AN EVENT APART



MOBILE PLANET

@lukew

LUKE WROBLEWSKI



Earth 3rd planet from sun









2018 population estimates based on 2016 World Bank WDI data



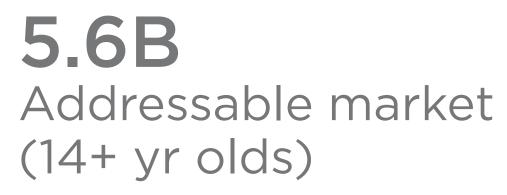


2018 population estimates based on 2016 World Bank WDI data

5.6B Addressable market (14+ yr olds)



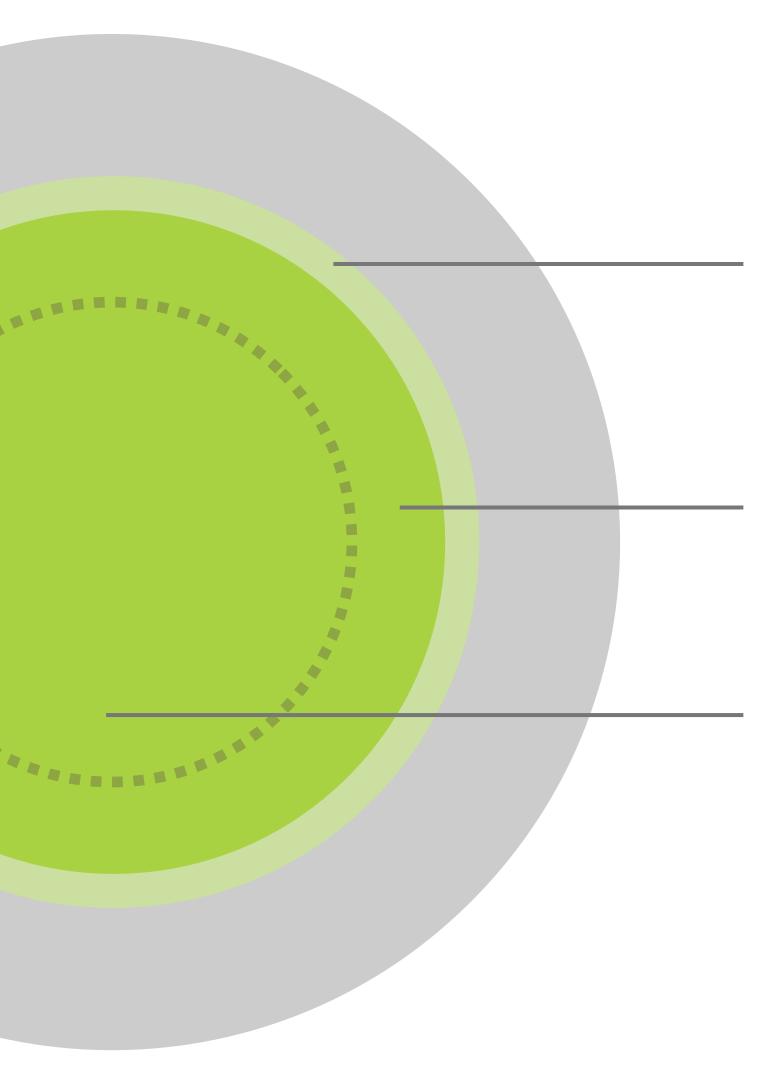
Source: Mobile subscribers https://www.gsmaintelligence.com



5B Mobile subscribers



Sources: Apple earnings Q12018, Andreessen Horowitz estimates, Google I/O 2017



5.6B Addressable market (14+ yr olds)

5B Mobile subscribers

3.5B Active smartphones

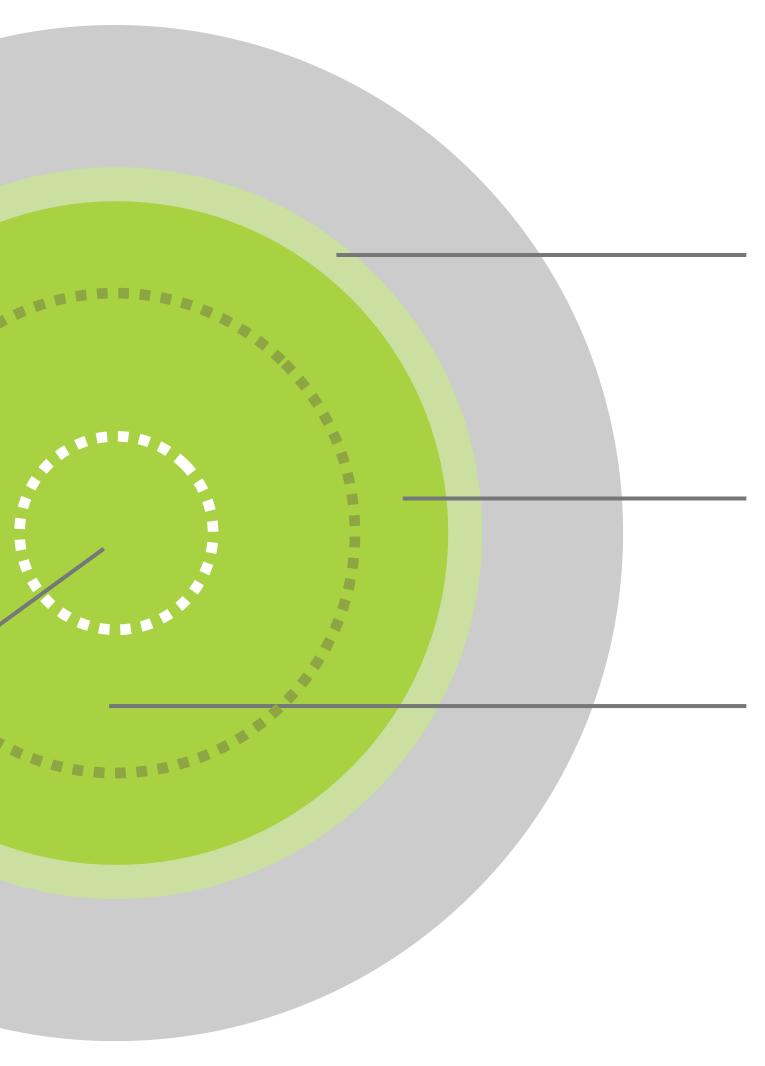




1.2B Windows 700M Windows 10 100M Mac OS



Sources: Microsoft earnings Q12018, Apple Inc. 2017 https://tcrn.ch/2nzDgGZ



5.6B Addressable market (14+ yr olds)

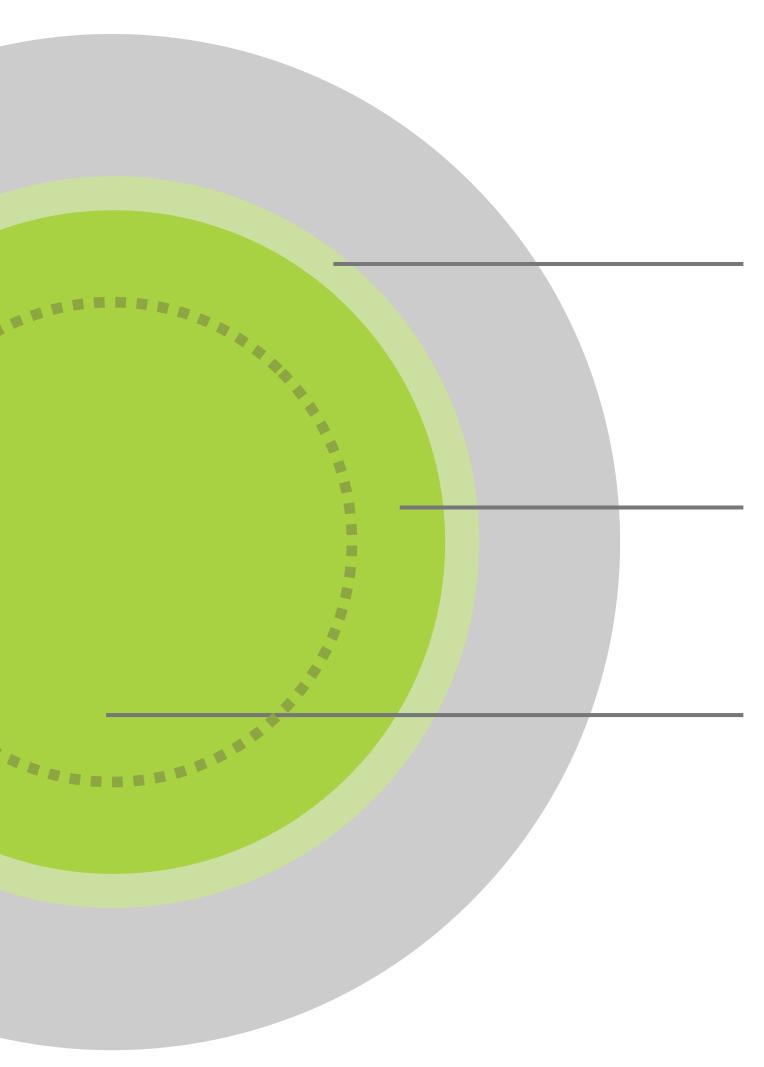
5B Mobile subscribers

3.5B Active smartphones





Sources: Apple earnings Q12018, Andreessen Horowitz estimates, Google I/O 2017



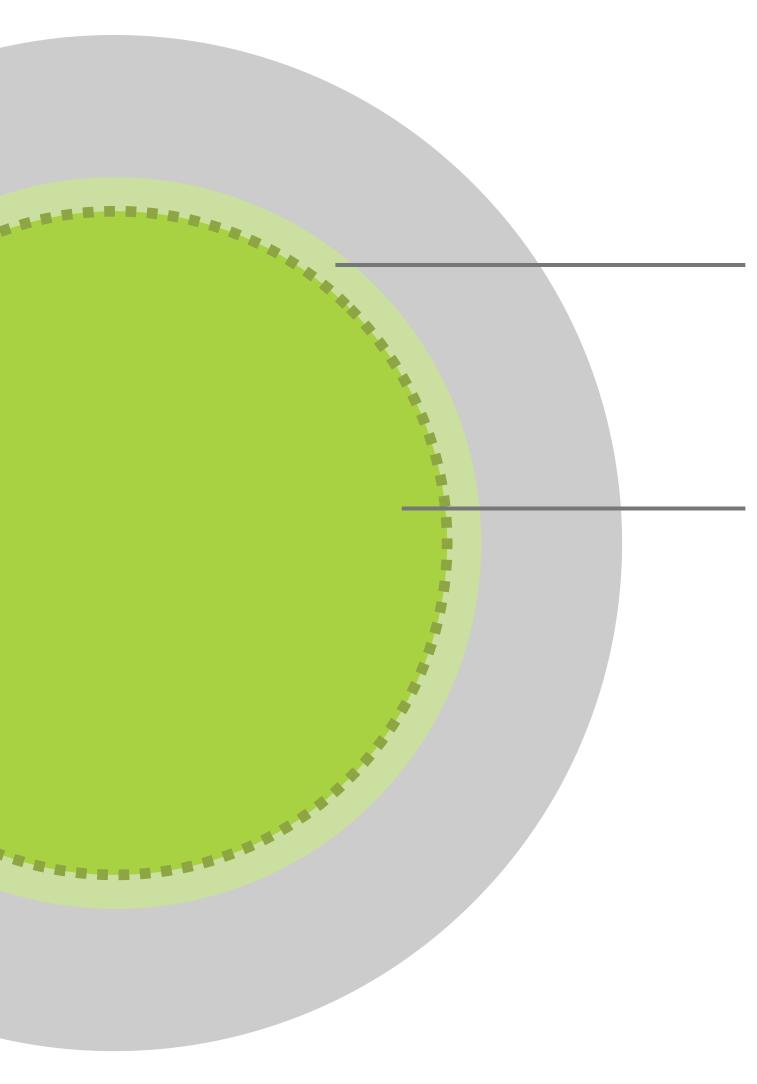
5.6B Addressable market (14+ yr olds)

5B Mobile subscribers

3.5B Active smartphones



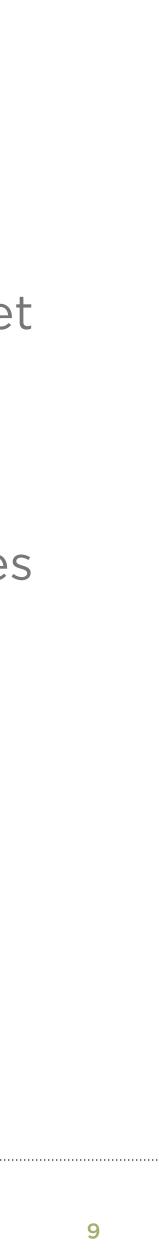




5.6B Addressable market (14+ yr olds)

5B

Active smartphones by 2023



8B Global population projected by 2023



2023 population estimates based on United Nations data

5.8B

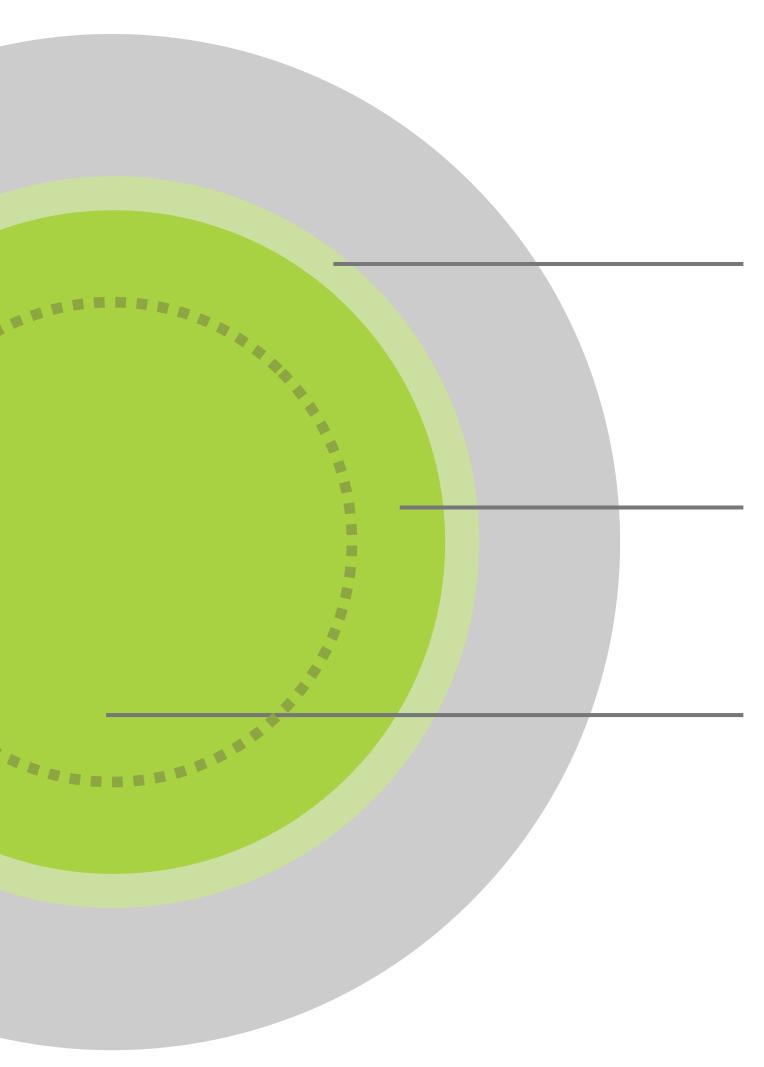
Addressable market (14+ yr olds) by 2023

5B

Active smartphones by 2023



Sources: Apple earnings Q12018, Andreessen Horowitz estimates, Google I/O 2017



5.6B Addressable market (14+ yr olds)

5B Mobile subscribers

3.5B Active smartphones







Source: Apple earnings Q12018, Andreessen Horowitz estimates, Google I/O 2017



25% Active smartphones 1.4B active Apple devices, Q1 2019 100M Mac OS 350M iPads

950M iPhones



2B active Android devices, 2017 excluding China (est. 550M) 10% tablets







Source: Shipments, IDC https://bit.ly/2qNaCl2 | Lifespan Apple: Asymco https://bit.ly/2F4Gyvi | Lifespan Android a16z https://bit.ly/2rjwTLF

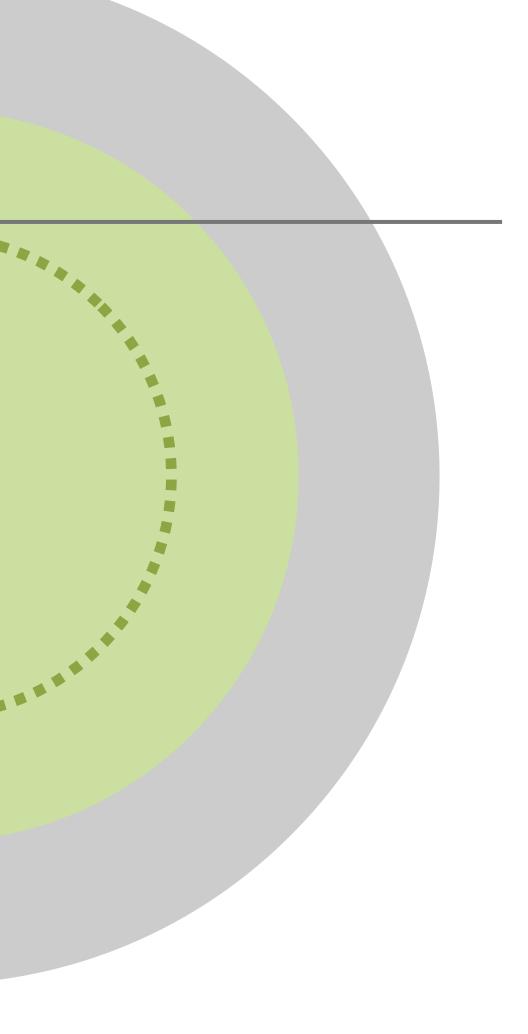


4.25 year lifespan, 2018



2 year lifespan, 2014







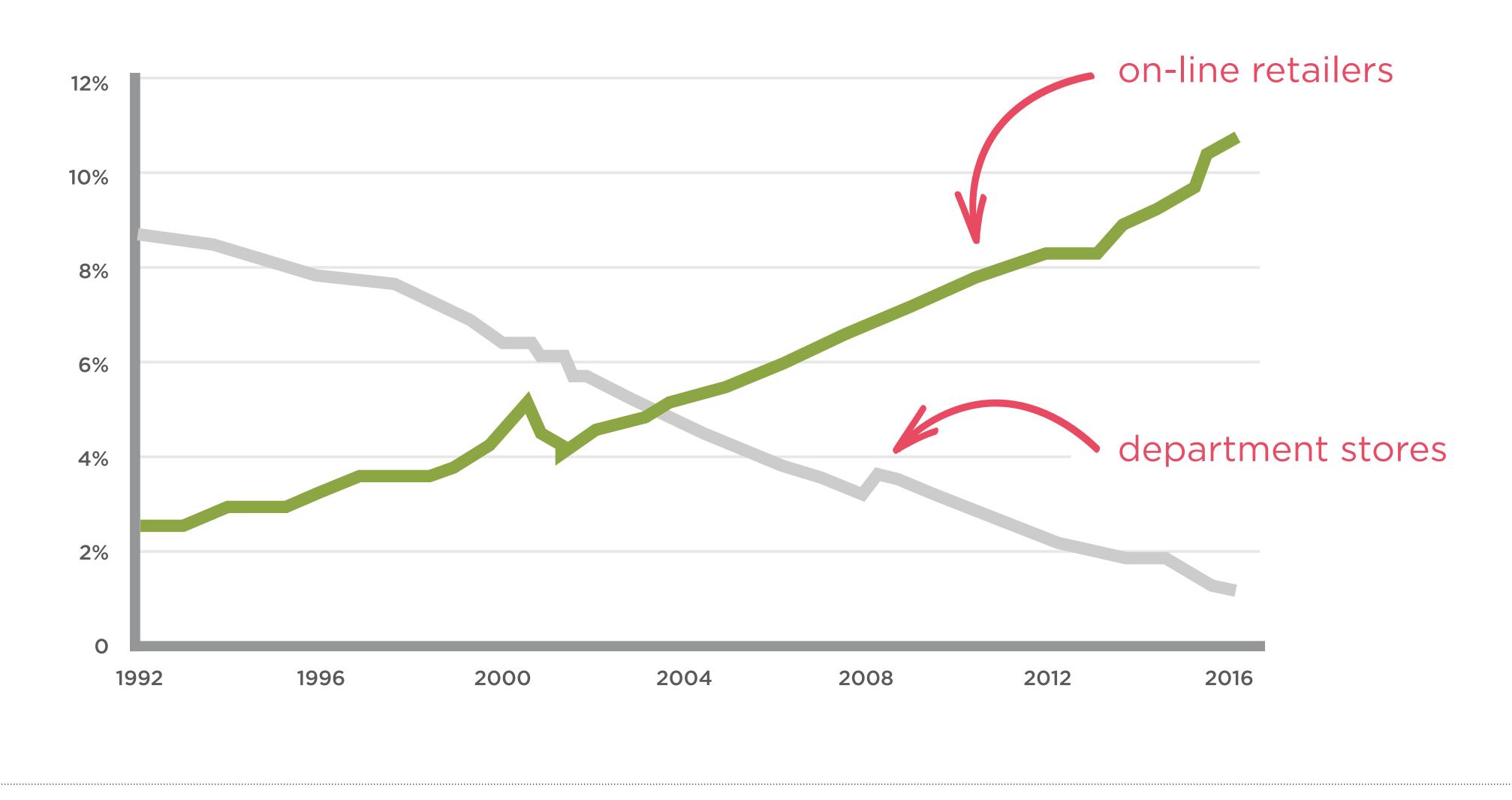
Source: Newzoo Global Mobile Market Report, April 2017

MARKET		PENETR	PENETRATION	
***	China	52%		
	India	22%		
	United States	69%		
	Brazil	38%		
	Russian Federation	55%	lots more ro to grow	
	Japan	50%		
	Germany	69%		
	Indonesia	20%		
	Mexico	41%		
	United Kingdom	69%		





U.S. Retail Shopping

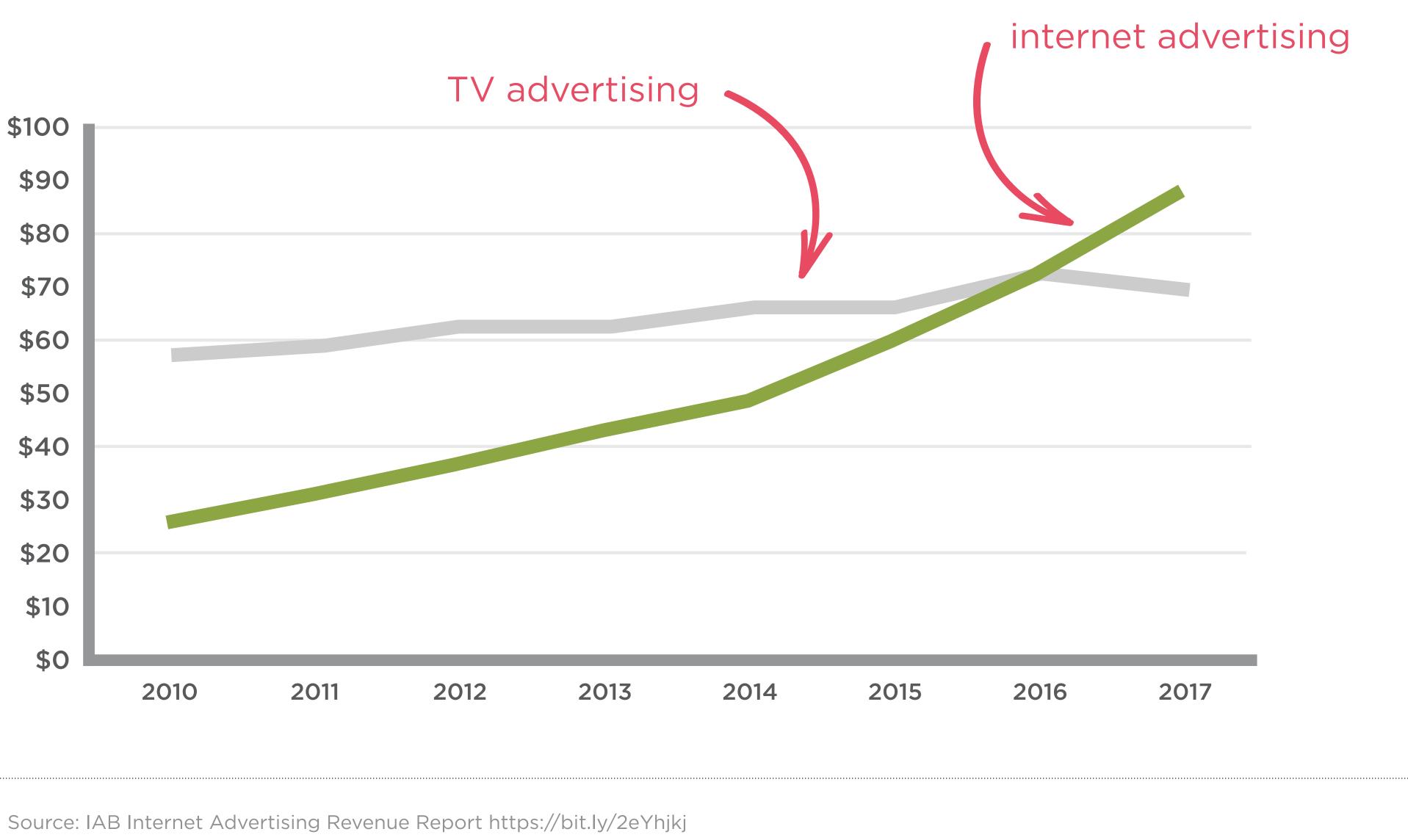




Source: http://bloom.bg/2jrR5q8



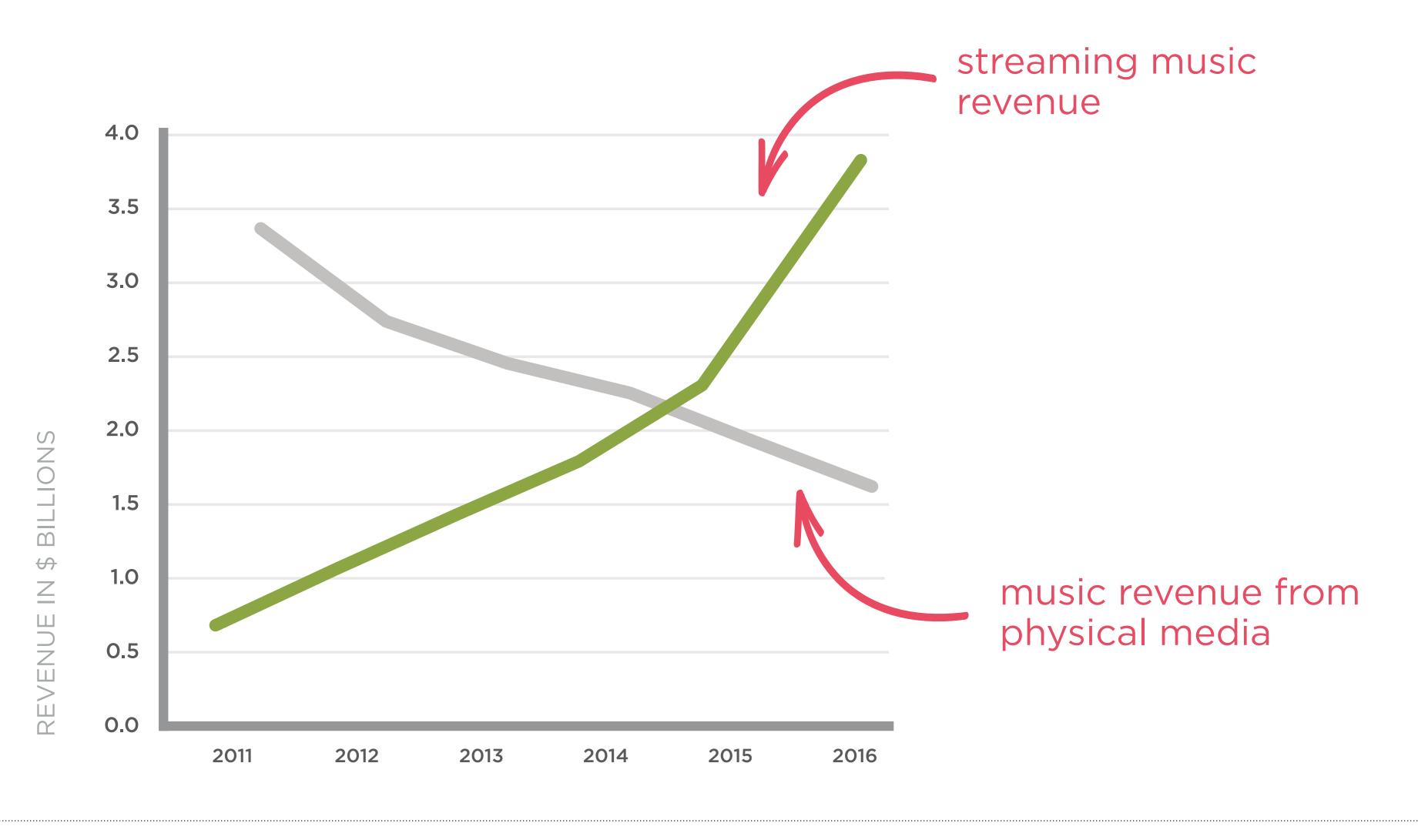
U.S. Advertising Revenue







Music Industry Revenues in U.S.

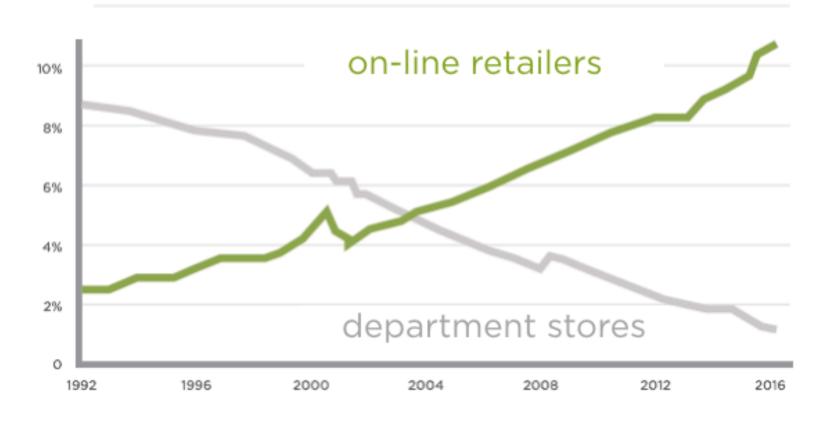




Source: Record Industry of America, 2017



US RETAIL SHOPPING





Digital Transitions

1

1

1

(







- still growing planet-scale opportunity
- with two major platforms
- shifting whole industries to digital





3HR Spent per day



MOBILE TIME SPENT BY US ADULTS



HOURS PER DAY

Source: comScore Mobile Metrix, U.S. Age 18+, June 2017

HOURS PER DAY

Source: Nielsen Total Audience Report, U.S. Age 18+, Q1 2017

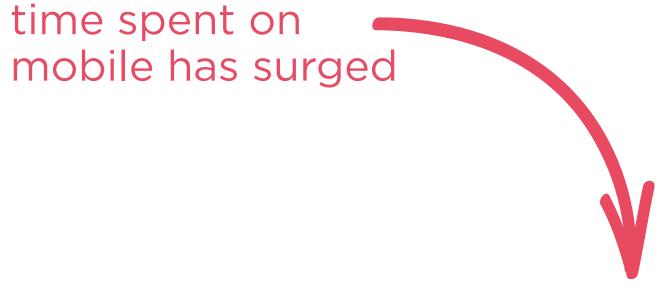


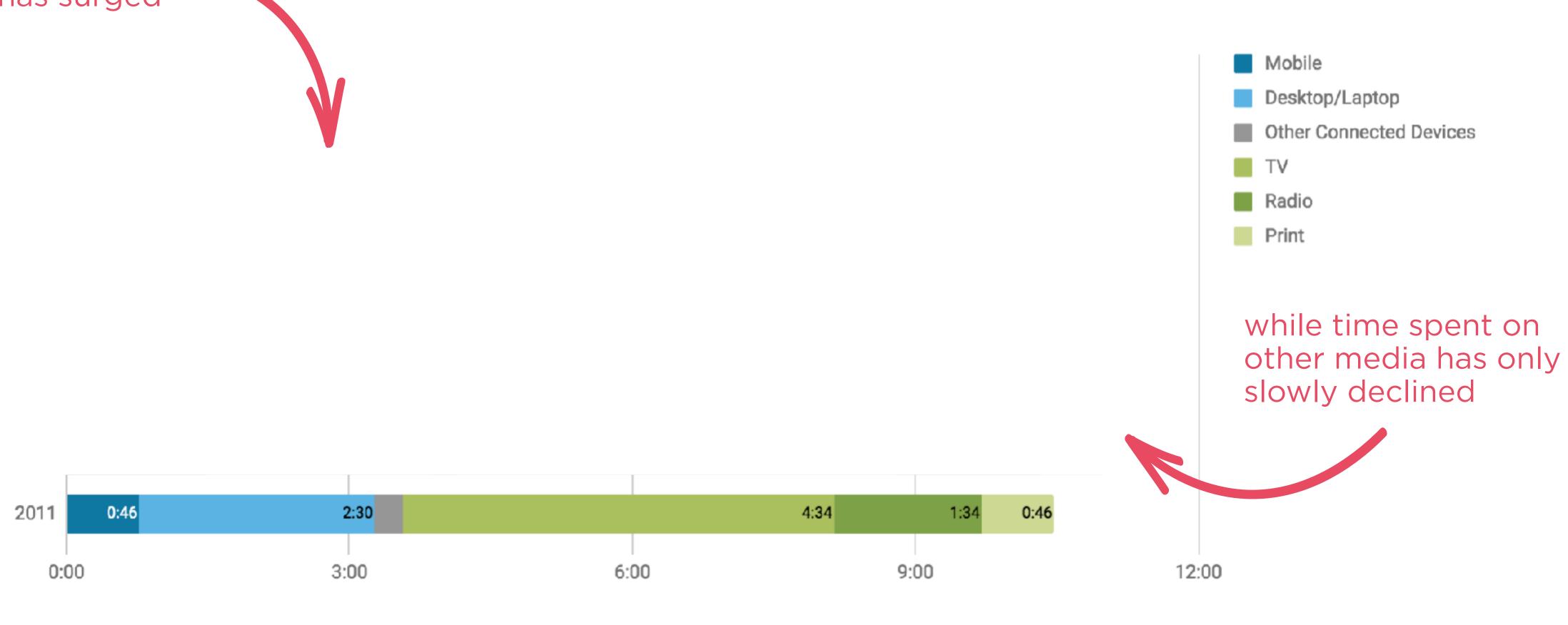
HOURS PER DAY

Source: eMarketer, U.S. Age 18+, Sept. 2017



Average Time Spent Per Day by US Adults



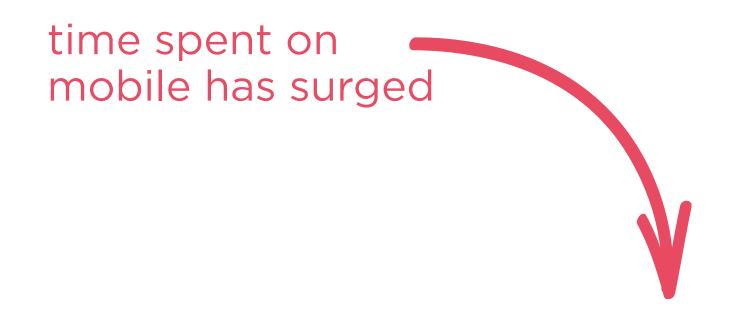


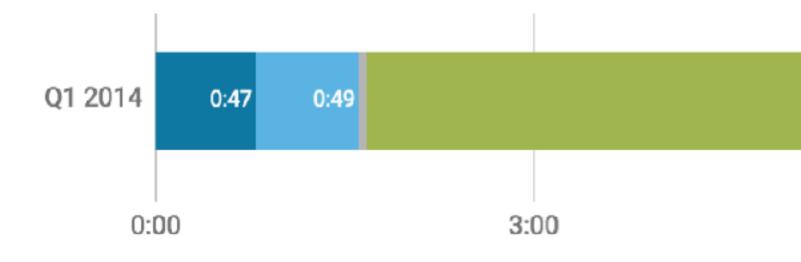


Source: eMarketer, April 2016 (simultaneous multiple device use counted in multiple device categories)



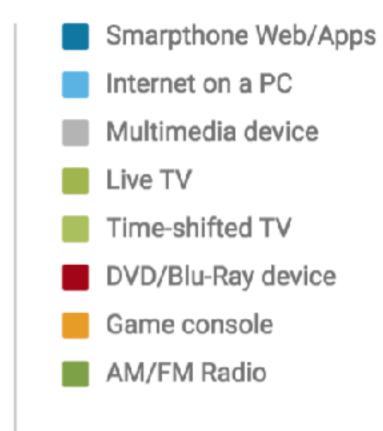
Average Time Spent Per Day, 18+ in US



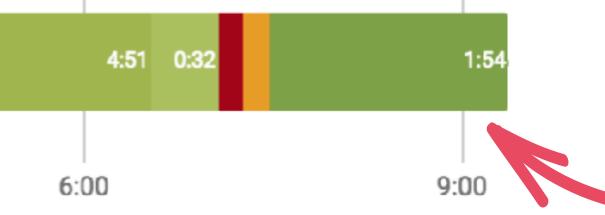




Source: Nielsen, Q1 2017 Total Audience Report



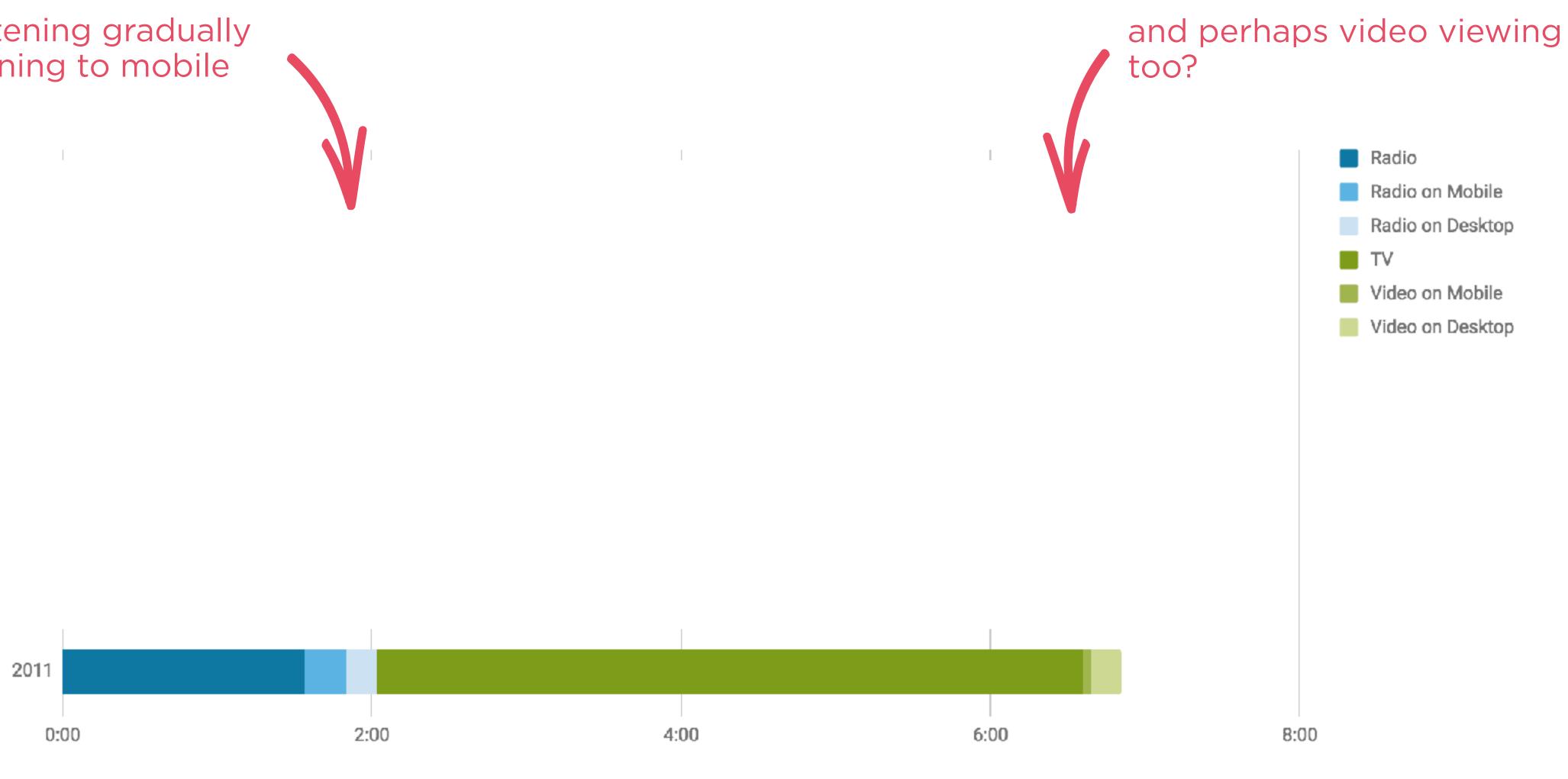






Average Time Spent Per Day by US Adults

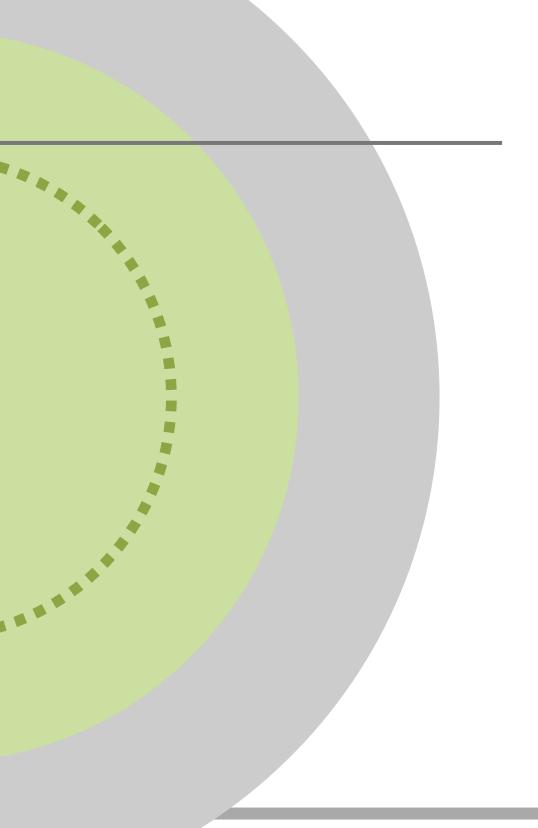
radio listening gradually transitioning to mobile





Source: eMarketer, April 2016 (simultaneous multiple device use counted in multiple device categories)



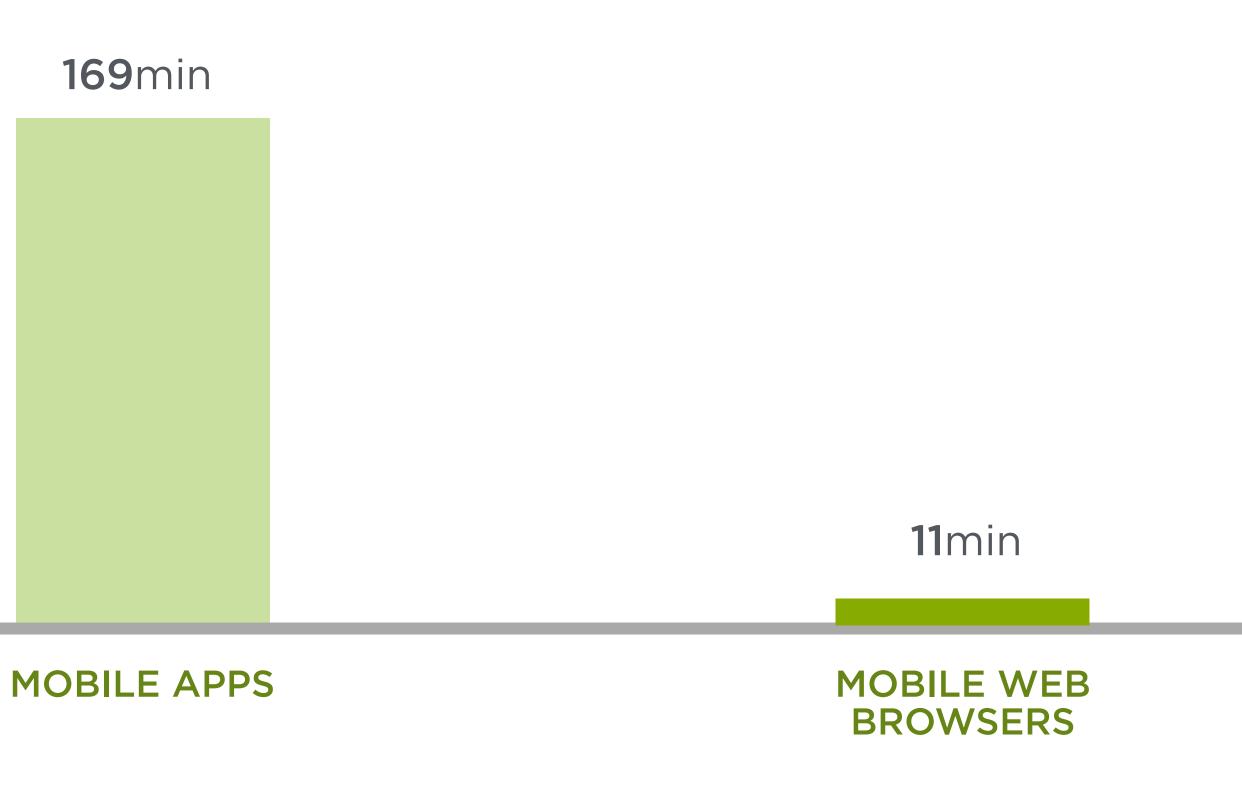


3HR

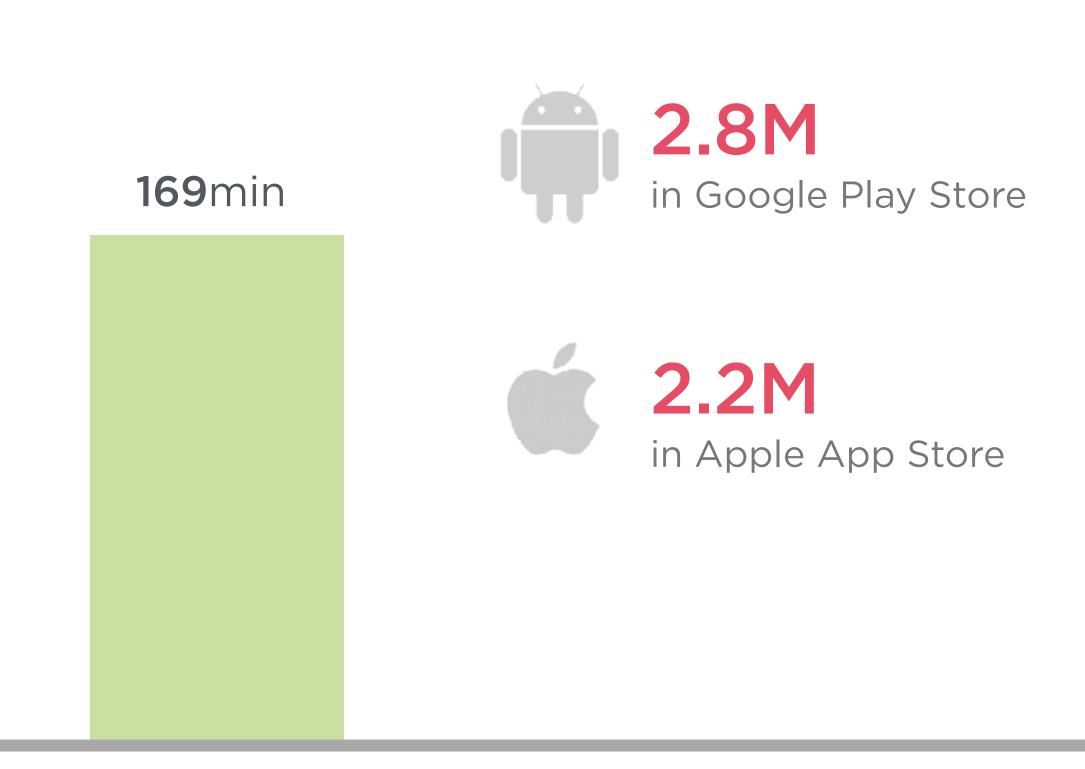
Spent per day



comScore 2017 U.S. Mobile App Report



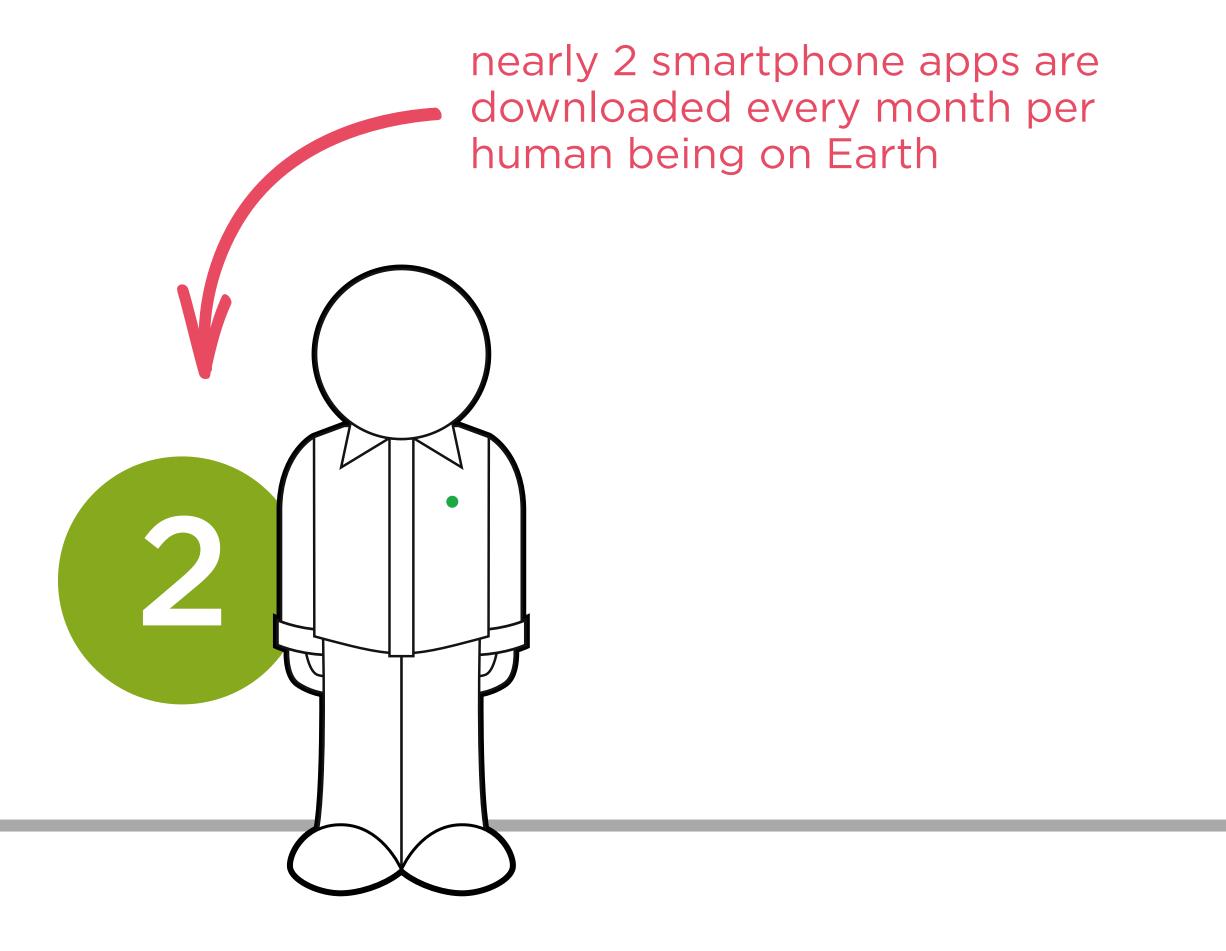




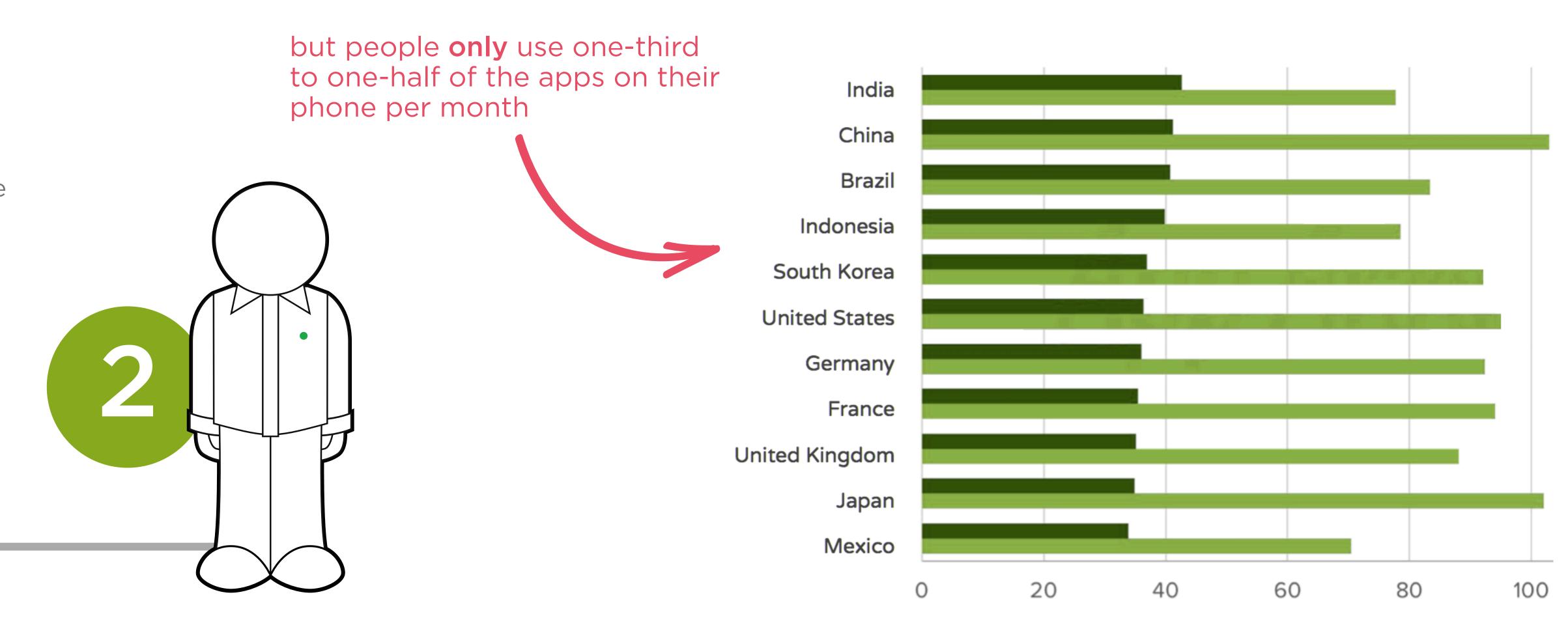
MOBILE APPS



comScore 2017 U.S. Mobile App Report









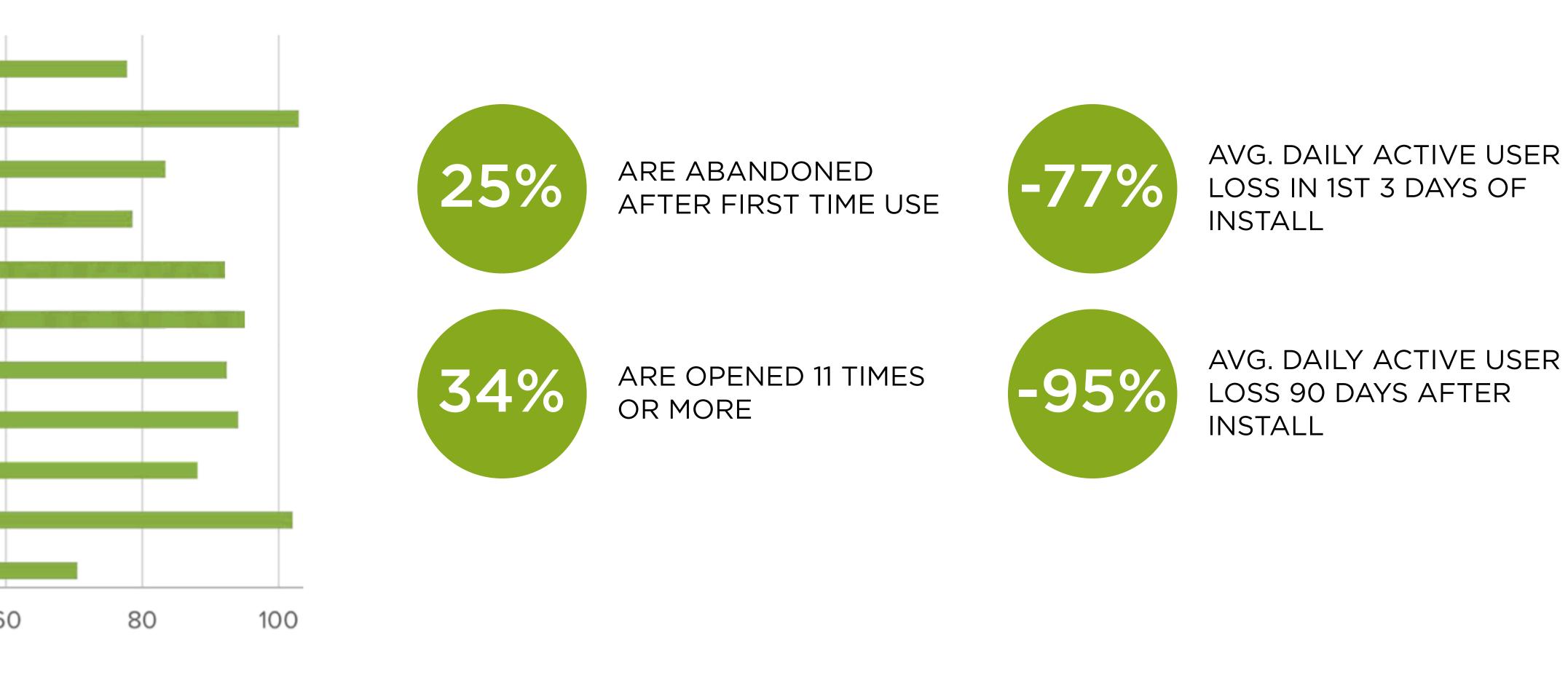
number of apps used total apps on phone

Source: App Annie 2017 Retrospective Report http://bit.ly/2mOtBOJ











Sources: http://on.recode.net/1Go6ZYp | http://bit.ly/1KA51rQ | http://bit.ly/1Hq53AR

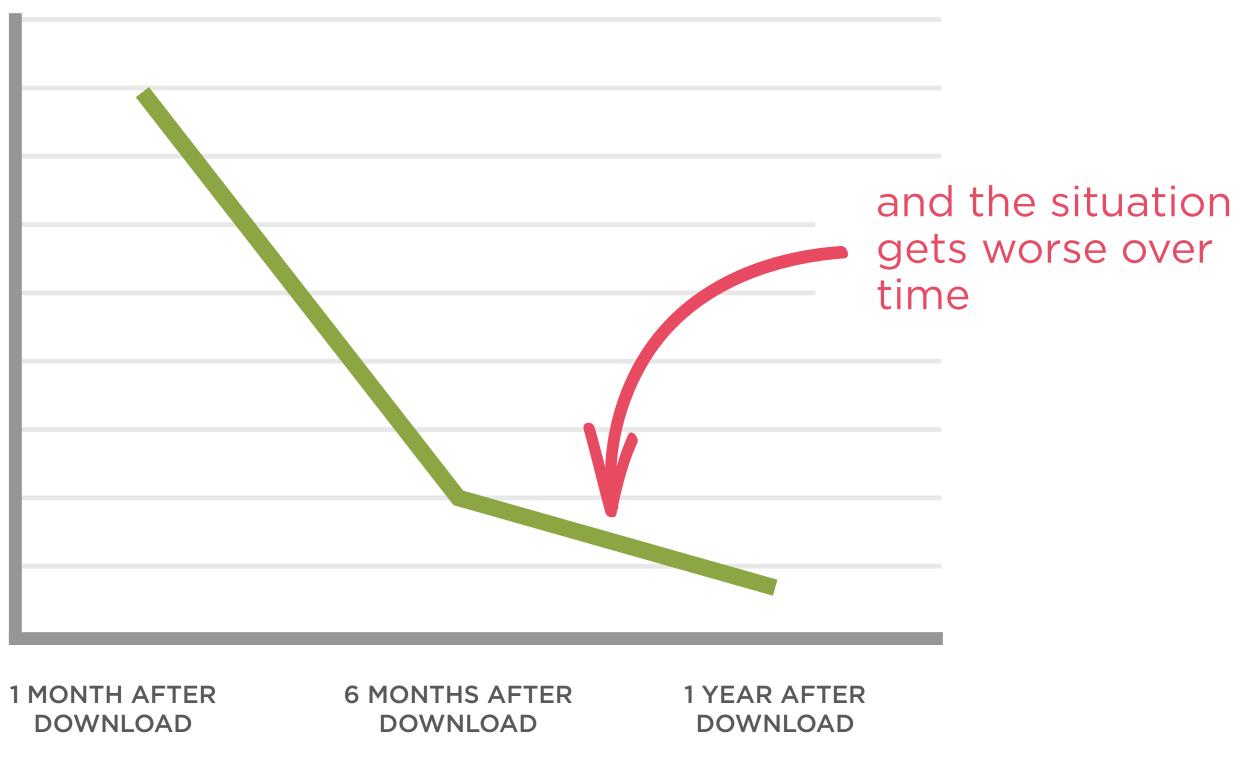


45% 40% AVG. DAILY ACTIVE USER -77% 35% LOSS IN 1ST 3 DAYS OF INSTALL 30% 25% 20% AVG. DAILY ACTIVE USER 15% -95% LOSS 90 DAYS AFTER 10% INSTALL 5% 0%



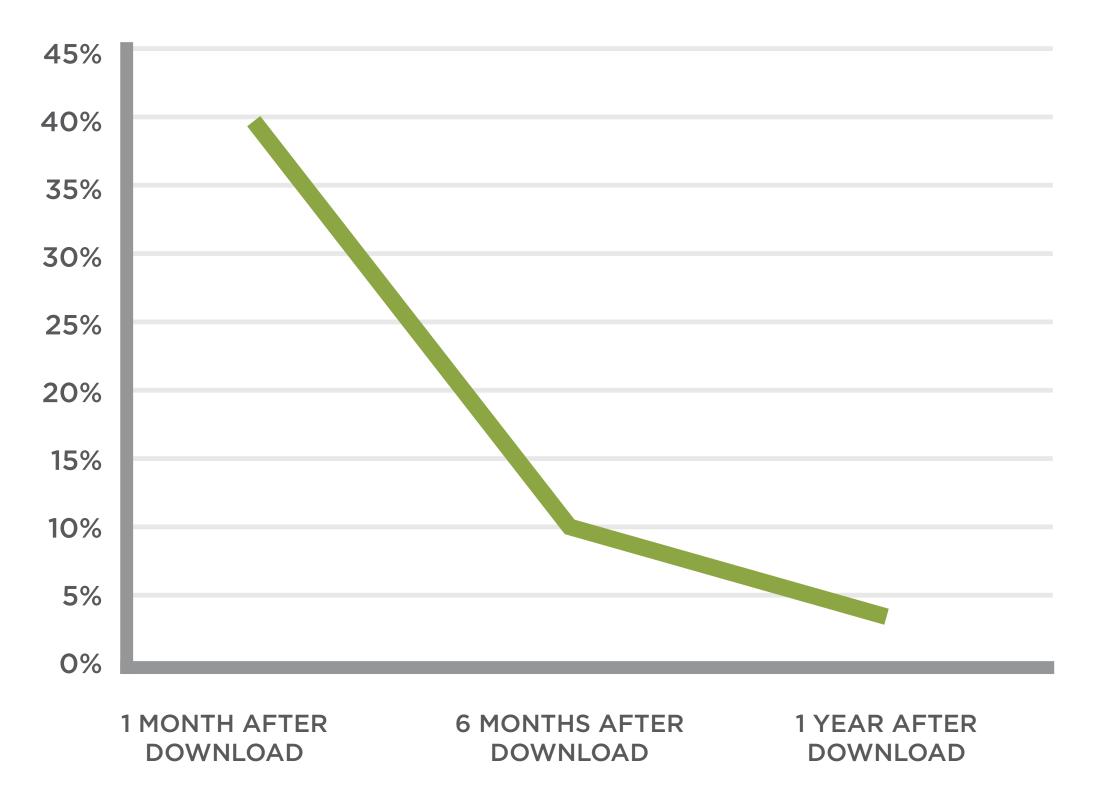
Source: https://bit.ly/2dvndVz

MOBILE APP RETENTION





MOBILE APP RETENTION





Source: https://bit.ly/2dvndVz

so to improve retention apps usually turn to...

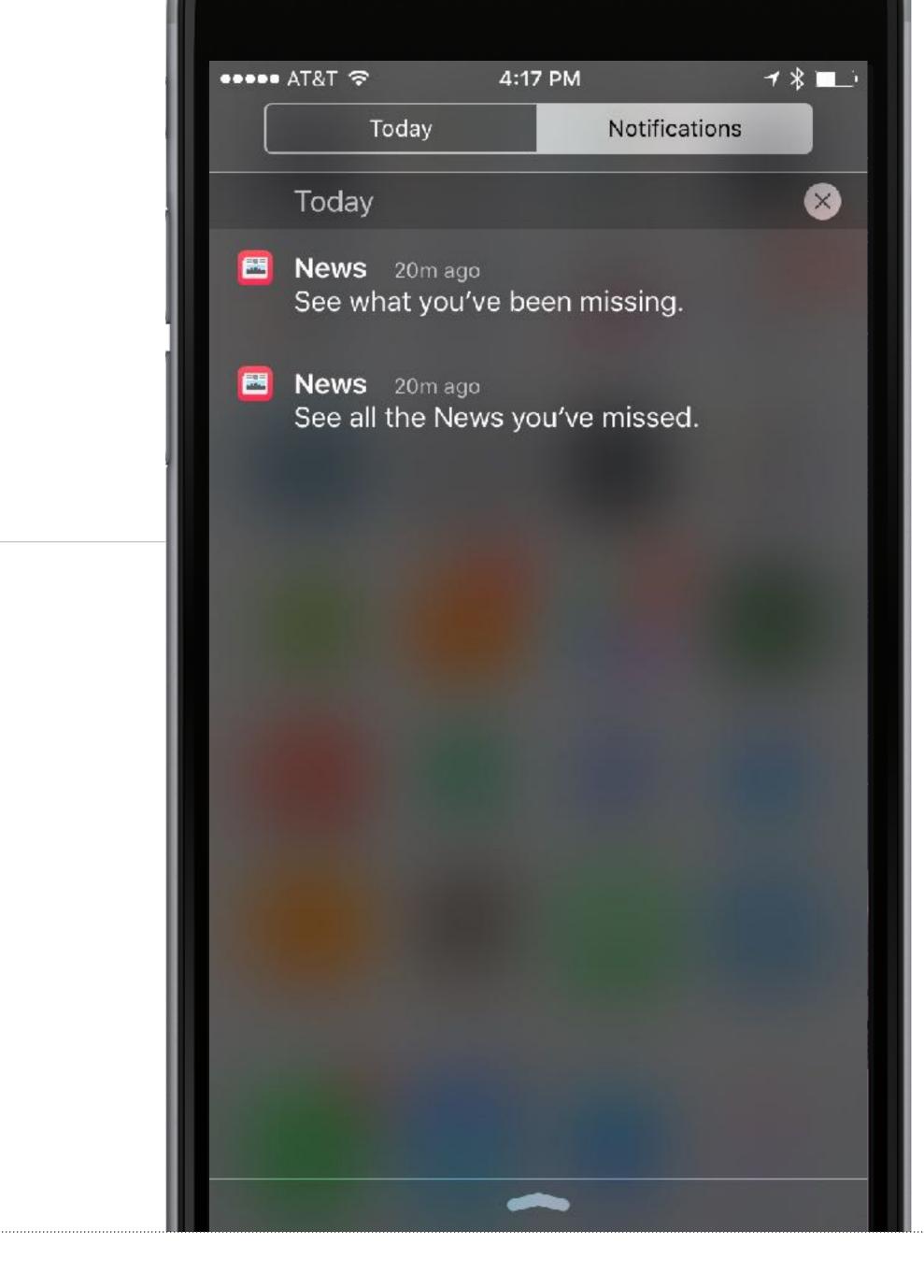
PUSH NOTIFICATIONS APP ONBOARDING



PUSH NOTIFICATIONS

Messages that pop up on a mobile device. Can be sent any time as people don't have to be in on app/device to receive them.



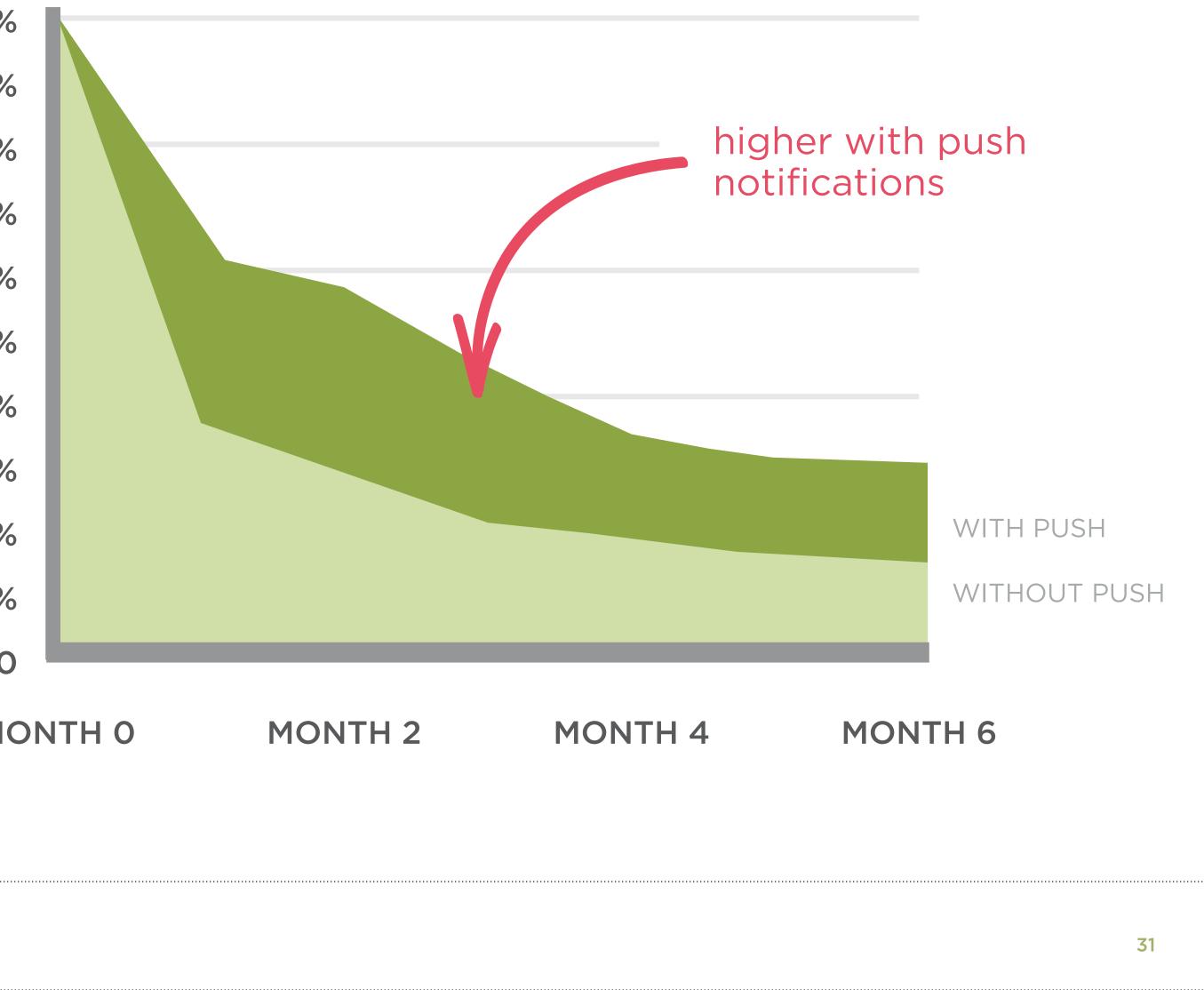




	100%
	90%
PUSH NOTIFICATIONS	80%
PUSHINUTIFICATIONS	70%
	60%
	50%
	40%
	30%
	20%
	20% 10%
	0
	MON



SIX MONTH APP RETENTION RATES



APP ONBOARDING

Overview of features and/or list of benefits



fickr

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Get Started

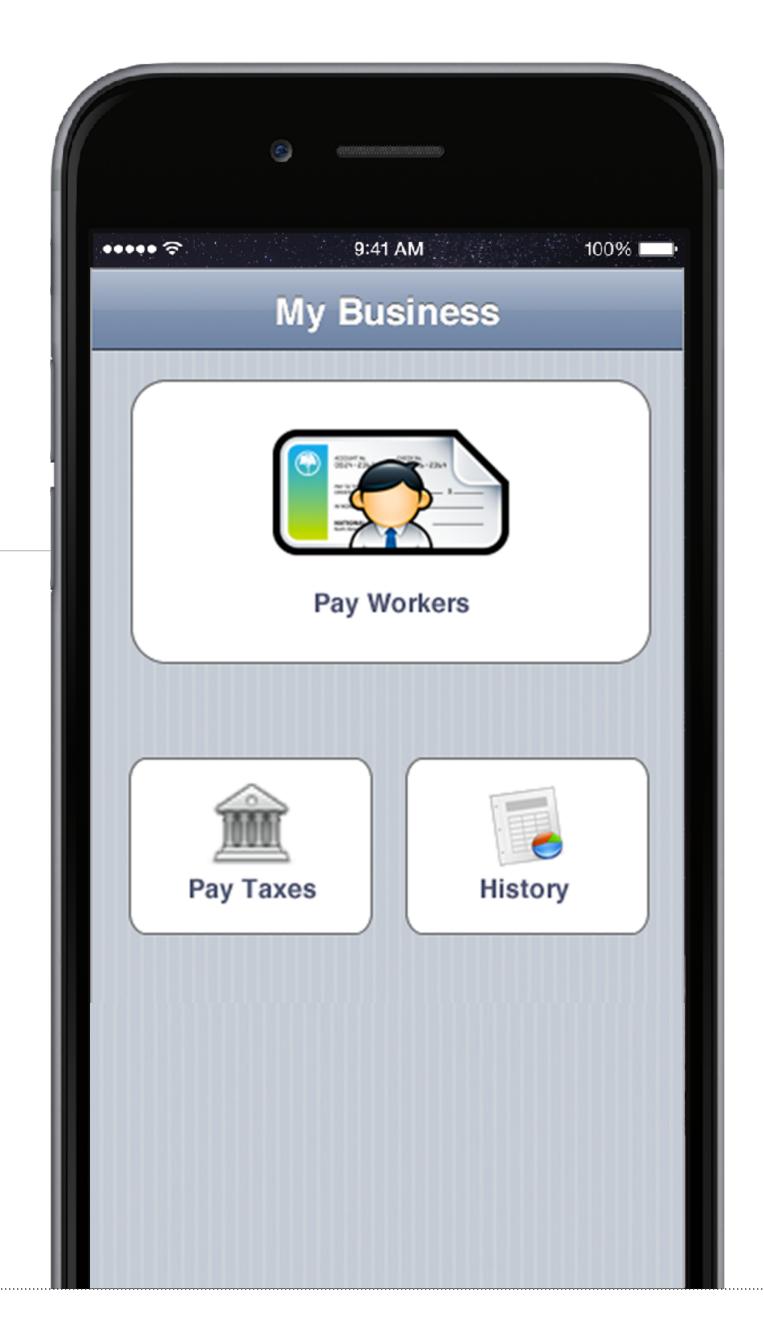


DROPPED IN

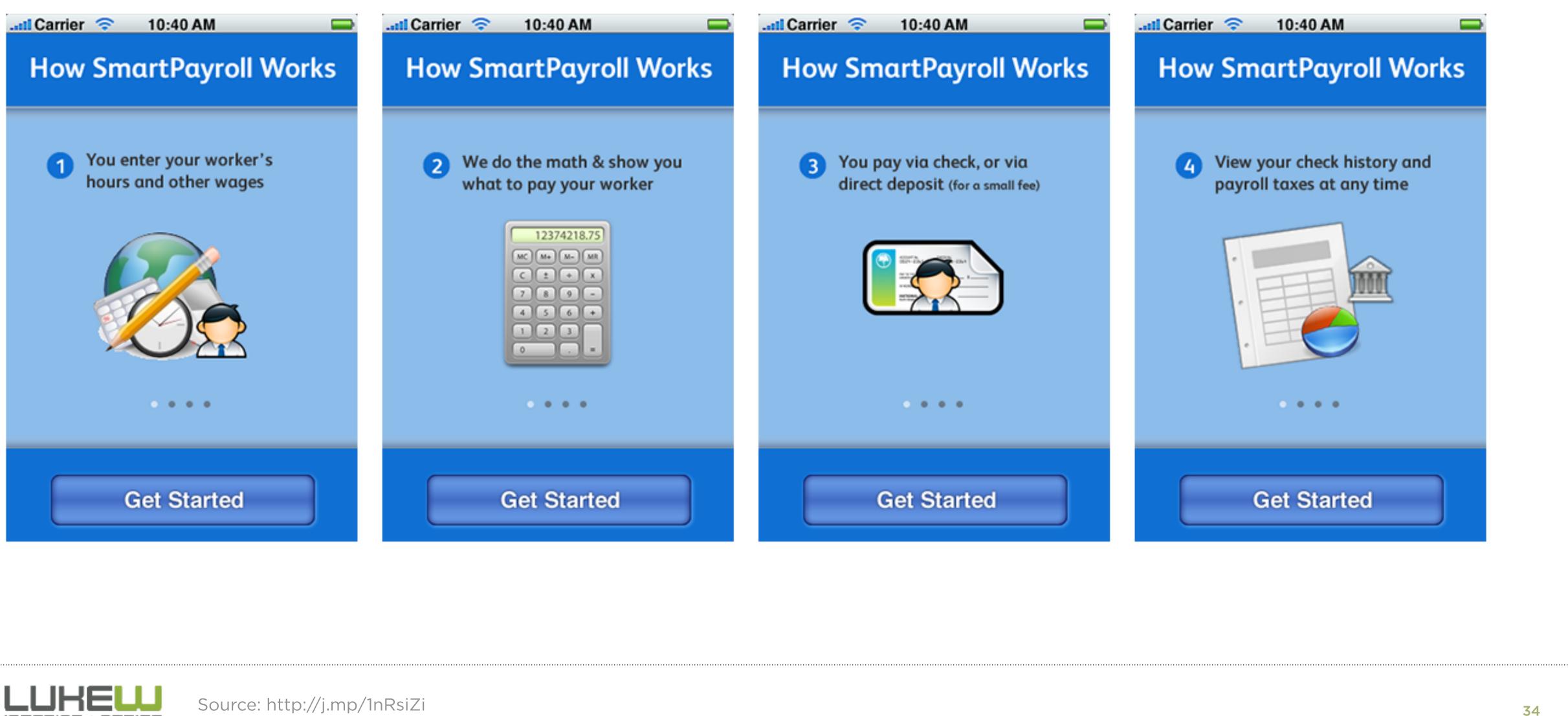
Customers felt lost & weren't sure which option they should choose first.



Source: http://j.mp/1nRsiZi









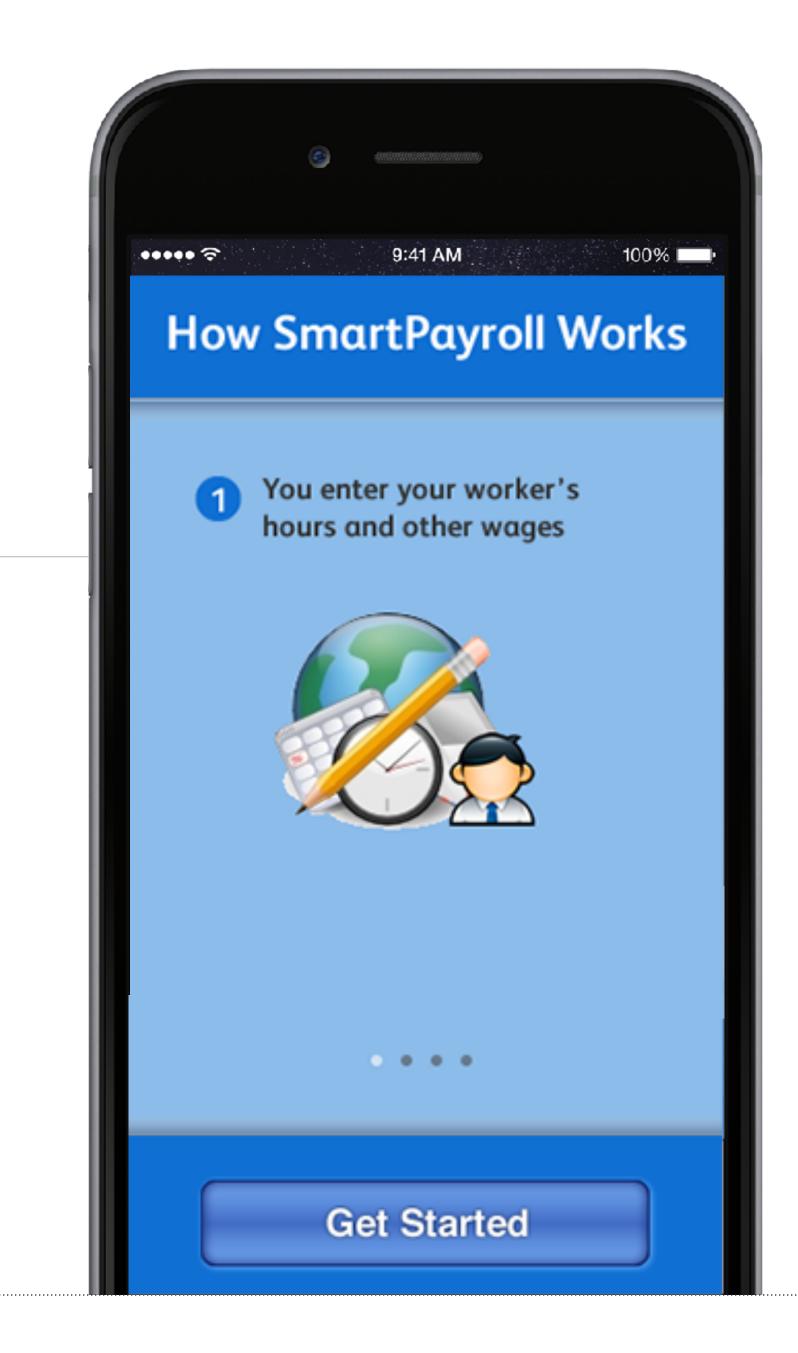
Source: http://j.mp/1nRsiZi

INTRO TOUR

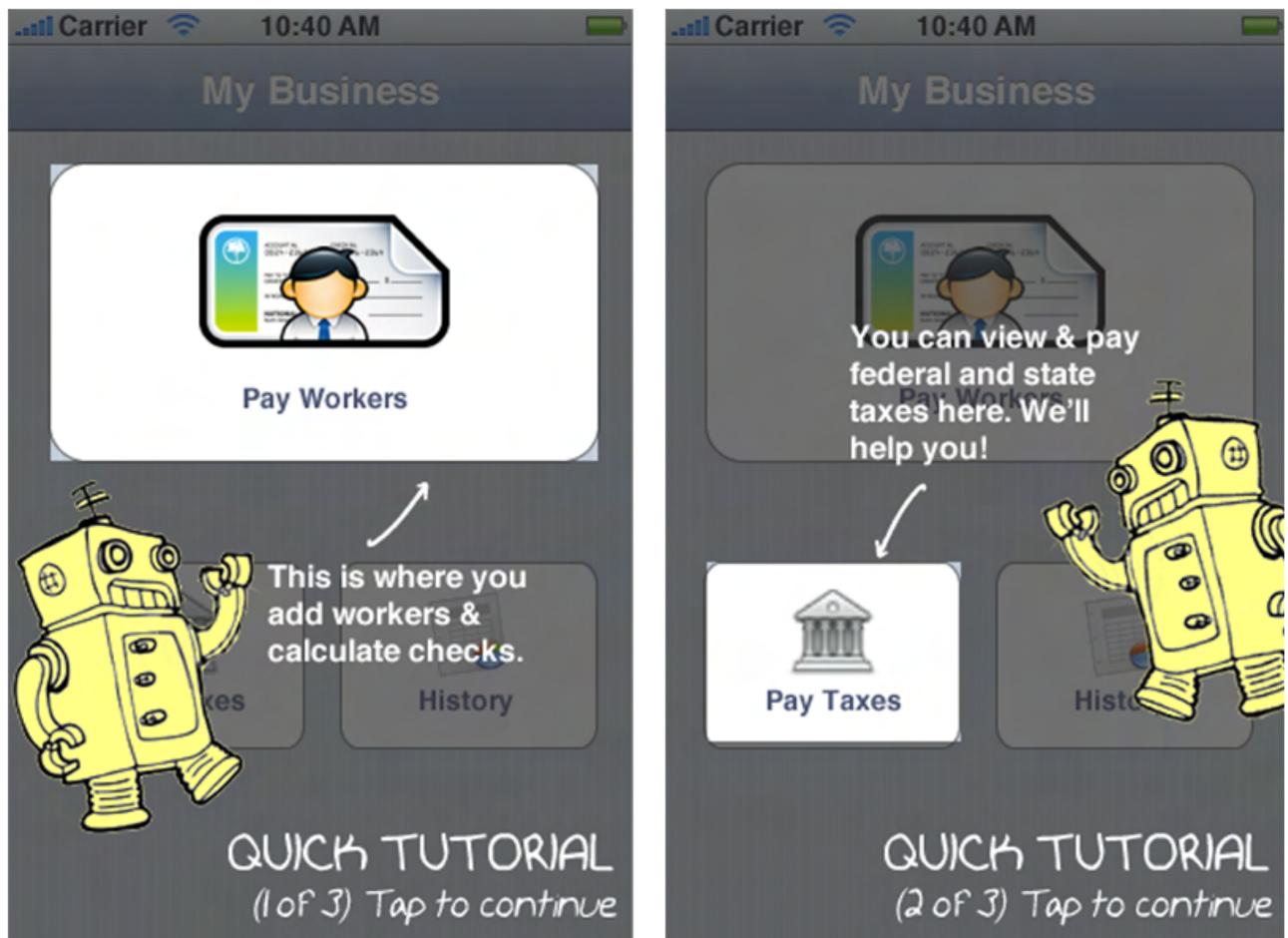
No one read the screens. They immediately skipped over them.



Source: http://j.mp/1nRsiZi



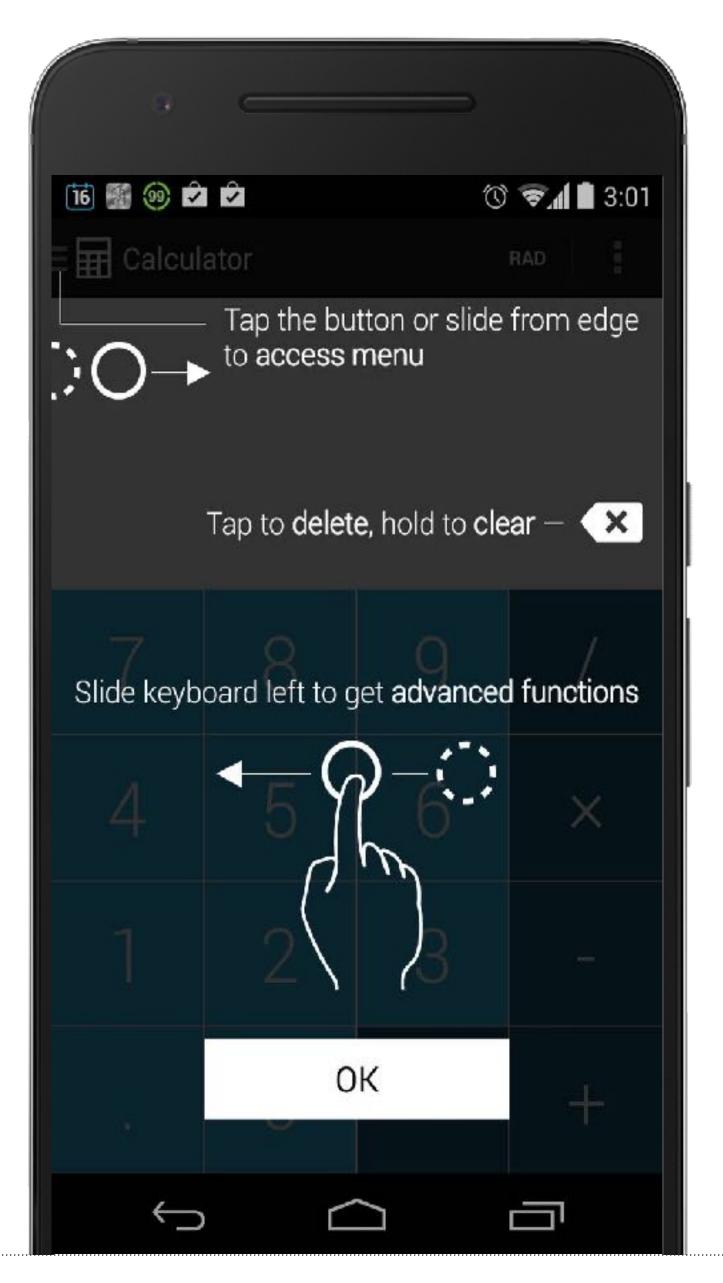




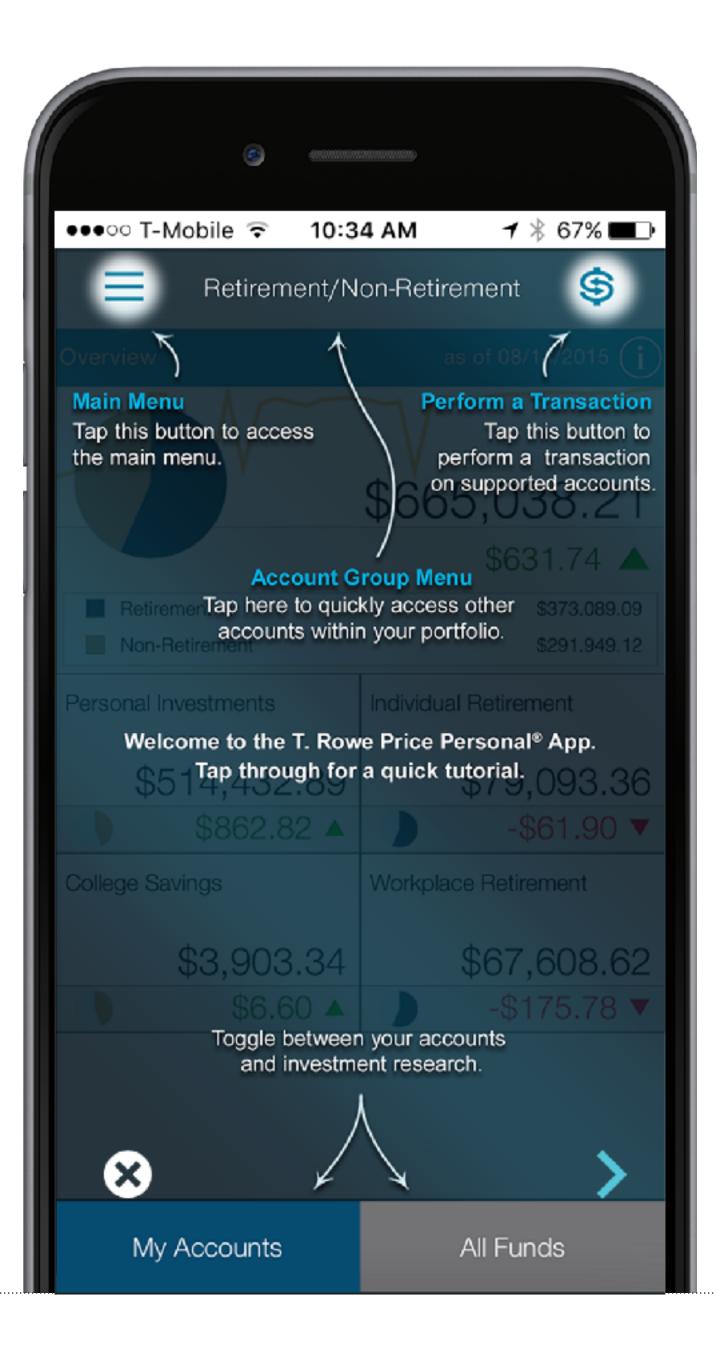














IN-CONTEXT

Comments included: "I just want to make this get out of my way."



Source: http://j.mp/1nRsiZi





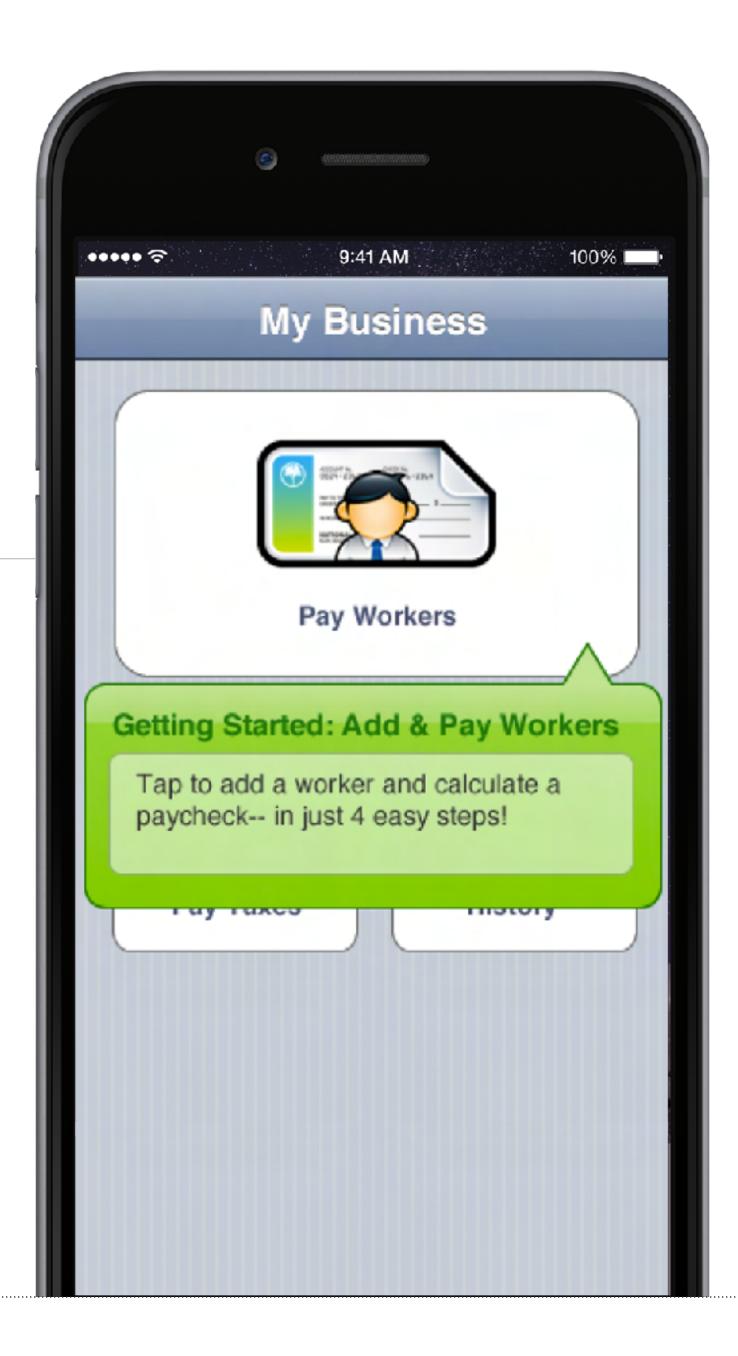
JUST-IN-TIME TIP

Customers had a good sense of what was available to them and a clear first step.



Source: http://j.mp/1nRsiZi







vevo

ALL NEW REAL-TIME FEED

Watch our daily premieres and custom playlists in a constantly updated feed.

vevo

VEVO TV - NEW CHANNELS!

Pop, hip-hop, and country fans will love the mix on HITS, FLOW, and NASHVILLE. Don't like what's on? Change the channel.

• •









INCREASE IN SUCCESSFUL LOG INS



Source: https://bit.ly/2lyNVjM

vevo

CUSTOM FIT то матсн **YOUR TASTES**

Match artists and songs from your iOS music library to VEVO videos. Create and share playlists with your friends.

. .

vevo

SIGN IN FOR A BETTER VIDEO EXPERIENCE.

LOGIN

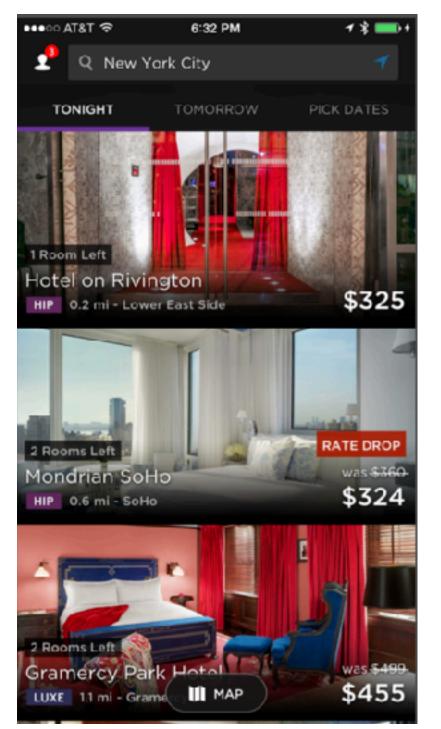
SKIP AND CONTINUE

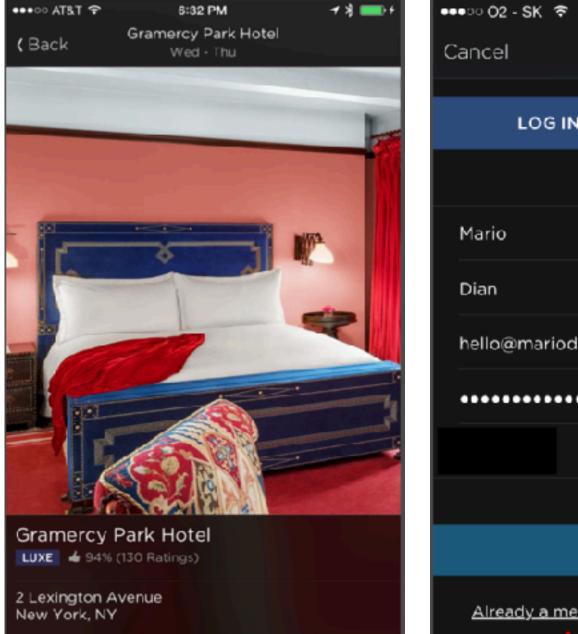
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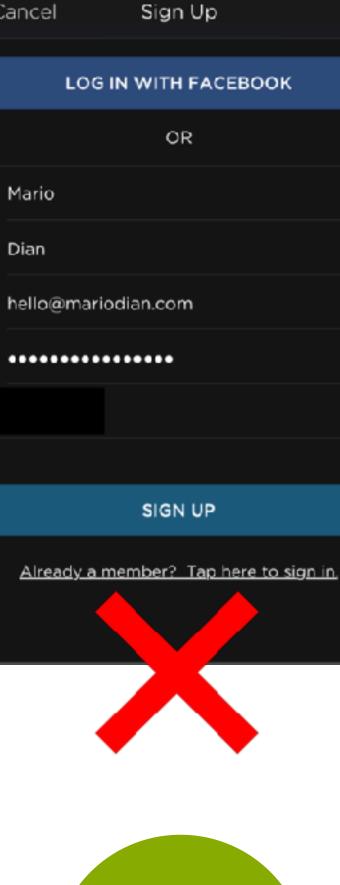
INCREASE IN COMPLETED SIGN UPS







BOOK NOW \$455



20:16





Source: https://www.slideshare.net/kendrickapp/hotel-tonight-mobile

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(Back	Book Now	Sign In		
Gramercy Pa	rk Hotel			
First Name				
Last Name				
Email Address				
Check-in Check-out		Wed, Mar 18 Thu, Mar 19		
Room type	Se	lected by hotel		
Room (1 Night) Taxes & Fees		\$432 \$68		
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ADD PAYMENT INFO				

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INCREASE IN CONVERSIONS

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BOVE TERMS

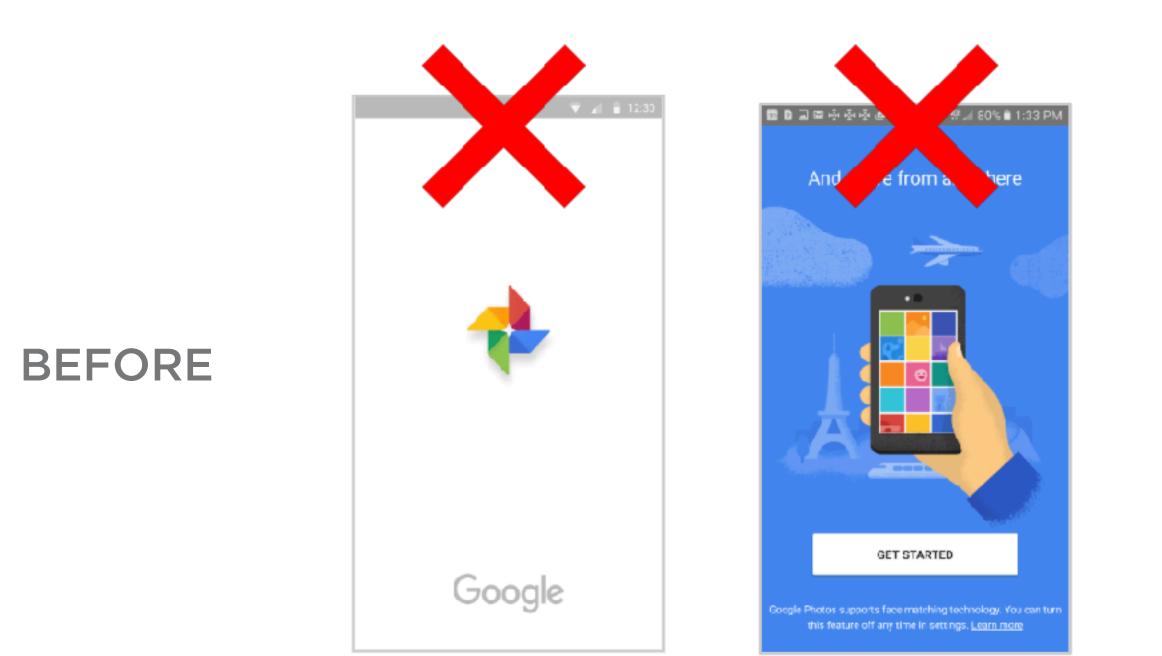
41

Ruthlessly edit. Even when you have the slimmest funnel, cut again. Amanda Richardson, Hotel Tonight



Source: https://www.slideshare.net/kendrickapp/hotel-tonight-mobile

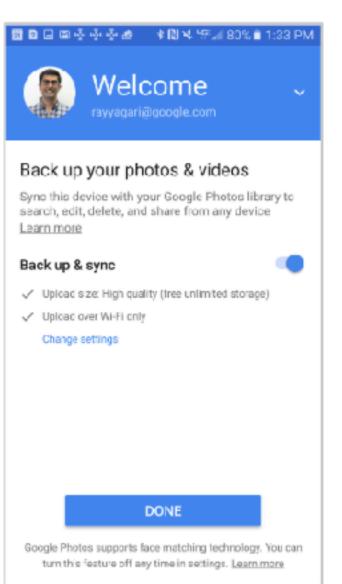


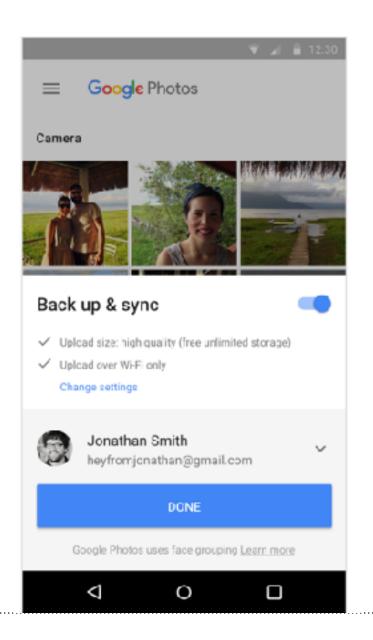




get people to core value as soon as possible







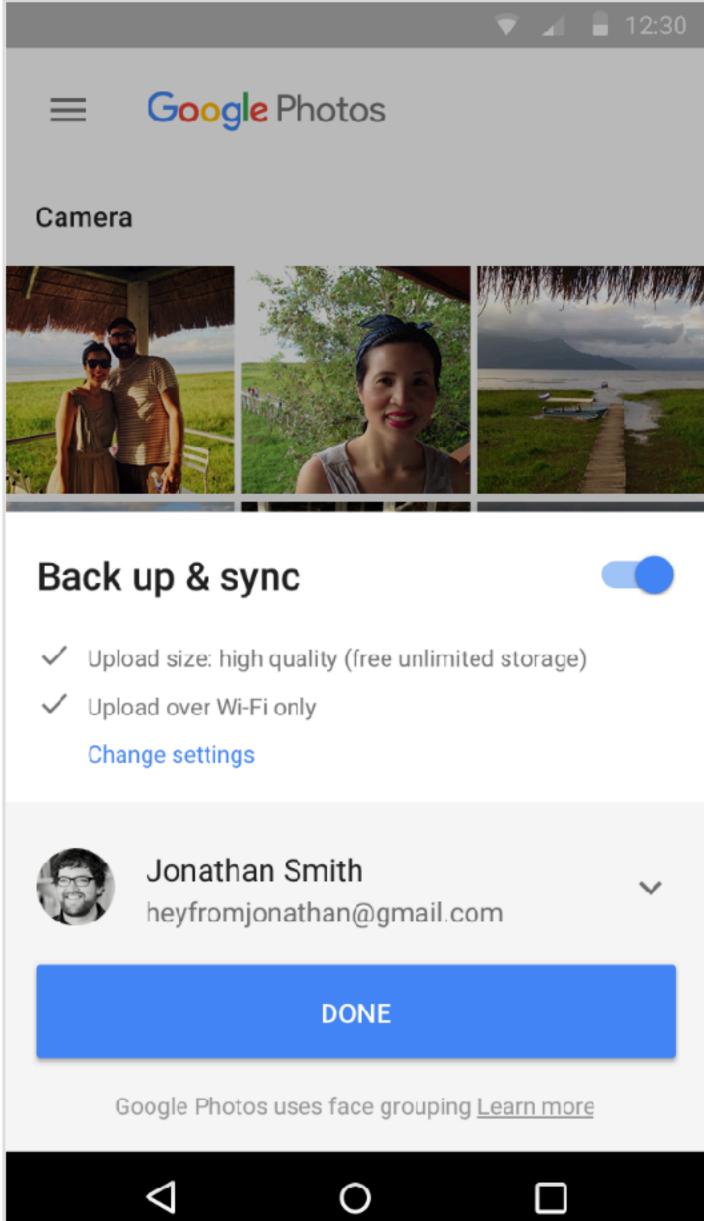






43





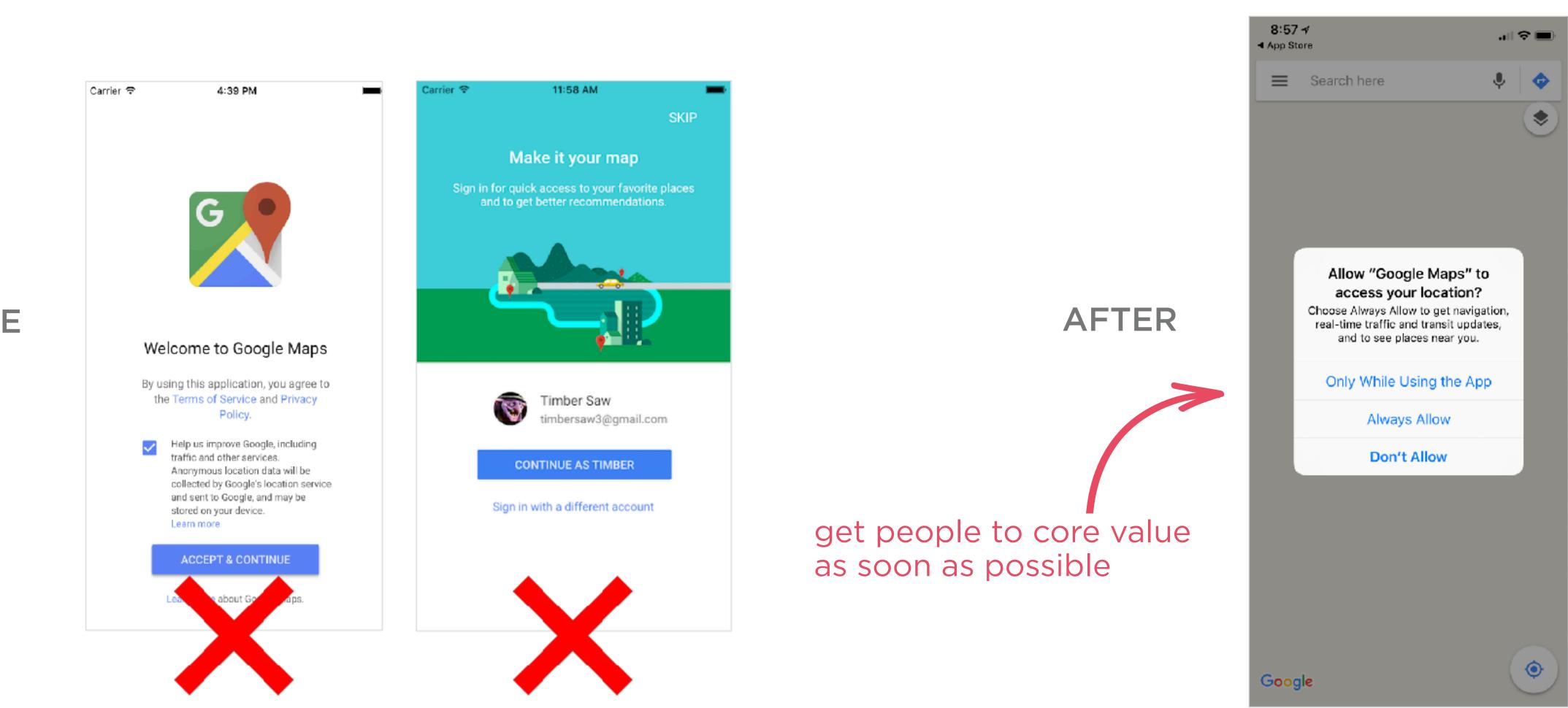






this, of course, requires knowing what your core value/action is











JUST-IN-TIME TIP

Customers had a good sense of what was available to them and a clear first step.



Source: http://j.mp/1nRsiZi

	9 PM ≁ ♥ ∦ ■⊃ Payroll
Employees	Let's add your first employee.
History	tap to hide
	TUNCS
Employer Guide	Feedback Privacy

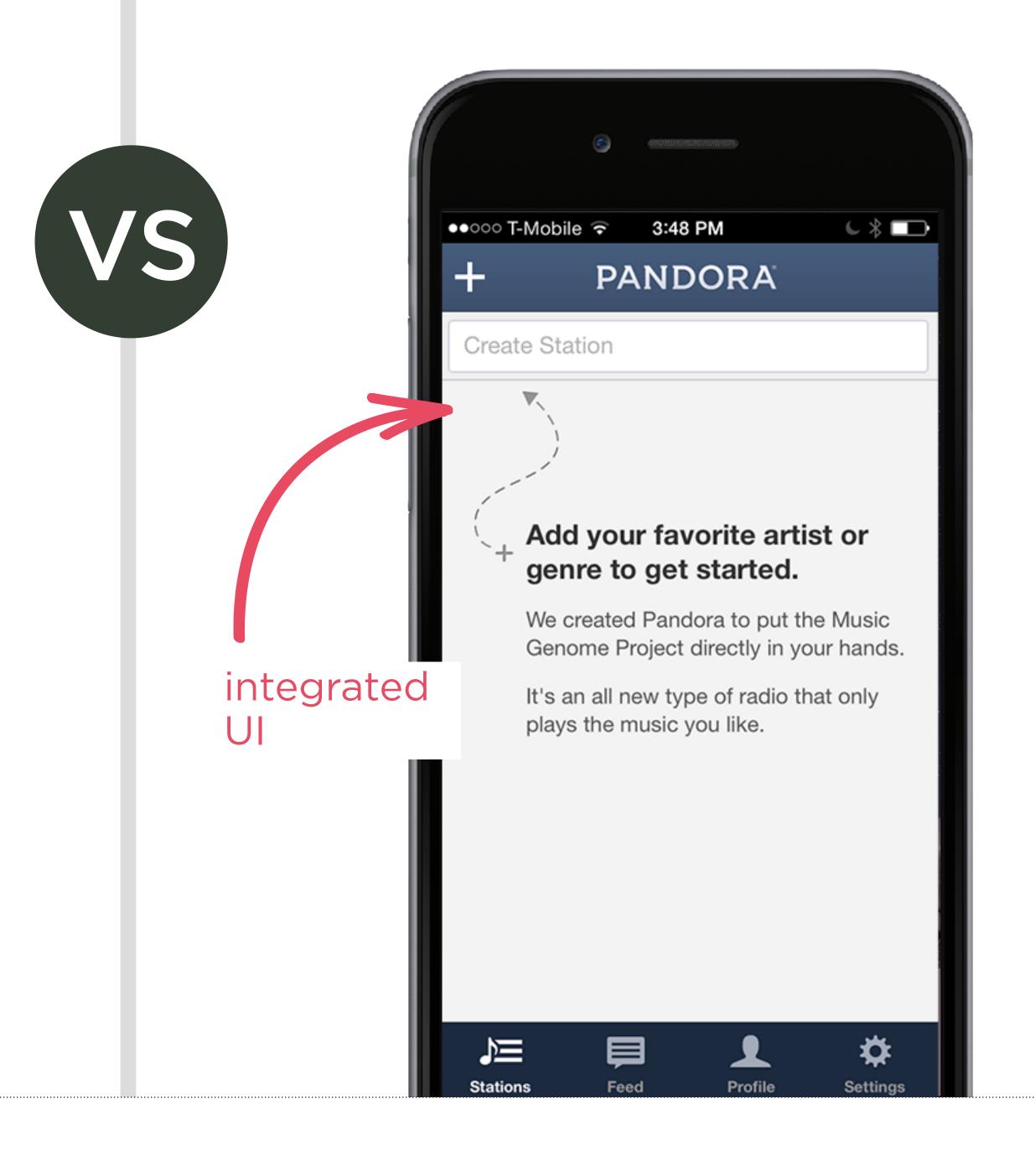


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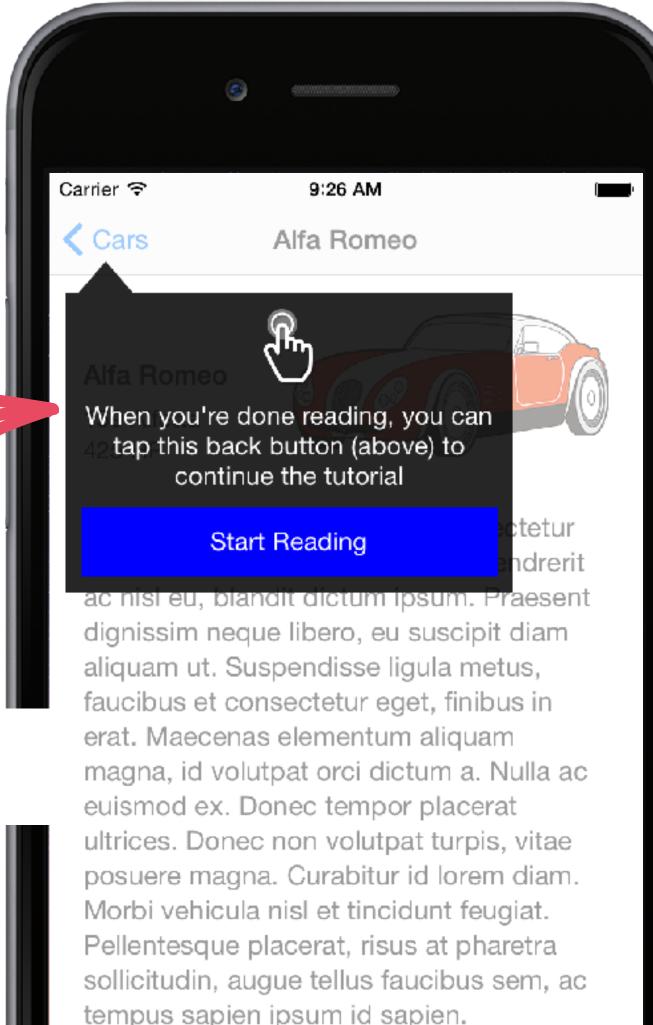


tooltip

overlay







tempus sapien ipsum id sapien.



tooltip

overlay

• We see overlay avoidance consistently in the research we conduct with mobile users. Especially when people are task focussed. Then when they do come to use a new function they can't find the help and don't recall seeing the help previously.

Lisa Duddington Co-founder, Keep It Usable

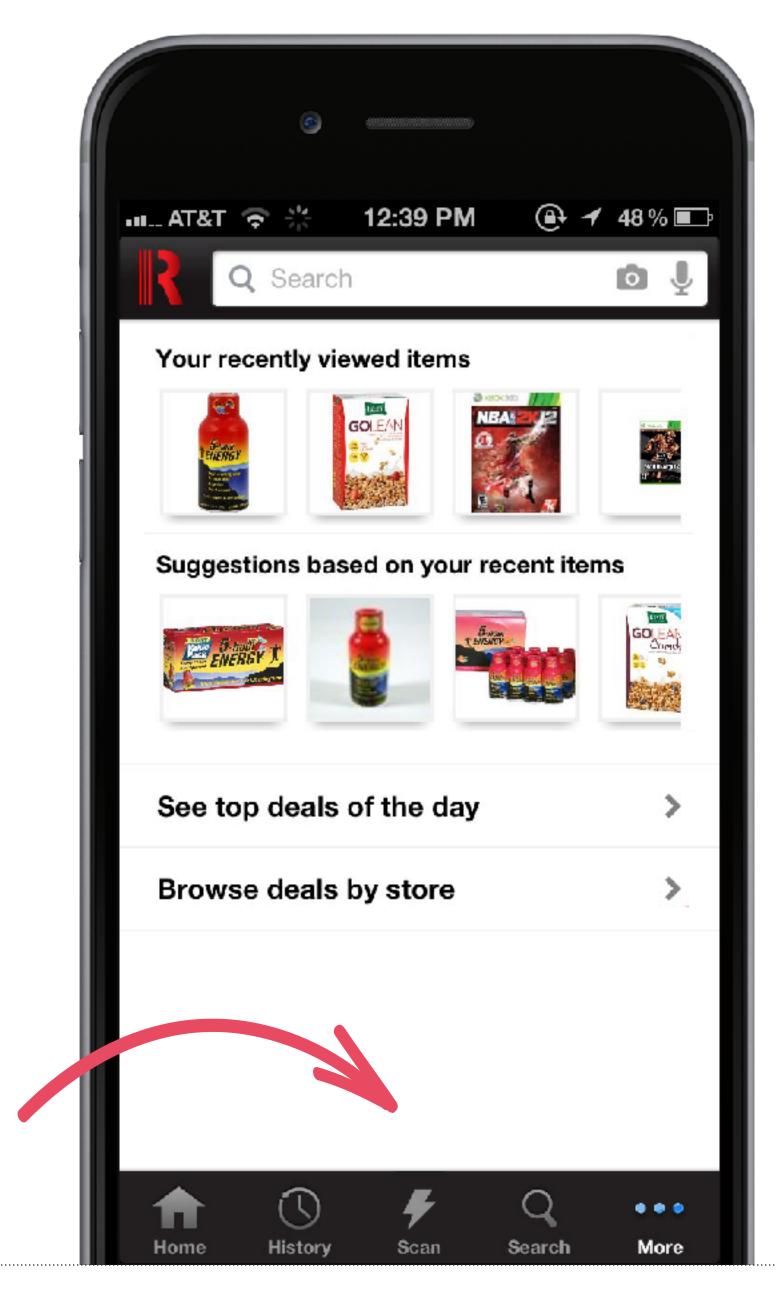






• We saw this all the time at Facebook. People very often, instinctively, dismiss tooltips. On occasion even accidentally. By the time they realize the message may have been helpful, it's already gone and there's no way to recover it.

Tanner Christensen Product Designer, Facebook



IDERTION + DESIGN

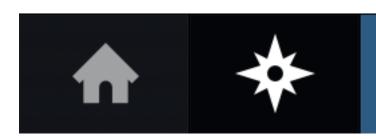
We made our "scan" button huge and different color from the rest of the nav menu and users entirely ignored it.

Miles Skorpen Head of Business Development, Red Laser

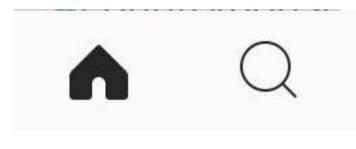






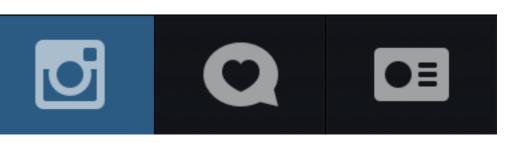


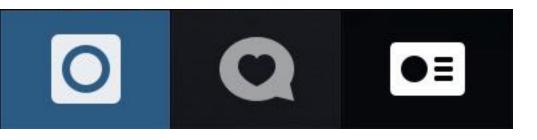
make primary action "pop"



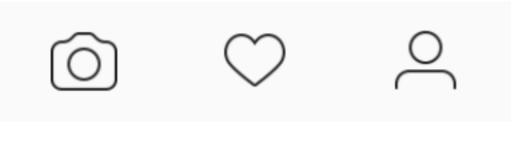








primary action integrated with UI



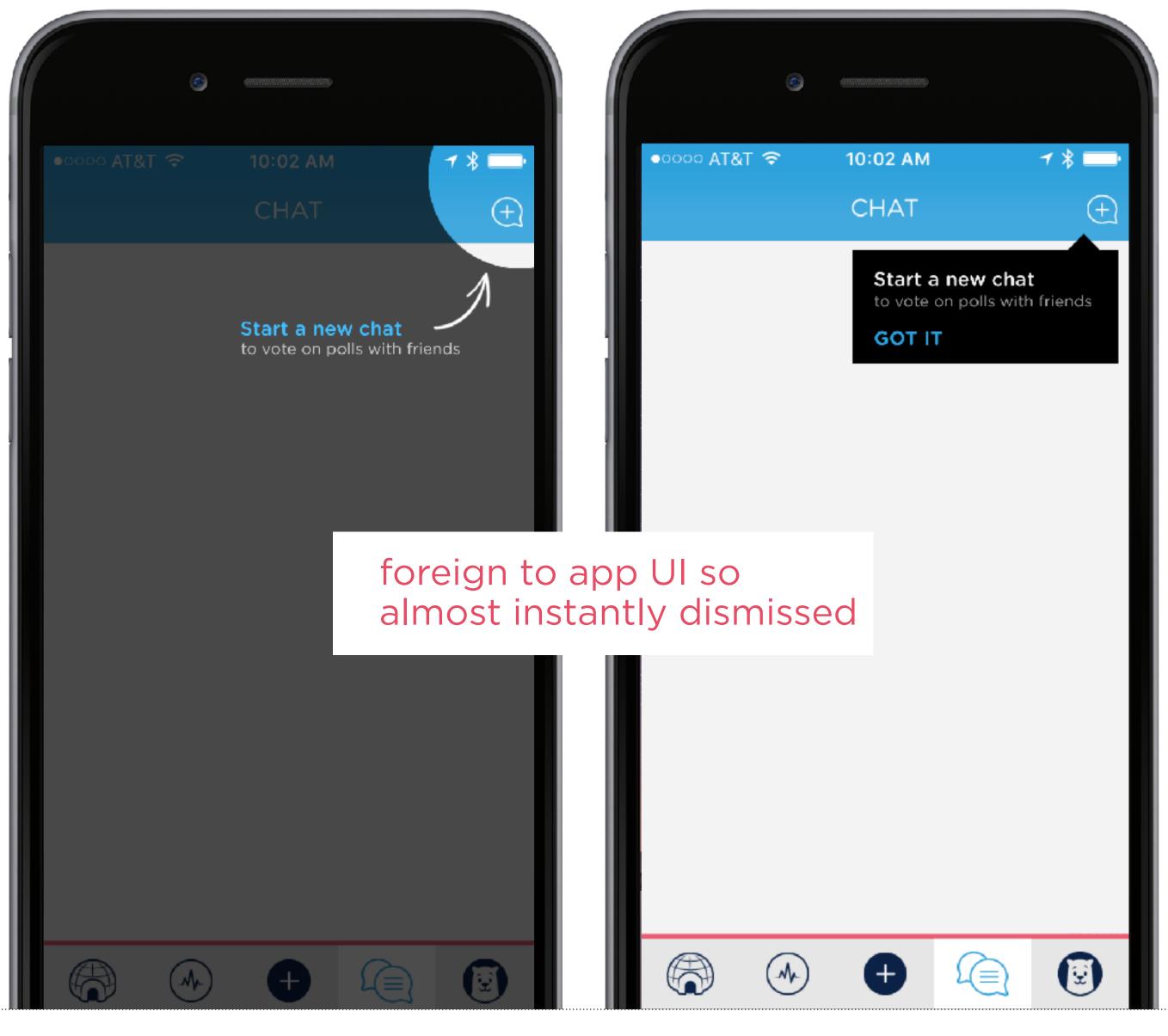






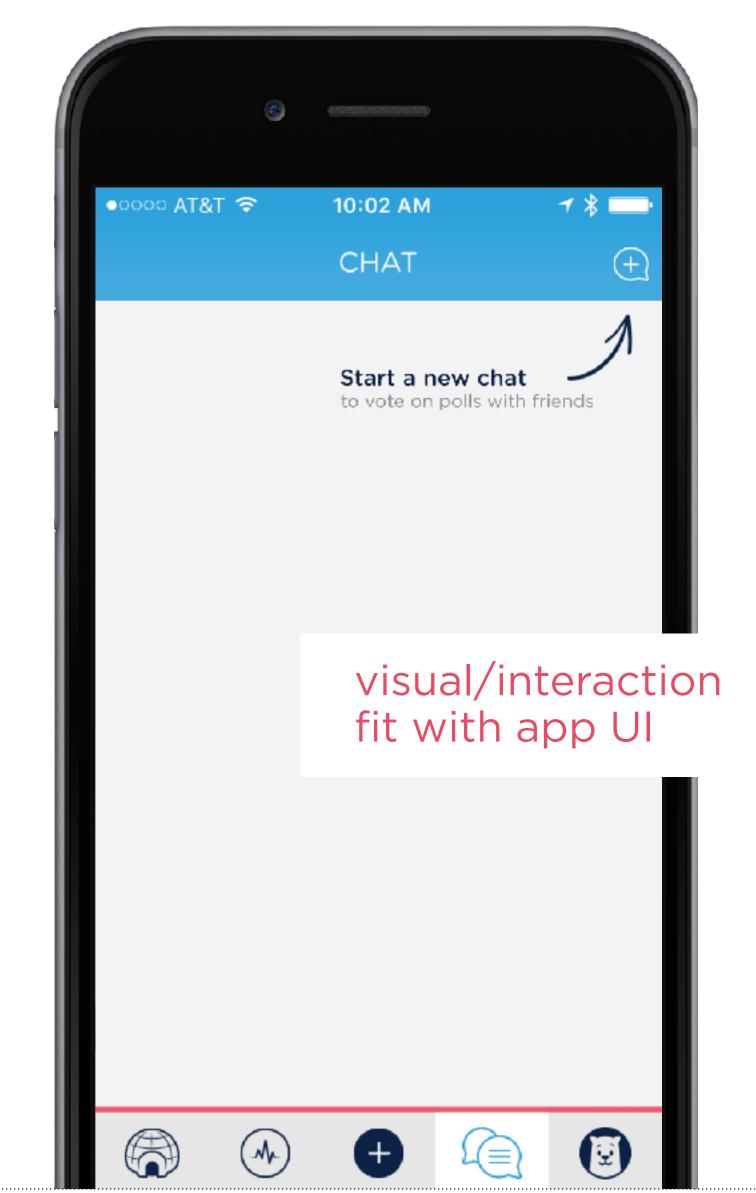
OVERLAY

TOOLTIP





INTEGRATED





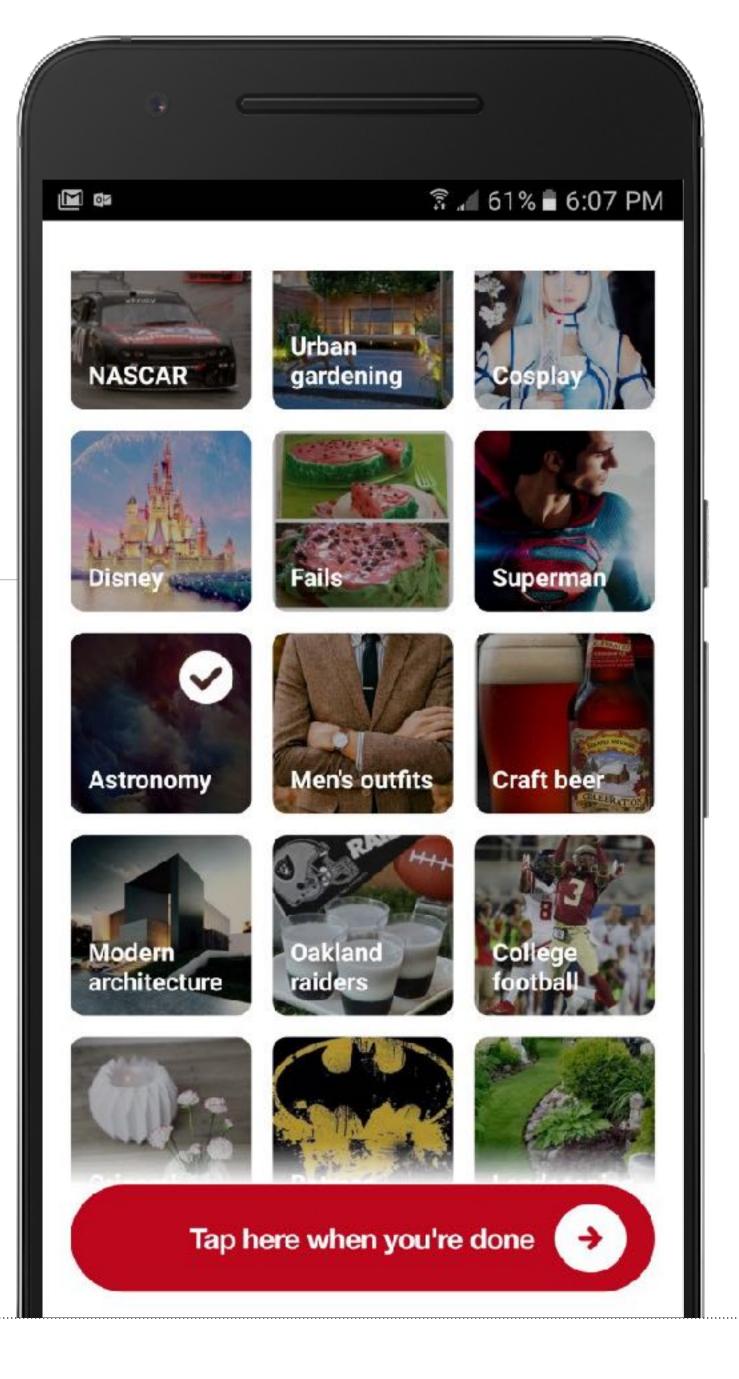


SUCCESSFUL ONBOARDING

Get to product value as fast as possible—but not faster



Source: https://bit.ly/2skdEAc



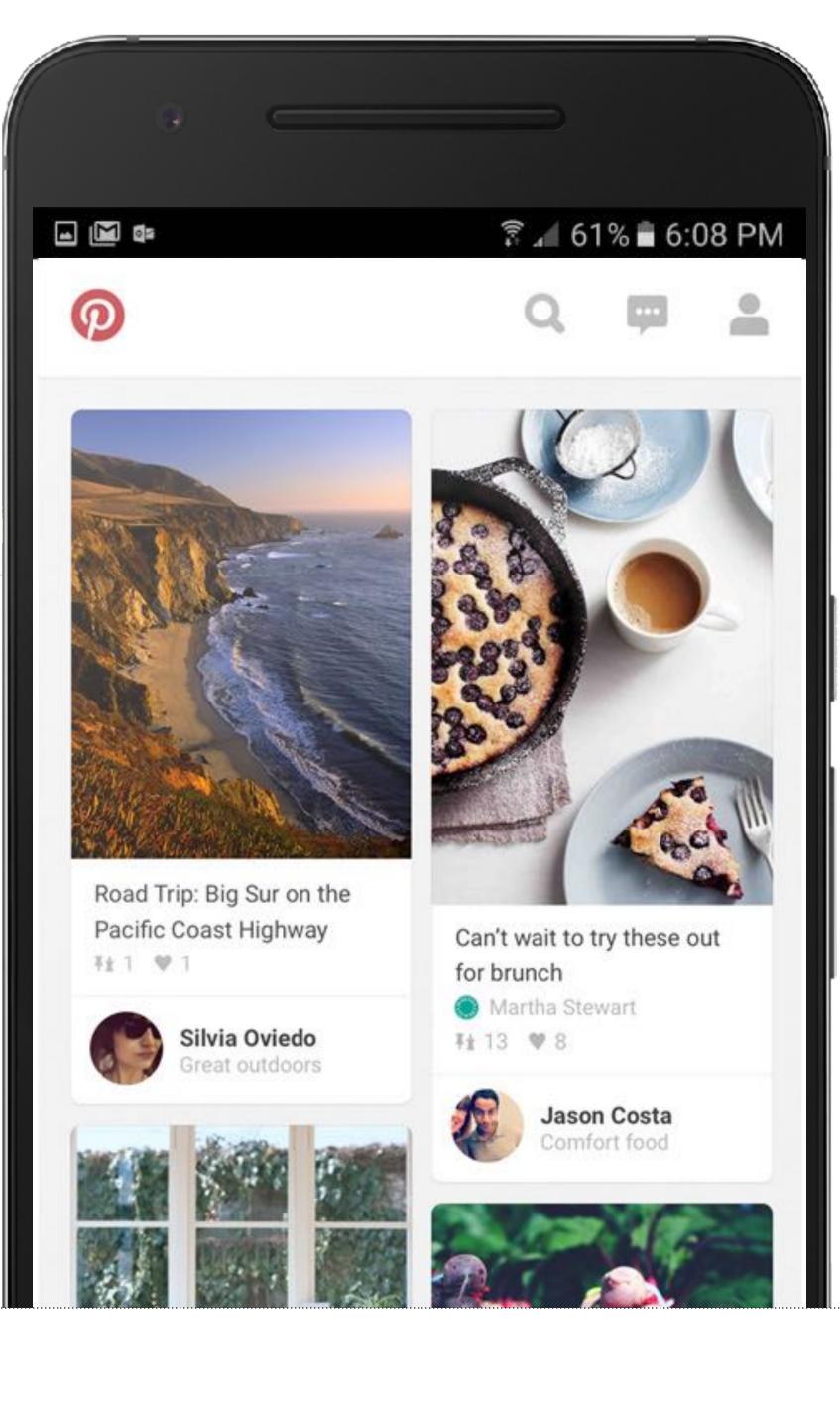


SUCCESSFUL ONBOARDING

Remove all friction that distracts the user from experiencing product value



Source: https://bit.ly/2skdEAc





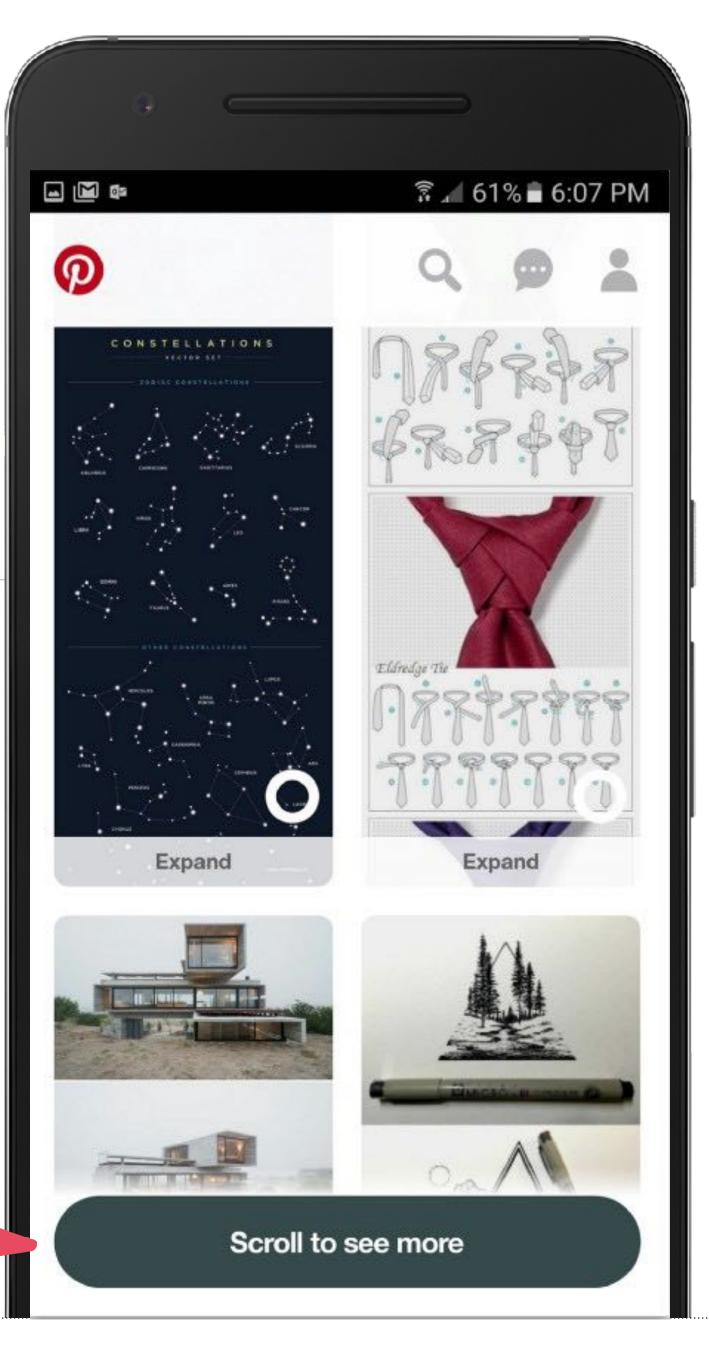
SUCCESSFUL ONBOARDING

Don't be afraid to educate contextually



Source: https://bit.ly/2skdEAc

but do so with integrated UI



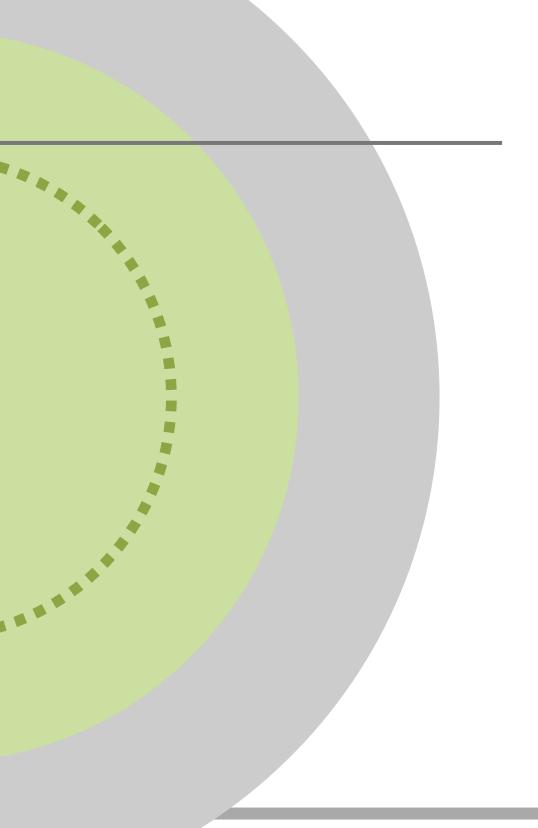


Product onboarding

- Get to product value asap—but not faster
- Ruthlessly edit distractions from product value
- Teach in the moment with integrated UI





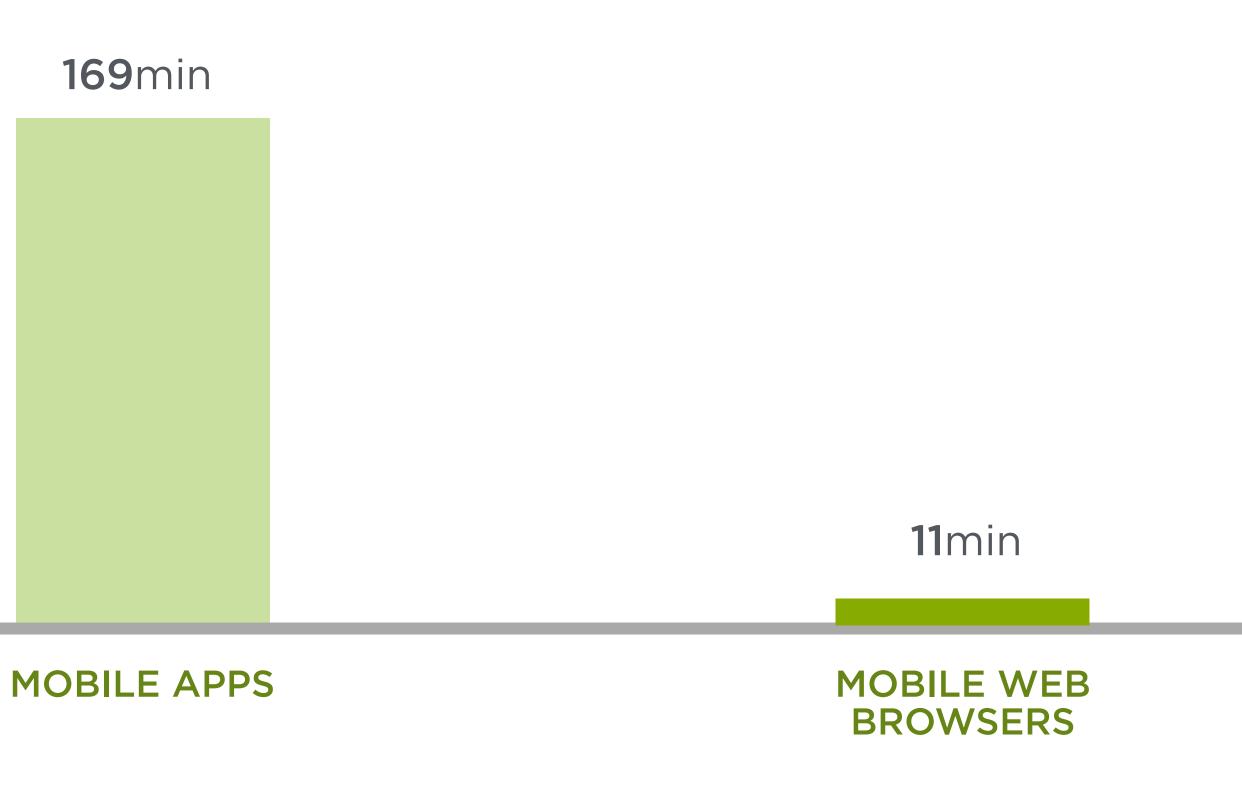


3HR

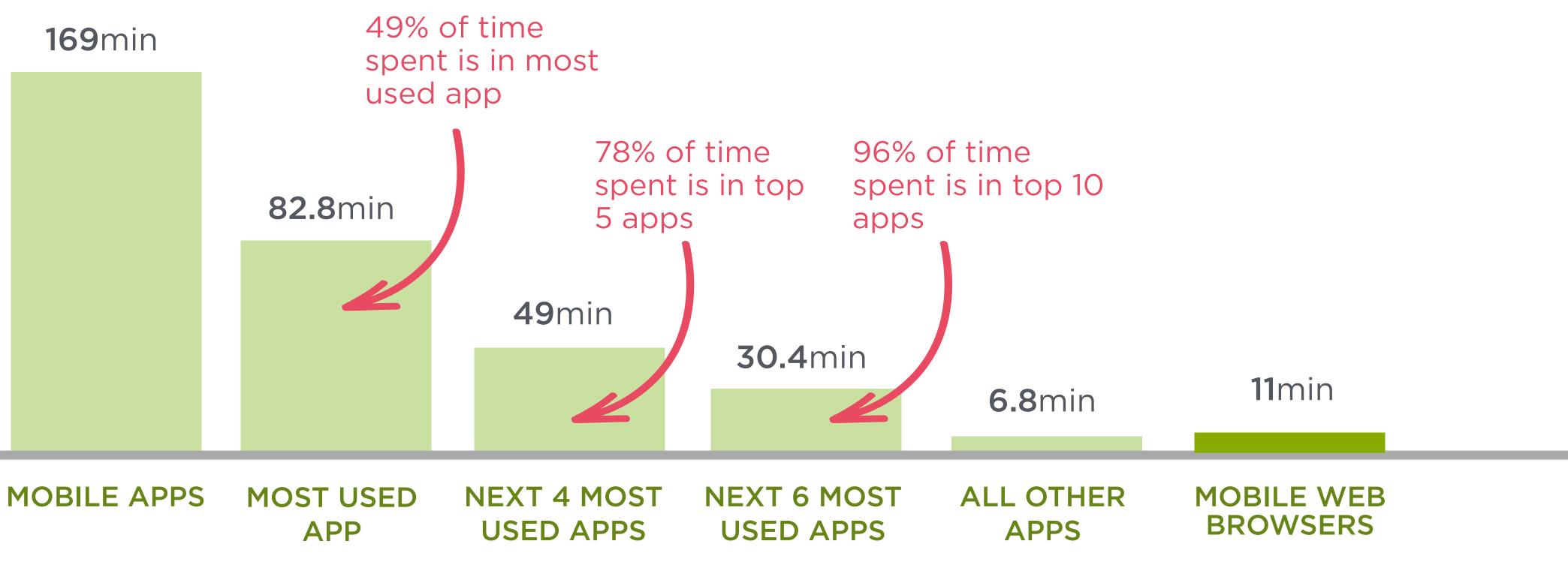
Spent per day



comScore 2017 U.S. Mobile App Report









comScore 2017 U.S. Mobile App Report



Monthly Unique Visitors

4.0M

MOBILE APP



Source: comScore Mobile Metrix, U.S., Age 18+, June 2016

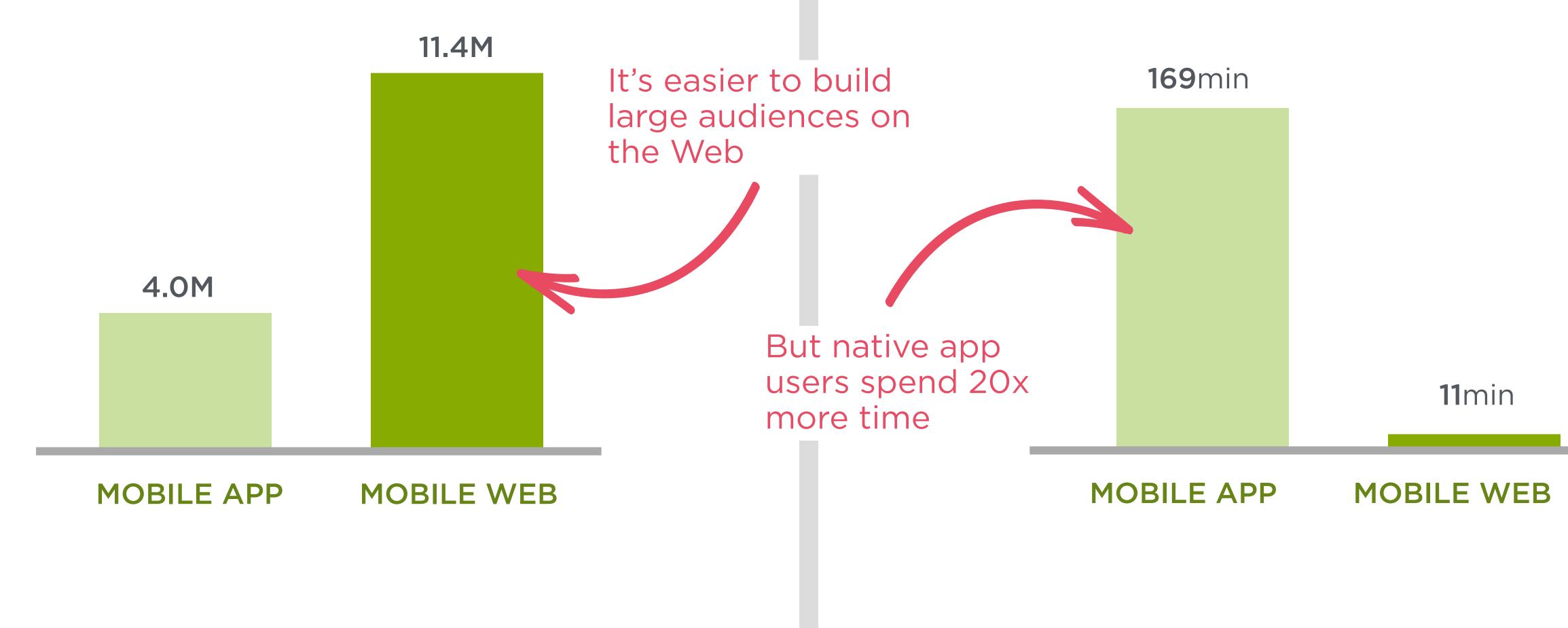
11.4M

It's easier to build large audiences on the Web

MOBILE WEB



MONTHLY UNIQUE VISITORS



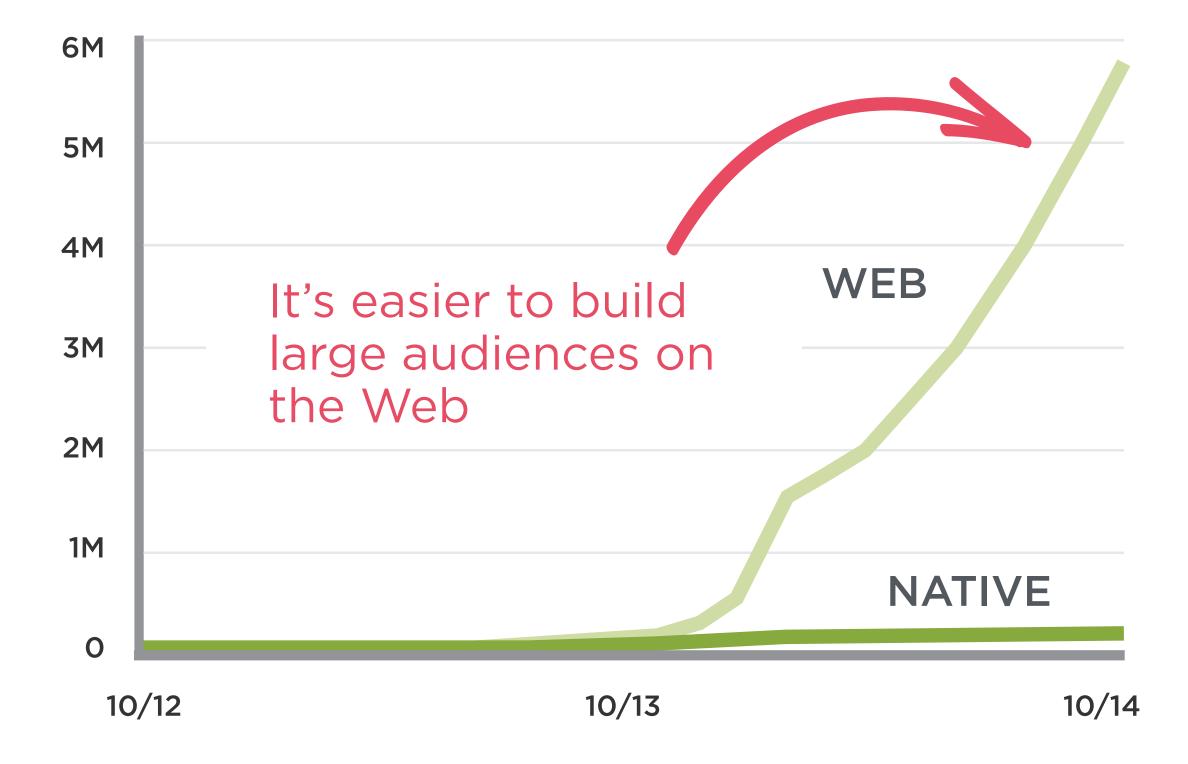


AVG. MONTHLY MINUTES PER VISITOR



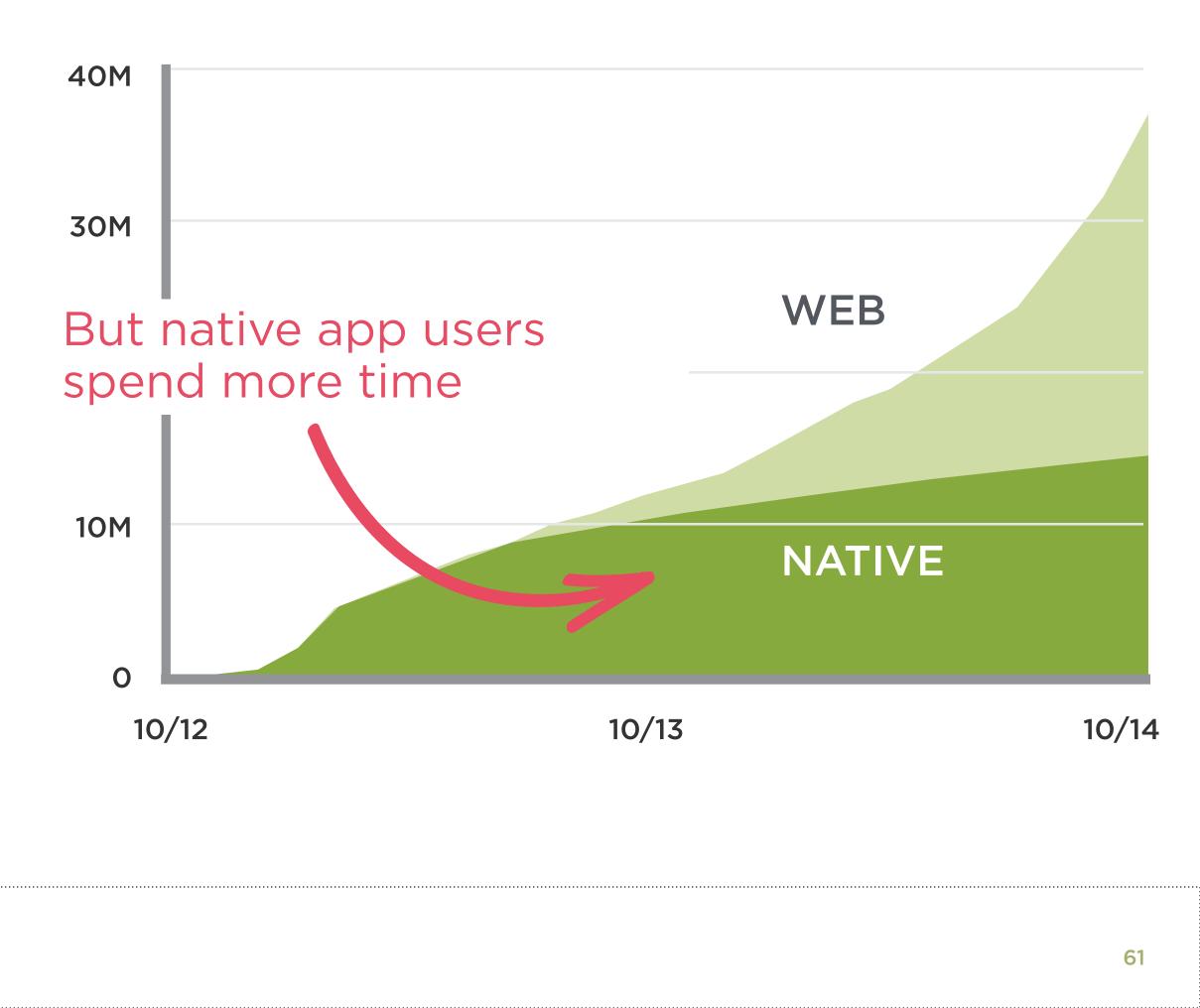
60

CUMULATIVE VOTERS





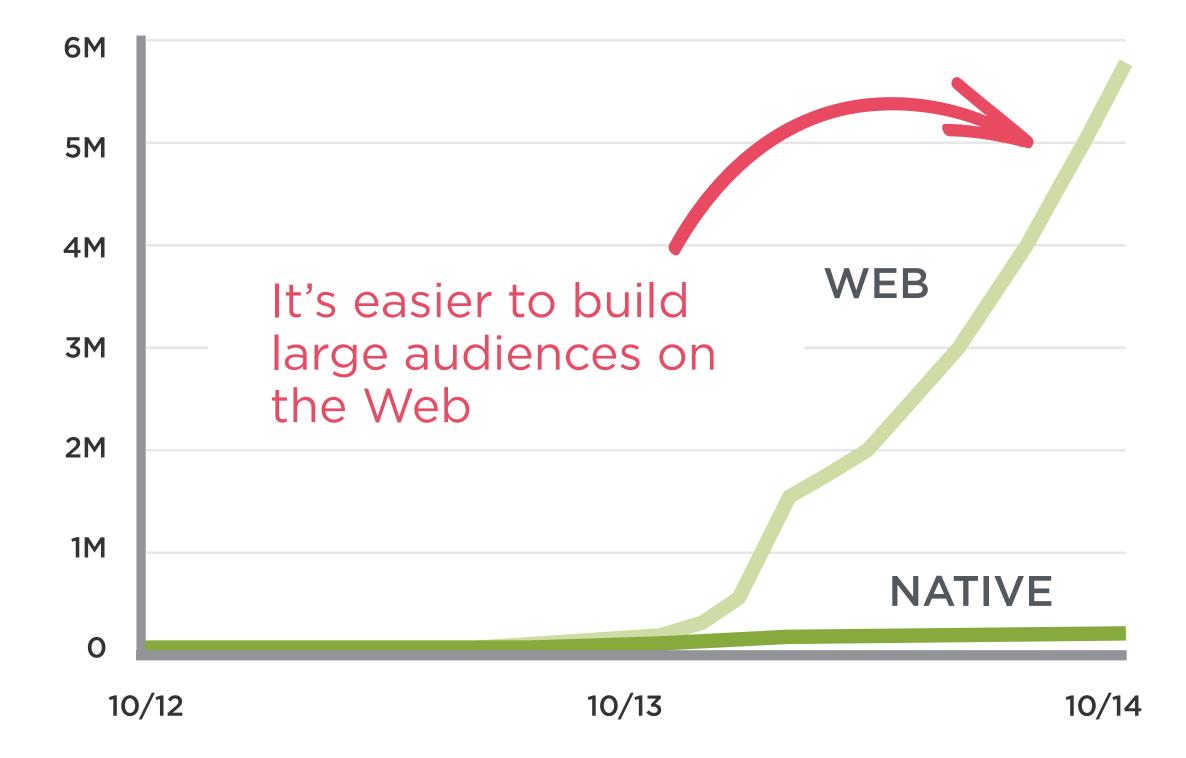
CUMULATIVE VOTES





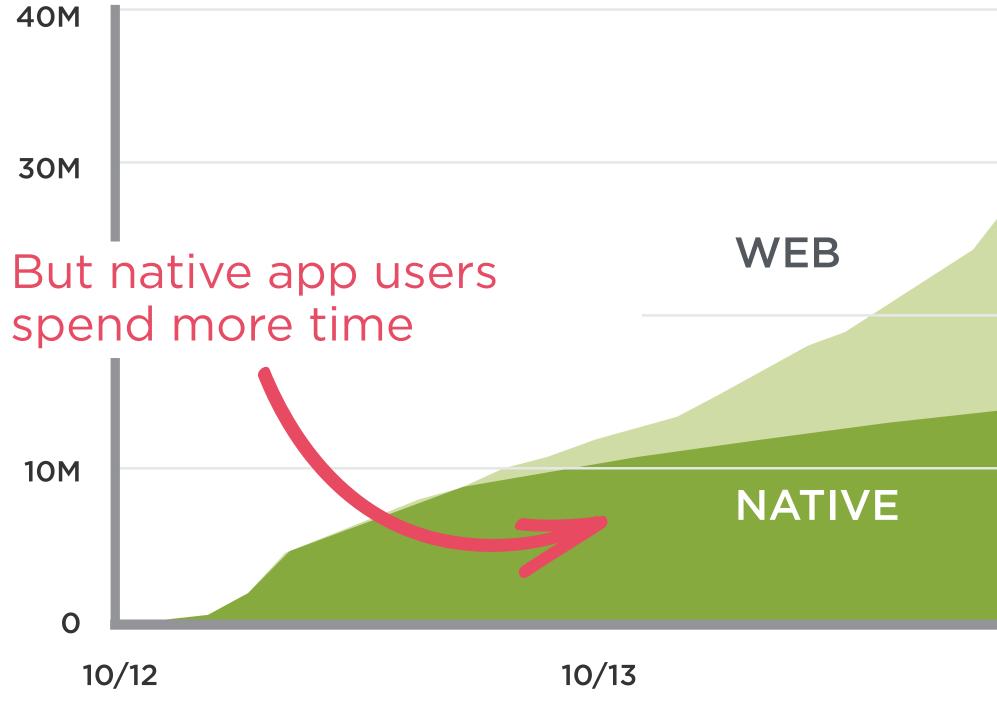
RICH















3HR Spent per day



- are additive & mostly within native apps
- where onboarding can help retain users
- and the Web can help attract them

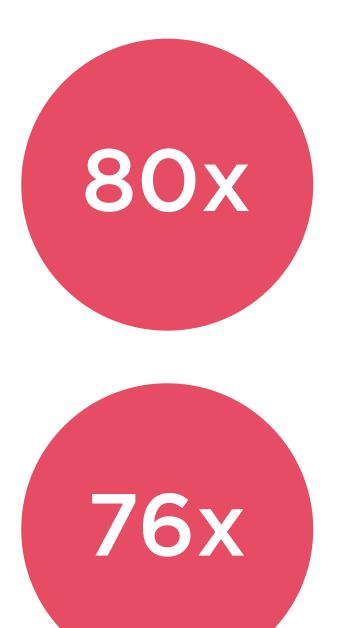




3HR Spent per day

80x Times used per day





separate phone sessions a day (Android study)

per day, people log

into their iPhones

Source: Apple Computer Inc. | http://dailym.ai/1GPs1mm | http://bit.ly/29mTe1f



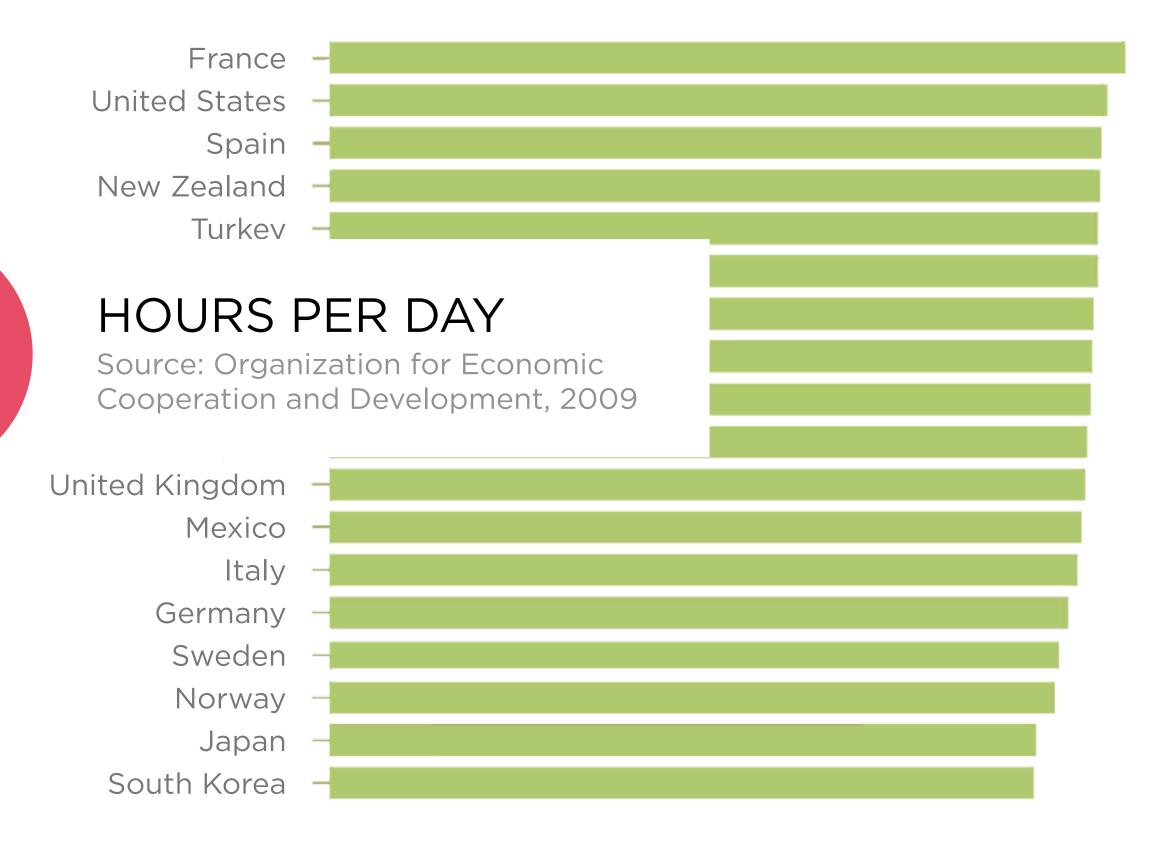
Messages

3HR Spent per day

80x Times used per day 8.3



AVG. SLEEP TIME GLOBALLY

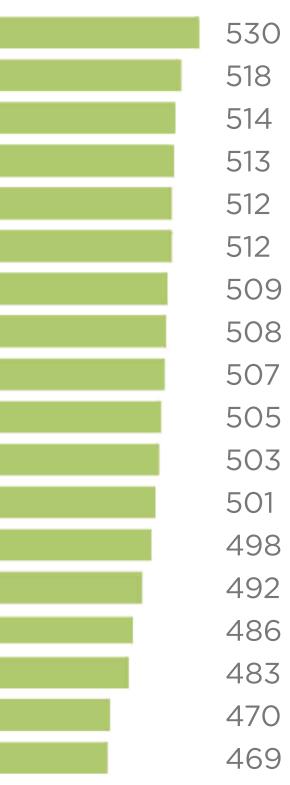




AVG. SLEEP TIME GLOBALLY France United States Spain New Zealand Turkev HOURS PER DAY 8.3 Source: Organization for Economic Cooperation and Development, 2009 United Kingdom Mexico Italy Germany Sweden Norway Japan



South Korea





WAKING MINUTES PER USE





more than half of sessions are 30 secs or less



of smartphone app usage lasts less than 15sec.



Sources: http://bit.ly/29mTe1f

Contextual Experience Sampling of Mobile Application Micro-Usage http://ubicomp.oulu.fi/files/mobilehci14.pdf



What do you dislike most when browsing Web on mobile?

Waiting for slow pages to load

Being shown interstitials

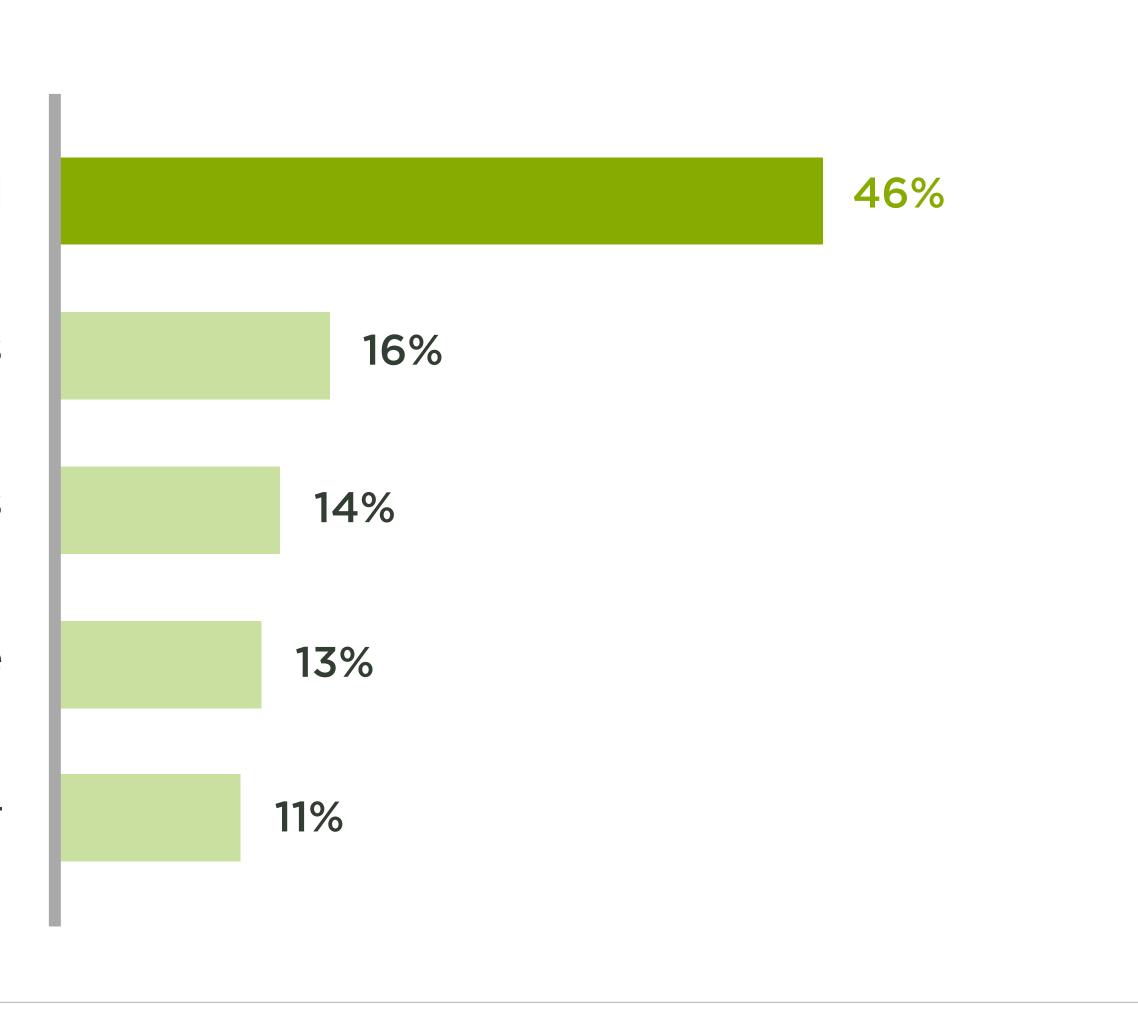
Encountering unplayable videos

Getting redirected to the homepage

Other



Source: http://bit.ly/2nOqrts





Cognitive Load with Stressful Situations

Solving a math problem

Experiencing mobile delays

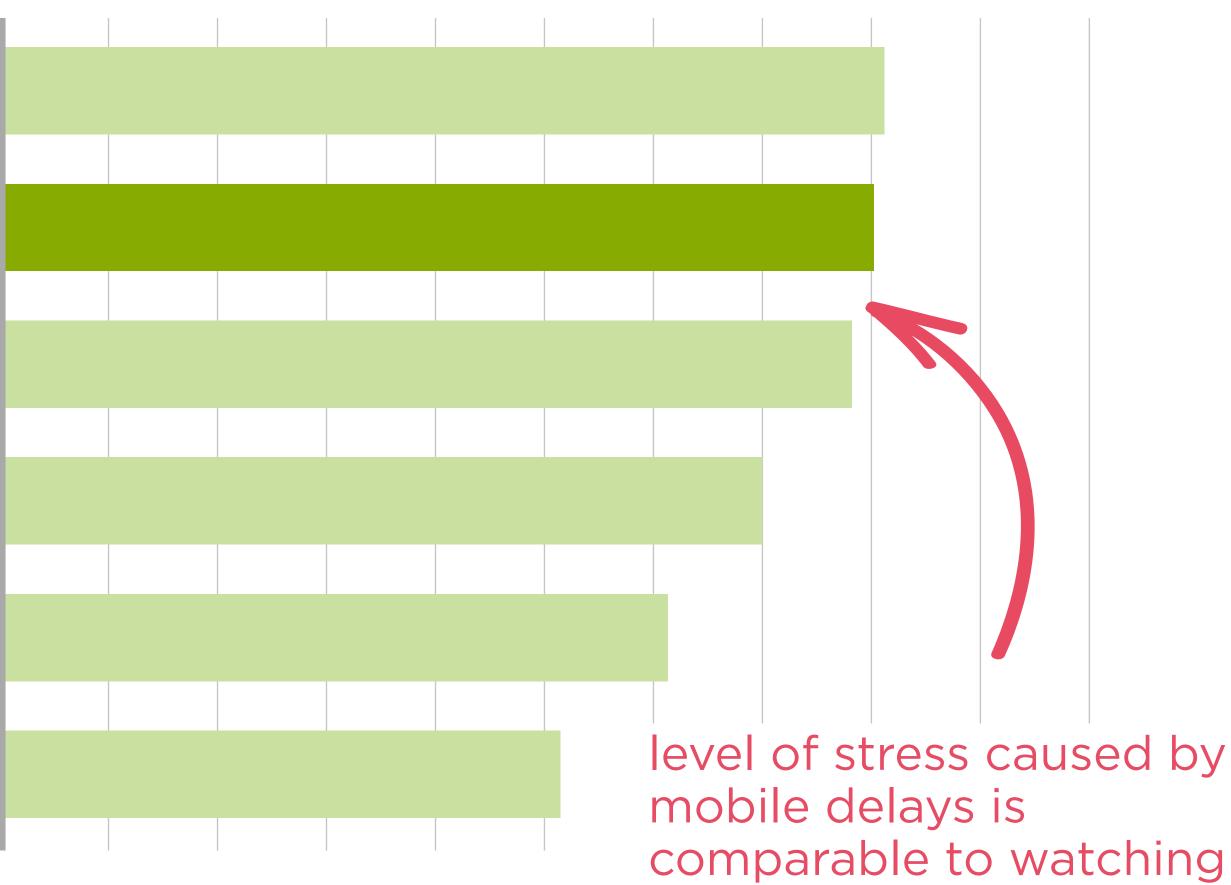
Watching a horror movie

Standing at the edge of a virtual cliff

Watching a melodramatic TV show

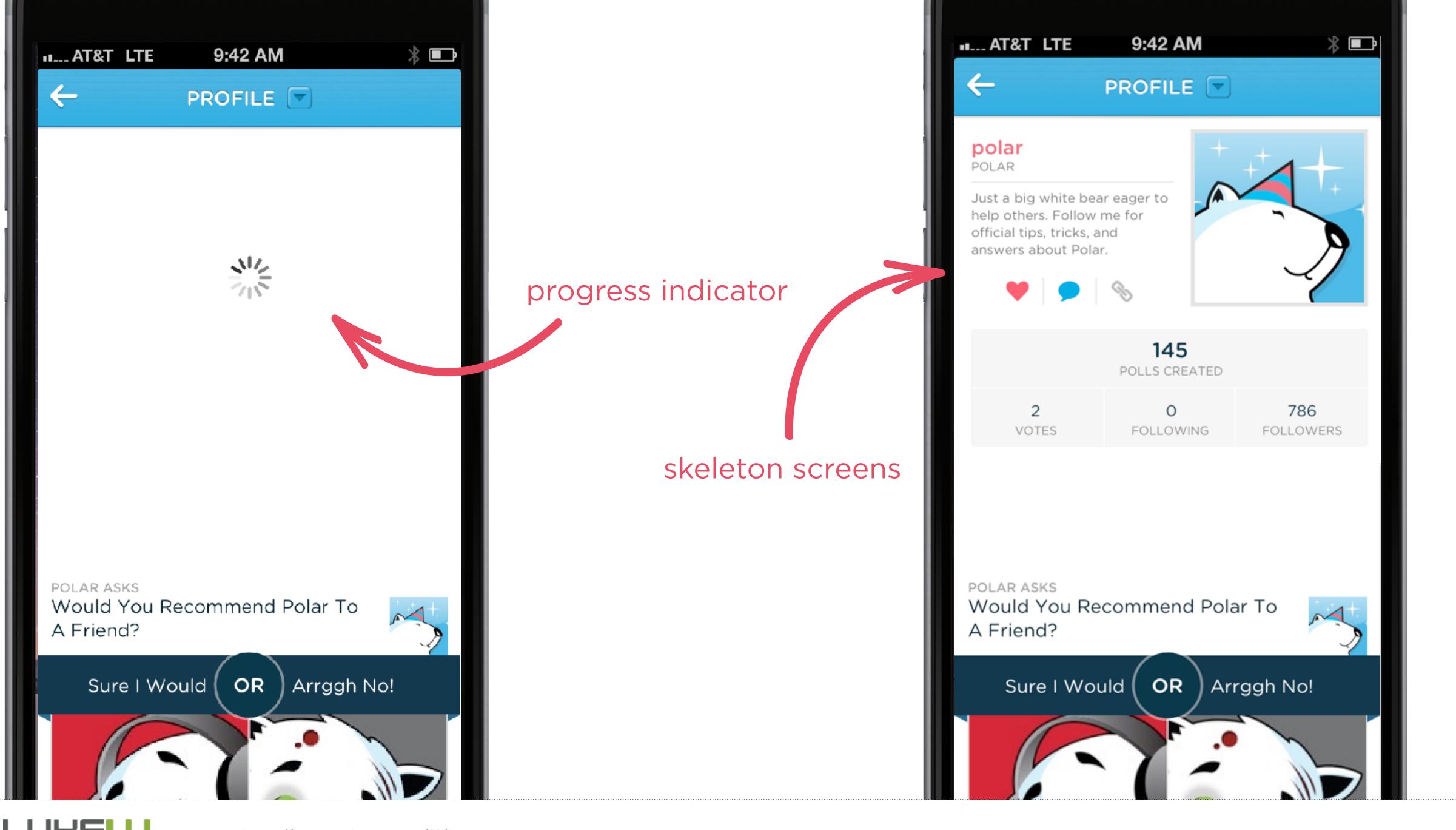
Waiting in line at retail store





a horror movie



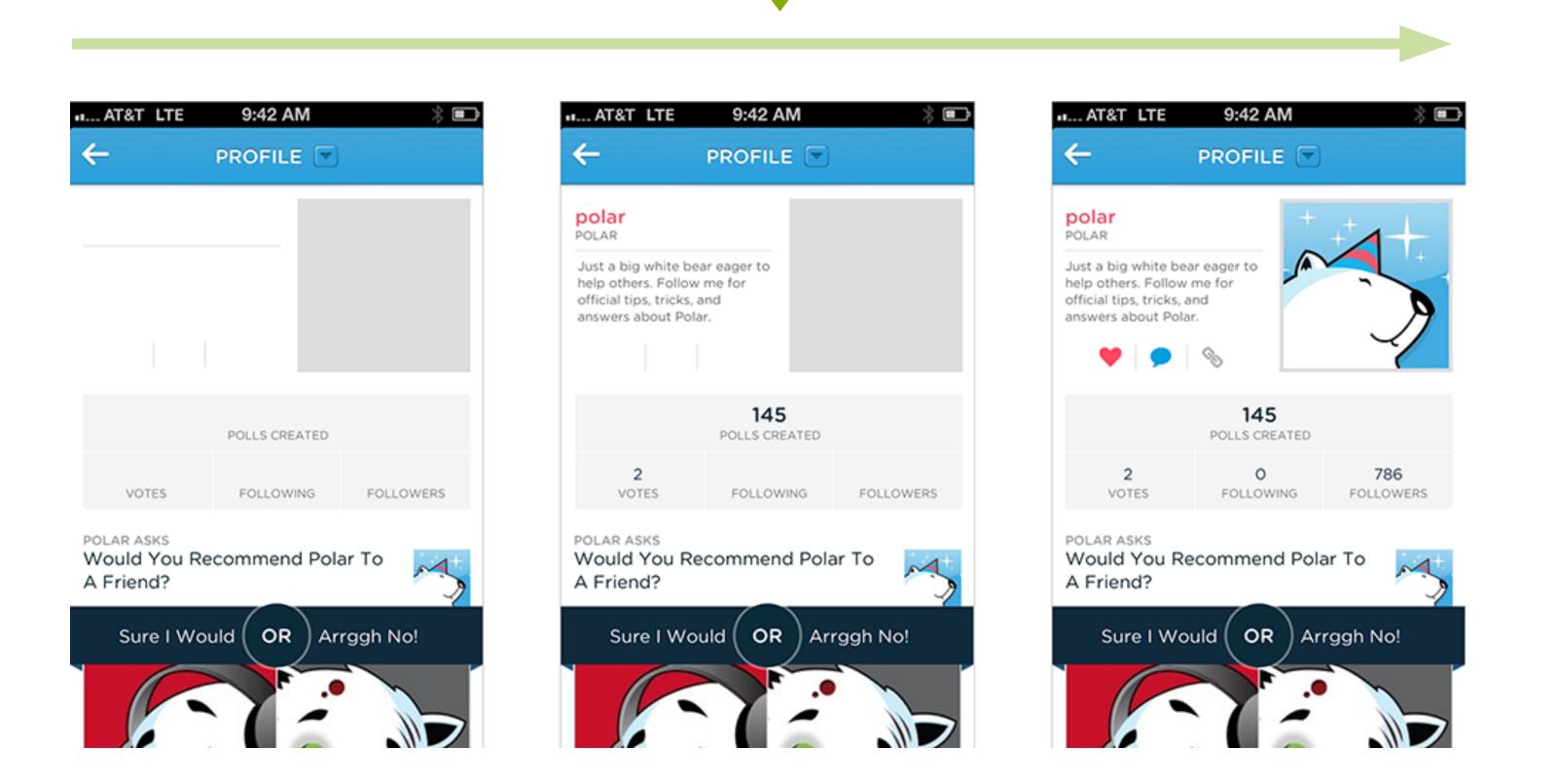


Source: http://www.lukew.com/ff/entry.asp?1797

IDEATION + DESIGN



Focus on the progress





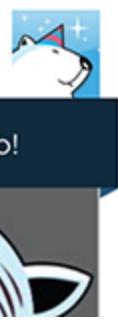




Not the indicator

POLAR ASKS

Would You Recommend Polar To









Skeleton Screens

FACEBOOK

÷ ♂	10:2 Search	4 AM	+ ■⊃ ±=	
Ω	What's on your m	ind?	200	
News Fee	Requests Ness	enger Notifications	More	

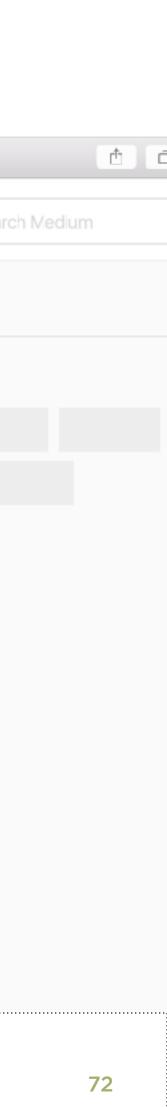
SLACK

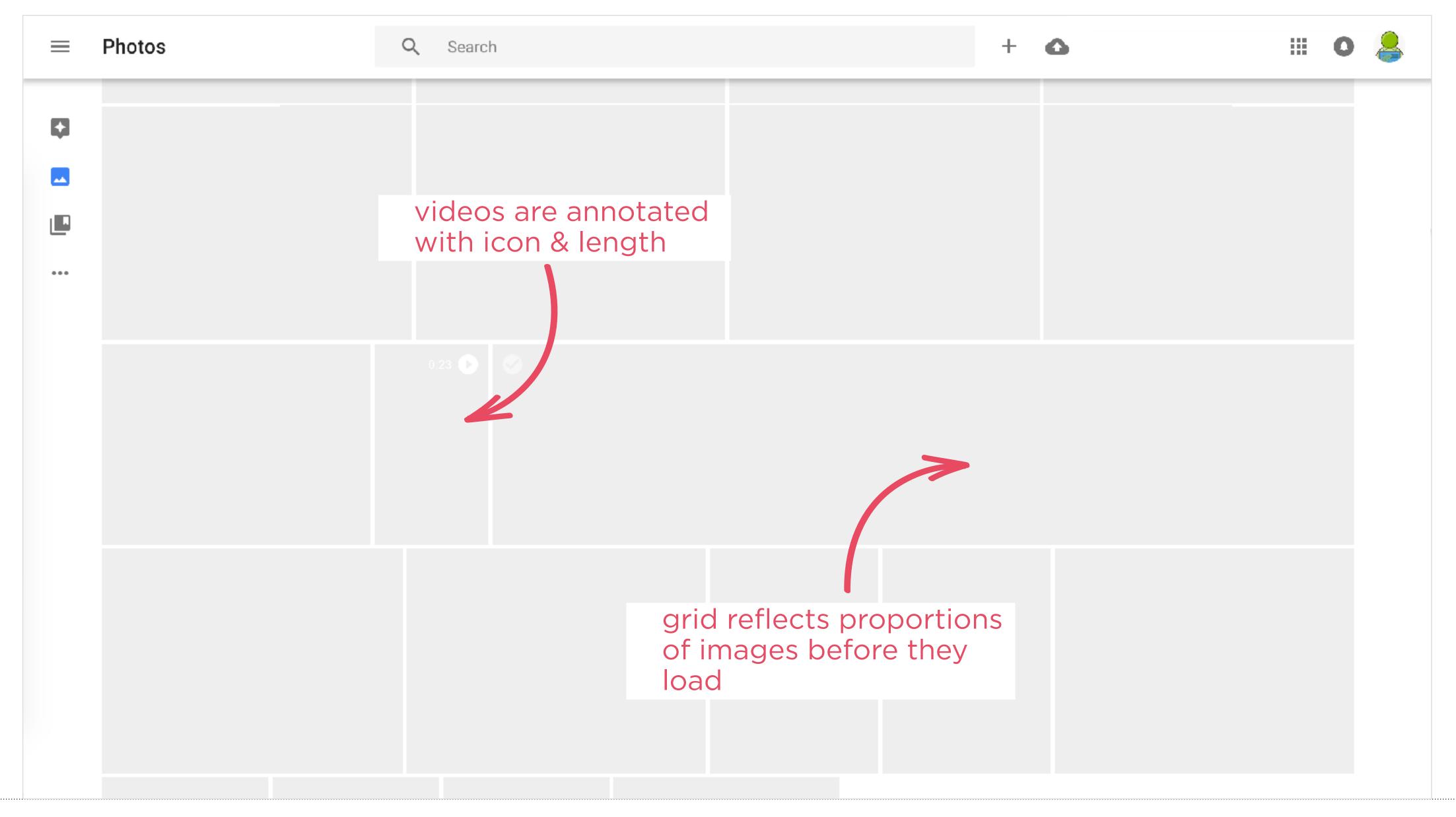
Back to	o Safari	7:32 AM	** 7 8 ■●	
#	Loading		Q	
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MEDIUM

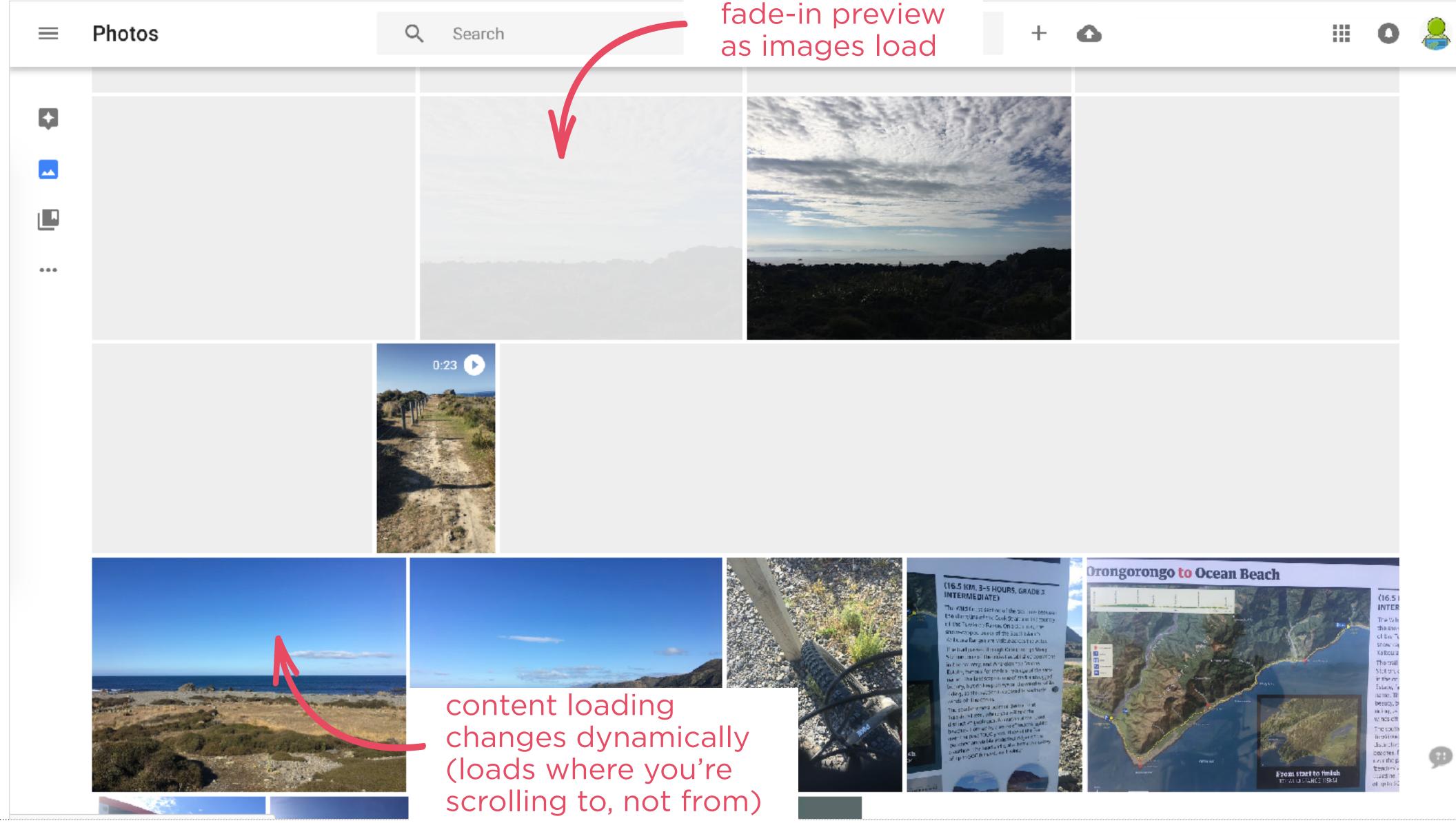
		I		Ċ	
Medium	Staff Picks Top	ostories Bookmarks			Q Sear











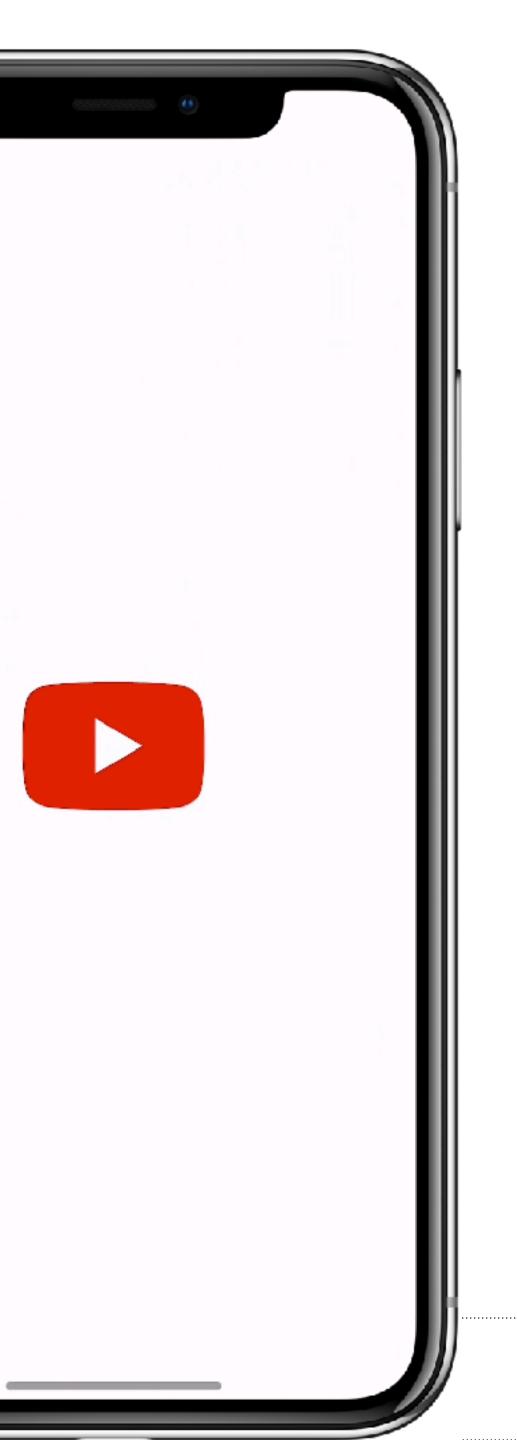


fade-in preview as images load

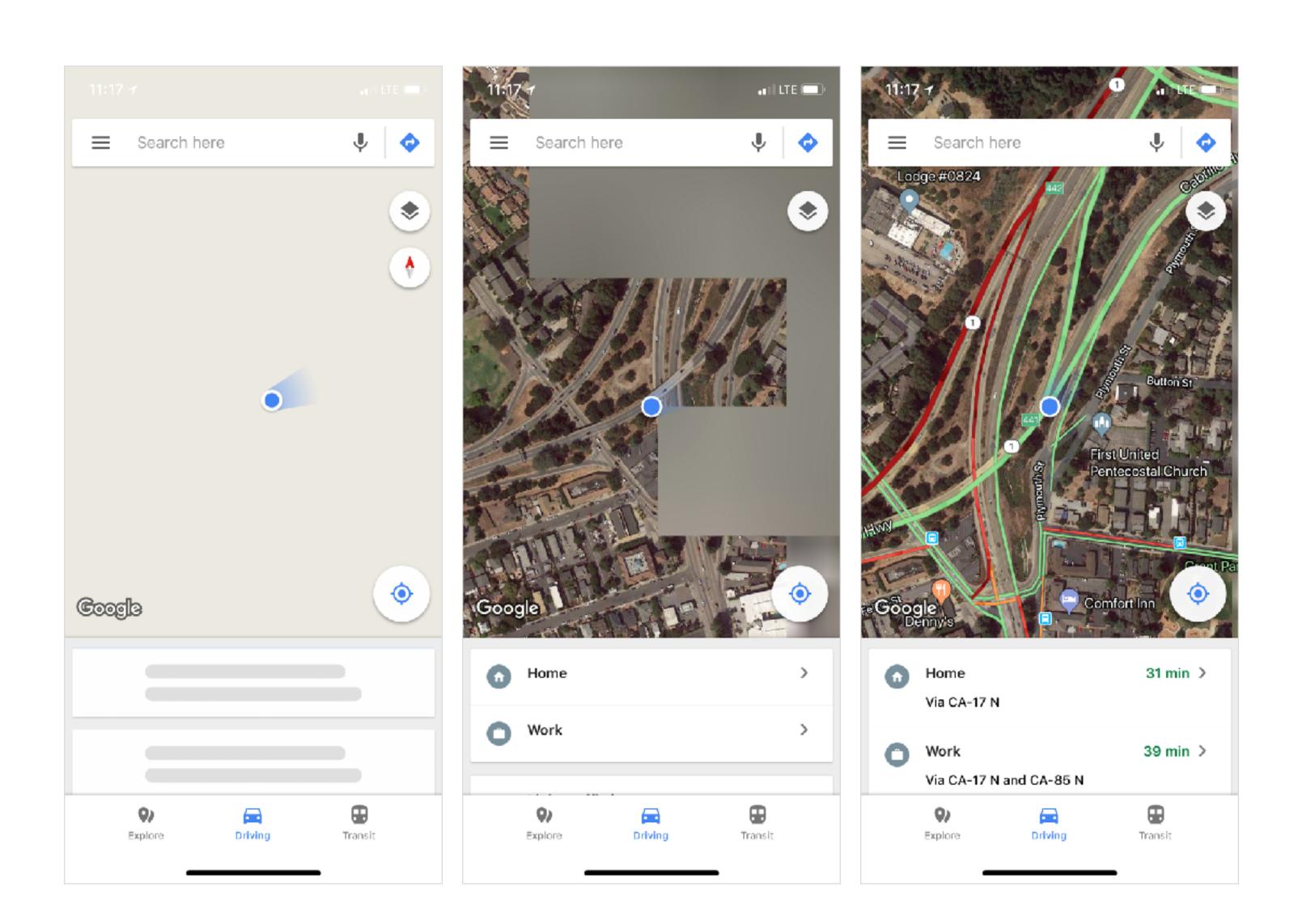




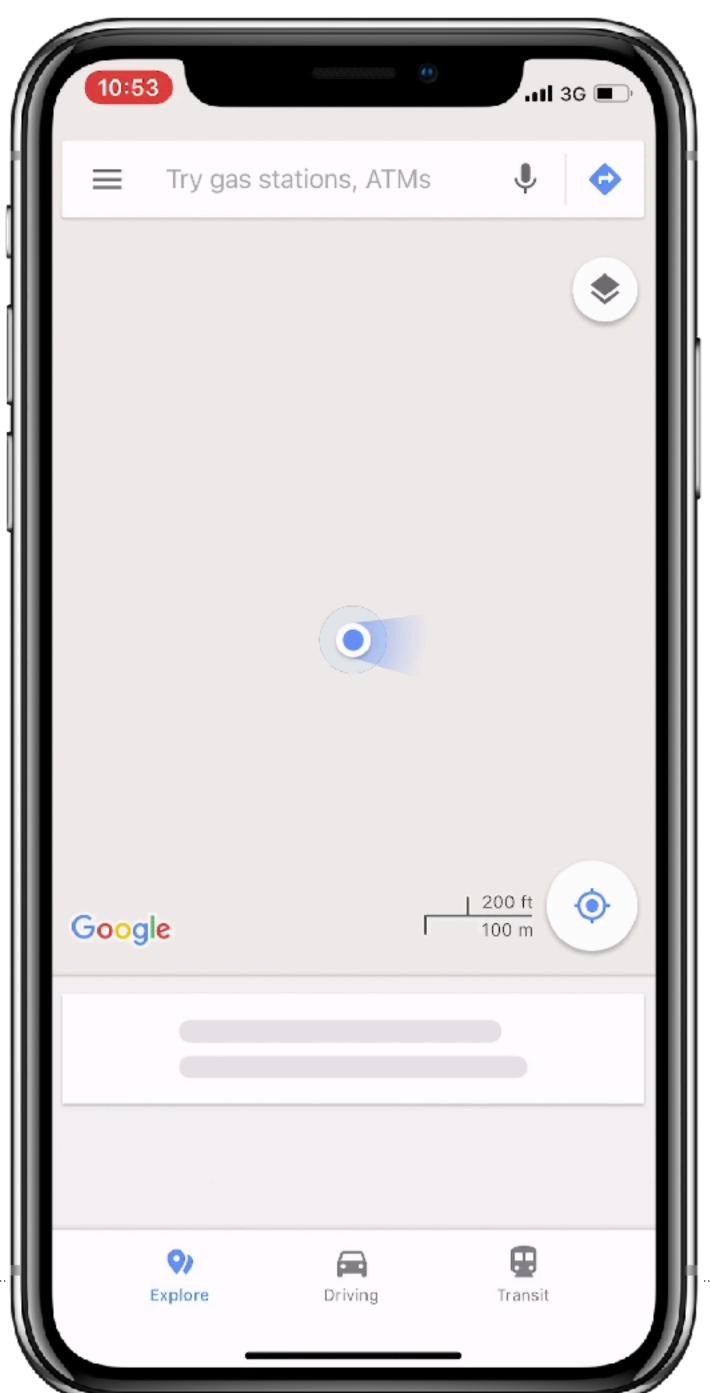




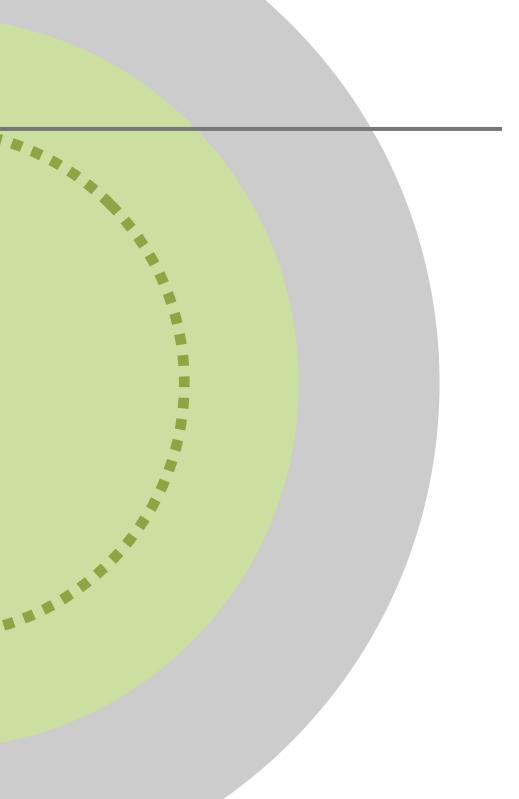












3.5B Active smartphones

3HR Spent per day

80x Times used per day



- many short sessions per day
- so speed really matters
- show progress not progress indicators





3.5B Active smartphones

3HR Spent per day

80x Times used per day

32 Touches per use



Source: https://blog.dscout.com/mobile-touches



phone touches (keystrokes, taps) per day











Source: https://blog.dscout.com/mobile-touches

average user

2,617
average daily touches
145
average daily minutes

heavy user

11 12 AM

10

9

5

3

6

7

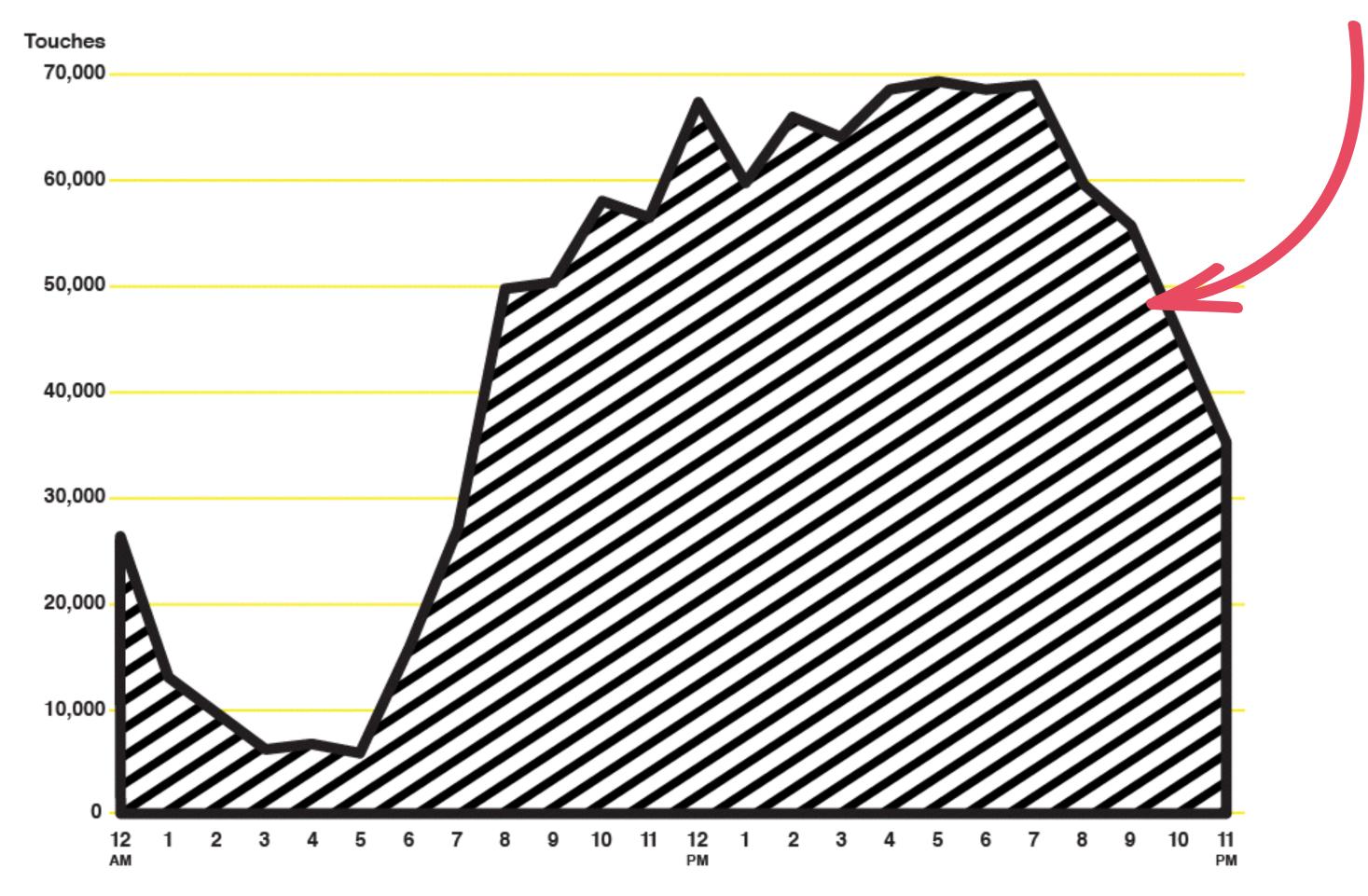
8

5,427 average daily touches

225 average daily minutes



Touches by hour of day



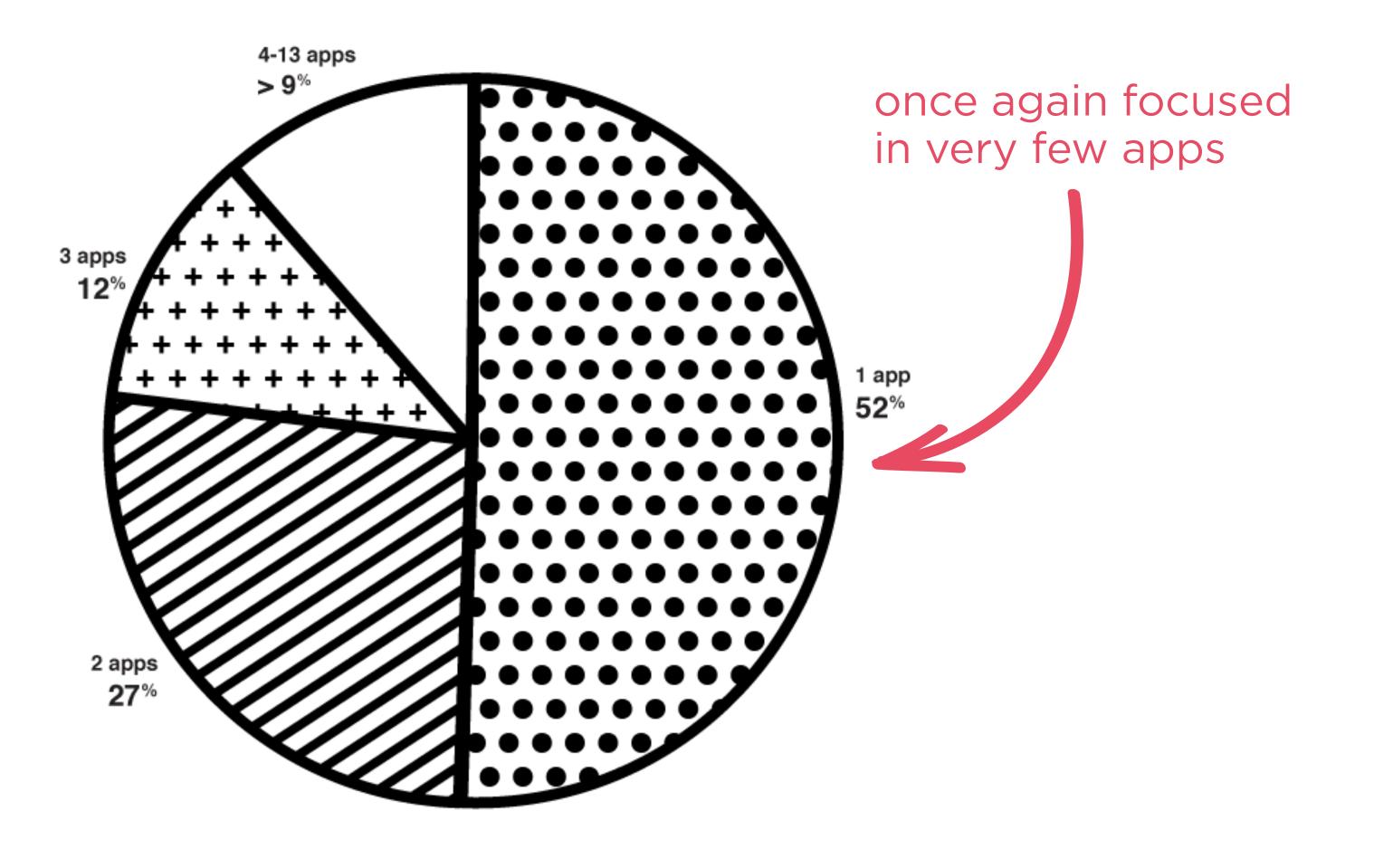


Source: https://blog.dscout.com/mobile-touches

pretty much all day



Number of Apps per Active Session

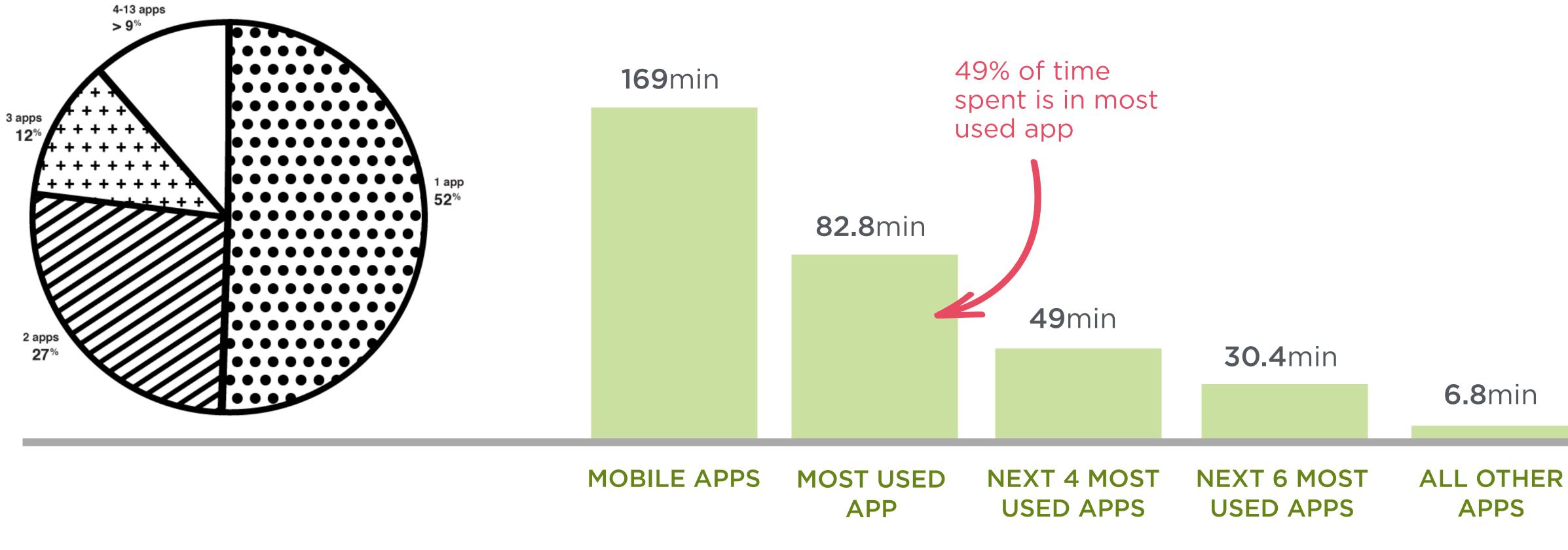




Source: https://blog.dscout.com/mobile-touches



Number of Apps per Active Session

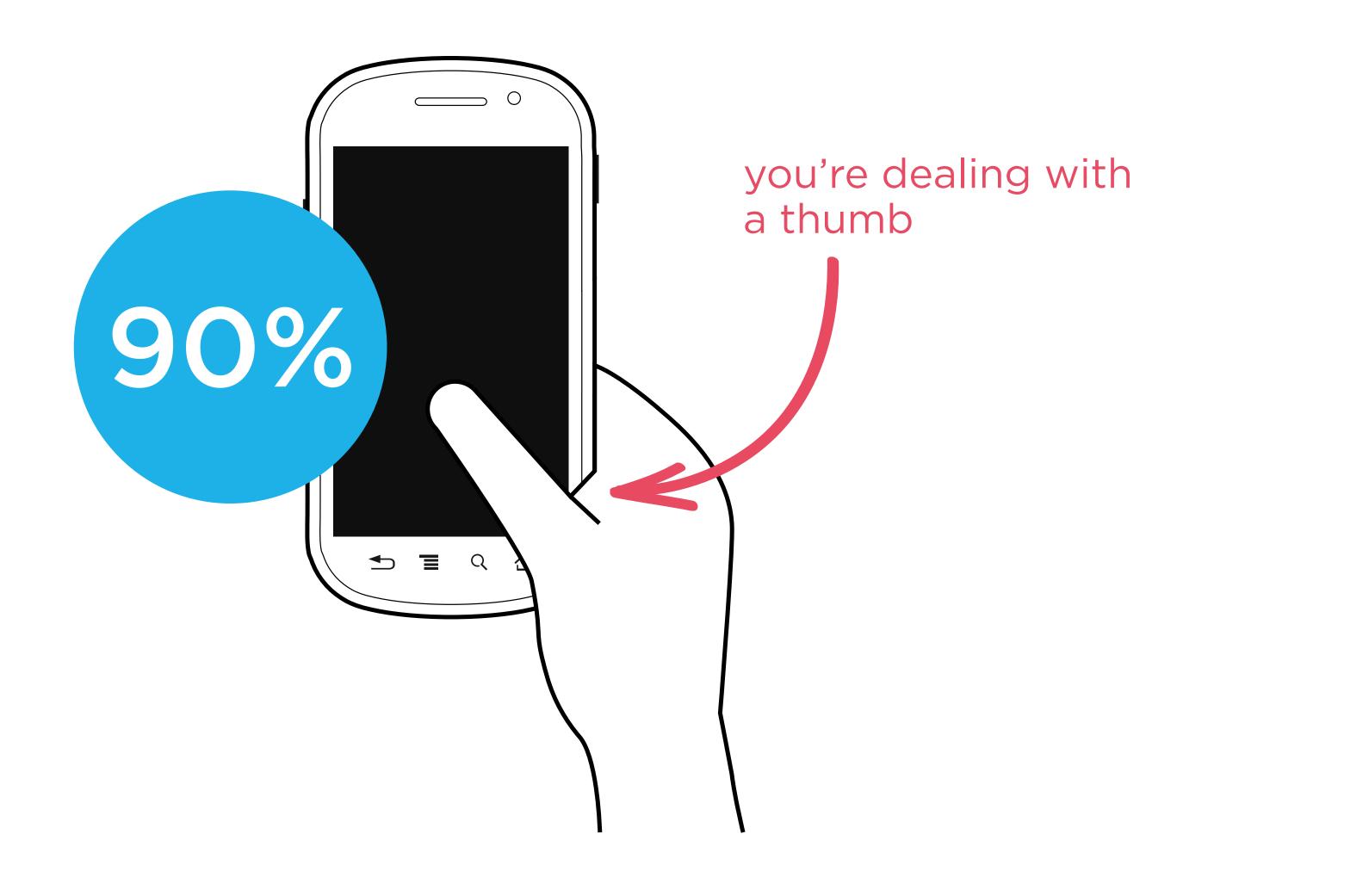




Source: https://blog.dscout.com/mobile-touches



Smartphone Posture

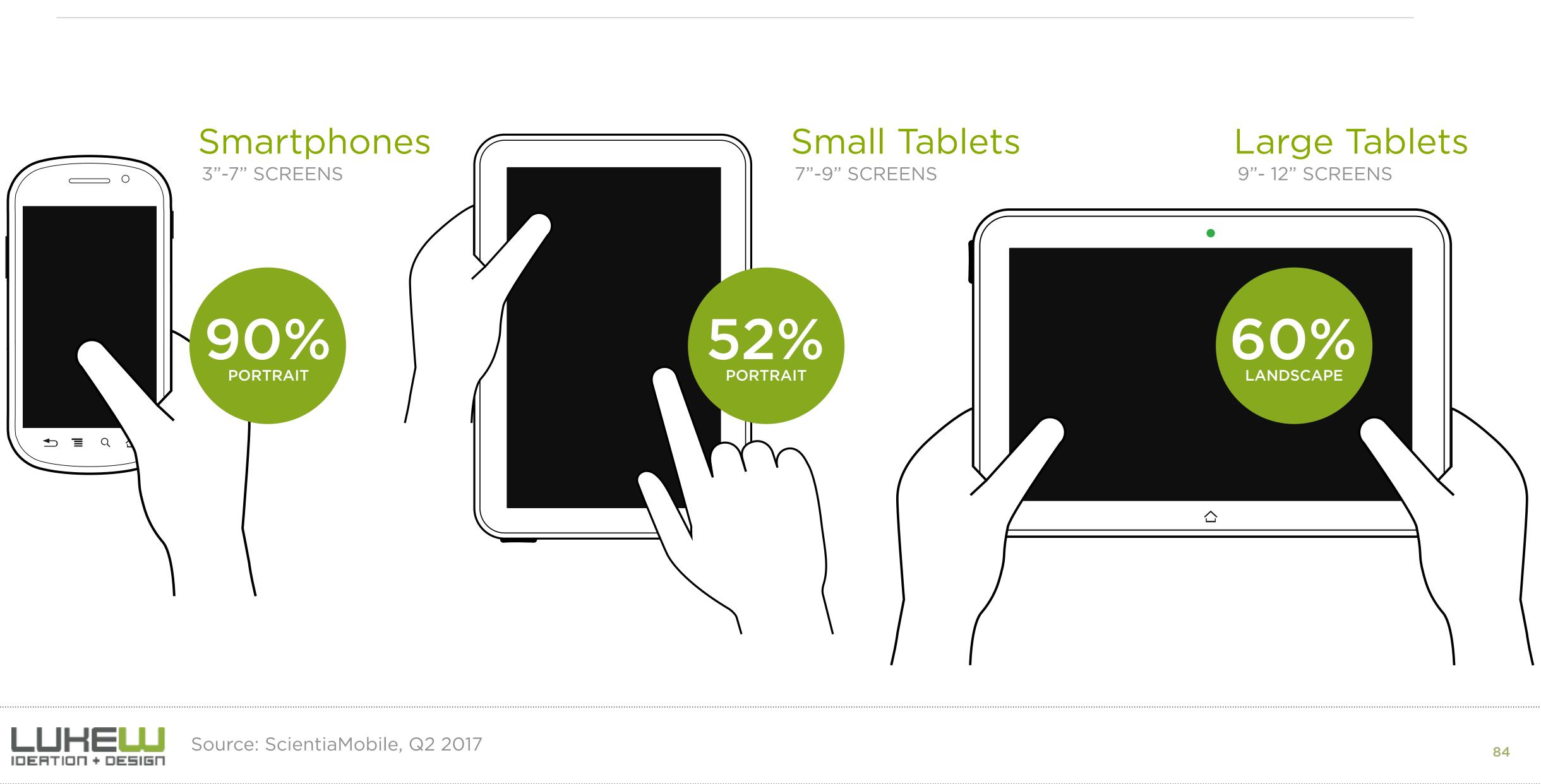




Source: http://bit.ly/132yQqQ

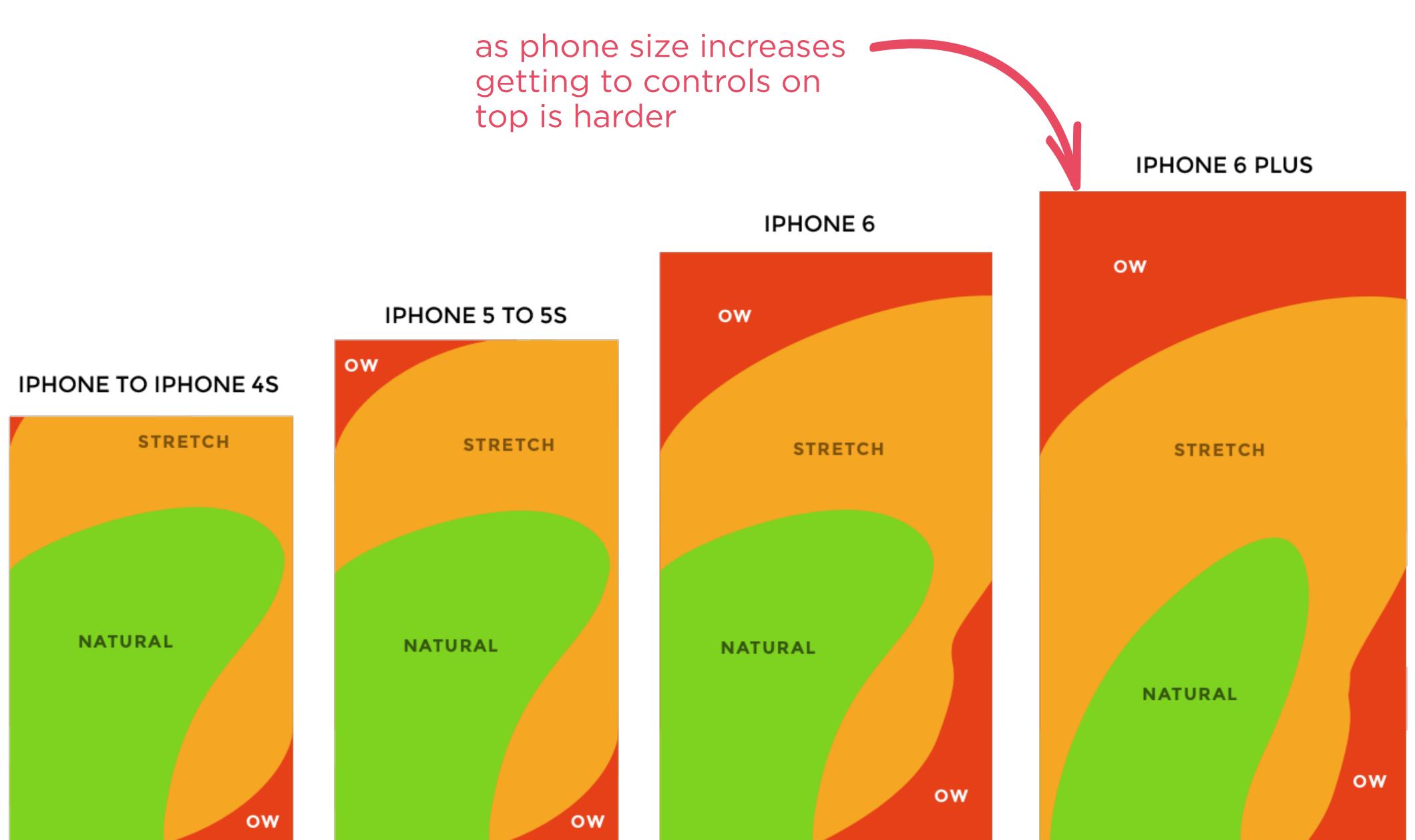


Global Device Orientation







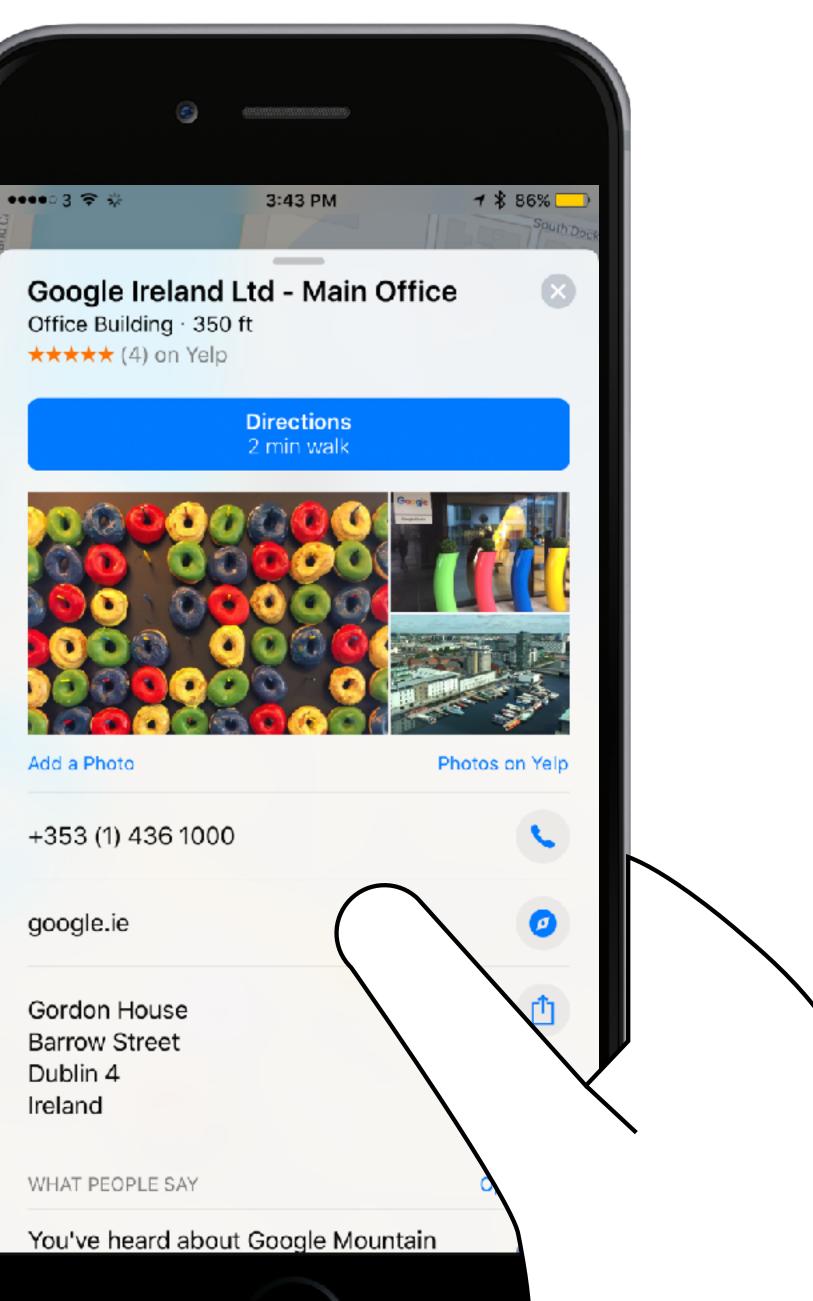




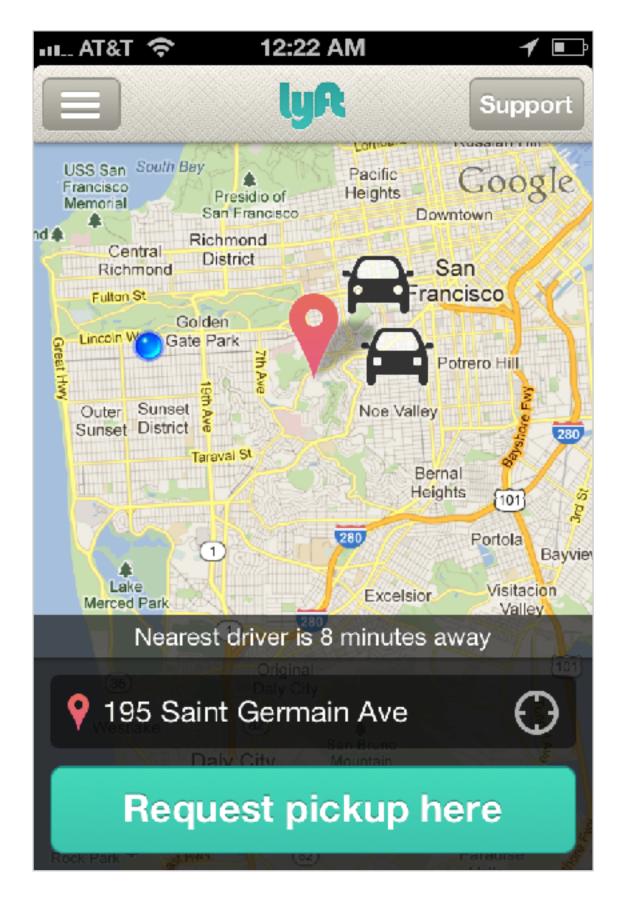
Source: http://scotthurff.com/posts/how-to-design-for-thumbs-in-the-era-of-huge-screens

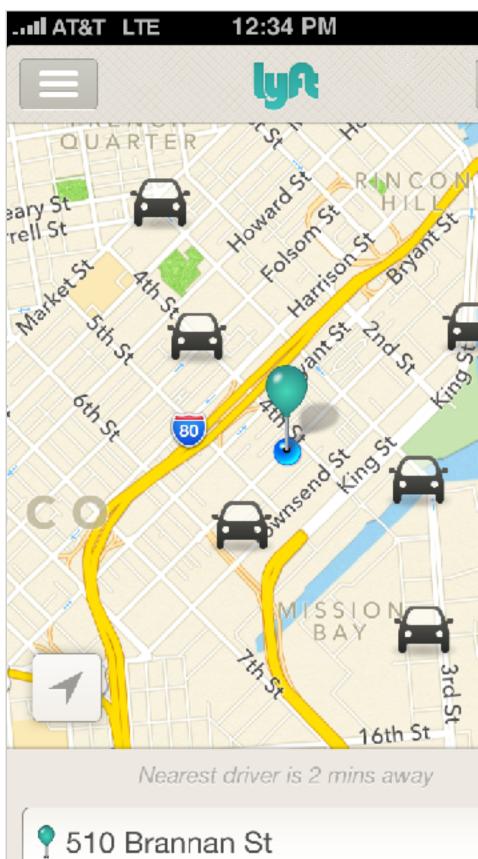










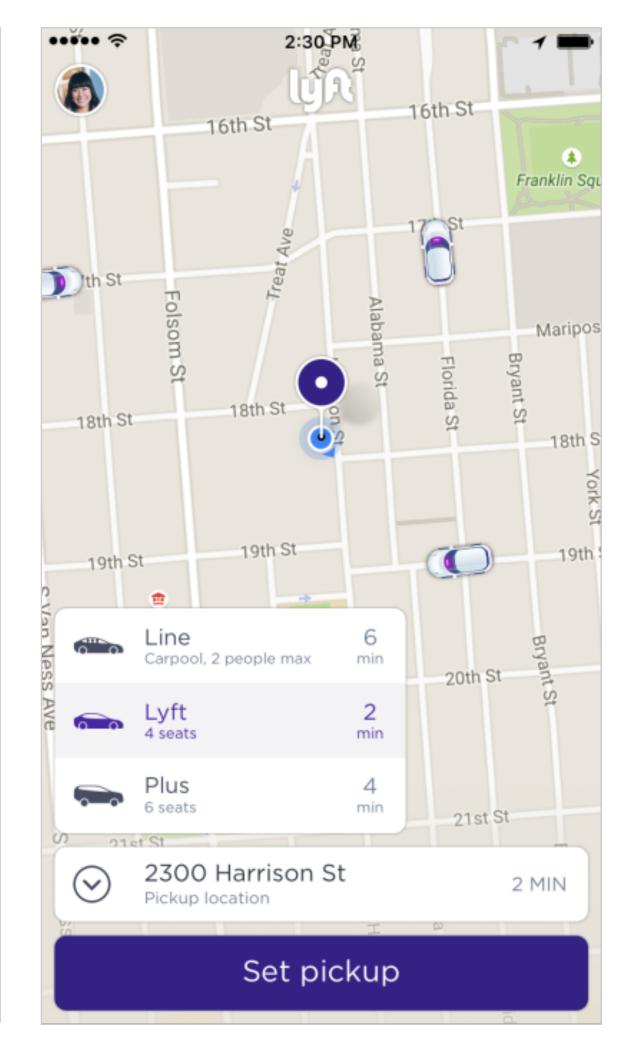


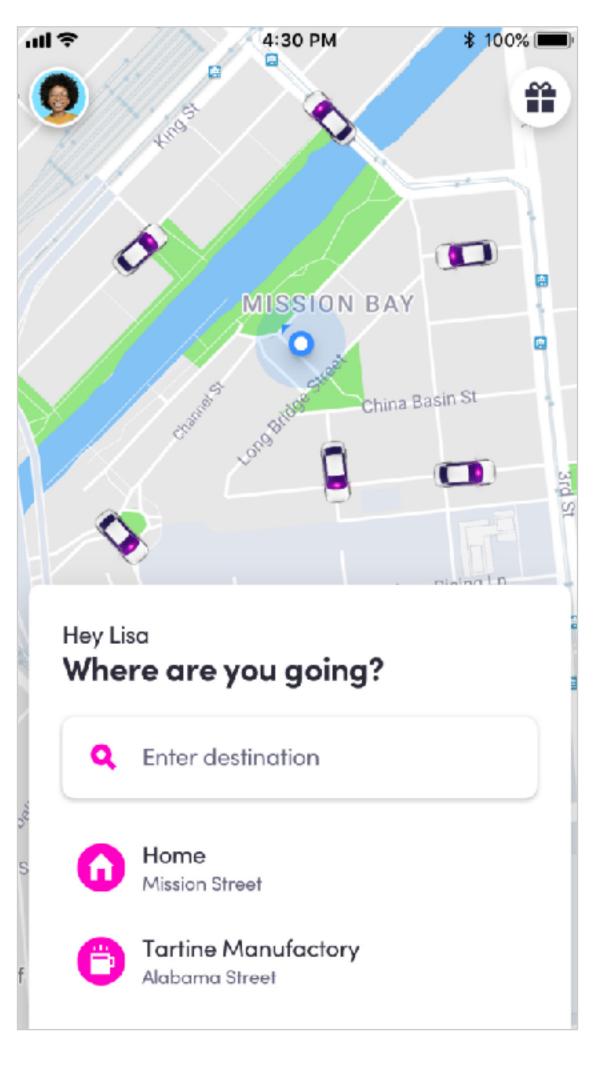
Request Lyft





A

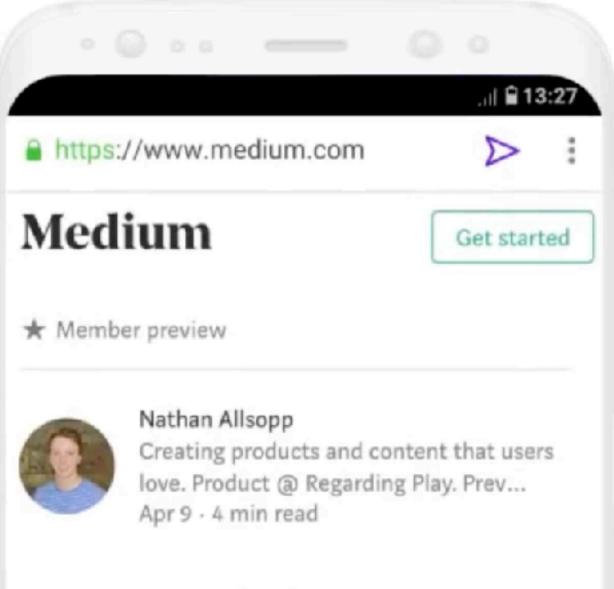




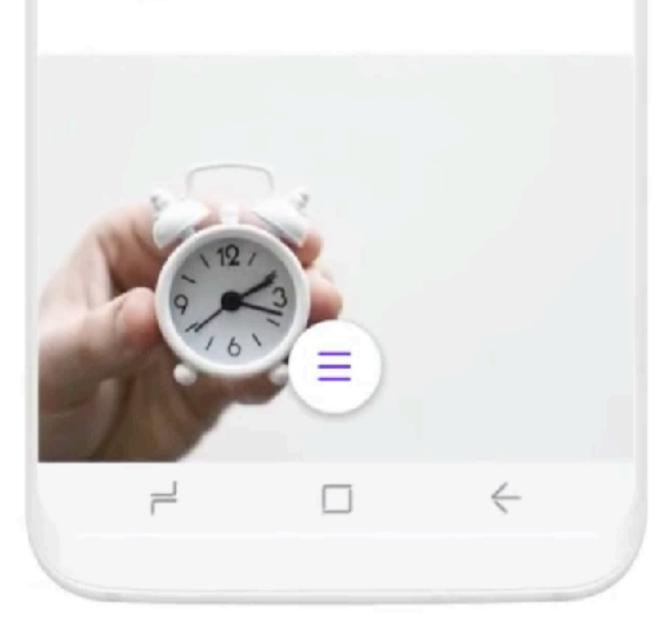
OPERA TOUCH

Designed to let you explore the web using just one hand.



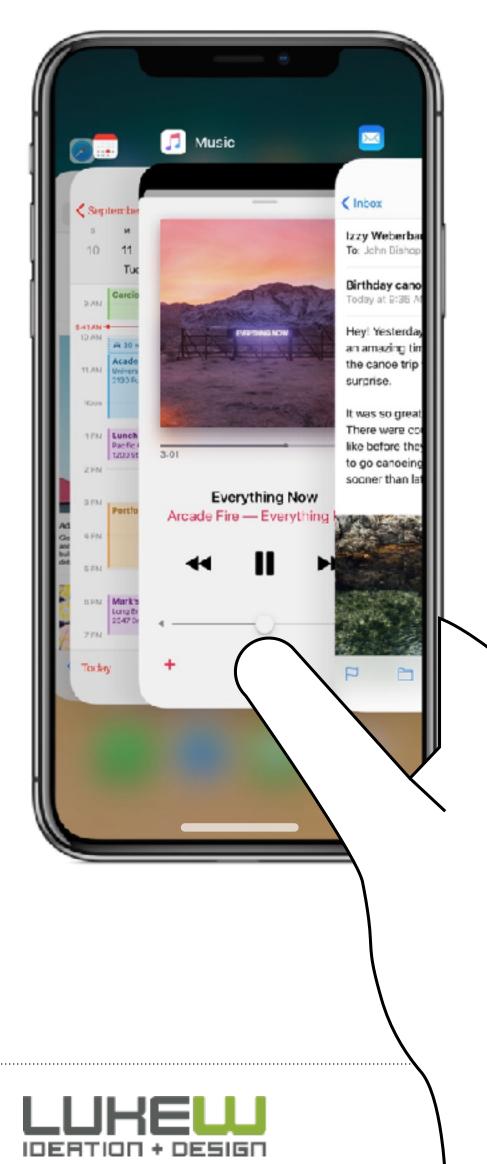


How to Rebalance Your Time for the Important Things in Life





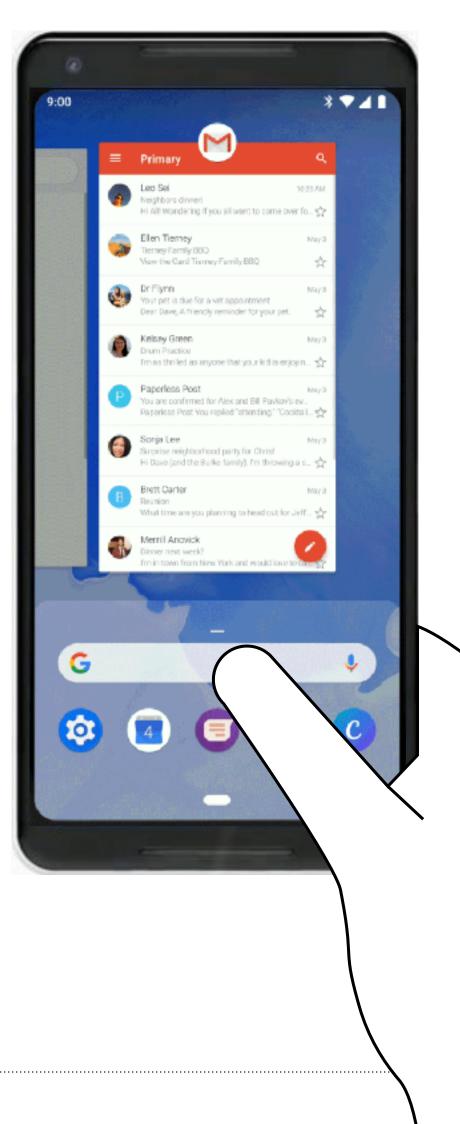
IPHONE X

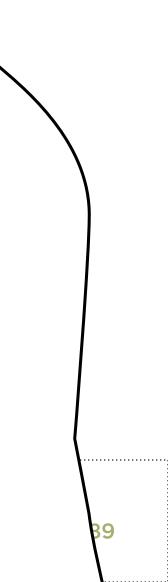


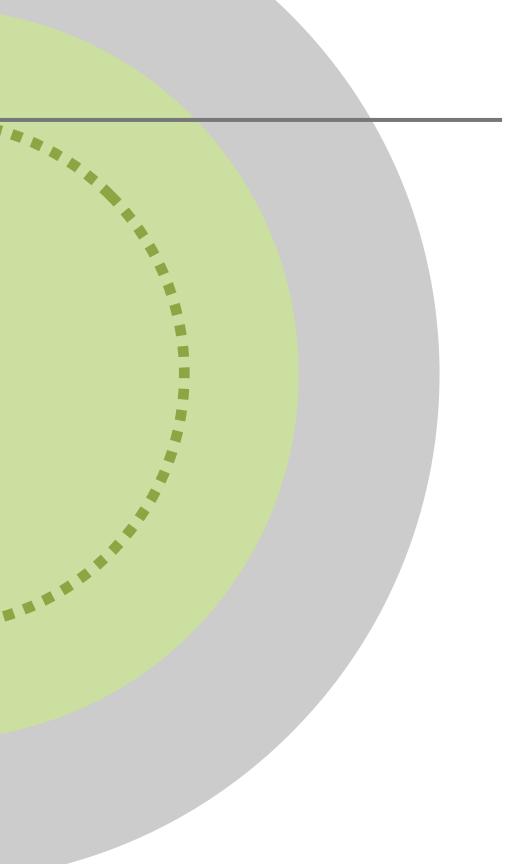


PALM PRE

ANDROID P







3.5B Active smartphones

3HR Spent per day

80x Times used per day

32 Touches per use



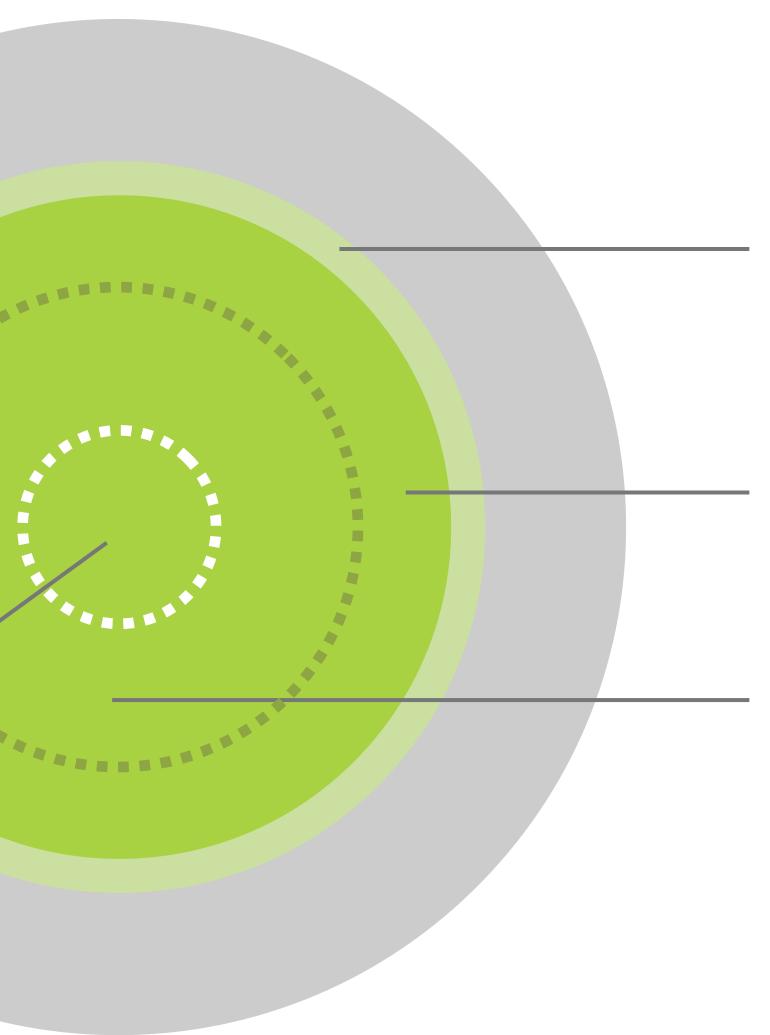
- one-handed/one-thumb use
- in portrait mode on large screens
- design accordingly



7.6B Global population

1.3B — Active PCs

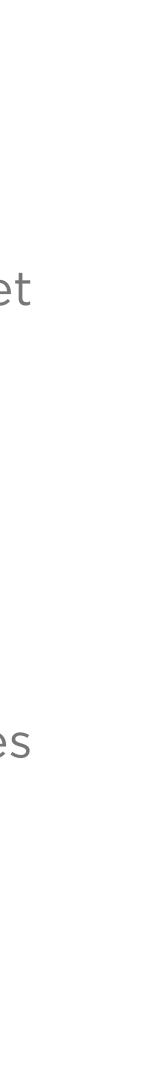




5.6B Addressable market (14+ yr olds)

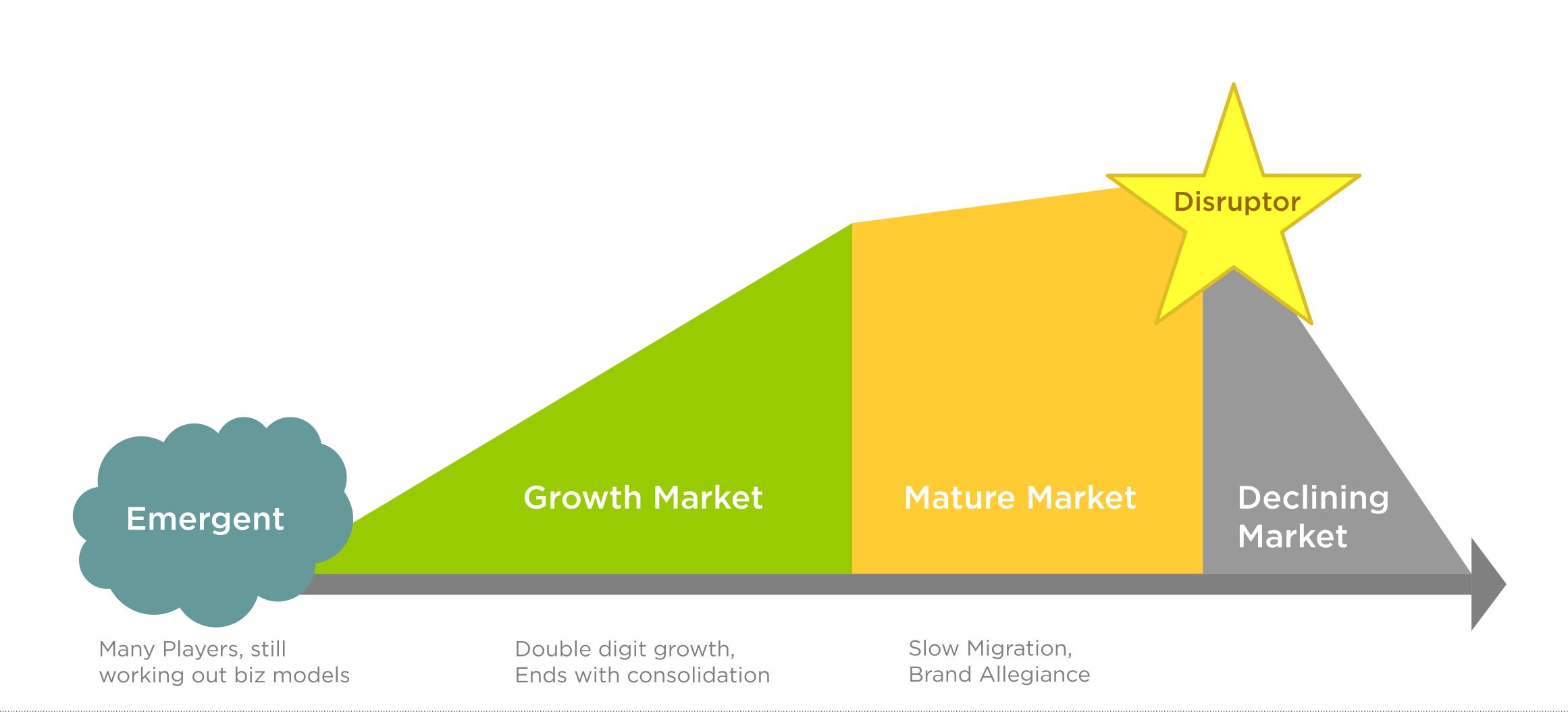
5B Mobile subscribers

3.5B Active smartphones



91

Devices and the Product Lifecycle

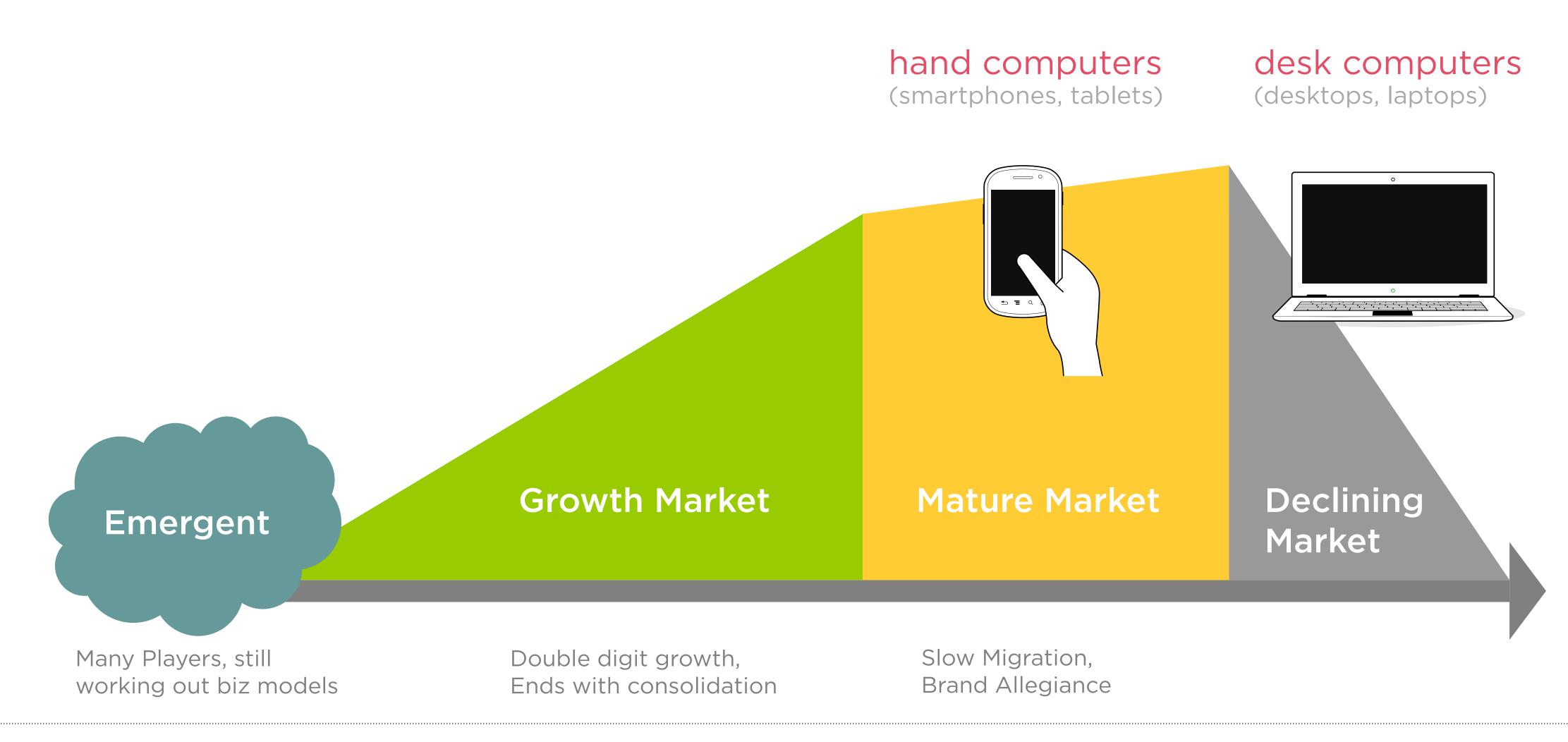




Model: Tom Chi, 2008



Devices and the Product Lifecycle

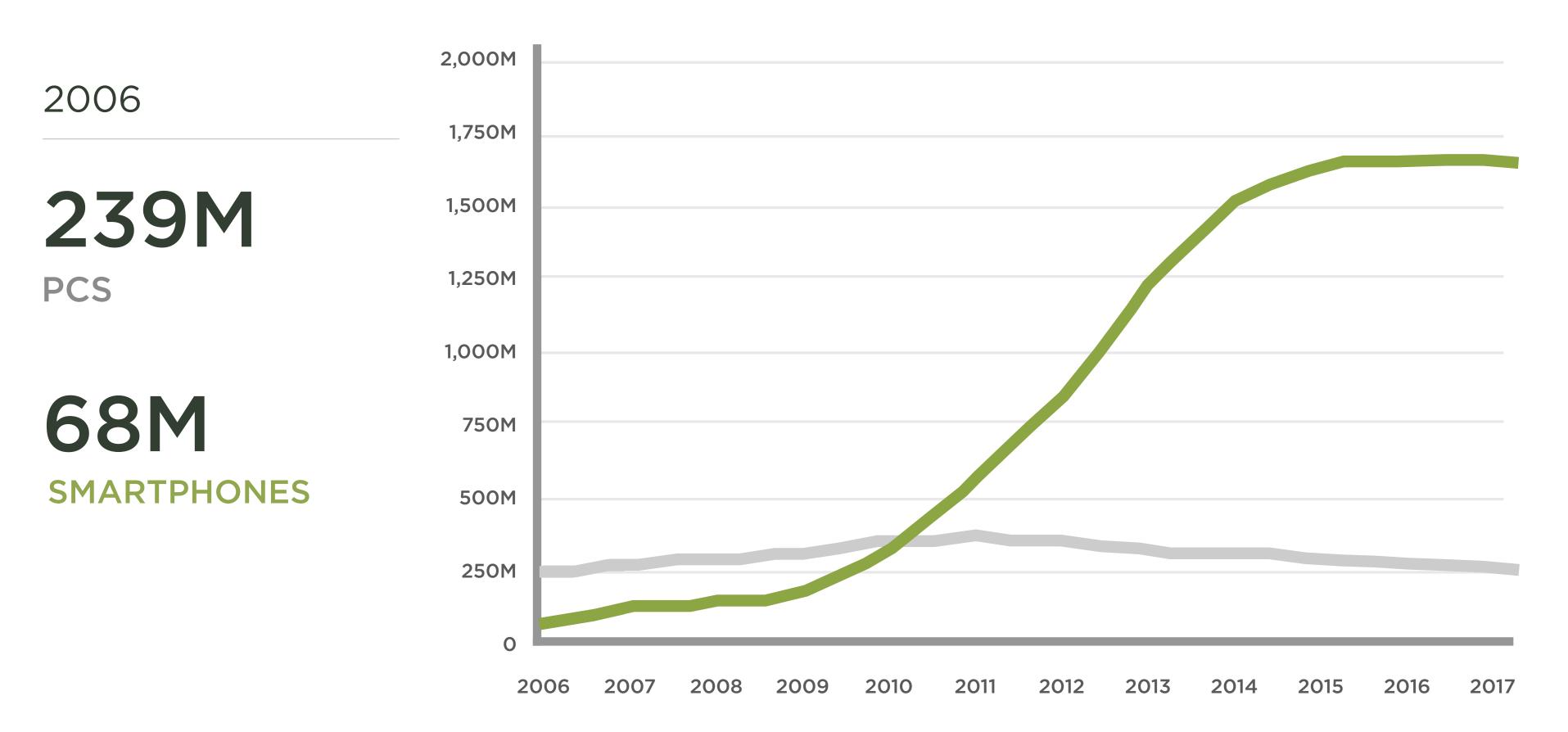




Model: Tom Chi, 2008



Worldwide Device Shipments





Source: Gartner, Worldwide Devices Shipments & IDC Worldwide Smartphone + Tablet Shipments

2017

262M

1,635M SMARTPHONES & TABLETS



Devices and the Product Lifecycle

wrist computers

(smartwatches)

voice computers (smart speakers)



Growth Market

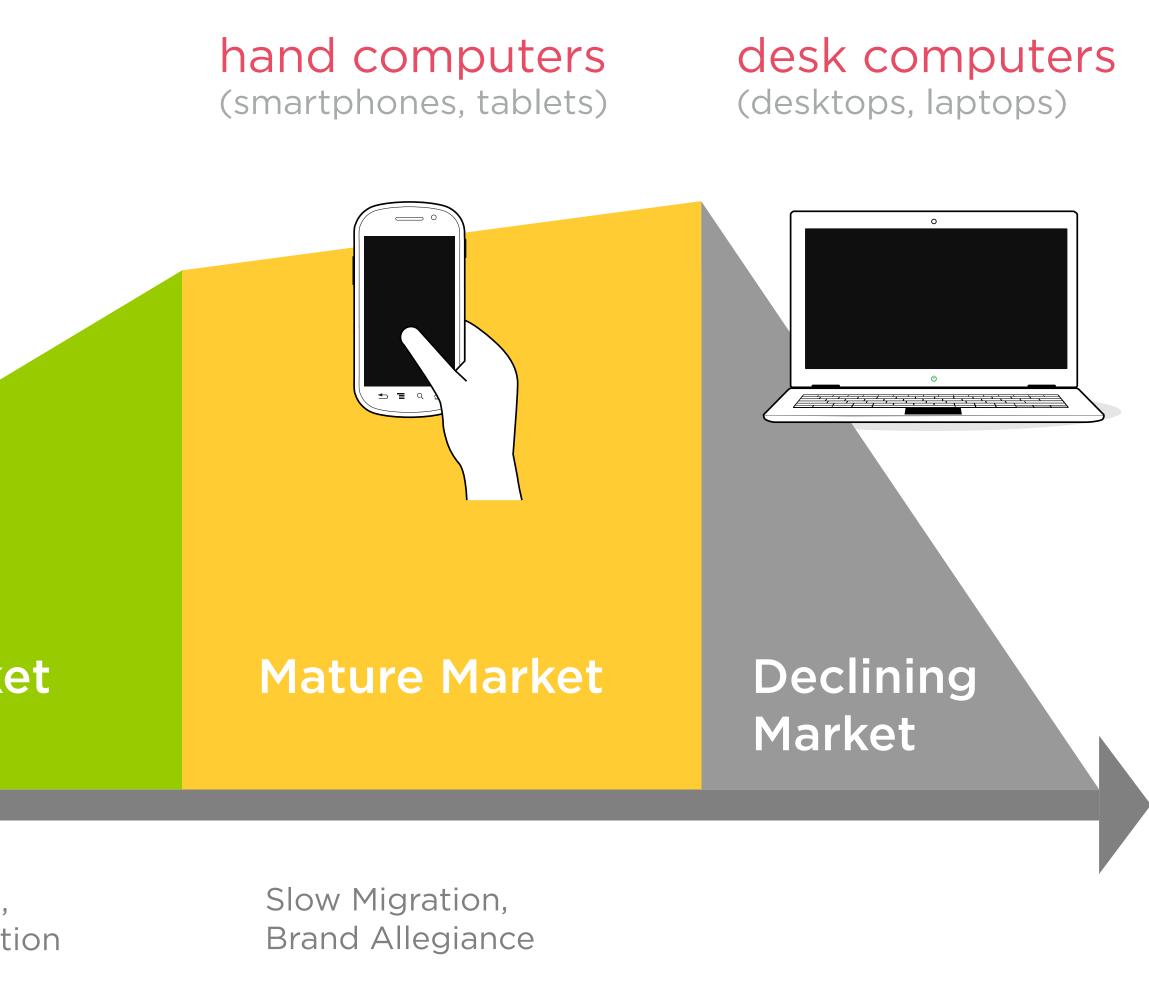
Many Players, still working out biz models

Emergent

Double digit growth, Ends with consolidation

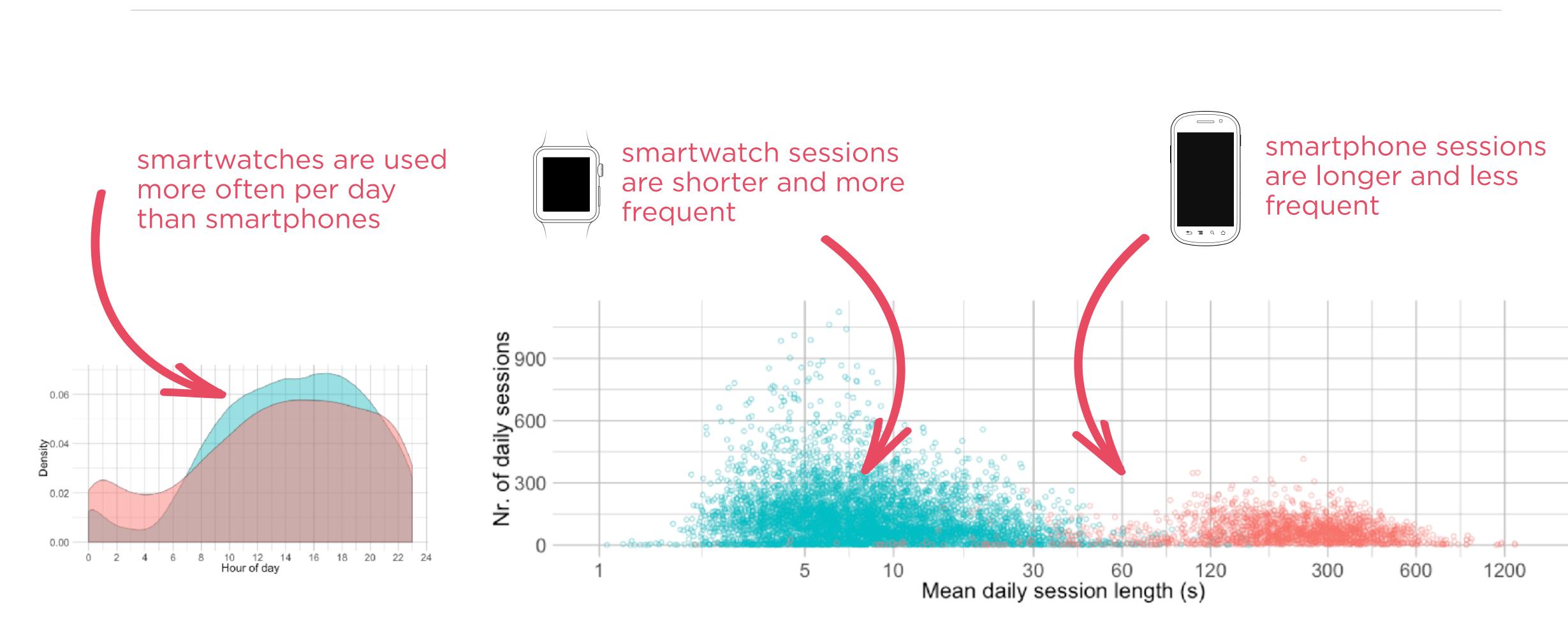


Model: Tom Chi, 2008





Smartwatch vs. Smartphone Daily Usage

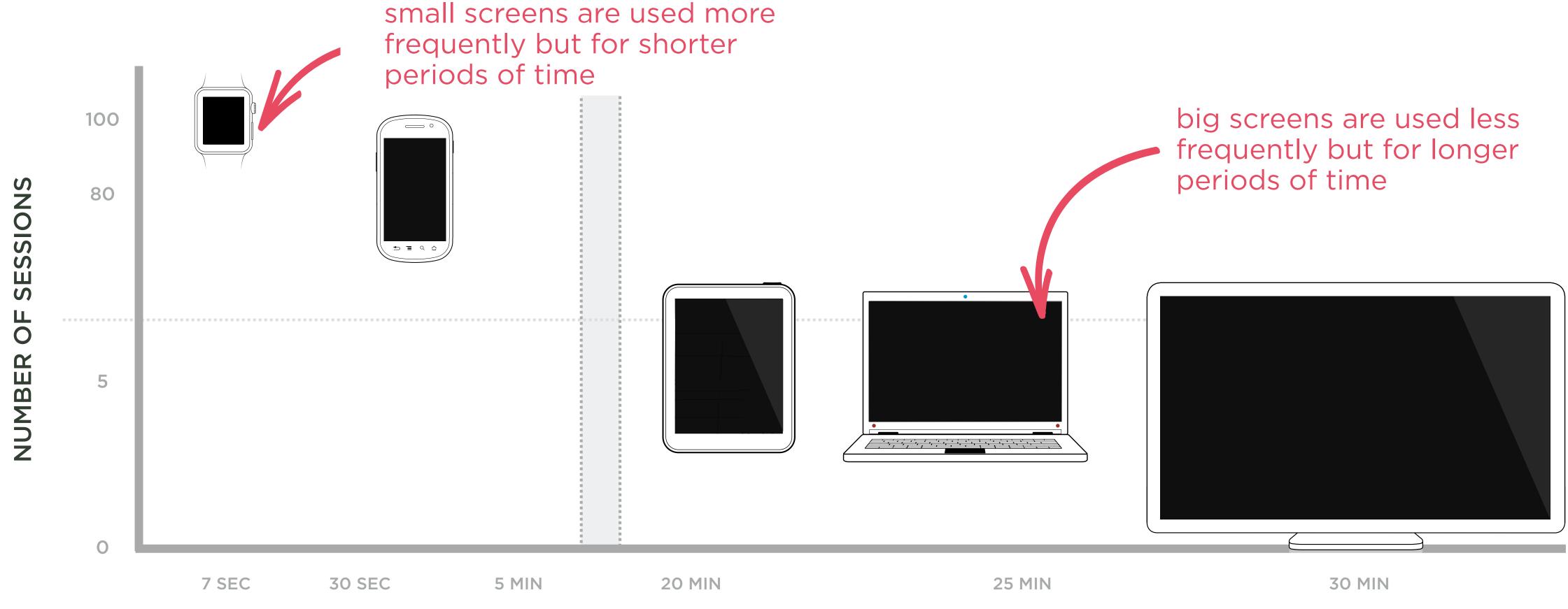




Source: Quantifying Sources and Types of Smartwatch Usage Sessions, 2016 http://ubicomp.oulu.fi/files/chi17.pdf



Daily Usage of Screen Time



LENGTH OF AVG. SESSION



Source: Quantifying Sources and Types of Smartwatch Usage Sessions, 2016 Source: Device Use and Engagement, Verto Analytics 2017 http://ubicomp.oulu.fi/files/chi17.pdf



_	APPLICATION	% OF USAGE	% OI
CUP 8:57 57 1 2 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3 9 3	APPLICATION Watch Face Notification Unknown* Workout Timer Notification Center Activity	% OF USAGE 50% 17% 7% 6% 6% 3%	% O 20 17 6 4 9 7 7
	Workout	2%	4

Source: Mobile Life Research Centre, University of Stockholm

* Screen not seen in study (by camera)



ACTION

Set Timer	56%
Check Weather	55%
Play Song	52%
Control Lights	44%
Set Alarm	30%
Connect Music	27%
News	24%

% ~USE WEEKLY



Source: Voice Assistant 2.0 Research Study, June 21, 2017 http://creativestrategies.com/research-study-voice-assistant-2-0/

OF TIME

FUNCTION

% USE DAILY

20%

17%

6%

4%

9%

7%

4%



54%
45%
31%
26%
25%
25%
21%

Source: Owners' daily use of smartwatch functions in the United States in 2017 http://bit.ly/2EoAFbF

	ACTION	% ~USE WEEK
Google Home	Play Song	59%
	Check Weather	51%
	Set Timer	48%
	Connect Music	46%
	Search Internet	40%
	Control Lights	30%
	News	28%





"...and we are calling it Watch."

2015







PRECISE TIMEPIECE

INTIMATE COMMUNICATION





2018





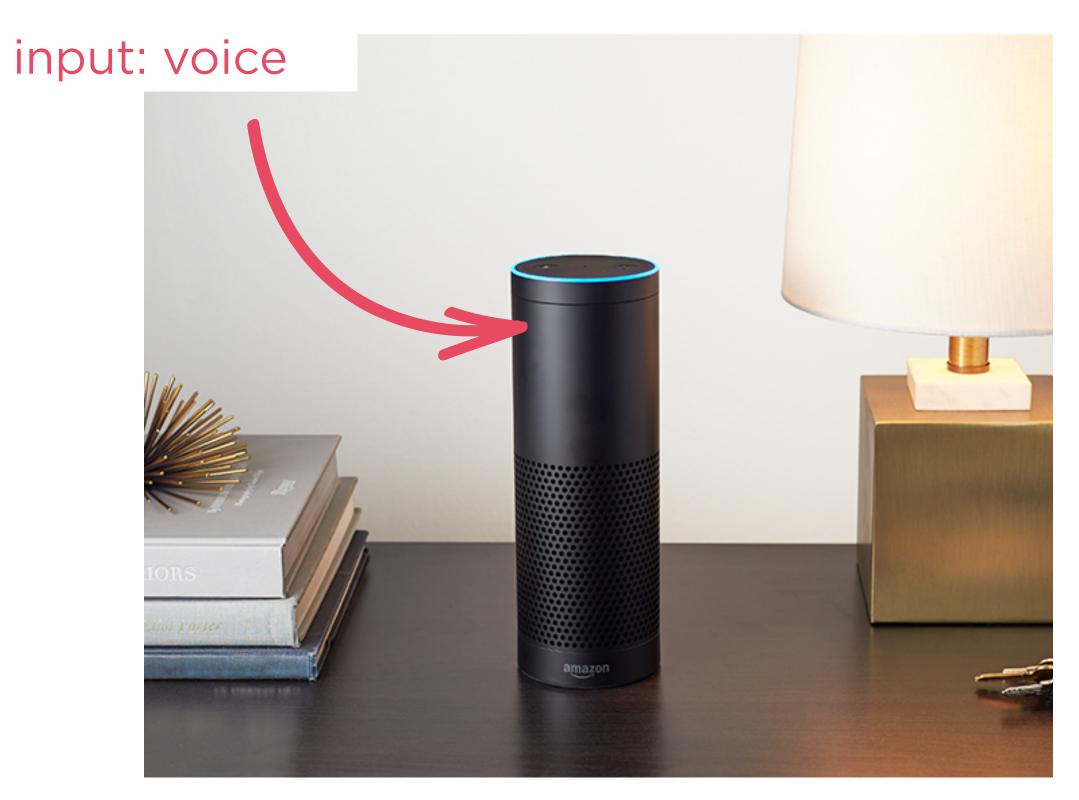


CONNECTED FITNESS HEALTH



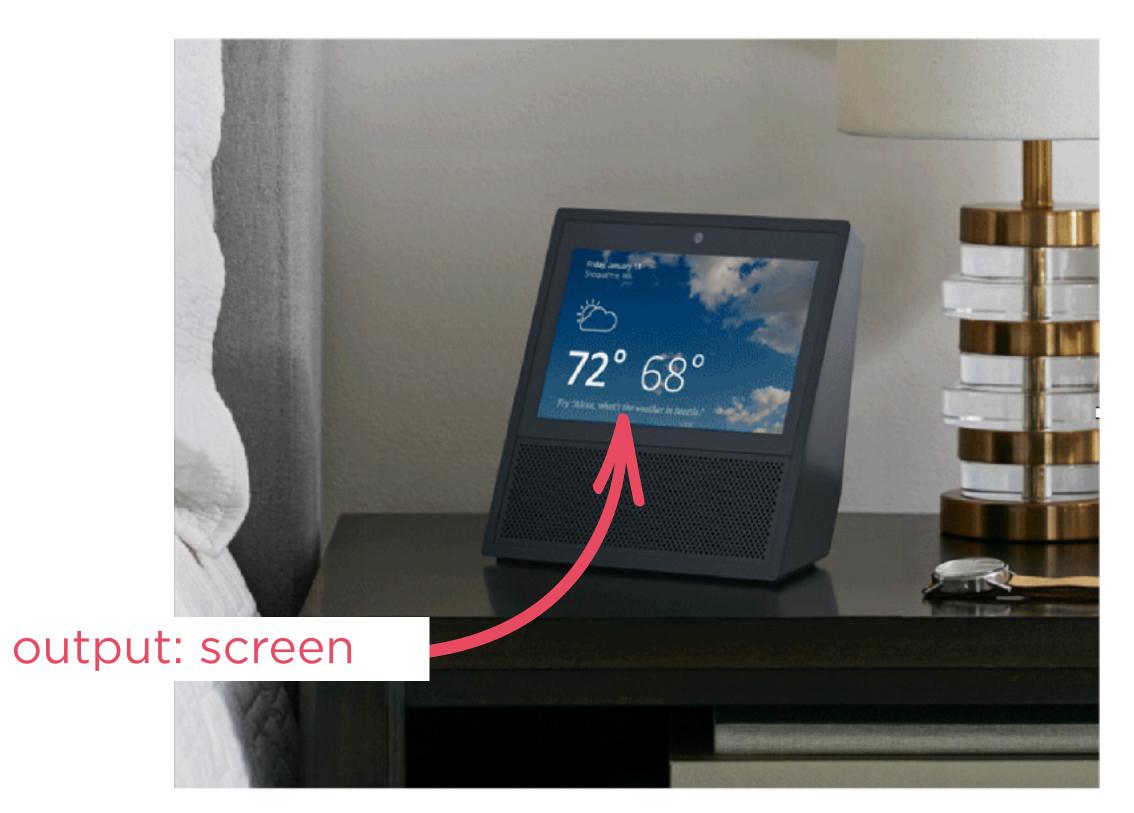
Amazon Echo Evolution

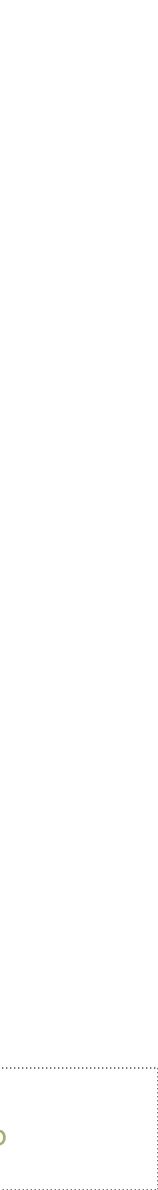
AMAZON'S FIRST GEN VOICE UI



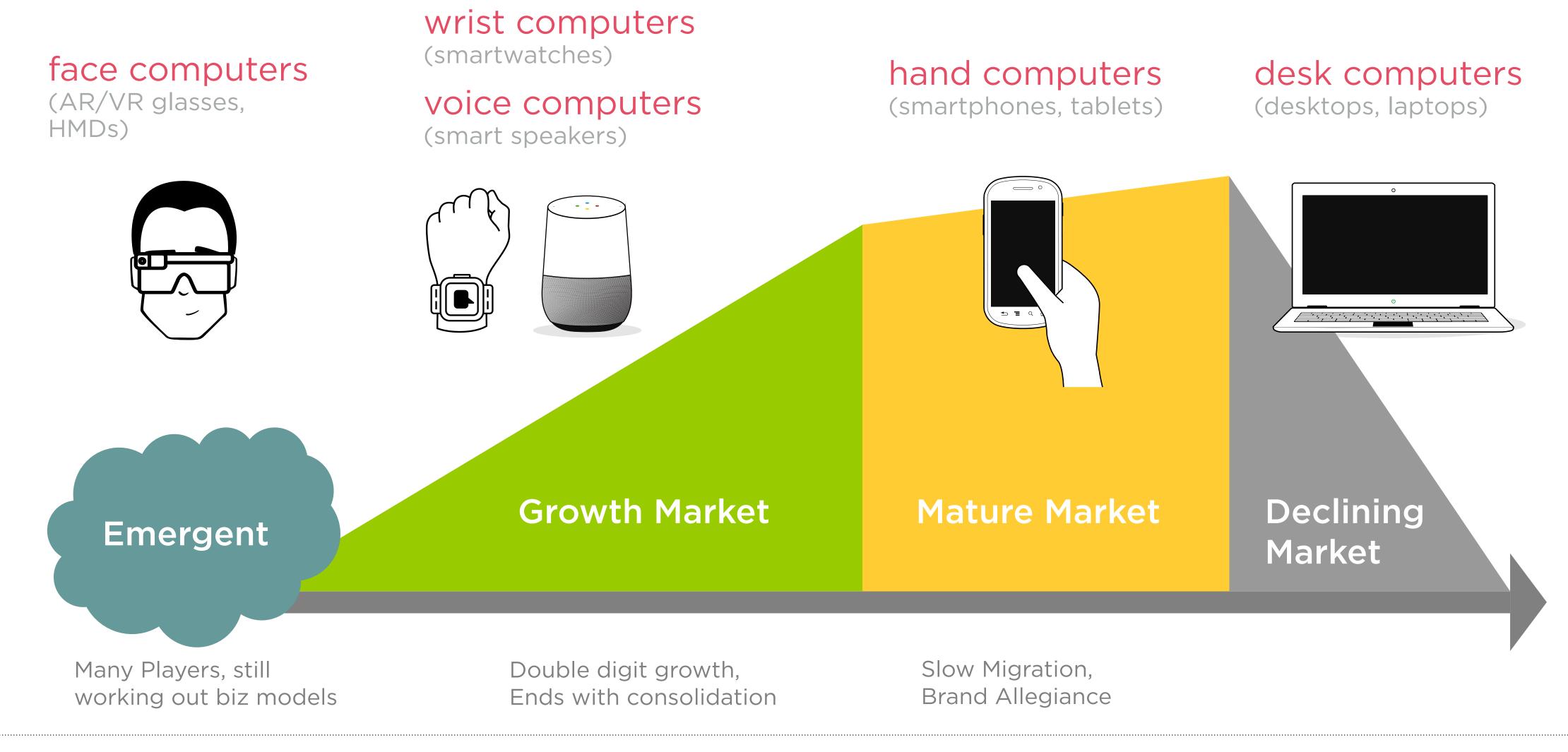


AMAZON'S NEXT GEN VOICE UI





Devices and the Product Lifecycle





Model: Tom Chi, 2008









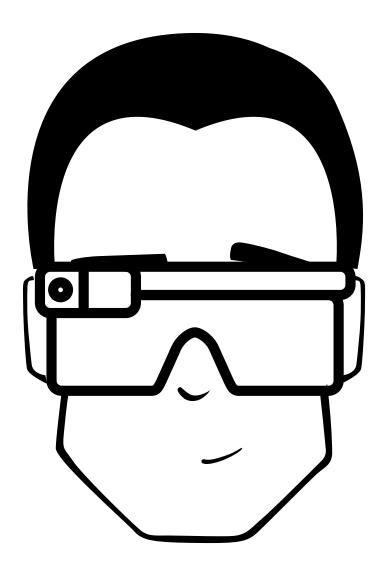
DIGITAL WORLD DIGITAL OBJECTS REAL WORLD DIGITAL OBJECTS





REAL WORLD & OBJECTS DIGITAL INFORMATION & ACTIONS

"explain"







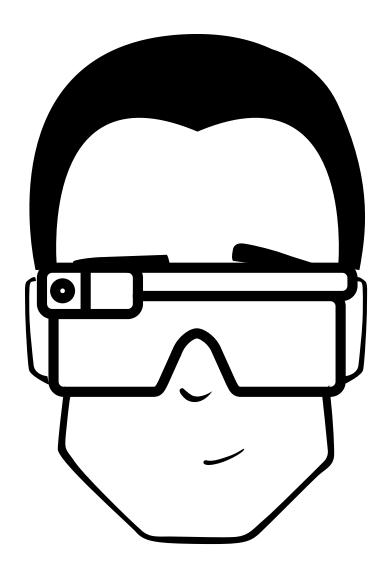
blanqueador sin cloro. Secado de giro lento. Plancha con calor medio. No planche la decoración. No lave en seco.

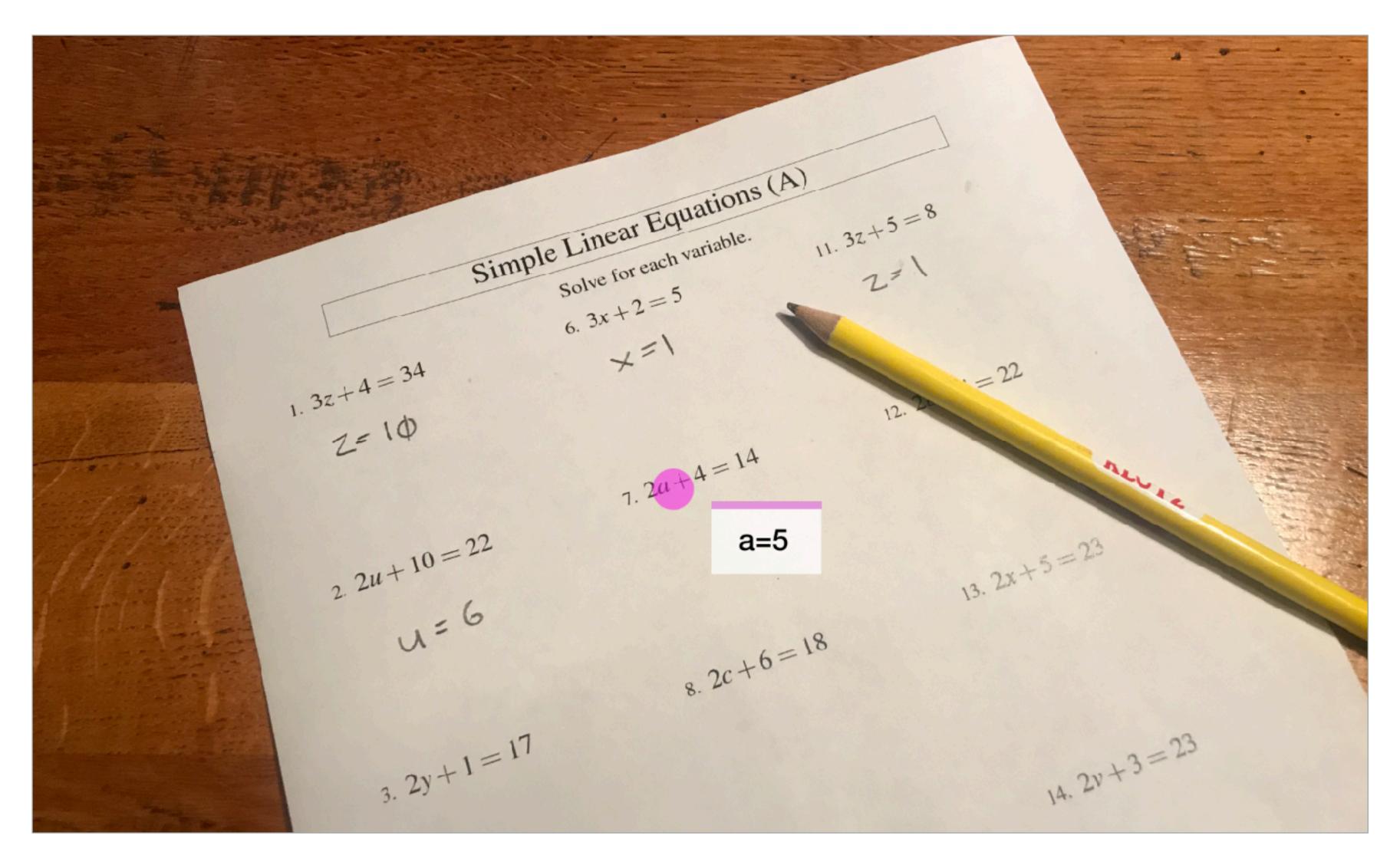
> RN 87370 0862-7105-106

Bleach as needed Tumble dry, low heat Iron or steam, medium heat Do not dryclean



"solve"

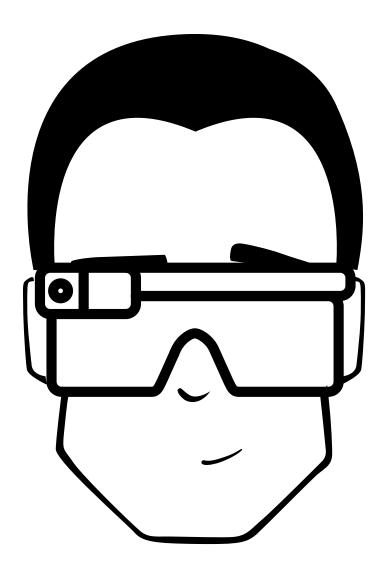








"convert"

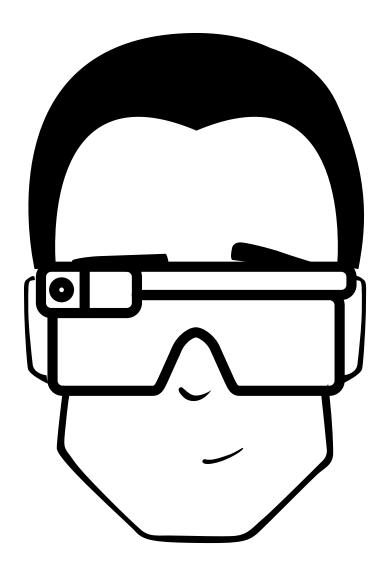








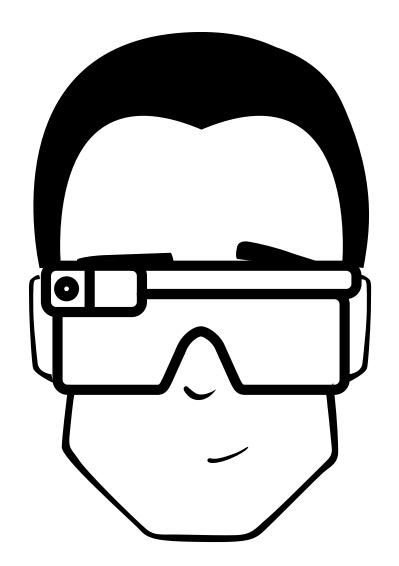
"listen"

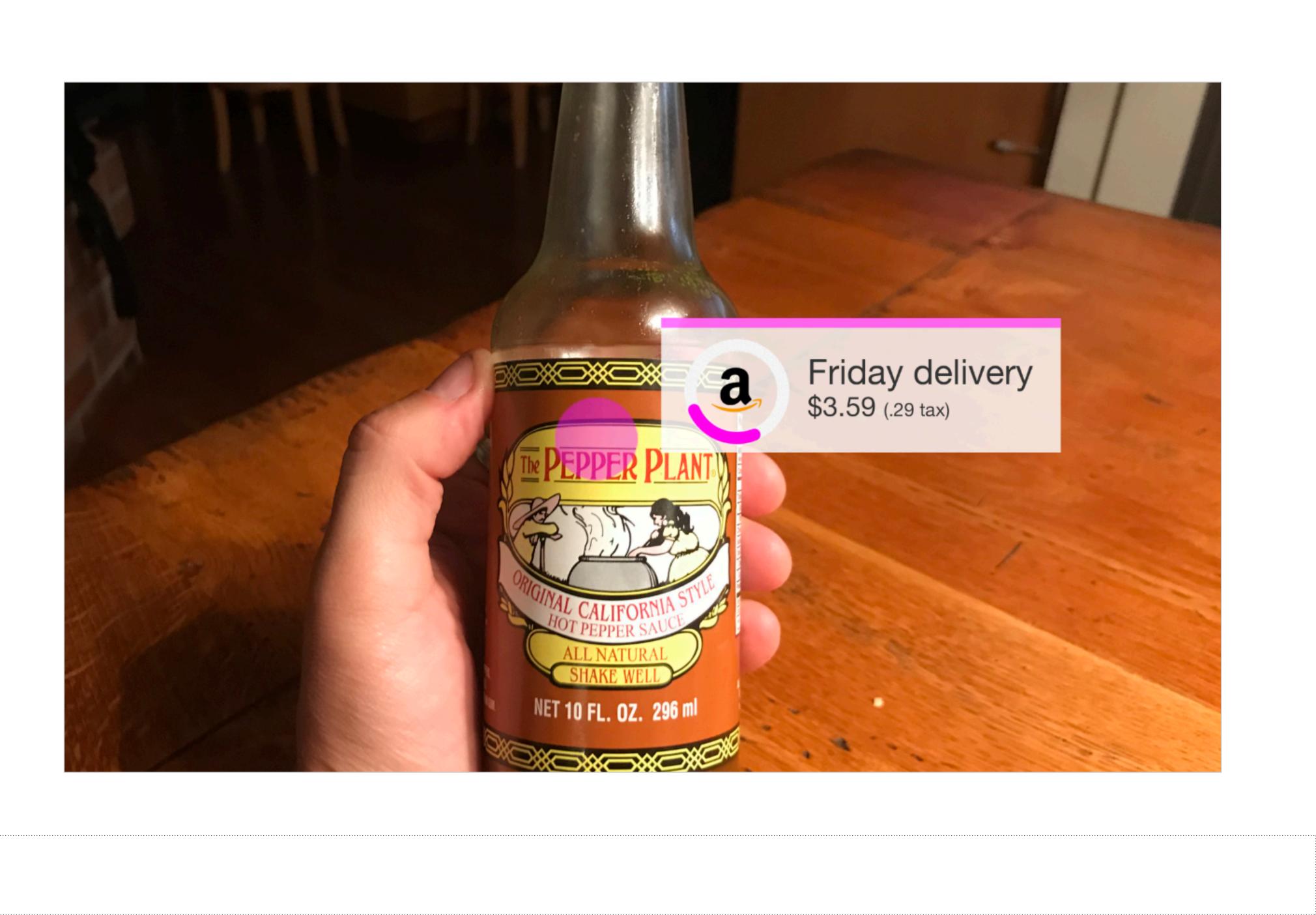






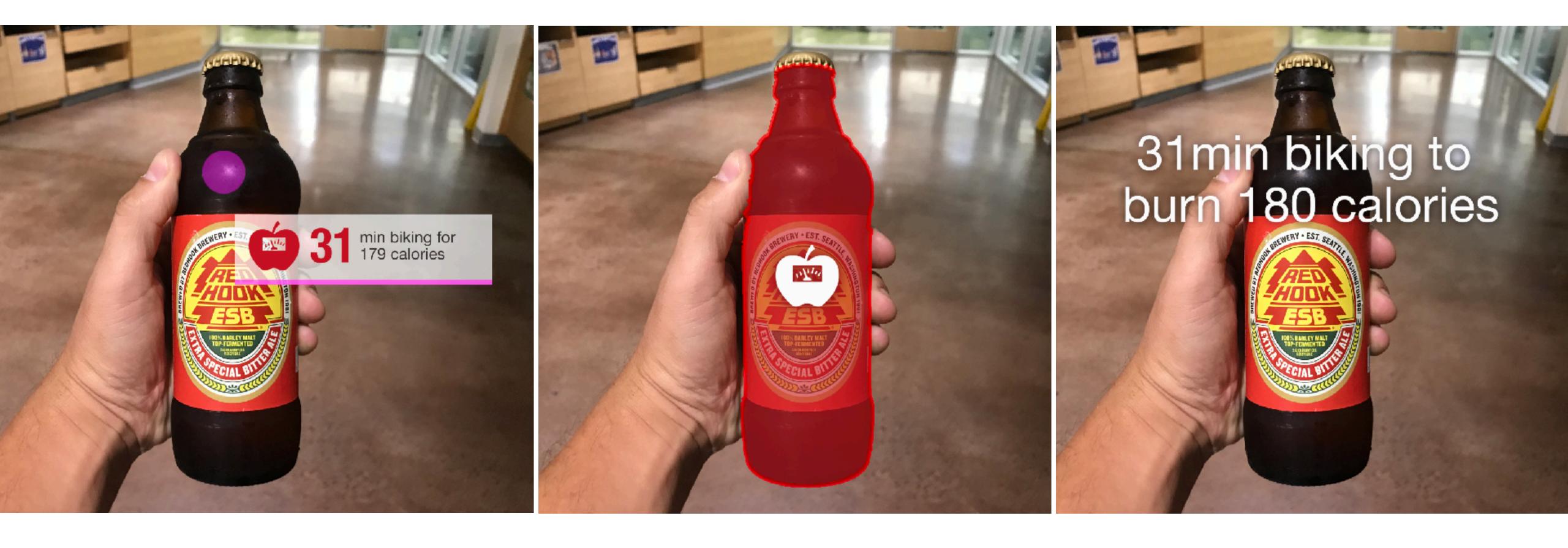
"order more"







DIALOG OVERLAY

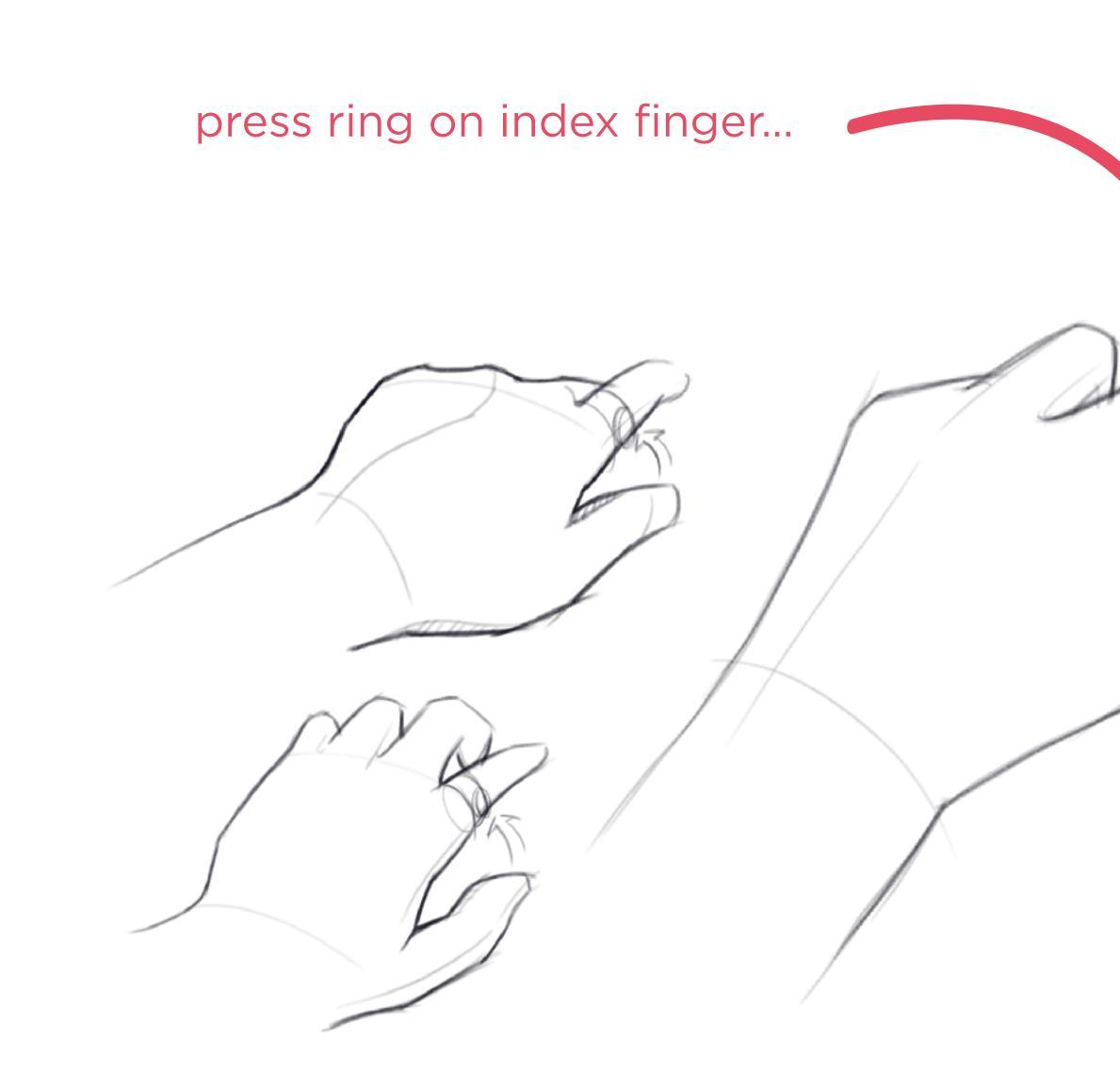




OBJECT OVERLAY

TEXT OVERLAY







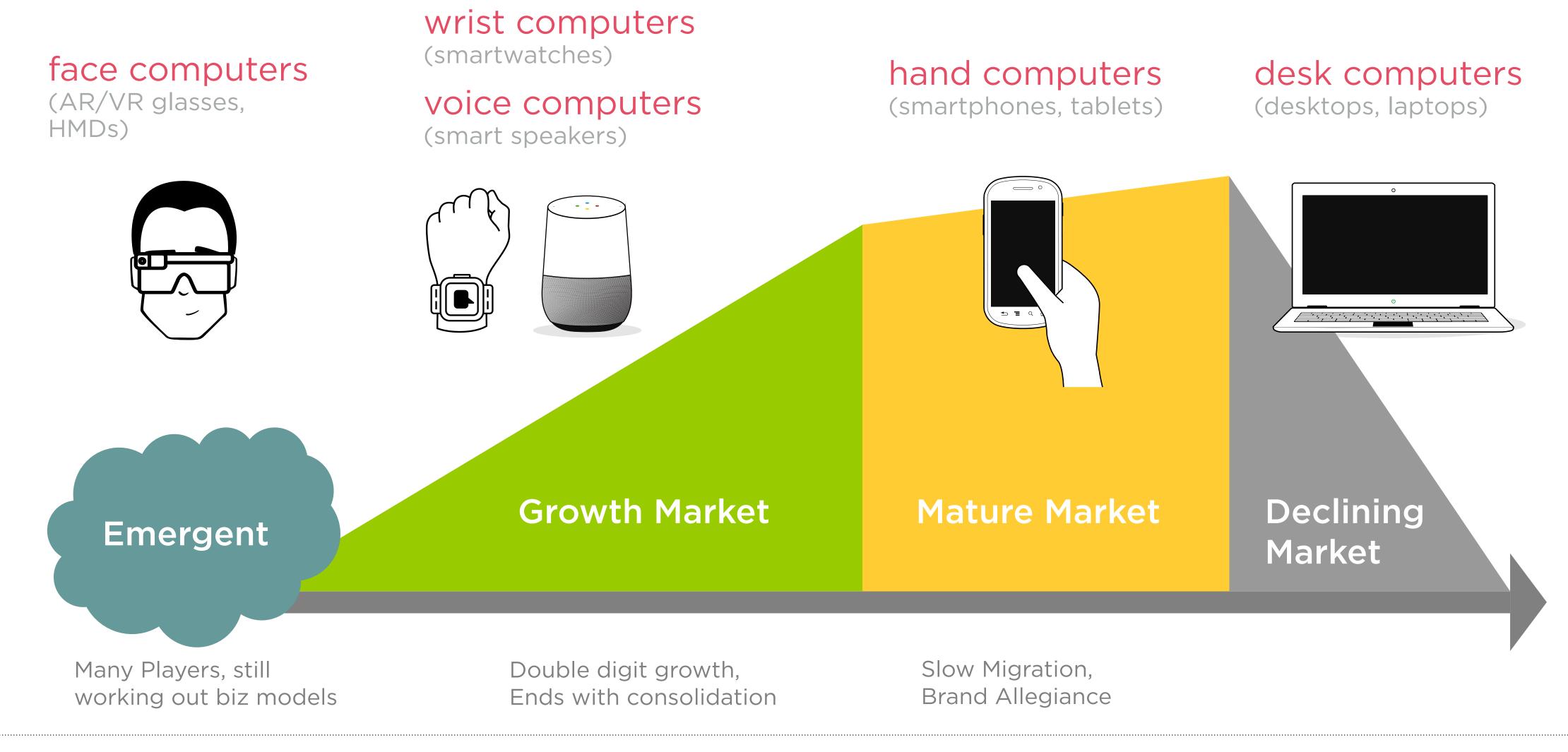
Illustrations: Chenxi Sun http://www.chenxisun.com

...to activate voice command mode

low physical effort due to close thumb proximity & range of motion, visually discrete, minimal unintended/accidental actions



Devices and the Product Lifecycle





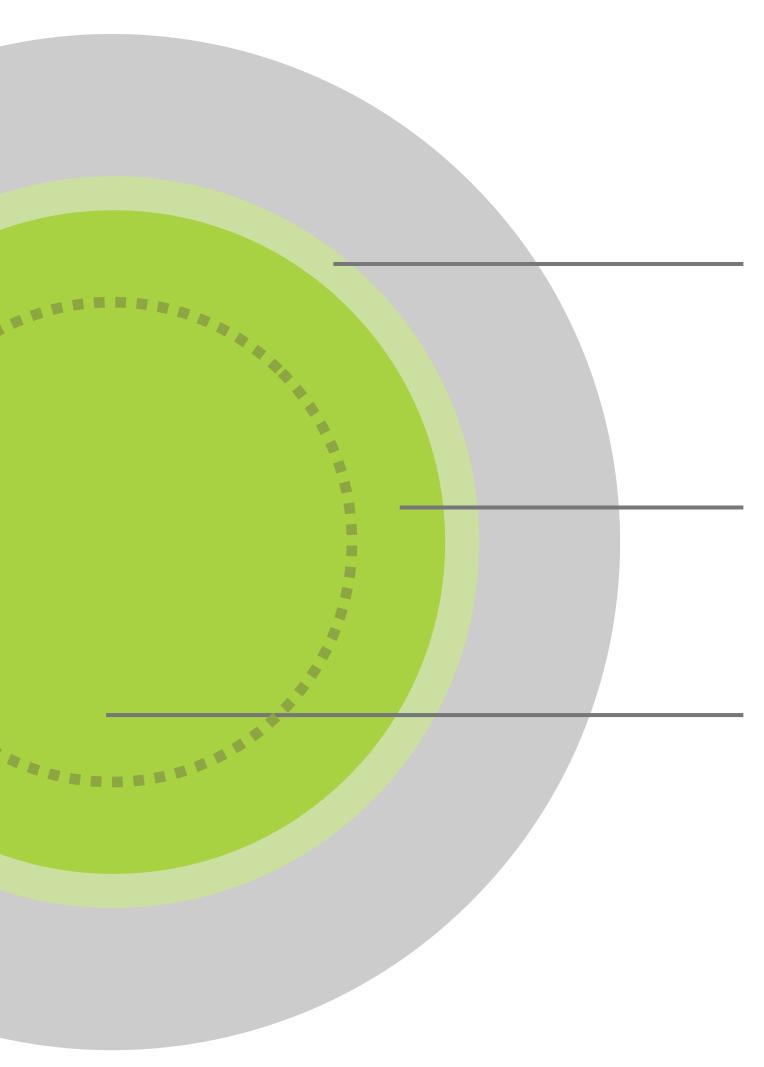
Model: Tom Chi, 2008



7.6B Global population



Sources: Apple earnings Q12018, Andreessen Horowitz estimates, Google I/O 2017



5.6B Addressable market (14+ yr olds)

5B Mobile subscribers

3.5B Active smartphones





8B Global population projected by 2023



2023 population estimates based on United Nations data

5.8B Addressable market (14+ yr olds) by 2023

5B

Active smartphones by 2023

112



3.5B Active smartphones

3HR Spent per day

80x Times used per day

32 Touches per use



- it's a mobile planet
- design for actual usage/behaviors
- prep for what's next



