

Mobil HCI

Software Engineering Project

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Tack till Peter Börjesson!

Interaction Design
Applied Information Technology
Chalmers/GU

The Touch Phone Era, 2007-

- Radical change
- Anything-anytime-anywhere
- Has > 1 500 000 functions
- Final transformation from phone to something else



Design för Touch Phones

- What's special about designing for these?



android



iOS



Windows Phone

Design for Touch Phones

- Small screen
 - Touch, gestures
 - Direct manipulation
- Anything-anytime-anywhere
 - Can become almost anything
 - The perfect thing
 - When and how is it used?
- Sensors
 - Location awareness
- Very personal



How are apps used?

- 4 125 users for 163 days
 - Average use of device is 59.23 minutes per day
 - Each session last 71.56 seconds
- Social apps dominating
- News in the morning – games at night



1500 000+ apps

- People often have hundreds of apps
 - 10 new each month
 - Few used > 20 times
- Will switch to something else
- Interrupted by others
- Fit in
- Have a really focused job description



Design Challenges

- Anything-anytime-anywhere
 - One hand
 - One eye
 - On the go
- Clear and simple



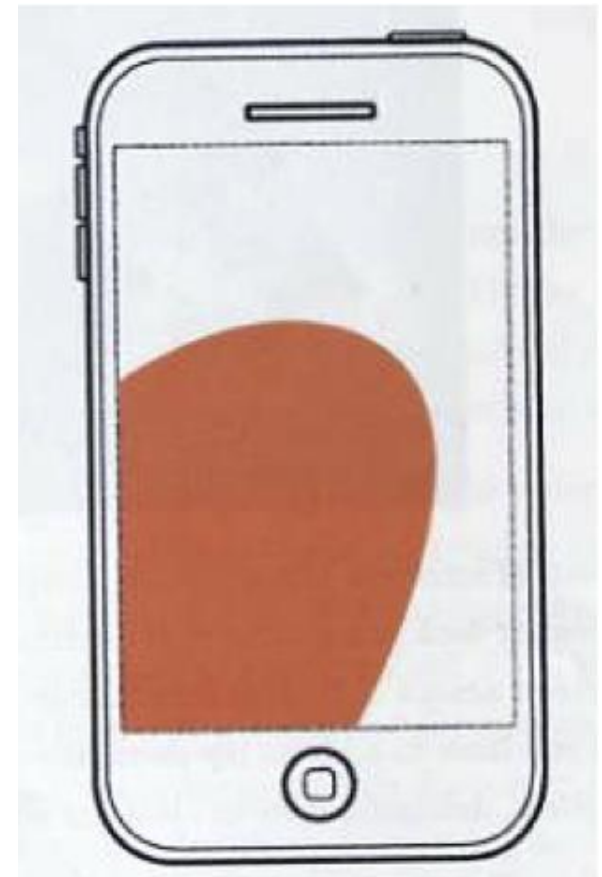
Design Challenges

- Get it done quick (71.56s)
- Check mail in the queue etc
 - One tap
 - Quick glance
- Visual simplicity
- Minimal navigation

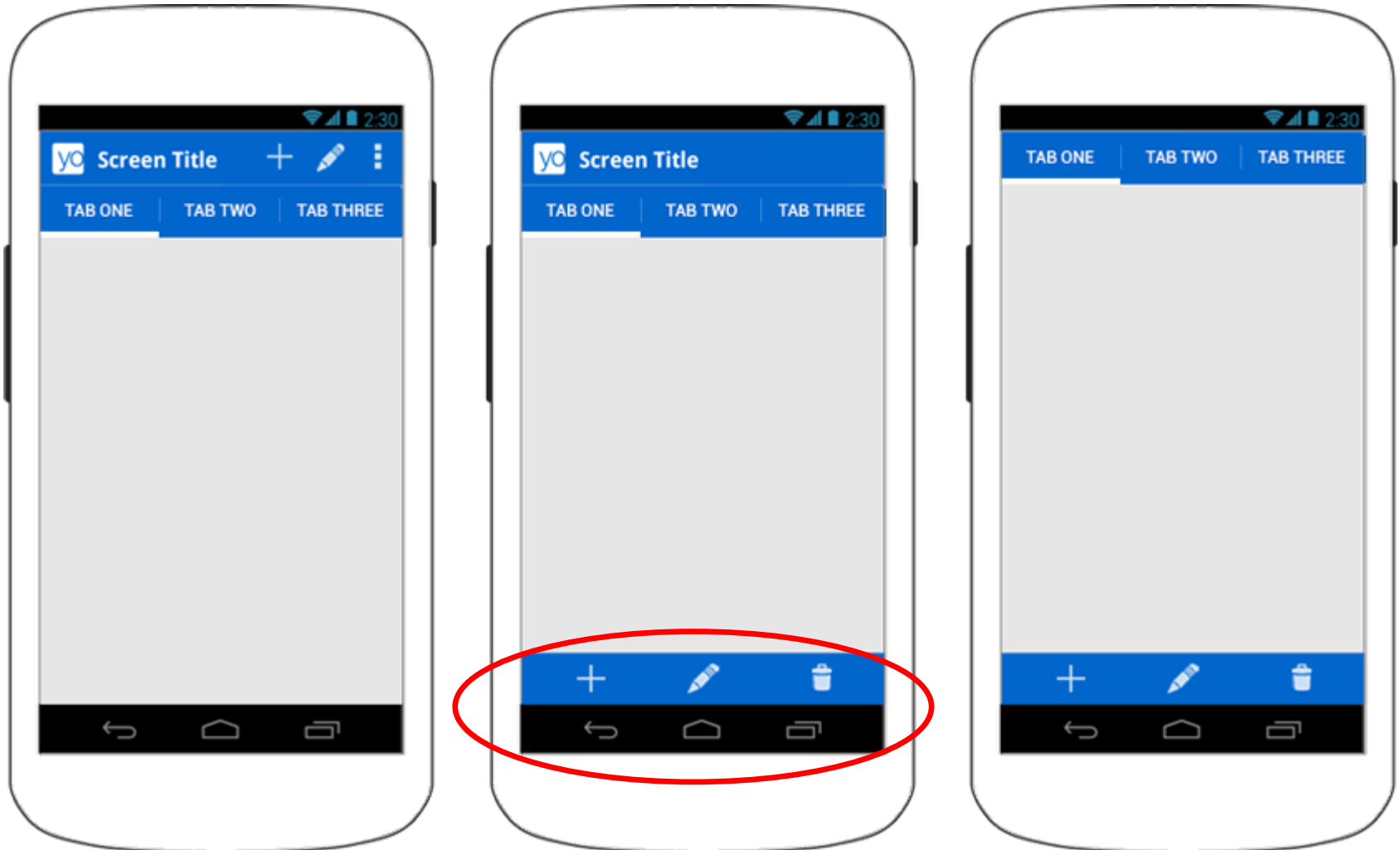


Rule of Thumb

- Best area for right-handed when using thumb for interaction
- Red most reachable
 - Take into account
 - Most used controls lower left
 - Other controls at safe distance

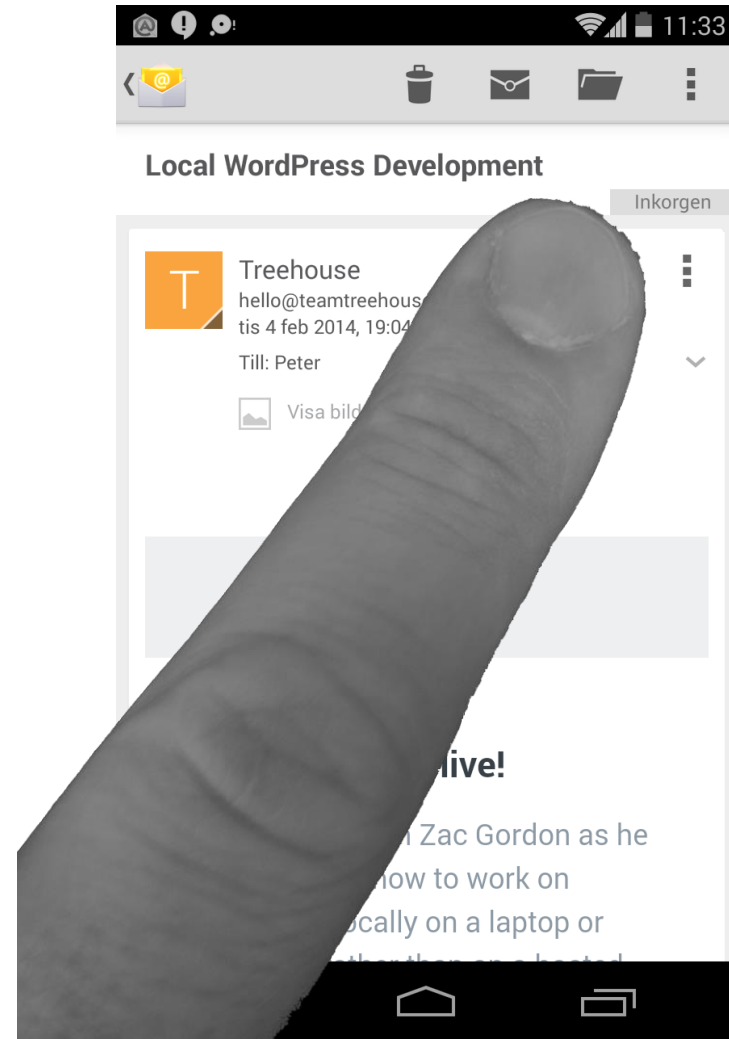


Rule of Thumb - Android



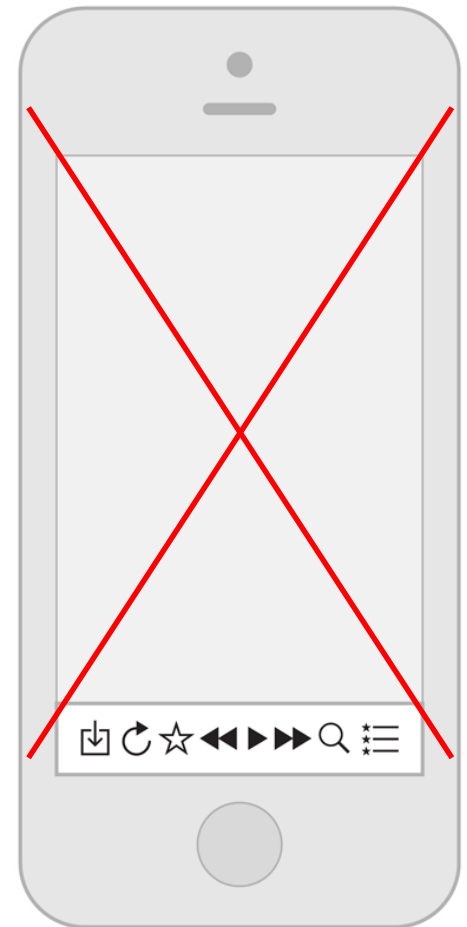
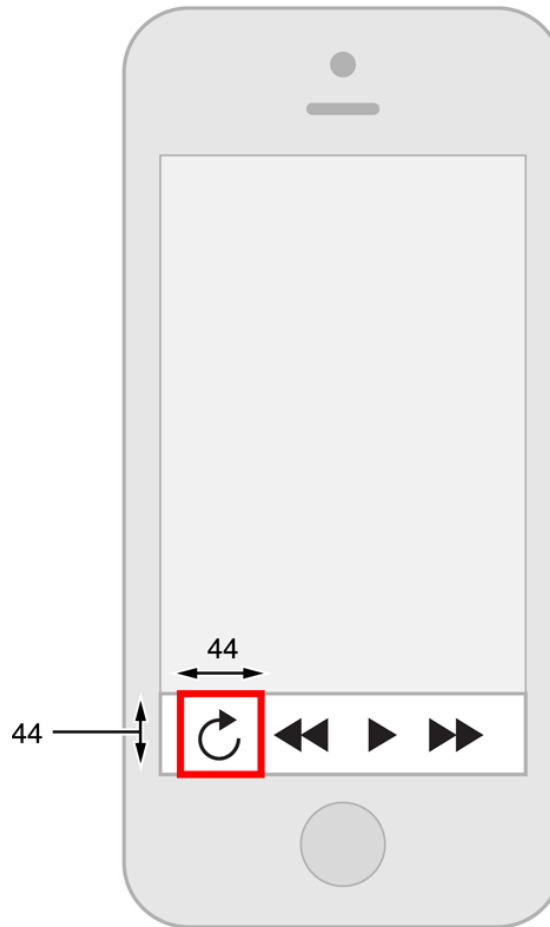
Fat finger problem

- Fingers are clumsy pointing devices
 - Low precision
 - Occlude what they operate on
- Don't have tiny things
- More than a few
 - People will hit the wrong one
- Simplicity and ease
 - It's your job to get it right



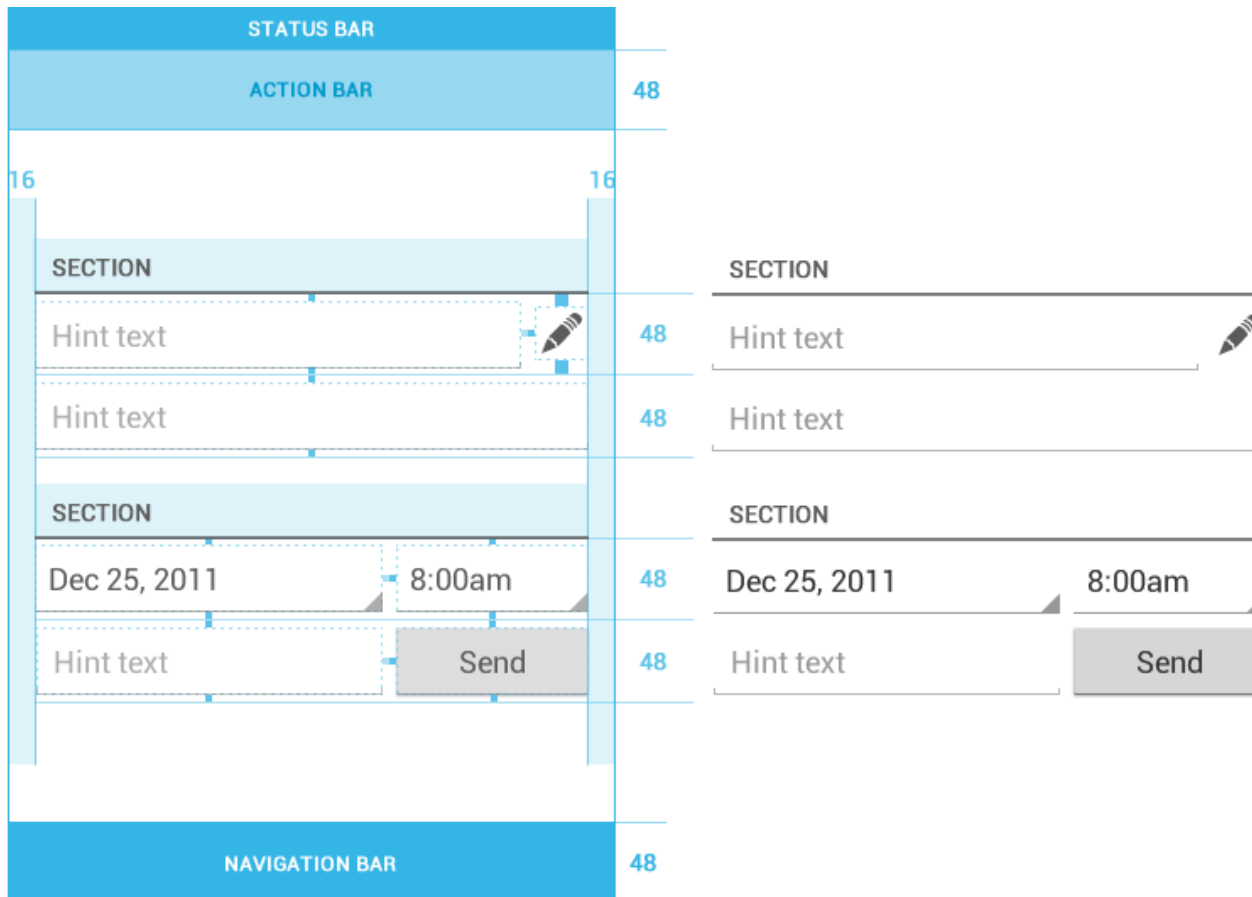
Sizing- iOS

- 44 points minimum



Sizing– Android

- 48 points minimum



Lack of knowledge

- Very few people learn all the tricks
- Obvious
 - Tap
 - Swipe screens
 - Standard controls
 - Very real-world somehow
- Hard
 - Multitouch
 - Non-standard
 - Invisible



Telenor SE 21:18

Back Create Profile Done

Name: Optional

D.O.B: ? Required

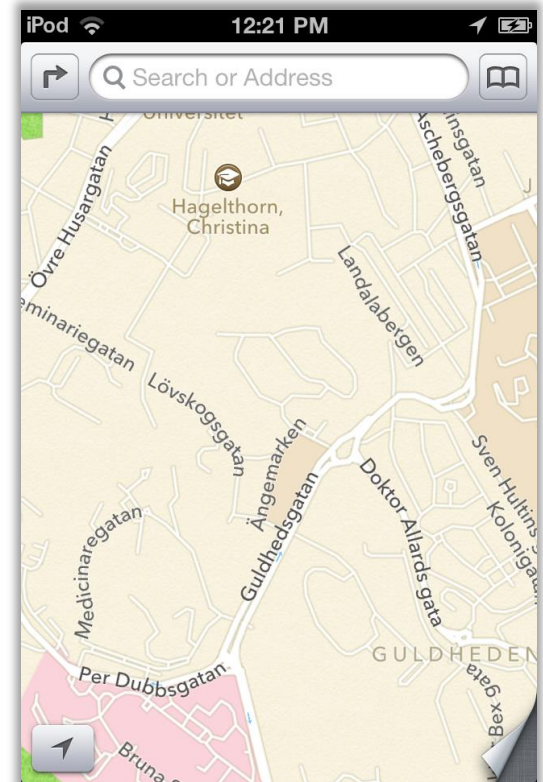
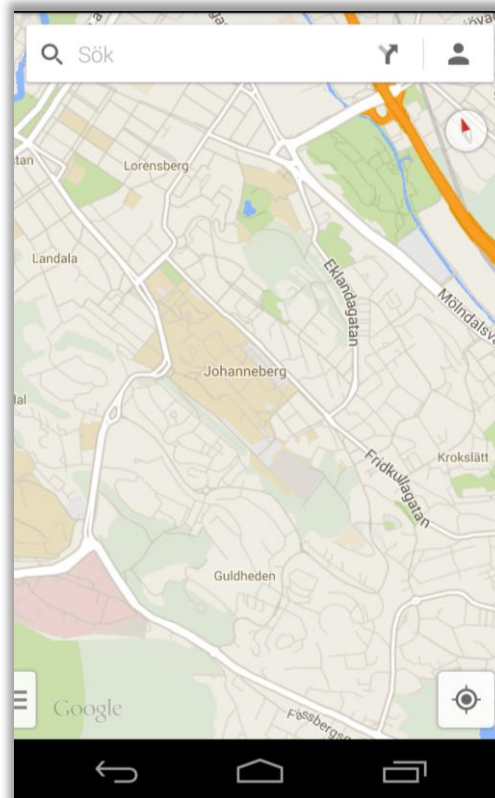
Gender: ☒ Male ☐ Female

Height: 187 Cm Required

2009	augusti	17
2010	september	18
2011	oktober	19
2012	november	20
2013	december	21

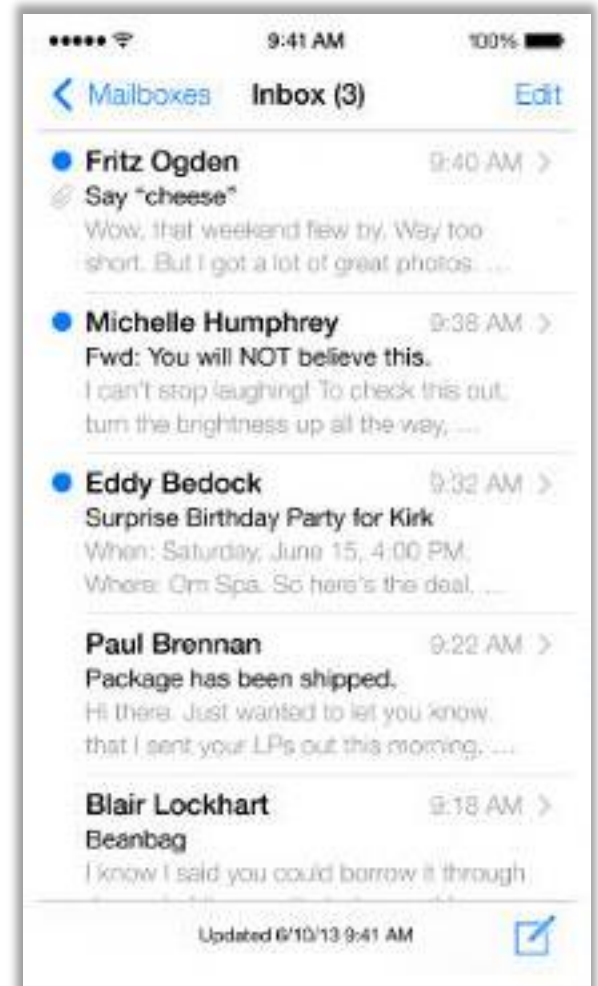
Invisible

- Zoom-in & Zoom-out in Maps?



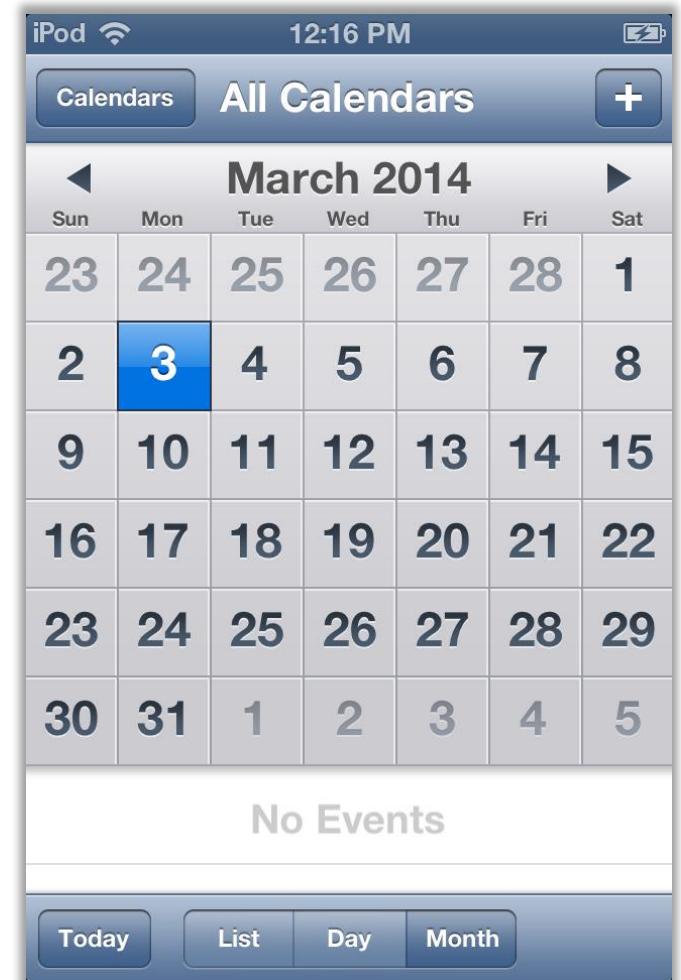
Invisible

- Scroll to the top?



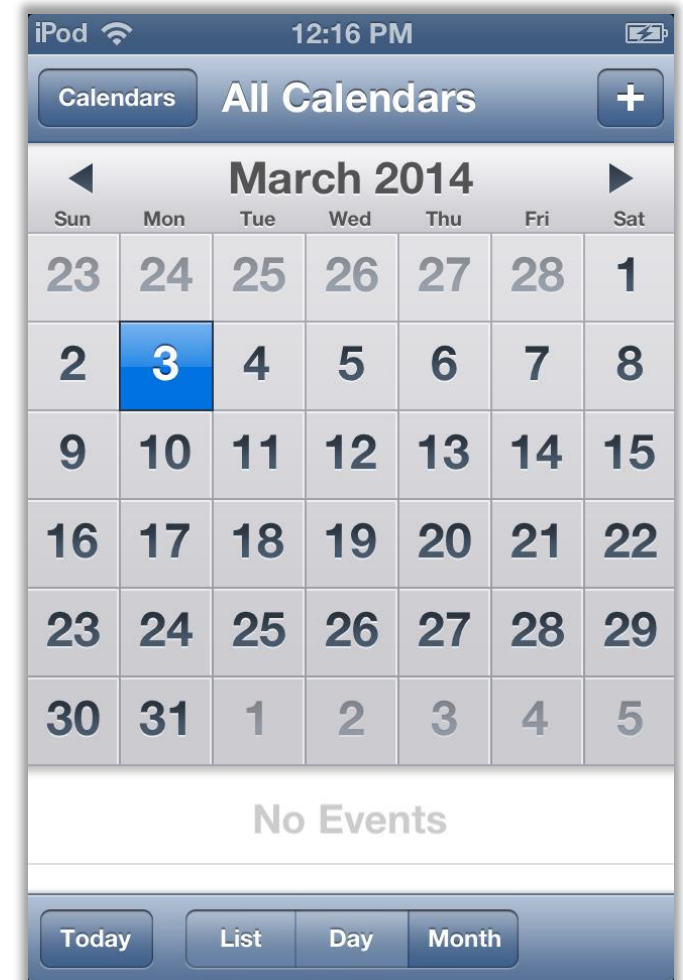
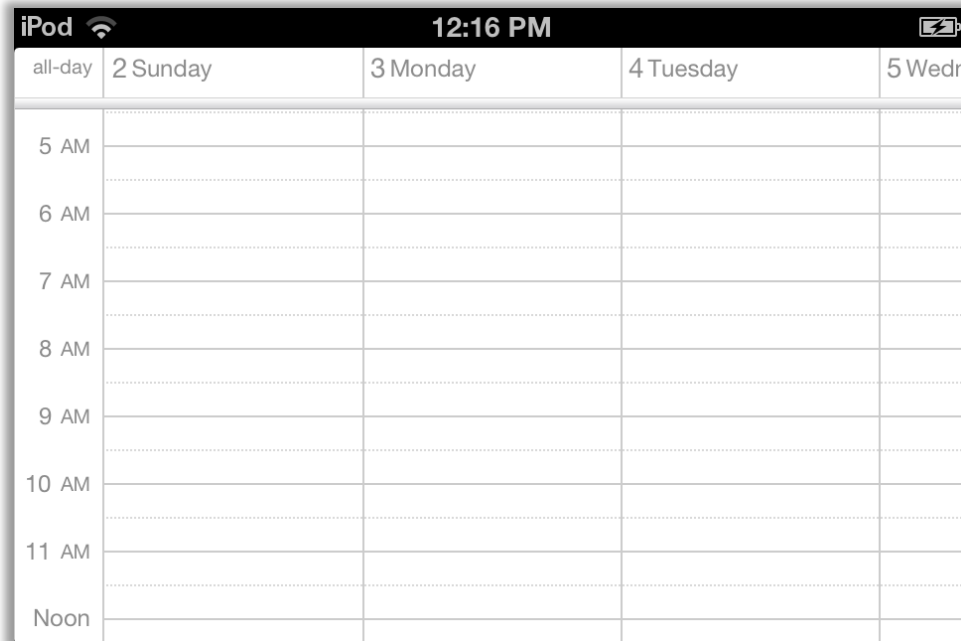
Invisible

- Show week in calendar?



Invisible

- Show week in calendar?

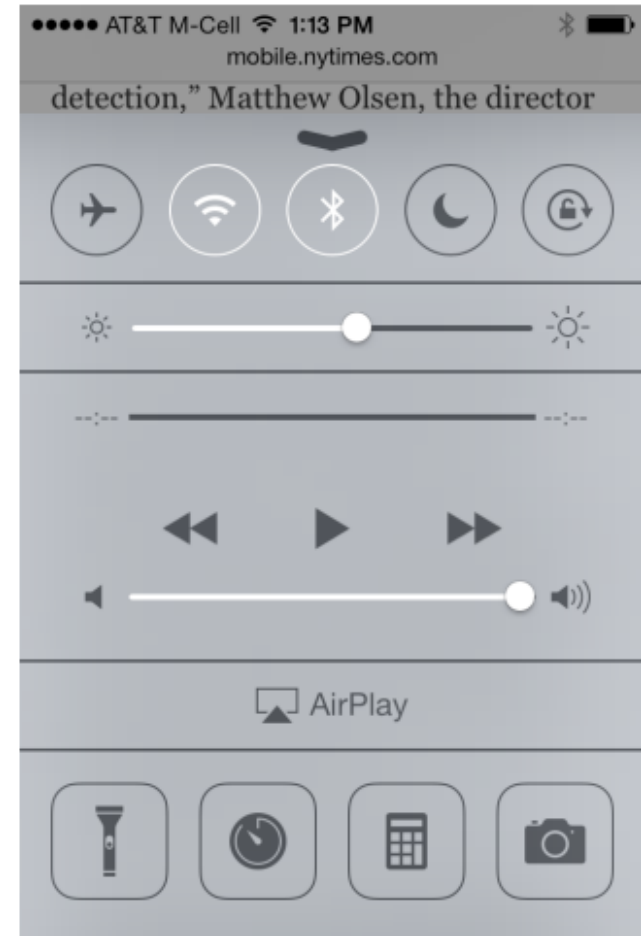


Hidden stuff



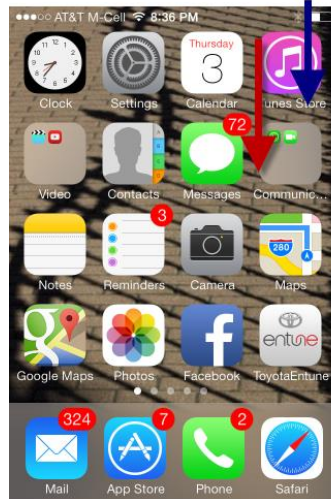
scroll

Control Center

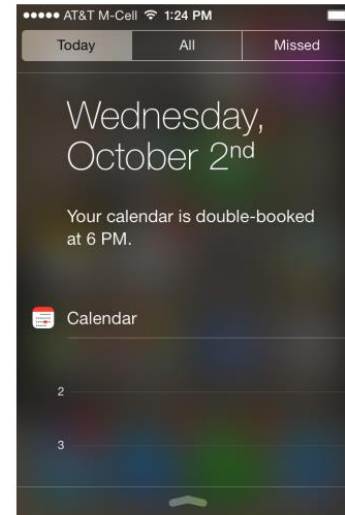


How Will Users Now?

Notification
Center



Spotlight
Search

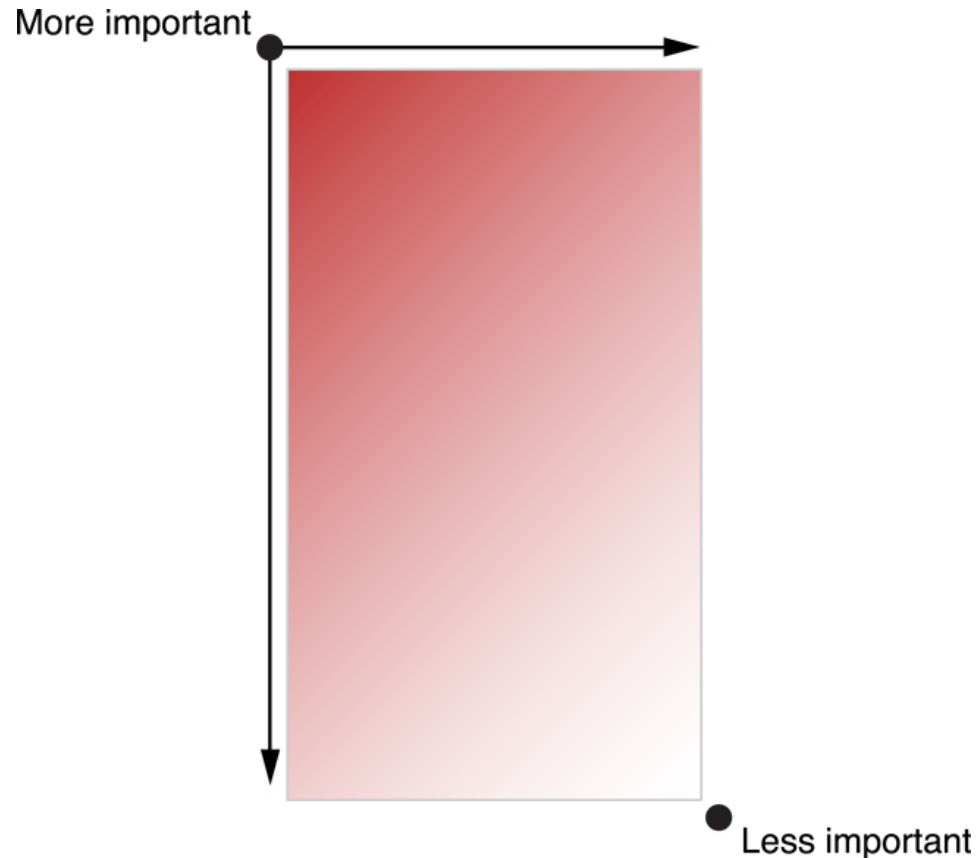


Problems

- Report by Norman and Nielsen
 - Design for touch is still new
 - Misses on many established principles for GUI
- Makes use of Nielsens heuristics
- Example problems
 - Visibility
 - Consistency standards
 - Discoverability
 - Reliability
 - ...

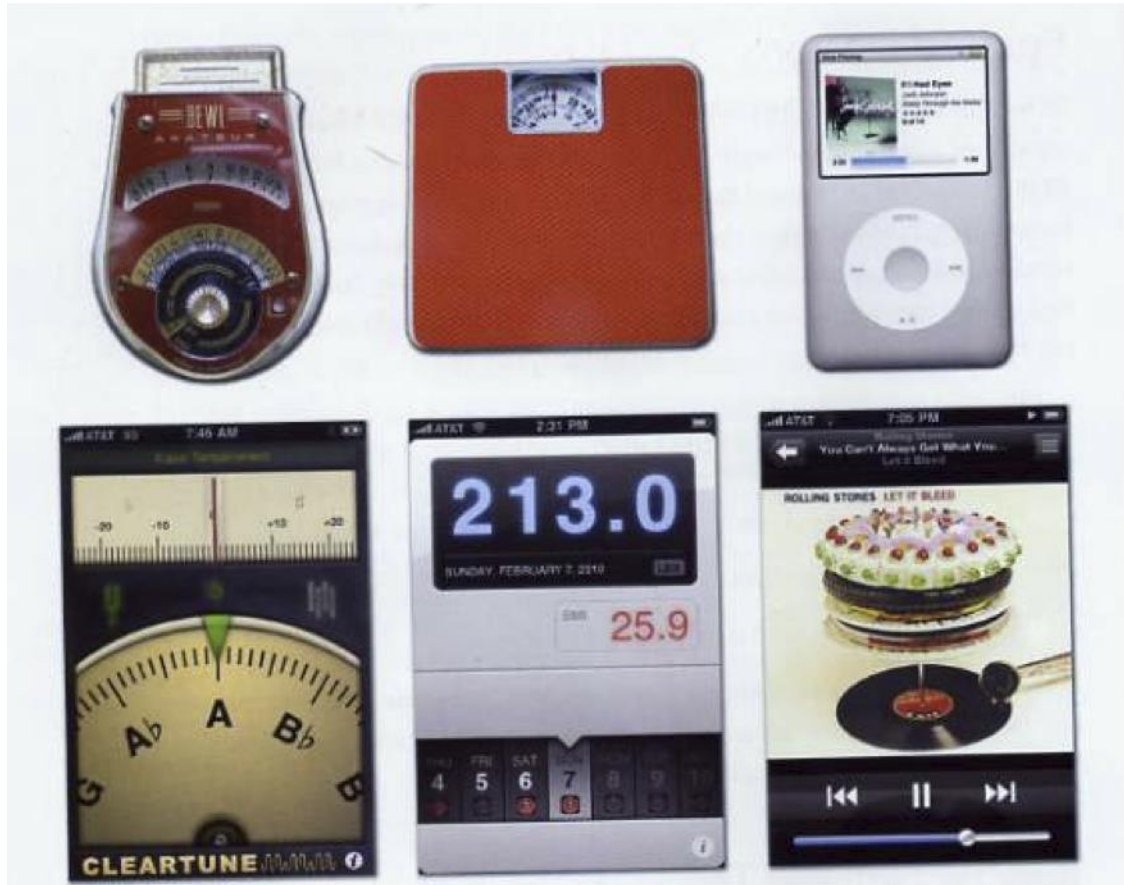
Take it From the Top

- Most important and most used at the top
- Controls further down
- Compare
 - Graphic design
 - Various devices
 - Web & desktop



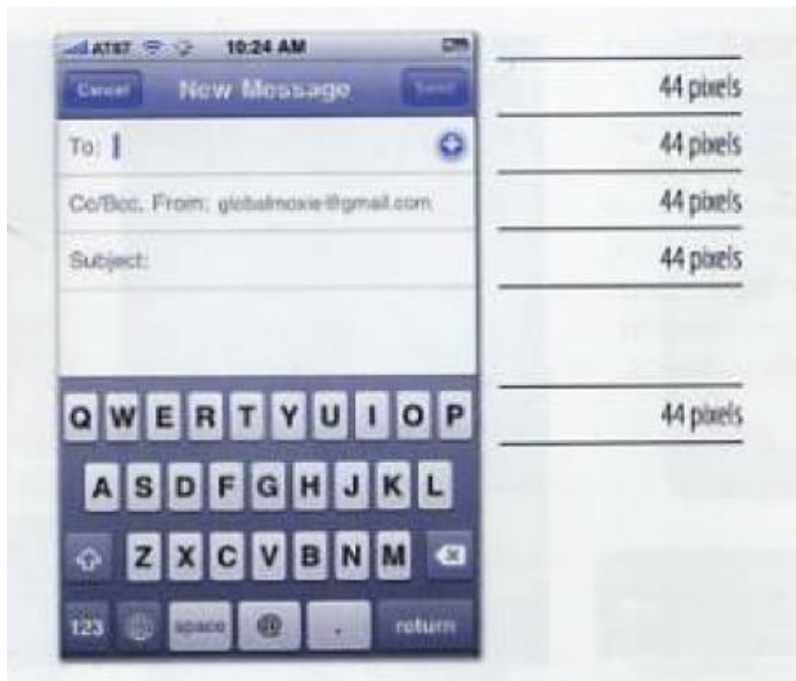
Take it From the Top

- Most important and frequently used info should be at the top
- Controls further down
- Compare
 - Graphic design
 - Various devices
 - Web & desktop



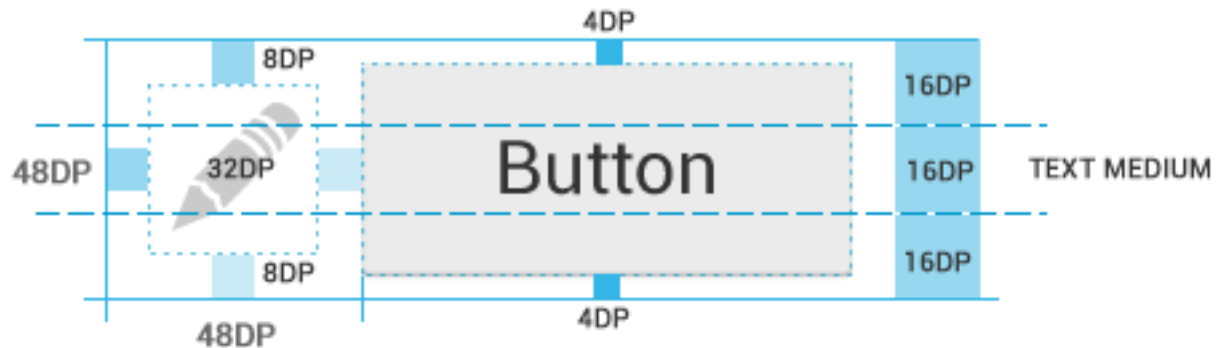
44 Points Rythm

- A loose 44 point grid might help to create harmonious UI

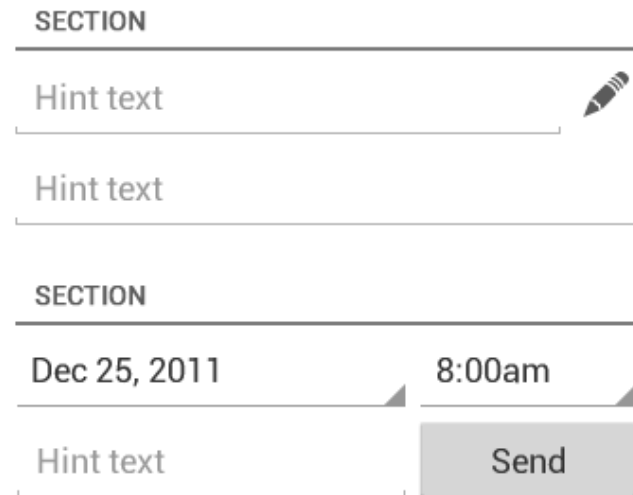
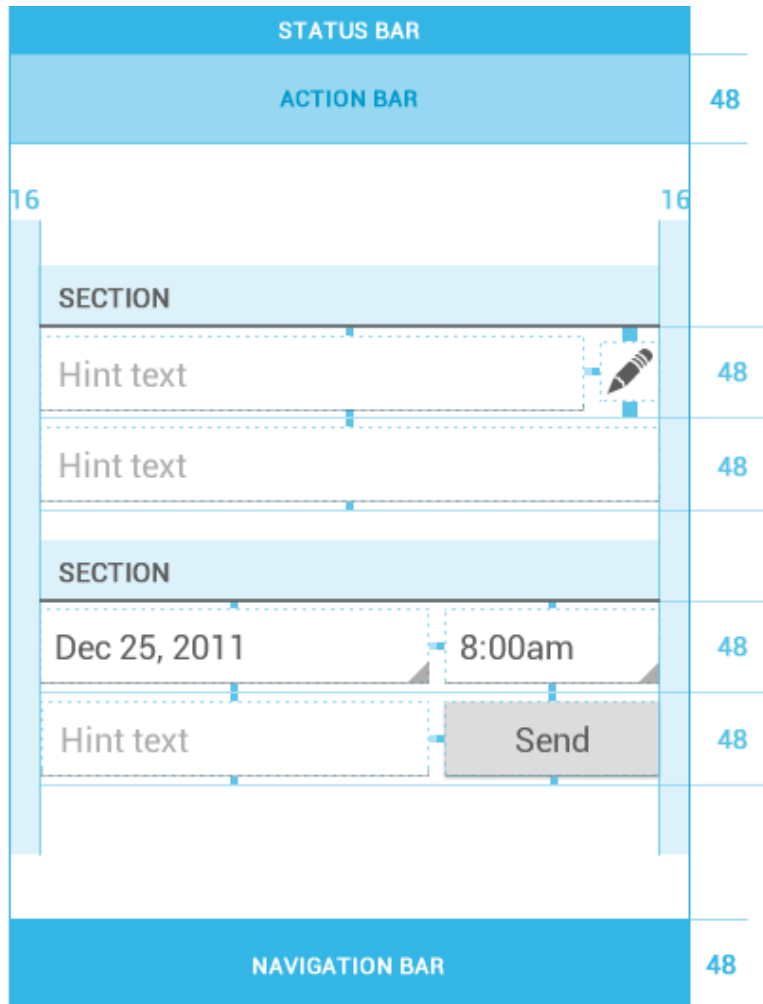


Android

- 48dp Rythm
- Spacing 8dpi



Android

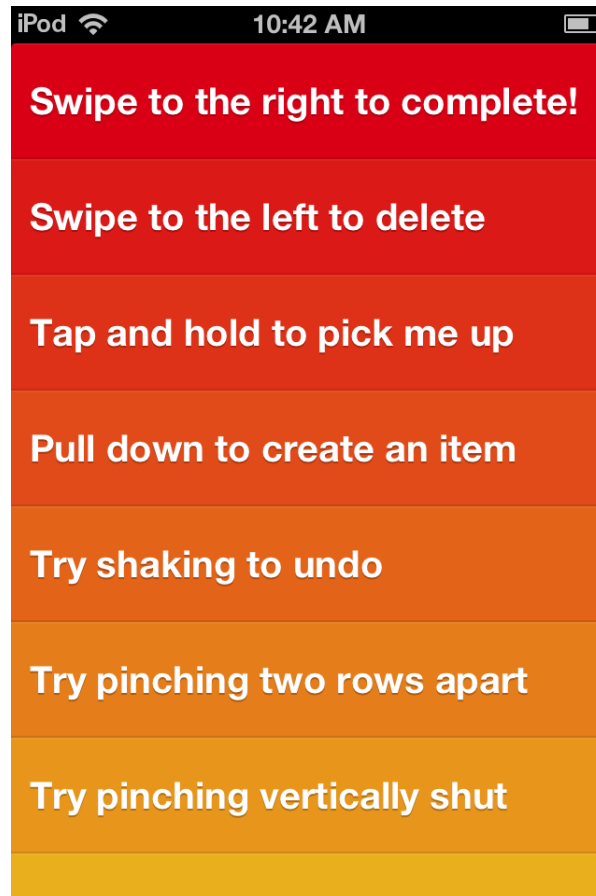
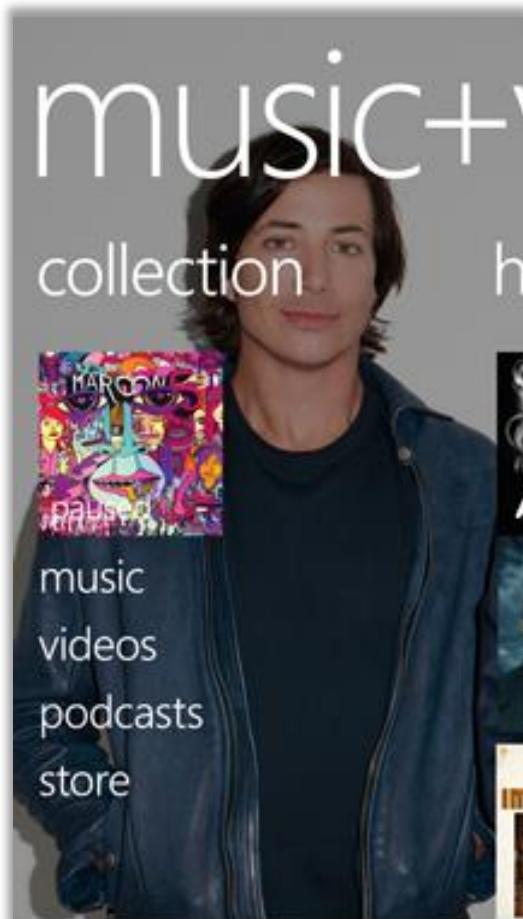


Avoid Scrolling

- Increases feel of physical gadget
- Aim for UI that is simple and clear
- Open it and see directly what's there
- If users have to scroll
 - Understand that something's missing
 - Figure out that there's a way to find it
 - Scroll to search
- Clear entry points and a few taps usually better
- Scrolling is inherent in list based apps though



Clues



Minimize

- Hold down number of functions
- Hold down number of screen elements
 - Remove everything that can be removed
- At-a-glance screens
- Enable more info for advanced use



Some guidelines

- Place important info at the top
- Design to 44 point /48dp grid
- If possible – create at-a-glance screens avoiding scrolling
 - View at an arms length
- Keep the number of elements on each screen to a minimum
- Move advanced stuff to a secondary level

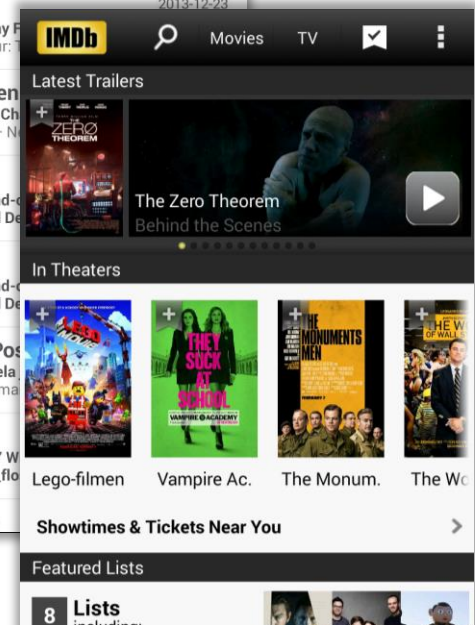
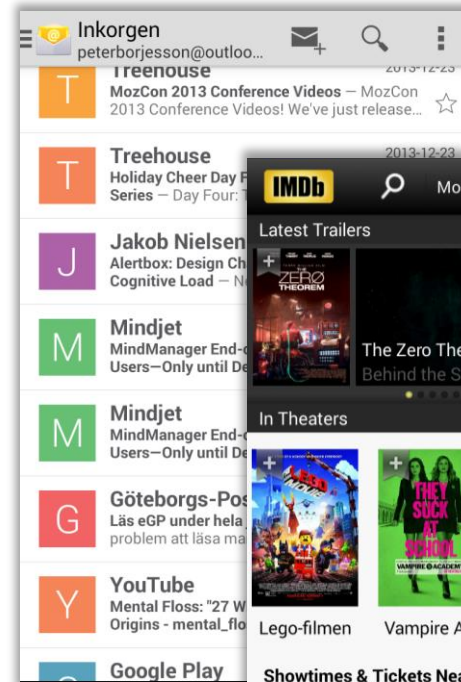
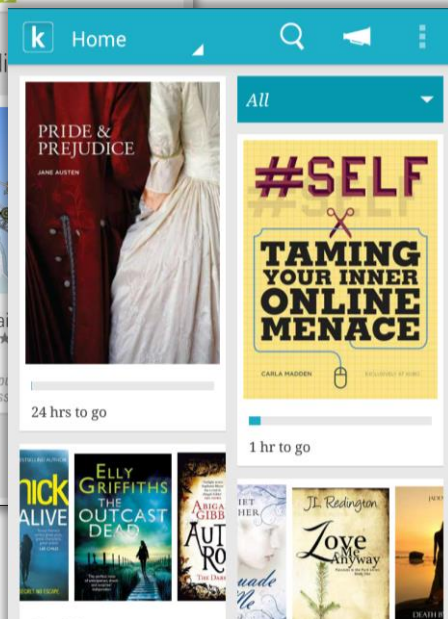
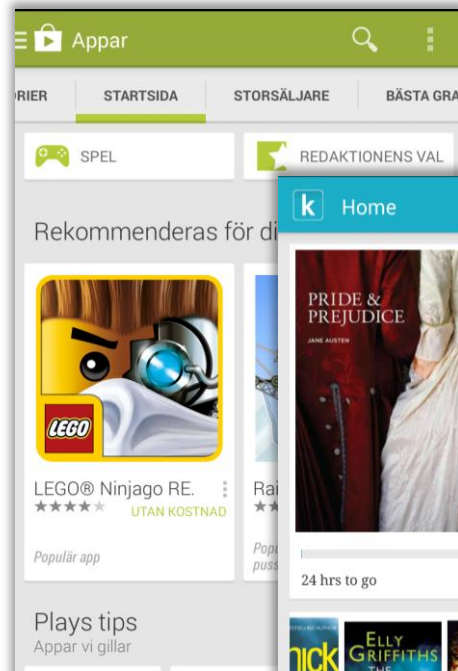
Why follow guidelines?

- Don't we want to stand out?
 - Not to the extent that it is confusing
- Lots of thought in each platforms desing guidelines
- People following these is what makes the device easy to use
- Different apps work the same way
- Example
 - There's no checkbox in iOS
 - Don't create your own
 - Without very good reason



Standing out

- Standard components can be adapted
- Can follow standard patterns and still be seen



Navigation

- Navigation is exercise
 - Annoying things you have to do
- Optimize flow
 - No disturbing elements
 - Pop ups & alerts
 - Never report normal execution
 - ...
- Limited screen
 - Well organized navigation
 - Following best practices

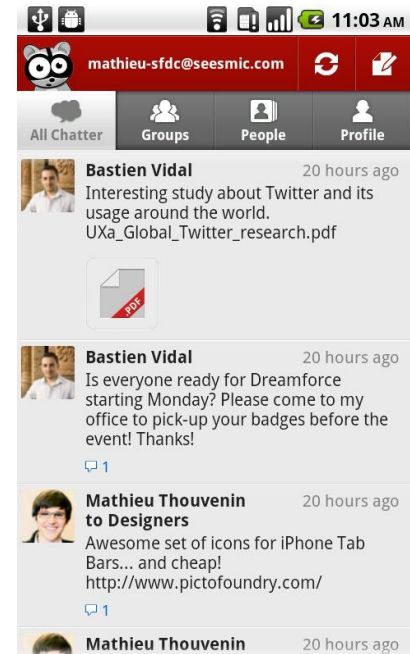
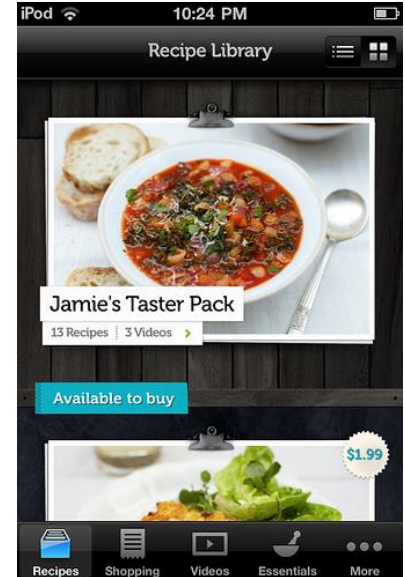
Flat Pages

- Deck of Cards
 - Can be one
- Navigate by swiping through
- Visually appealing
 - Pass the at-a-glance test



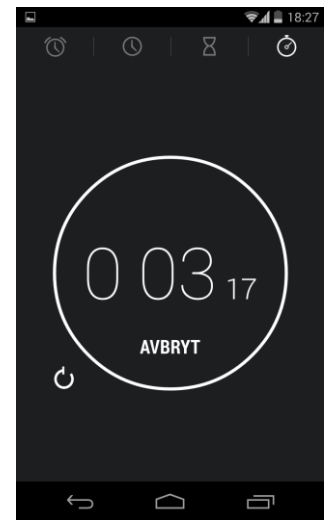
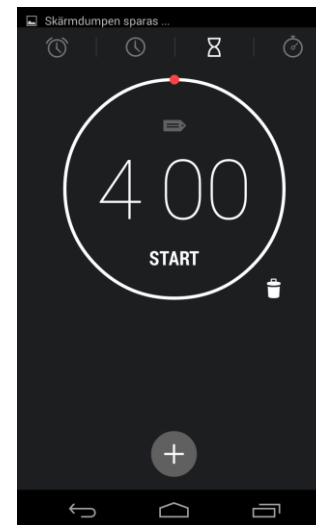
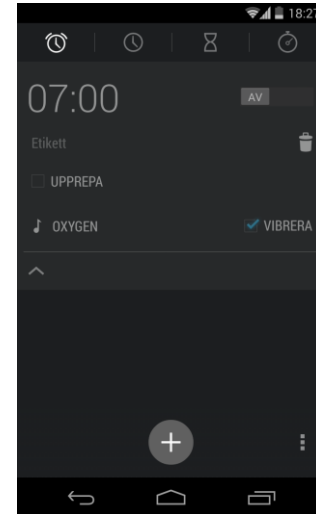
Tab bar

- Divides contents into clear categories and functions
- Easier to achieve a flatter information architecture
- Each one can be designed in its own way
 - Almost like a number of apps in one
 - Can contain additional navigation
 - Not another tab bar

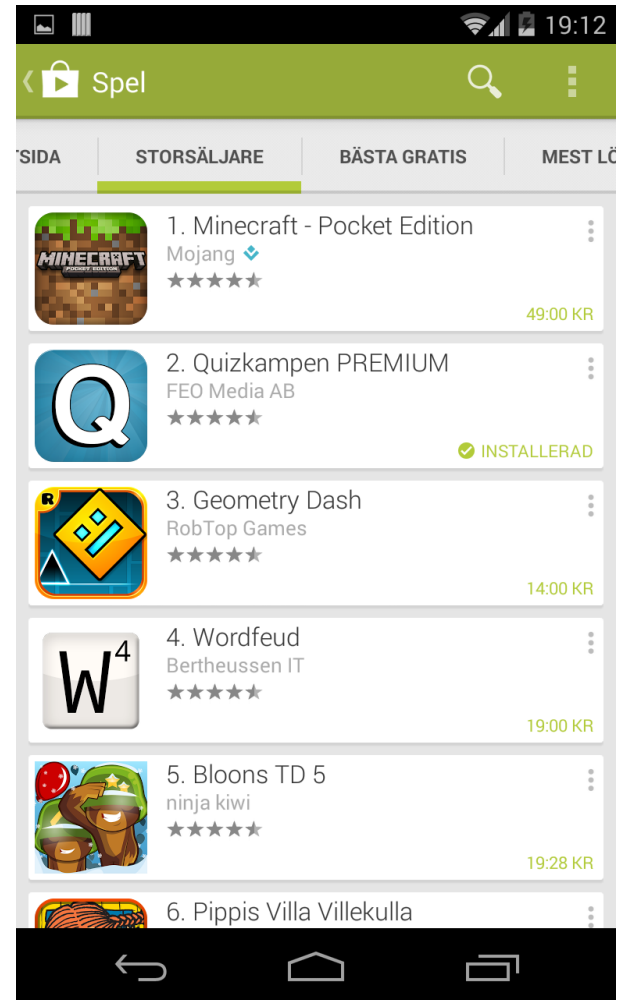
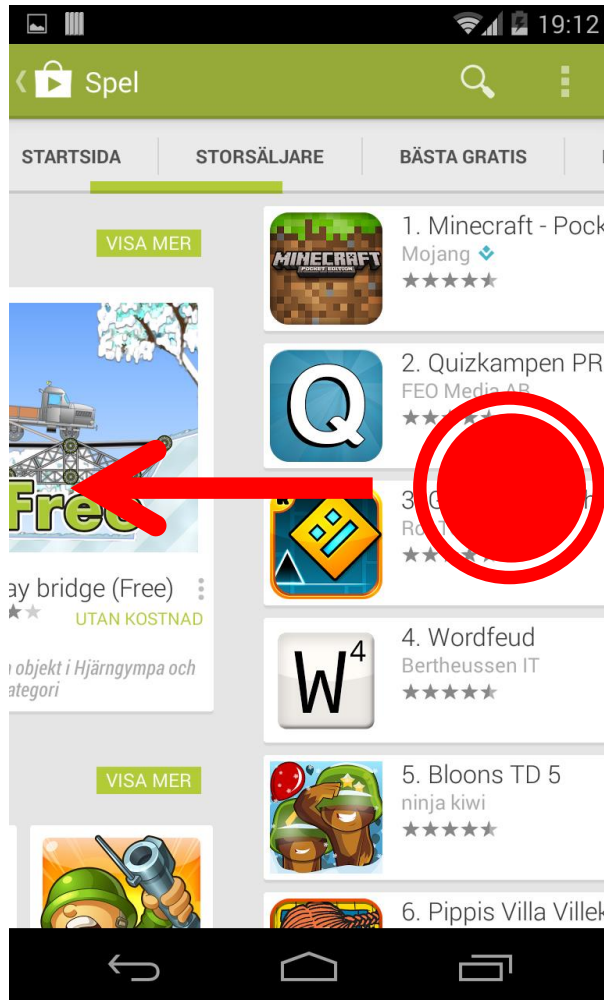
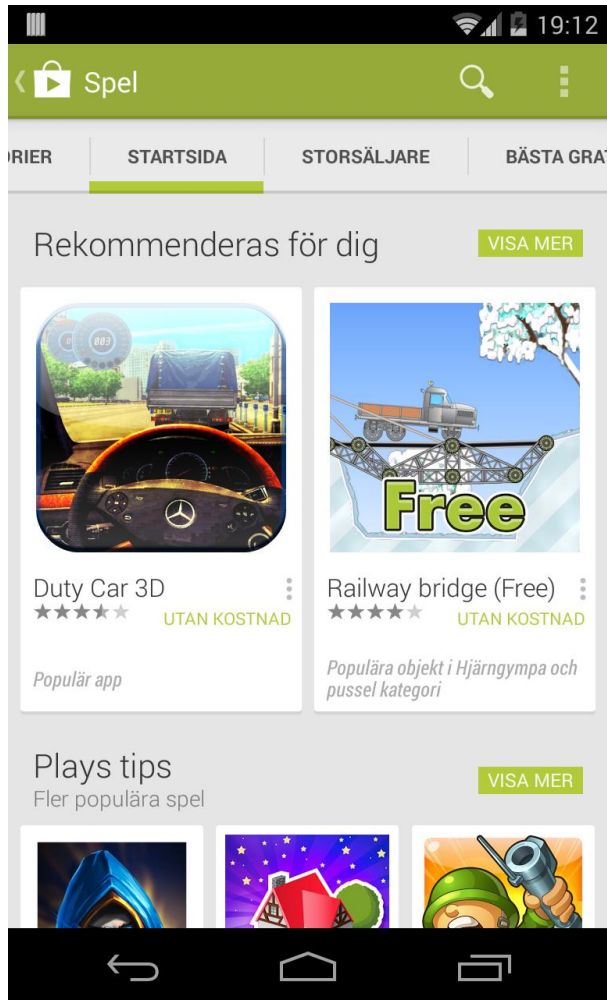


Tab bar

- Tabs show what's inside them
- Max 5
 - Then more-button (iOS)
 - Avoid this
- Don't remove a tab when it cannot be used
- Can show badges (iOS)

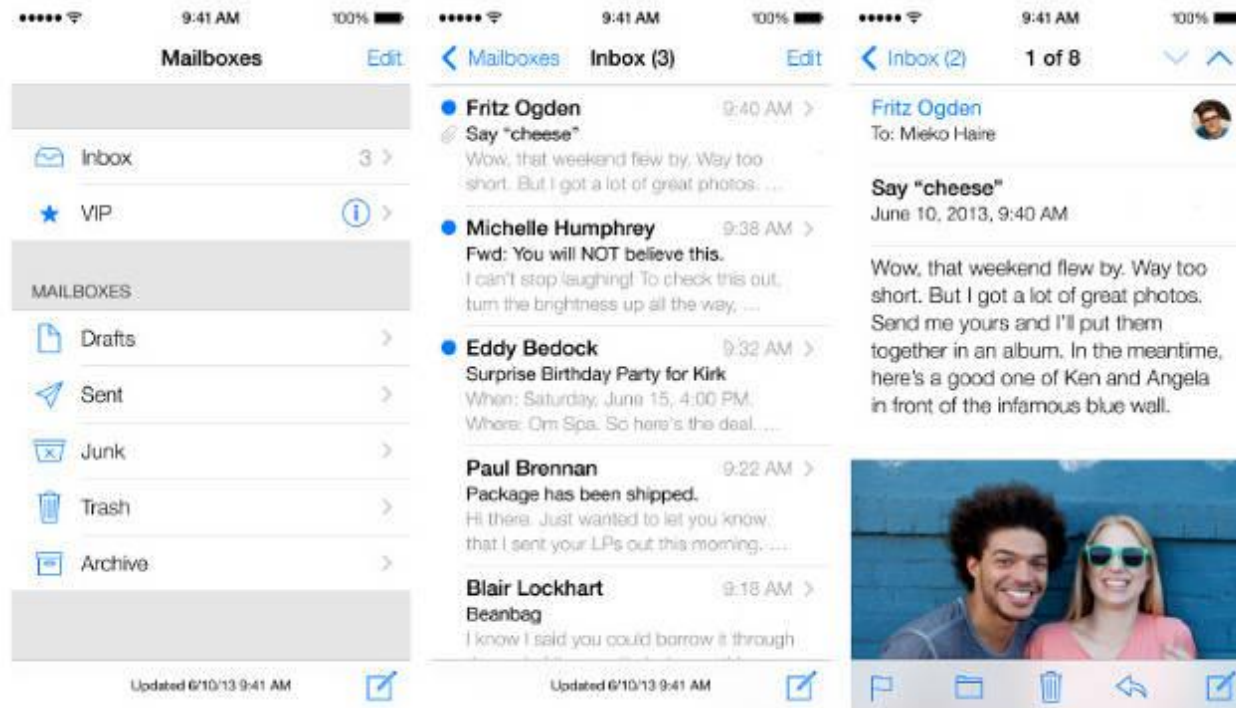


Android



Tree Structure

- Information that can be categorized into categories and subcategories
- Drill-down interface

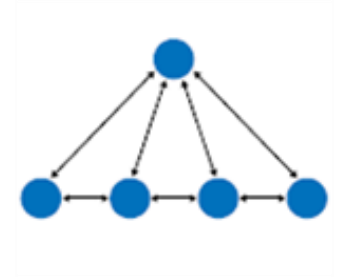


Visual Variation

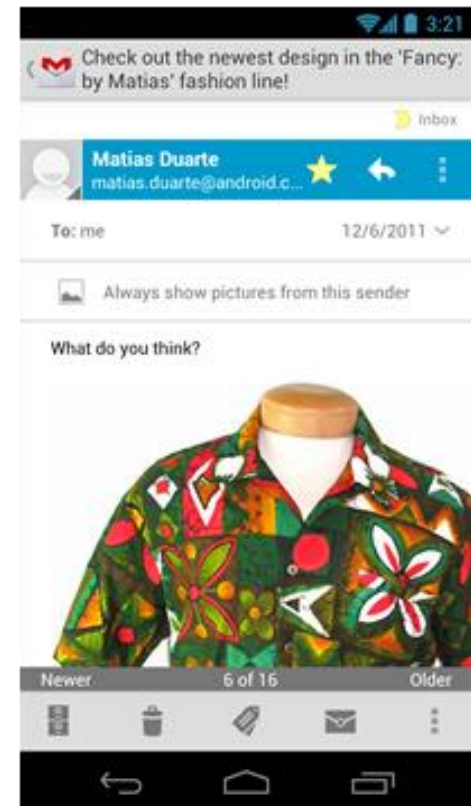
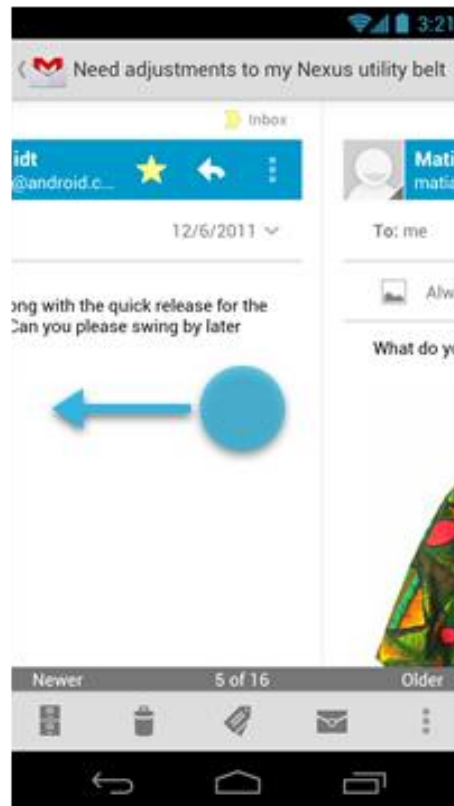
- Don't have to display lists on all levels
 - Grid of images
 - Logically it is still tree structure



Android

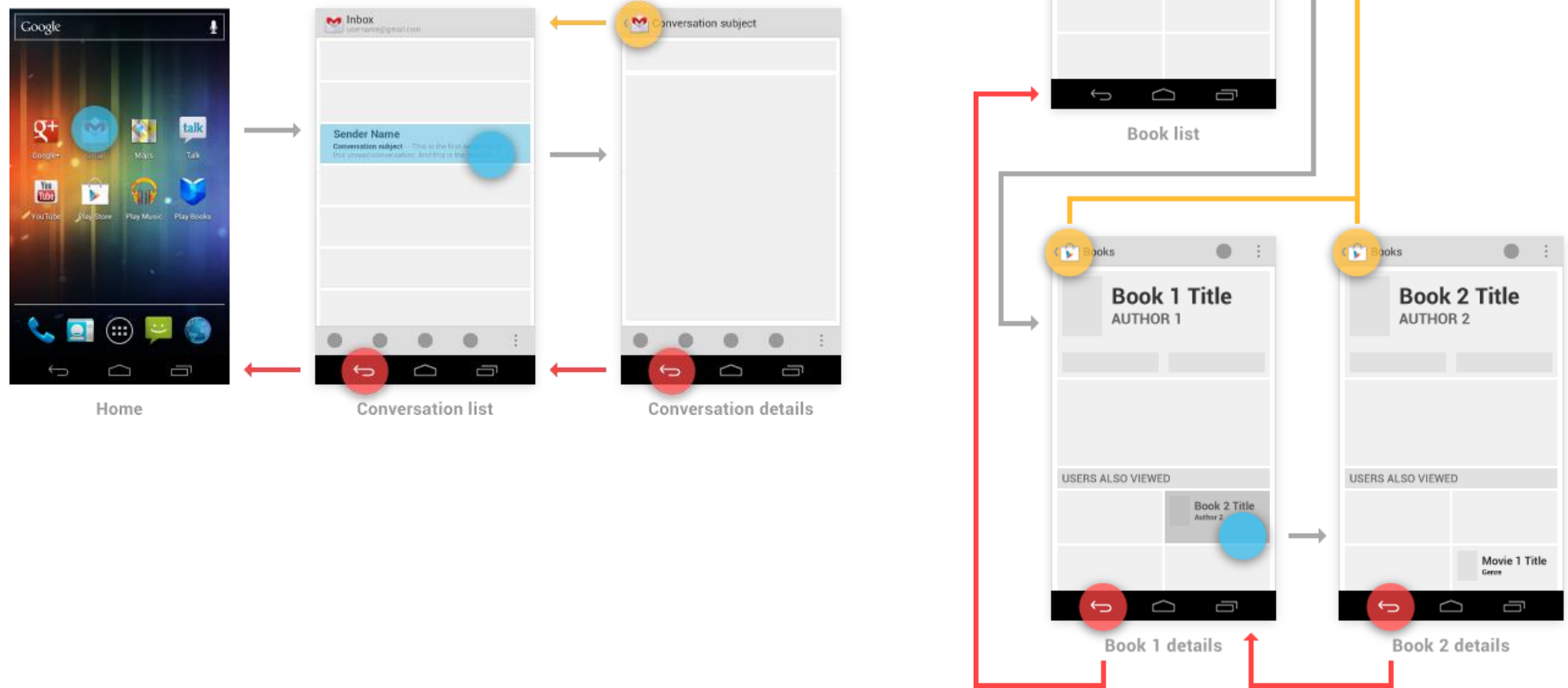


- Swipe views
- A way to navigate lists/trees



Android

- Up vs. Back



Springboards

- Most popular navigation pattern 2011
- Good
 - Works across platforms
 - More items than tabs
- Less good
 - Flattens everything to the same level of importance



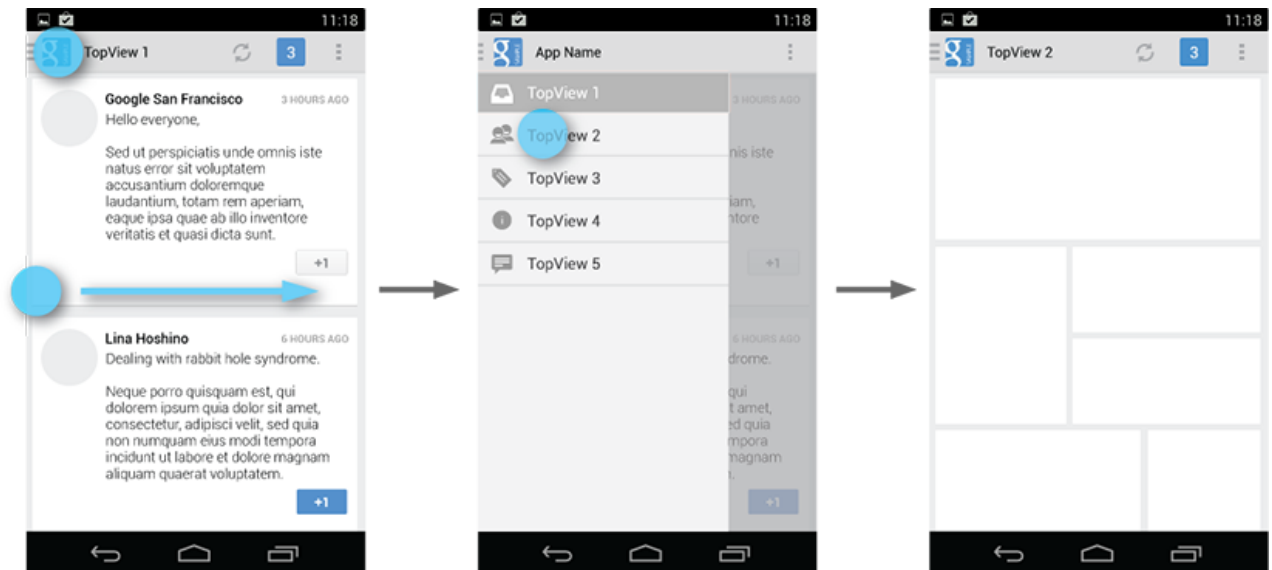
Dashboard

- Overview information on the first screen



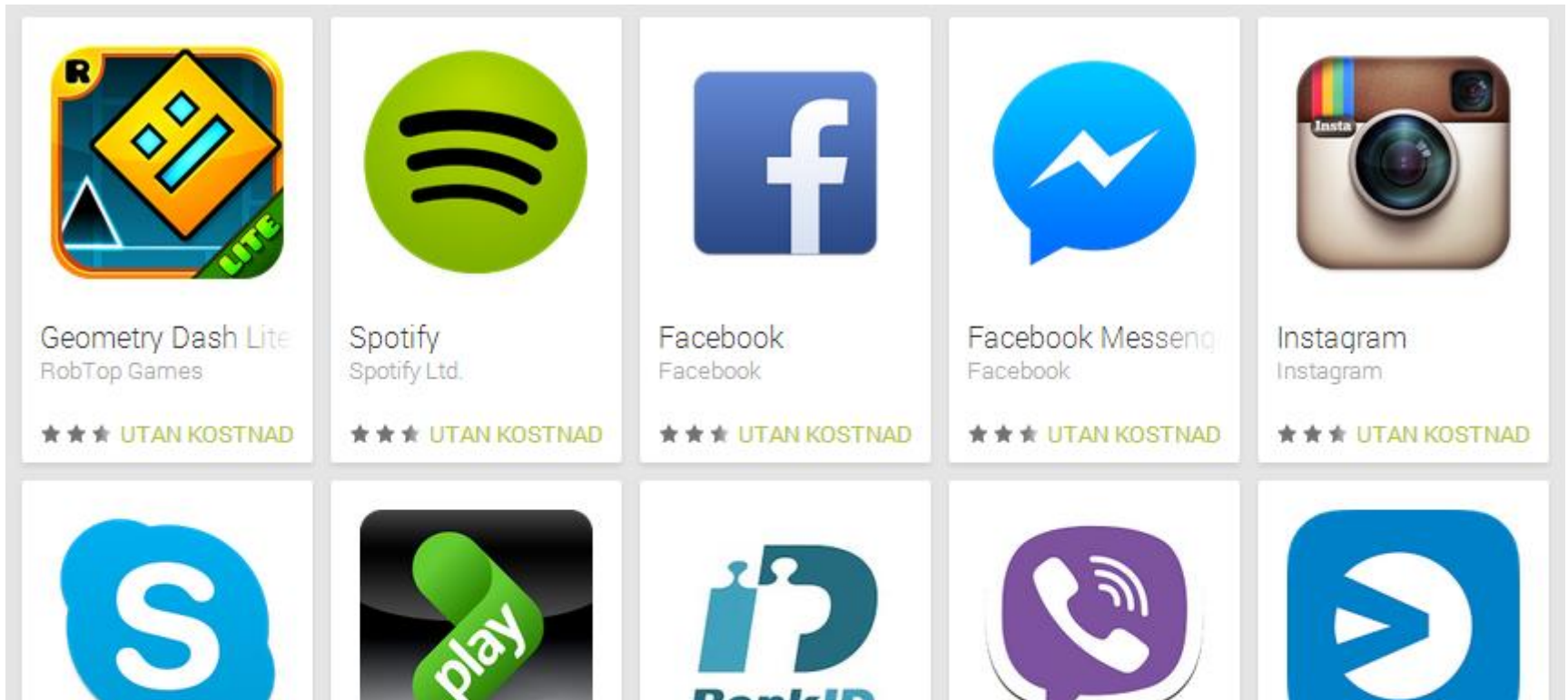
Navigation Drawer

- Currently very popular
- Native in Android



Defining an App

- 1500 000 apps
 - What does your app do...and why?
 - What specific problem does your app uniquely solve for users?



Key Questions

- Who, What, When, Where and Why?
- Who – identifies the audience
- What – the actions users will take
- When and where – the context for the app
- Why – motivations and goals
- Use cases, storyboards, video...
- Must cover the reason for a mobile device!
 - Don't think downsized computer

Example Nästa tur

- Accessory – an app that helps people find the next departure locally
- Who– Users of public transport
- What– Find next departure from a stop
- When – Just before departing
- Where – At home or on your way
- Why – Know when to leave or if you're in a hurry



The screenshot shows the Chalmers app interface with a list of bus stops. Each stop entry includes the stop name, the next departure time (Avgår om), the time until the next departure (Därefter), and the bus line (LÄGE). The stops are color-coded: orange for Kortedala, brown for Tynnered and Bergsjön, and purple for Frölunda and Angered. A green bar at the bottom contains a refresh button labeled 'UPPDATERA'.

Chalmers		
6 Kortedala		
Avgår om	10	LÄGE
Därefter	28	A
6 Länsmansgården via Sahlgrenska		
Avgår om	11	LÄGE
Därefter	25	B
7 Tynnered		
Avgår om	3	LÄGE
Därefter	19	B
7 Bergsjön		
Avgår om	4	LÄGE
Därefter	17	A
8 Frölunda		
Avgår om	4	LÄGE
Därefter	16	B
8 Angered		
Avgår om	5	LÄGE
Därefter	19	A

UPPDATERA

What Makes Your App Mobile?

- Must be convenient, necessary and easy to use in a mobile context (compare to travel planner)
 - "away from my desk"
 - On the go
 - In your couch
 - ...
- Find the answer to why
 - Anything-anytime-anywhere



Chalmers		
6 Kortedala		
Avgår om	10	LÄGE
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Avgår om	5	LÄGE
Därefter	19	A
 UPPDATERA		

Remove All Exercise

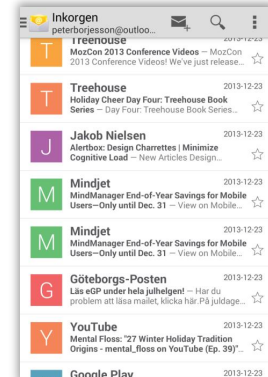
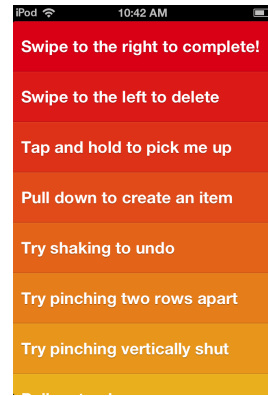
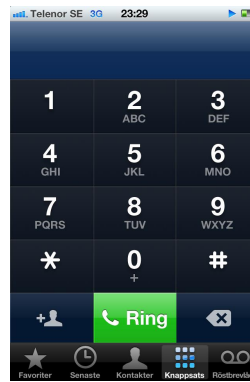
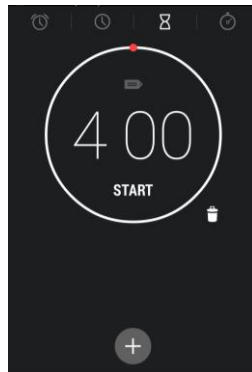
- Having identified Who, What, When, Where and Why?
- Think big but build small
 - Bold – find the opportunities
 - Create feature list
 - Remove most of it
 - Streamlined focused experience
- Identify the single most important task
 - Todo-list – add new item
- Secondary tasks will follow
- Keep the number low
 - And optimize, optimize,...

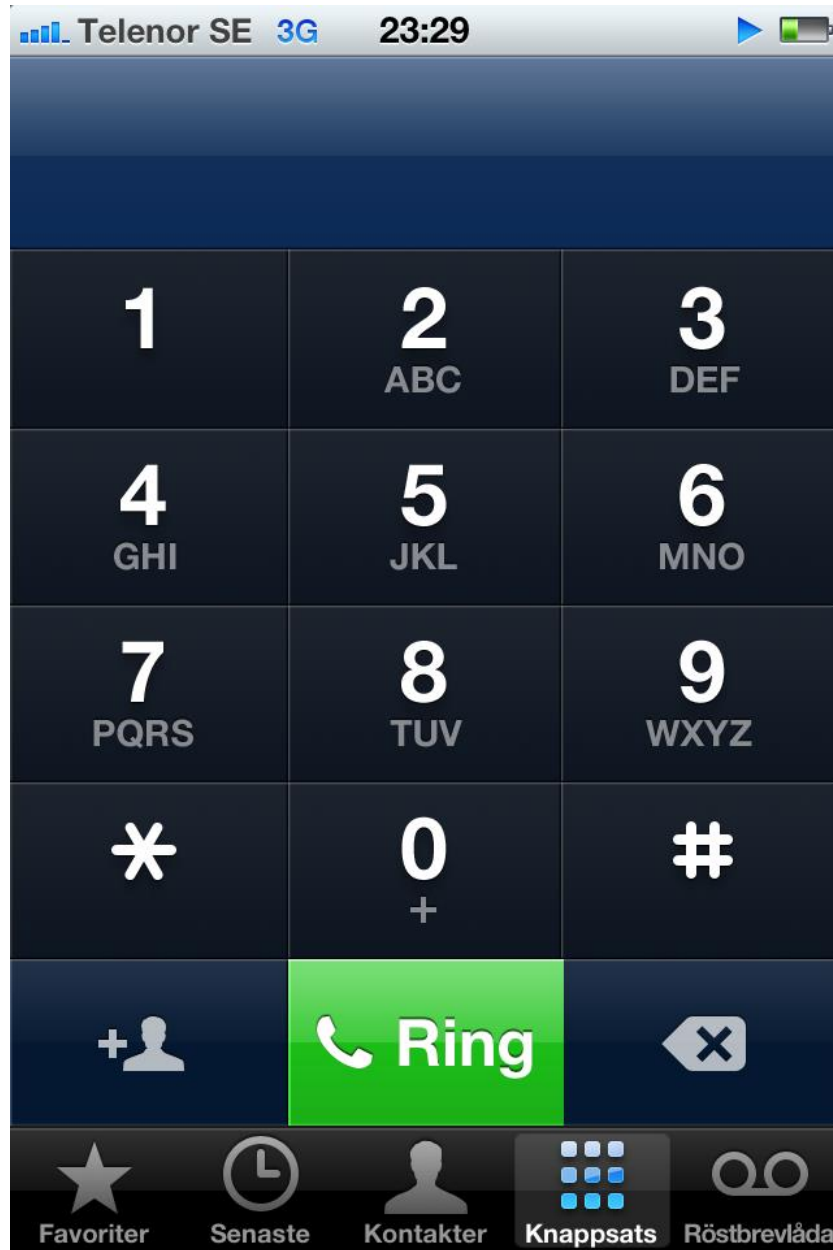


Design

- A touch phone is a gadget
- Need to think about ergonomics
- Not only visual design
- Feel right
 - Physics
 - Rubberbanding etc
- Blank slate
 - Turn into something

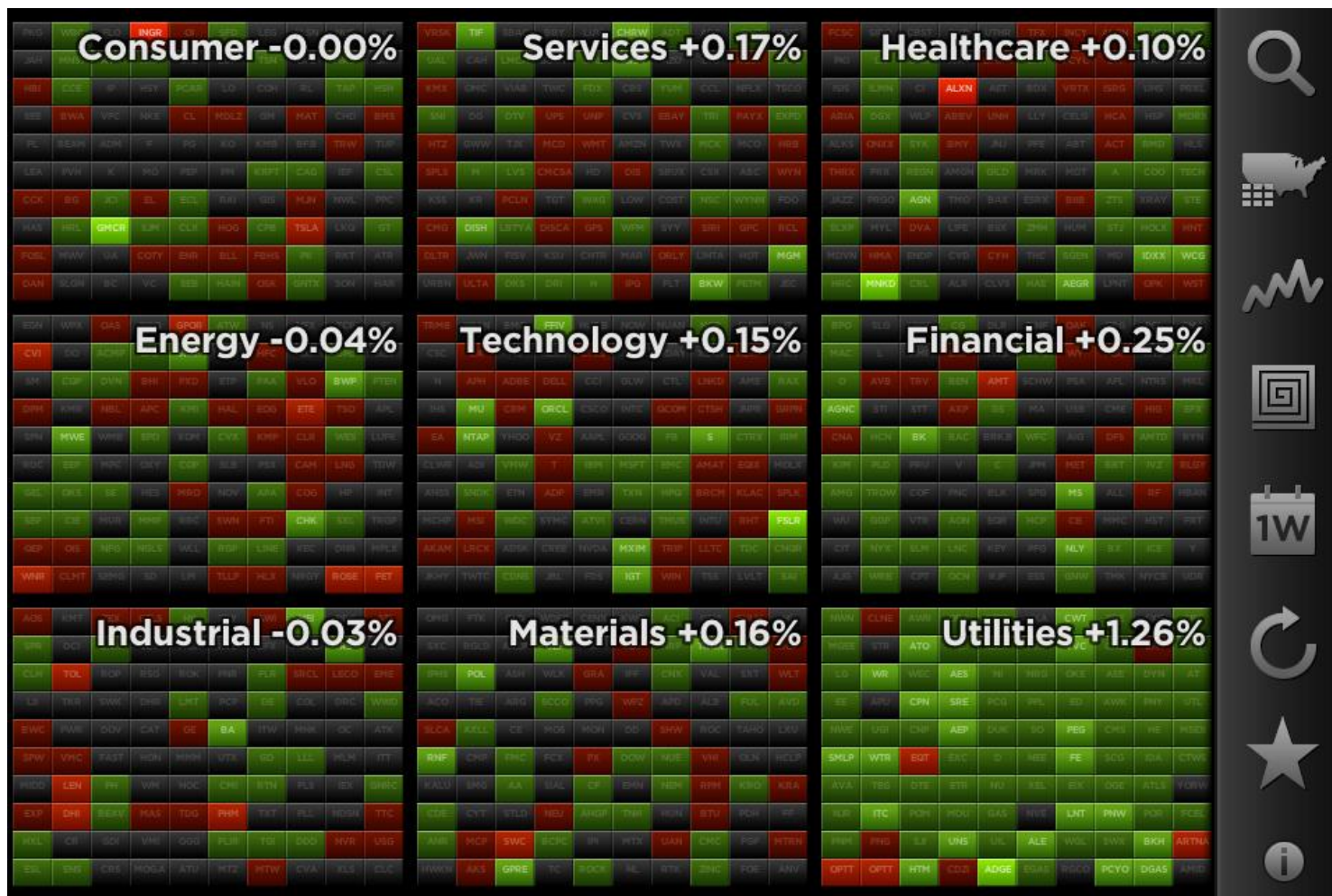
Blank Slate















The Perfect Thing

- Anything-anytime-anywhere

