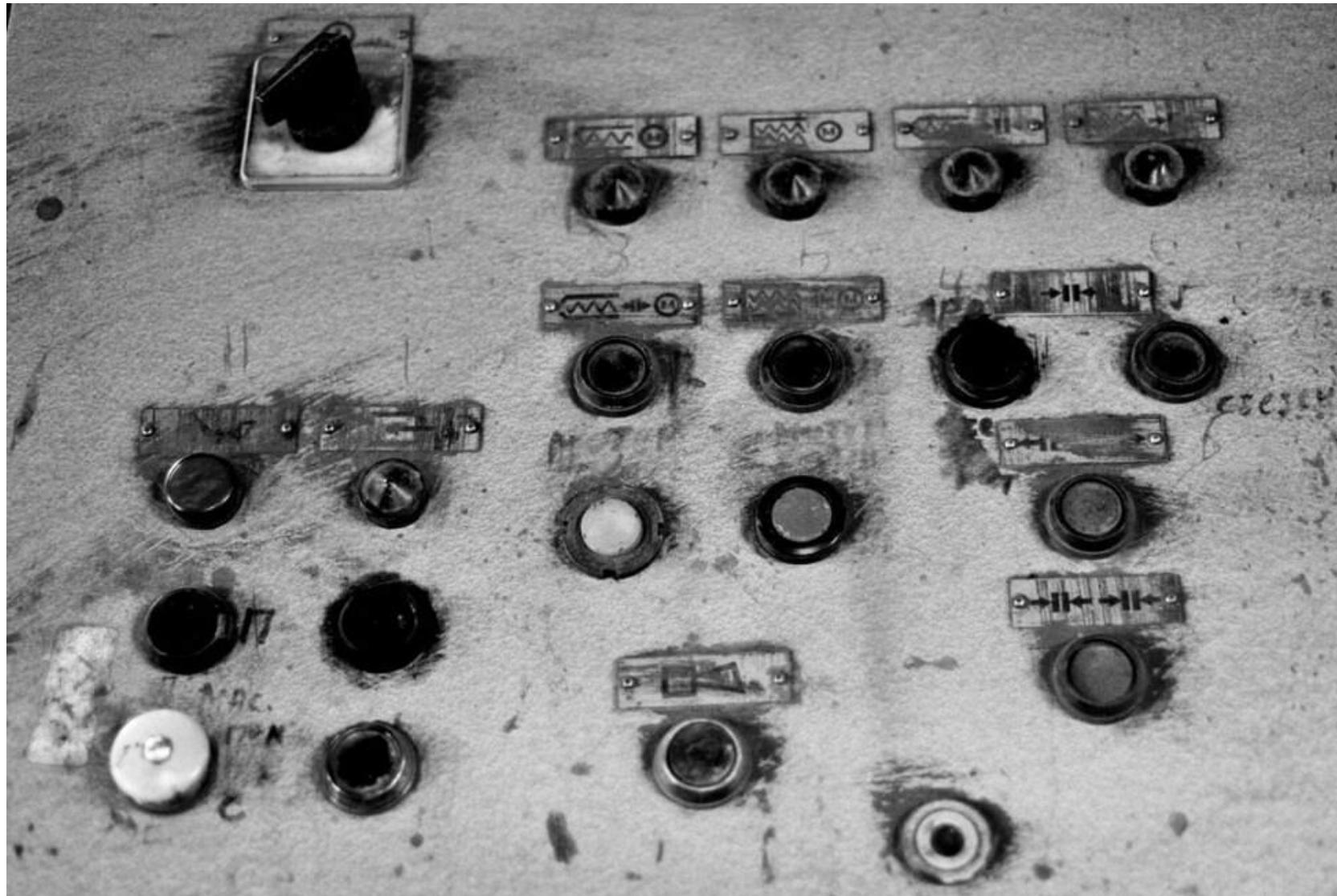
Default Choice

Find... Flow Actions Add to List Change Data Value Change Score Delete Lead Remove from Flow Remove from List Send Alert Send Email Wait

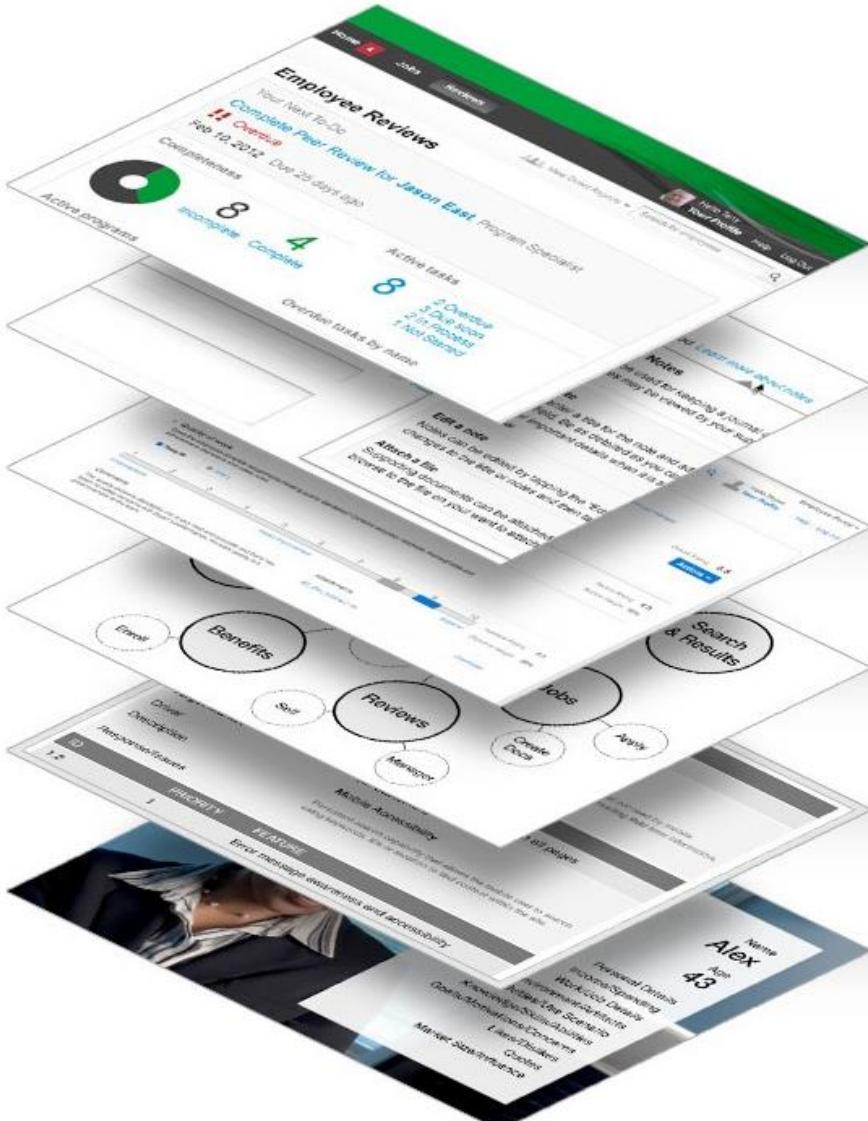
Salesforce Actions Add to SFDC Campaign Change Owner Change Status in SFDC Convert Lead Create Task Delete Lead from SFDC Remove from SFDC Sync Lead to SFDC



Usefulness vs. Usability



Usefulness vs. Usability



Usability

Visual design

Content & terminology

Detailed interactions & UI design patterns

Information architecture & global navigation

Usefulness

Functionality

User audience

Jakob Nielsen's 10 Usability Heuristics

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation



10 Usability Heuristics

1

Hot Rate® Hotels

Copenhagen (and vicinity), Denmark

10/13/2016 10/17/2016

1 Rooms, 2 Adults, 0 Children

Search

Sort by Filter by Star Rating Amenities Areas Recommendation

Hang tight. Finding deals for you.

2

Hotwire

Hotels Cars Flights Vacations

USD Sign in

AUD - Australian Dollar

USD - US Dollar

EUR - Euro

GBP - Pound Sterling

CHF - Swiss Franc

CAD - Canadian Dollar

NZD - New Zealand Dollar

DKK - Danish Krone

NOK - Norwegian Krone

SEK - Swedish Krone

3

4

The screenshot shows the Hotwire website's search interface. At the top, there are tabs for 'Hotels', 'Cars', 'Flights', and 'Vacations'. Below the tabs, a search bar specifies 'Copenhagen (and vicinity), Denmark' with dates '10/13/2016' to '10/17/2016' and guest details '1 Room, 2 Adults, 0 Children'. A large blue button labeled 'Search' is present. Below the search bar are filters for 'Hot Rate® Hotels' (selected), 'Star Rating', 'Amenities', 'Areas', and 'Recommendation'. A message 'Hang tight. Finding deals for you.' is displayed. To the right is a sidebar with currency conversion rates: AUD - Australian Dollar, USD - US Dollar, EUR - Euro, GBP - Pound Sterling, CHF - Swiss Franc, CAD - Canadian Dollar, NZD - New Zealand Dollar, DKK - Danish Krone, NOK - Norwegian Krone, and SEK - Swedish Krone. The main content area features a map of Copenhagen and its surroundings, with a highlighted area around the city center. A calendar for October and November 2016 is overlaid on the map, showing the selected travel dates.

10 Usability Heuristics

10 Usability Heuristics

hotwire® Hotels Cars Flights Vacations Support ▾ USD Sign in

DESTINATION Copenhagen (and vicinity), Denmark DATES Fri, Oct 14 - Tue, Oct 18 ROOMS 1 Change search ↗

Hot Rate® Hotels

9 15% OFF Your Next Weekly Rental BOOK NOW

We couldn't find properties that match your filter selections. View all properties below.

Copenhagen: 137 properties Questions? 855-226-8314

Sort By:

Property Name	Property Class	Best Deals	Recommended
3 star avg \$142	4 star avg \$129	5 star avg \$163	\$169

Search by property name

Find what you want faster, filter by price or neighborhood.
Got it.

Filter properties by

Property Class

- ★★★★★ 5 Stars (3)
- ★★★★ 4 Stars (38)
- ★★★ 3 Stars (60)
- ★★ 2 Stars (32)
- ★ 1 Star (0)

Price Per Night

- Less than \$75 (4)
- \$75 to \$124 (32)
- \$125 to \$199 (36)
- \$200 to \$299 (8)
- Greater than \$300 (0)

10

First Hotel Twentyseven ★★★★
Copenhagen City Centre Map ↗ Centrally located with free WiFi! Close to Tivoli, Shopping, Restaurants and the City Hall. 12 people booked this hotel in the last 48 hours Booked in the last 5 hours

Skt. Petri ★★★★★
Copenhagen City Centre Map ↗ ✓ Free Cancellation 4 people booked this hotel in the last 48 hours Booked in the last 8 hours

First Hotel Kong Frederik ★★★★
Copenhagen City Centre Map ↗ 5 people booked this hotel in the last 48 hours Booked in the last 20 hours

Good! 3.8/5
(1776 reviews)
In high demand!
We have 1 left at
\$163 **\$148**
avg/night Sponsored **Sale!**

Very good! 4.0/5
(1251 reviews)
\$225
avg/night **✓ Reserve Now, Pay Later**

Good! 3.6/5
(916 reviews)
In high demand!
We have 1 left at

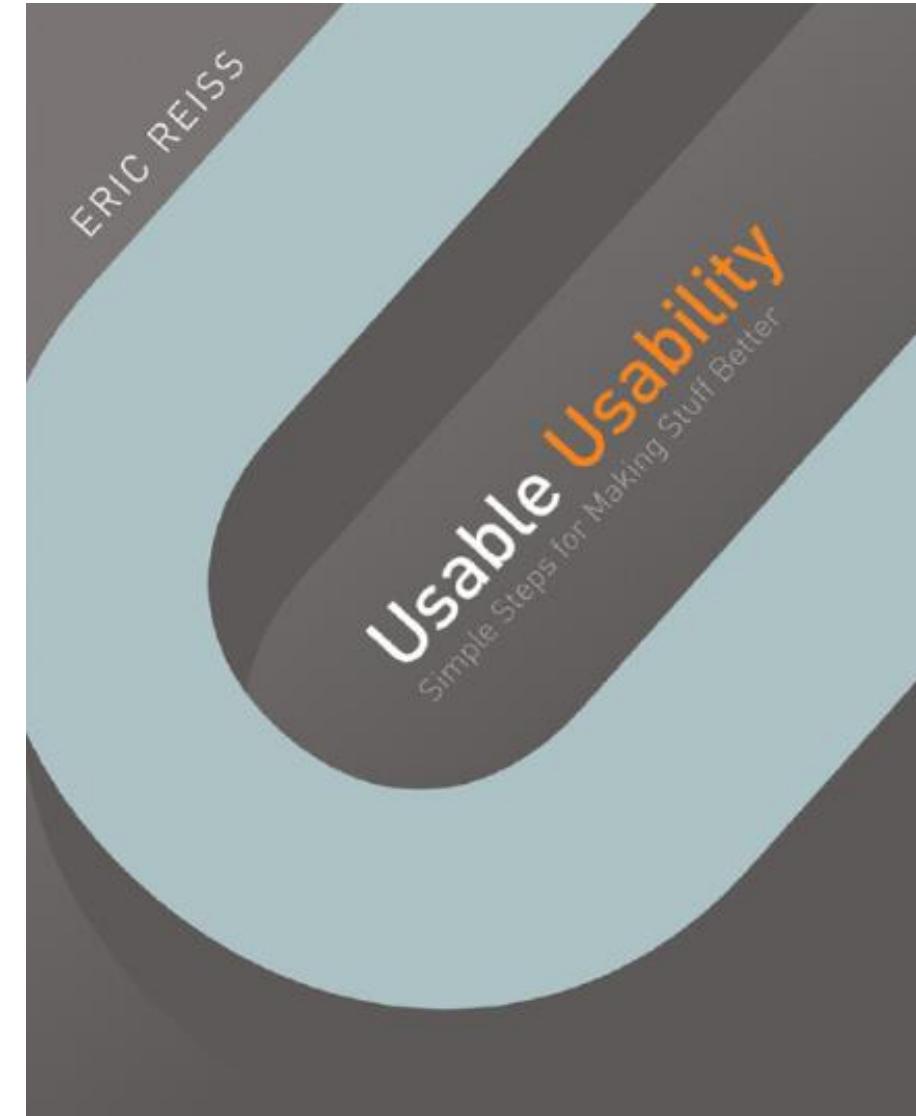
Usability Principles by Eric Reiss

1. Ease of Use

- Functional (it actually works)
- Responsive (I know it's working; it knows where it's working)
- Ergonomic (I can easily see, click, poke, twist, and turn stuff)
- Convenient (everything is right where I need it)
- Foolproof (the designer helps me to not make mistakes or break stuff)

2. Elegance and Clarity

- Visible (I can actually see stuff)
- Understandable (I know what I'm looking at and get how it works)
- Logical (the stuff I see and the procedures I am asked to follow make sense)
- Consistent (the rules of the game won't change on me unexpectedly)
- Predictable (when I do something, I have a clear idea what's going to happen next)



Usability – How to Get There?

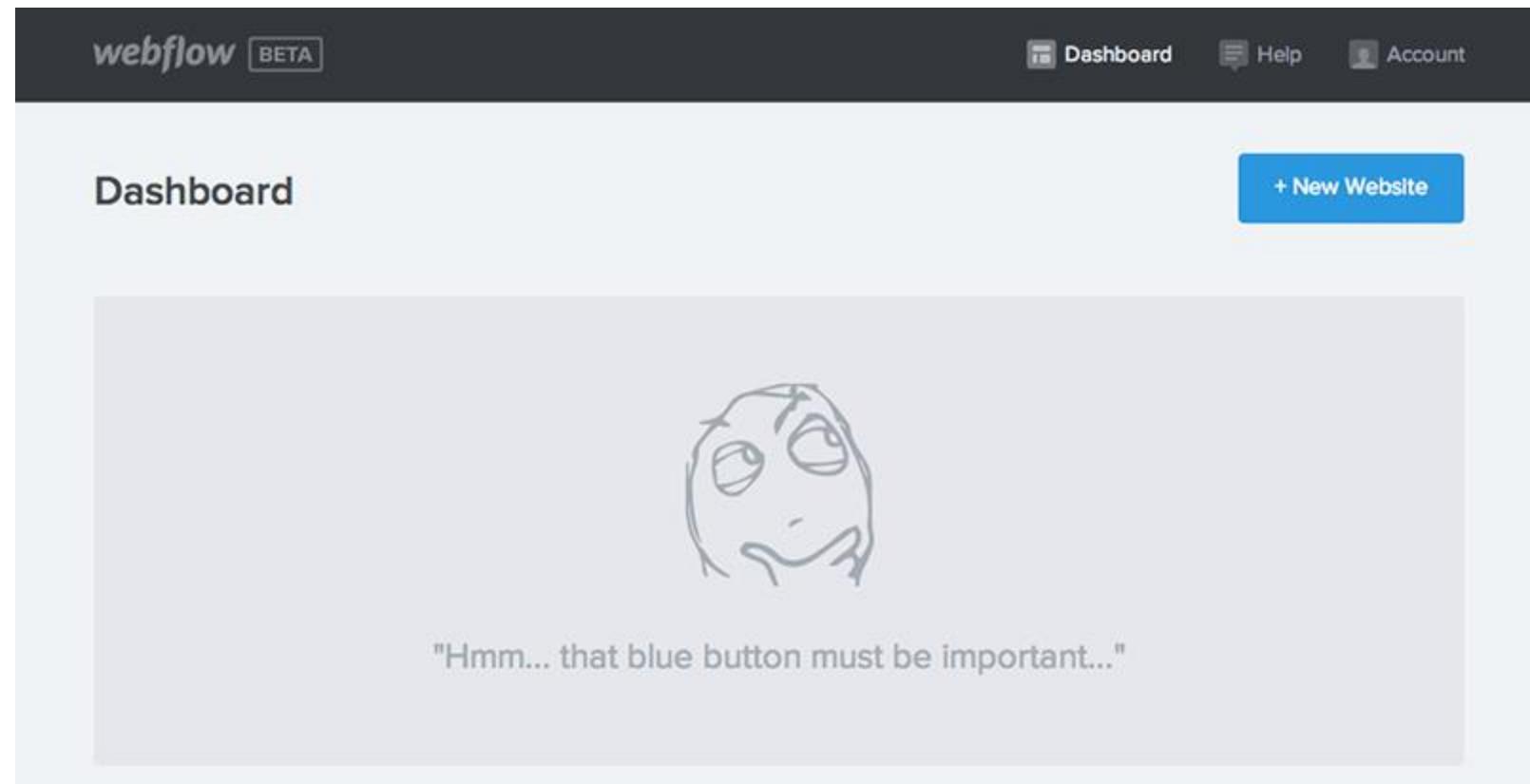
Interaction Design Tactics

- Orientation
- Guidance
- Efficiency
- Error Handling



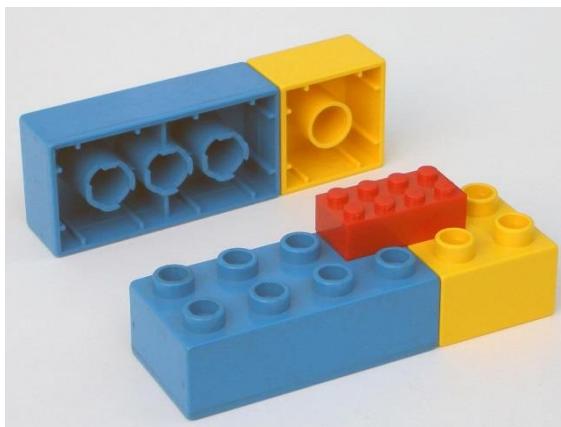
Orientation

- Affordance
- Information scent
- Feedback
- Interaction states



Affordance

- Property in which the sensory characteristics of an object imply its functionality and use. There are natural and perceived affordance.
- The term "perceived affordance" (forged by Don Norman) applies when the object properties are perceived in a way that differs from the real-world physical properties.
- Depends on the context - environment in which the element is displayed, and the user's mental model – previous experience and expectations of interaction.
- Use traditional signifiers and contextual clues.



Here are the current usability guidelines for showing textual links:

- To maximize the perceived affordance of clickability, color and underline the link text. Users shouldn't have to guess or scrub the page to find out where they can click.
- Assuming the link text is colored, it's not always absolutely necessary to underline it.

Affordance Example



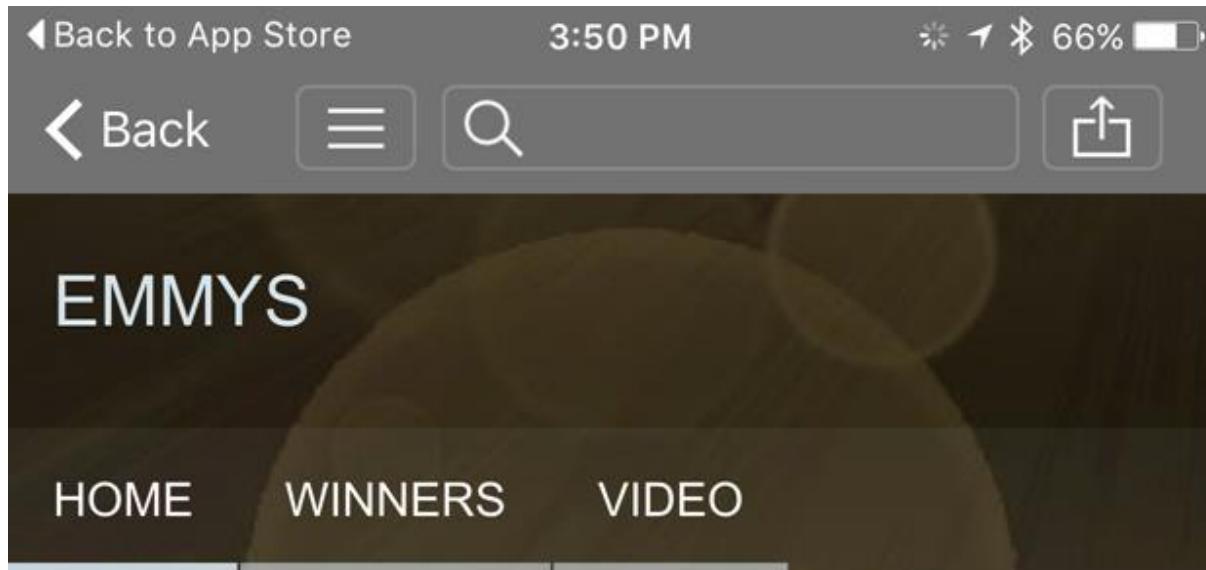
Information Scent

- Information scent refers to the extent to which users can predict what they will find if they pursue a certain path through a website or application.
- Use clear labels and microcopy.

The screenshot shows the Telerik website's homepage. At the top, there is a navigation bar with the Telerik logo, a search bar, and links for Products, Enterprise, Free Trials, Pricing, Support & Learning, Company, and user account information. Below the navigation bar, there are three main sections: 'COMPLETE .NET TOOLBOX' featuring 'DevCraft' (a UI toolkit), 'MOBILE APP DEVELOPMENT' featuring 'Telerik Platform' (for cross-platform mobile apps), and 'CMS & CUSTOMER ANALYTICS' featuring 'Telerik Sitefinity' (for customer engagement). To the right, under the heading 'INDIVIDUAL PRODUCTS', there are two main sections: 'DevTools' and 'DevCloud'. The 'DevTools' section includes categories for 'WEB' (UI for ASP.NET AJAX, UI for ASP.NET MVC, UI for PHP, UI for JSP, UI for Silverlight), 'HTML5/Javascript FRAMEWORK' (Kendo UI), 'DESKTOP' (UI for WPF, UI for WinForms), and 'MOBILE' (UI for PhoneGap, UI for iOS, UI for Android, UI for Windows Universal, UI for Windows Phone, UI for Xamarin). The 'DevCloud' section includes categories for 'PRODUCTIVITY & QUALITY' (JustCode, JustMock, Testing Framework), 'DEBUGGING' (Fiddler, JustDecompile, JustTrace), 'REPORTING & DATA ACCESS' (Reporting, Report Server, Data Access), and 'DEPLOYMENT' (Modulus).

INDIVIDUAL PRODUCTS			
DevTools			
WEB	HTML5/Javascript FRAMEWORK	MOBILE	
UI for ASP.NET AJAX UI for ASP.NET MVC UI for PHP UI for JSP UI for Silverlight	Kendo UI	UI for PhoneGap UI for iOS UI for Android UI for Windows Universal UI for Windows Phone UI for Xamarin	
DESKTOP	UI for WPF UI for WinForms		
DevCloud			
PRODUCTIVITY & QUALITY	DEBUGGING	REPORTING & DATA ACCESS	
JustCode JustMock Testing Framework	Fiddler JustDecompile JustTrace	Reporting Report Server Data Access	
MOBILE	DEPLOYMENT		
AppBuilder Backend Services Analytics	AppManager AppFeedback NativeScript	Modulus	

Information Scent Examples



The 67th Primetime Emmy Awards



A screenshot of a Yelp mobile app page for 'The Voya Restaurant'. The top status bar shows 'Back to Safari', the time '3:40 PM', battery level '70%', and signal strength. The page has a red header with the Yelp logo and a 'Nearby' button. The main content includes the restaurant's name 'The Voya Restaurant', a star rating of 4.5 stars based on 21 reviews, and the category 'Latin American'. It also indicates that the restaurant is 'Closed Today'. At the bottom, there are four interactive buttons: 'Write a Review' (with a star icon), 'Photo or Video' (with a camera icon), 'Check In' (with a checkmark icon), and 'Bookmark' (with a bookmark icon).

[Make Reservation](#)

[Order Pickup or Delivery](#)

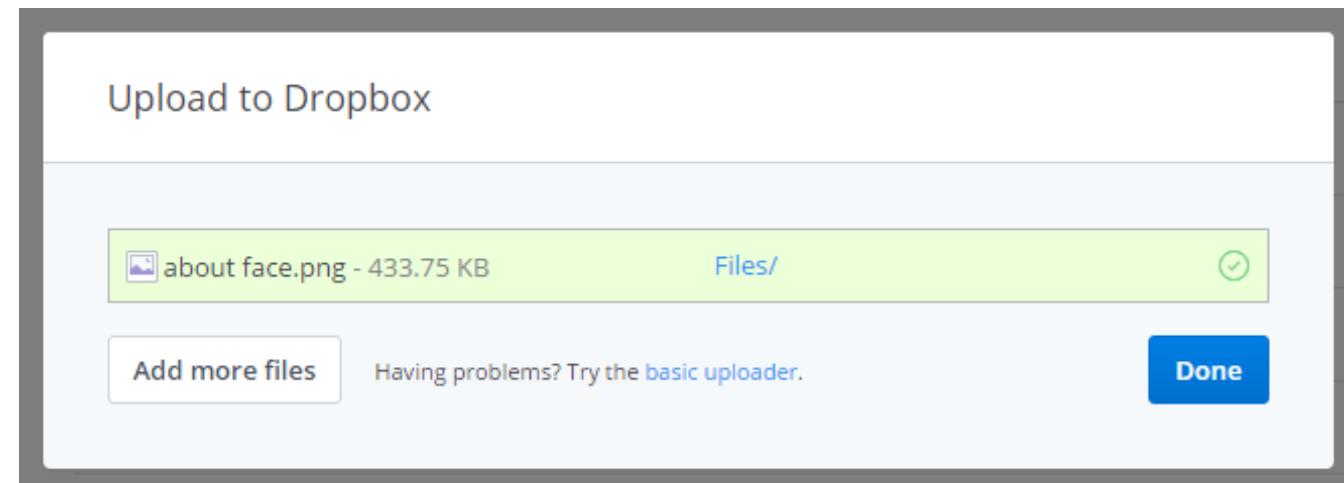
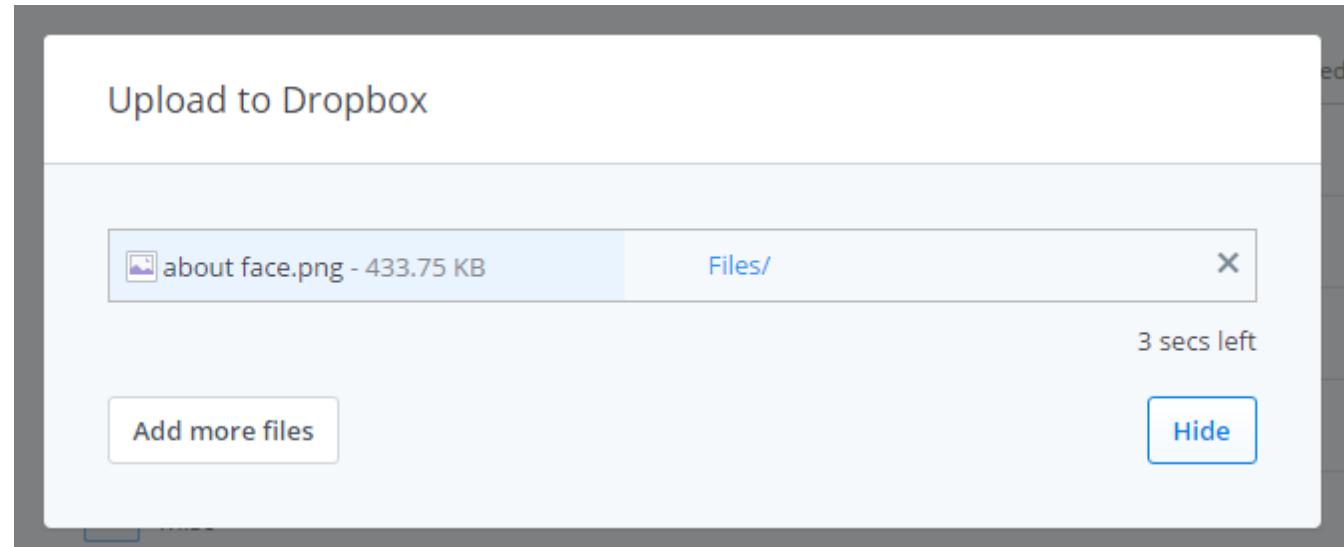
Feedback

Feedback makes the results of an interaction visible. Feedback is when an object is giving you a signal that:

- Is still performing a task
- Will perform a task for a certain time to its completion
- Has succeeded performing a task
- Failed at performing a task

Feedback answers questions across 4 categories:

- Location: Where am I?
- Current Status: What's happening – and is it still happening?
- Future Status: What will happen next?
- Outcomes: What just happened?



Labels and Microcopy Went Wrong

Cancel



Are you sure you want to cancel this action? Click 'OK' to cancel the current action or 'Cancel' to continue.

OK

Cancel

Interaction States of Elements

- All transitions/events an interface element goes through during user's operation with it.
- Default – Selected
- Active – Inactive
- On hover – On mouse/key down
- Other – visited; on drag; on focus; etc.

Checkboxes

- Normal
- Hover 
- Selected
- Selected Hover 
- Disabled
- Selected Disabled

Buttons and Links

PRIMARY AND SECONDARY BUTTONS

DEFAULT STATE		
Move	Copy	Delete

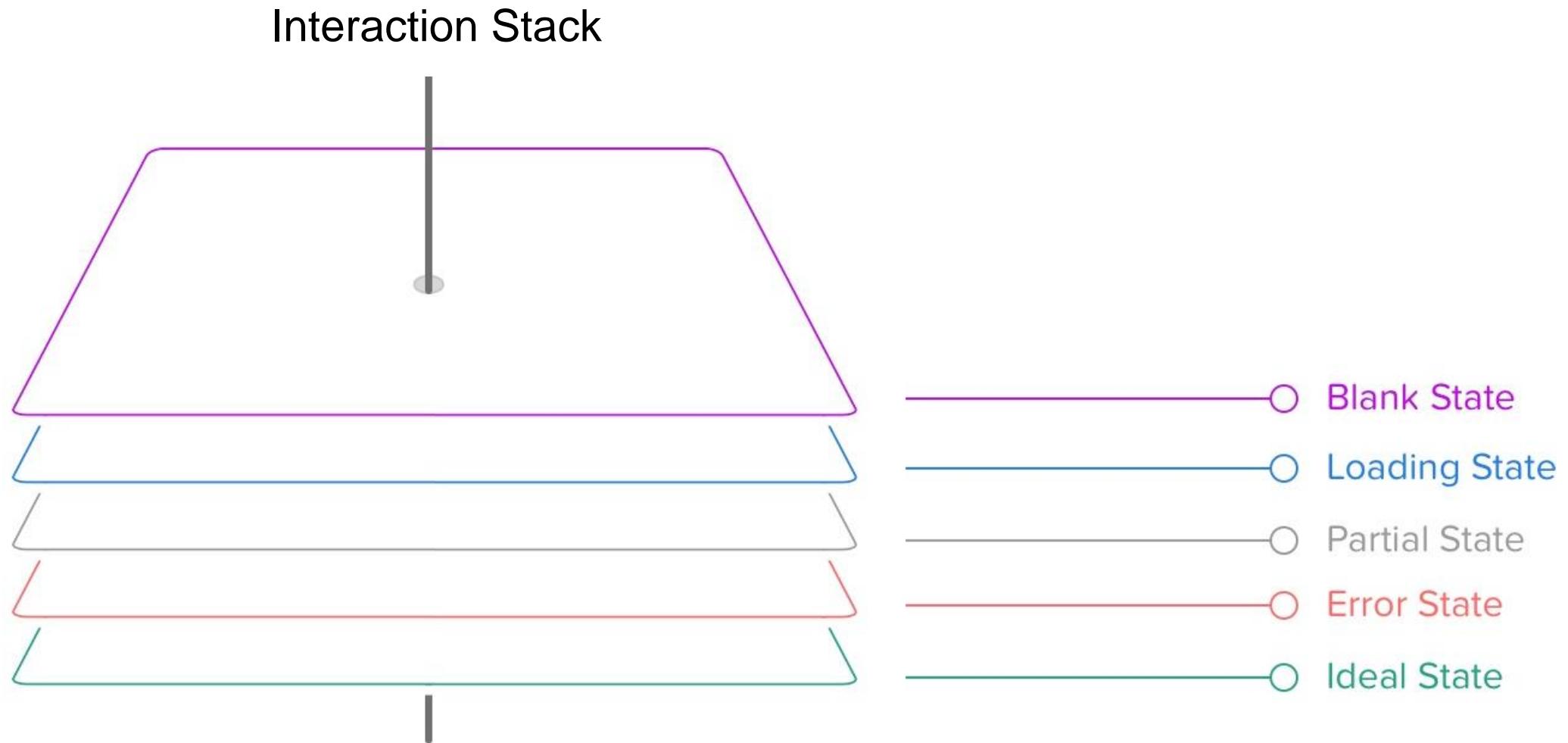
HOVER & MOUSE DOWN STATE

Move	Copy	Delete

LINKS

DEFAULT STATE	HOVER STATE
Title link	Title link
Raleway Regular 18 #1E88E5	Raleway Regular 18 #1E88E5 underline
Regular link	Regular link
Source Sans Pro Regular 16 #1E88E5	Source Sans Pro Regular 16 #1E88E5 underline

Interaction States of App Screens



Loading State



Opening your mailbox...

Partial State

The screenshot shows the Microsoft Outlook Mail interface. The top navigation bar includes icons for Home, Mail, and Calendar, followed by the title "Outlook Mail". Below the title are search fields for "Search Mail and People" and "New", along with buttons for "Empty folder", "Undo", and notifications.

The left sidebar displays a list of folders under "Folders". A plus sign (+) indicates the ability to add new folders. The "newsletters" folder is currently selected, highlighted with a blue background. The list of folders includes:

- Inbox
- Junk Email
- Drafts
- Sent Items
- Deleted Items
- Archive
- baymard
- competitor mail
- etrade
- misc
- newsletters** (selected)
- NOTO
- Orders
- personal
- receipts
- Regs
- trips

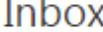
The main content area is currently empty, showing the text "newsletters" and "All".

Blank State

Outlook Mail

Search Mail and People  [New](#) | [+ New](#)

[Folders](#)

[Inbox](#)  [All](#) 

[Marshall Headphones](#)
DON'T BE AFRAID OF THE DARK...BACK IN BLAC! Wed 3:07 PM
If you're looking to embrace the dark side now is your ch...

[Fitbit](#)
Congrats on earning your first Canyon badge! 10/15/2016
Share: Wonderful! You've climbed 400 floors You've hi...

 Select an item to read

[Click here to always select the first item in the list](#)

Ideal State

Outlook Mail

Search Mail and People   New |  Delete  Archive  Junk |  Sweep  Move to  Categories 

 Folders  Inbox All 

Inbox  Marshall Headphones
DON'T BE AFRAID OF THE DARK...BACK IN BLACK! Wed 3:07 PM
If you're looking to embrace the dark side now is your ch...

 Fitbit
Congrats on earning your first Canyon badge! 10/15/2016
Share: Wonderful! You've climbed 400 floors You've hi...

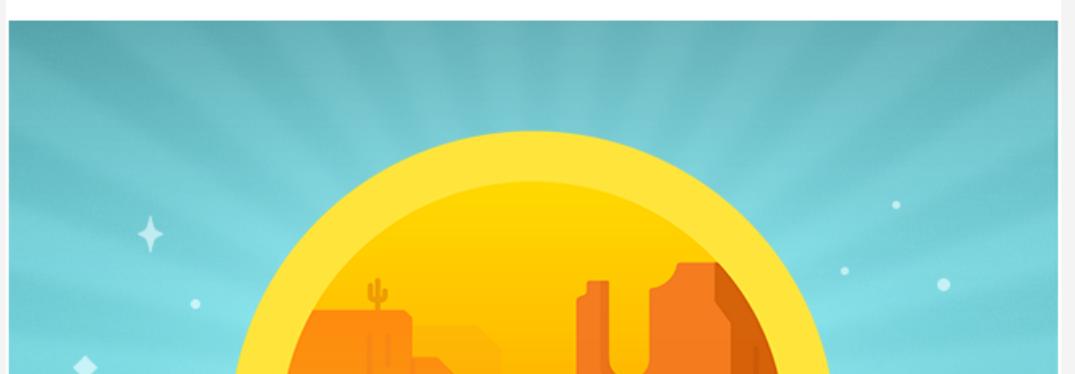
Congrats on earning your first Canyon badge!

 Fitbit
Sat 10/15, 9:22 PM
You 

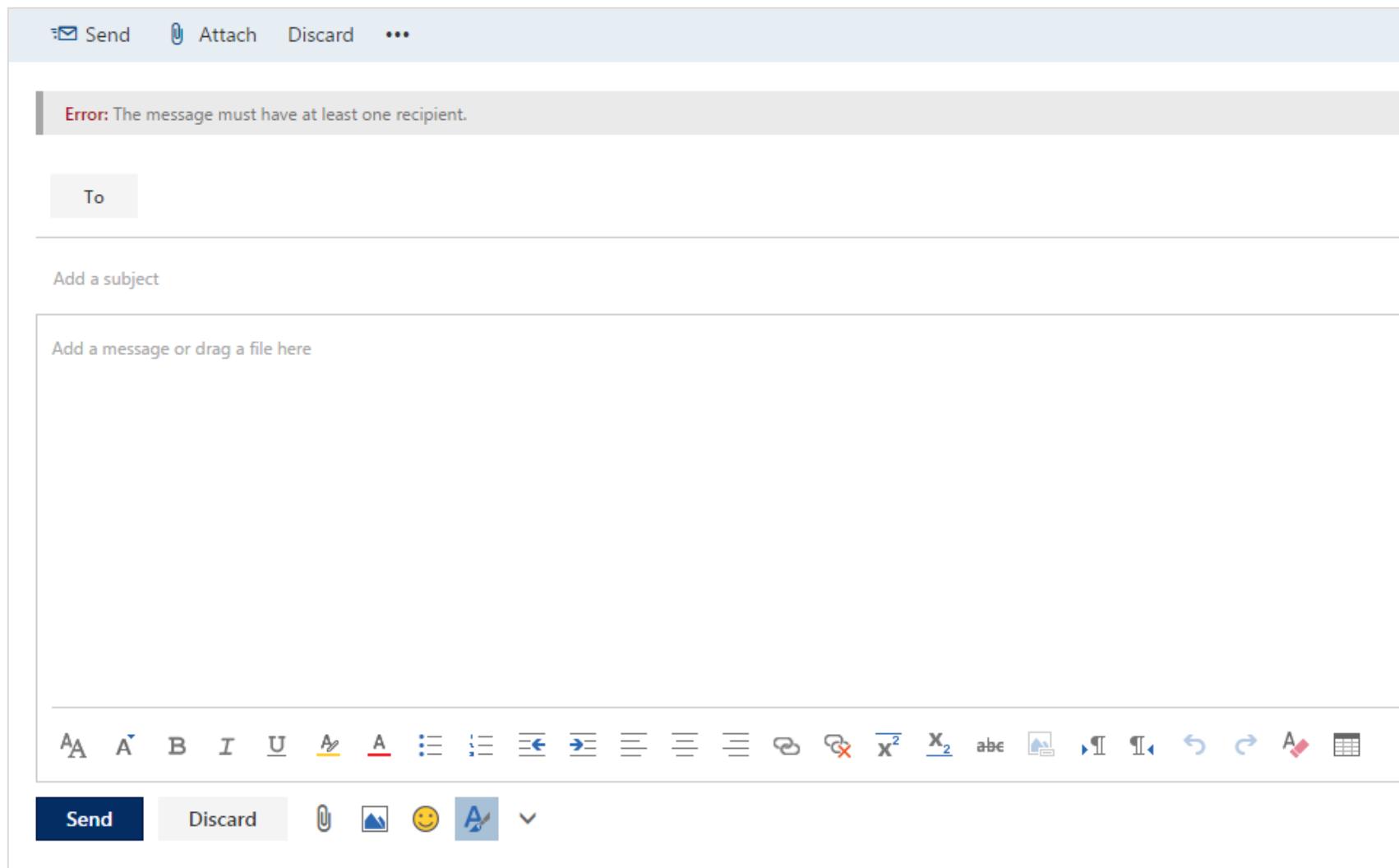
 Reply | 

Newsletters
Getting too much email from Fitbit? You can unsubscribe


 SHARE: 



Error State



Guidance

- Paradox of the active user
- Clear entry points
- Onboarding
- Primary actions
- Progressive disclosure



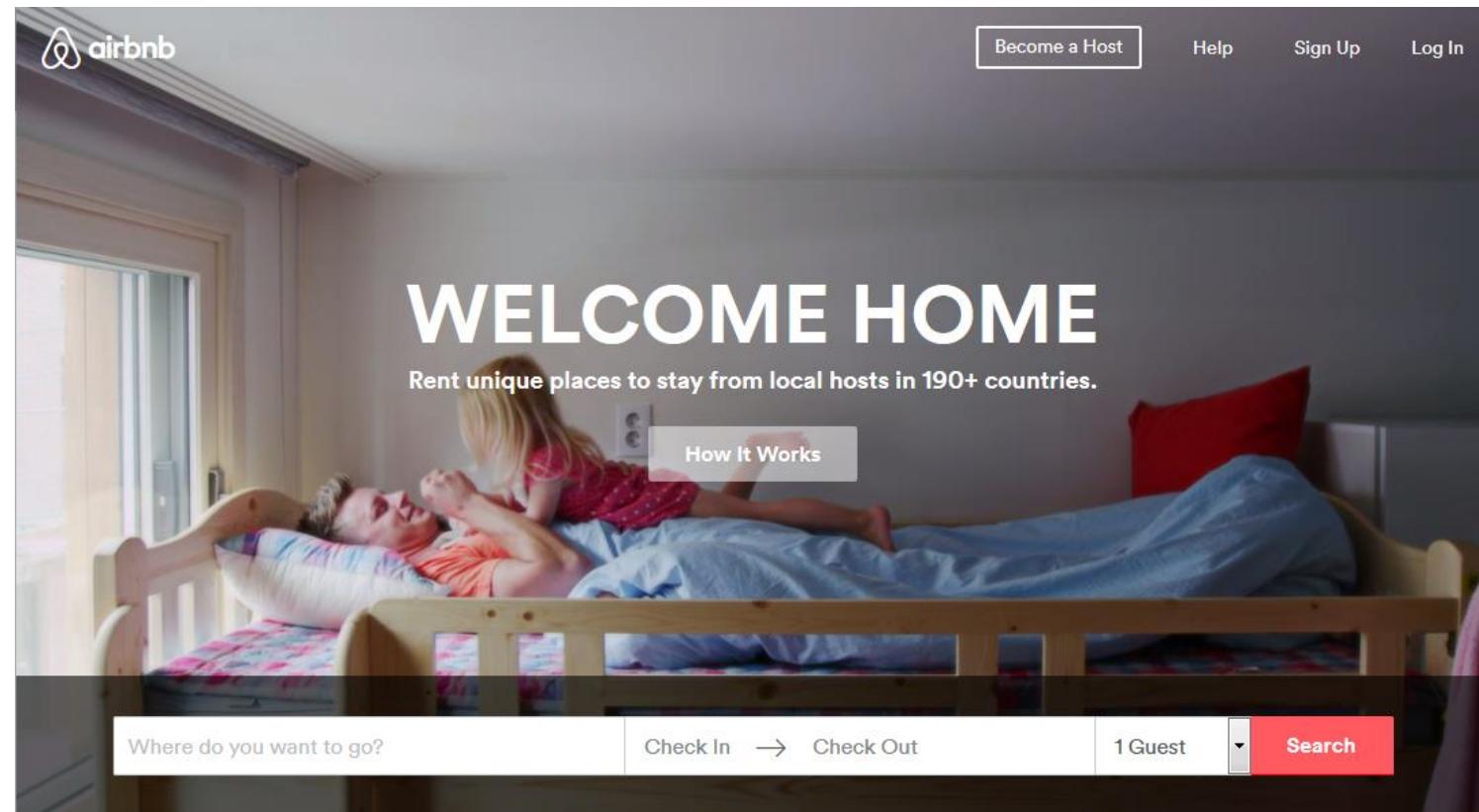
Paradox of the Active User

- Users never read manuals but start using the software immediately.
- Motivated to get started and to get their immediate task done.
- Don't care about the system as such and don't want to spend time to set up or learning.
- It is a paradox because users would save time in the long term by taking some initial time to optimize the system and learn more about it.



Clear Entry Points

- Give people a set of clear entry points into the application or website based on their most common tasks or destinations.
- “Doors” into the main content of the site or application.
- Useful when a significant number of users will be first time users or infrequent users.



Clear Entry Points Examples

The screenshot shows the Dropbox sign-up page. At the top, there are three buttons: "Try Dropbox for Business", the "Dropbox" logo, and "Download the app • Sign in". Below the logo is a whimsical illustration of a tablet displaying the Dropbox logo, with a blue box labeled "Good things happen when your stuff lives here". To the right of the tablet is a notepad with a smiley face. The background features a stylized landscape with a red sun, birds, and trees. The main text below the illustration reads "Good things happen when your stuff lives here" followed by "Dropbox keeps your files safe, synced, and easy to share.". To the right, there is a form with fields for "First name" and "Last name" (both marked with asterisks), "Email" (marked with an asterisk), and "Password". Below the form is a checkbox for "I agree to Dropbox terms." and a large blue "Sign up for free" button.

Try Dropbox for Business

Dropbox

Download the app • Sign in

Good things happen when
your stuff lives here

Dropbox keeps your files safe, synced, and
easy to share.

First name *

Last name *

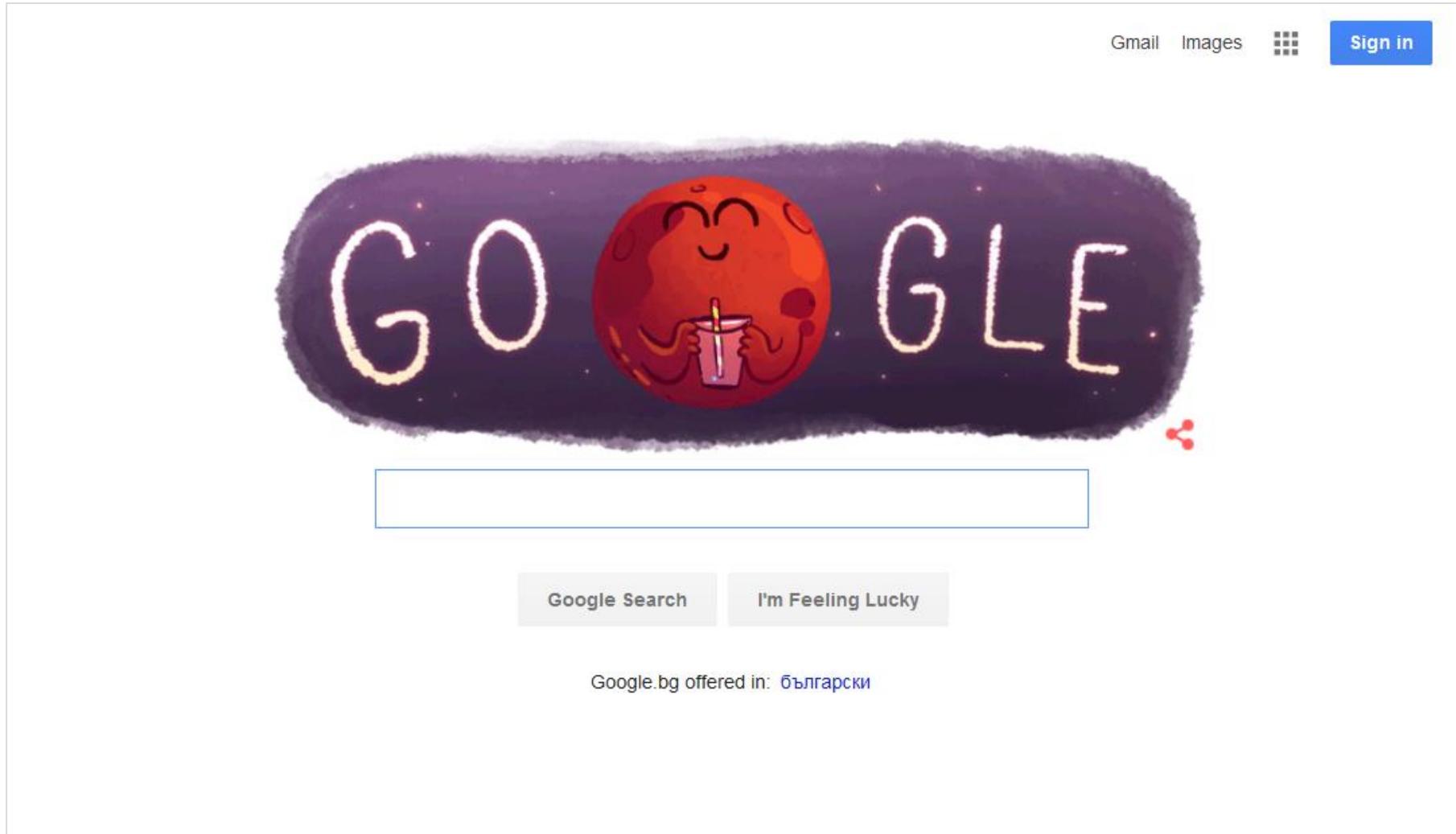
Email *

Password

I agree to [Dropbox terms](#).

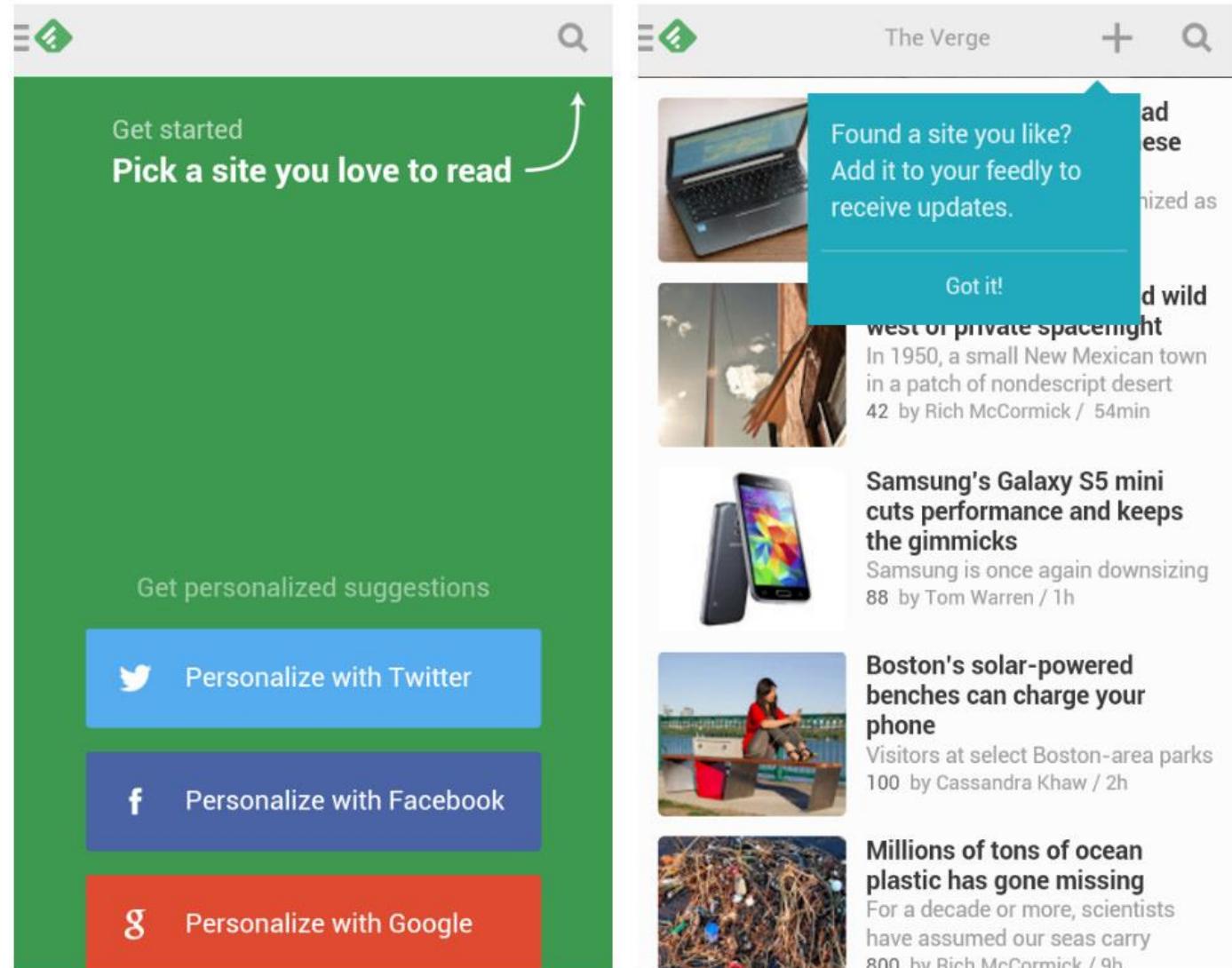
Sign up for free

Clear Entry Points Examples

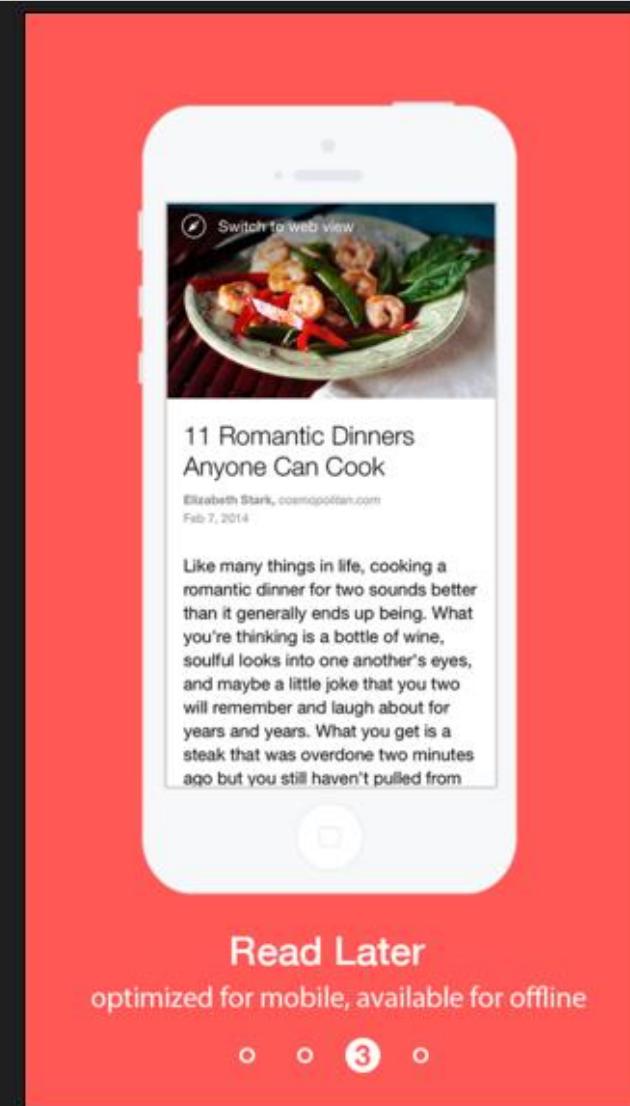
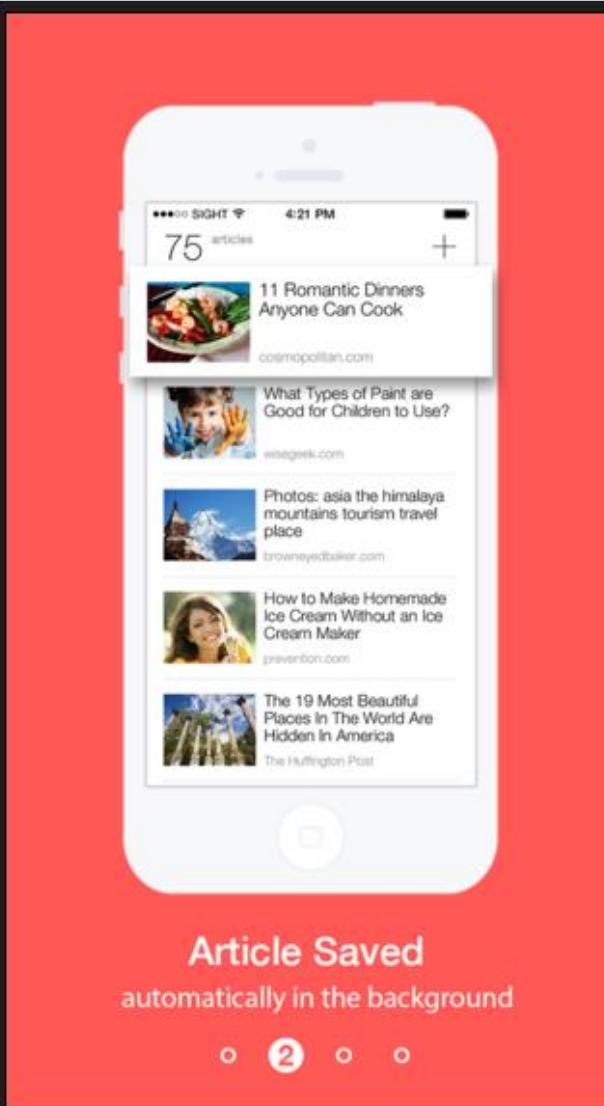


First Use and Onboarding

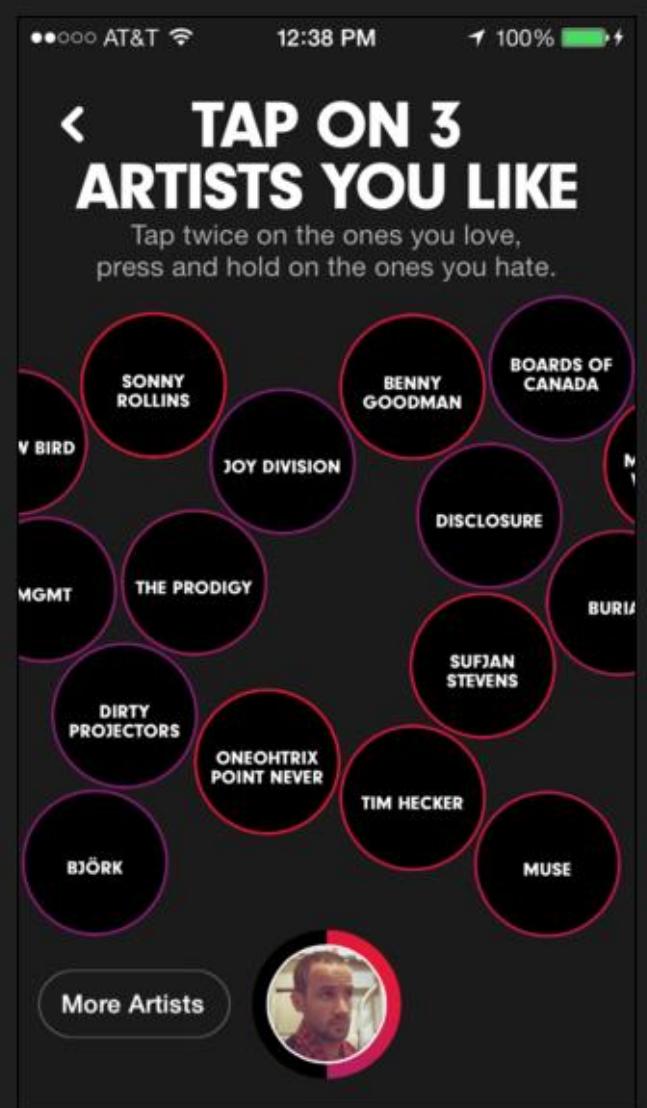
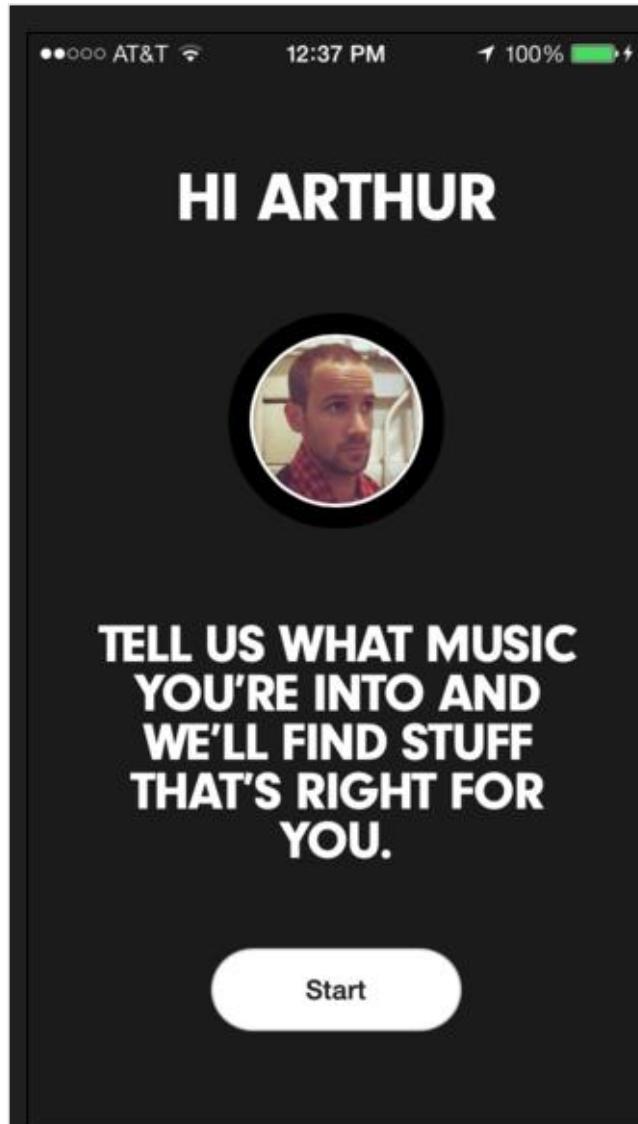
- That process of helping people get started.
- Welcome experiences for new users to ease them to explore and know your application.
- Most commonly limited to a first-time use scenario.
- Present the key benefits of using the application or teach the app's main features so new users can use it immediately.
- Popular techniques: tutorial (at the start); walkthrough (sequential steps); coachmarks (contextual help);



Onboarding Examples - Tutorial

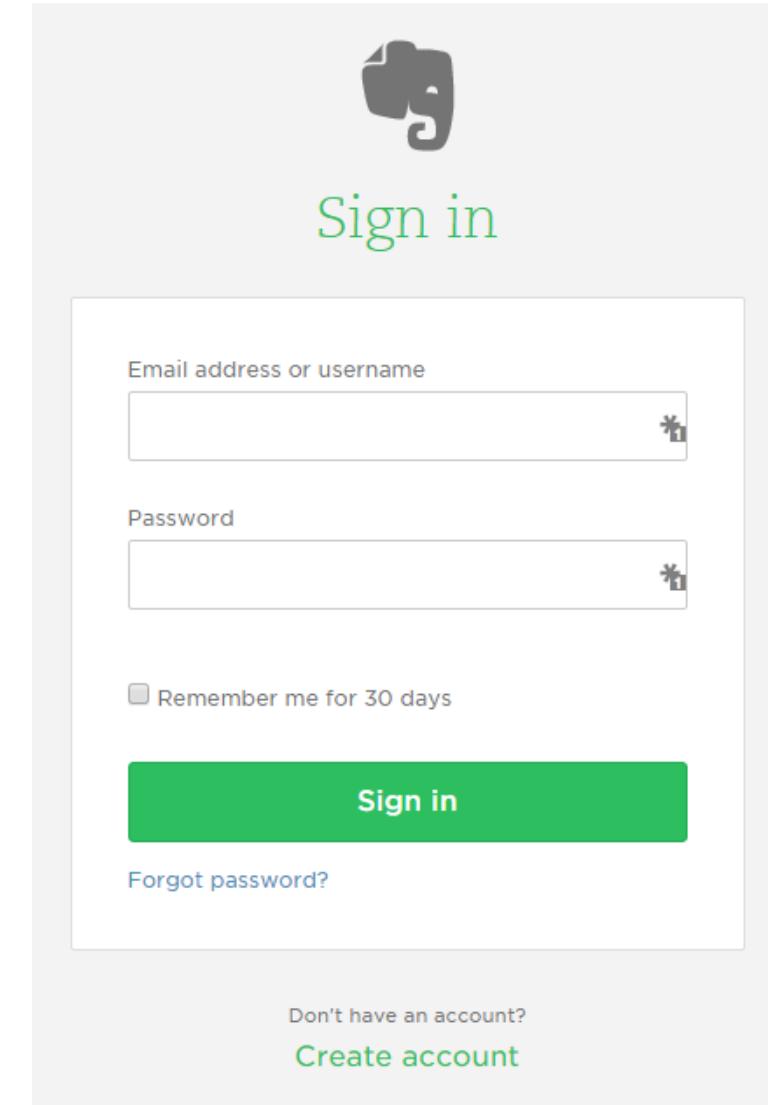


Onboarding Examples - Walkthrough



Primary Action

- Having an obvious target action that makes sense for most people most of the time both reinforces a sense of the goal that people are working towards and makes it easy to take action to accomplish that goal.
- Useful when there are multiple possible commands within a given view.
- Increase the likelihood that they will choose the right action for a given context.



Primary Action Examples

The screenshot shows the official website for Telerik Test Studio. At the top, there's a dark navigation bar with the Telerik logo, a search icon, and user account information. Below the header, the page title "Test Studio" is displayed in orange, followed by the main heading "Automated Testing Made Easy" in large black font. A subdescription below it reads "Complete test automation solution for a wide range of technologies. Test desktop, web and mobile applications." Two prominent buttons are visible: a red "Download trial" button and a white "Discover more" button. At the bottom of the page, two screenshots of the Test Studio software interface are shown side-by-side. The left screenshot displays a detailed view of the "Step Builder" window, showing a list of test steps with checkboxes and descriptions. The right screenshot shows a dashboard with sections for "Sitefinity", "Fiddler", and "Testing", each featuring a "Learn more" button.

Test Studio

Automated Testing Made Easy

Complete test automation solution for a wide range of technologies.
Test desktop, web and mobile applications.

[Download trial](#) [Discover more](#)

The Step Builder interface shows a grid of test steps. Some steps are checked (green checkmark) and some are not (red X). The steps include:

- 1. Execute test with correct credentials
- 2. Verify "TextContent" contains "TicketOffice" (ID on StatusPage)
- 3. Click "TicketOffice" to be True (Uses XPath to locate specific message)
- 4. Click "SELECTED"
- 5. Verify "TextContent" contains "TicketOffice" (ID on StatusPage)
- 6. Verify "TextContent" contains "Another good TS guide" on \TableCell
- 7. Click "TicketOffice"
- 8. Verify element "Dan.John.E-mailMessage" is visible in the tree
- 9. Navigate to: <http://www.telerik.com/testudio>

The dashboard features three main sections:

- CMS Sitefinity**: Includes "Quick Steps" (Verify - element is visible, Verify - element is not visible, Verify - element is not visible, Verify - element contains "Sitefinity"), "Customer Analysis and Optimizing", and "Build Steps".
- DEBUGGING Fiddler**: Includes "Customer Analysis and Optimizing", "Mouse Actions", "Smart Actions", "Wait For UI", and "Comment". It also lists "Verify - element is visible", "Wait - element exists", "Wait - element does not exist", "Wait - element is visible", "Wait - element is not visible", "Wait - element contains 'Sitefinity'", "Wait - element is enabled", and "Extract - element is visible".
- TESTING Test Studio**: Described as an "Intuitive and easy to use GUI test automation solution".

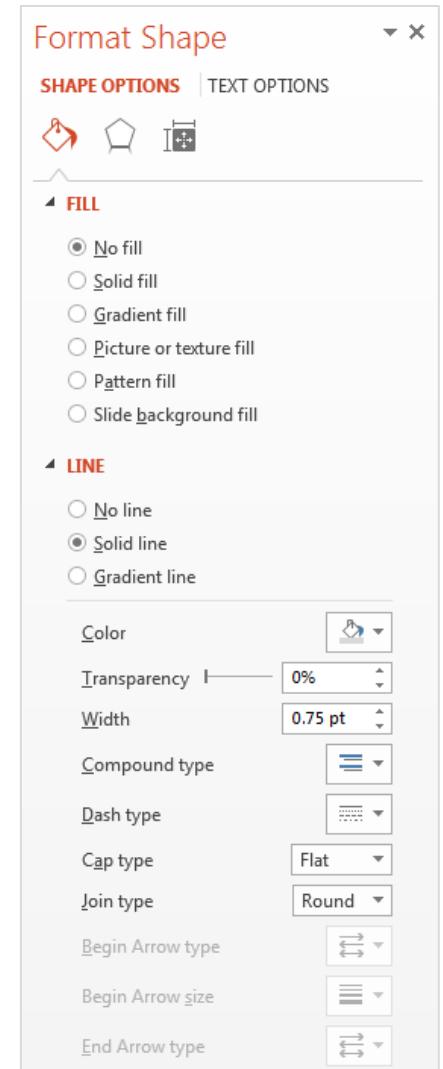
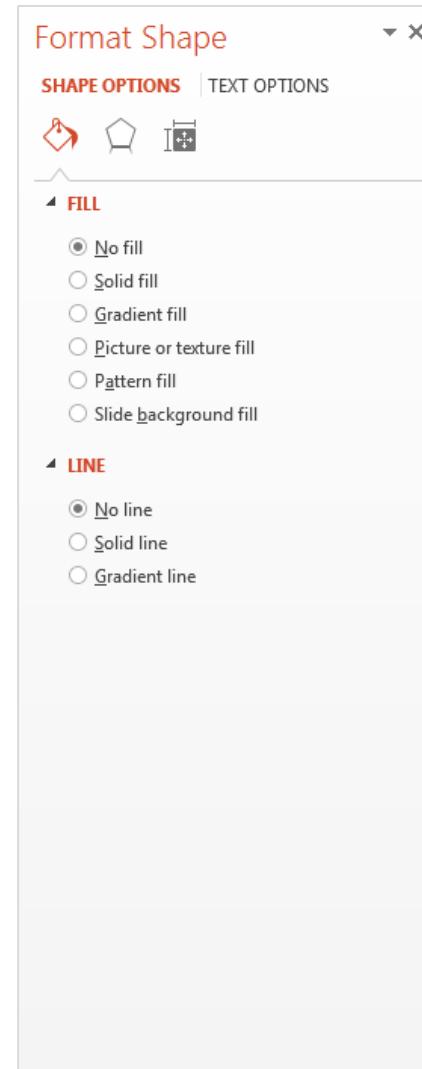
[Learn more](#)

Primary Action Examples

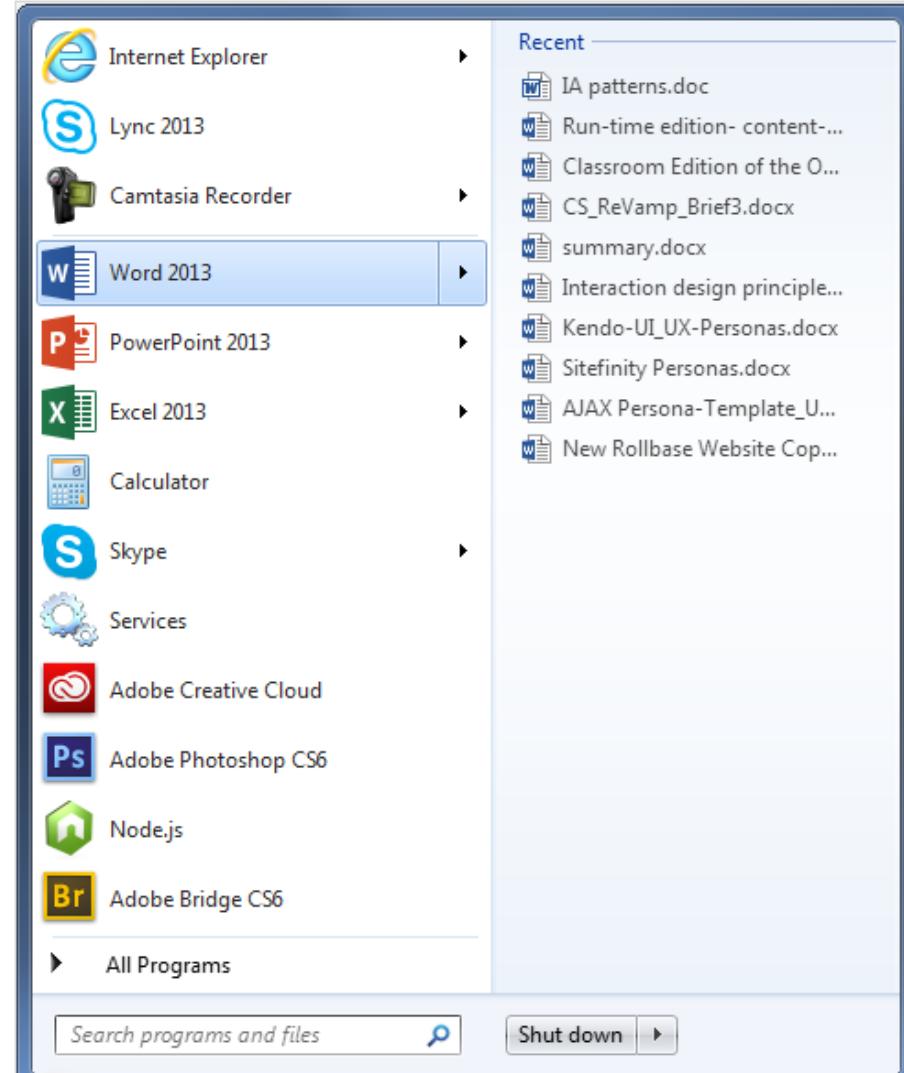
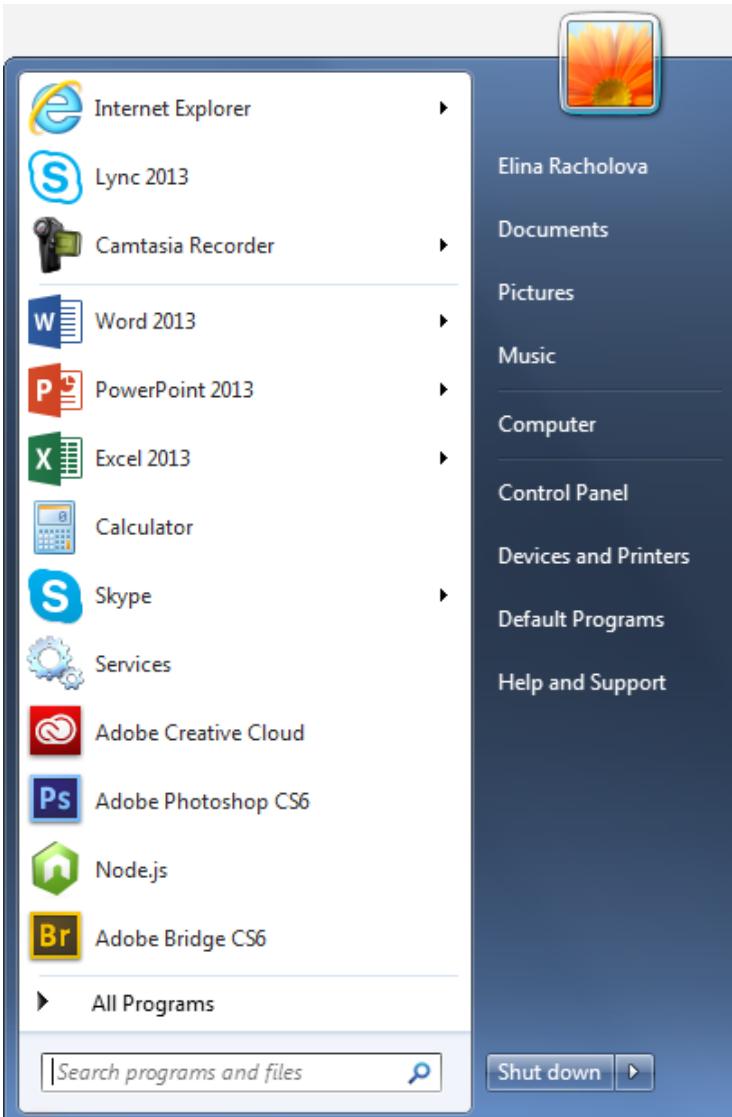
The image shows the homepage of the Telerik Sitefinity website. At the top, there's a navigation bar with the Telerik logo, Sitefinity logo, and Progress logo. The main header features the text "The Content Management and Digital Marketing Platform". Below it is a blue button with the text "GET IMPRESSED IN 60 SECONDS". To the right, there's a large photograph of a man and a woman working together at a desk. Overlaid on the bottom left is a screenshot of a digital marketing dashboard showing "Top Recommendations" and "Engagement" metrics. On the bottom right, there's another section titled "Digital Experience Cloud" with the subtext "Orchestrate marketing success – track, analyze and shape every step of the customer journey".

Progressive Disclosure

- All of the information that the user may need to see during the complete process may seem overwhelming if shown initially.
- Information or sub-tasks should be provided to users in a step-by-step manner – only when needed – and may differ based on responses or interactions during previous steps.
- Helps maintain the focus of a user's attention by reducing clutter, confusion, and cognitive workload.
- Improves usability by presenting only the minimum data required for the task at hand.
- Defers advanced or rarely used features to a secondary screen, making applications easier to learn and less error-prone.



Progressive Disclosure Examples



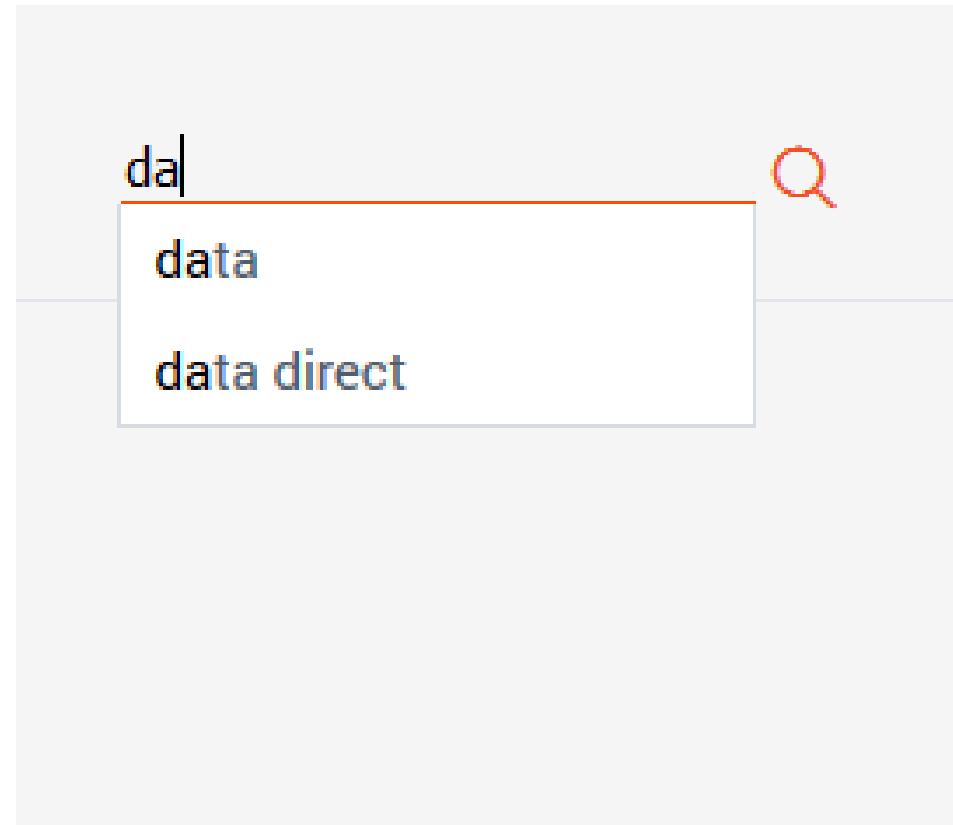
Efficiency

- Interaction cost
- Recognition vs. recall
- Sequence, flow and interruption
- Good defaults
- Customization
- Perceived performance



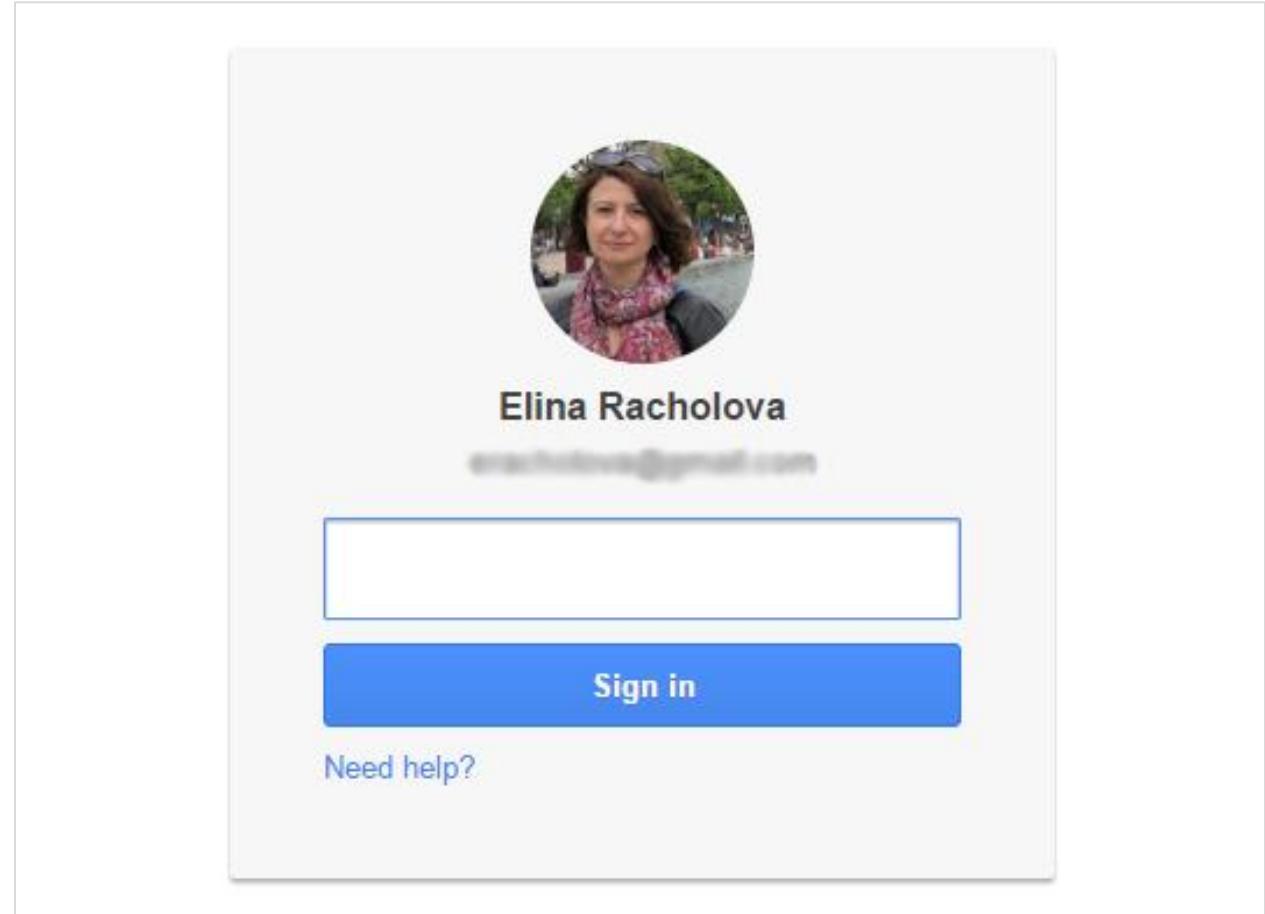
Interaction Cost

- The sum of efforts — mental and physical — that the users must deploy in interacting with a site in order to reach their goals.
- Direct measure of usability – the lower the cost, the more usable the app is.
- Usable applications minimize the interaction cost required to attain a variety of user goals. That is, they minimize:
 - reading
 - scrolling
 - looking around in order to find relevant information
 - comprehending information presented to you
 - clicking or touching (without making mistakes)
 - typing
 - page loads and waiting times
 - attention switches
 - memory load – the information that users must remember in order to complete their task.

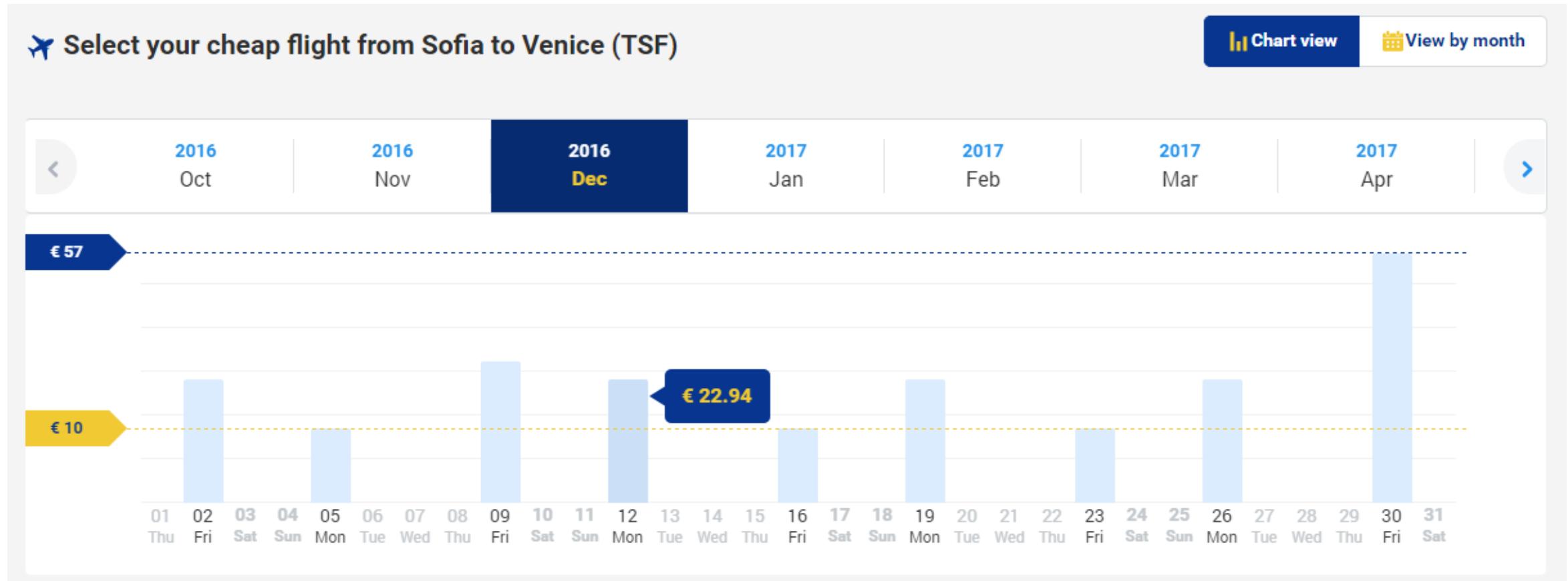


Recognition vs. Recall

- Recognition is easier than recall.
- Recognition makes use of context. And context can help you remember.
- Minimize the user's memory load by making objects, actions, and options visible.
- The user should not have to remember information from one part of the dialogue to another.
- No frontloading.

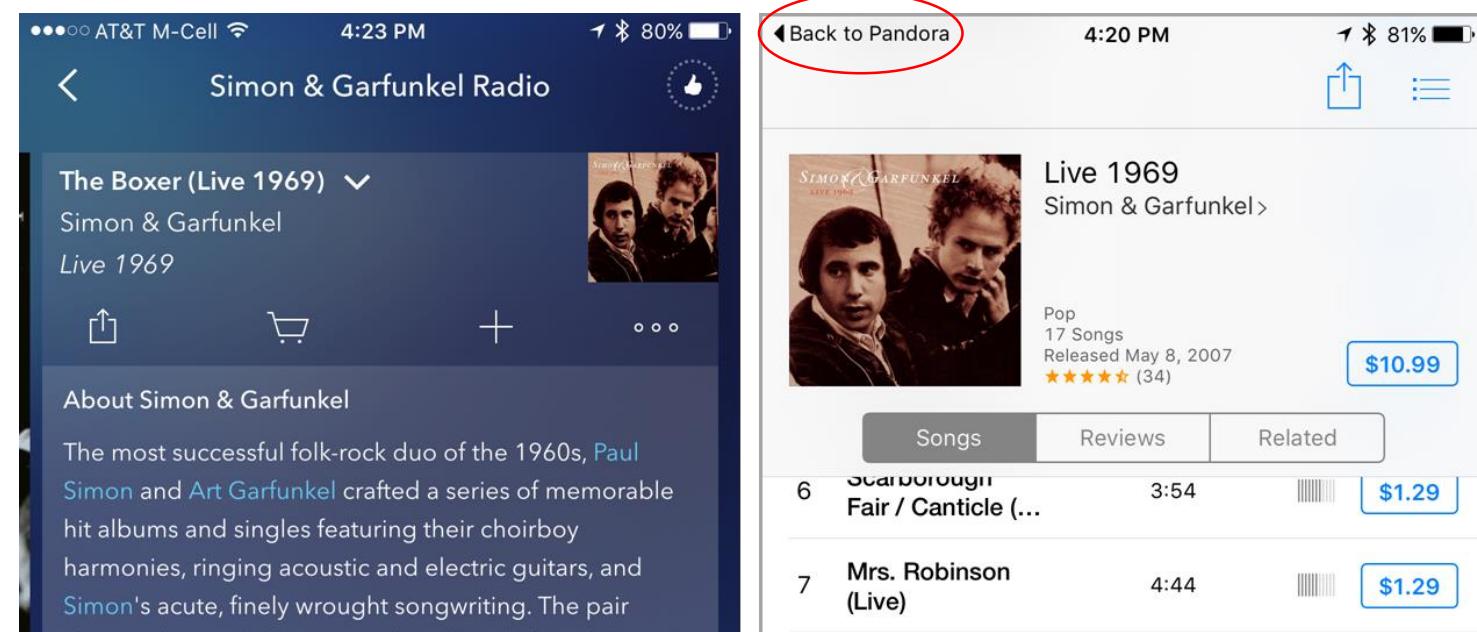


Recognition vs. Recall



Sequence, Flow and Interruption

- Events occurring while exploring and using applications must occur in a logical sequence. Users must not zig-zag within and across pages or screens.
- Interaction with the application should happen in a seamless flow. Users must have control over their actions during the activity. Any difficult parts should be broken into stages, so they are overcome quickly.
- Any elements or events that distract users' attention from their primary goals are disruptions and must be avoided or minimized.



Sequence and Flow Example

Register a Progress ID

PROGRESS ID

About You

First Name * → Last Name *

Email Address * ← Confirm Email Address *

Job Responsibility → Job Title

Your Contact Information

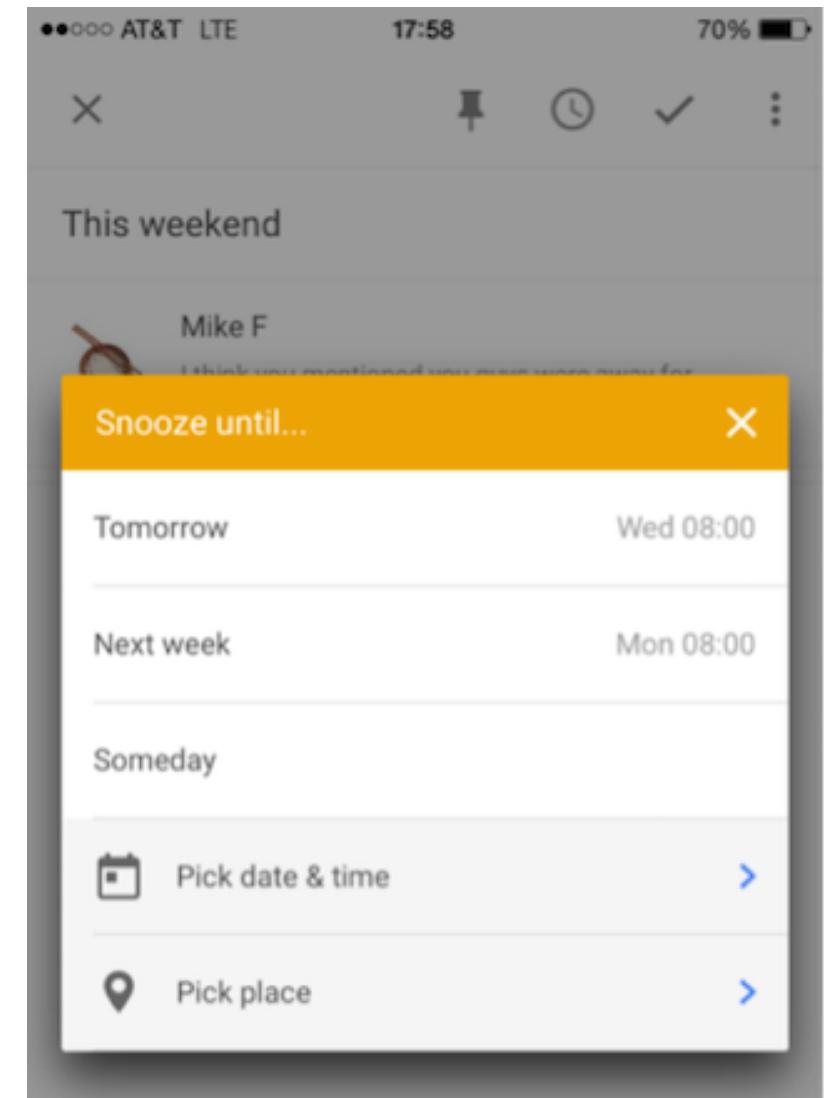
Company Name * → Telephone * (e.g.: +1 800 555 1212)

Street Address * → City *

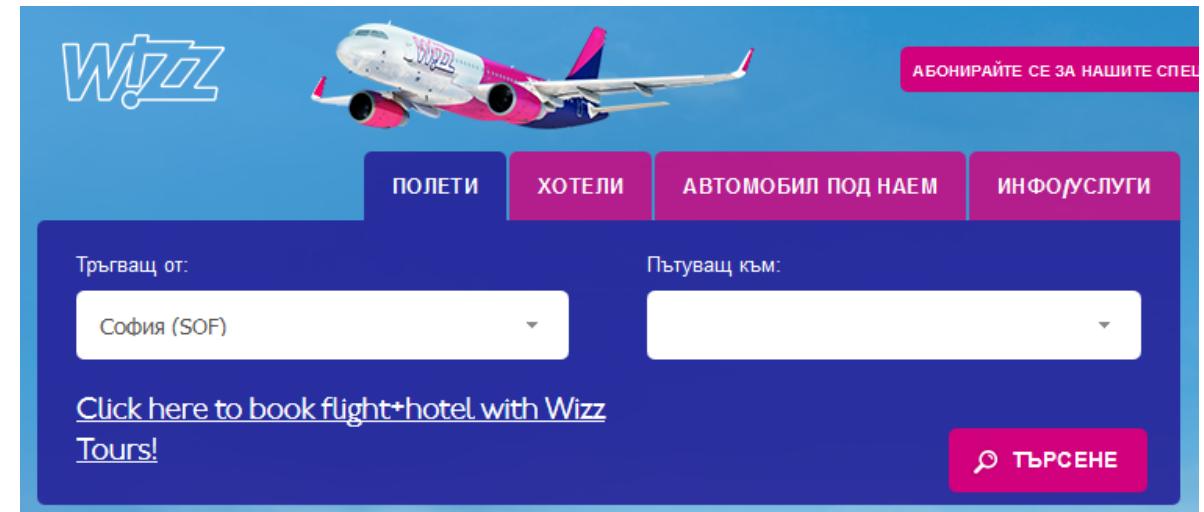
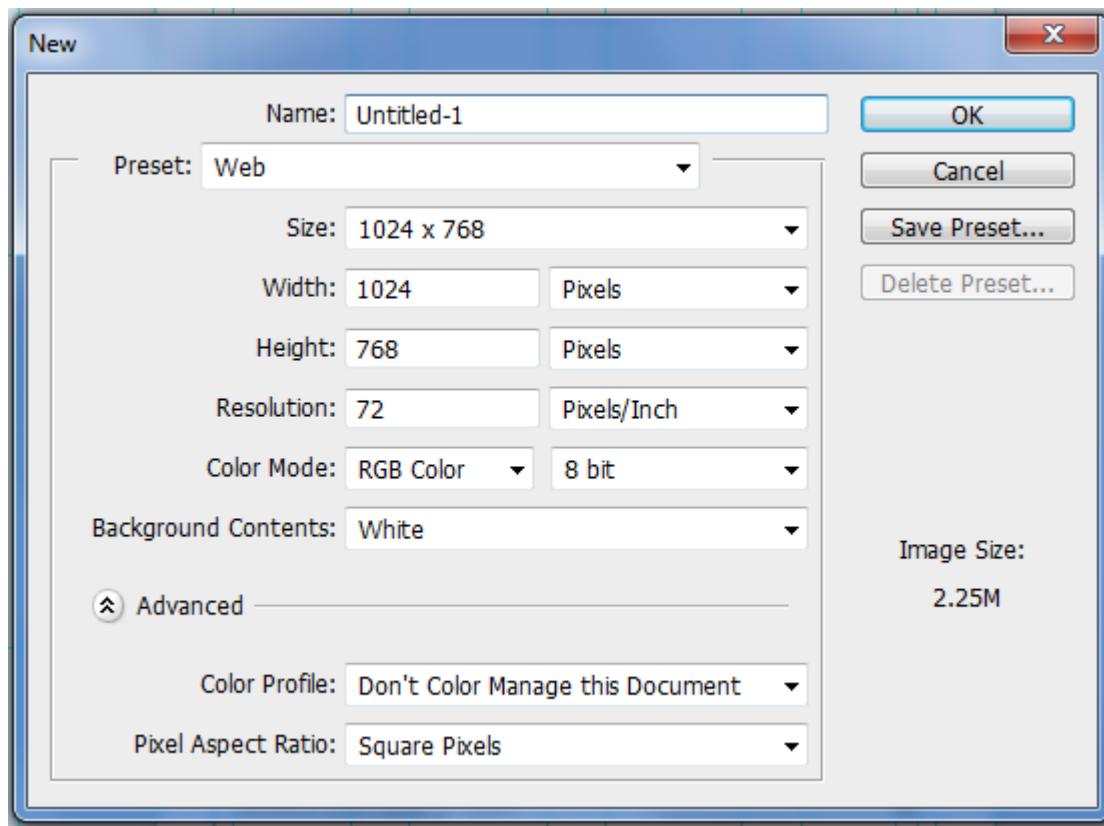
The diagram illustrates the sequence and flow of data entry fields in a registration form. It starts with a title 'Register a Progress ID' and a section header 'About You'. Below this, there are two input fields: 'First Name *' and 'Last Name *'. Red arrows indicate a flow from 'First Name' to 'Last Name'. The next section, 'Your Contact Information', contains two pairs of input fields: 'Email Address *' and 'Confirm Email Address *', and 'Company Name *' and 'Telephone *'. Red arrows show a flow from 'Email Address' to 'Confirm Email Address', and from 'Company Name' to 'Telephone'. Below these, there are two more input fields: 'Job Responsibility' and 'Job Title', connected by a red arrow indicating a flow from 'Job Responsibility' to 'Job Title'. The final section, 'Street Address *' and 'City *', is shown at the bottom with a red arrow indicating a flow from 'Street Address' to 'City'.

Good Defaults

- Wherever appropriate use to spare user's work.
- Prefill form fields with your best guesses at the values the user wants.
- Land user on a screen that is most probable to start work from.
- Use previous input, location detection, etc.

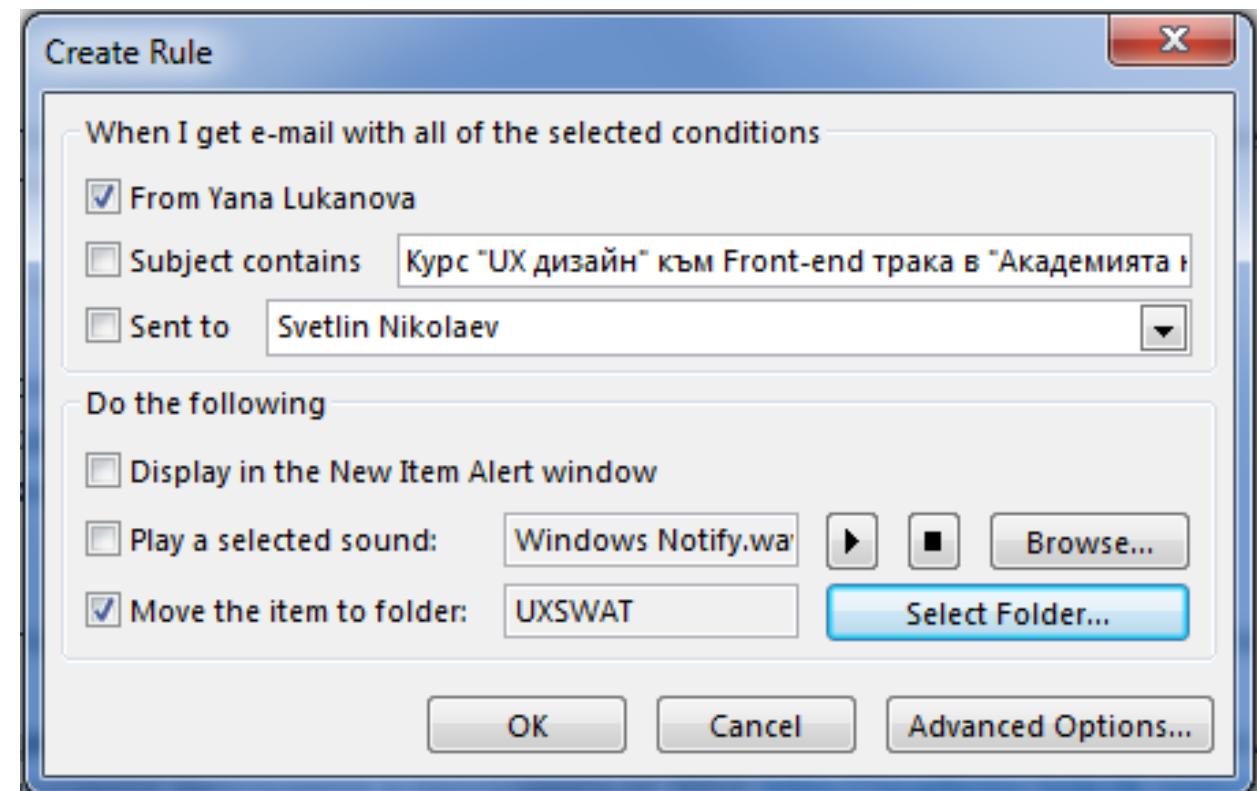


Good Defaults Examples



Customization

- Customization happens when the users tells the application what they prefer to see or how to use certain features.
- Personalization happens when the application modifies its behavior to suit its predictions about the current user's interests.
- Consists of adapting interfaces and configuring functionality.



Customization Example

Inbox - Elina.Racholova@telerik.com - Outlook

Categories Reverse Sort Add Columns Expand/Collapse

Subject

Folder Pane Reading Pane To-Do Bar People Pane Reminders Open in New Window Close All Items

Right

Bottom

Off

Options...

gement

Reply Reply All Forward IM

Fri 9/25/2015 12:06 PM

 Yana Lukanova

RE: Курс "UX дизайн" към Front-end трака в "Академията на Телерик"

To: Svetlin Nikolaev; Georgi Varzonovtsev; Tyanko Yordanov; Vasil Yordanov; Kostadin Kushlev; Katerina Boykova; Ina Georgieva; Lilia Karakoleva; Maria Kovacheva; Nina Zayakova; Elina Racholova

Cc: Nikolay Kostov; Doncho Minkov

You replied to this message on 9/25/2015 2:38 PM.

Message UX-design-2015-schedule.xlsx (14 KB)

Здравейте,

September 2015

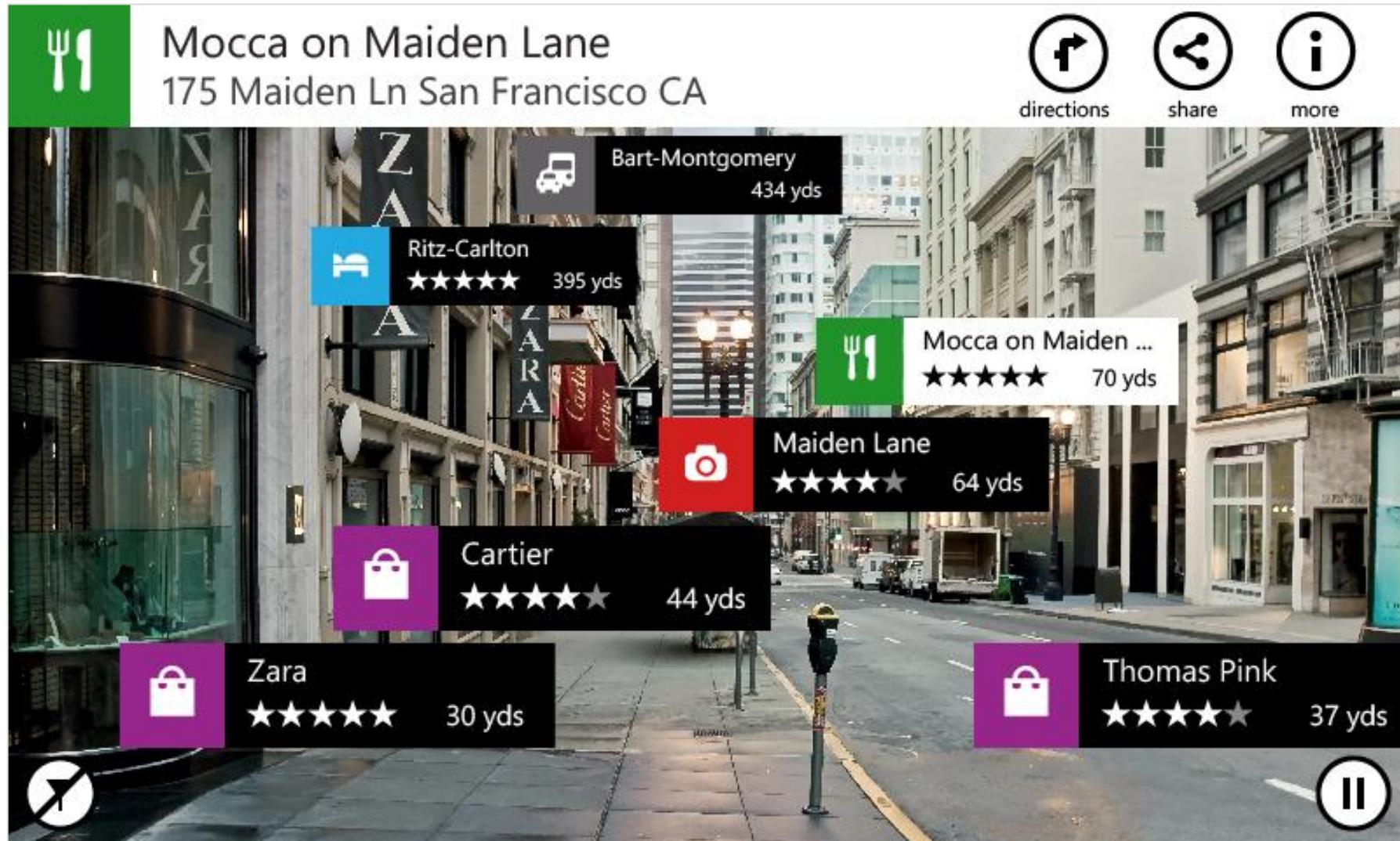
MO	TU	WE	TH	FR	SA	SU
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

Search People

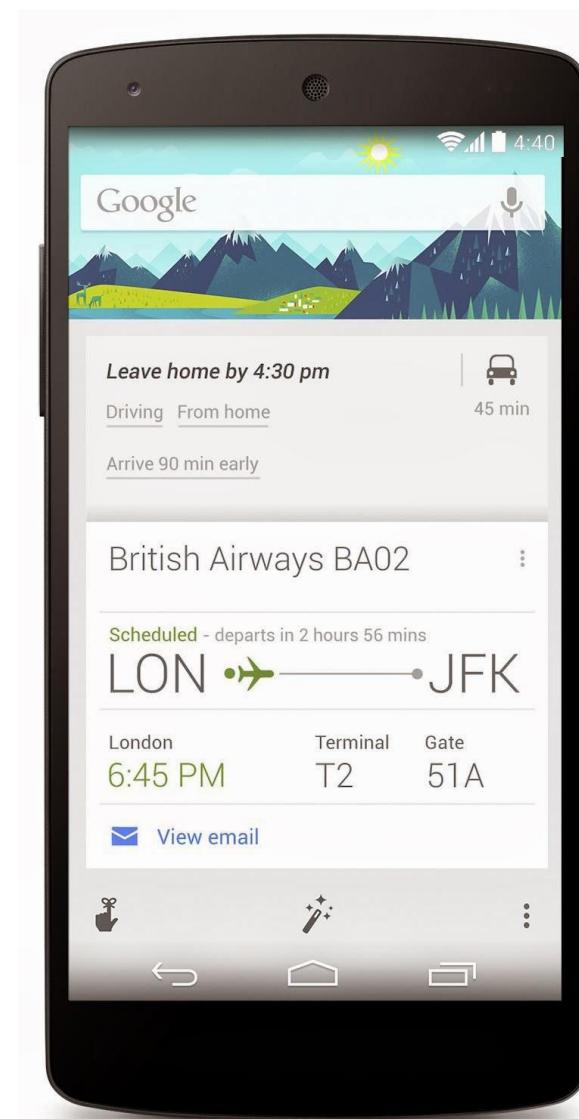
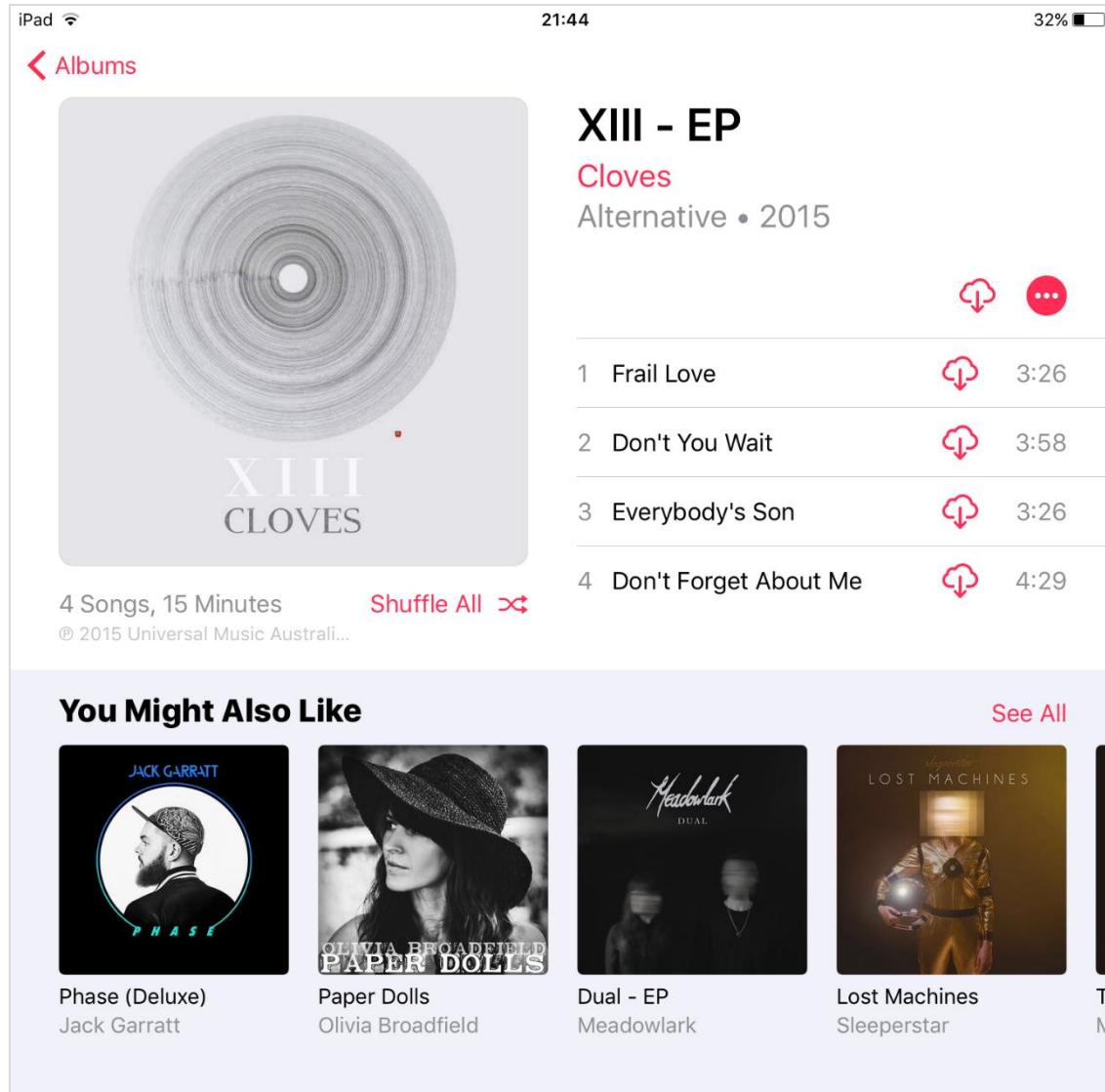
FAVORITES

 Atanas Vasilev
Available - Free until 2:30 PM

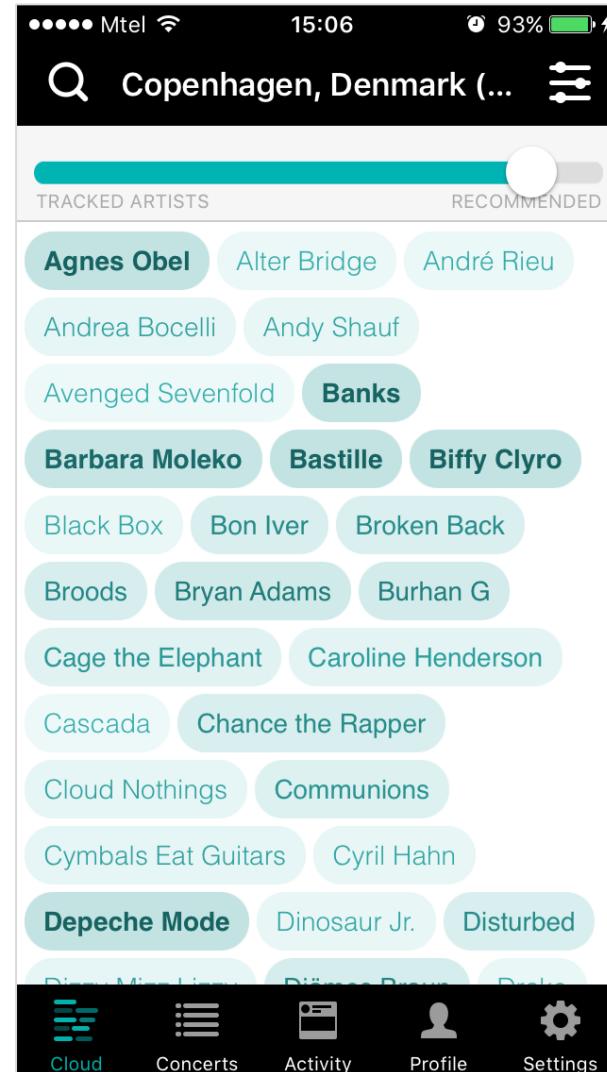
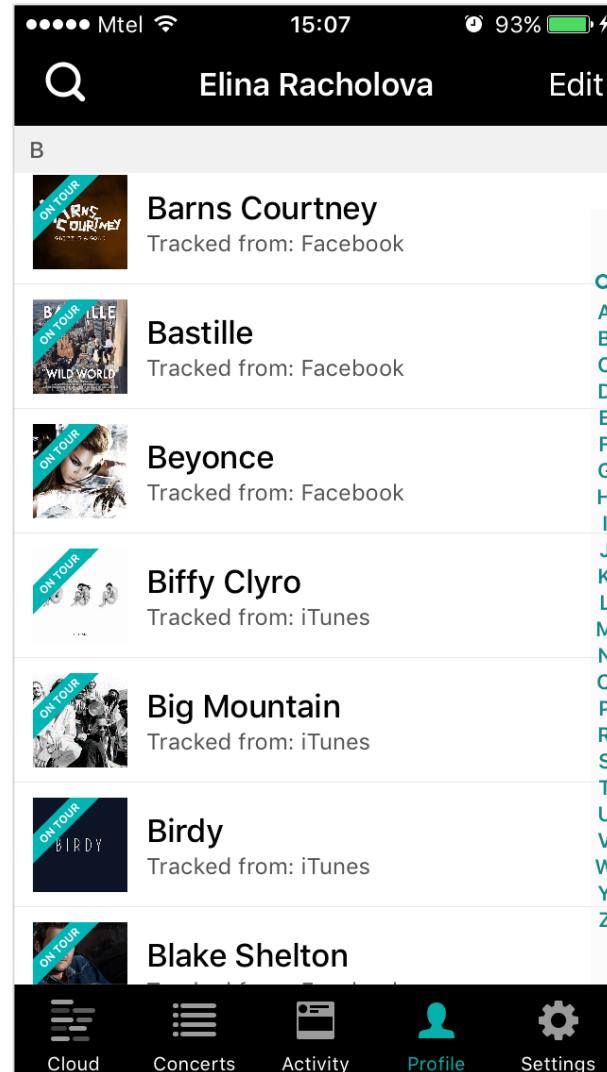
Personalization Example



Personalization Examples

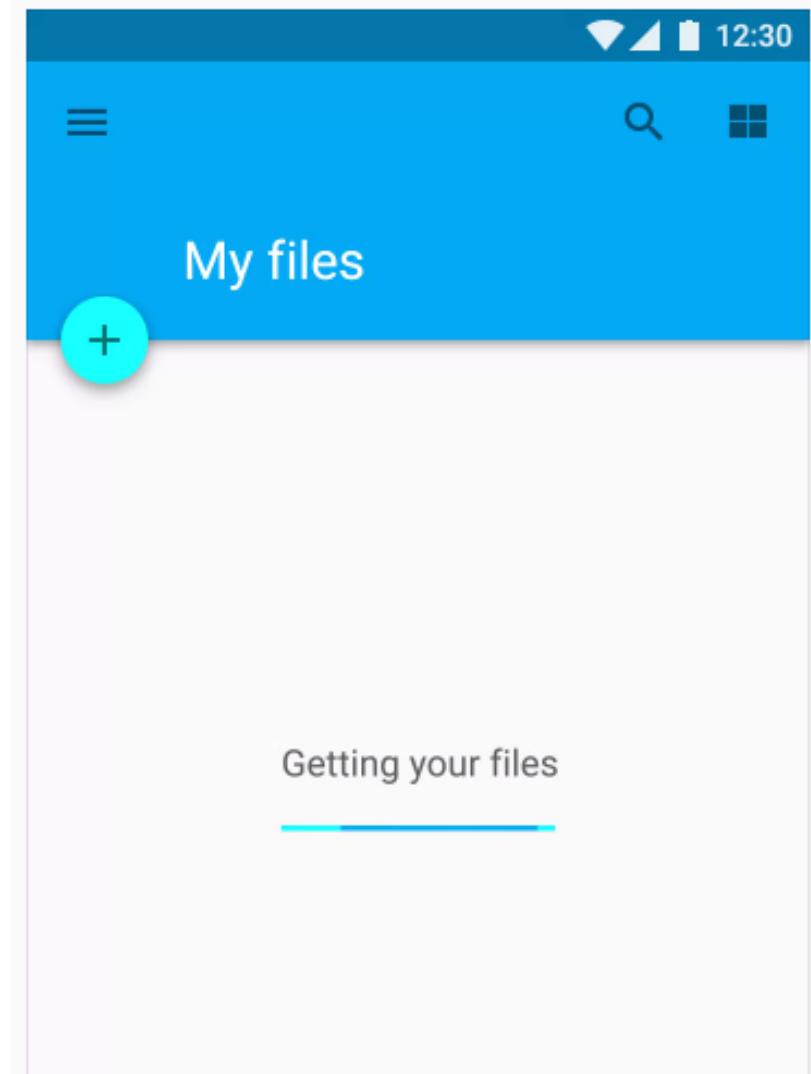


Customization and Personalization Together



Perceived Performance

- Refers to how quickly an application feature appears to perform its task.
- Performance is important for application usage, but it means less when the end users can actually sense the improvement.
- The amount of time an application takes to start up, or a file to download, is not made faster by showing a startup screen or a file progress bar. It appears faster to the user as well as providing a visual cue to let them know the system is handling their request.



Perceived Performance Example

KAYAK HOTELS FLIGHTS CARS PACKAGES

Create a price alert

Stops

- nonstop \$204
- 1 stop \$176
- 2+ stops \$263

Times

Take-off Sofia (SOF)
Tue 6:00a - 4:00p

Take-off Berlin (TXL)
Tue 6:00a - 10:00p

Show landing times ▾

Airlines

Carrier | Alliance

- Air Berlin \$213
- Air Serbia \$176

SOF ↔ TXL Oct 20 Tuesday → Nov 24 Tuesday Economy cabin 1 traveler Change

Sort by: price (low to high) ▾ 19 of 19 flights Round-trip | Segment NEW

Flight Details	Airline	Flight Number	Departure	Arrival	Duration	Cabin Class	Notes
\$176 OneTravel 4:00p SOF → 7:40p TXL 4h 40m 8:45p TXL → 3:30p SOF 17h 45m	Air Serbia	123, 354, 355, 122.	4:00p	7:40p	4h 40m	1 stop (BEG)	Economy
\$204 KAYAK 6:00a SOF → 7:15a TXL 2h 15m 9:55a TXL → 1:25p SOF 2h 30m	Bulgaria Air	319, 320.	6:00a	7:15a	2h 15m	nonstop	Economy

Select

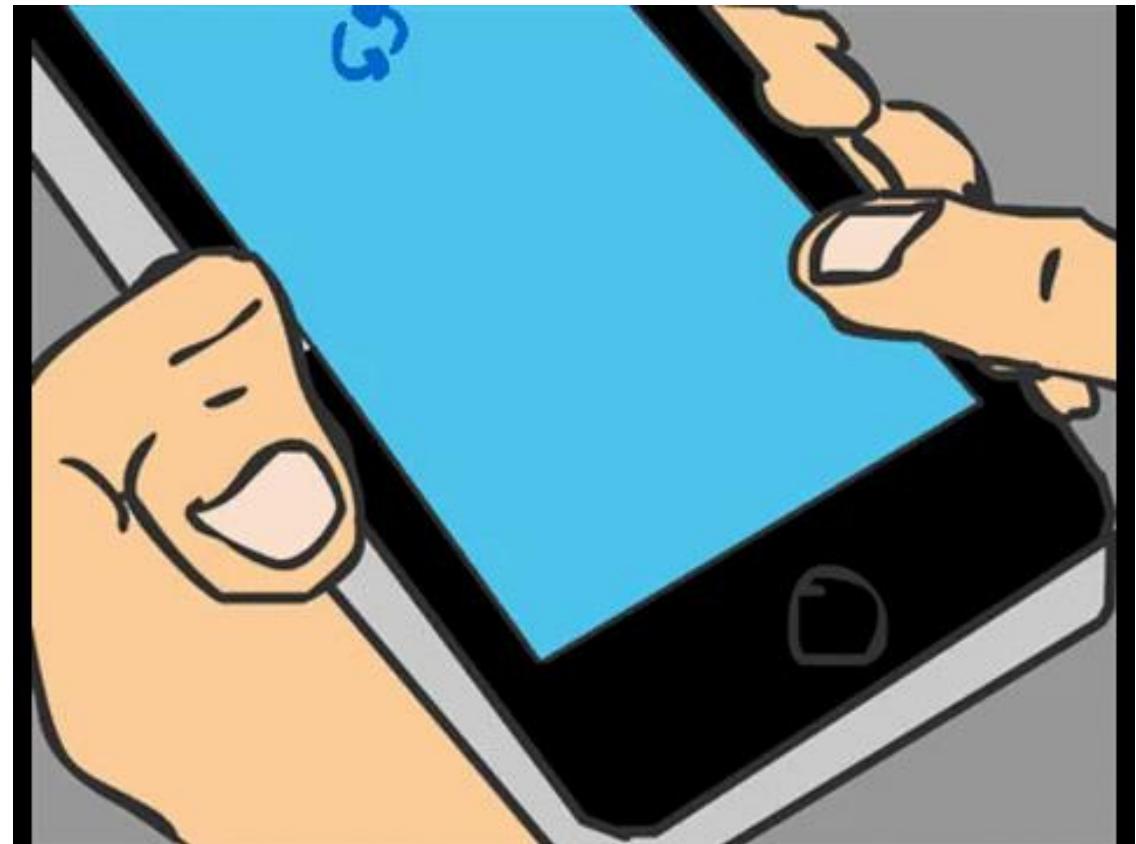
Error Handling

- Error types
- Error prevention



Error Types – Slips and Mistakes

- **Slips** occur when users intend to perform one action, but end up doing another (often similar) action. For example, typing an “i” instead of an “o” counts as a slip.
- Typically made when users are on autopilot, and when they do not fully devote their attention resources to the task at hand.
- **Mistakes** are made when users have goals that are inappropriate for the current problem or task.
- Conscious errors that arise when a user has incomplete or incorrect information about the task, and develops a mental model that doesn’t match how the interface actually works.



Error Types According to Outcome

- **Errors with a positive consequence** are actions that do not give the desired result, but provide the person with information that helps him or her achieve an overall goal.
- **Errors with a negative consequence** are those that result in a dead end, undo a positive consequence, send the person back to a starting point, or result in action that cannot be reversed.
- **Errors with a neutral consequence** are errors that have no effect on task completion.
- **Tunnel action** - Tunnel action is where you keep doing the same task over and over, even though it isn't working. Occurs more frequently when people are under stress.

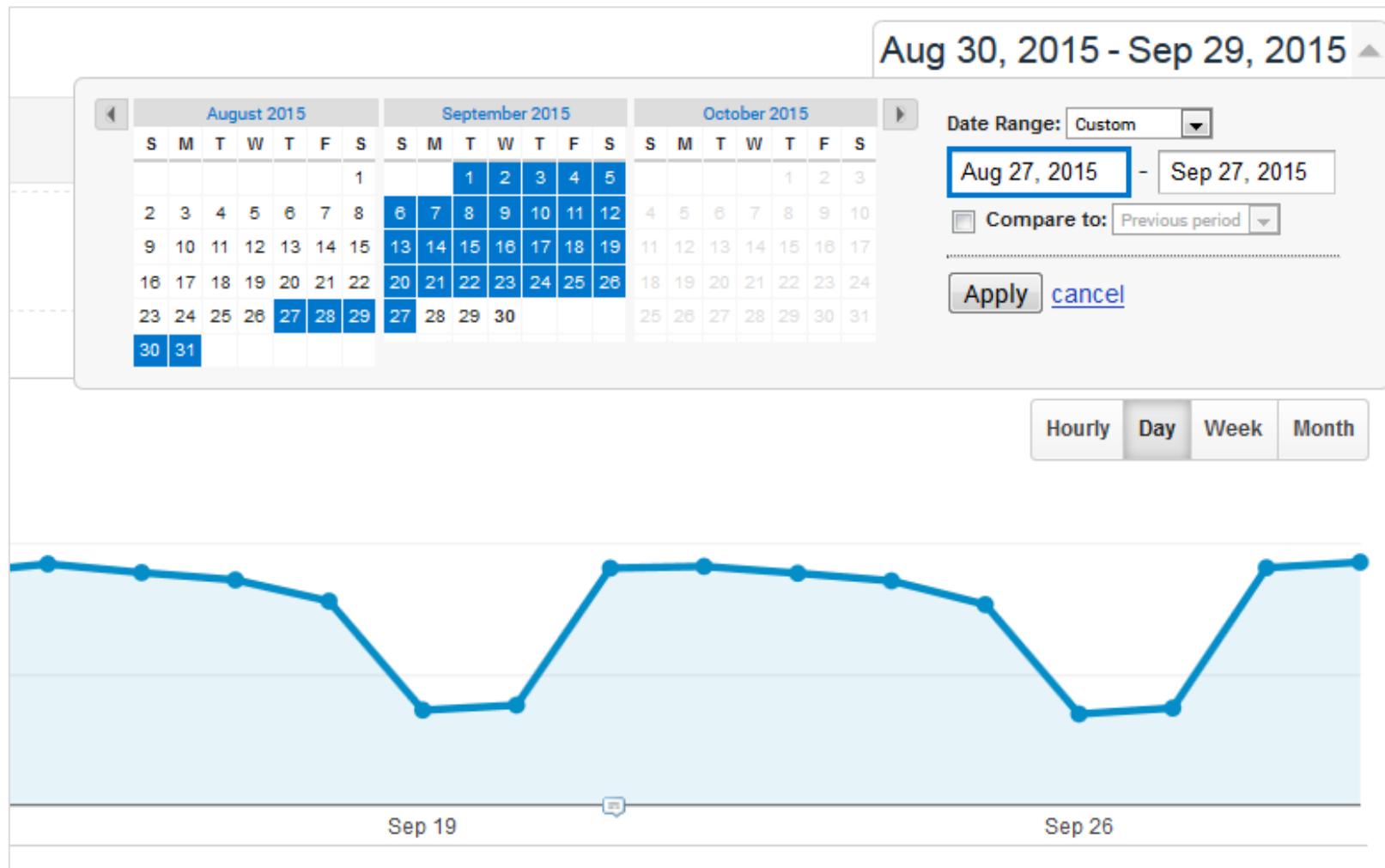


Error Prevention

- Make careful design which prevents a problem from occurring in the first place.
- Eliminate error-prone conditions and include helpful constraints.
- Choose good defaults, so users have to do less to accomplish a task.
- Use forgiving formatting for data input.
- Preview results before commit.
- Present users with a confirmation option before they commit to actions that may have destructive effect.
- Warn before errors are made.
- Provide options to recover.
- Support “Undo” option - it’s a safety net that makes these errors less costly.



Error Prevention Examples



newsletters		
		Search
	Webdesigner News	септ. 29
	Flat Design 2.0, U.S. Web...	
	Webdesigner News http://webdesignernews.us8.list-manag...	
	eWebDesign Newsletter...	септ. 29
	Knockout Text, Win 1 of 5 Pir...	
	View Online http://ewebdesign.cmail2.com/t/i-e-tjsu...	
	Matt Aussaguel	септ. 29
	Material Design colors do...	
	MaterialUp Newsletter <http://mandrillapp.com/track/click/305...	
	Hack Design	септ. 28
	Lesson 23 - Mobile App Anal...	
	Hack Design lesson There are a handful of special concepts that...	
	Webdesigner News	септ. 28
	CSS Tricks Design. Netflix...	
Deleted		Undo

Thank You
for standing through
all that UX talking!

