

SCREEN TIME

USER INTERFACE 19



LUKE WROBLEWSKI

LUKEW
IDEATION + DESIGN

IN 1952 AT...

CORNING

900° CELSIUS



GLASS

7,000
LB/SQ. INCH

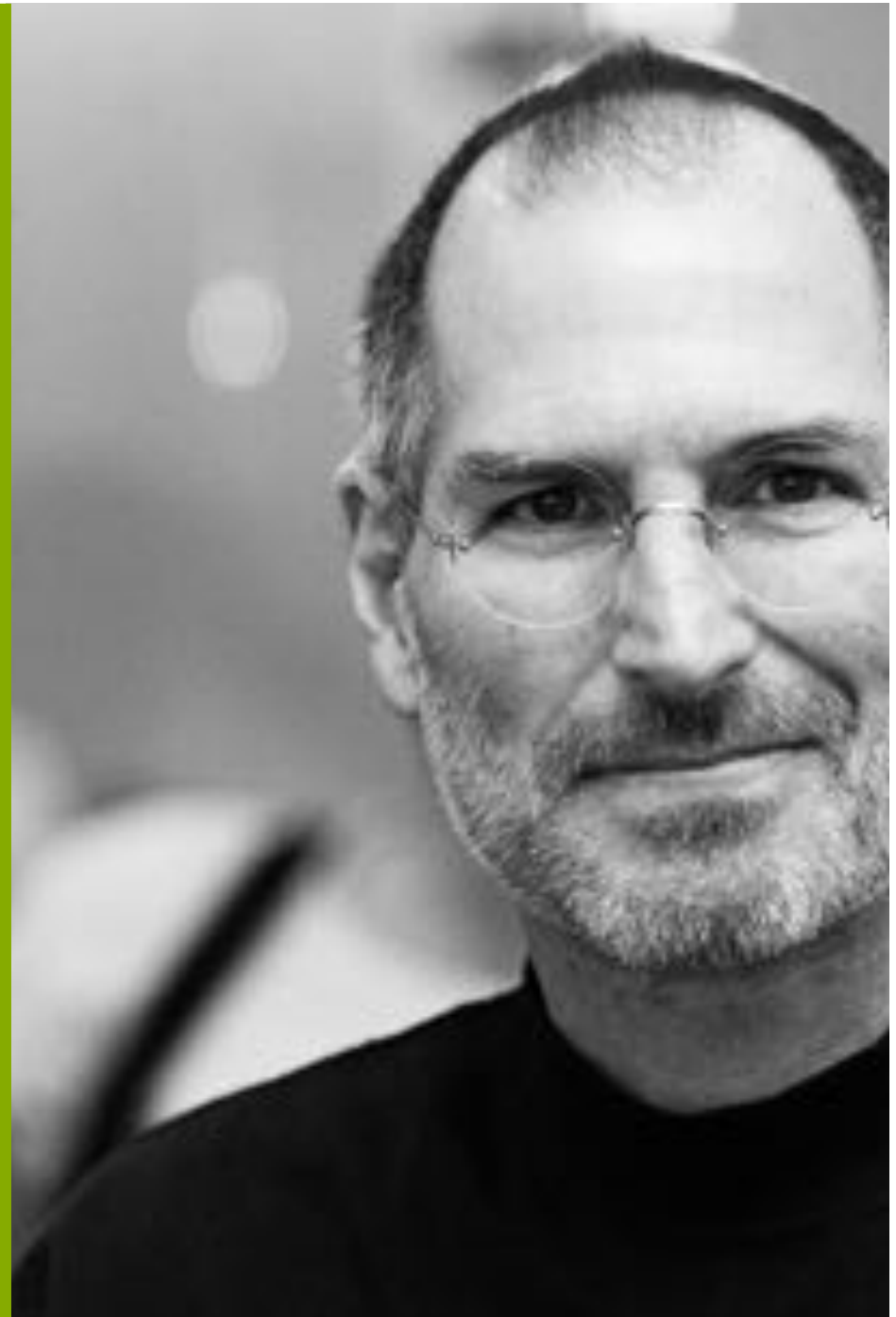


0317

100,000
LB/SQ. INCH



“Make millions of square feet of ultrathin, ultrastrong glass that doesn't yet exist.”



7 FOOTBALL FIELDS





CORNING
Gorilla® Glass

2013

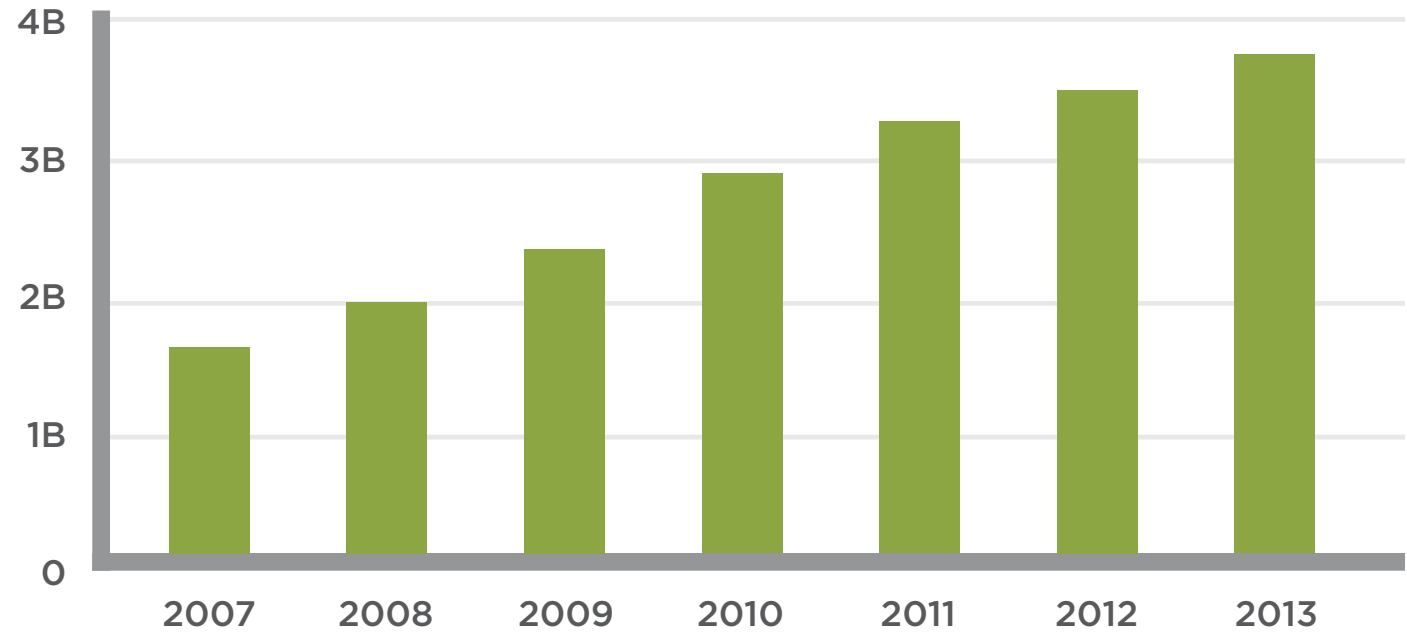
1.5B CONSUMER
DEVICES

2X OVER NEXT
FEW YEARS

CORNING
Gorilla® Glass

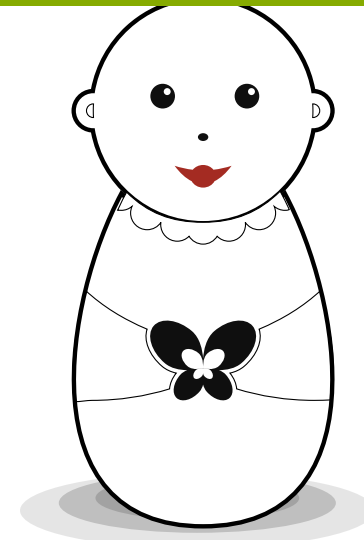
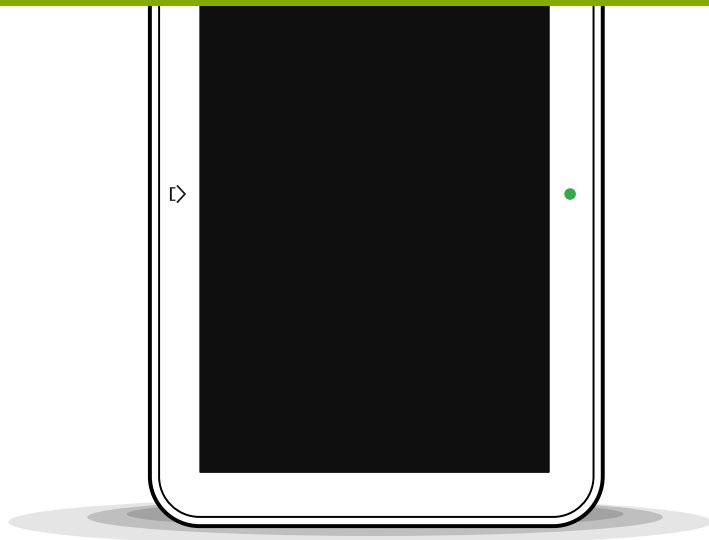


GLOBAL LCD SCREEN SALES (SQ. FEET)



“Half a square foot of LCD screen sold for every human on earth.”

IN JUST ONE YEAR



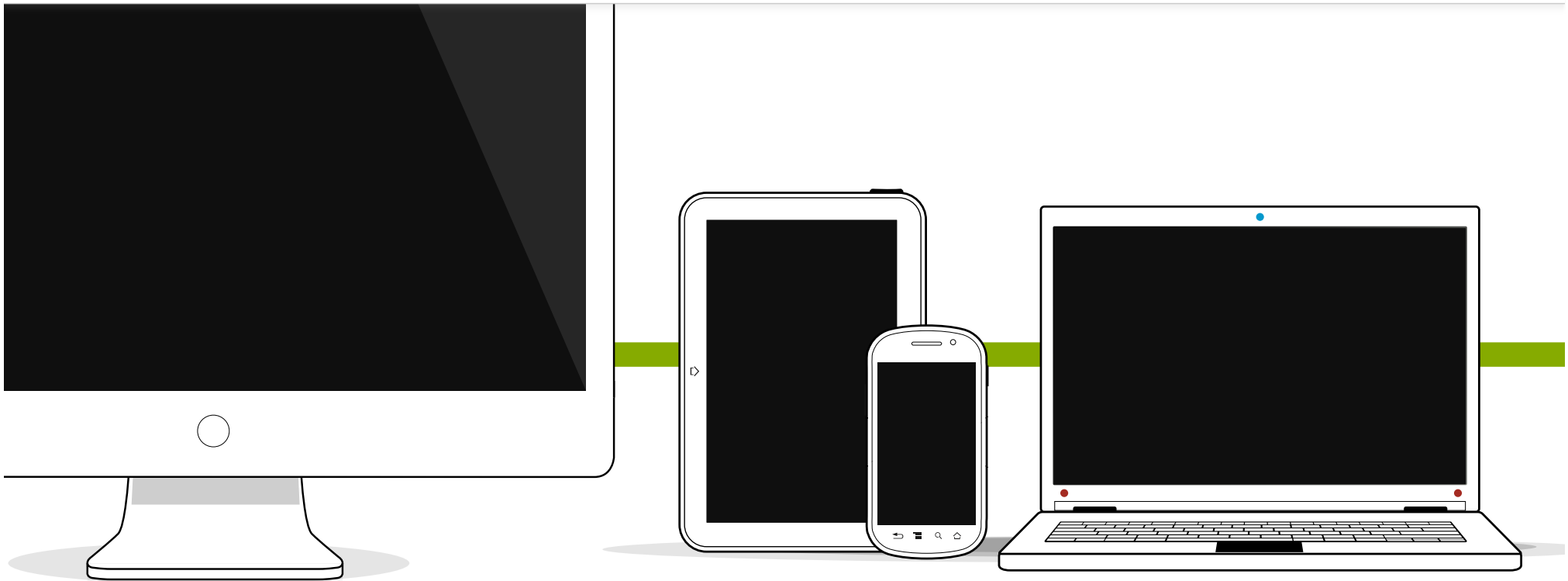
“We care about [the display] because we know that’s the window to the software.”

& the Internet!



IN A WORLD OF GLASS...

Online time is **screen time.**



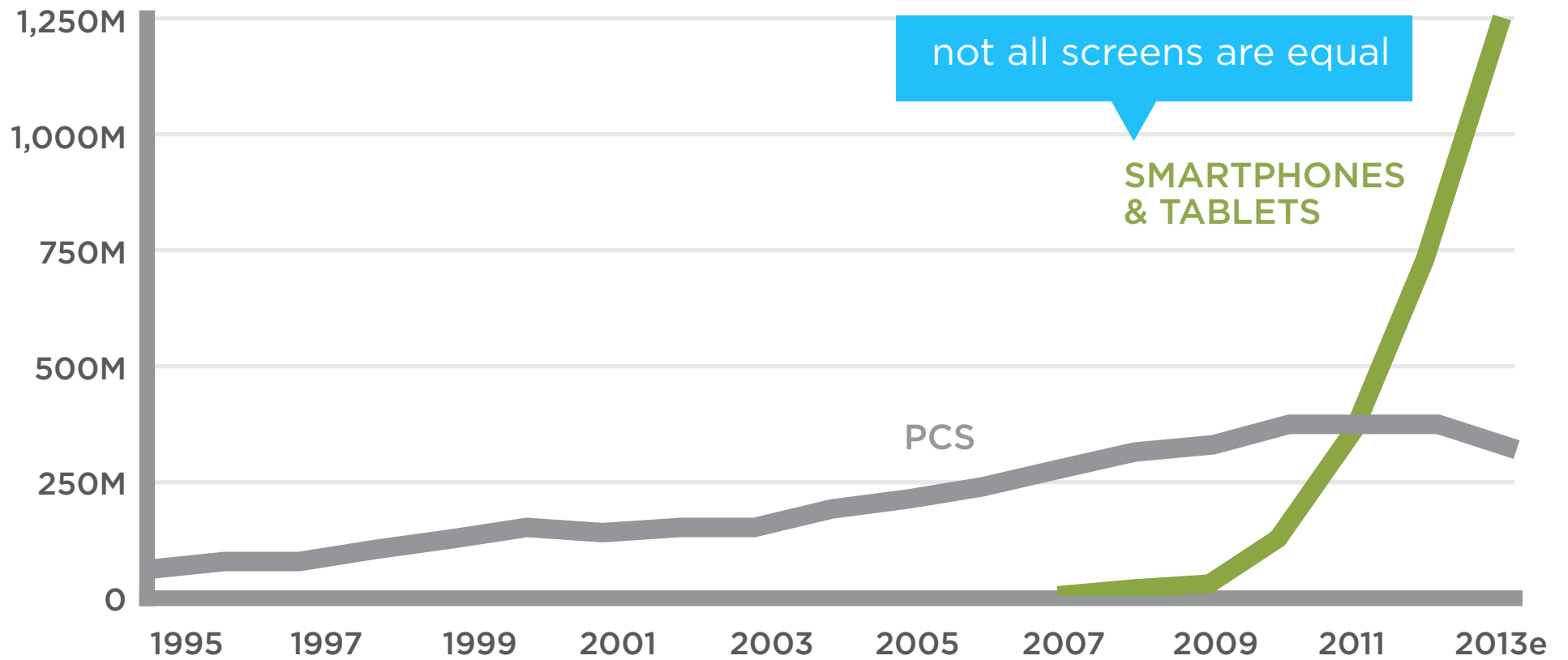


		Mobile Browser				Landscape			
		Portrait		Landscape		Portrait		Landscape	
		Non-constrained		Constrained		Non-constrained		Constrained	
Device	Property	Value	Value	Value	Value	Value	Value	Value	Value
iOS v2.0	screen.width	320	320	320	320	320	320	320	320
	screen.availWidth	320	320	320	320	320	320	320	320
	window.innerWidth	320	320	320	320	320	320	320	320
	window.outerWidth	320	320	320	320	320	320	320	320
	document.body.clientWidth	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	document.body.offsetWidth	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	media.deviceWidth	320	320	320	320	320	320	320	320
	media.width	320	320	320	320	320	320	320	320
	screen.height	480	480	480	480	480	480	480	480
	screen.availHeight	480	480	480	480	480	480	480	480
	window.innerHeight	320x480	320x480	320x480	320x480	320x480	320x480	320x480	320x480
	window.outerHeight	320	320	320	320	320	320	320	320
	document.body.clientHeight	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	document.body.offsetHeight	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	media.deviceHeight	480	480	480	480	480	480	480	480
media.height	480	480	480	480	480	480	480	480	
document.body.clientWidth	0	0	0	0	0	0	0	0	
document.body.offsetWidth	portrait	portrait	portrait	portrait	portrait	portrait	landscape	landscape	
screen.width	320	320	320	320	320	320	320	320	
screen.availWidth	320	320	320	320	320	320	320	320	
screen.height	480	480	480	480	480	480	480	480	
screen.availHeight	480	480	480	480	480	480	480	480	

“Wow. Painful, on the whole.”

		Mobile Browser				Landscape			
		Portrait		Landscape		Portrait		Landscape	
		Non-constrained		Constrained		Non-constrained		Constrained	
Device	Property	Value	Value	Value	Value	Value	Value	Value	Value
Android v4.0	screen.width	320	320	320	320	320	320	320	320
	screen.availWidth	320	320	320	320	320	320	320	320
	window.innerWidth	320	320	320	320	320	320	320	320
	window.outerWidth	320x480	320x480	320	320	320	320	320x480	320x480
	document.body.clientWidth	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	document.body.offsetWidth	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	media.deviceWidth	320	320	320	320	320	320	320	320
	media.width	320x480	320x480	320	320	320	320	320x480	320x480
	screen.height	480	480	480	480	480	480	480	480
	screen.availHeight	480	480	480	480	480	480	480	480
	window.innerHeight	320x480	320x480	320x480	320x480	320x480	320x480	320x480	320x480
	window.outerHeight	320	320	320	320	320	320	320	320
	document.body.clientHeight	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	document.body.offsetHeight	-10000	-10000	-10000	-10000	-10000	-10000	-10000	-10000
	media.deviceHeight	480	480	480	480	480	480	480	480
media.height	480	480	480	480	480	480	480	480	
document.body.clientWidth	0	0	0	0	0	0	0	0	
document.body.offsetWidth	portrait	portrait	portrait	portrait	portrait	portrait	landscape	landscape	
screen.width	320	320	320	320	320	320	320	320	
screen.availWidth	320	320	320	320	320	320	320	320	
screen.height	480	480	480	480	480	480	480	480	
screen.availHeight	480	480	480	480	480	480	480	480	

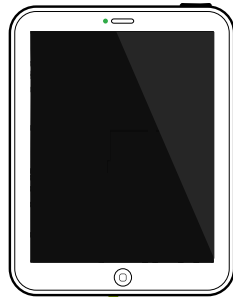
Global Sales



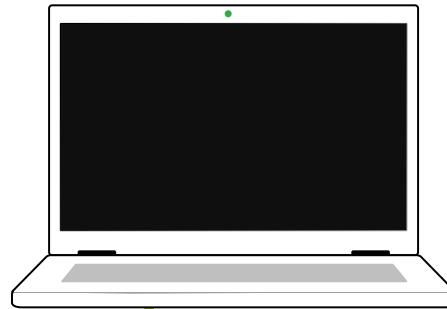
SMARTPHONE



TABLET



LAPTOP



DESKTOP



3"

5"

7"

9"

11"

13"

15"

17"

19"

21"

23"

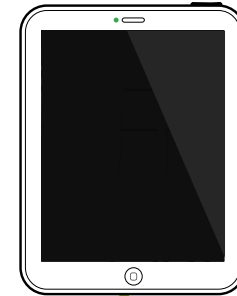
25"

27"

SMARTPHONE



TABLET



SMALL

MEDIUM

PHABLETS

SMALL

FULL SIZE

3"

5"

7"

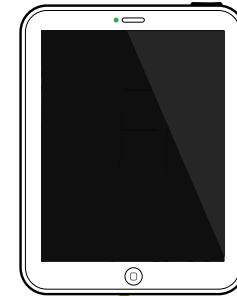
9"

11"

SMARTPHONE



TABLET



Device Models

SMALL

MEDIUM

PHABLETS

SMALL

FULL SIZE

3"

5"

7"

9"

11"

16%

69%

2%

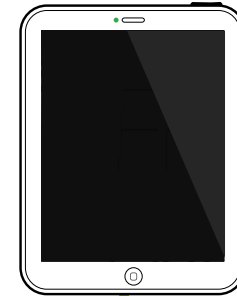
6%

7%

SMARTPHONE



TABLET



Active Users

SMALL

MEDIUM

PHABLETS

SMALL

FULL SIZE

3"

5"

7"

9"

11"

7%

72%

3%

5%

13%

SMARTPHONE



Sessions

SMALL

MEDIUM

PHABLETS

3"

5"

11"

4%

76%

3%

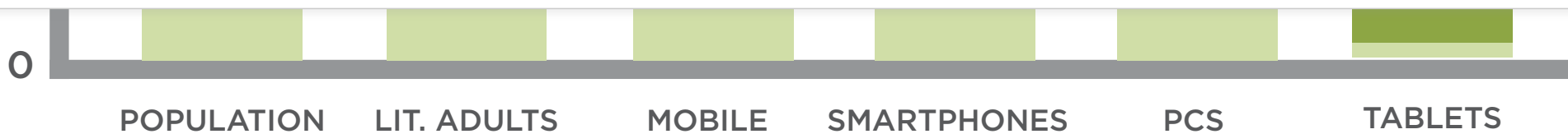


2017 Forecast



“Mobile is the first time the consumer tech industry has sold to every single person on earth.”

This takes some adjustment.



increasingly mobile



1. Know Your Screen
2. Output
3. Input
4. Posture



1. Know Your Screen
- 2. Output**
3. Input
4. Posture



SMARTPHONE

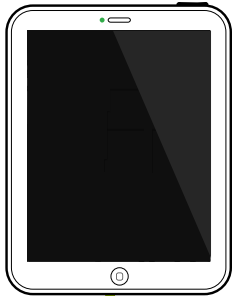


3"

5"

7"

TABLET



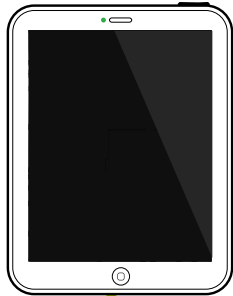
9"

11"

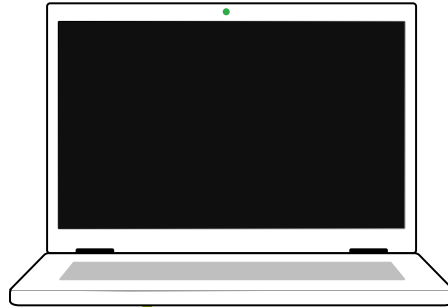
SMARTPHONE



TABLET



LAPTOP



DESKTOP



3"

5"

7"

9"

11"

13"

15"

17"

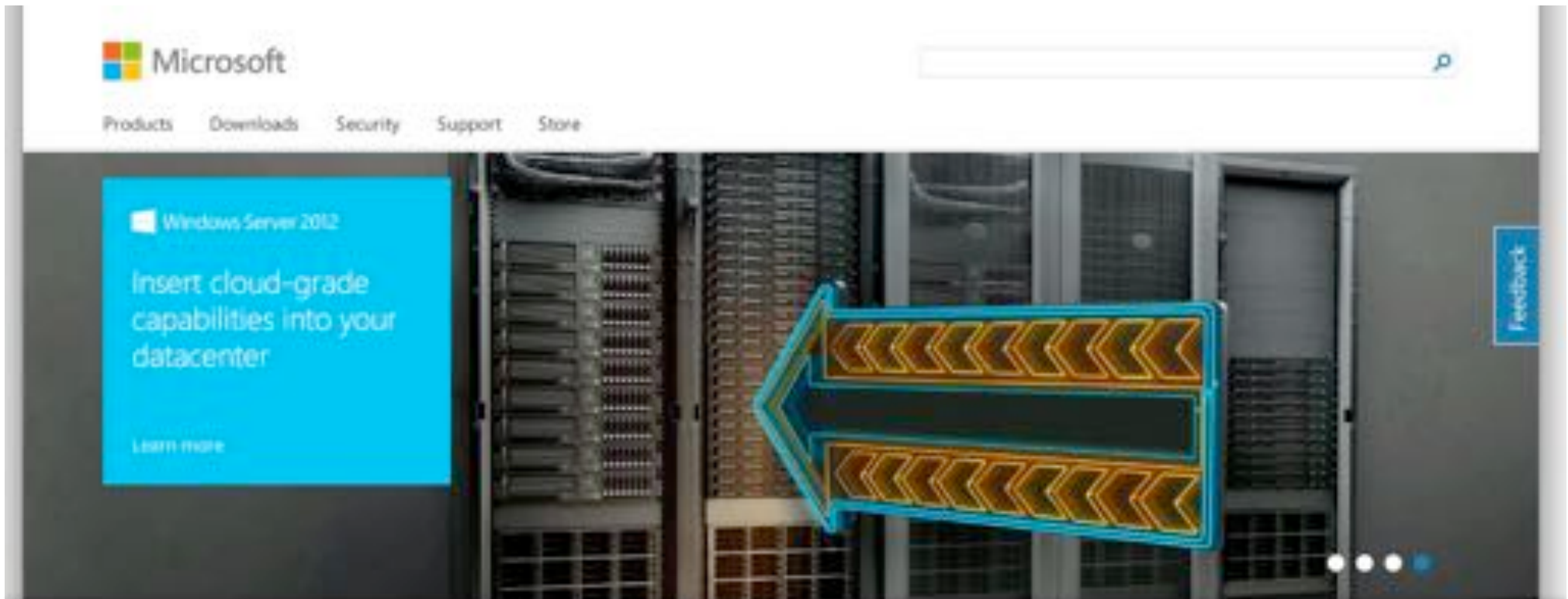
19"

21"

23"

25"

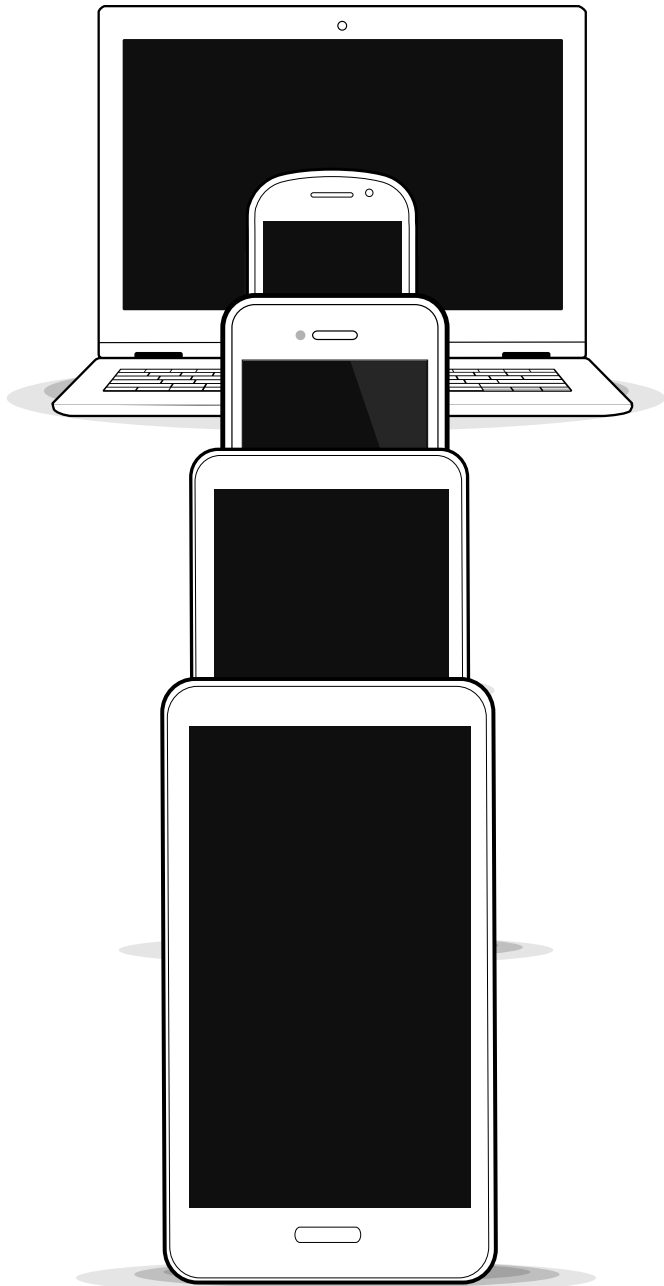
27"



```
@media screen and (min-width:70em) {  
  .BoxRight {  
    margin-left: 8em;}  
}
```

“not just the size but the resolution, the clarity, [...] we care about all those.”





~2016 PIXELS/INCH

SMARTPHONE



5"

2,560 x 1,440

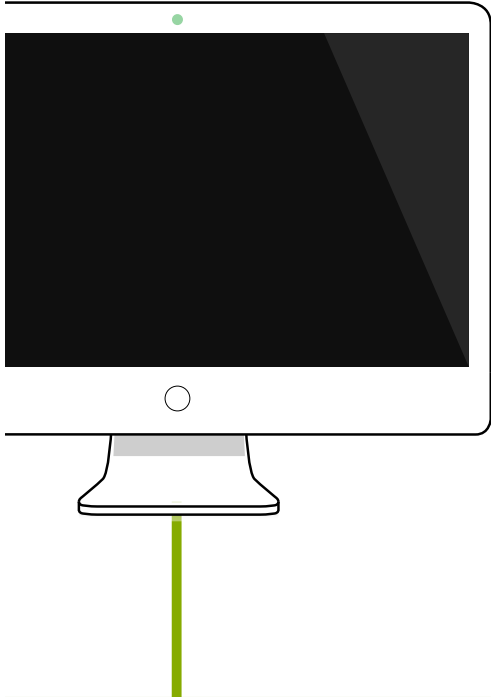
2,560 x 1,440

DESKTOP



27"

DESKTOP



27"

ULTRA HD (4K)

3840 x 2160



28"

\$699

SD
720 x 576

HD
1280 x 720

FULL HD
1920 x 1080

ULTRA HD
3840 x 2160

4K
4096 x 2160

“Mo’ pixels, mo’ problems.”





Pack is the beautiful new home for your dog online. We believe there's something magical about dogs and the people who love them. We're building something different just for you. Right now you can only join Pack by invitation only. Maybe you can see if anyone out there has one to give you!

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MEET A FEW OF OUR FAVORITE DOGS



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YOU AND BROADGATE PARK



Thoughtful packages



Embracing outdoor



Family



HALF A MILLION—AND COUNTING—PETITION FOR TURTLE BAN

WILY MEETS WITH DAN PHILLIP MANDEL AND CHANGING APPROACH TO TURTLE TRADE



WILY

In an interview on 4 May 2011, wily met with Dan Phillip, a conservationist and turtle expert.



THE ACTOR

On 15 May 2011, wily met with actor Leonardo DiCaprio to discuss his role in the film 'In the Water'.



THE CITY

On 15 May 2011, wily met with the Mayor of New York City, Michael Bloomberg, to discuss the city's role in the turtle trade.



THE TIGER

On 15 May 2011, wily met with the Director of the WWF, Andrew C. Ross, to discuss the tiger trade.



heathlife

A PORTRAIT OF HAMPSHIRE HEATH

PHOTOS

MEMORIES

SHARE



1. Use CSS & web type whenever possible
2. Use SVG & icon fonts whenever applicable

resolution media query

```
@media only screen and (min-device-pixel-ratio: 1.5) {  
.class {  
  background: url(img@2x.png);  
  background-size: 50%; }}
```



2160 x 3840

3840 x 2160

4:3

16:9

19:10

SD

720 x 576

HD

1280 x 720

FULL HD

1920 x 1080

ULTRA HD

3840 x 2160

4K

4096 x 2160



YouTube

NETFLIX

50%

North American
downstream
traffic

4:3

16:9

19:10

SD

720 x 576

HD

1280 x 720

FULL HD

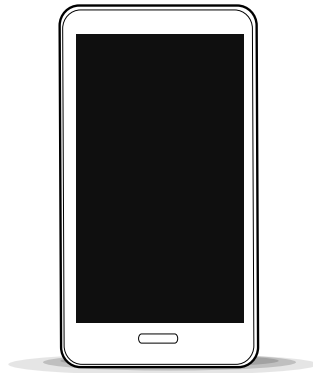
1920 x 1080

ULTRA HD

3840 x 2160

4K

4096 x 2160



IPHONE 5S
GALAXY S4
IPHONE 5C
HTC ONE
SONY XPERIA Z

top selling smartphones in US

4:3

16:9

19:10

SD
720 x 576

HD
1280 x 720

FULL HD
1920 x 1080

4K
4096 x 2160



"Simple is hard. Easy is harder. Usable is hardest." — Steve Jobs
Stanford, 2005



\$300 off UX
Immersion.
Use code
UXIM2014.

New Layouts for the Multi-Device Web

By Luke Wroblewski

May 11, 2013

Most Web page layouts rely on design patterns created for laptop and desktop computers equipped with a mouse and keyboard. As the **variety of devices** being used to access the Web has grown, these patterns haven't been keeping up. Designing for today's Web means considering single-handed thumb use on smartphones, two handed touch interactions on tablets, mouse and keyboard input on traditional PCs, hybrid devices, and more. Web layouts have to evolve to support this new reality.

The New Reality

As device diversity increases, so does the number of ways people interact with the Web. To understand the impact of a specific device on interaction design and layout, we can **look at three things**: output as mostly defined by a screen, the input types available, and common postures or modes of use (strongly influenced by input and output capabilities). For example, consider the modern smartphone.

Today's smartphones are defined by palm-sized screens (usually 3-5 inches diagonally) of varying pixel density, multi-touch input, and predominately one-thumb use with the device about a half arm's length away. **A recent study** of 1,333 people using smartphones on the street found that about 75% of smartphone use is one thumb. Web layouts need to **take this reality into account**.



New Layouts for the Multi-Device Web

By Luke Strobbe

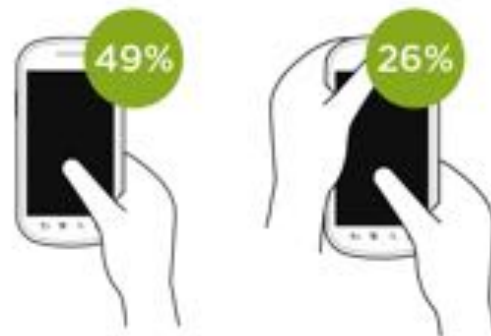
Nov 13, 2013

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Tablets also feature multi-touch input but they have larger lap-sized screens (7-10 inches diagonally) that have an impact on how they get used. With a larger screen one-handed use is less comfortable so two-handed use is more common. With two-handed touch interactions, the sides of the screen are the easiest to access with simple finger gestures. As **tablets continue to grow**, Web layouts also need to take this reality into account.

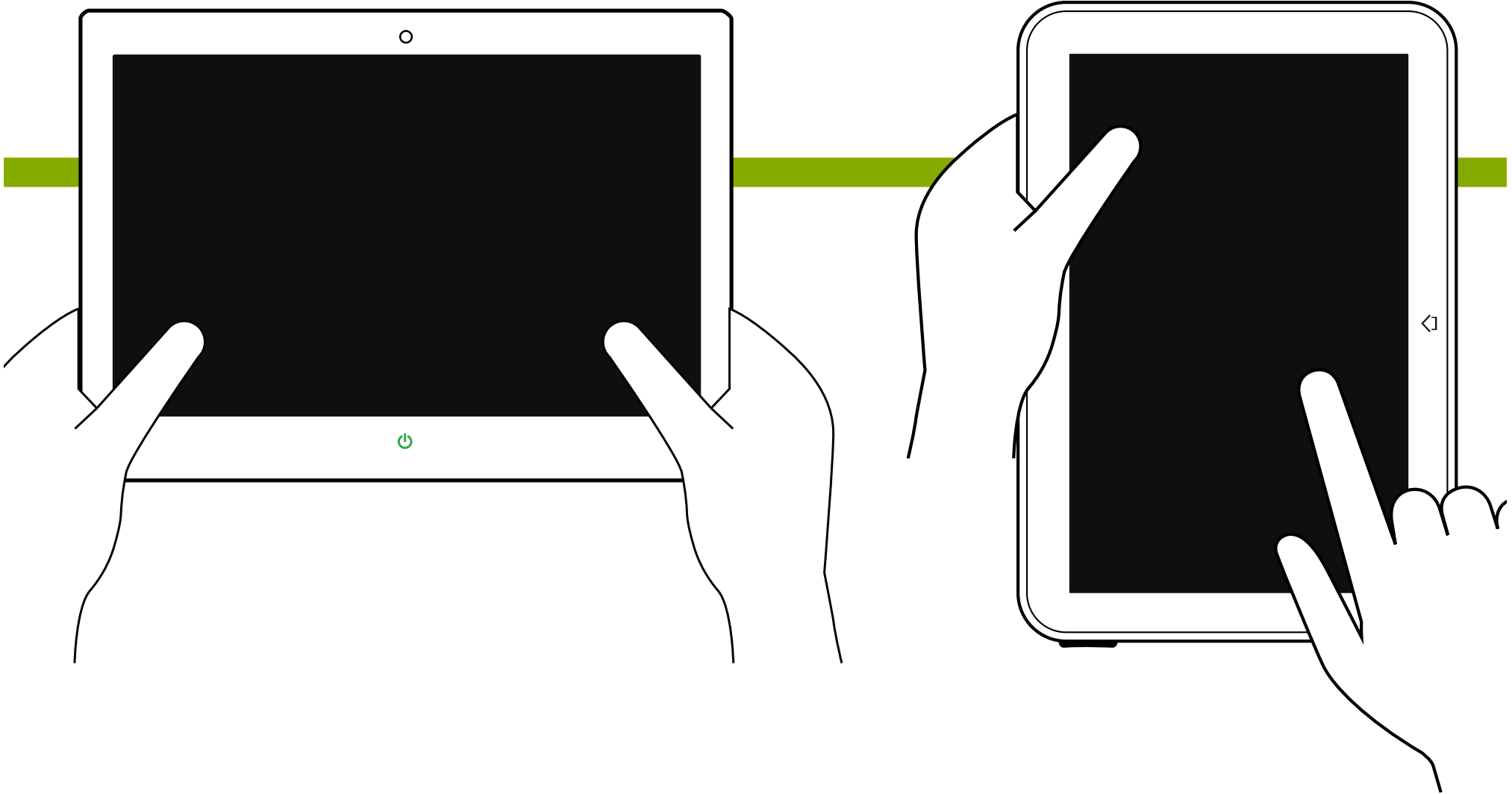




1366 × 768



768 x 1366

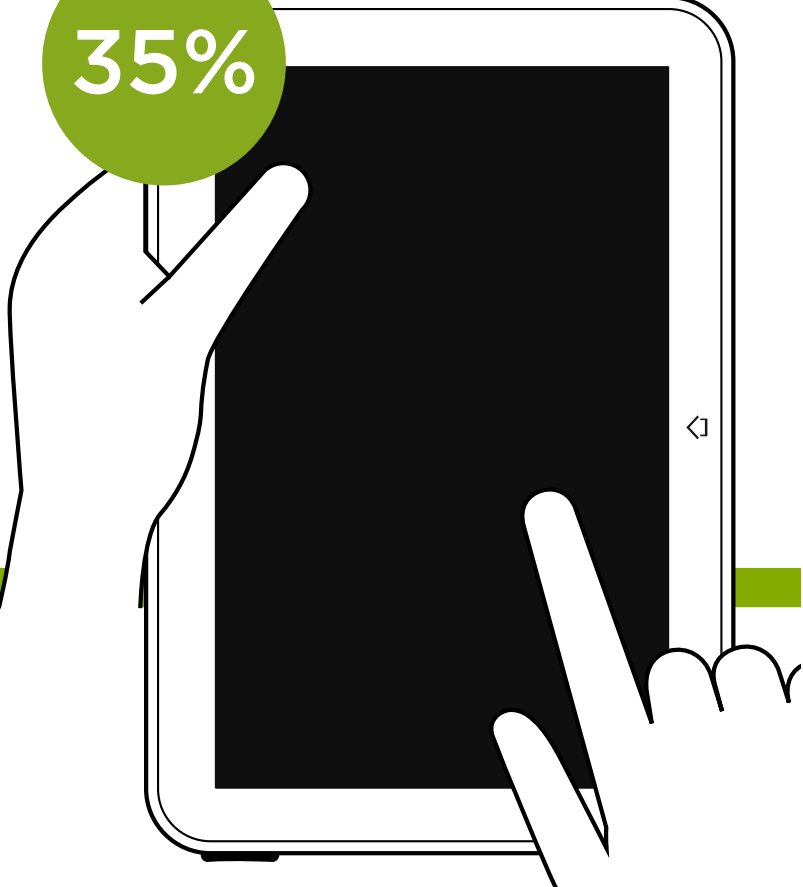
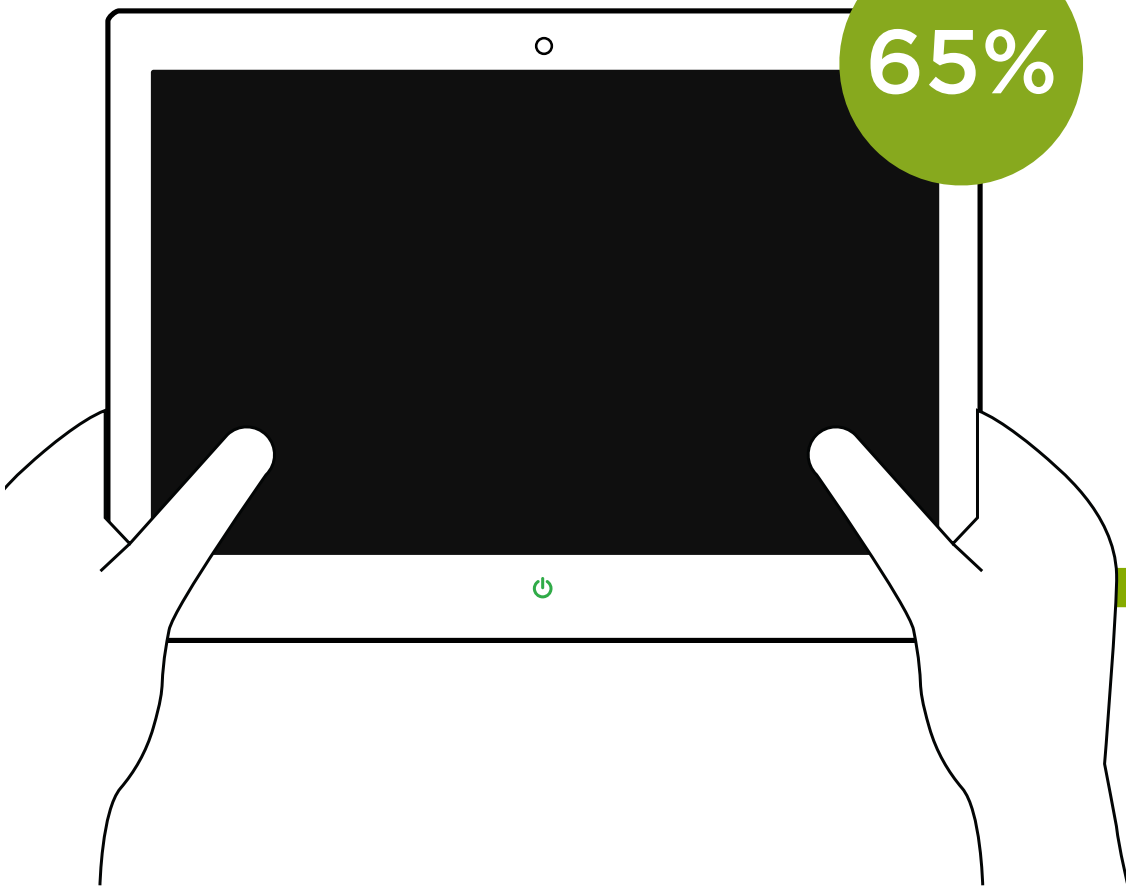


Horizontal (landscape)

Vertical (portrait)

65%

35%





@media screen and (min-width: 75em) and (min-height: 30em)

vertical media query

copy at widths above 900px would be my final answer, but I decided to drop in one more increase last week:

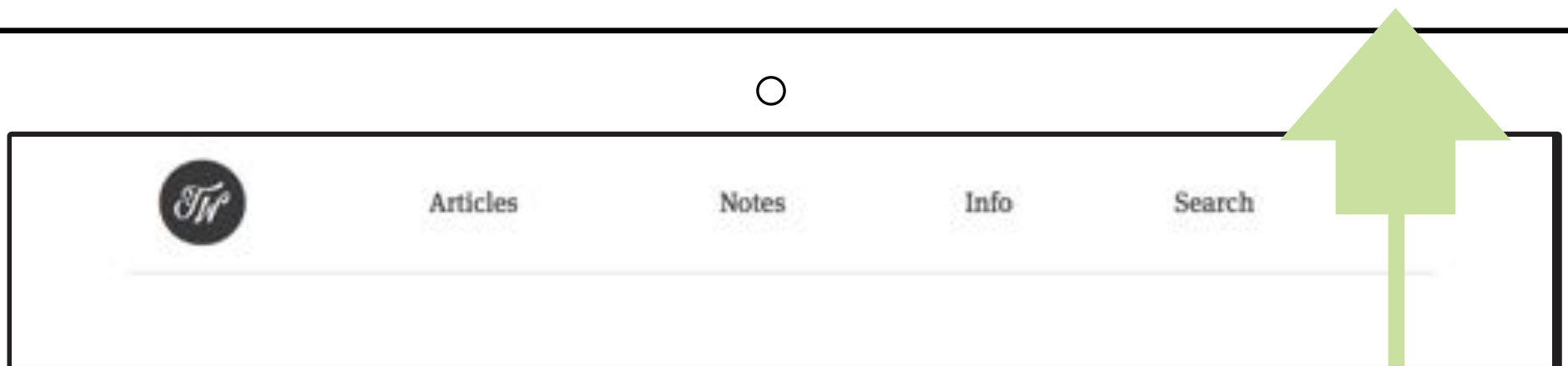
```
media screen and (min-width: 1234px) and (min-height: 768px) {  
  body {font-size: 137.5%;}  
}
```

This bumps body copy up to 22px for those bold enough to view the site at least 1234px wide. Why 1234px? Just because that's where, with all % values for widths & container padding, my site hits its max-width.

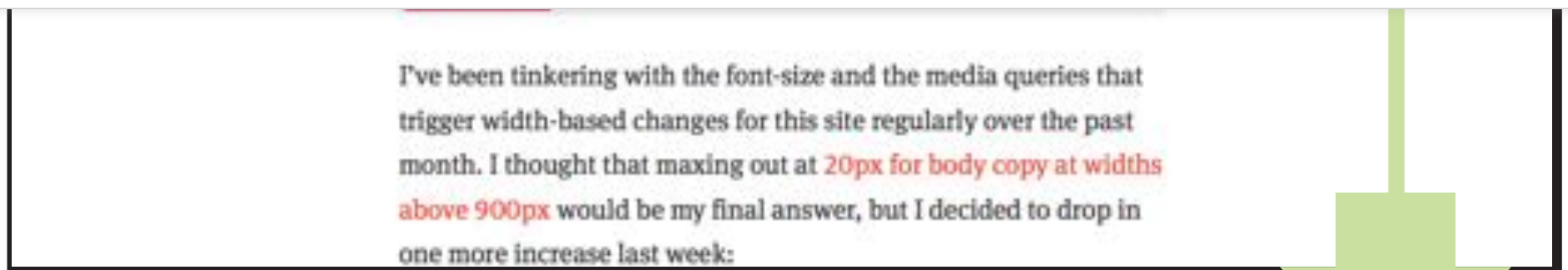
What's with the vertical media query? I used min-height to target screens that are wide enough to trigger the change, but not tall enough for it to make sense. As an example, my wife has an 11" MacBook Air that has a screen resolution of 1366px X 768px. With the menu bar & browser window, the screen is not tall enough to trigger that final bump up in font-size unless you enter into full screen browsing, which to me is a good thing.

But maybe vertical media queries could do much more than this. For projects where the fold "vasp" is a concern, per-

<http://j.mp/1eRrWn>



“[increase font size] on screens that are wide enough but not tall enough for it to make sense.”



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your unofficial guide to the world of Statamic

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v1.5 Sneak Peek 5: Other Features

AN ARTICLE · JAN 26, 2013 · by FRED LEBLANC

In this fifth and final installment for upcoming updates, we take a look at a couple of other features that found their way into the new version.

[READ →](#)

v1.5 Sneak Peek 4: New & Improved Fieldtypes

AN ARTICLE · JAN 24, 2013 · by FRED LEBLANC

In this fourth of our five installments, we look at the new and improved fieldtypes coming in the update, including: color, location, suggest, file, and grid.

[READ →](#)

v1.5 Sneak Peek 3: Add-On Architecture

AN ARTICLE · JAN 23, 2013 · by FRED LEBLANC

ON THE STATAMICIST

The Statamicist is a look into the world of Statamic — both in code & through its community.

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 [@statamicist](#)

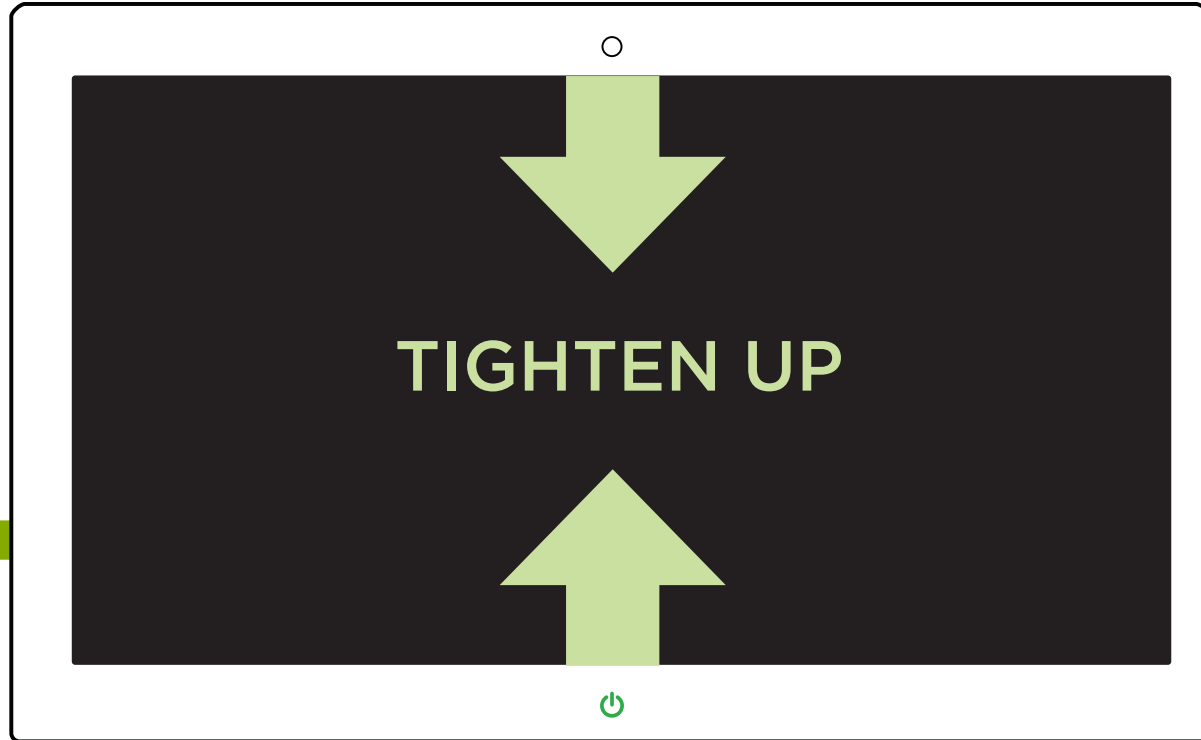
GET STATAMIC

Visit the [official site](#) to buy a license, read documentation, and more.

[VISIT STATAMIC →](#)

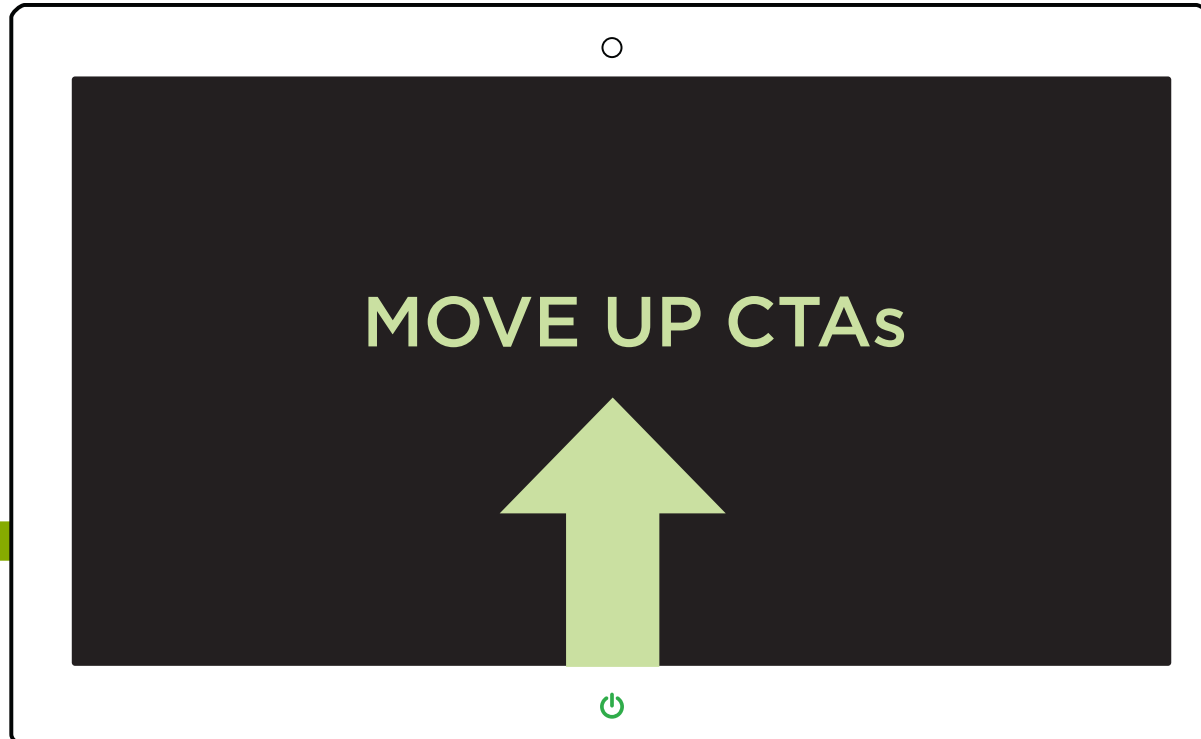
WIDE

SHORT



WIDE

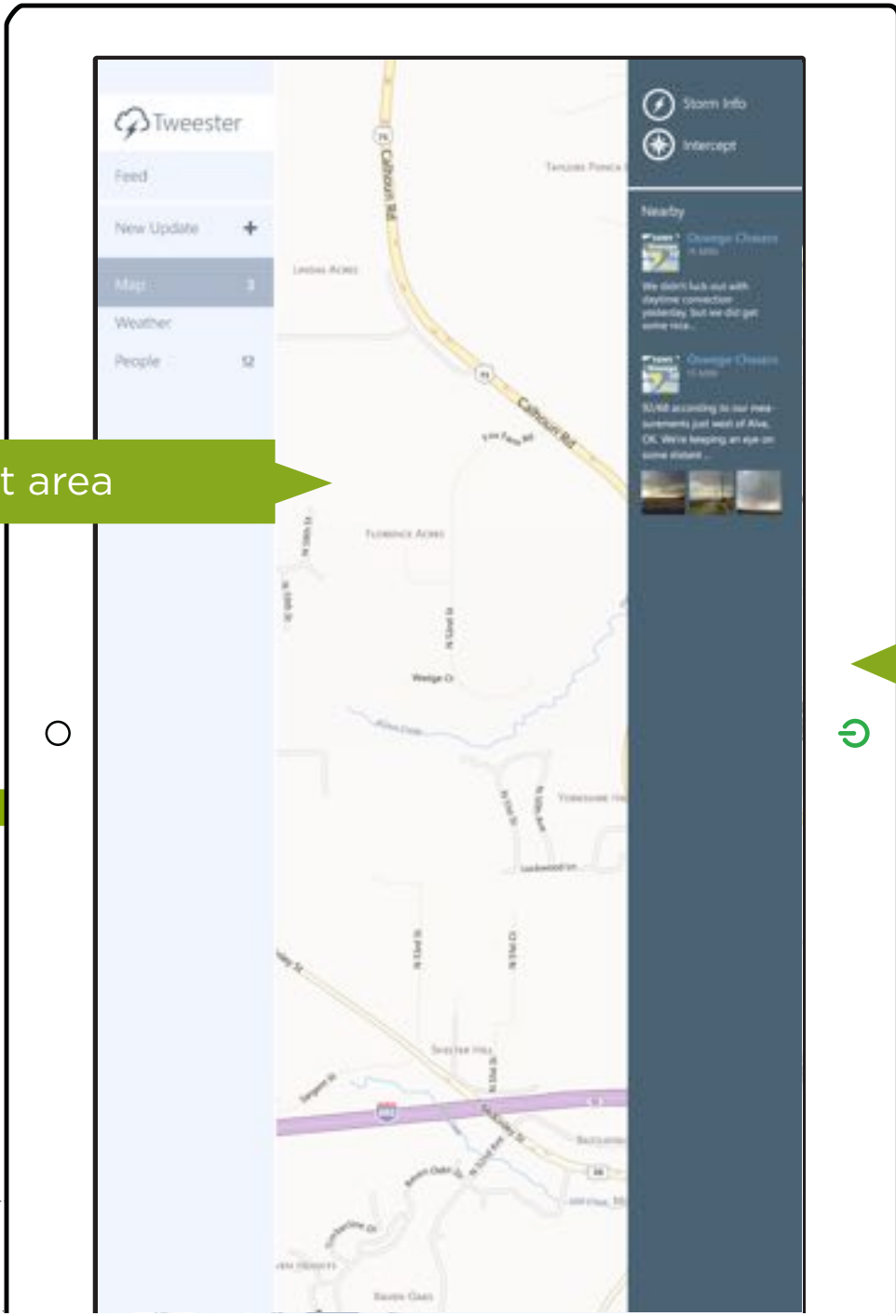
SHORT





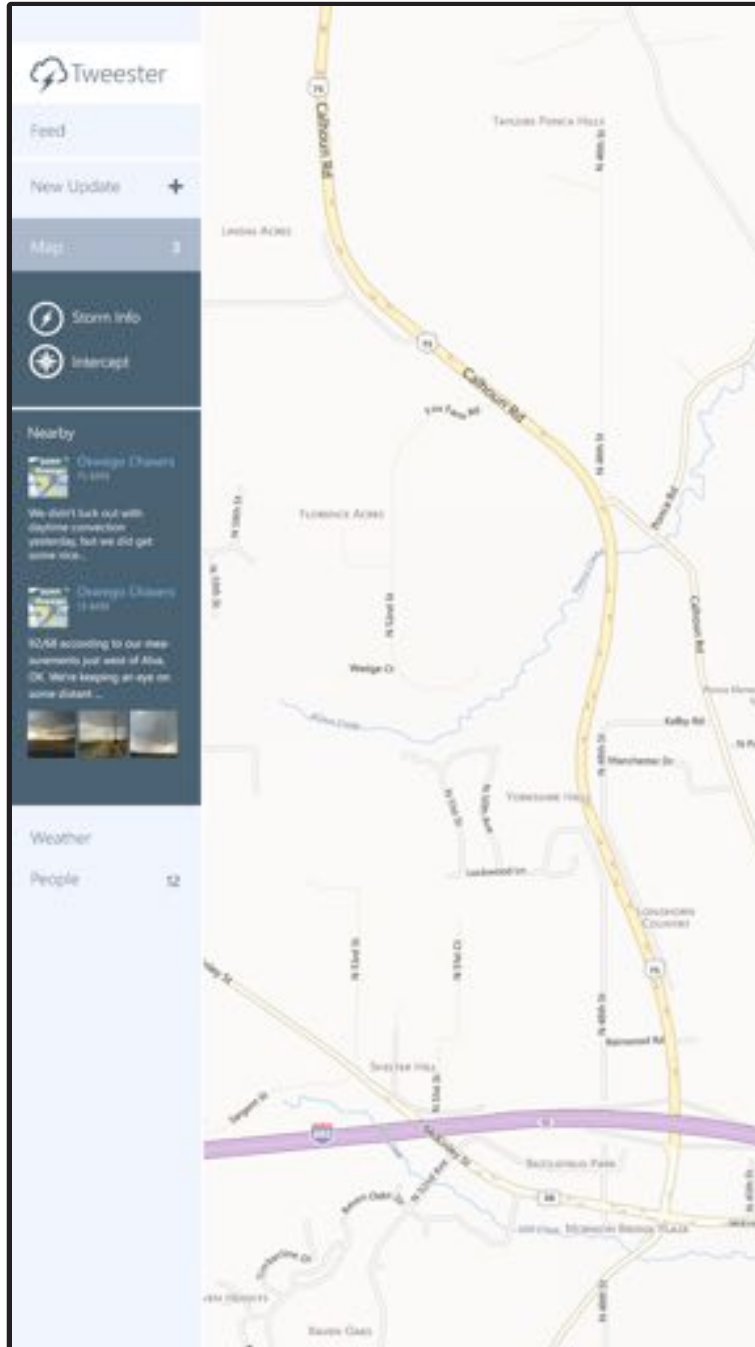
minimal content area

excess menu space



rearrange menus

maximize content



menu access



consistent UI

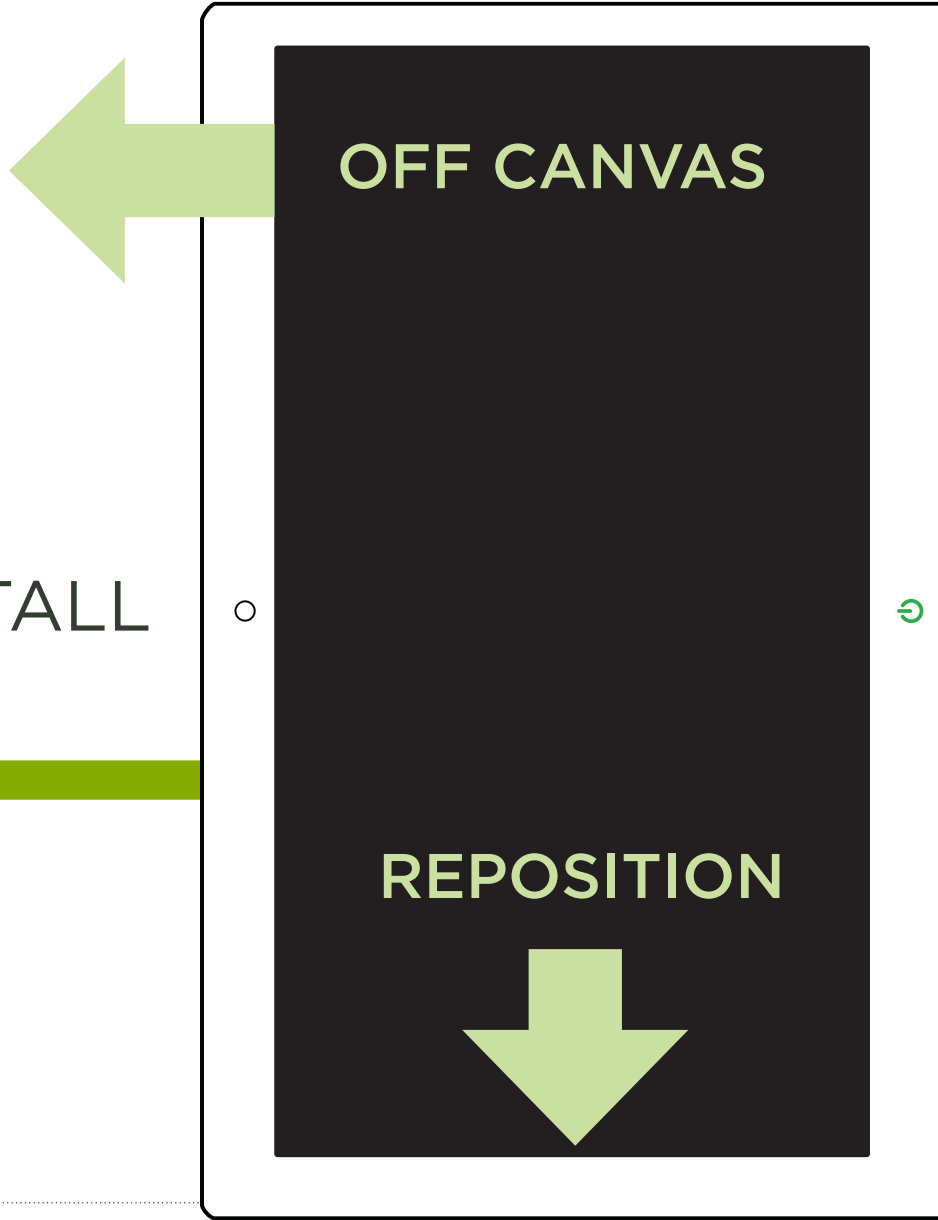


menu access



horizontal orientation

NARROW





OUTPUT

1. Trend toward high resolution
2. Trend toward widescreen aspect ratios
3. Media queries know about more than width



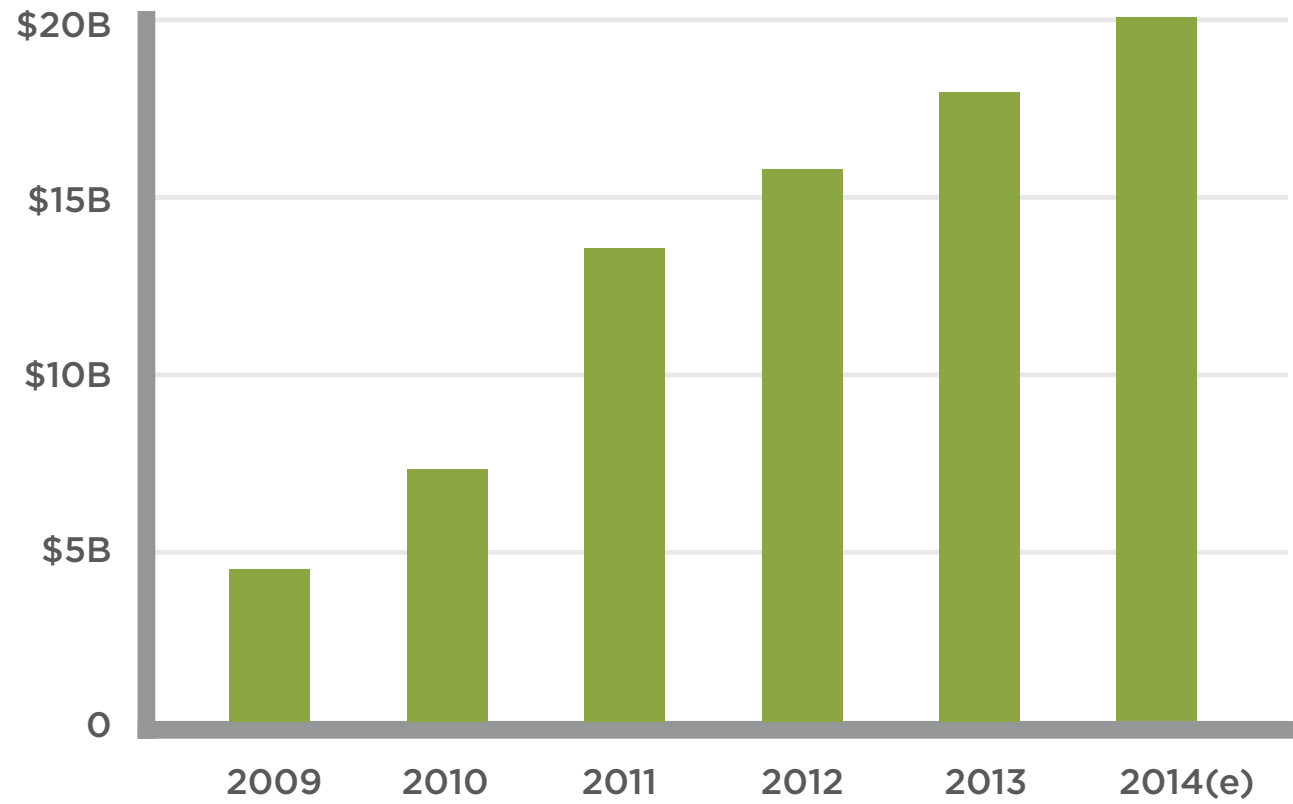
1. Know Your Screen
2. Output
- 3. Input**
4. Posture



“Any piece of glass you can't touch and interact with will feel broken.”



TOUCH SCREEN REVENUE



FRONT CAMERA
GYROSCOPE
VOICE
MAGNETOMETER
GPS
MICROPHONE
ACCELEROMETER
CAMERA
BLUETOOTH LE



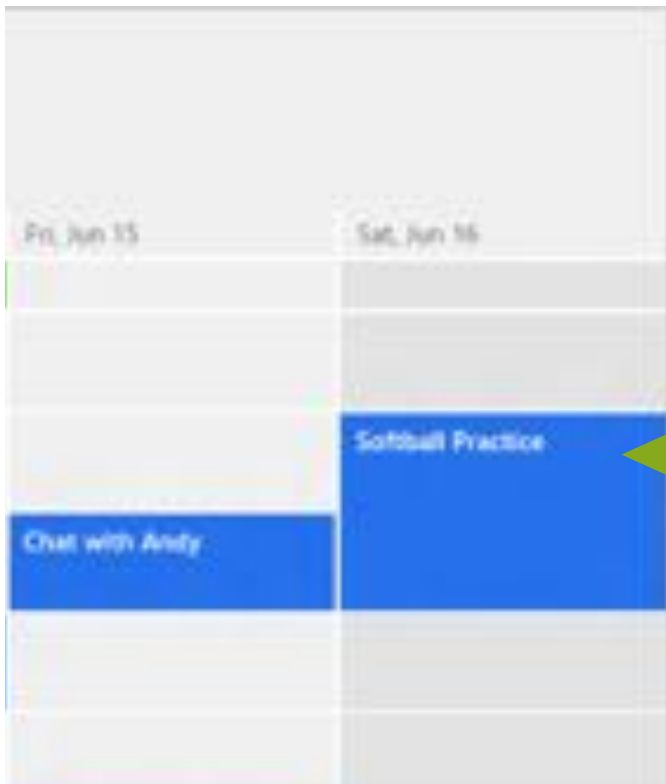




keyboard

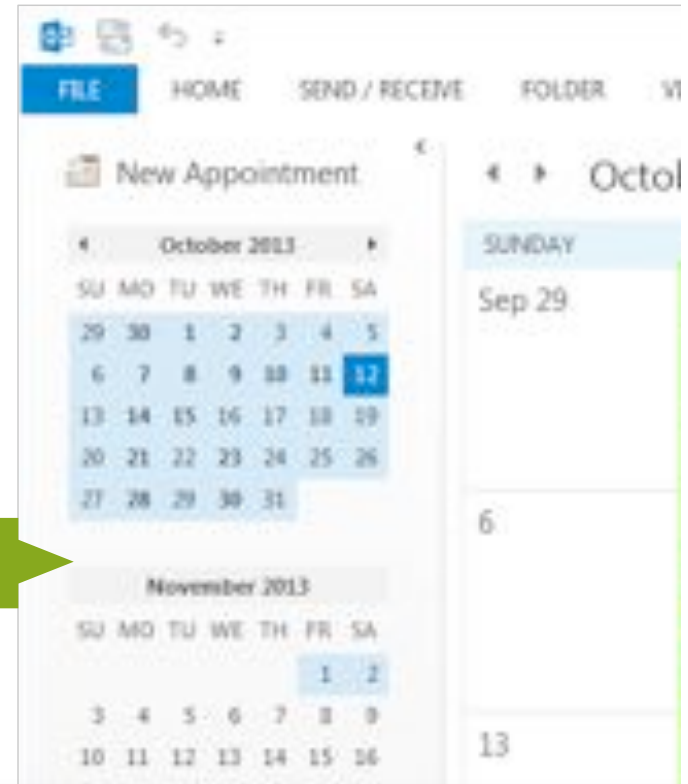
multi-touch

cursor (trackball)

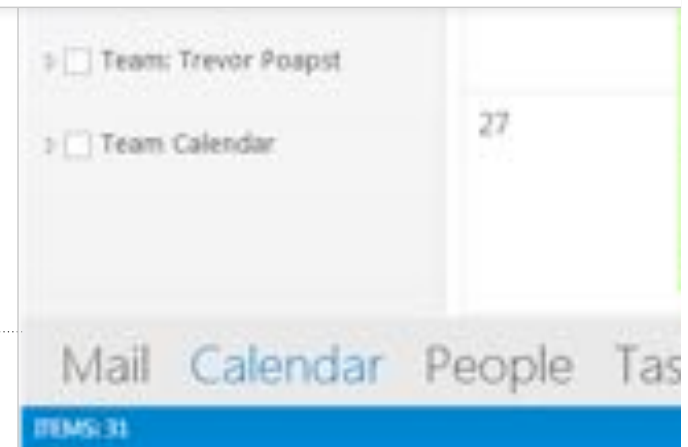


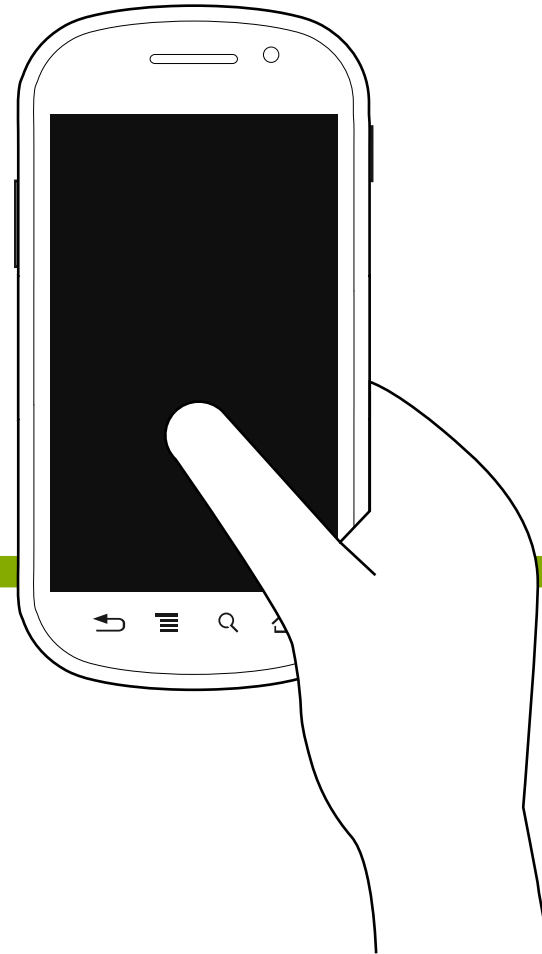
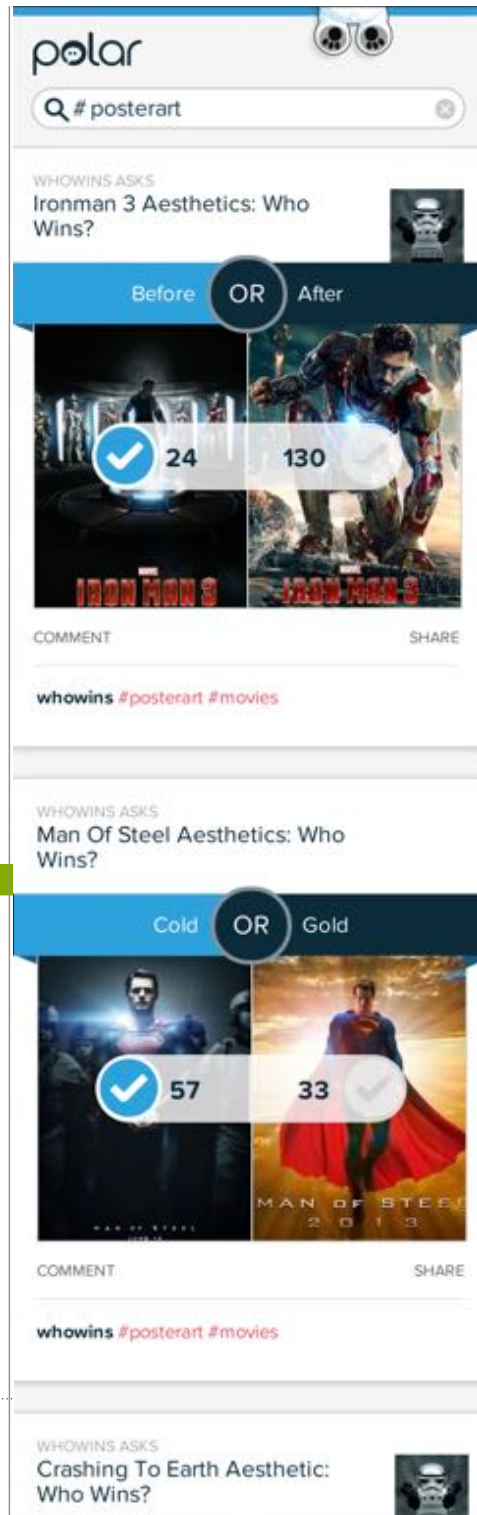
multi-touch UI

cursor & keyboard UI



“Can’t we just detect input type & change the interface?”







IRONMAN 3 Aesthetics: Who Wins?

Before **OR** After

 23	 130
--------	---------

COMMENT SHARE

#howins #ironman3 #movies

Man Of Steel Aesthetics: Who Wins?

Cold **OR** Gold

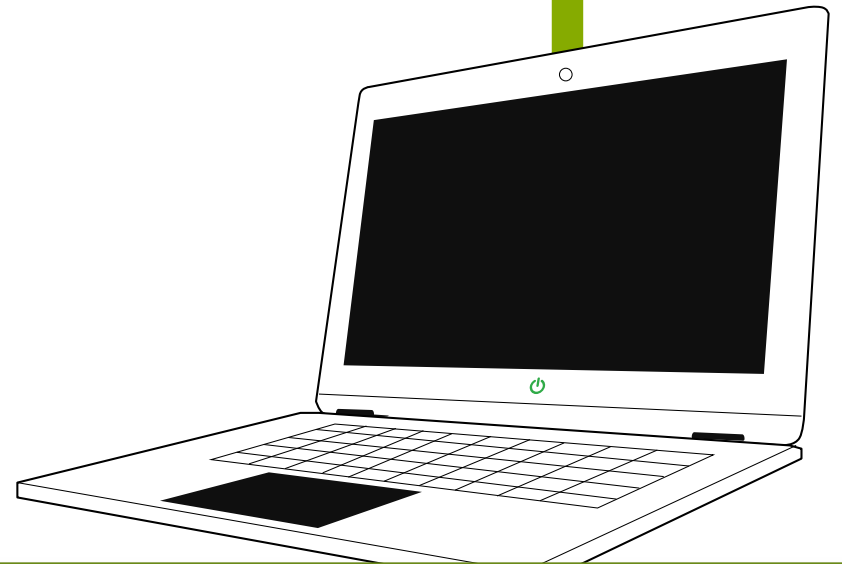
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do you have touch capabilities?

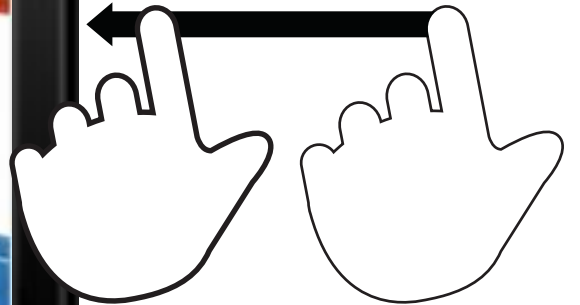
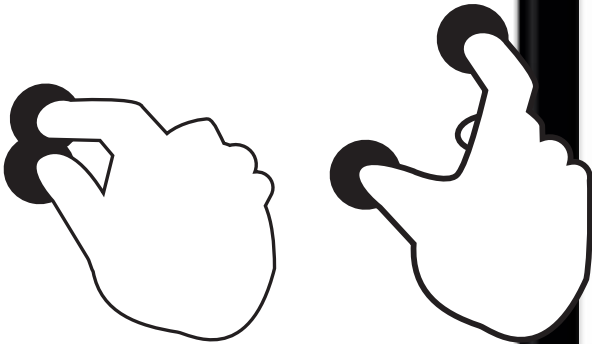
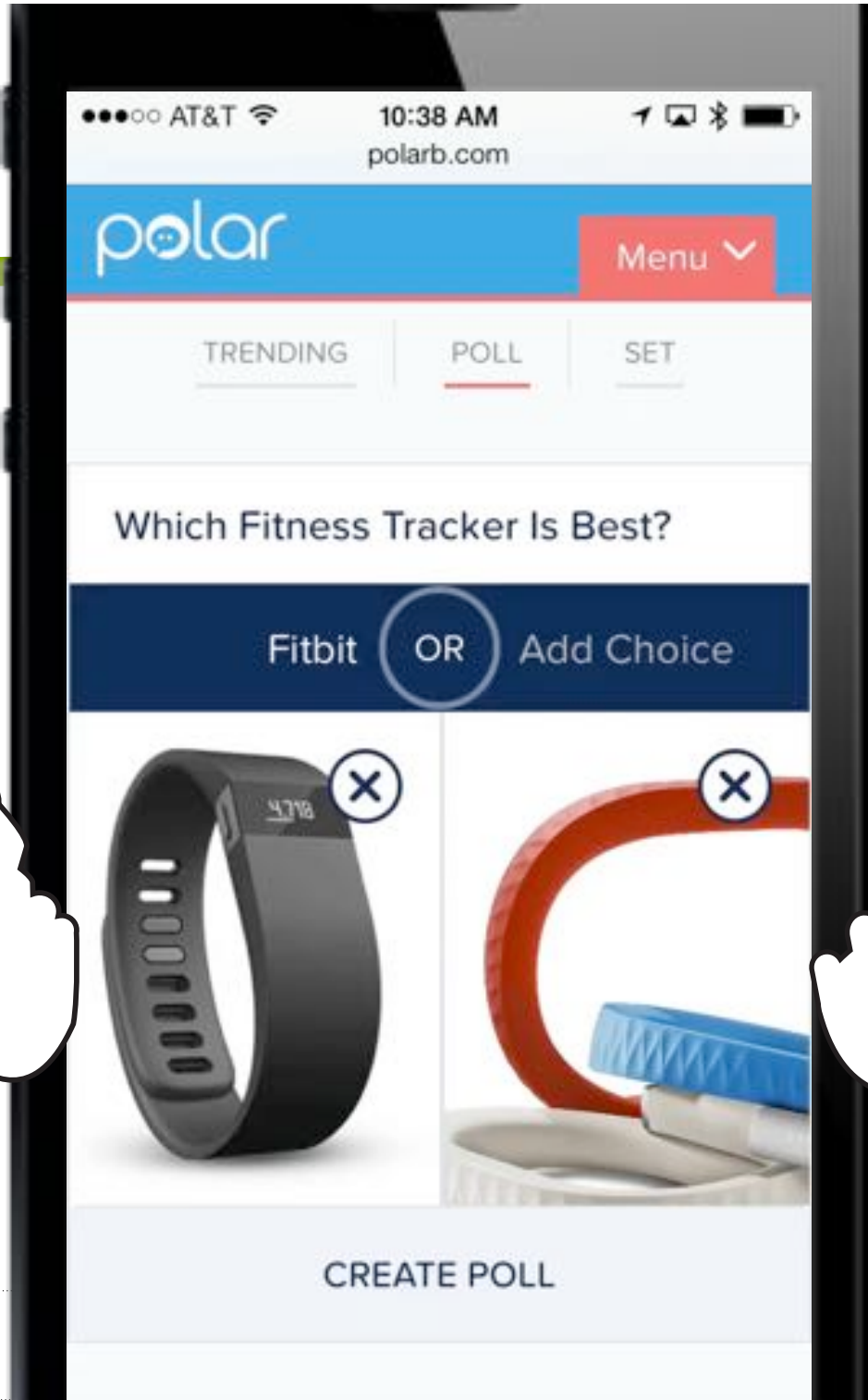
“Don’t attempt to switch between touch and mouse - just support both.”

- MacBook Pro
- iPhone 5
- Xcode iPhone5 simulator
- Win8 Touchscreen PC with keyboard (IE10 browser)
- Win7 PC with keyboard (IE9 browser)
- Win7 PC with keyboard (Chrome browser)
- Win7 PC with keyboard (Firefox browser)
- Kindle Fire (old, Android 2.x, modded)
- Microsoft Surface/Explorer 10 (with keyboard attached)
- Win8 Touchscreen PC with keyboard (latest Chrome browser)
- Win8 Touchscreen PC with keyboard (latest Firefox browser, 18)
- Droid4 with qwerty physical keyboard out (default browser)
- Asus Transformer with dockable keyboard (default browser)
- Microsoft Surface/Explorer 10 (with NO keyboard attached)
- Samsung Series 7 Tab/Explorer 10 (with NO keyboard attached)

- There's not a great way to do this in browsers today
- We need a general solution (e.g. navigator.hardware object)



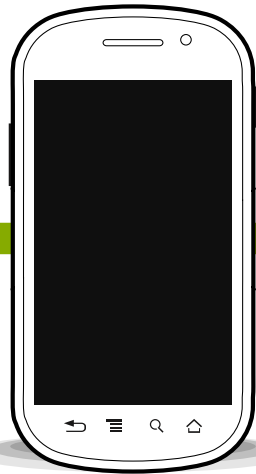
“downplay the keyboard shortcuts when screen size is smaller & ~~touch is present.~~”



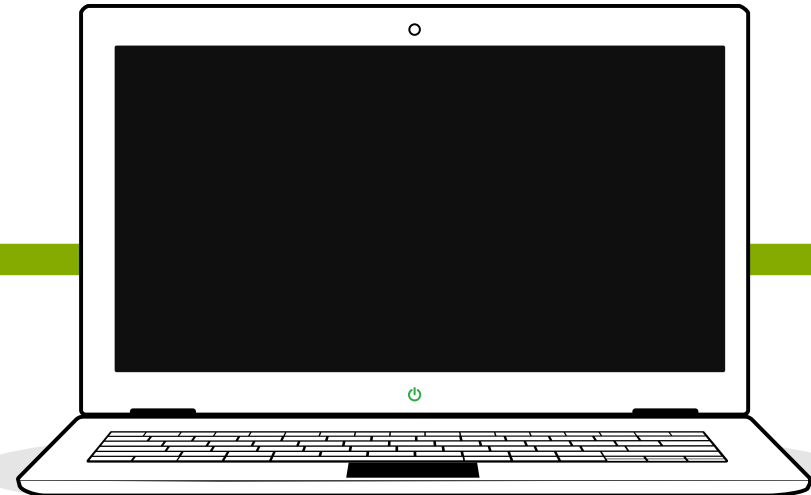


Screen size is a poor proxy for input.

Multi-touch



Cursor & Keyboard





MEDIA QUERIES LEVEL 4

```
@media (pointer:coarse) {  
  input[type="checkbox"] {  
    min-width: 30px;  
    min-height: 40px;  
  }  
}
```

INPUT

1. Support **all** the inputs
2. Communicate what's possible
3. Screen size is a poor proxy but it's all we got *for now...*



1. Know Your Screen

2. Output

3. Input

4. Posture

how people interact
with output & input



“One of Netflix’s mathematicians is known as 10-Foot User Interface Guy.”

Viewing Distance

“There’s also Two-Foot Guy, who deals with laptops, and 18-Inch Guy for tablets.”



Lots of Screens

44%	LAPTOP/PC
23%	SMARTPHONE
17%	SMART TV
16%	PC TO TV
15%	TABLET
15%	BLU-RAY PLAYER
13%	WII
12%	PS3
10%	XBOX 360
500	MORE SKUS



POSTURE

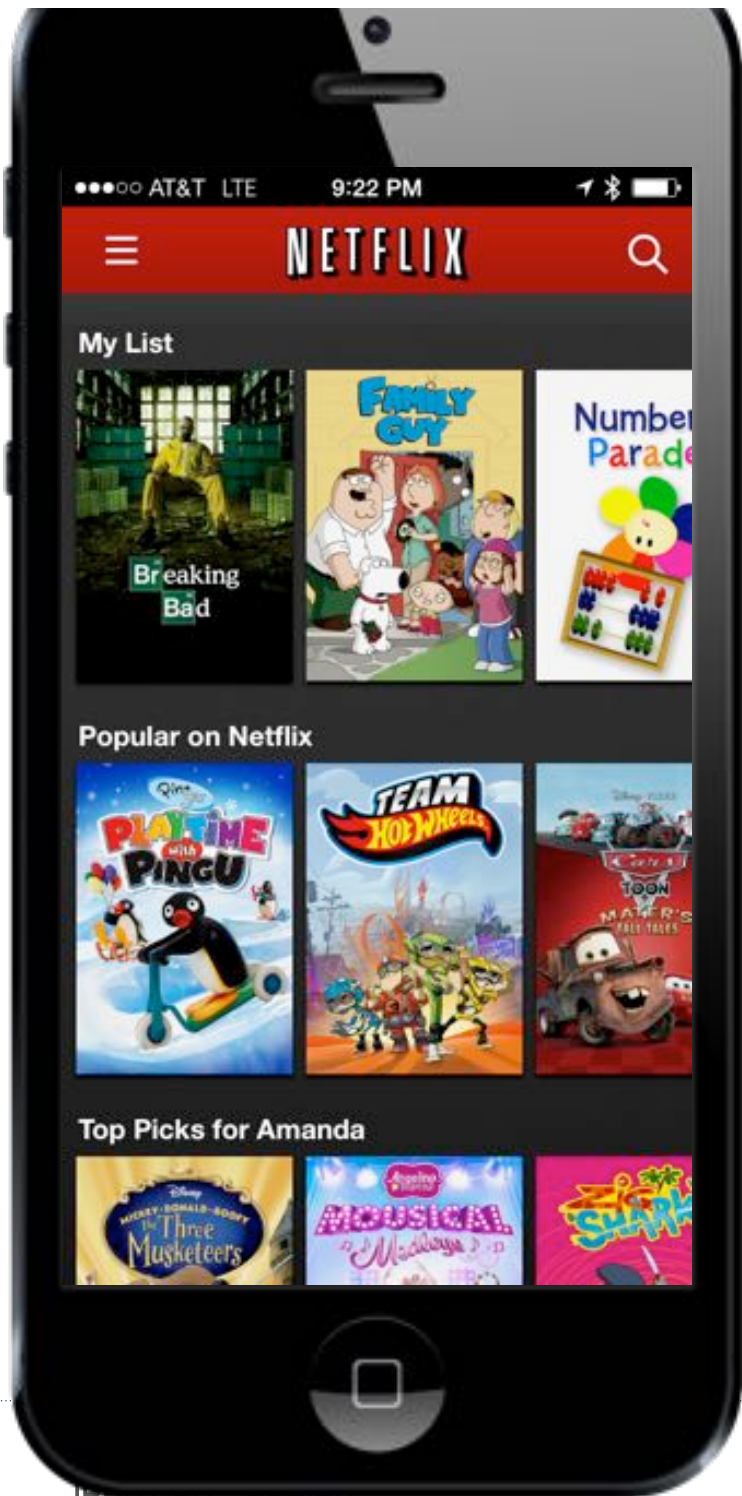
83% 10 FT.

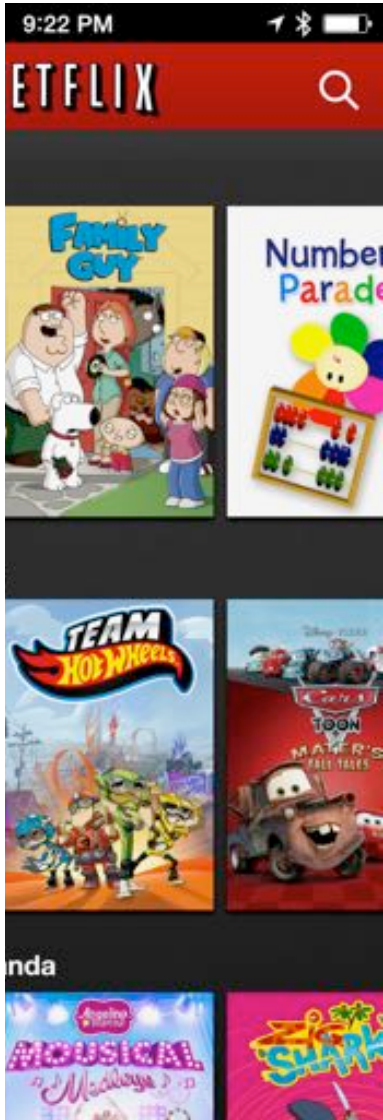
44% 2 FT.

23% 1 FT.

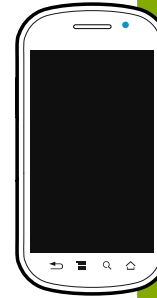
15% 1.5 FT.



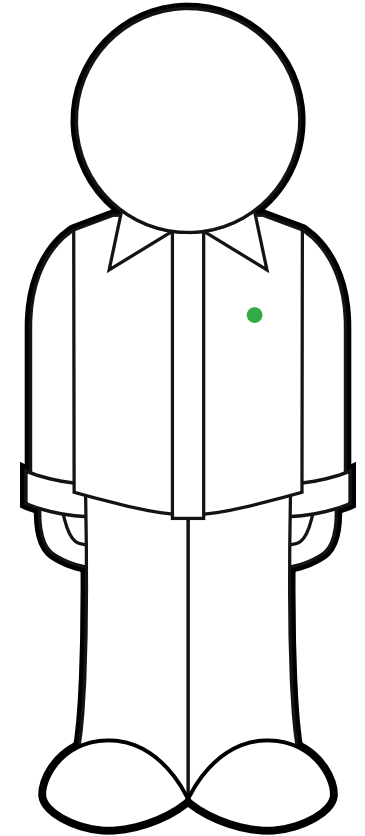


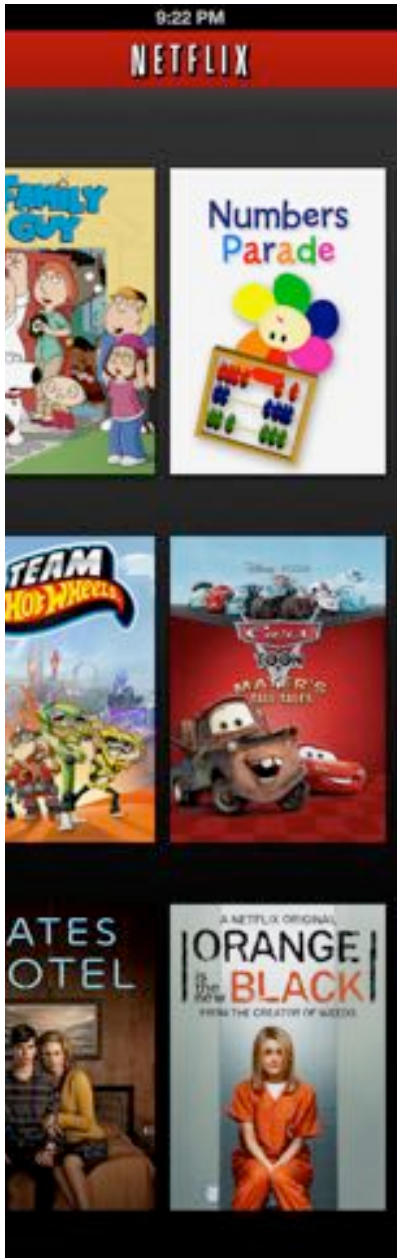


1"

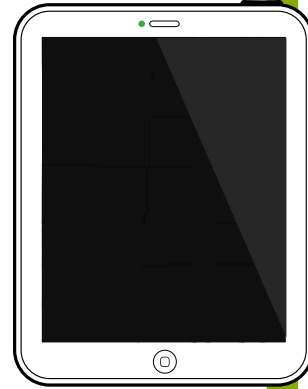


12"

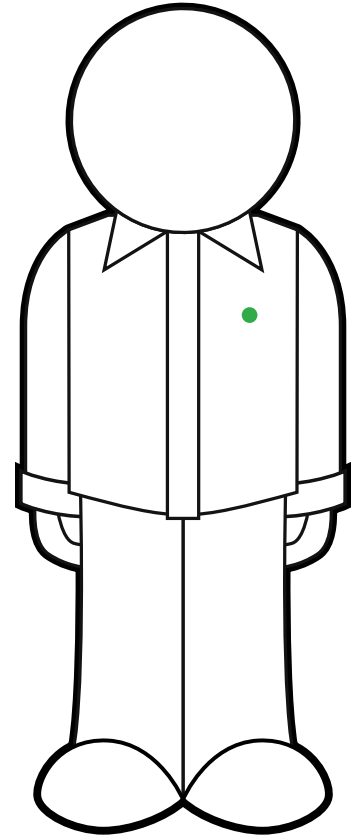


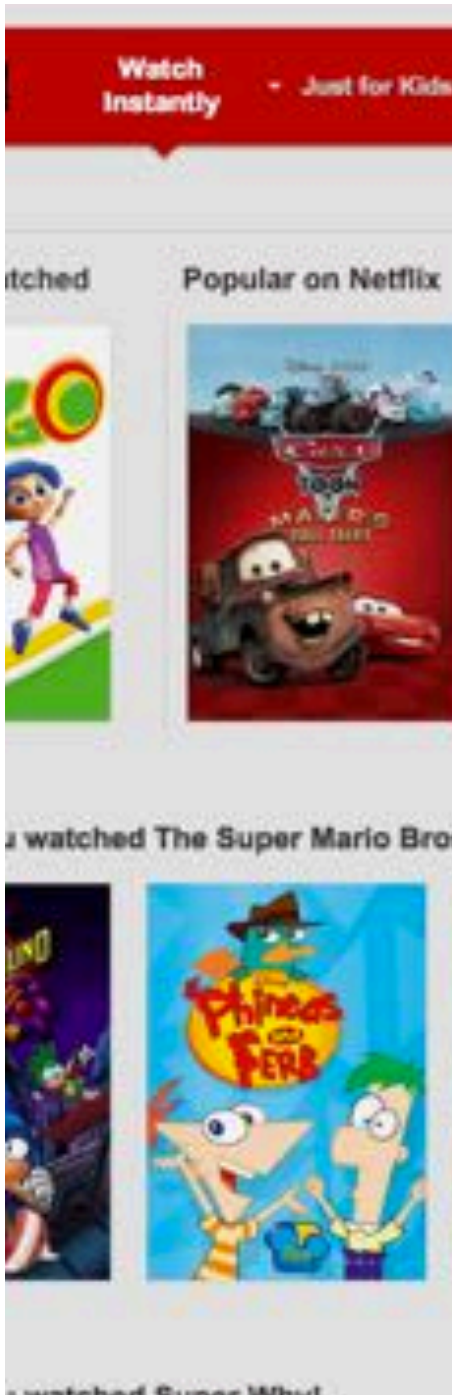


1.75"

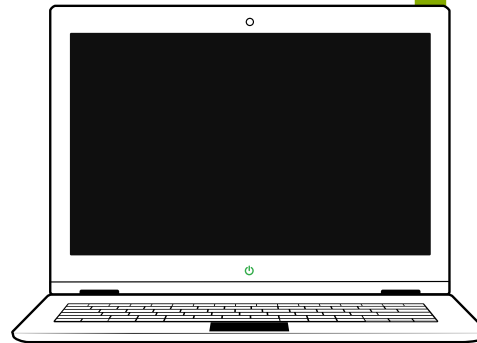


18"

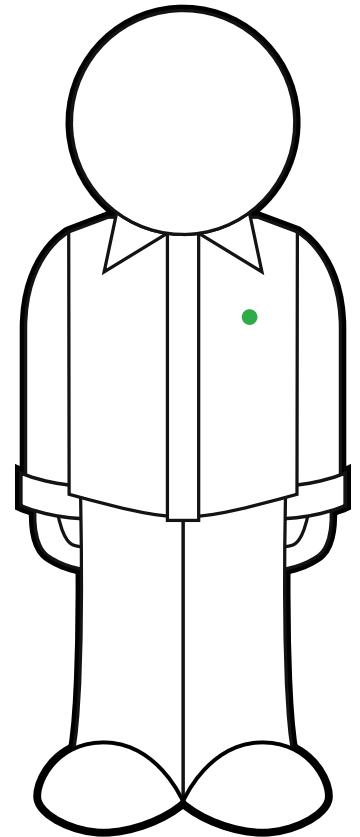




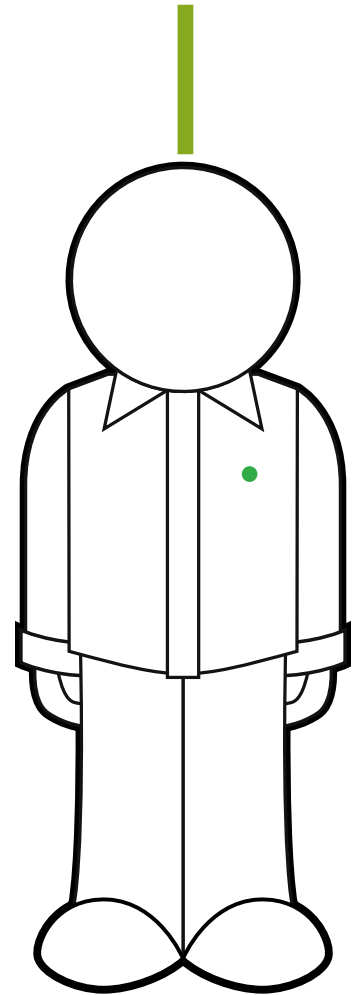
2.25"

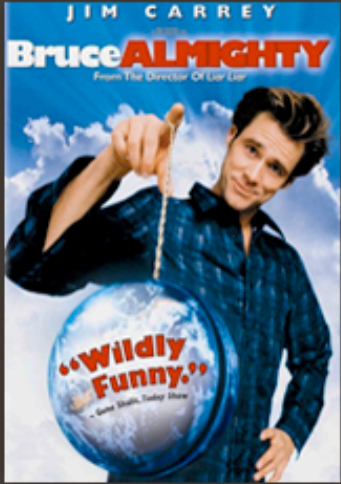


24"



10'





5.25"



Hart





12"

18"

24"

10'



1/2 inch per foot



1"

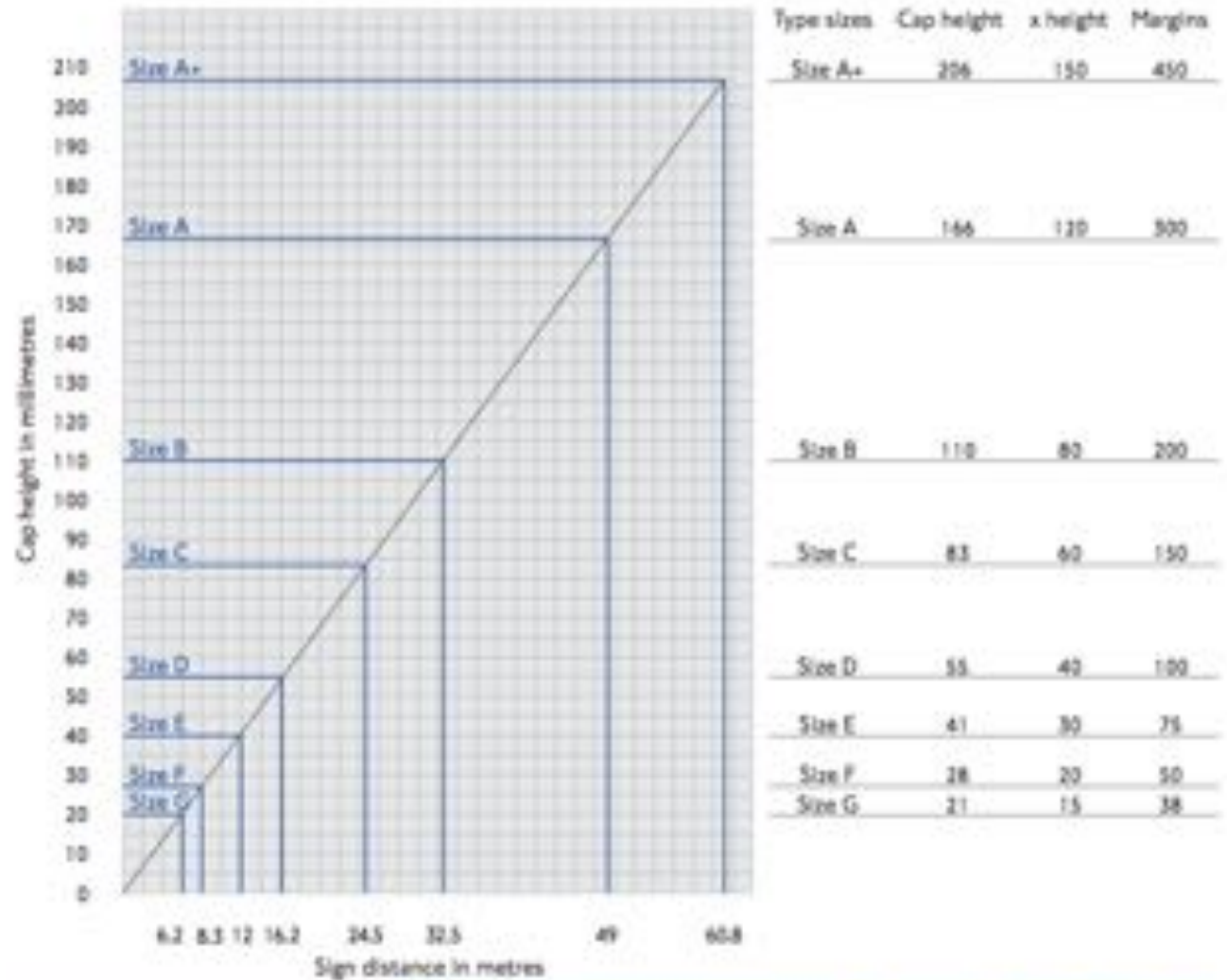
1.75"

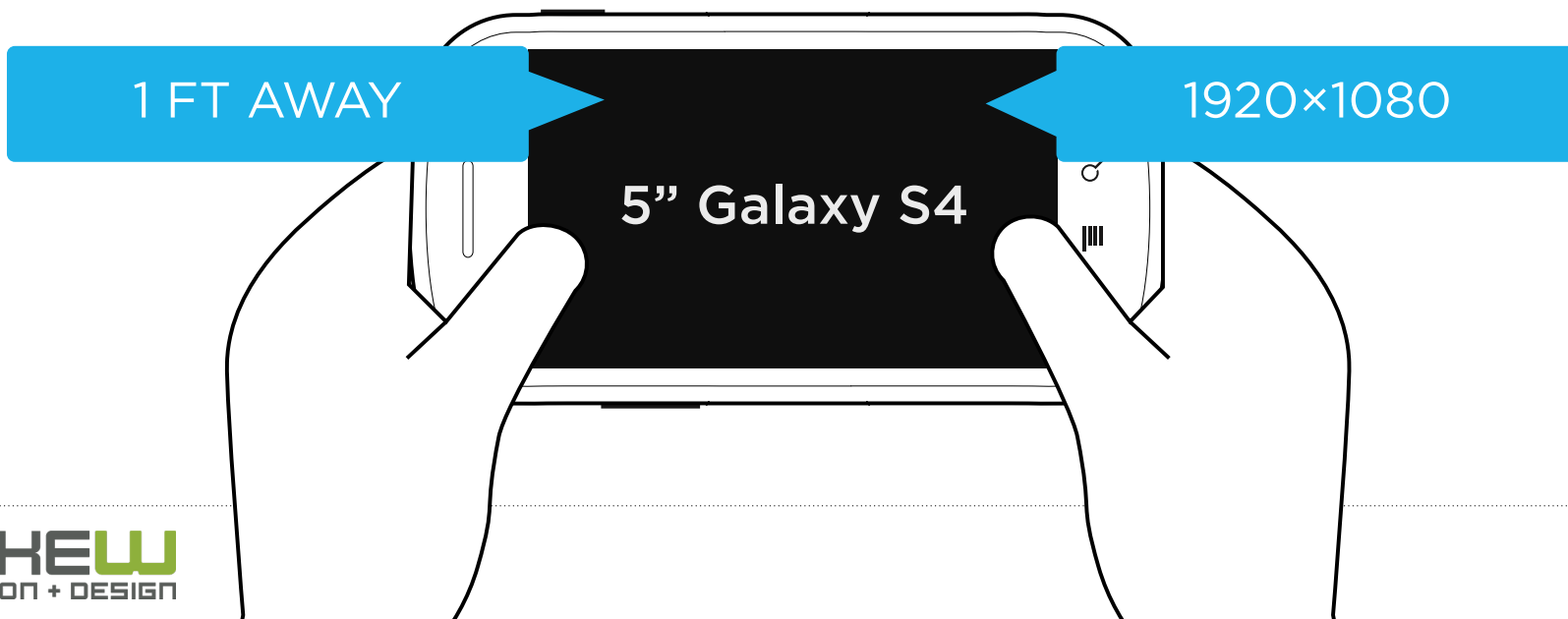
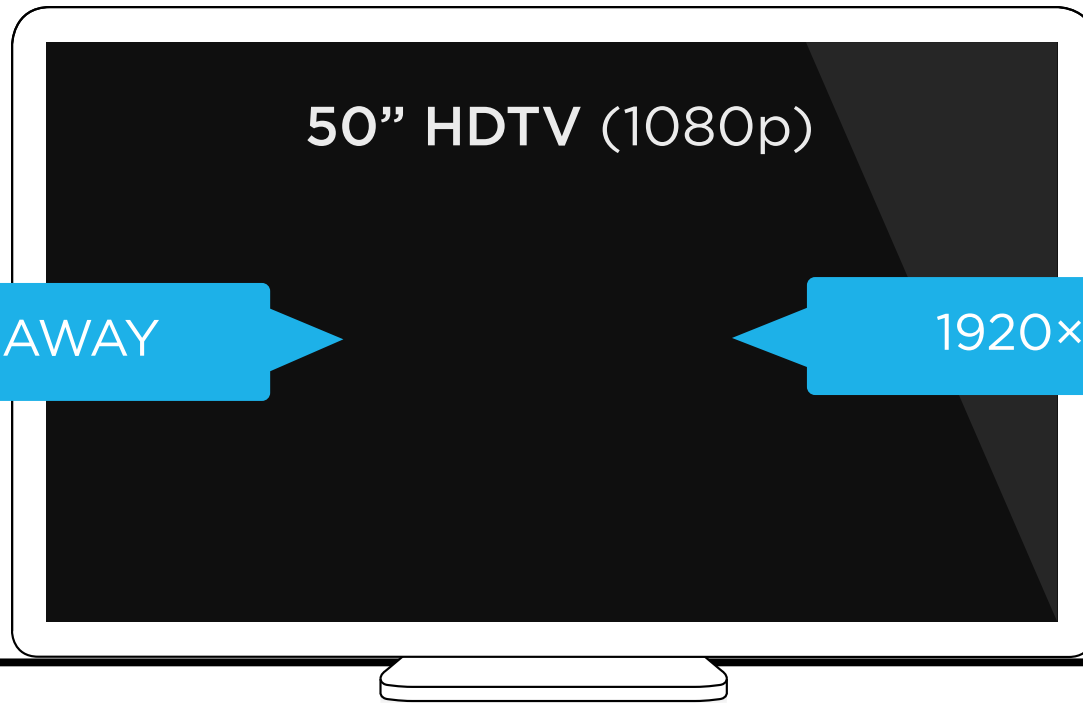
2.25"

5.25"



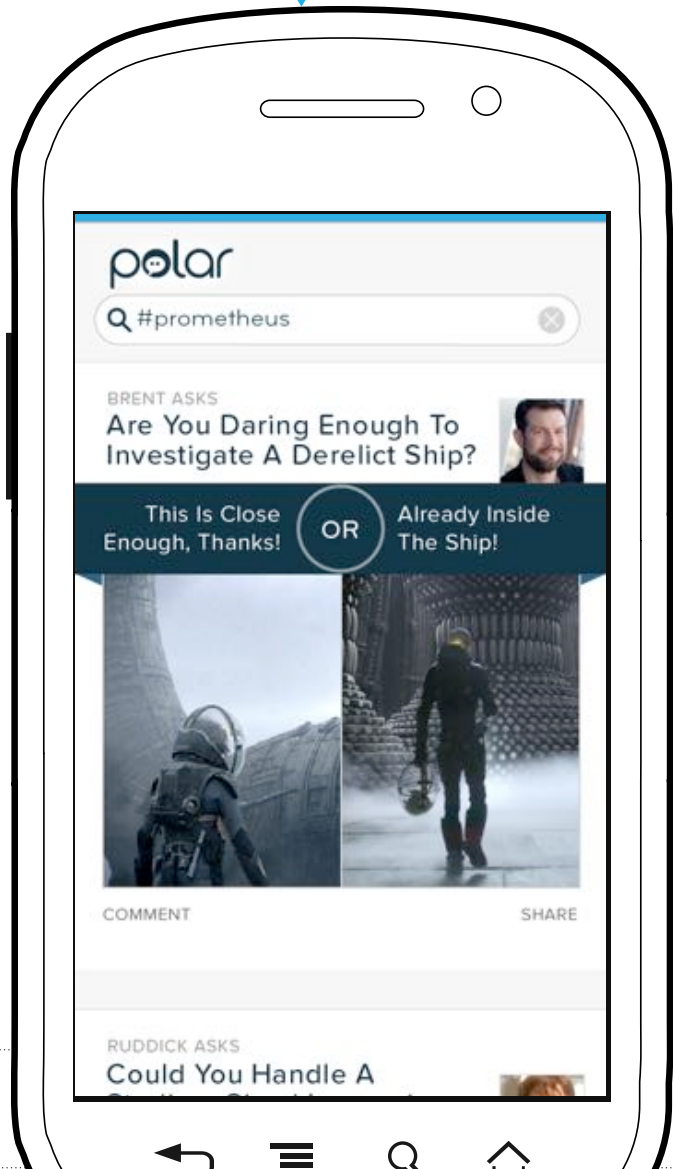
SIGNS MANUAL (VIEWING DISTANCE)





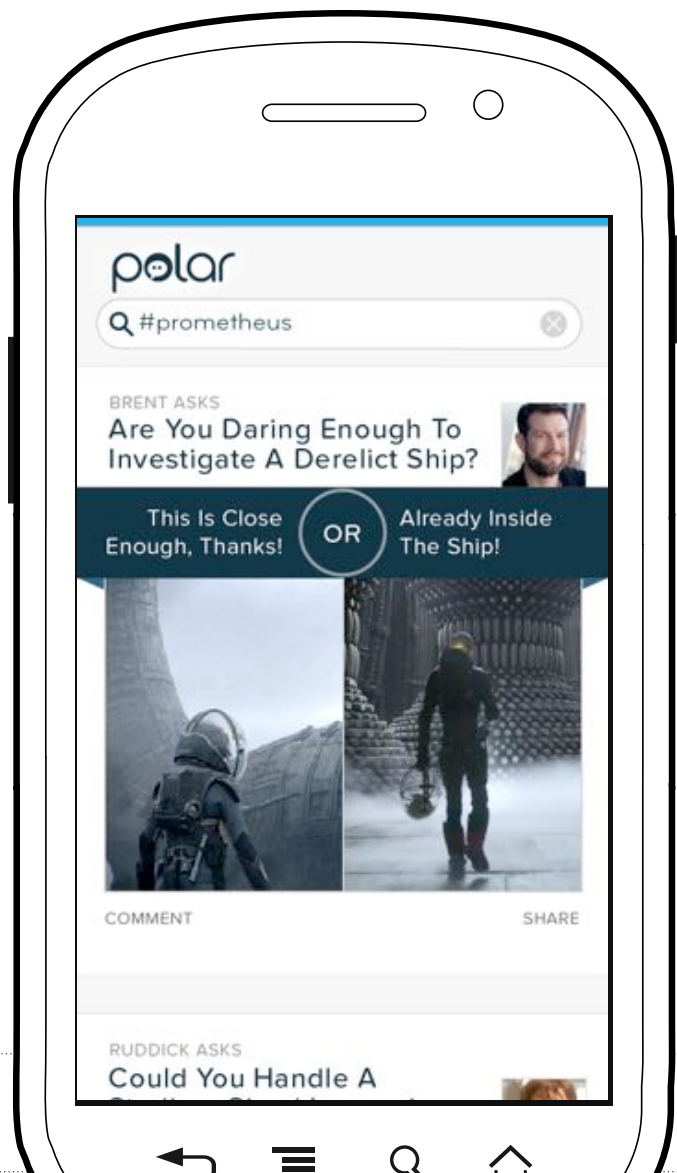
320PX WIDTH

320PX WIDTH



1 FT AWAY

10 FT AWAY



GLASS



640

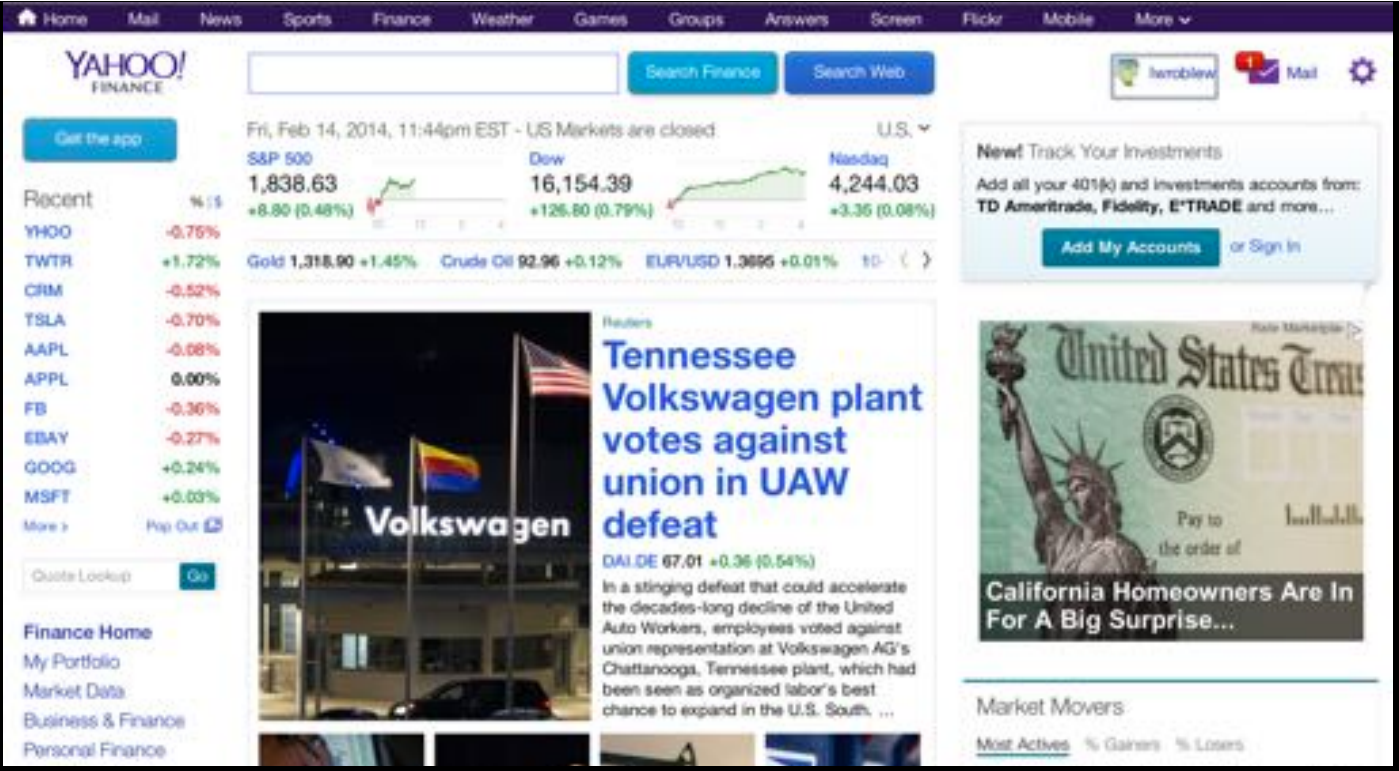
8 FT AWAY

25" HD SCREEN

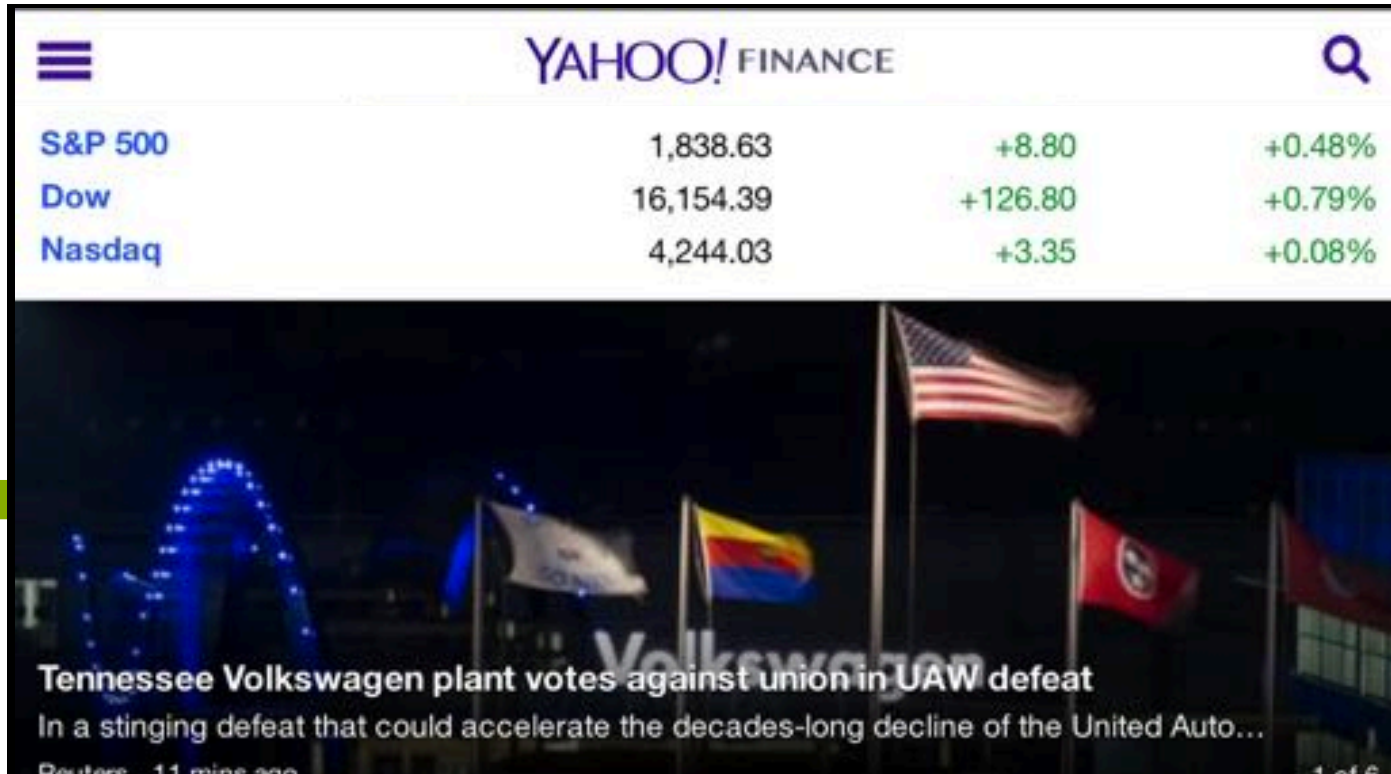
360



VIEWPORT: 960PX



DEVICE-WIDTH: 640px



The screenshot shows the Yahoo! Finance mobile app interface. At the top, there is a menu icon on the left, the 'YAHOO! FINANCE' logo in the center, and a search icon on the right. Below the header, a table displays market data for the S&P 500, Dow, and Nasdaq. The S&P 500 is at 1,838.63 (+8.80, +0.48%), the Dow is at 16,154.39 (+126.80, +0.79%), and the Nasdaq is at 4,244.03 (+3.35, +0.08%). Below the table is a news article with a photo of flags and a blue archway. The headline is 'Tennessee Volkswagen plant votes against union in UAW defeat'. The sub-headline is 'In a stinging defeat that could accelerate the decades-long decline of the United Auto...'. The byline is 'Reuters 11 mins ago'.

Index	Value	Change	% Change
S&P 500	1,838.63	+8.80	+0.48%
Dow	16,154.39	+126.80	+0.79%
Nasdaq	4,244.03	+3.35	+0.08%

Tennessee Volkswagen plant votes against union in UAW defeat
In a stinging defeat that could accelerate the decades-long decline of the United Auto...
Reuters 11 mins ago



DEVICE-WIDTH: 640px

AAPL	503.73	-16.57 (3.18%)
AMZN	274.03	+6.09 (2.27%)
GOOG	727.58	-12.41 (1.68%)

just now



DEVICE-WIDTH: 640px

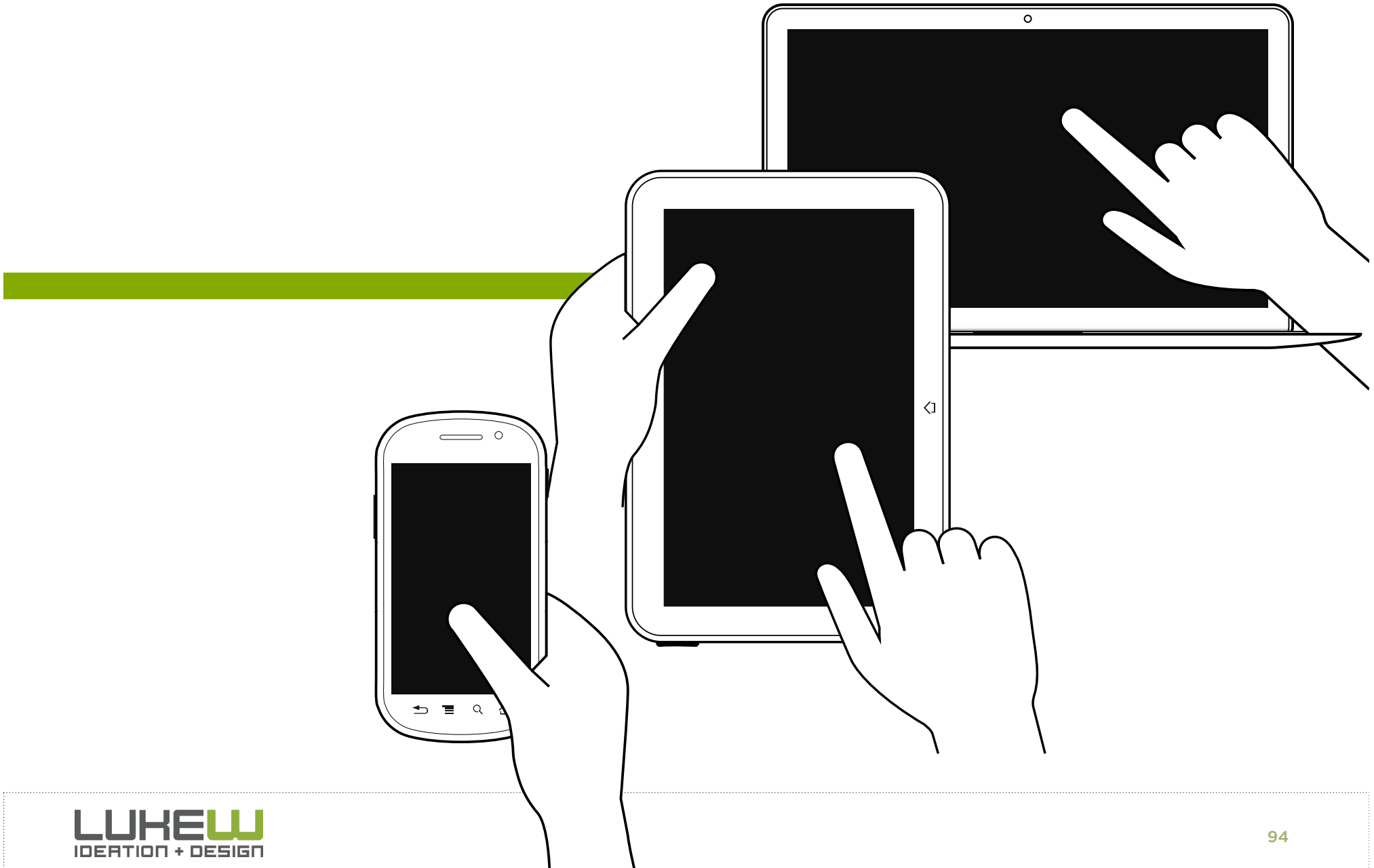
Celtics
101

Bulls
95

Final Score

just now



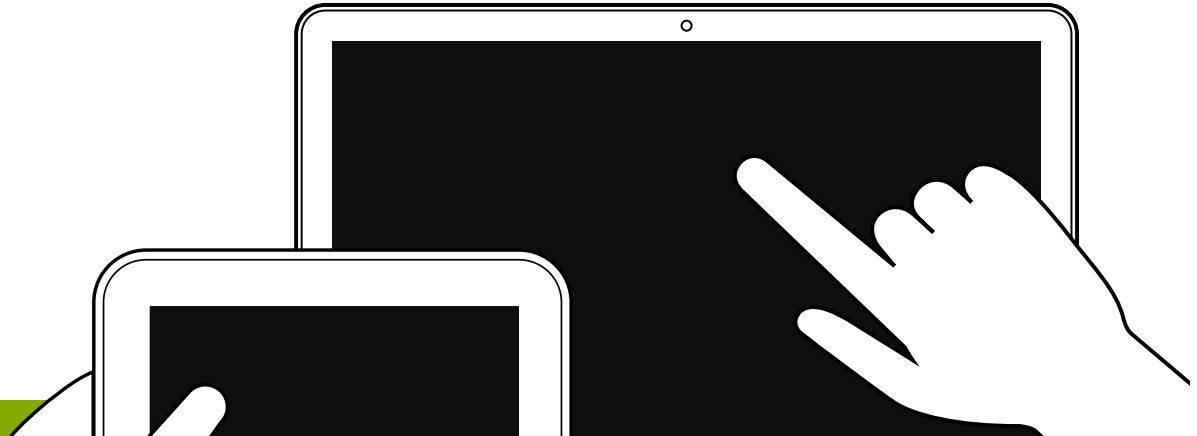


“More ergonomically accessible.”

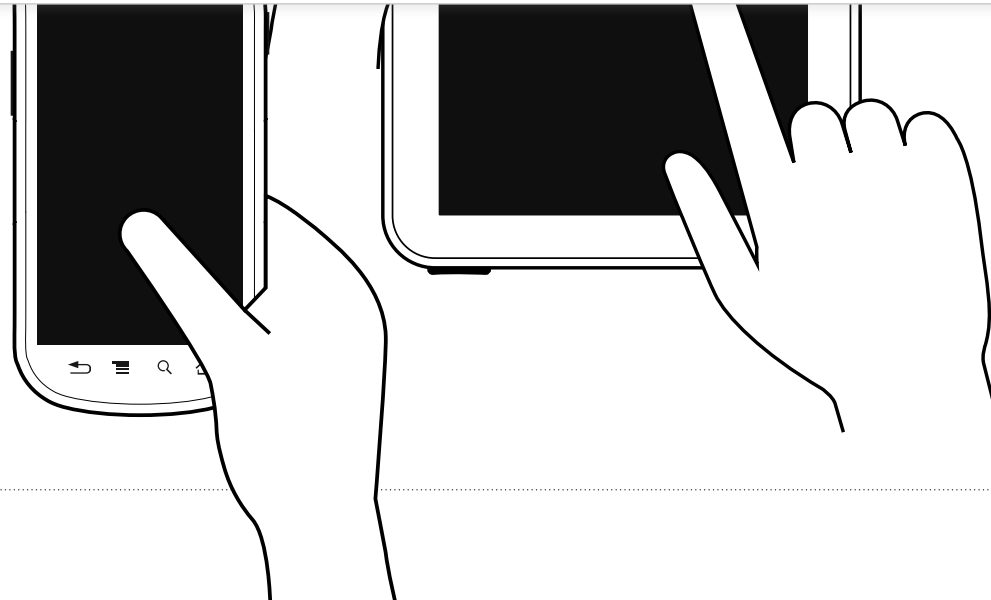


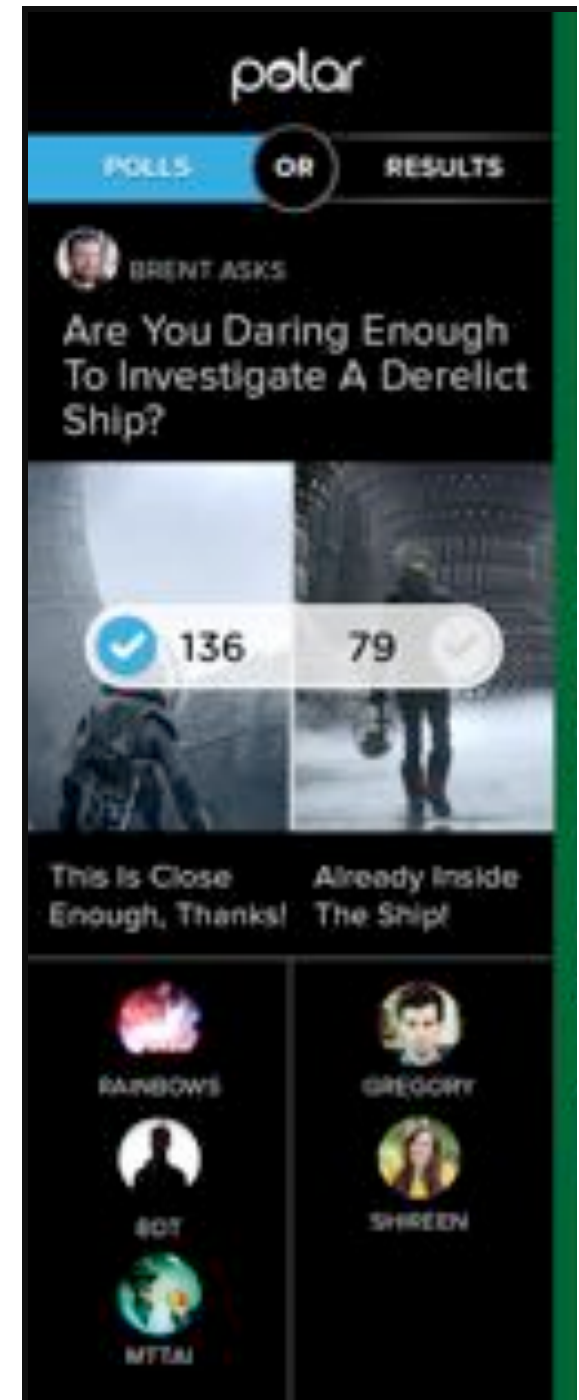
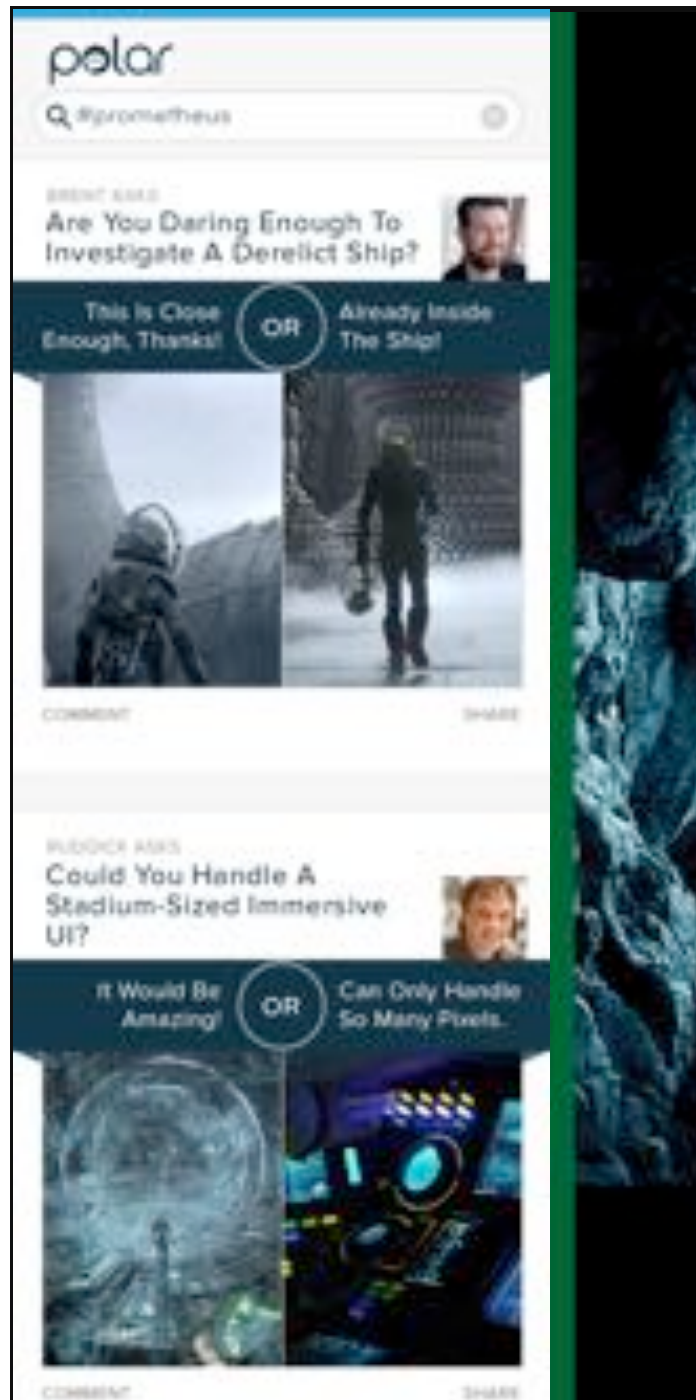
distinct command sets on the left

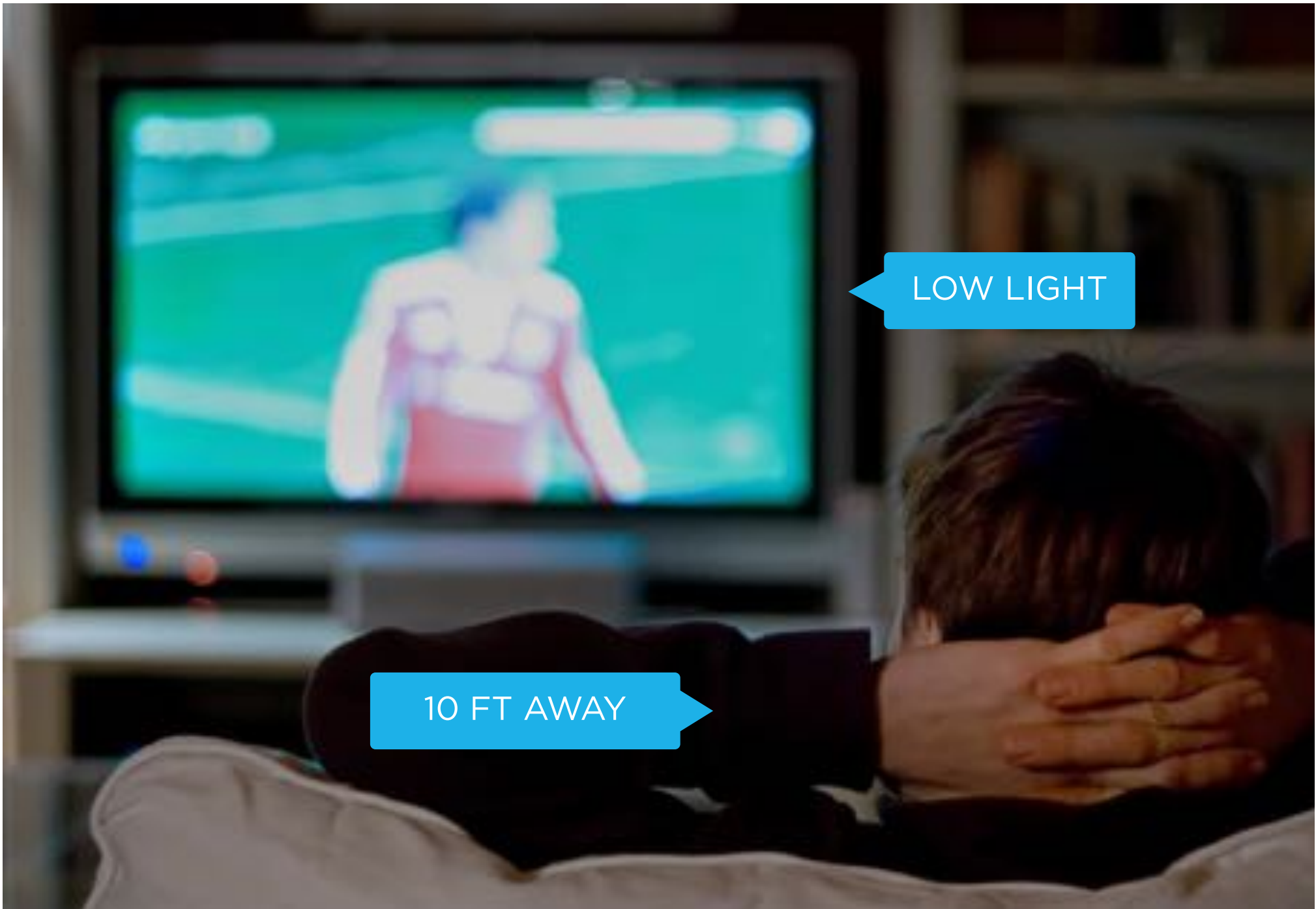
persistent commands on the right



Screen size is a poor proxy for posture.







LOW LIGHT

10 FT AWAY

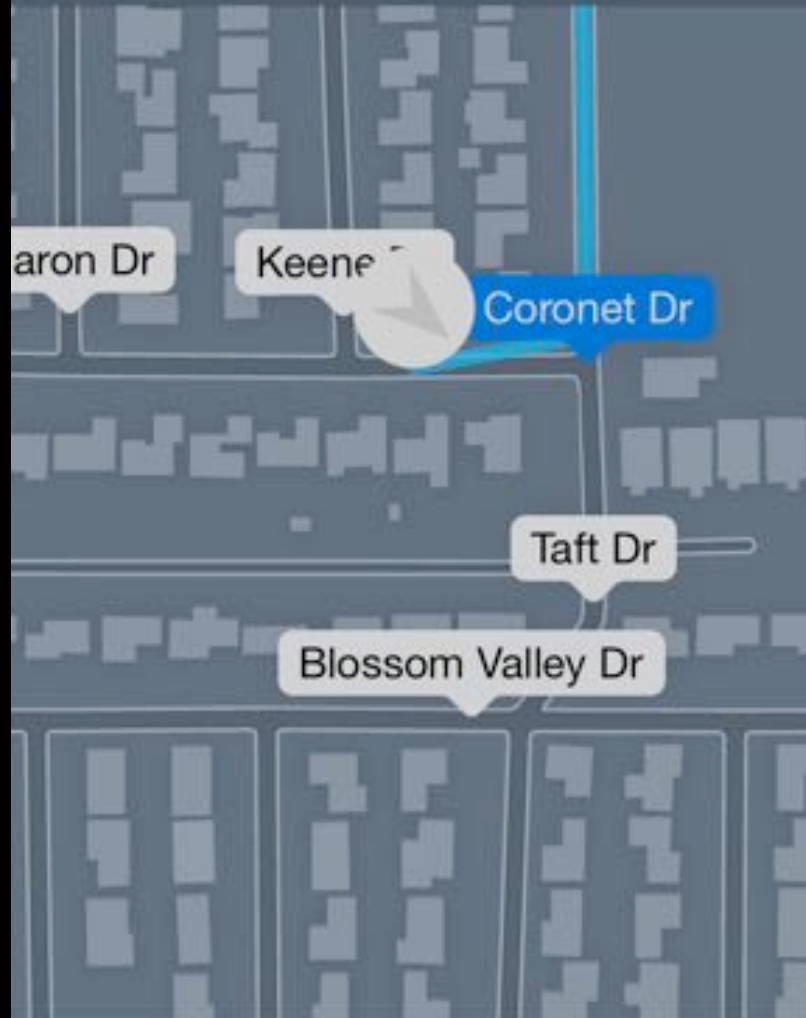
25 min 17.9 mi 7:40 PM arrival

60 feet

Start on Coronet Dr



Turn Left onto Taft Dr





'CATCHES' IN A VERY LOOSE SENSE

Fisherman Catches More Than He Bargained For

Sports

617

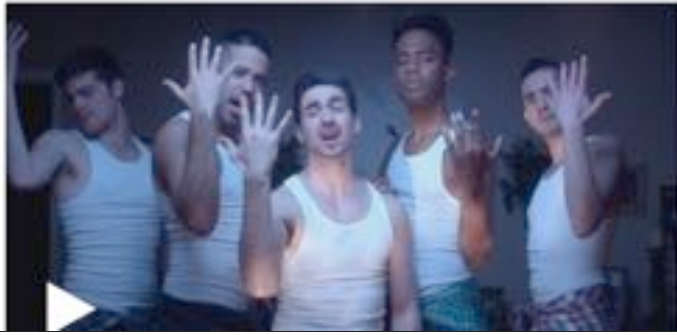


TREAT YO SELF

A Song To Get You Through Valentine's Day

Music

2





MEDIA QUERIES LEVEL 4

```
@media (light-level: washed) {  
  body {  
    background: #ffffff;  
  }}  
}
```



POSTURE

1. Design to human scale
2. And environments
3. Not just to screen width



media queries don't help
much here... yet.

IN A WORLD OF GLASS...

1. Know Your Screen

ONLINE TIME IS SCREEN TIME
AND INCREASINGLY MOBILE

2. Output

HIGH RESOLUTION & WIDESCREEN
VERTICAL MEDIA QUERIES

3. Input

SUPPORT ALL INPUTS
COMMUNICATE WHAT'S POSSIBLE

4. Posture

VIEWING DISTANCE
ENVIRONMENT & MORE



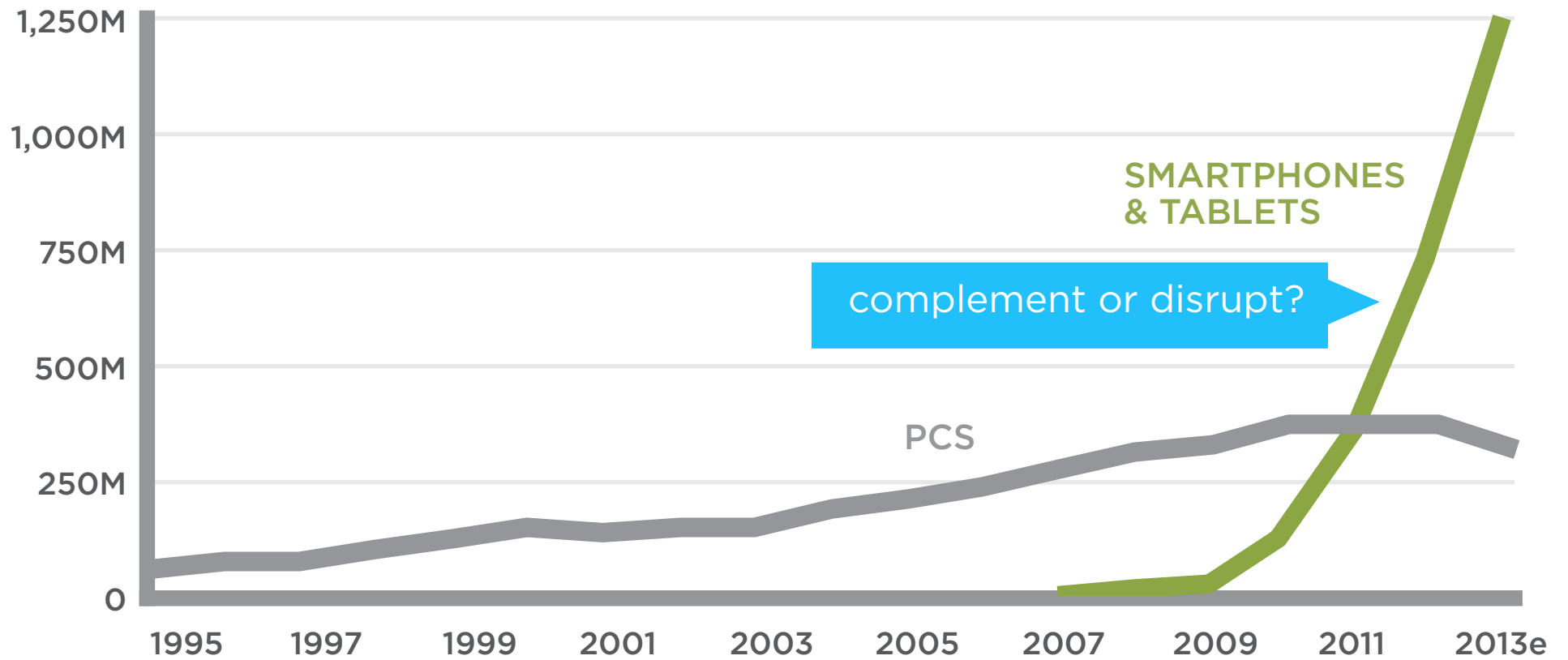
sapphire?

“What material comes after glass? What’s the disruption?”

wearables?

voice interfaces?

Global Sales



“Flexible glass that is thinner than a dollar bill.”



CORNING
Willow™ Glass

THANKS



@lukew