

INTERNET TRENDS 2017 – CODE CONFERENCE

Mary Meeker
May 31, 2017

kpcb.com/InternetTrends

**KLEINER
PERKINS**

Internet Trends 2017

- 1) **Global Internet Trends** = Solid...Slowing Smartphone Growth 4-9
- 2) **Online Advertising (+ Commerce)** = Increasingly Measurable + Actionable 10-79
- 3) **Interactive Games** = Motherlode of Tech Product Innovation + Modern Learning 80-150
- 4) **Media** = Distribution Disruption @ Torrid Pace 151-177
- 5) **The Cloud** = Accelerating Change Across Enterprises 178-192
- 6) **China Internet** = Golden Age of Entertainment + Transportation
(Provided by Hillhouse Capital) 193-231
- 7) **India Internet** = Competition Continues to Intensify...Consumers Winning 232-287
- 8) **Healthcare** @ Digital Inflection Point 288-319
- 9) **Global Public / Private Internet Companies...** 320-333
- 10) **Some Macro Thoughts...** 334-351
- 11) **Closing Thoughts...** 352-353

Thanks...

Kleiner Perkins Partners

Alexander Krey & Ansel Parikh - who were fearless and sometimes sleepless - helped steer the ideas / presentation we hope you find useful / learn from / improve on. Key contributors to specific content include: Noah Knauf & Nina Lu (Healthcare), Bing Gordon (Interactive Games), Alex Tran & Anjney Midha (India), Daegwon Chae (Ads + Commerce) and Alex Kurland & Lucas Swisher (Enterprise). In addition, Eric Feng, Daniel Axelsen, Dino Becirovic and Shabih Rizvi were more than on call with help.

Hillhouse Capital

Especially Liang Wu...his / their contribution of the China sector of Internet Trends provides an especially thoughtful overview of the largest market of Internet users in the world...

Participants in Evolution of Internet Connectivity

From creators to consumers who keep us on our toes 24x7...and the people who directly help us prepare this presentation...

Kara & Walt

For continuing to do what you do so well...

GLOBAL INTERNET TRENDS =

SOLID USER GROWTH...

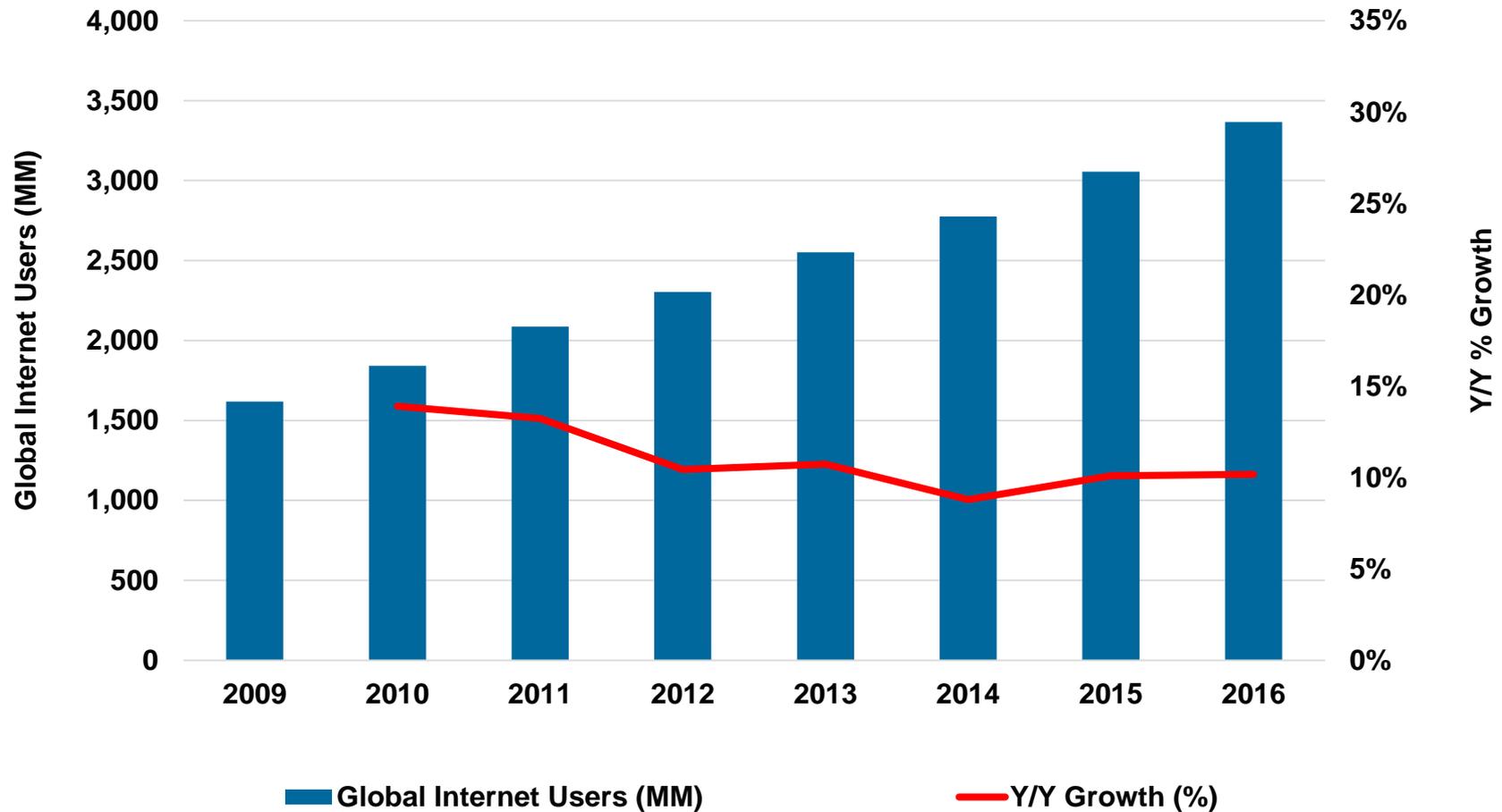
SLOWING SMARTPHONE GROWTH

Global Internet Trends = Solid User Growth...Slowing Smartphone Growth

- 1) **Global Internet Users** = 3.4B...Flat Growth +10% vs. 10% Y/Y...
+8% vs. 8% Y/Y (ex. India)
- 2) **Global Smartphone Shipments** = Slowing +3% vs. +10% Y/Y
- 3) **Global Smartphone Installed Base** = Slowing +12% vs. +25% Y/Y
- 4) **USA Internet Usage (Engagement)** = Solid +4% Y/Y

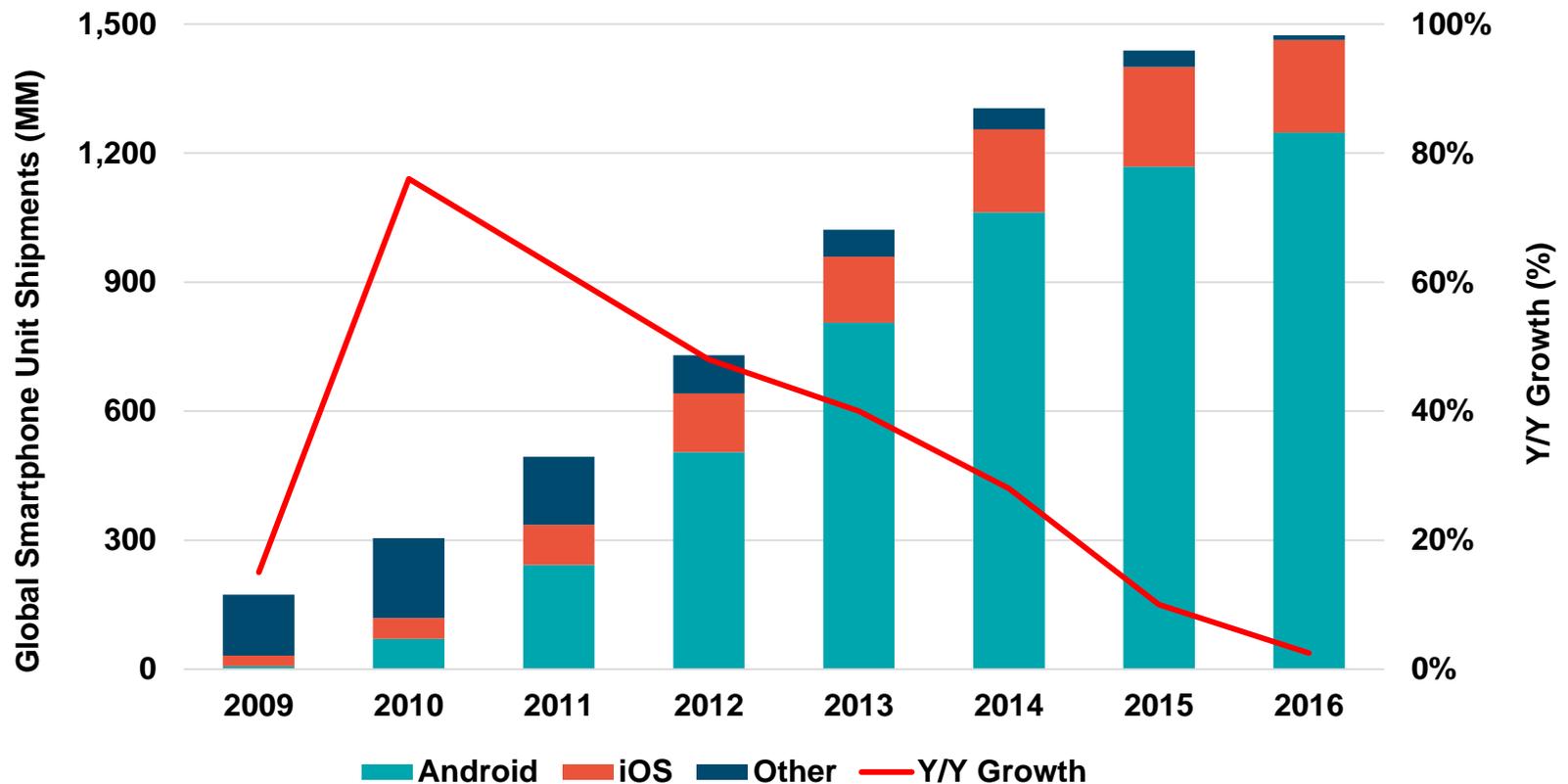
Global Internet Users = 3.4B @ 46% Penetration... +10% Y/Y vs. +10%...+8% Y/Y vs. +8% (Ex-India)

Global Internet Users (MM), 2009 – 2016



Global Smartphone Unit Shipments = Continue to Slow... @ +3% Y/Y vs. +10% (2015) / +28% (2014)

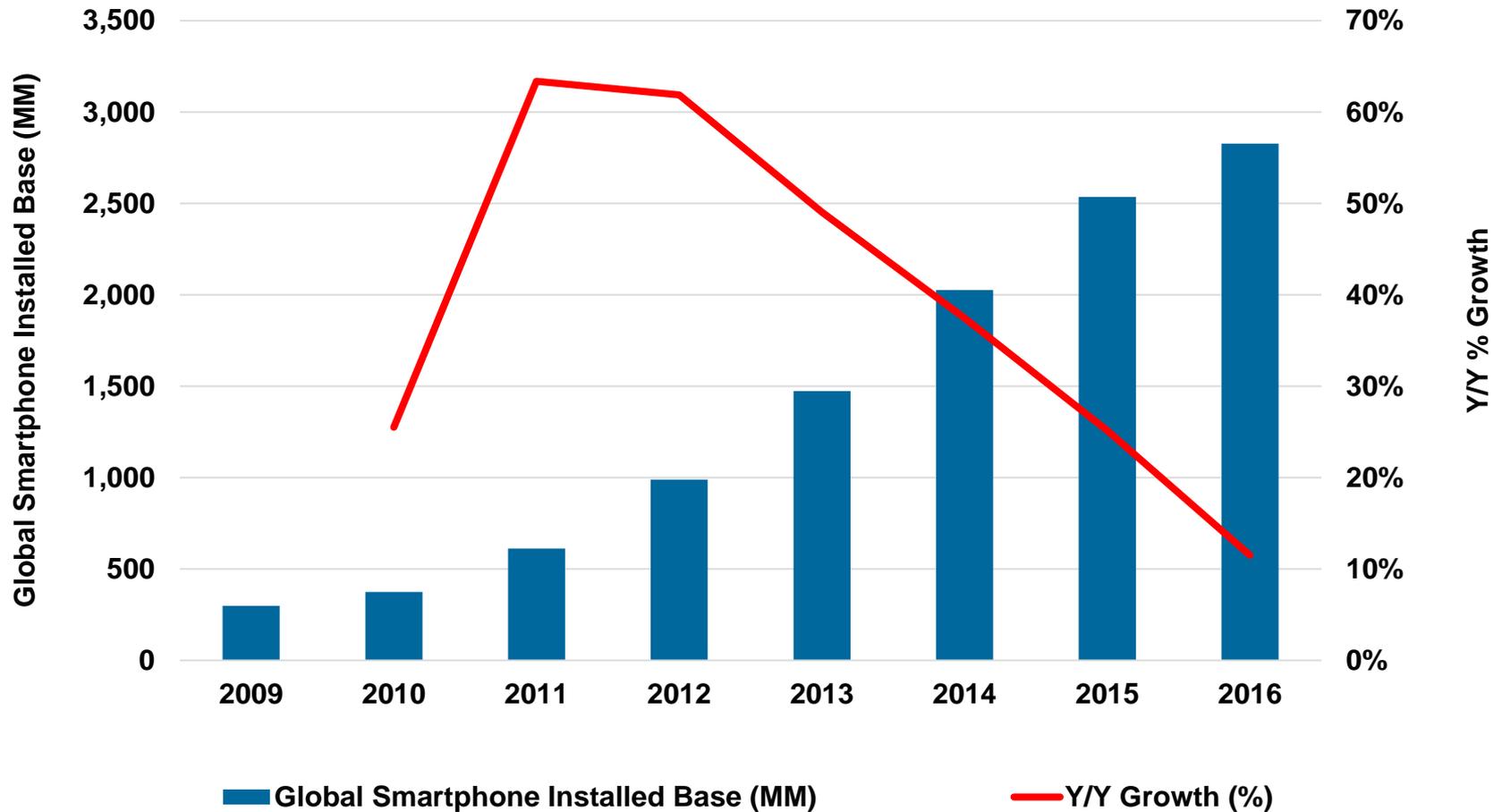
Smartphone Unit Shipments by Operating System (MM), Global, 2009 – 2016



Global Smartphone Installed Base = 2.8B...

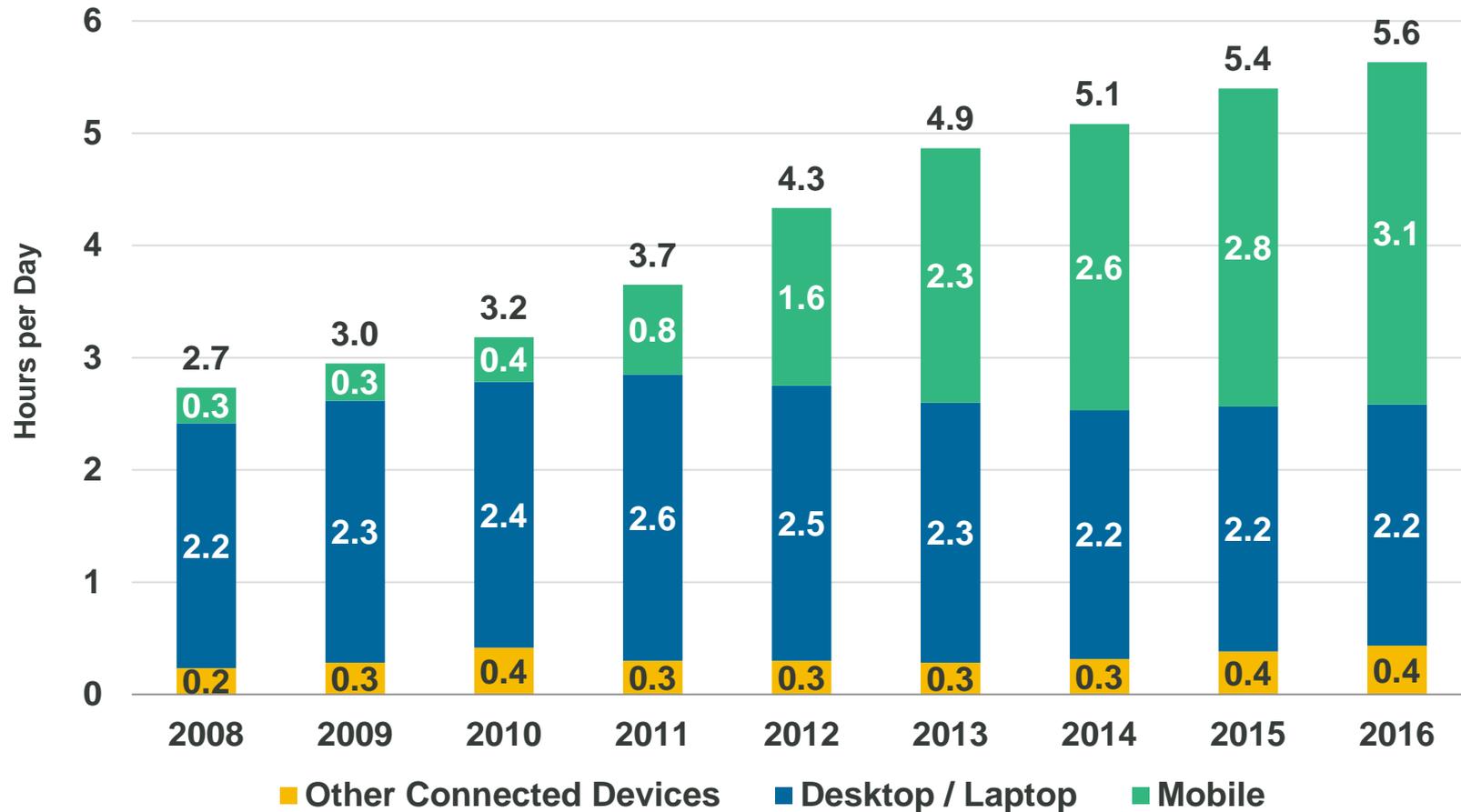
+12% Y/Y vs. +25% (2015) / +37% (2014)

Global Smartphone Installed Base (MM), 2009 – 2016



Internet Usage (Engagement) = Solid Growth...+4% Y/Y... Mobile >3 Hours / Day per User vs. <1 Five Years Ago, USA

Time Spent per Adult User per Day with Digital Media, USA, 2008 – 2016



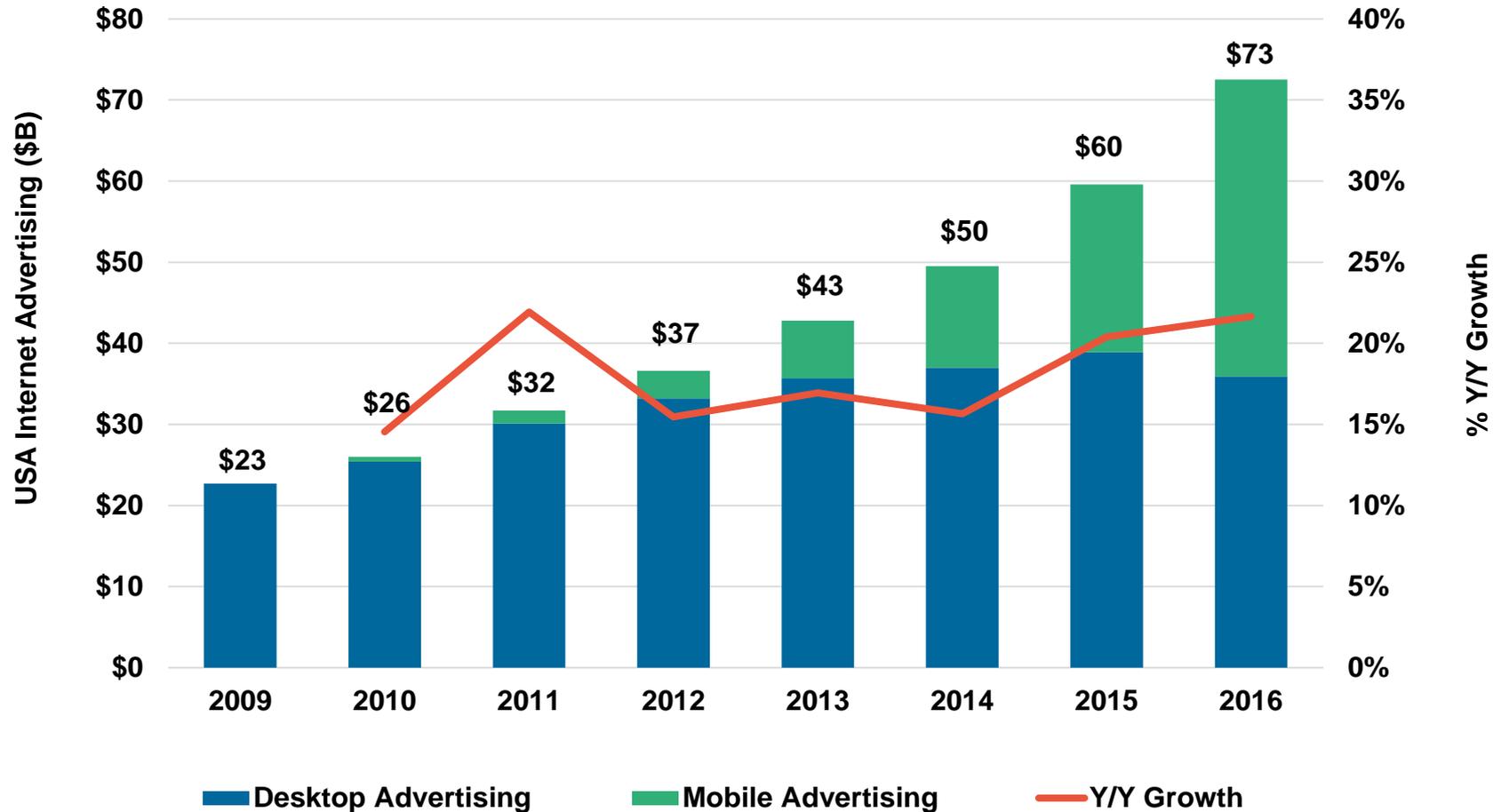
Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2013), eMarketer 4/17 (2014-2016). Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work. Ages 18+; time spent with each medium includes all time spent with that medium, regardless of multitasking.

**ONLINE ADVERTISING (+ COMMERCE) =
INCREASINGLY
MEASURABLE + ACTIONABLE**

***Ad Growth =
Driven by Mobile***

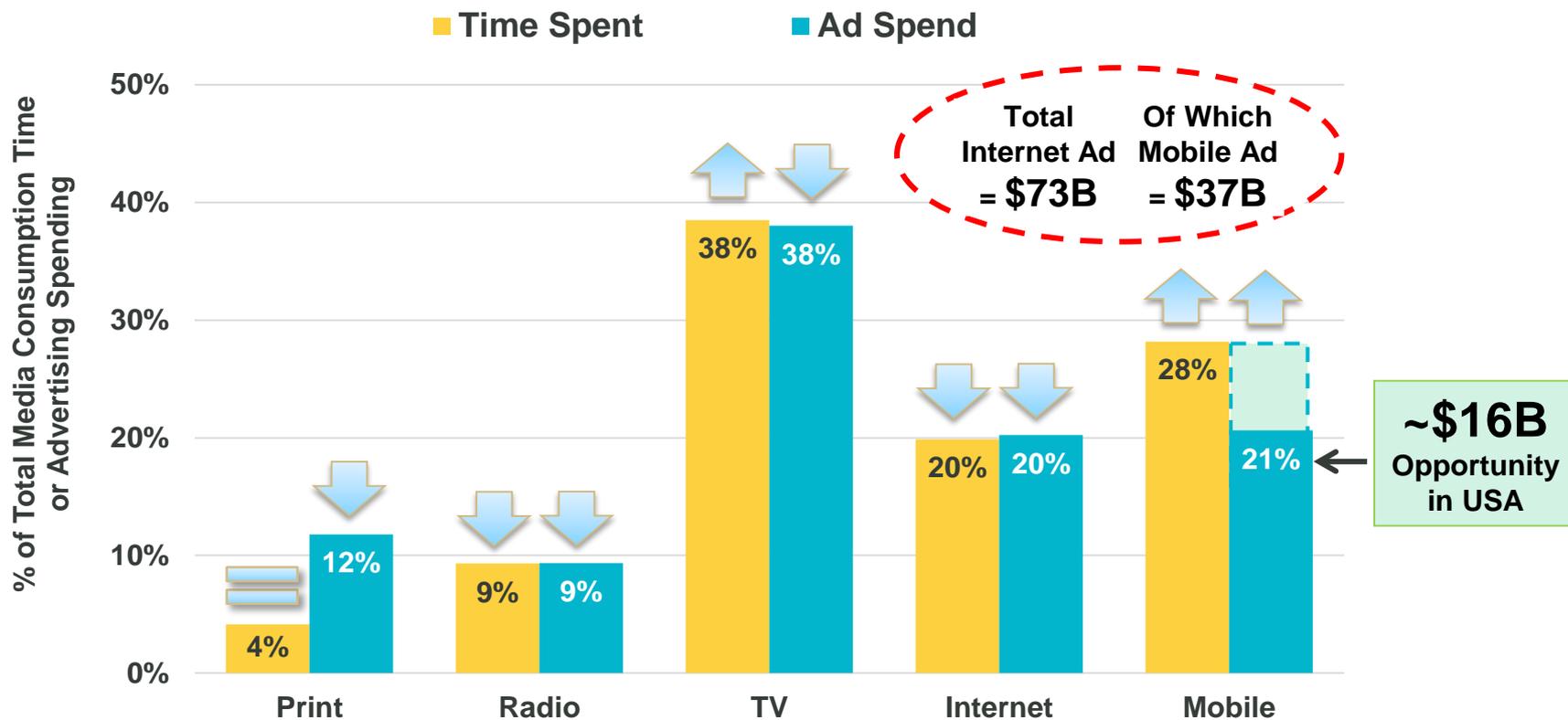
Online Advertising = Growth Accelerating, +22% vs. +20% Y/Y... Mobile \$ > Desktop (2016) on Higher Growth, USA

USA Internet Advertising (\$B), 2009 – 2016



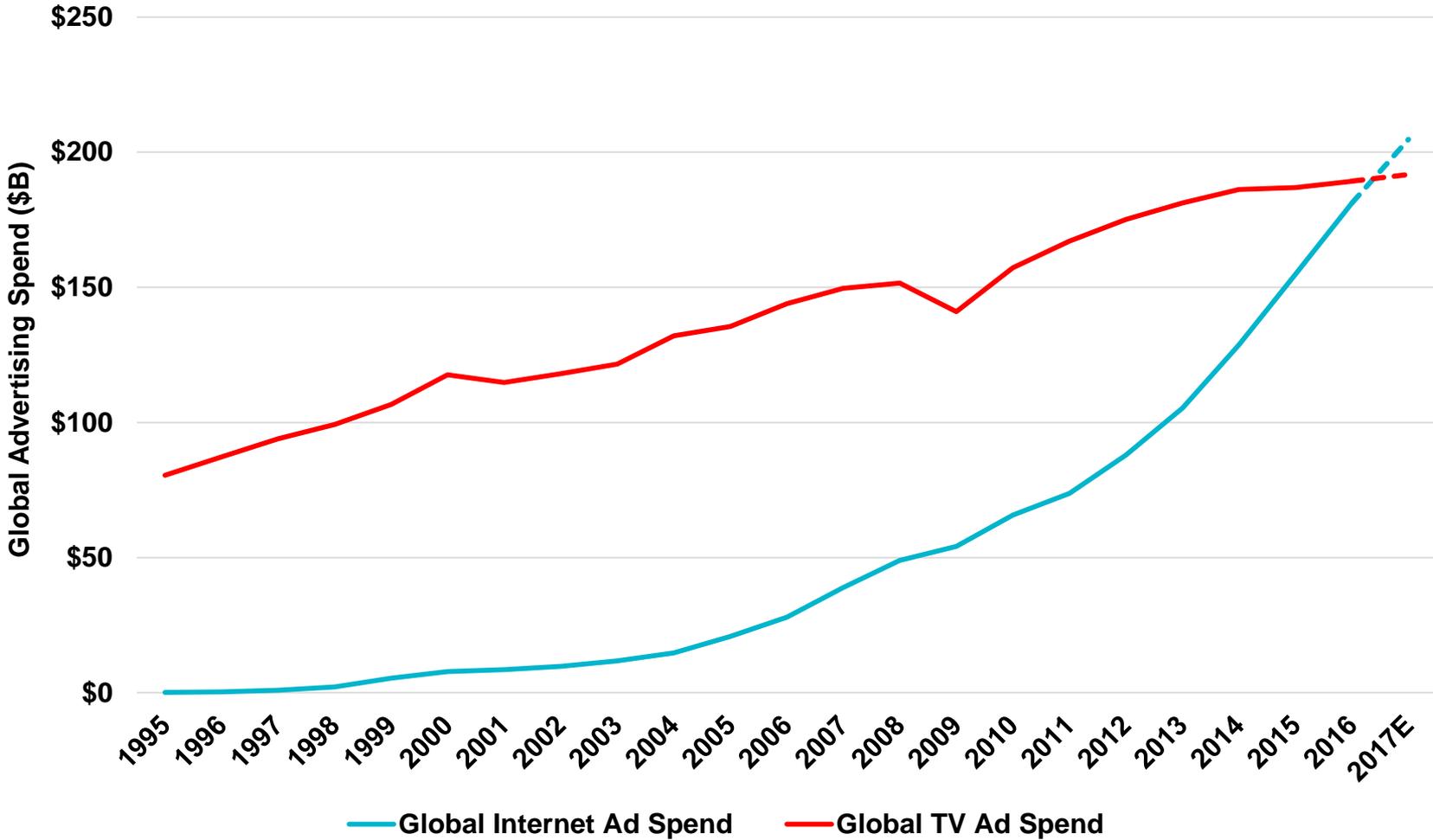
Advertising \$ = Shift to Usage (Mobile) Continues

% of Time Spent in Media vs. % of Advertising Spending, USA, 2016



Advertising \$ = Internet > TV Within 6 Months, Global

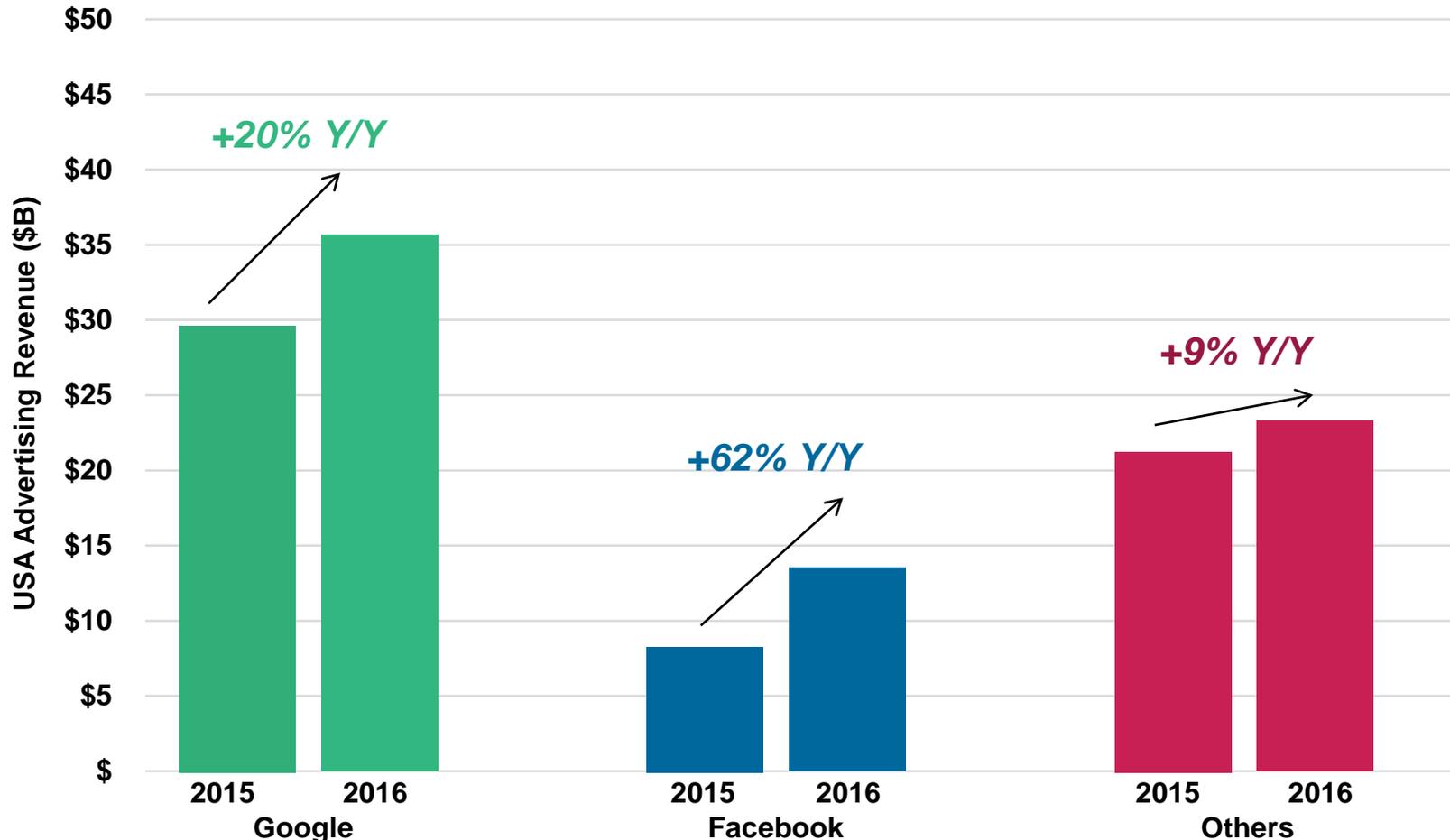
Internet vs. TV Ad Spend (\$B), Global, 1995-2017E



Source: Zenith Advertising Expenditure Forecasts (3/17)

Google + Facebook = 85% (& Rising) Share of Internet Advertising Growth, USA

Advertising Revenue (\$B) and Growth Rates (%) of Google vs. Facebook vs. Other, USA, 2015 – 2016



Source: IAB / PWC Advertising Report (2016), Facebook, Morgan Stanley Research
Note: Facebook revenue includes Canada. Google USA ad revenue per Morgan Stanley estimates as company only discloses total ad revenue and total USA revenue. "Others" includes all other USA internet (mobile + desktop) advertising revenue ex-Google / Facebook.

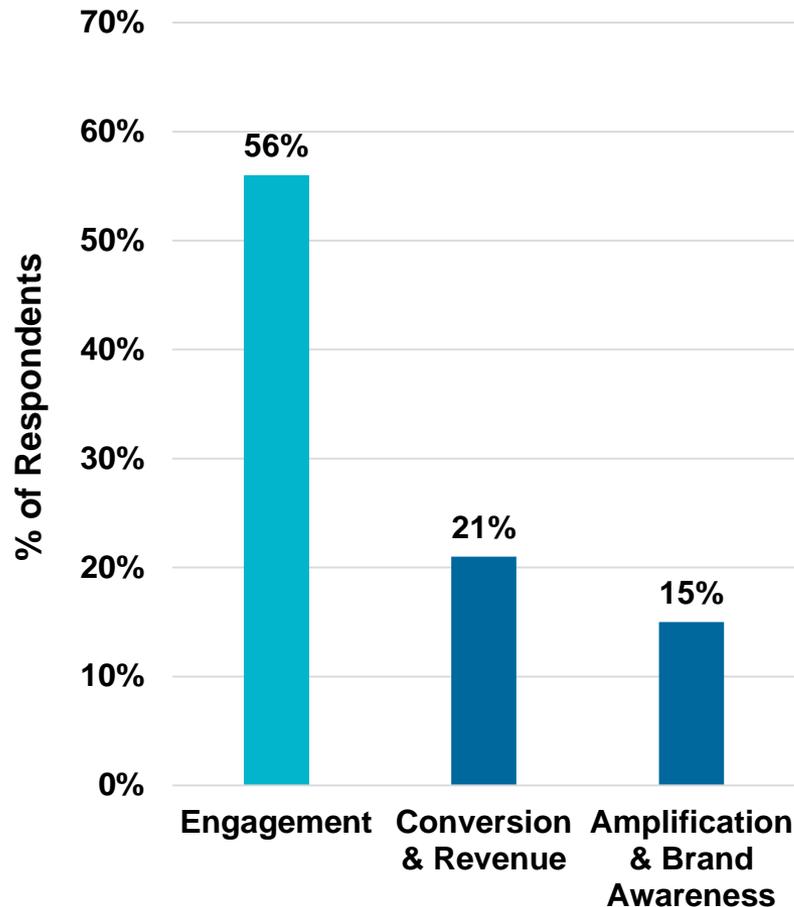
***Ad Measurability =
Can Be Triple-Edged...***

***When Things Are Measured =
People Don't Always Like What They See...
Users Don't Always Like Data Collected***

Advertisers = Like Measurable *Engagement* Metrics But... Some Find Measuring *ROI* Challenging (as with Offline)

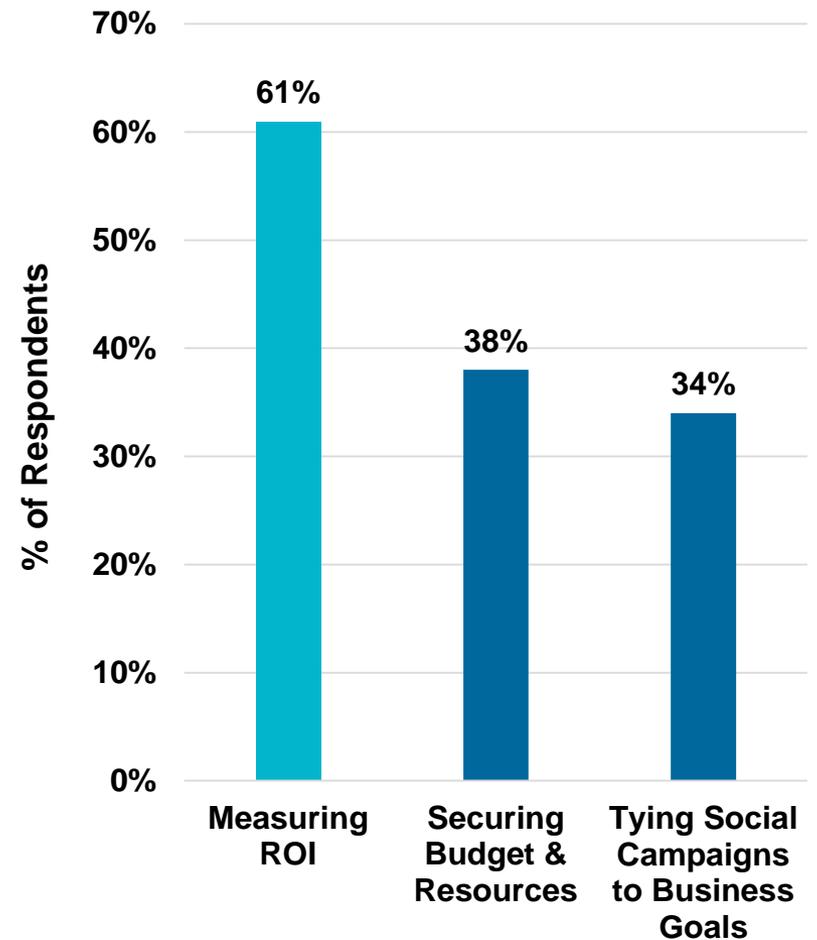
Social Advertisers

Metrics Used to Measure Success, 6/16



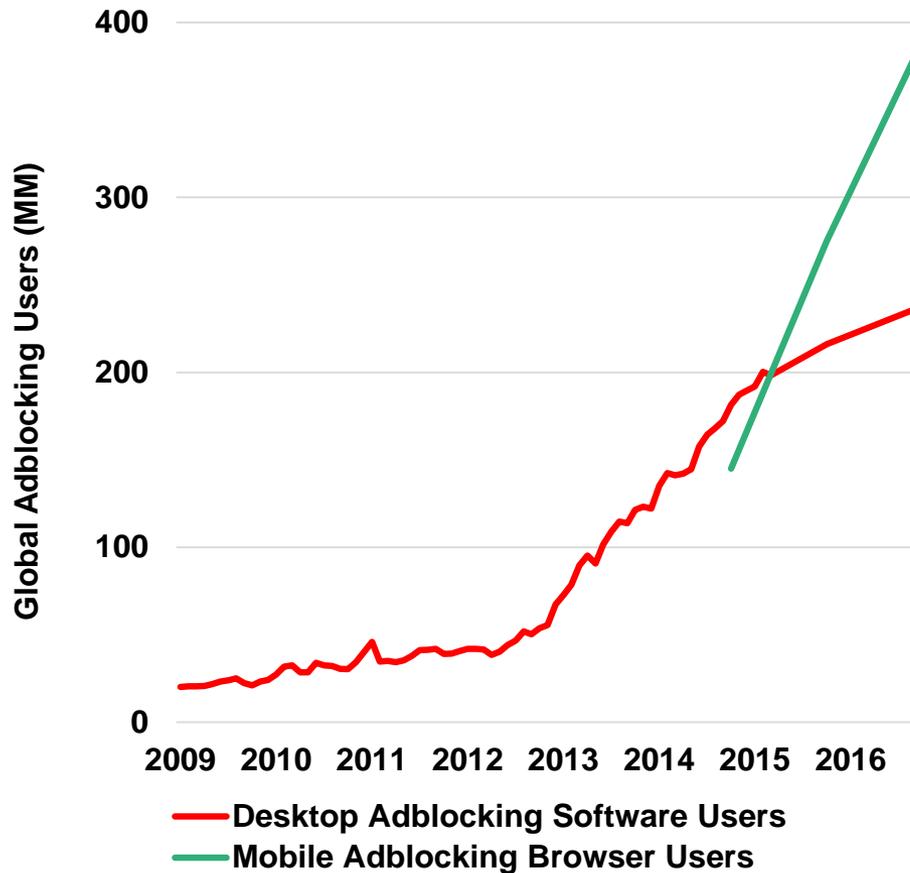
Social Media Marketing

Top Challenges, 6/16



Ad Blocking = Growth Continues...Especially in Developing Markets... Users Increasingly Opt Out of Stuff They Don't Want

**Adblocking Users on Web
(Mobile + Desktop), Global, 4/09 – 12/16**



**Adblocking Penetration
(Mobile + Desktop), Selected
Countries, 12/16**

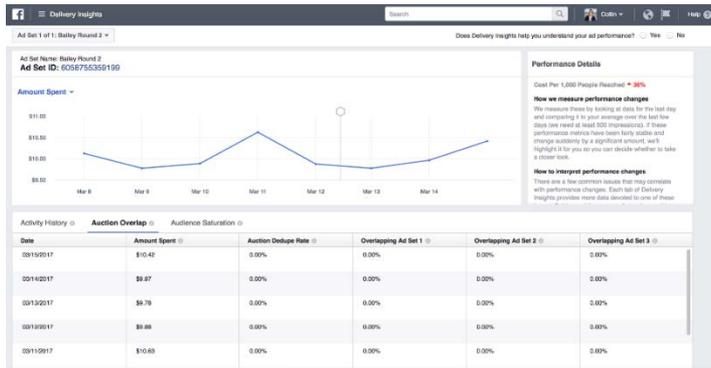
Country	Desktop	Mobile
China	1%	13%
India	1%	28%
USA	18%	1%
Brazil	6%	1%
Japan	3%	--
Russia	6%	3%
Germany	28%	1%
Indonesia	8%	58%
UK	16%	1%
France	11%	1%
Canada	24%	--

Leading Platform Ad Offerings =

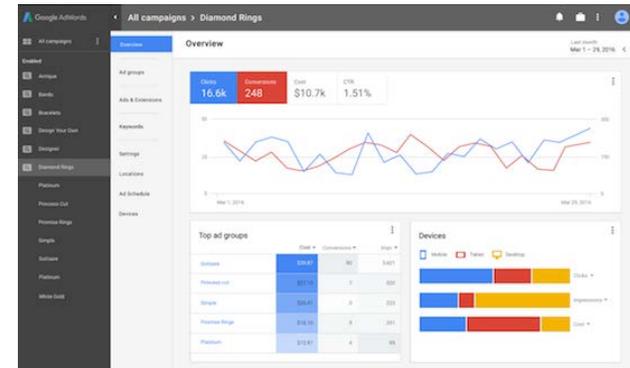
Rapidly Improving with
Back-End Data +
Front-End Measurement Tools +
Targeted Delivery of Ads
Users Increasingly Want

Leading Online Ad Platforms = Providing More Ways to Target + Measure Ads

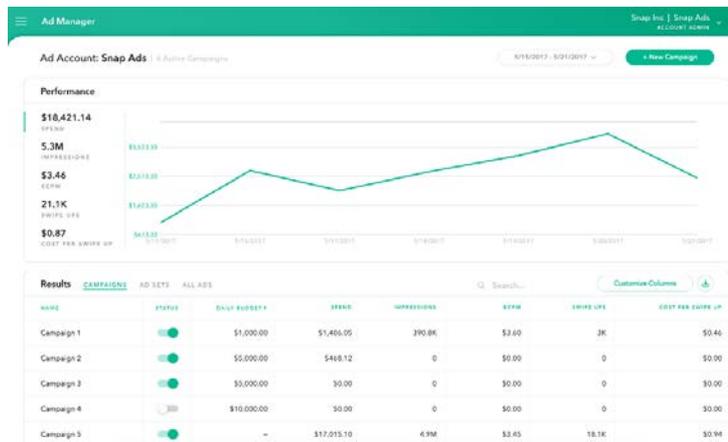
Facebook (Delivery Insights)



Google (AdWords)



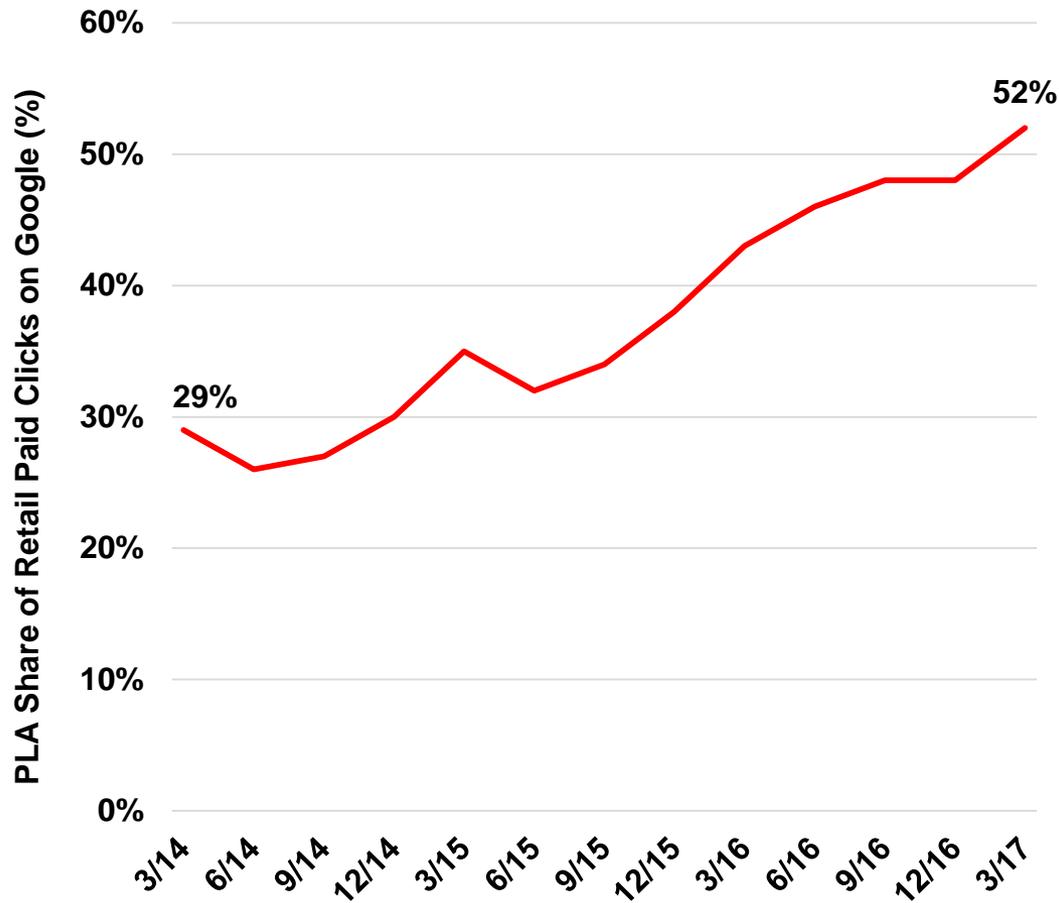
Snap (Snap Ads)



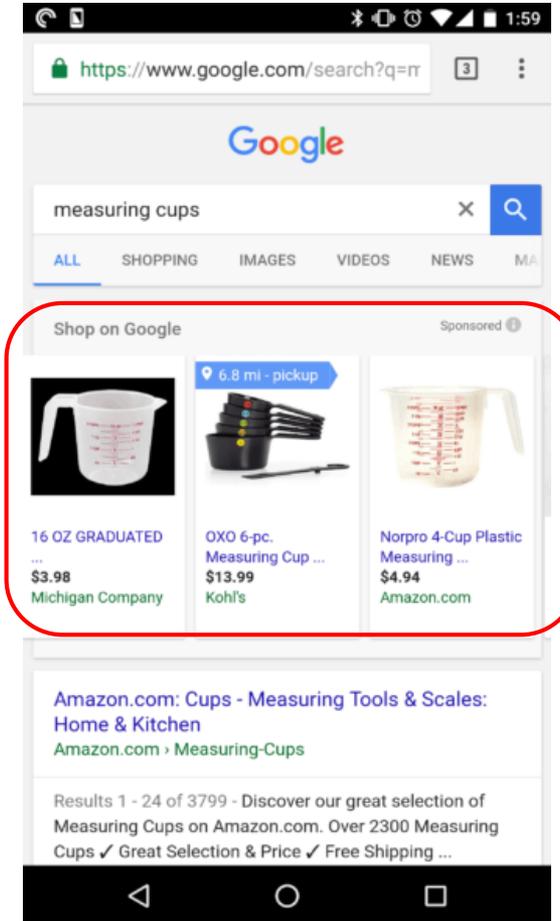
Product Listing Ads (Google) = Driving Clicks to Product Pages

Google Product Listing Ads (PLAs)

Share of Retail Paid Clicks on Google, USA, 2014-2016



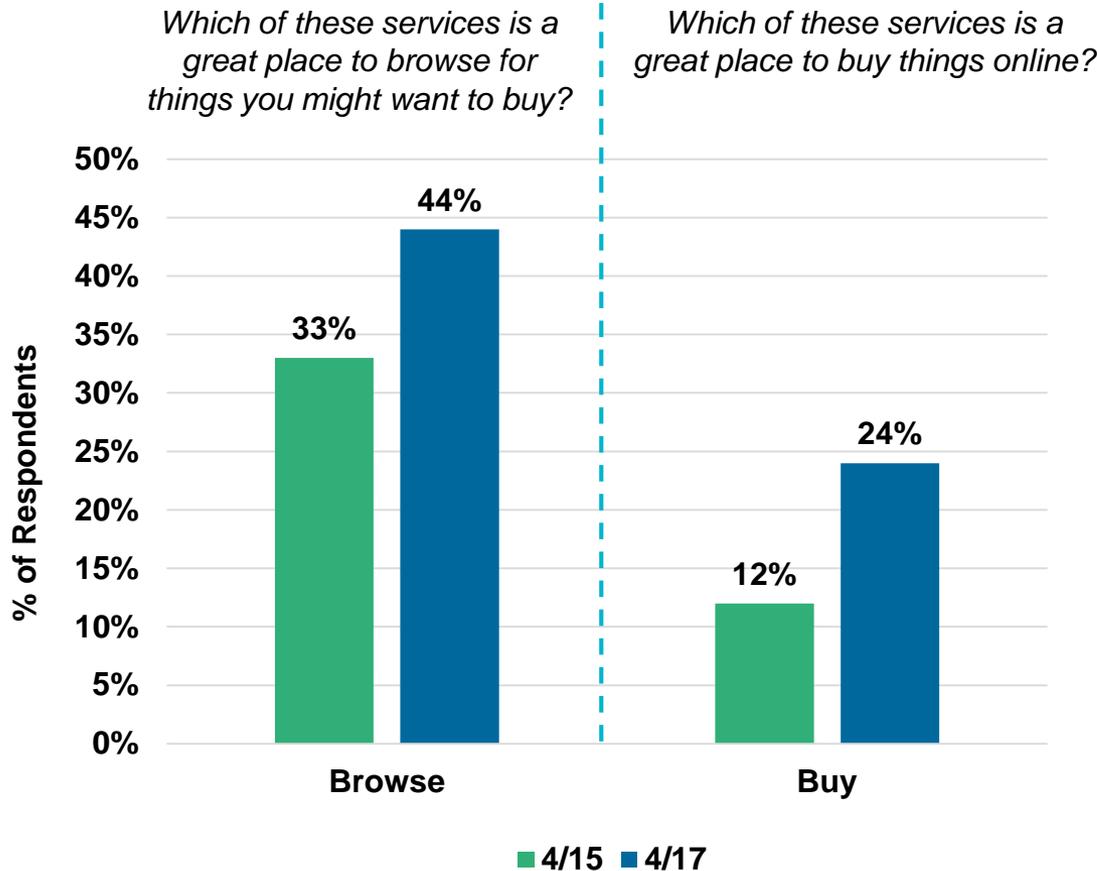
Google PLA on Mobile Web, 12/16



Targeted Pins (Pinterest) = Driving Product Discovery + Purchase

Pinterest

Browsing Turning into Buying, 4/17



Shop the Look

Inspired Purchases, 2/17



✕ Shop the look



\$190.00
Men's 6-Inch
Premium Waterpr...
Timberland US

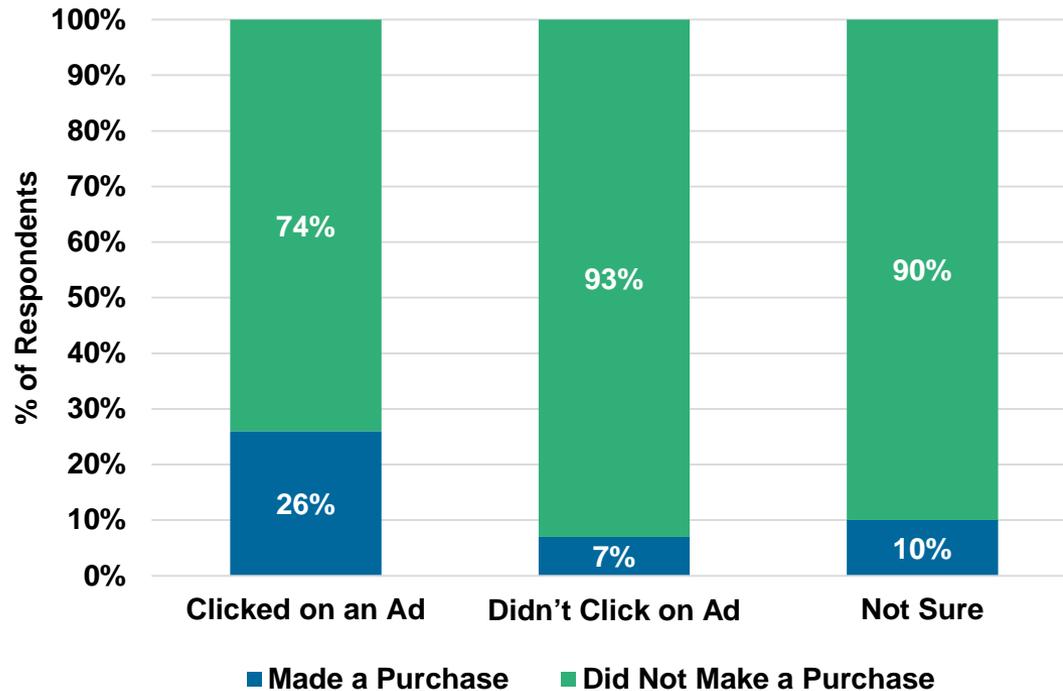
Contextual Ads (Facebook) = Driving Direct Purchases

Facebook Users

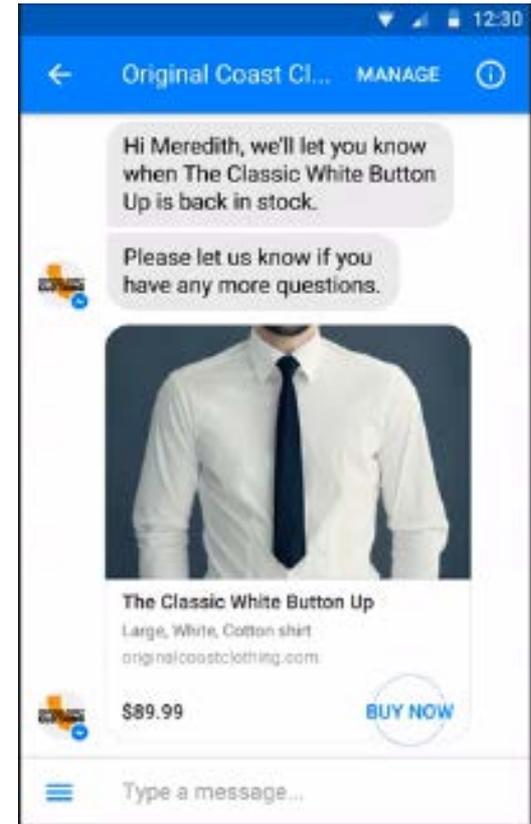
26% that Click Ads Make Purchase, USA, 3/17

In past 30 days, have you clicked an ad on Facebook?

In past 30 days, have you purchased a product you saw on Facebook?



Facebook Messenger Conversational Transactions, 9/16

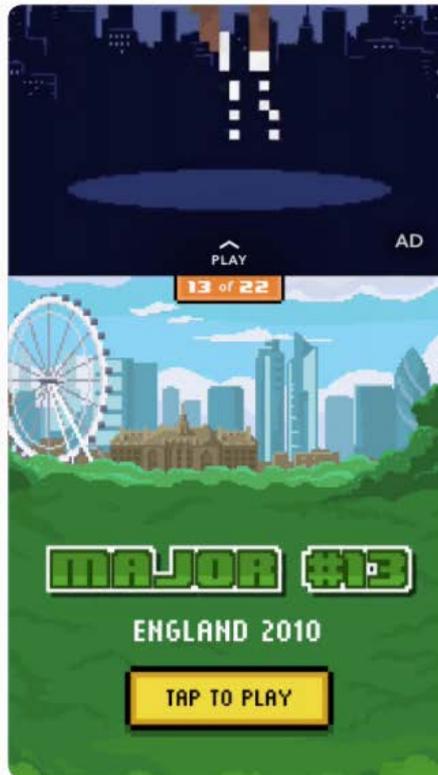


Goal Based Bidding Ads (Snap) = Driving User Action

Snap / Gatorade Ad Campaign

Users Swipe Through Ad to Web Game, 8/16

Users Spend Average of 196 Seconds Playing Game

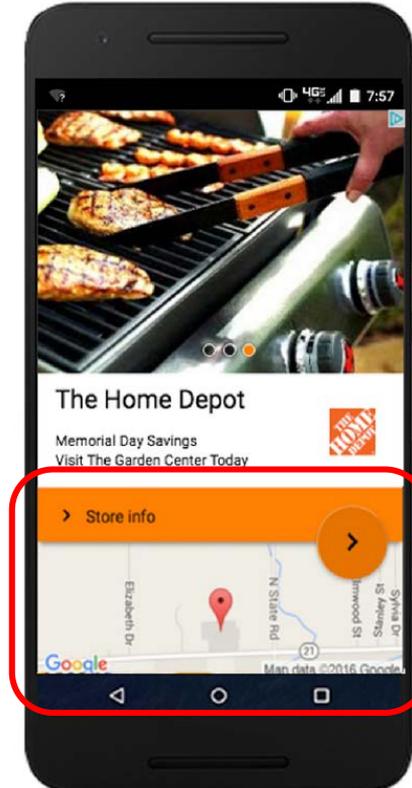
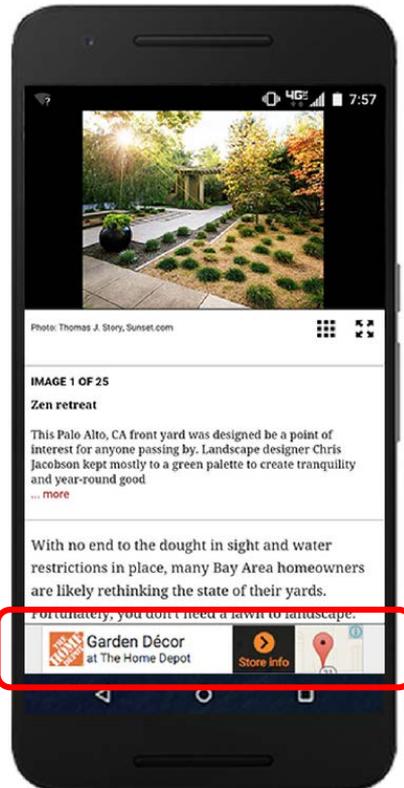


Geo-Targeted Local Ads (Google) = Driving Foot Traffic to Stores

Google Location-Tagged Ads

99% Accuracy Tracking Visits to 200MM Stores Globally, 9/16

5B Cumulative Tracked Store Visits, Up 5x Y/Y*, 5/17

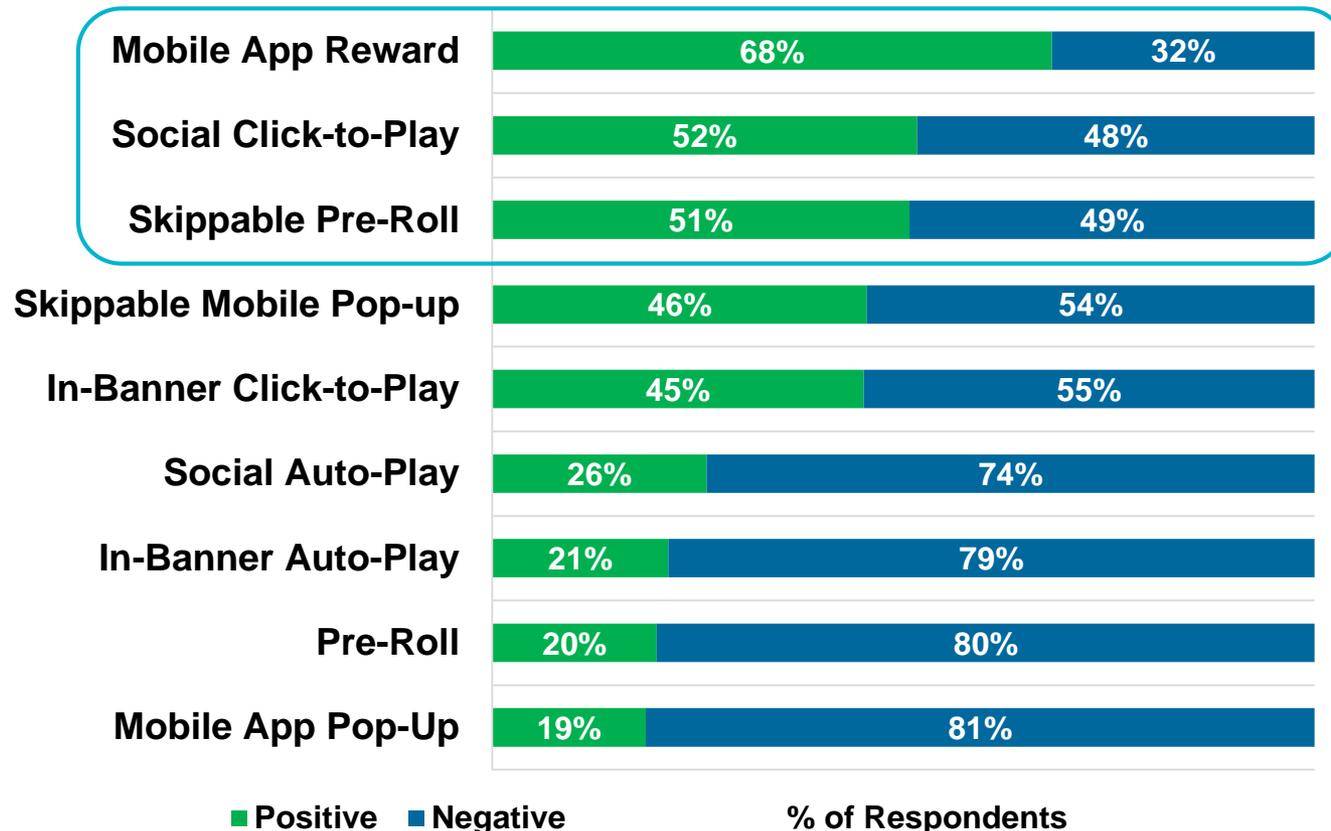


Incentive-Based + Skippable Video Ads = Driving Positive Interactions

Incentive-Based + Skippable Video Ads

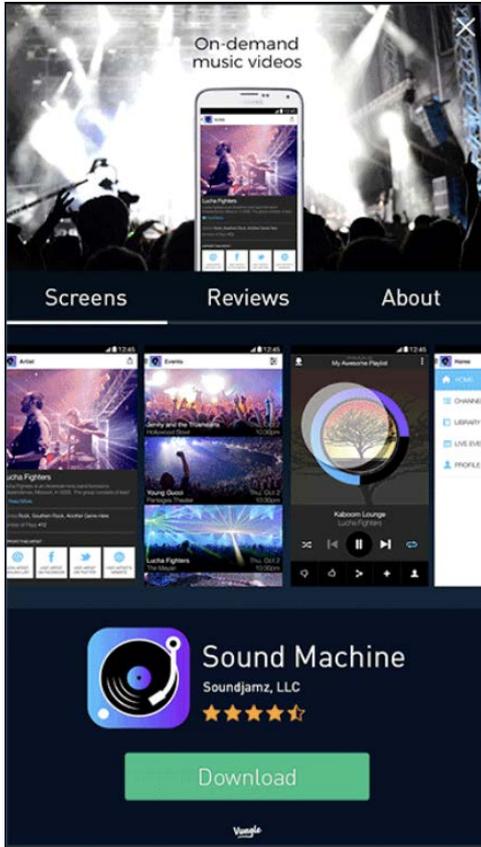
More Likely to be Viewed Positively, 5/16

How would you characterize your attitude towards the following formats of online video advertising?

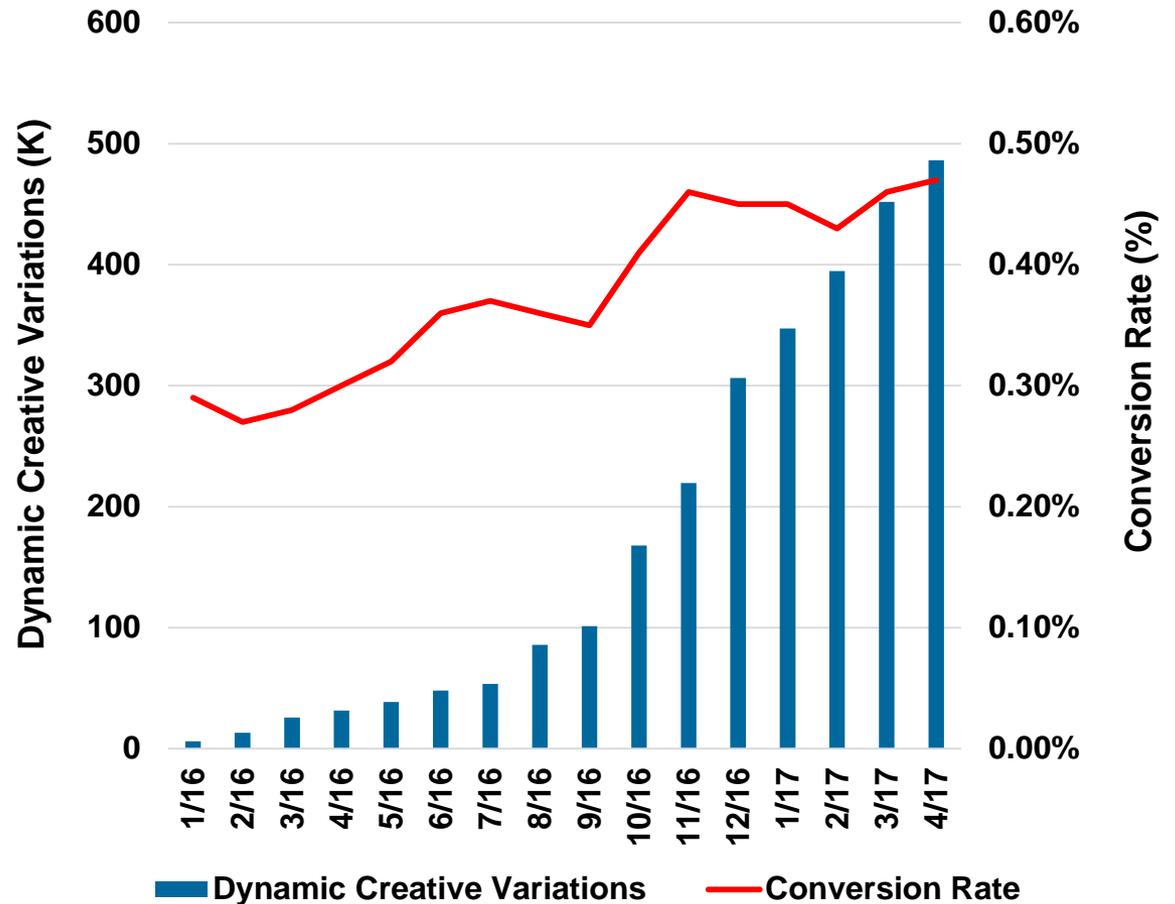


In-App Ads + Dynamic Creative (Vungle) = Driving Higher In-App Install Performance

Dynamic Tab Ad Video + Images



Vungle Dynamic Creative Ads Improving Conversion Rates, 5/17



In-Ride / In-Hand Recommendations (Uber + Foursquare) = Location + Route + Destination + Time of Day (+ an Offer)

Uber / Foursquare Partnership

In-App Recommendations for Nearby Businesses, 4/17



Hog Island Oyster Co.

1155 ratings · \$\$

Seafood · 1.1mi

"Right near the water! Get the oysters, mussels and fried anchovies. They are all super fresh and tasty"



Blue Bottle Coffee

428 ratings · \$\$\$

Coffee Shop · 1.4mi

"Latte and Snickerdoodle - delicious quick snack. Clean facility, good coffee, good service and friendly staff."

Hyperlocal Targeting (Nextdoor...xAd) = From Home (Neighborhood) to Work (Commute)

Nextdoor

Neighbors Drive Word of Mouth

+8% Engagement Lift
for Ring



xAd

Tracking Where / When Purchases
Likely to be Made



*Advertising Inefficiency =
Increasingly Exposed by Data...*

Right 'Ad' @ Right Place / Time

Right Ad @ Right Place / Time (Driven by Algorithms)...

User-Typed Input (Words)...

Linked to Relevant Ad = Google AdWords (Launched 2000)

1. User performs a search by entering search terms (keywords)

The screenshot shows a Google search for 'flowers'. The search bar contains the word 'flowers' and the search button is highlighted. Below the search bar, the results are divided into two main sections: organic search results on the left and sponsored links on the right. The organic results include links to FTD's official site, 1-800-FLOWERS.COM, and Wikipedia. The sponsored links section contains several advertisements for flower delivery services, such as 'Save \$10 On Flowers', 'Save 10% on Flowers', and 'Flowers - JustFlowers.com'. Red arrows point from the text '1. User performs a search by entering search terms (keywords)' to the search bar, and from '2. Contextually relevant Google AdWords ads appear in the Sponsored Links sections alongside or above the search results' to the sponsored links. A blue arrow points from the text 'On the left are the organic search results. AdWords does not affect search results. People cannot pay to get on the search results or better placement.' to the organic search results.

2. Contextually relevant Google AdWords ads appear in the Sponsored Links sections alongside or above the search results

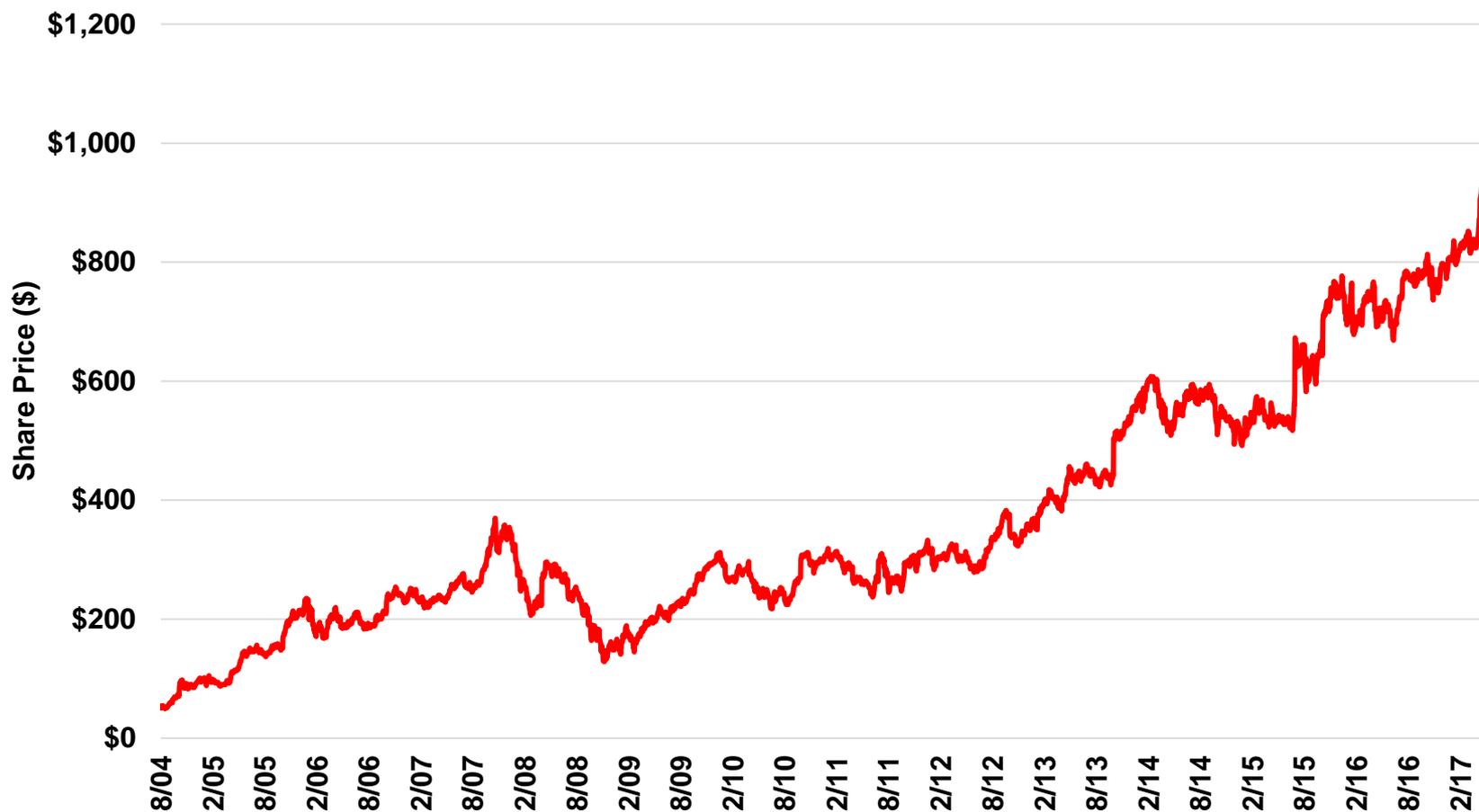
On the left are the organic search results. AdWords does not affect search results. People cannot pay to get on the search results or better placement.

...Right Ad @ Right Place / Time...

Based on *User-Typed Input (Words)* = Big Business for Google

Google = \$679B Market Capitalization

+30x vs. IPO



Source: Yahoo Finance
Note: Priced as of 5/26/17 market close. Google IPO'ed @ \$85 / share on 8/19/04.

Right Ad @ Right Place / Time (Driven by Algorithms)...

User-Uploaded Input (Real-Time Images)...

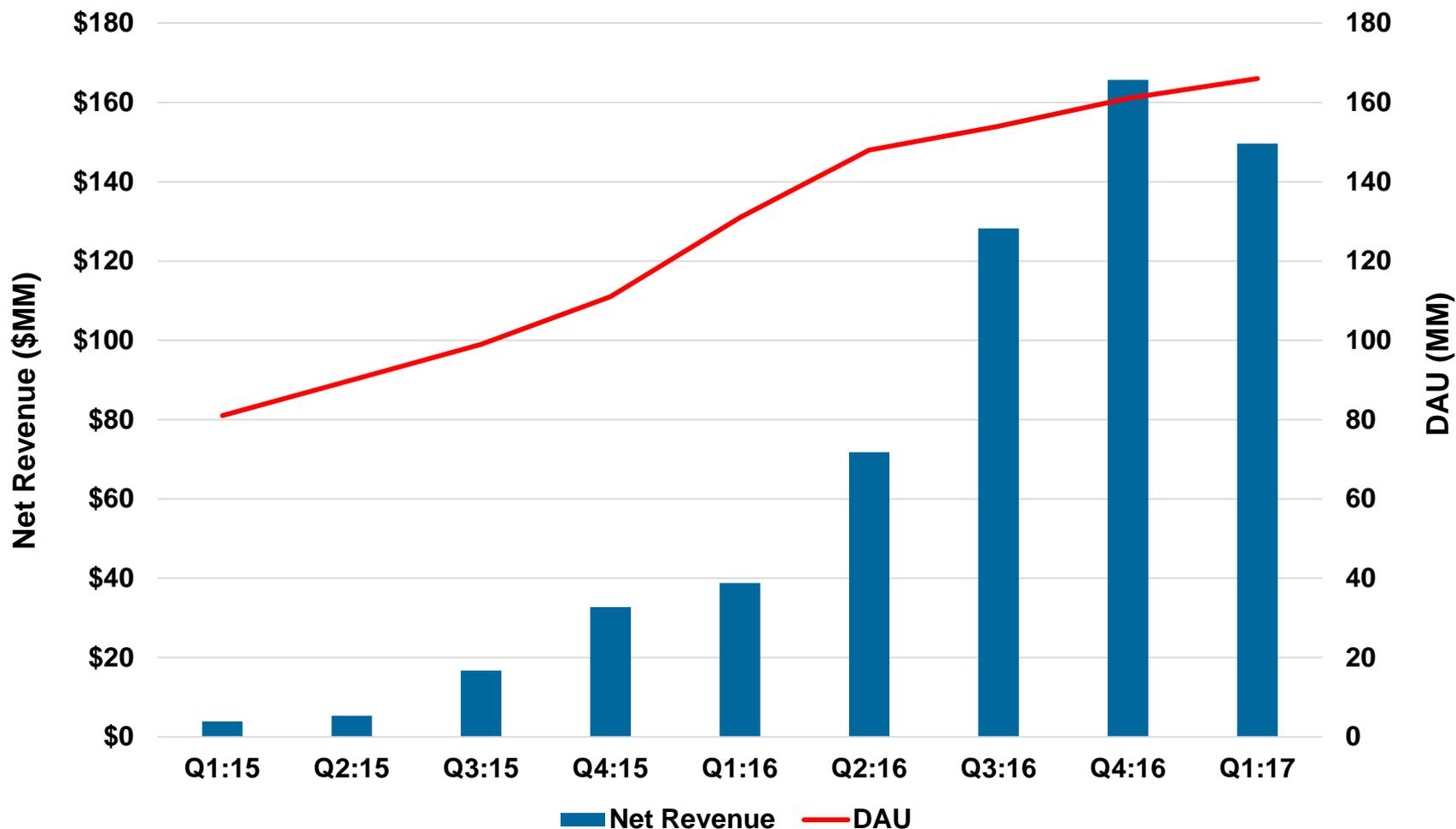
**Linked to Relevant Ad =
SnapAds (Launched 2014)**



...Right Ad @ Right Place / Time...

Based on *User-Uploaded Input (Images)* = Big Business for Snap

Snap = \$25B Market Capitalization



A lot of the future of search is going to be about pictures instead of keywords.

- Ben Silbermann, Pinterest Founder / CEO, 4/17

***Ads Evolving Rapidly =
Often Organic + Data @ Core***

Emerging Retailers + Crafty Big Brands =

*Finding Ways to Make
Collaborative Ad Creation
(Social + UGC) Work for Them...*

Brands + Consumers = Re-Distribution Driving Engagement...

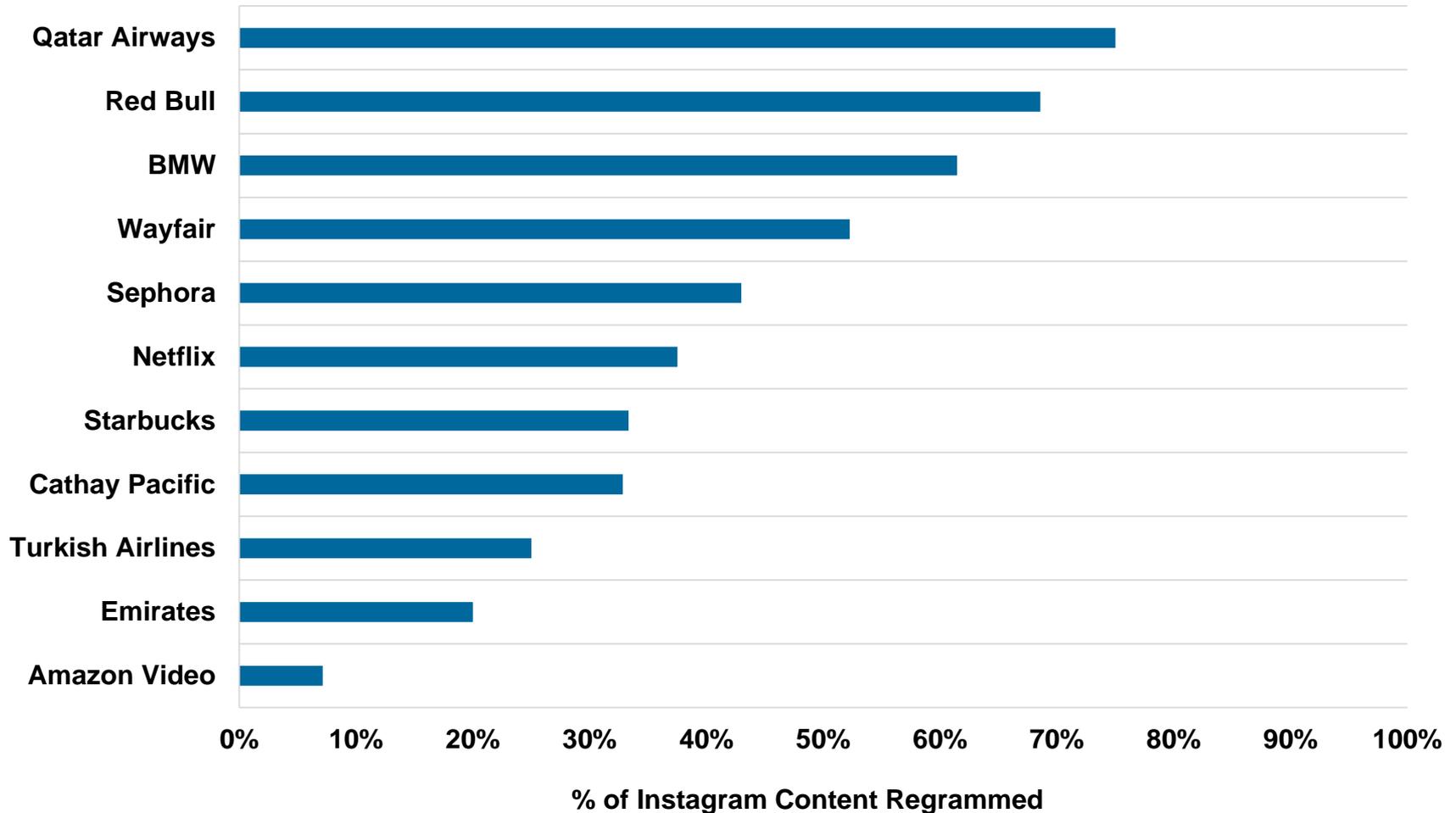
Effective UGC can generate 6.9x higher engagement than brand generated content on Facebook, per Mavrck, 2/17

Ben & Jerry's / UGC on Instagram, 5/17



...Brands + Consumers = Brands Sourcing Content from Fans...

Brands = Leveraging UGC on Instagram



Source: SimplyMeasured (11/16)

Note: Data collected from each company's Instagram page from 7/16-10/16. Posts were manually tagged for regrams based on mentions on 'regram' in the post or the camera emojis.

...Brands + Influencers = Re-Distribution Driving Engagement

Influencers = Can Impact Followers



 stancesocks [Follow](#)

44,406 likes 1w

stancesocks "Now this is a story, all about how, my life got flipped, turned upside down..."
Coming Soon ☺️ #StanceAnthem
#theuncommonthread

load more comments

jamiesonyee Dude I know!!!
@yabishzayzay

jamiesonyee So stoked!!!
@yabishzayzay

eyebrowparty @_cmacc Francis

brettrichardson0 @brooks.cx

_cmacc @eyebrowparty he already showed me this today haha

tarneajae I need these in my life
@zchizchi

mitchy.smithy @dan.watts

mitchy.smithy @lachlan.bbrown
birthday?

...Emerging Retailers + Crafty Big Brands =

*Finding Ways to Make
Images (+ Video) + Data +
Algorithms + Voice Work for Them*

Image-Based Platform *Front-Ends* = Tap + Augment Can Replace Typing...

'Front-End'

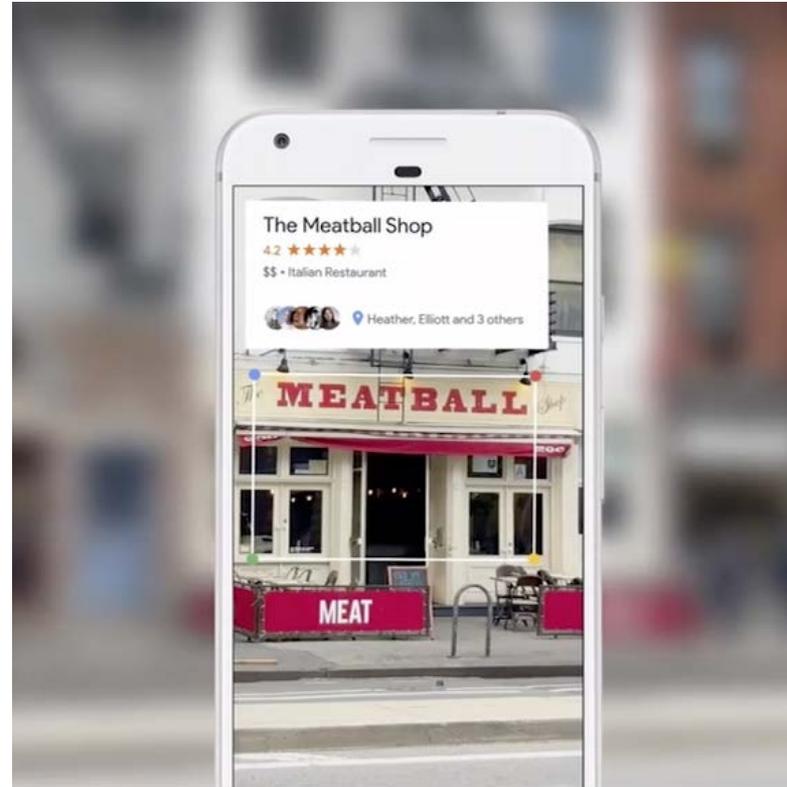
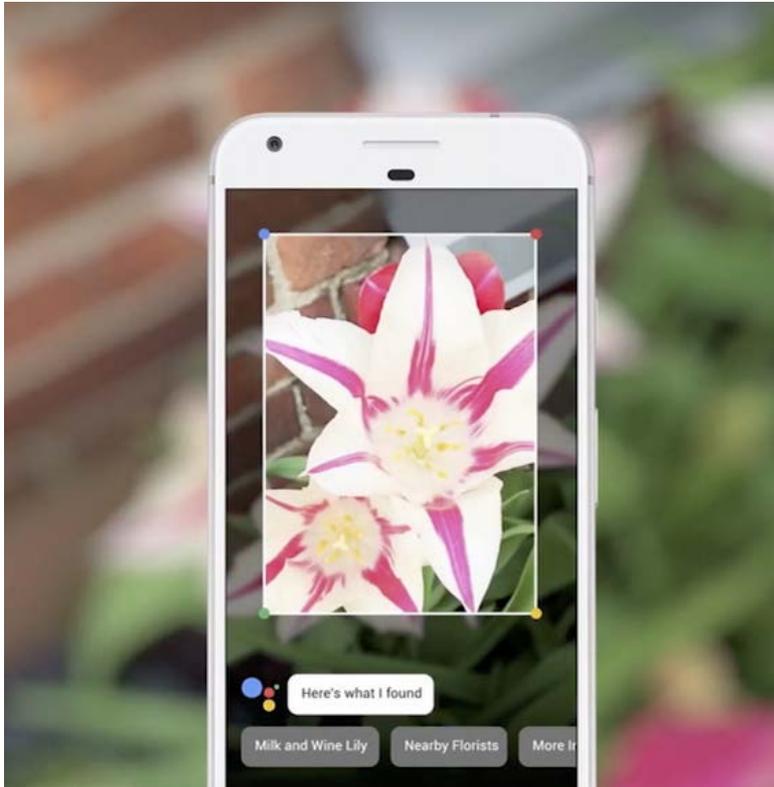
User-Generated Real-Time Geolocated Images



...Image-Based Platform *Front-Ends* = Taking Pictures Can Replace Typing...

‘Front-End’

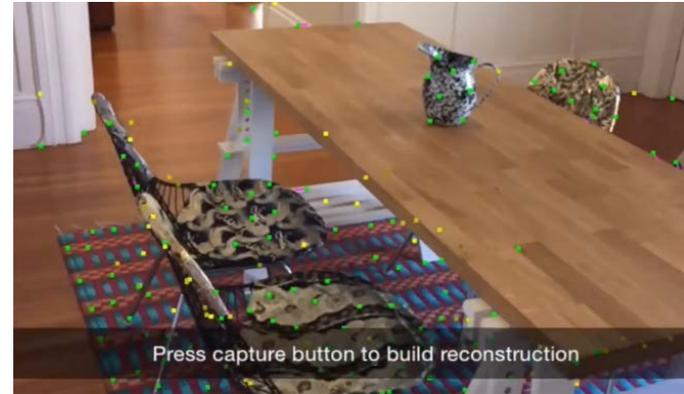
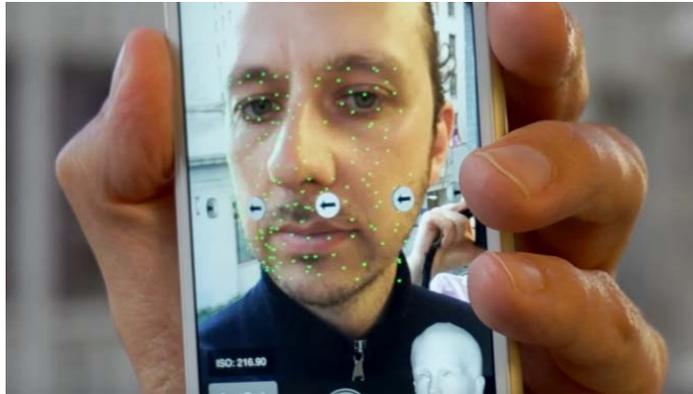
Google Lens Will Provide Greater Context to Images



...Image-Based Platform *Back-Ends* = Algorithms Infer User Context from *Images*...

'Back-End'

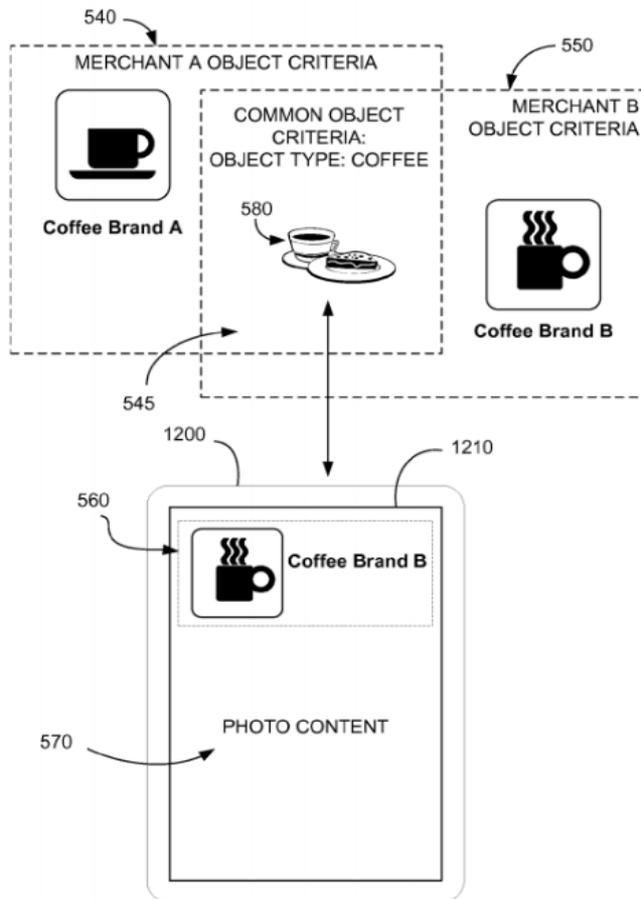
Algorithms Infer Images / Project AR Objects into Scenes



...Image Recognition *Back-Ends* = Can Provide Contextual Relevance for Advertisers

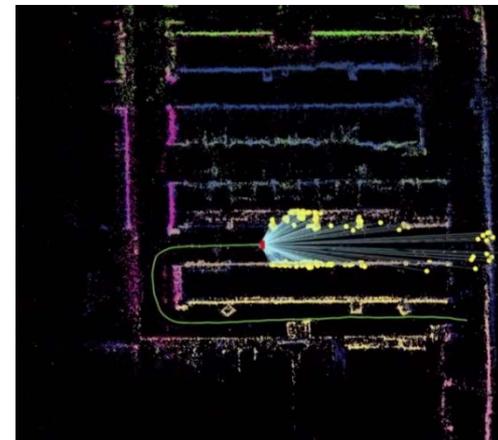
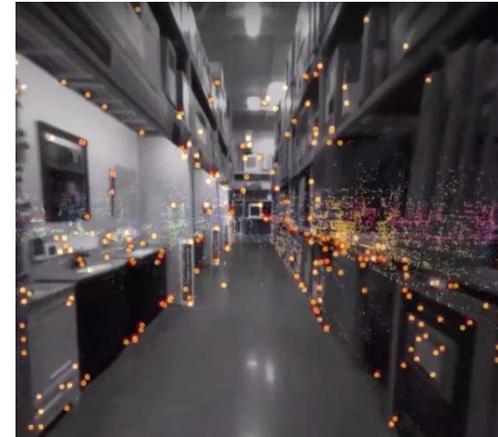
Snap Image Recognition

Potential Ad Targeting Tool



Google Visual Positioning Service

Tracking Path to Purchase...In-Store

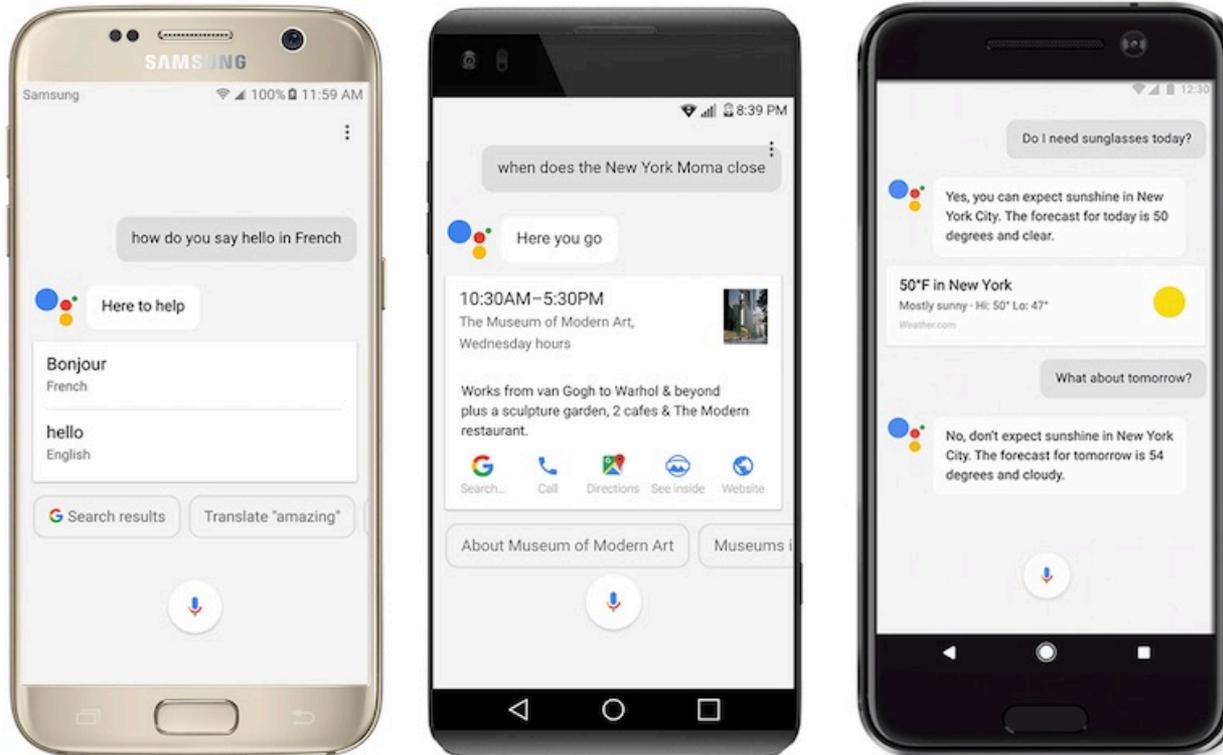


Voice-Based *Mobile* Platform *Front-Ends* = Voice Can Replace Typing...

Google Assistant

Nearly 70% of Requests are Natural / Conversational Language, 5/17

20% of Mobile Queries Made via Voice, 5/16



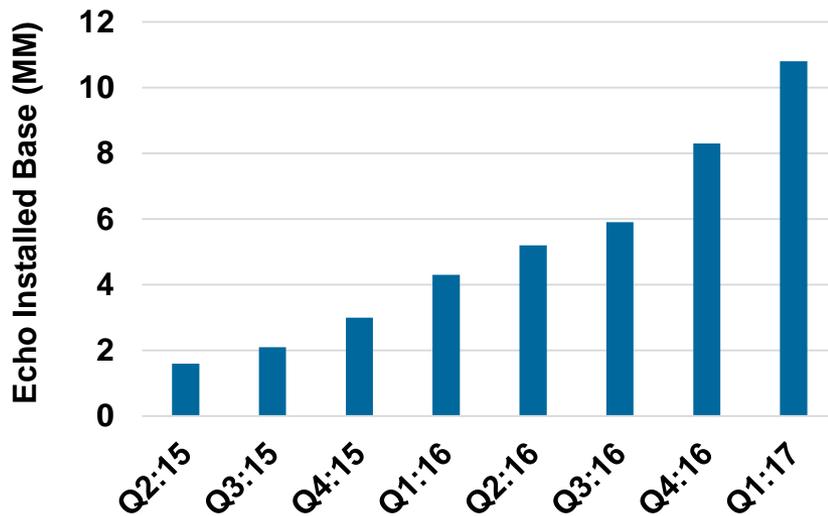
...Voice-Based *In-Home* Platform *Front-Ends* = Voice Can Replace Typing...

Amazon Echo Evolution, 11/14 – 5/17

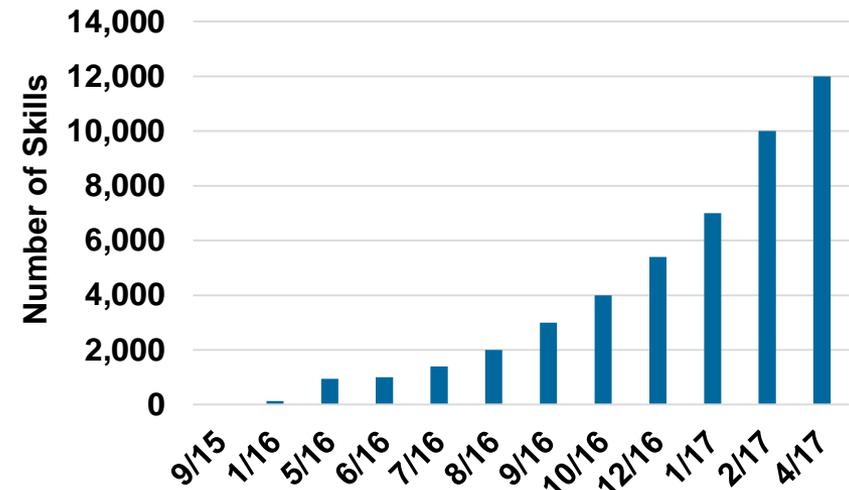


Echo = Shopping + Media
Echo Look = Shopping + Recommendations
Echo Show = Video + Voice Calls

Amazon Echo Device Installed Base, USA



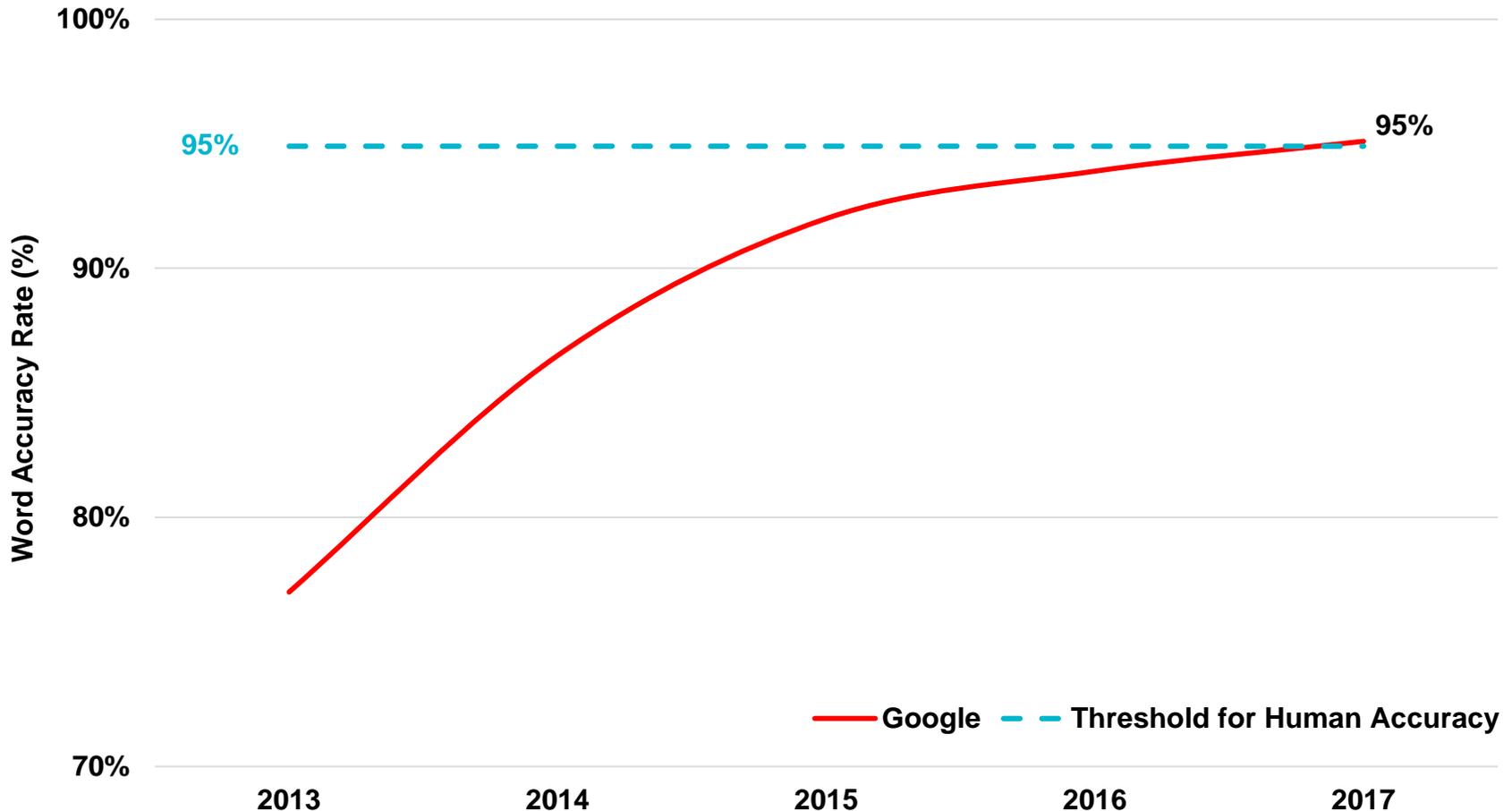
Amazon Echo Skills Broadening Use Cases



Source: Image: Amazon, Consumer Intelligence Research Partners LLC, Geekwire, Technology Review, Wired, Fast Company

...Voice-Based Platform *Back-Ends* = Voice Recognition Accuracy Continues to Improve

Google Machine Learning Achieving Higher Word Accuracy, 2013-2017



Source: Google (5/17)

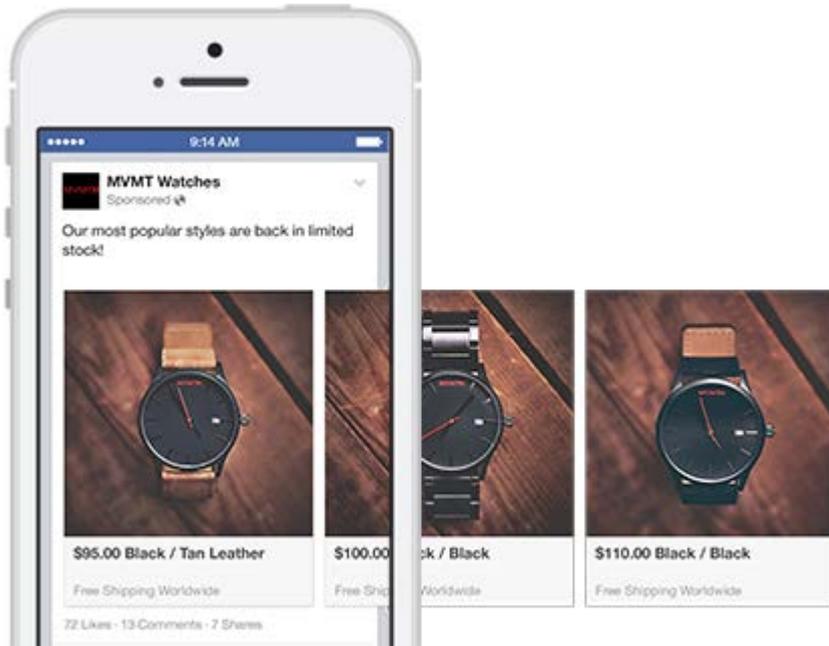
Note: Data as of 5/17/17 and refers to recognition accuracy for English language. Word error rate is evaluated using real world search data which is extremely diverse and more error prone than typical human dialogue.

***Ads =
Becoming Targeted Storefronts***

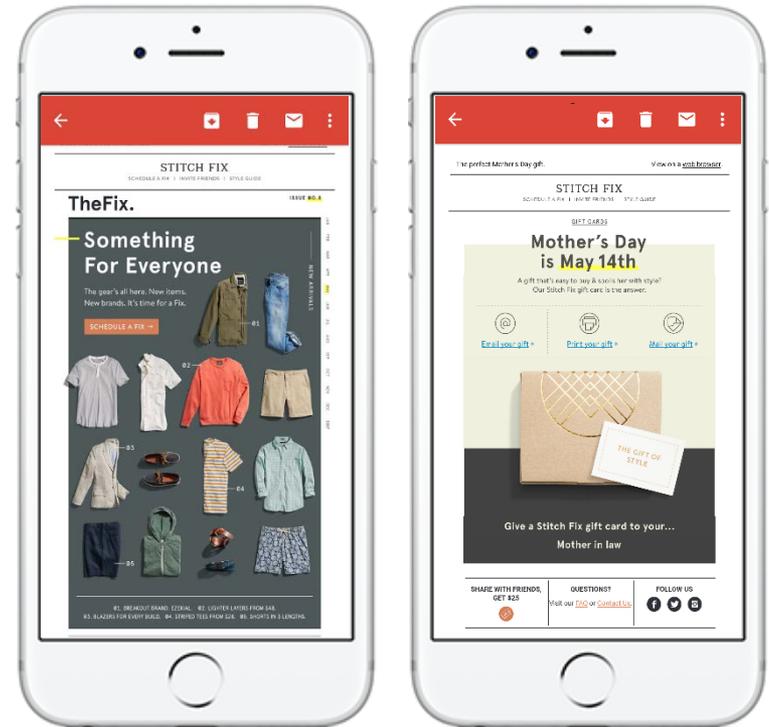
Ads / Content / Products / Transactions = Lines Blurring. Fast...

The Content = The Store

Facebook Feed
Browsable Storefronts



Emails
Curated Storefronts

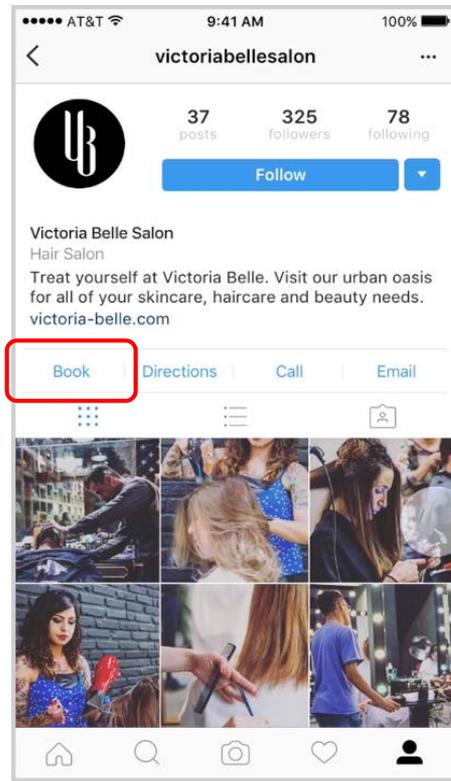


...Ads / Content / Products / Transactions = Lines Blurring. Fast.

The Ad = The Transaction

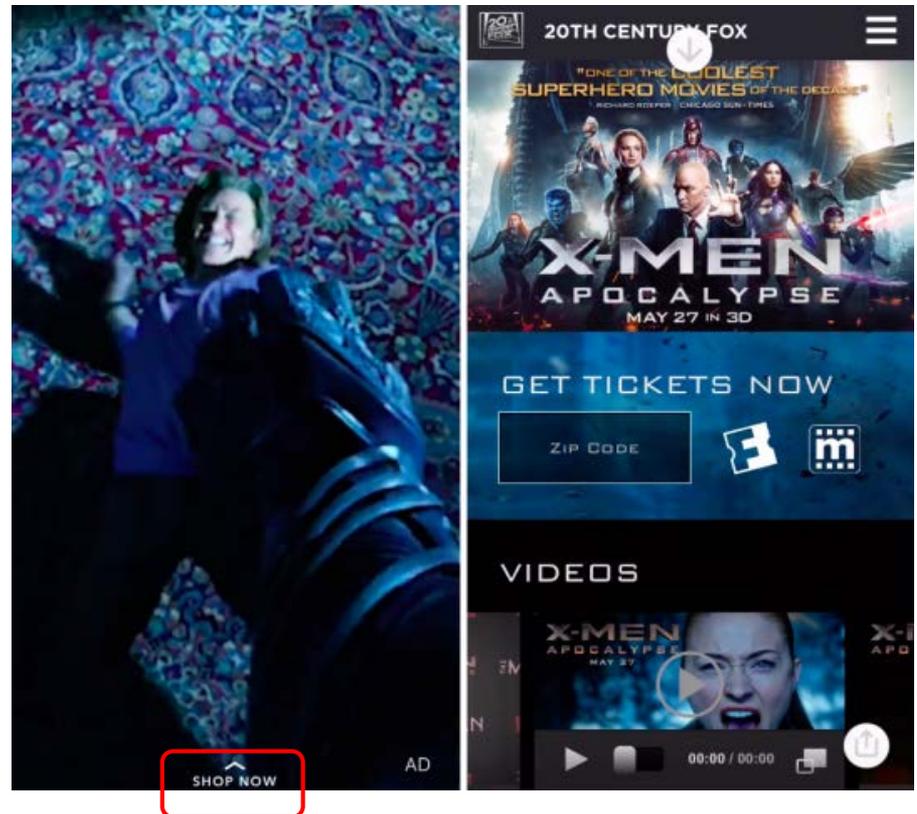
Instagram Feed

Tap to Book, 4/17



Snap eCommerce Ad

Swipe Up to Buy, 5/16



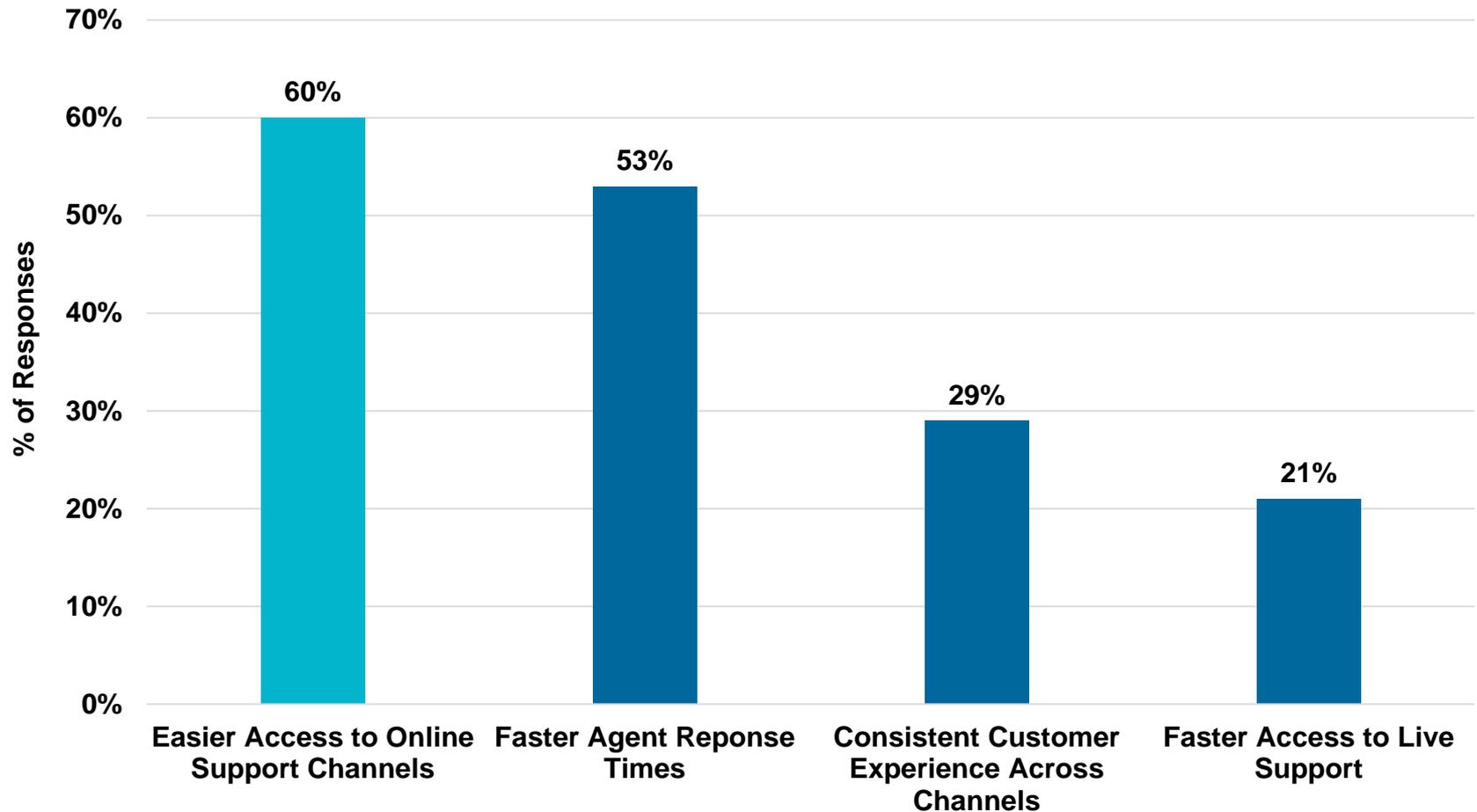
Source: Left Image: Instagram, Right Image: Snap

*Product Quality + Customer
Support + Transparency
Bars Rising =*

Owing to Social Media

Social Media = Can Provide Opportunity to Improve Customer Service...

If you could choose two things for organizations to improve in customer service, what would they be? (Select two), 8/16



Source: Ovum Get It Right: Deliver the Omni-Channel Support Customers Want (8/16)
Note: Survey of consumers ages 18-80 in Australia, Europe, New Zealand, and USA, n=400.

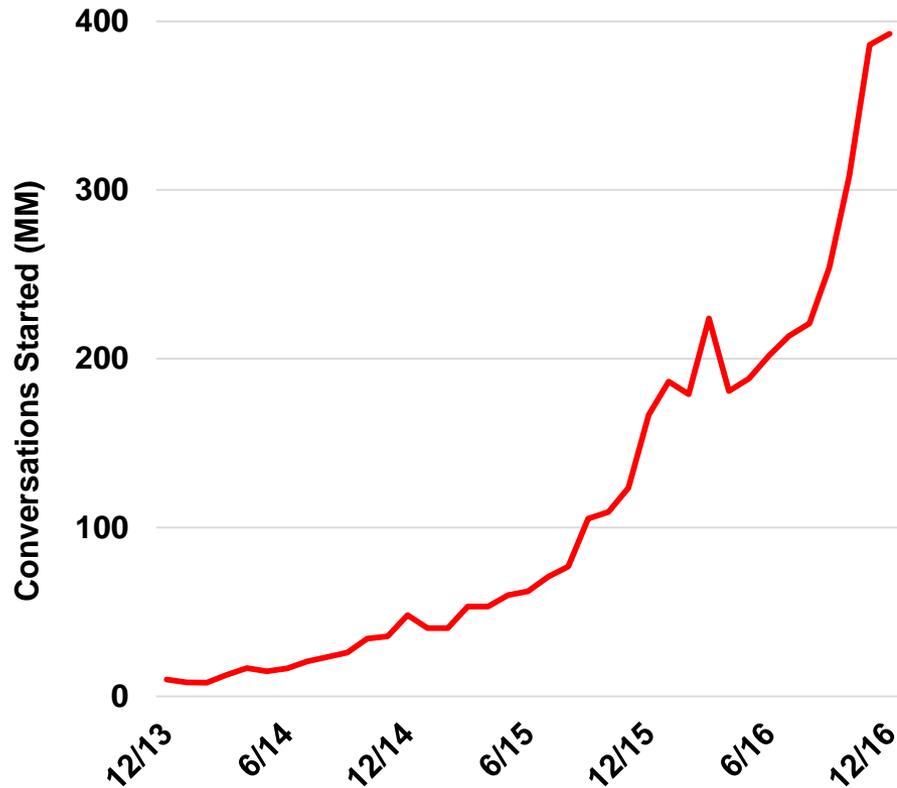
...Social Media = Can Drive Accountability...

**82% of Customers Stopped Doing Business with a Company
After Bad Experience vs. 76% in 2014, 8/16**

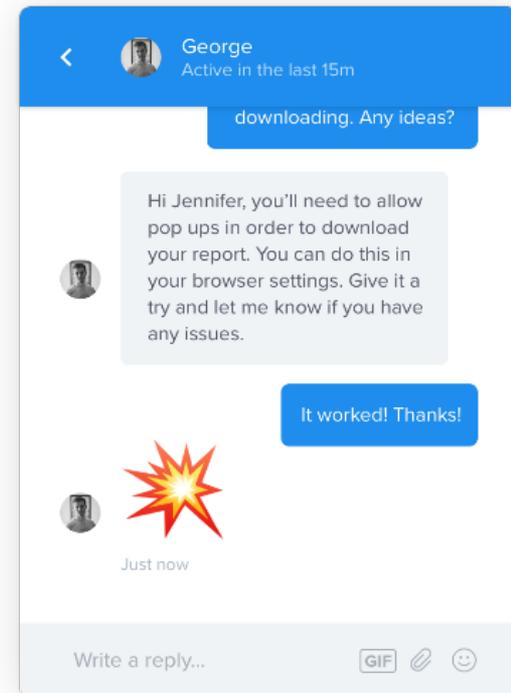


...Real-Time Online Customer Conversations = Rising Rapidly...

Intercom Conversations Started, Global, 12/13-12/16



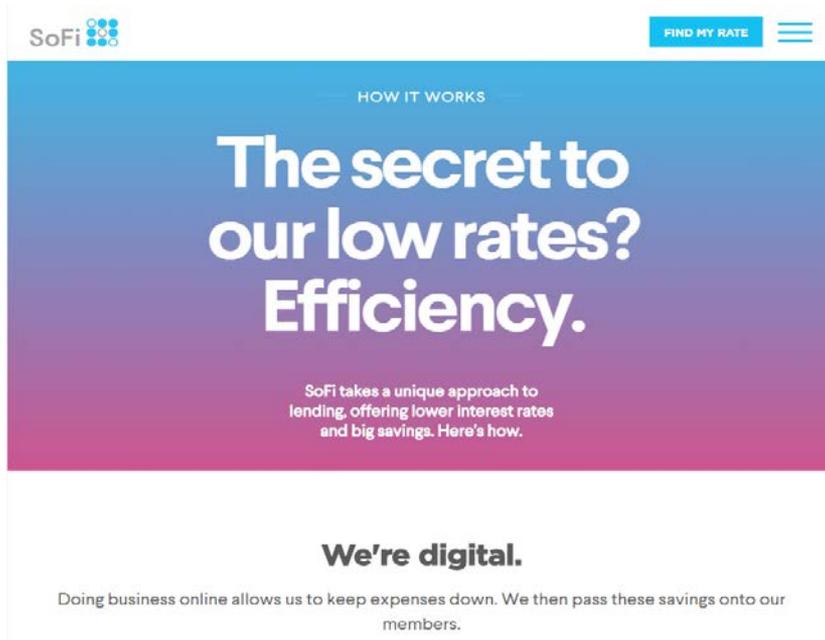
Intercom Simple + Engaging UI



Customers = Increasingly Expect to Understand How Things Work

SoFi 'How It Works'

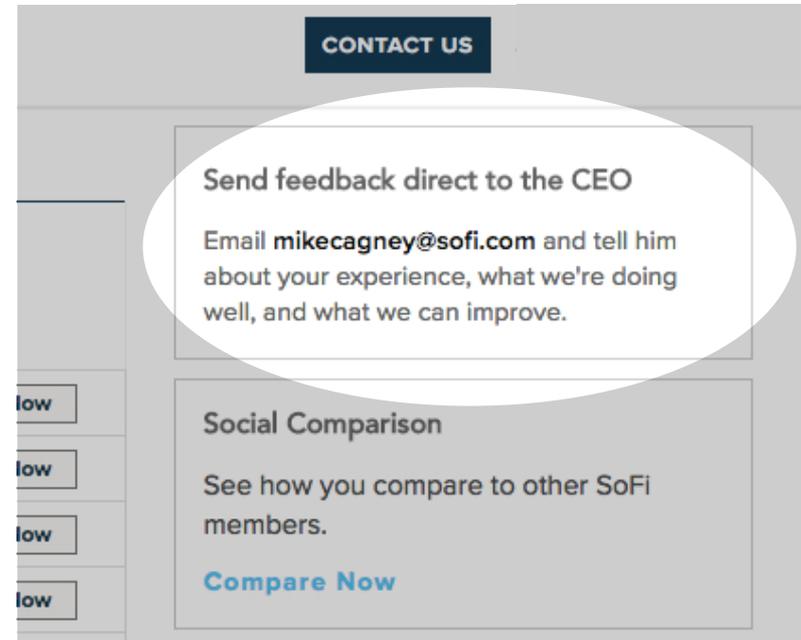
Most Viewed Content, After Home Page



The screenshot shows the SoFi 'How It Works' page. At the top left is the SoFi logo, and at the top right is a 'FIND MY RATE' button with a hamburger menu icon. The main content area has a blue-to-purple gradient background with the text 'HOW IT WORKS' at the top. Below that, in large white font, is 'The secret to our low rates? Efficiency.' Underneath, in smaller white text, it says 'SoFi takes a unique approach to lending, offering lower interest rates and big savings. Here's how.' At the bottom of the page, there is a section titled 'We're digital.' with the text 'Doing business online allows us to keep expenses down. We then pass these savings onto our members.'

SoFi Member Dashboard

Send Questions Directly to CEO



The screenshot shows a SoFi Member Dashboard. At the top right is a dark blue 'CONTACT US' button. Below it, a white oval highlights a section titled 'Send feedback direct to the CEO' with the text 'Email mikecagney@sofi.com and tell him about your experience, what we're doing well, and what we can improve.' Below this is a 'Social Comparison' section with the text 'See how you compare to other SoFi members.' and a blue 'Compare Now' button. On the left side of the dashboard, there are several 'low' labels next to what appear to be rate comparison bars.

Retailers Emerging With Especially Effective Strategies...

Chewy.com = Pet Treats / Food / Supplies... Strong User Community + Great Target Market

Engaged Community + High Customer Satisfaction



Dynamic Customer Service

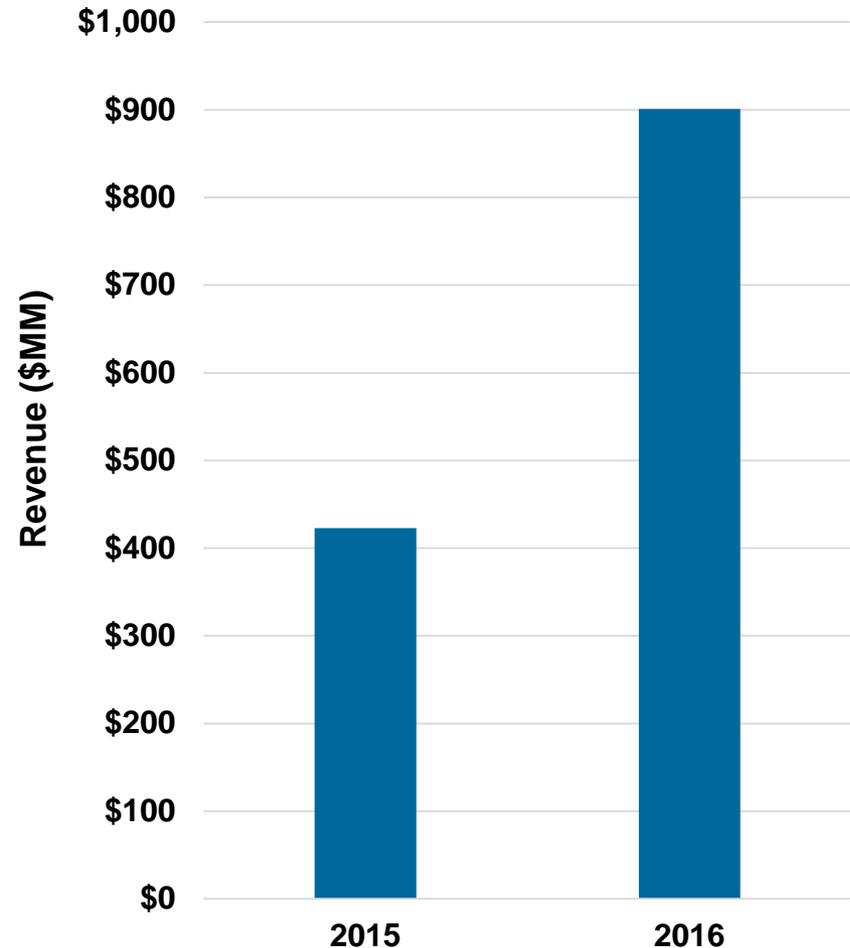


Watch and Learn



Source: Chewy.com

Strong Revenue Growth



Glossier = Skincare & Beauty Products... Content Marketing

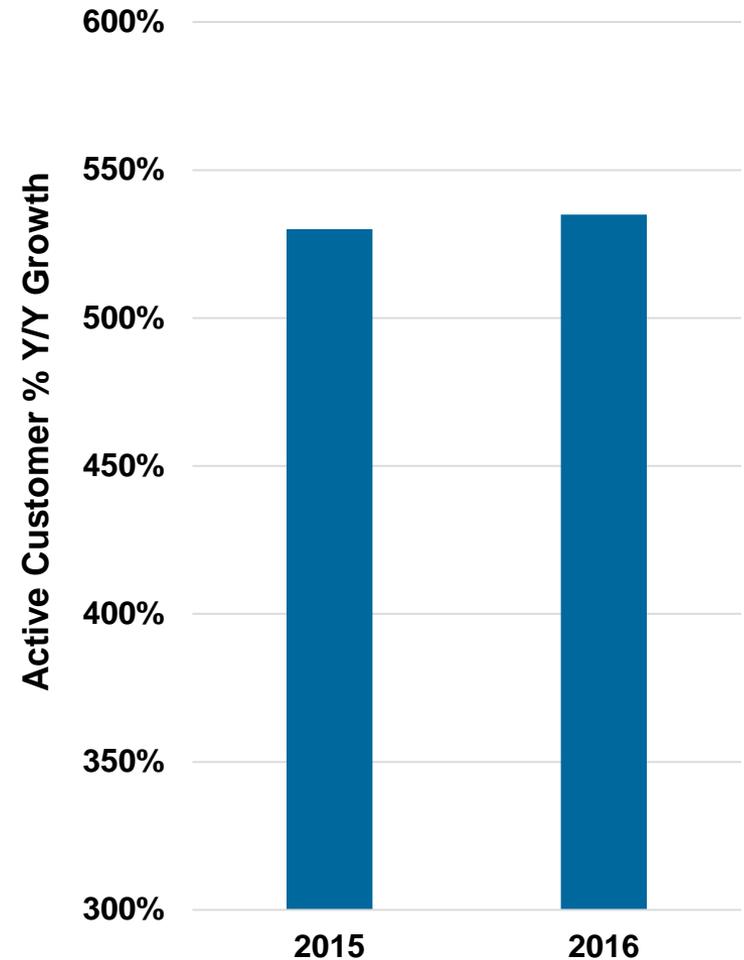
User Generated Content = Influencers



'Into the Gloss' = Content Marketing



Accelerating Active Customer Growth



UNTUCKit = Shirts... Online-Offline Synergies in Marketing + Merchandising

Digital-Physical Feedback Loop

Deliberate Branding + Clear Messaging @ Core

Offline Engagement

Direct Touchpoints in Physical World



UNTUCKit

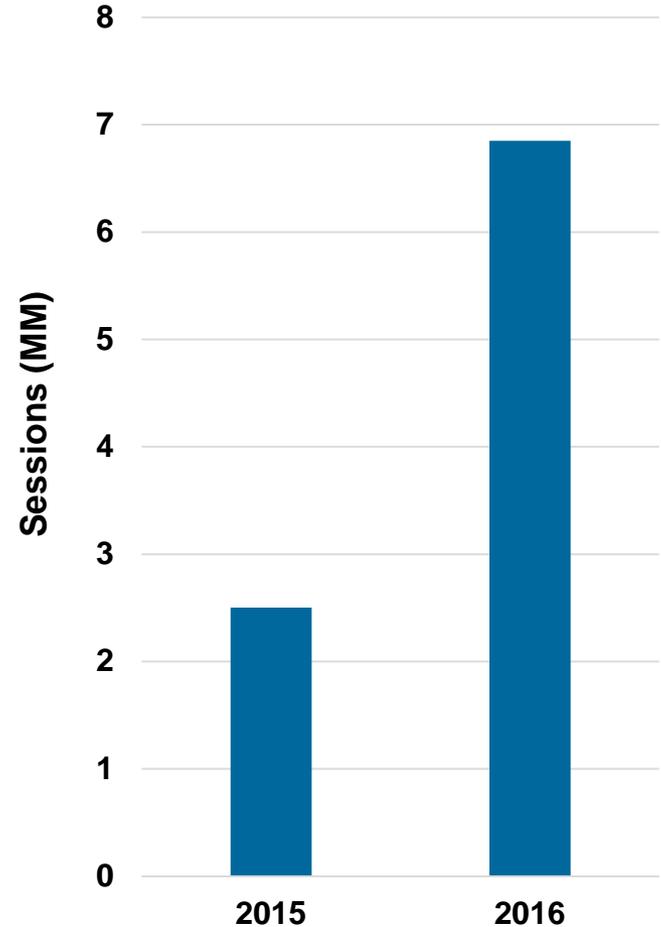


In-Store Interactions
Intimacy + Active Dialogue



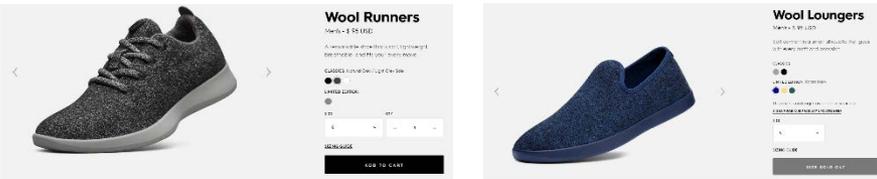
Online Storefront
Digital Merchandising Insights

Online Sessions Up >2.5x Y/Y



Allbirds = Shoes... Innovative Product + Simple Choice (Less Selection = More)

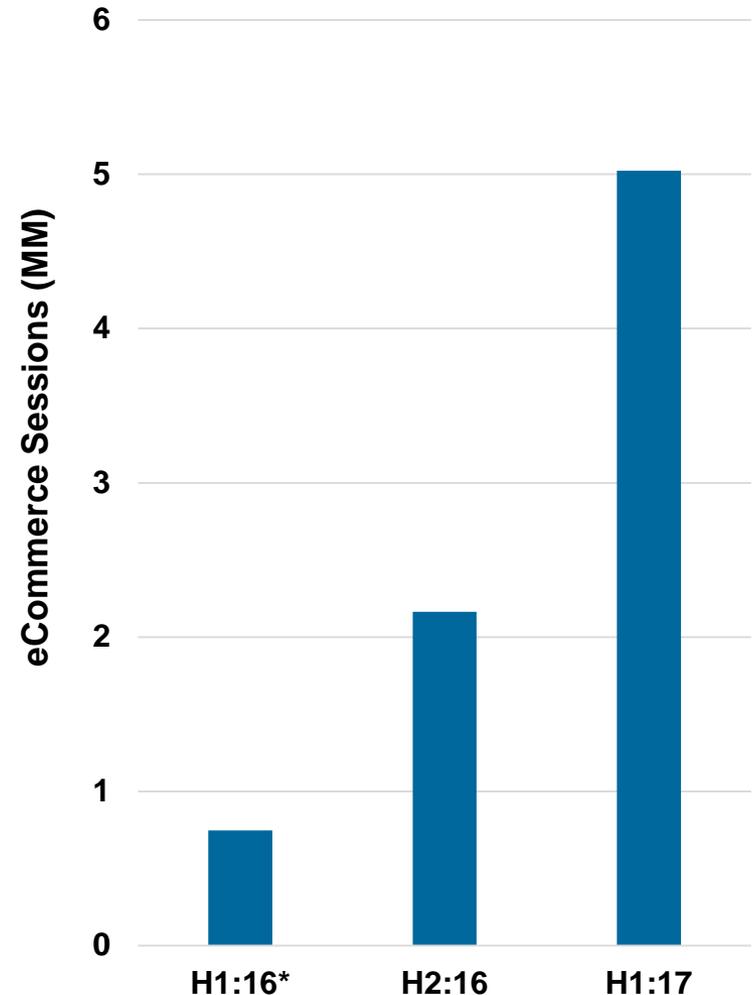
Two Comfortable, High Quality Styles



Product Changes Based on Customer Input



Growing eCommerce Sessions



Trendyol = Apparel...

Private Label + Local Sourcing for Local Consumers (Middle East)

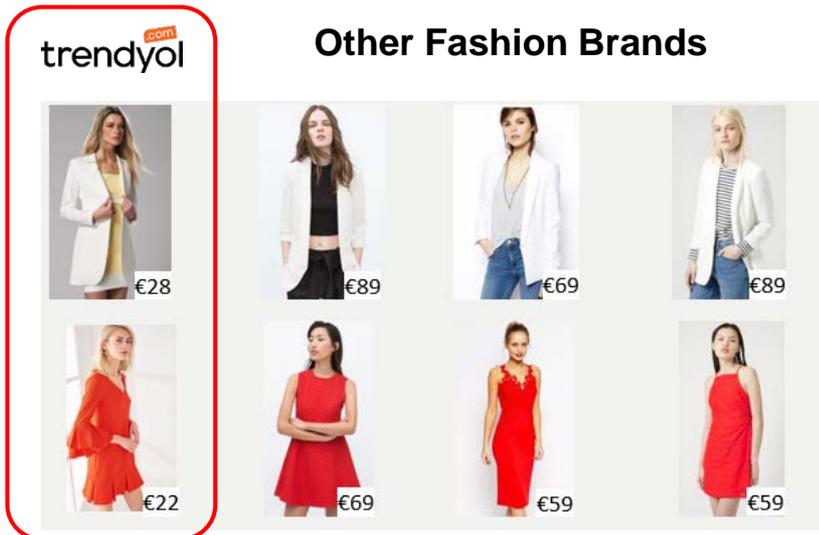
Private Label + Local Sourcing

Low Prices + Short Lead Times

~1K Suppliers 50km from Trendyol HQ

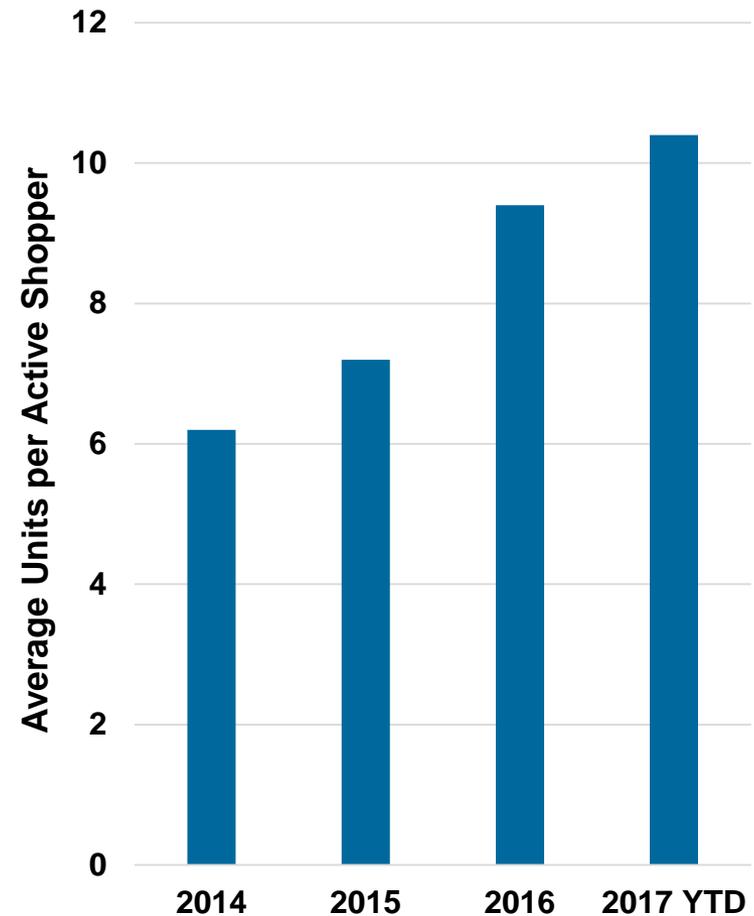
Fast Replenishment (7-10 days)

Private Label @ 38% of Revenue



High Purchase Re-Engagement

Items Purchased per Shopper Continue to Rise



MM.LaFleur = Women's Professional Wardrobe... Relationship-Driven Experience (Online & Offline)

Wardrobe Survey Algorithmic Optimization

What's your typical weekday dress code?

Business Formal	Business Casual
Casual	Fashion-forward



Bento Box
Curated Impressions

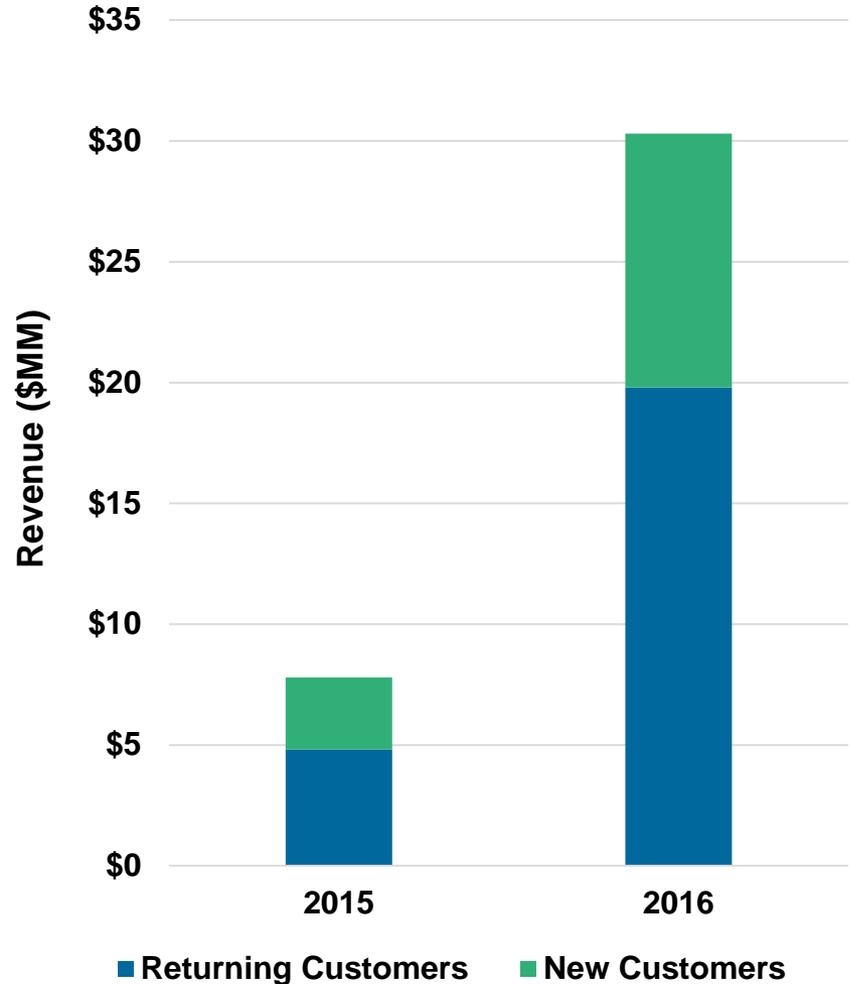
Online Shopping
Ongoing Customer Engagement



In-Store Stylist Appointments
Human Touch + Active Dialogue



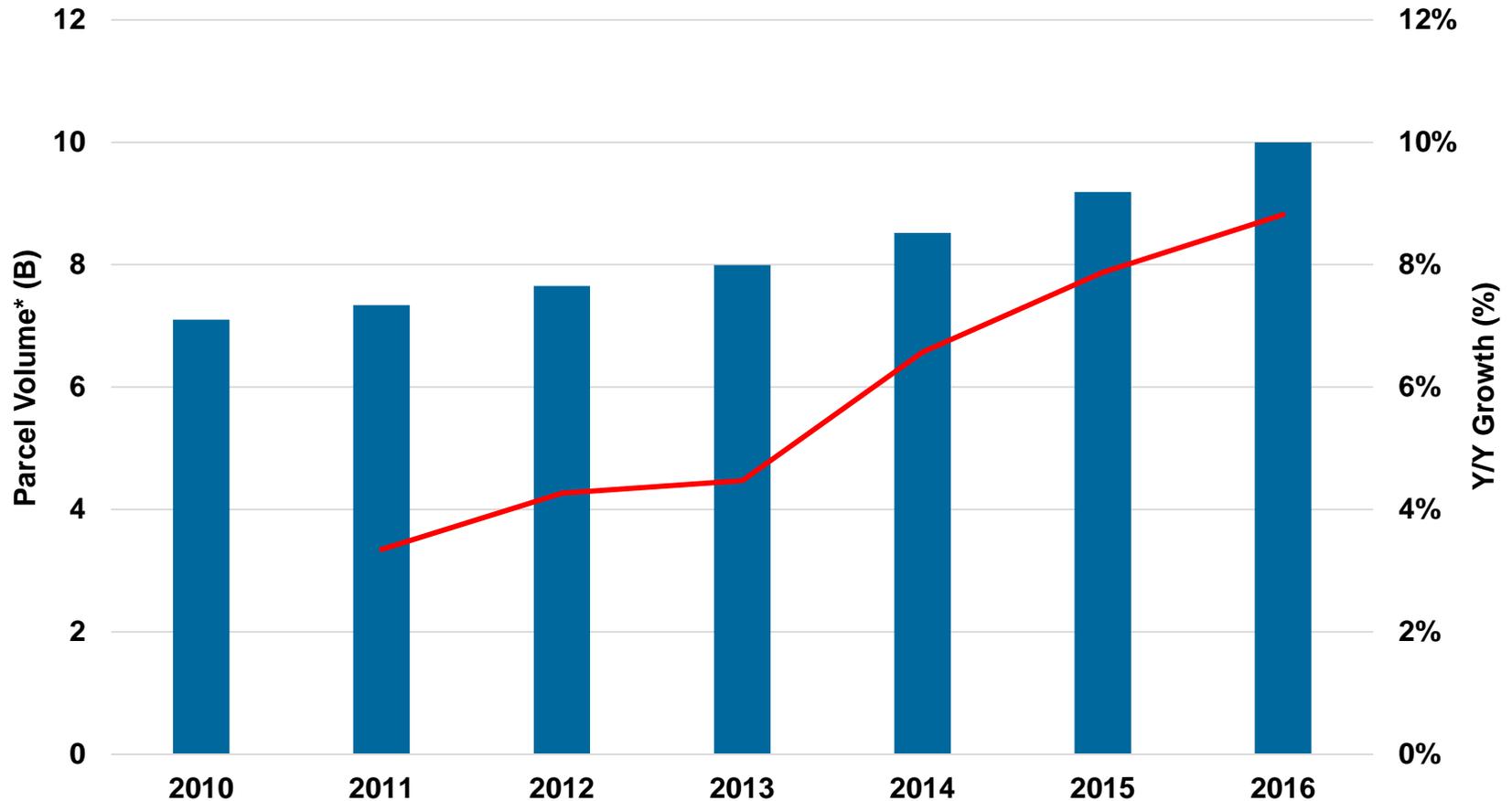
High Growth + Retention



eCommerce A-Ha's

If It Seems Like Package / Parcel Growth is Accelerating... It's Because It Is, +9% Y/Y...

Parcel Volume*, USA, 2010-2016



...Apartment Building Lobbies Becoming Warehouses... Doormen Becoming Foremen...

Landlords

Expanding Package Rooms to Accommodate Rising Online Order Delivery



...Unwrapping Boxes... Becoming Entertainment...

Unboxing YouTube Top 5 Channels = 33MM+ Subscribers, 5/17



...Eating Out is... Increasingly Eating In...

Top 10 DoorDash San Francisco Bay Area Restaurants

Delivery as % of Revenue = 7% vs. 2% (2015)
Revenue Growth = +45% Y/Y vs. 10% (2015)

Eating Out



Eating In

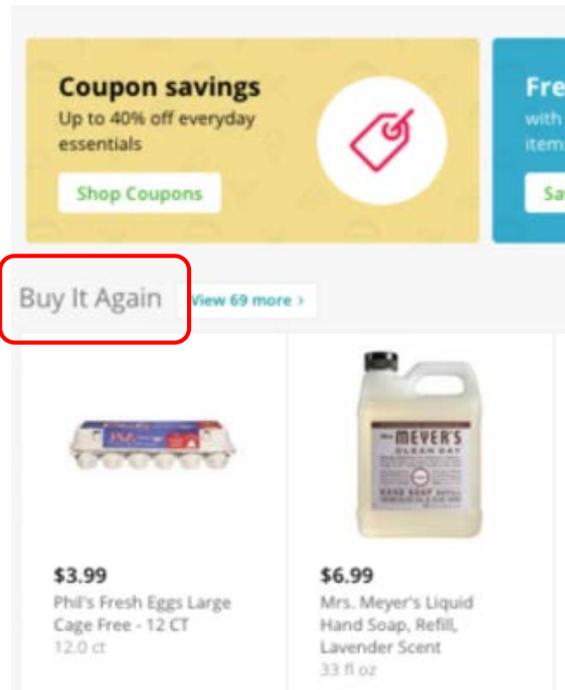


...Grocery Shopping... Getting Personal / Fast / Easy...

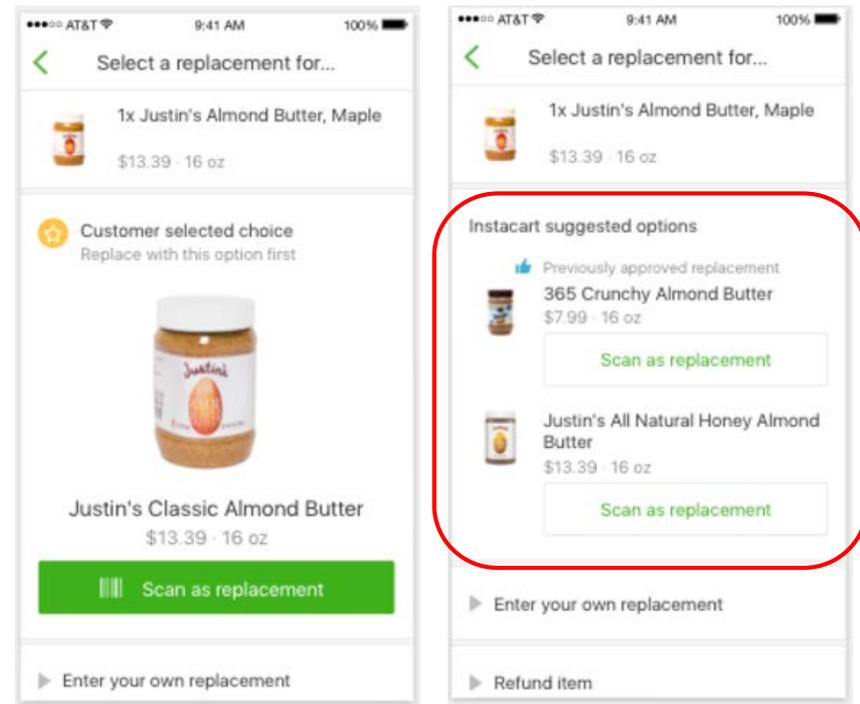
Instacart = Personalized Grocery Recommendations

8x More Likely to Buy

When Prompted with
'Buy It Again' Option



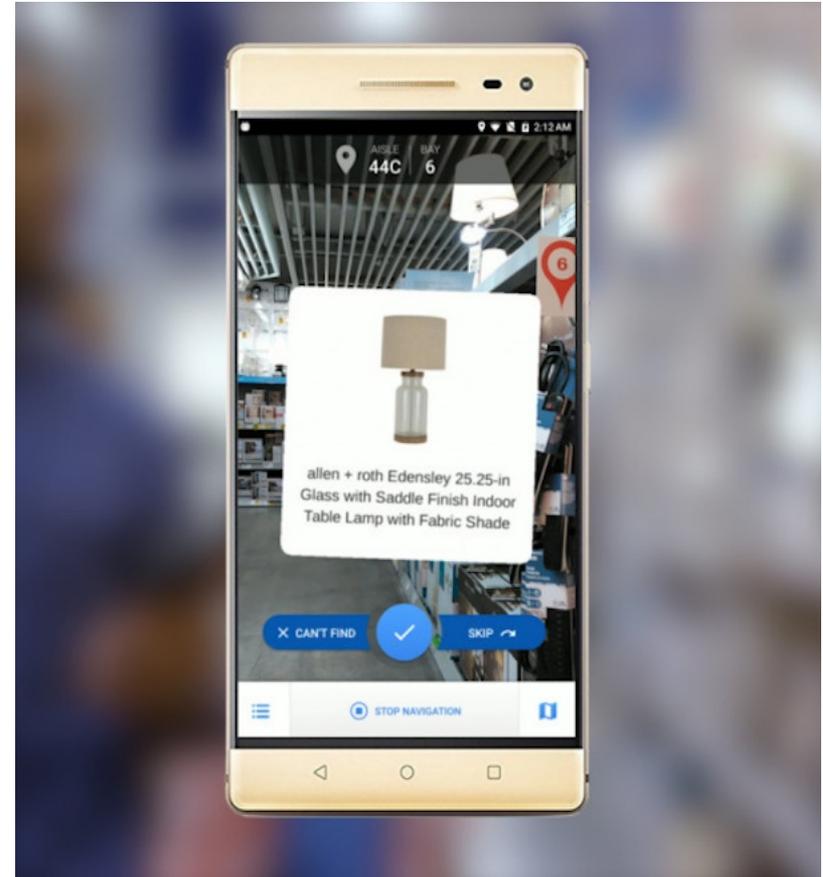
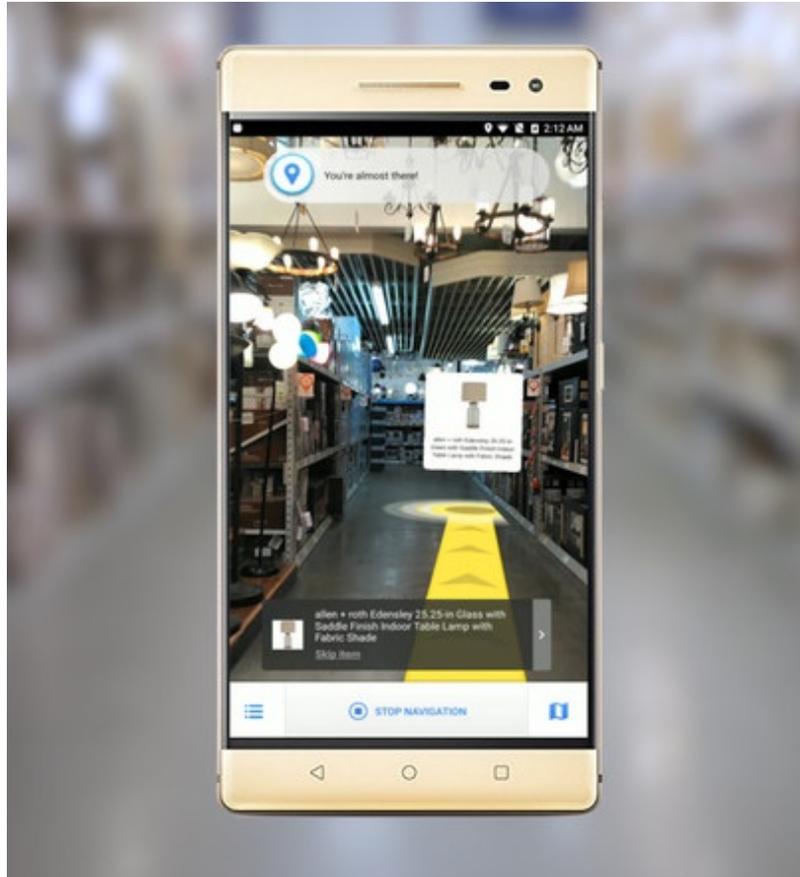
85% of In-Store Replacements... Chosen Based on Algorithmic Recommendations



...Lowe's Doing Augmented Reality... Helping Consumers Find Products In-Store...

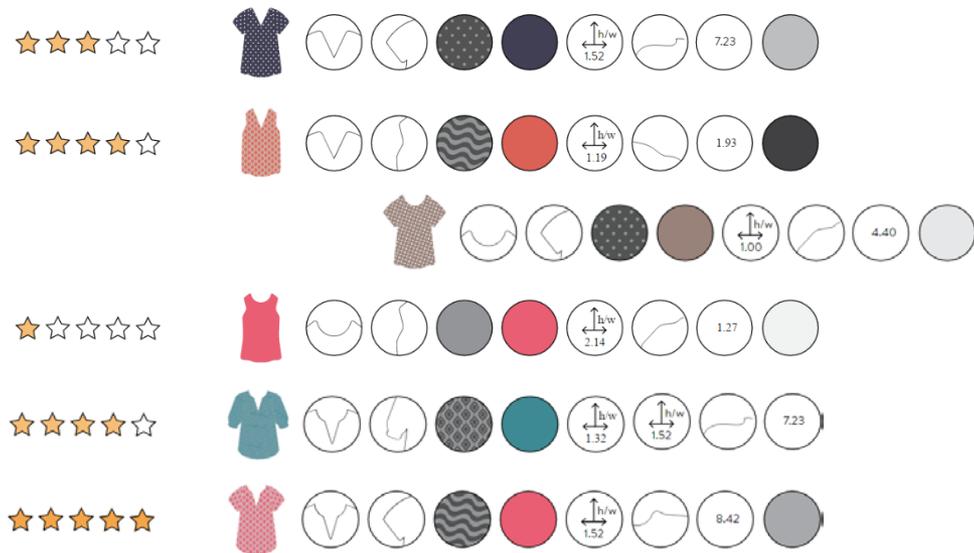
Lowe's / Google Partnership

Guides Customers to In-Store Items via Augmented Reality on Mobiles, 3/17



...Stitch Fix Launching Another Private-Label Clothing Brand &... It's Computer-Generated (1% of Products for Now)...

Product Attributes + Customer Feedback + Data Science / Testing New Style, 5/17

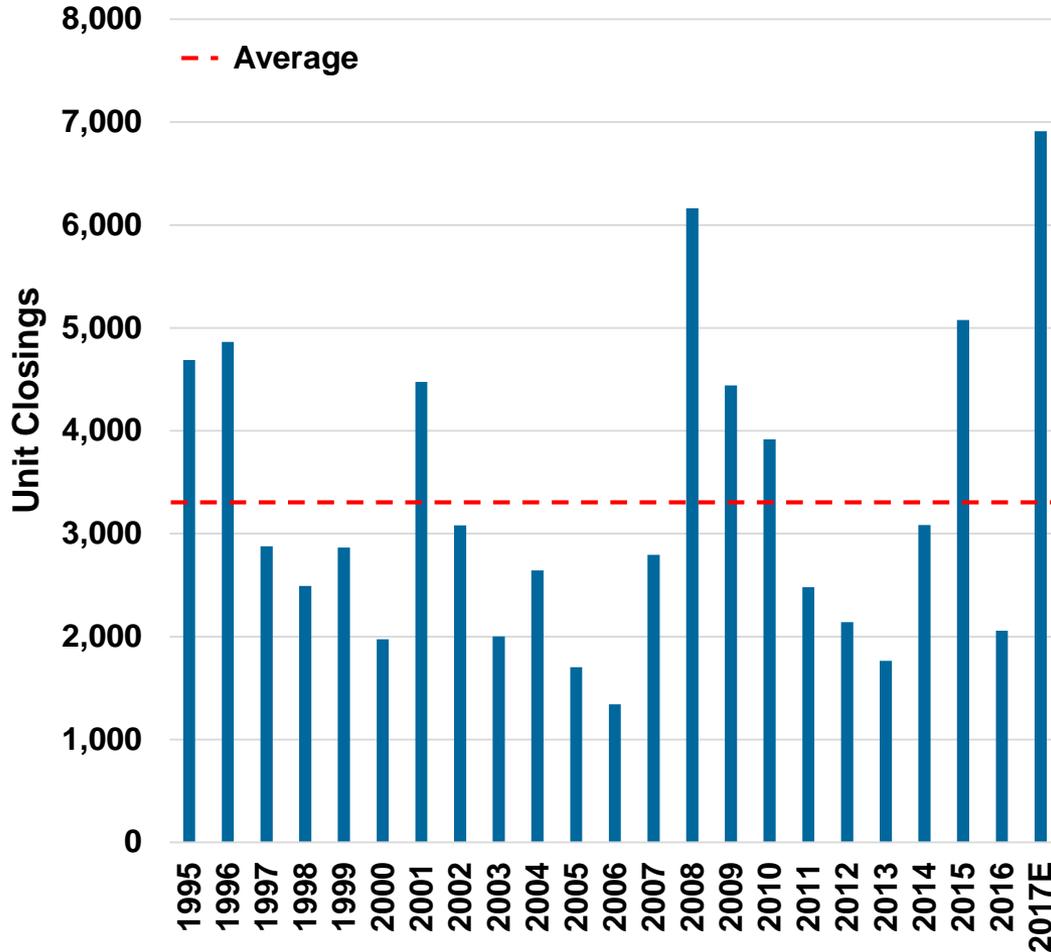


Cassie Crochet Detail Top



...Retail Store Closings May Break 20 Year Record While... Amazon Opens Retail Stores...

Retail Unit Closings, USA, 1995-2017 YTD



Source: Credit Suisse, Amazon
Note: 2017 is YTD as of 4/6/17. 2017 estimate per Credit Suisse.

Amazon Looks to Expand its Physical Footprint



...Digitally Native Brands = Go Offline...

I don't think retail is dead. Mediocre retail experiences are dead.

- Neil Blumenthal, Co-CEO @ Warby Parker, 1/17

Warby Parker
Schedule Eye Exams...Buy Glasses



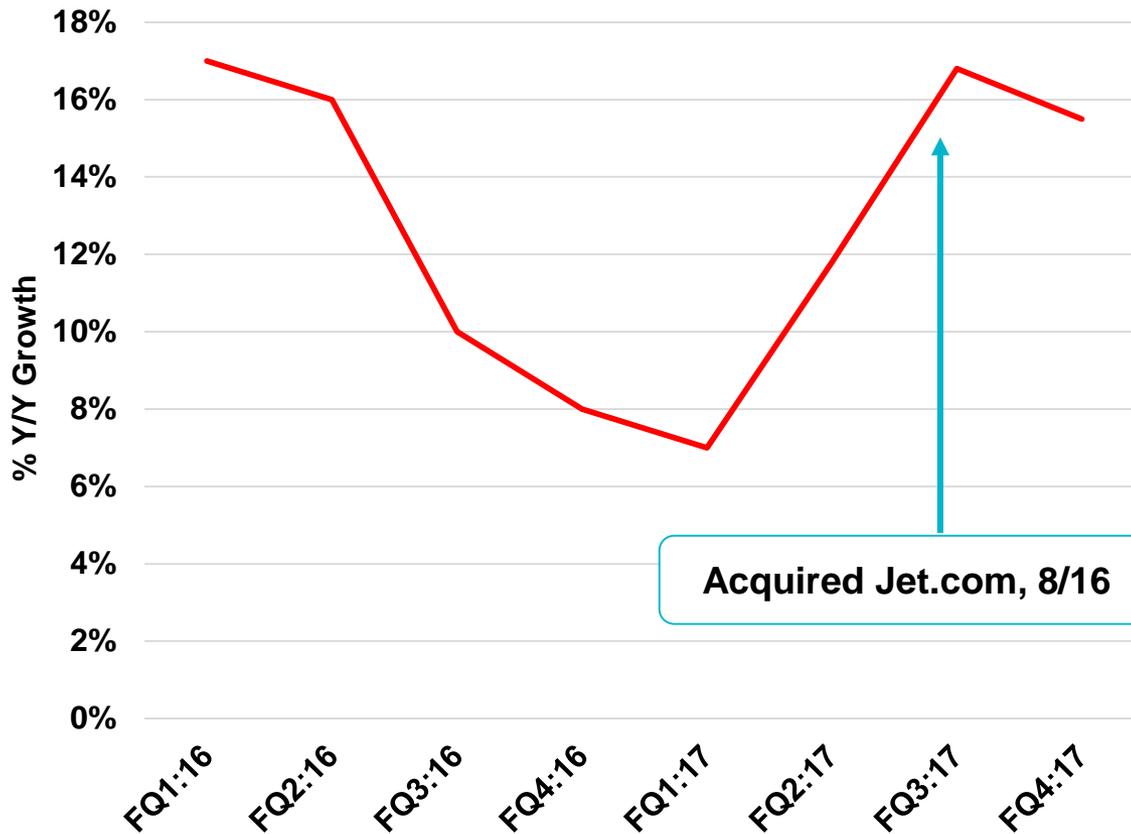
Bonobos Guide Shops
Try On In-Store...Ship to Home



...World's Largest Offline Retailer (Wal-Mart)... Getting Aggressive Online...

90% of Americans Live Within 10 Miles of a Wal-Mart

Wal-Mart eCommerce Revenue Y/Y Growth, Global



Organic + Inorganic Growth

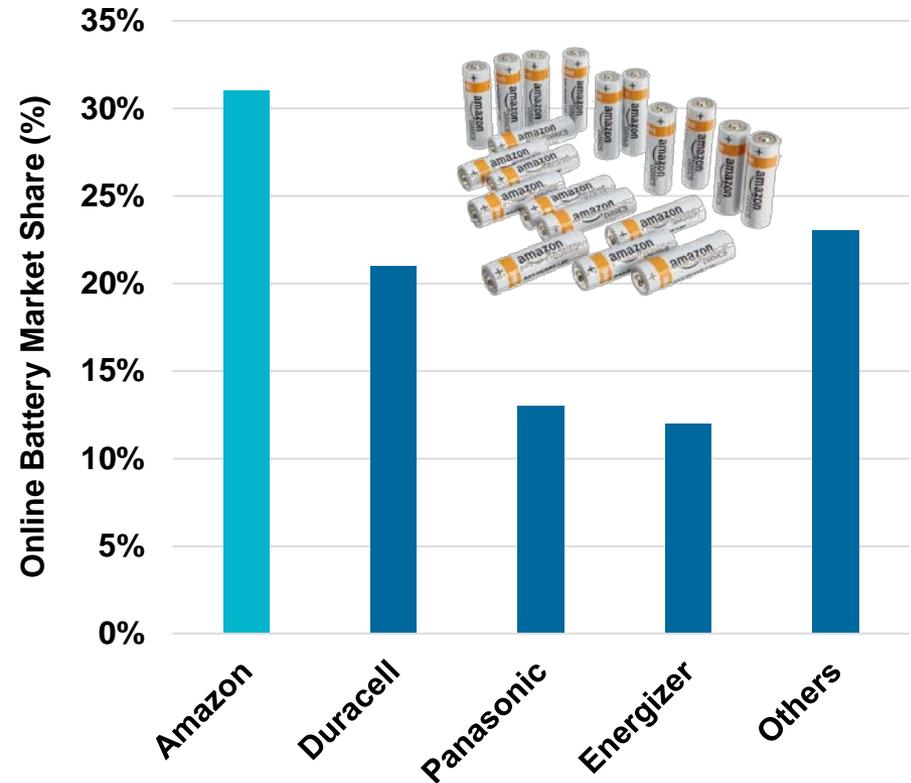
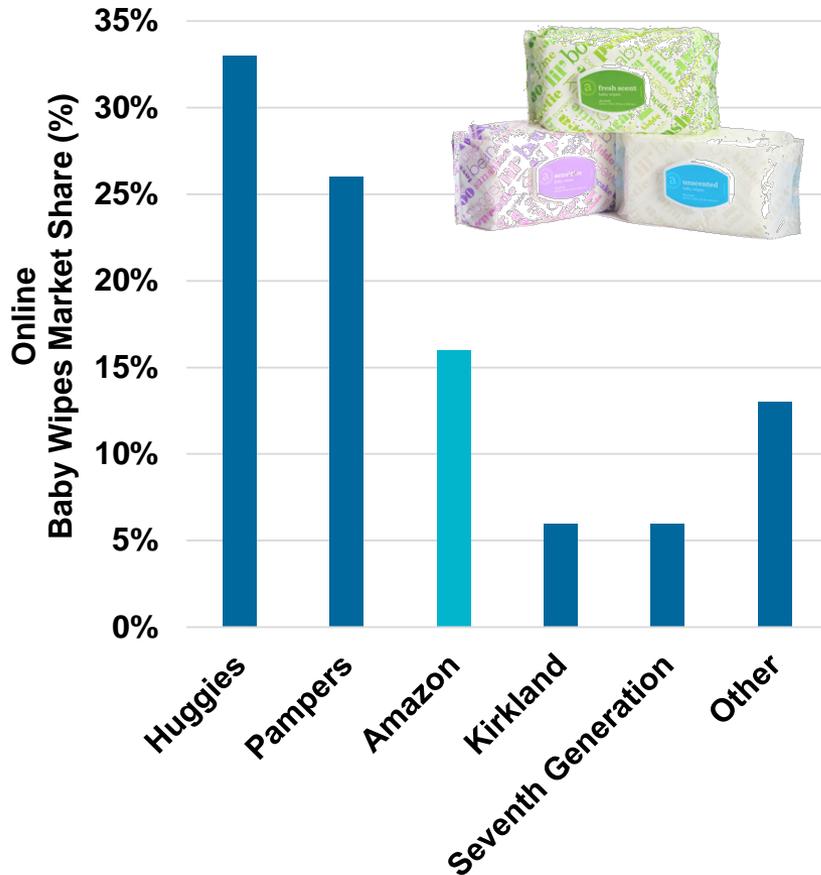
FQ1:18 eCommerce Revenue Growth @ 63% Y/Y vs. 29% FQ4:17, USA

Recent Acquisitions & Investments

Modcloth.com, 3/17
Moosejaw, 2/17
JD.com (Increased to 12%), 2/17
Shoebuy, 1/17

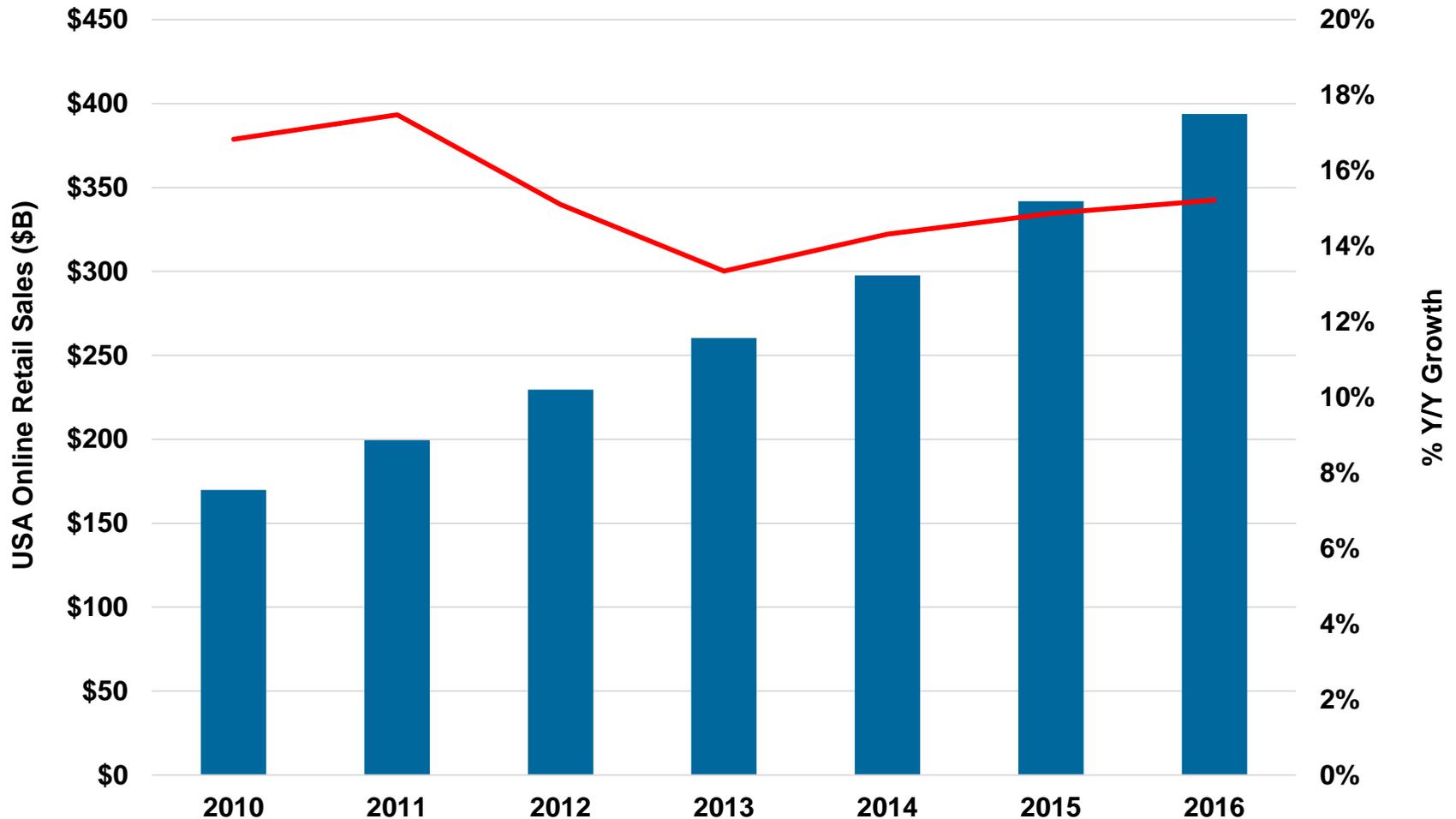
...Amazon Becoming a Leading Private-Label Supplier of... Baby Wipes + Batteries, USA...

Amazon Basics Market Share, 8/16 USA



...eCommerce Growth = +15% Y/Y... Accelerating, Again, USA...

Online Retail Sales vs. Y/Y Growth, USA 2010-2016



Source: St. Louis Federal Reserve FRED Database

...And Now We Have a New Kind of Store = A Subscription Store

Amazon Subscription Store = Central Hub for Monthly Services, 4/17



More / Faster Than Ever =

Great Products Find Customers...

Customers Find Great Products...

***Process + Data Collection + Intermediaries =
Changing @ Torrid Pace...***

Online Advertising (+ Commerce) = Increasingly Measurable + Actionable

- 1) **Ad Growth** = Driven by Mobile
- 2) **Ad Measurability** = Can Be Triple-Edged
- 3) **Ads Evolving Rapidly** = Often Organic + Data @ Core
- 4) **Ads** = Becoming Targeted Storefronts
- 5) **eCommerce Growth** = Accelerating, Again
- 6) **eCommerce A-Ha's...**

INTERACTIVE GAMES =

MOTHERLODE OF...

**TECH PRODUCT INNOVATION / EVOLUTION +
MODERN LEARNING**

WITH THANKS TO BING GORDON FOR INSIGHT + INSPIRATION

***Global Interactive Gaming =
Mainstream / Evolving Rapidly /
Still Early Days...***

2.6B Gamers* vs. 100MM in 1995

Gaming Evolution = Individual Play → Global Collaborative Play (1967-2017)...

**Moore's Law
(Processing)**

**Zuckerberg's Law*
(Sharing)**

**1 Player =
Arcade**



**2 Players =
Consoles**



**2+ Players =
Consoles +
LAN**



**Millions of
Players =
Online
Network**



**Millions of
Players +
Spectators =
eSports**



Solo – Living Room...

**...Many – Arena (Thousands)...
Online (Millions)**



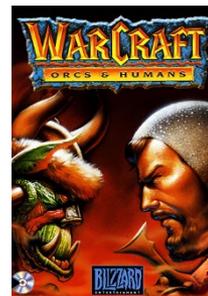
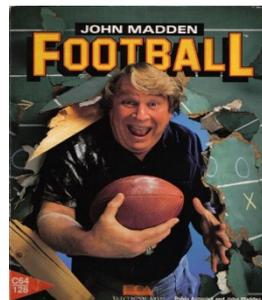
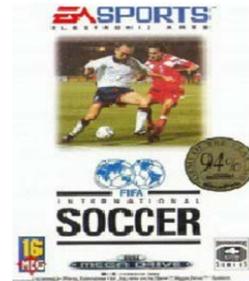
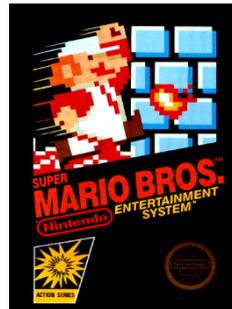
45 Years



...Gen X + Millennials = Gamified Since Birth

Gen X

Millennials



1970

1980

1990

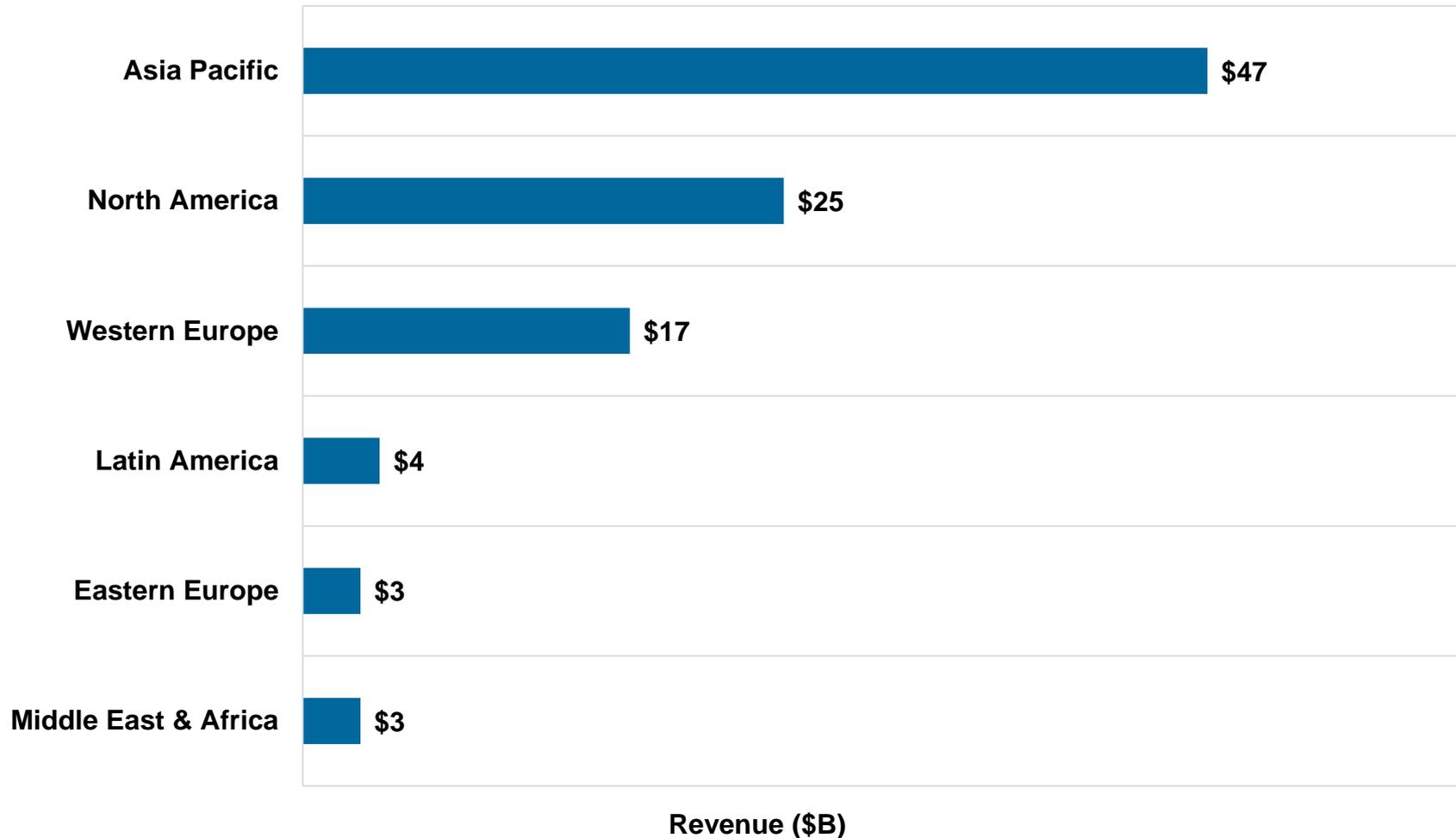
2000

2010

Gaming = Large + Broad + Growing Business...

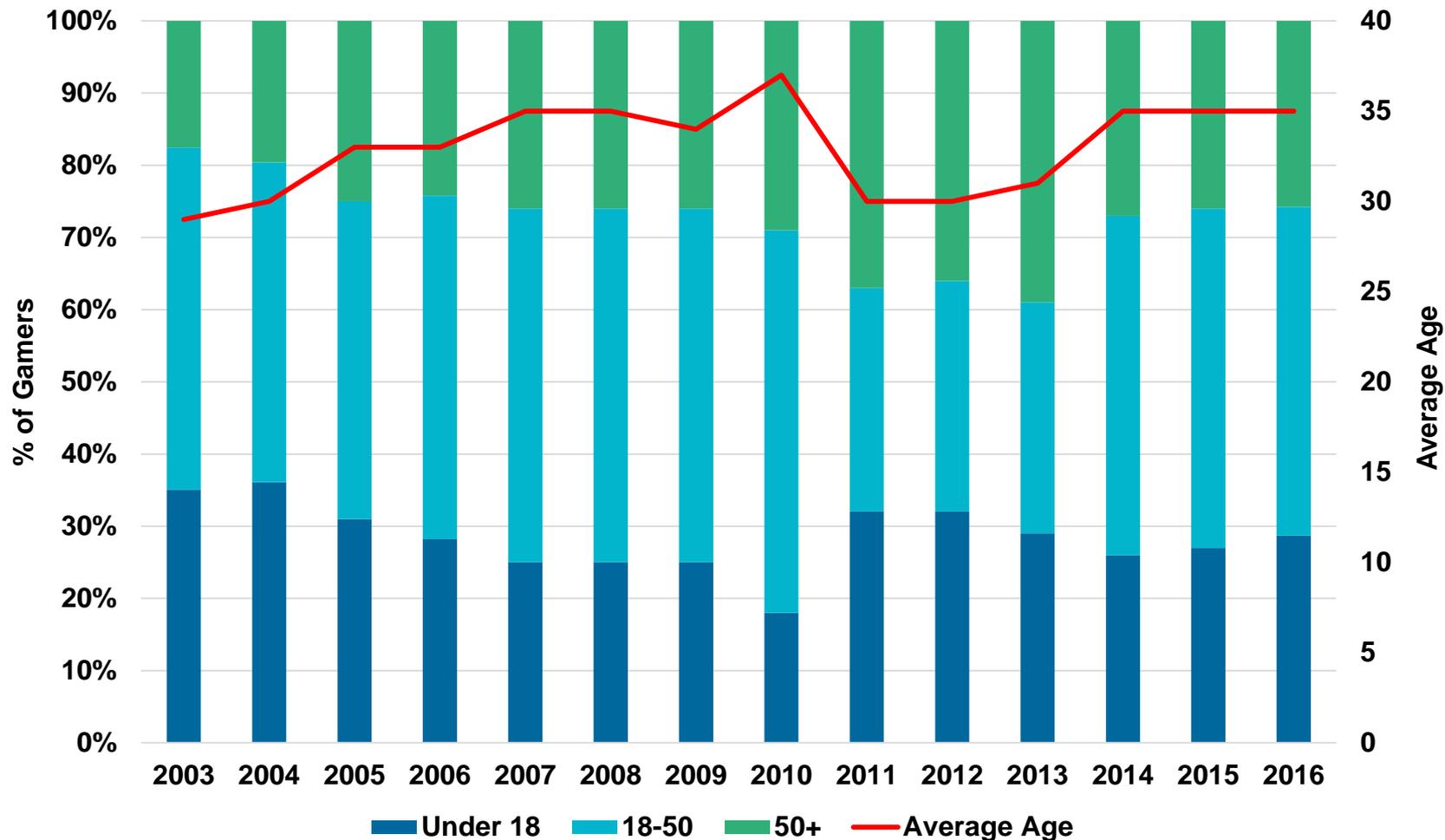
Revenue @ \$100B, +9% Y/Y

Interactive Gaming Revenue Estimates per Newzoo, Global, 2016



Gamers = All Ages... 35 Year-Old Average, USA

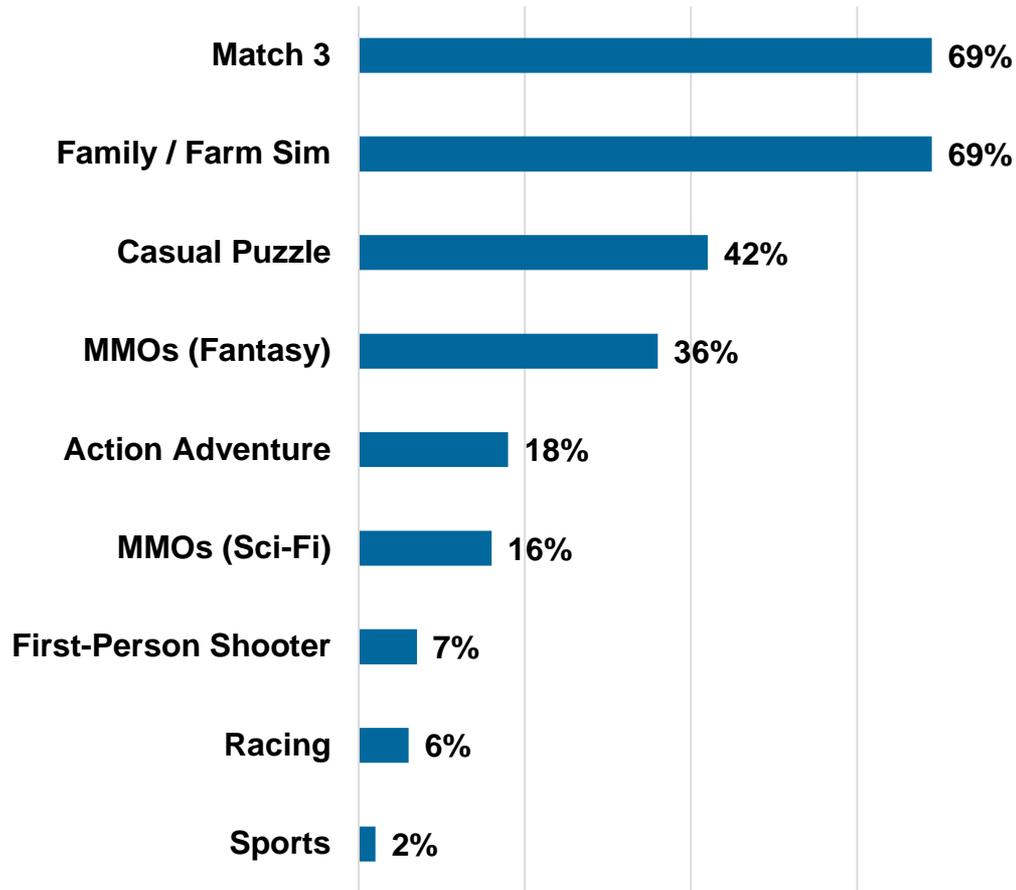
Gamer Demographics vs. Average Age, USA, 2003-2016



Source: Entertainment Software Association (ESA) Essential Facts About the Computer and Video Game Industry 2003-2016
 Note: Based on a survey of 4,000 U.S. households.

Female Gamers = Players Since Early Days But Genres Vary... 2000 (Year) Marked Rise of Casual Female Gamer

**% of Female Players by Game Genre,
Global, 1/17**



Match 3

Pioneered by Diamond Mine /
Bejeweled, 2000



Family / Farm Sim

Pioneered by Sims, 2000



Gaming Tools = Pervasive Online...

***Can Optimize Learning +
Engagement...***

Foundational for Internet Services

Gaming Tools =

Can Optimize Learning + Engagement...

Foundational for Internet Services

Repetition

Dynamic Difficulty Adjustment

Solving Puzzles

Planning Workflows

Completing Projects

Leveling Up

Competing

Exploring / Discovering

Following Rules

Collaborating – Social Connection / Leadership

Observing

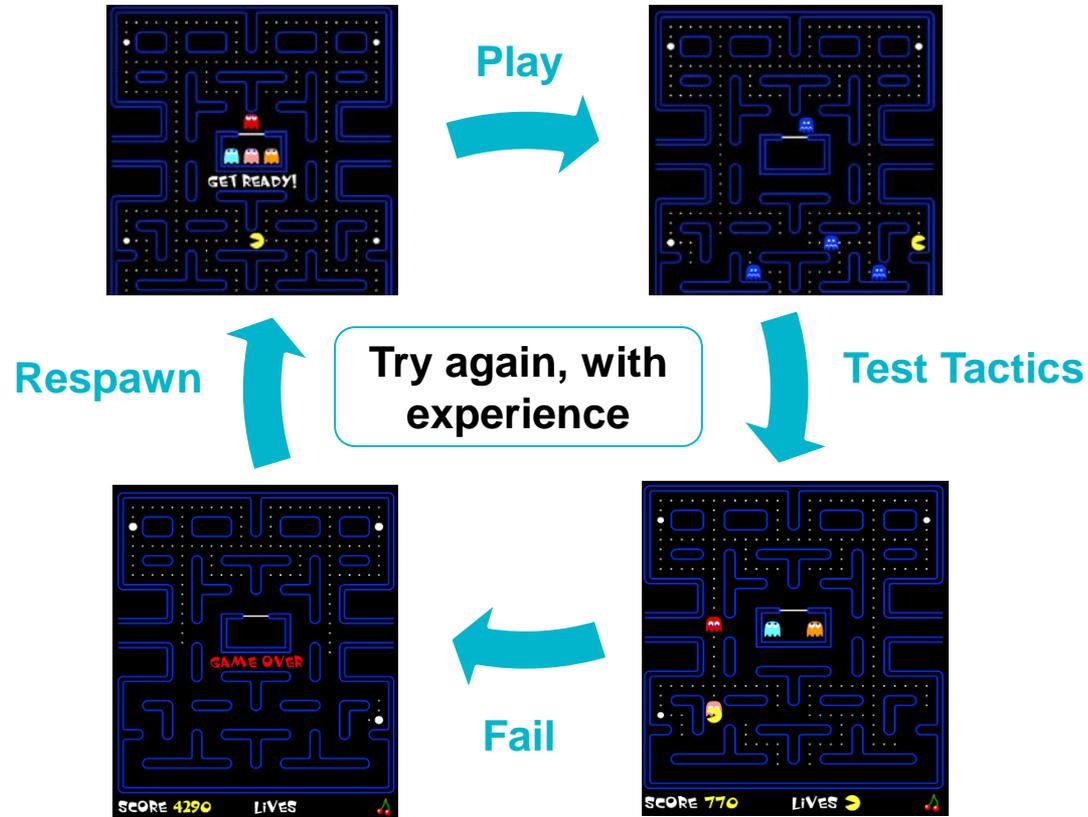
Interacting With / Analyzing Data

Self Optimizing

Creative Story Telling

Repetition = Learn from Losing...

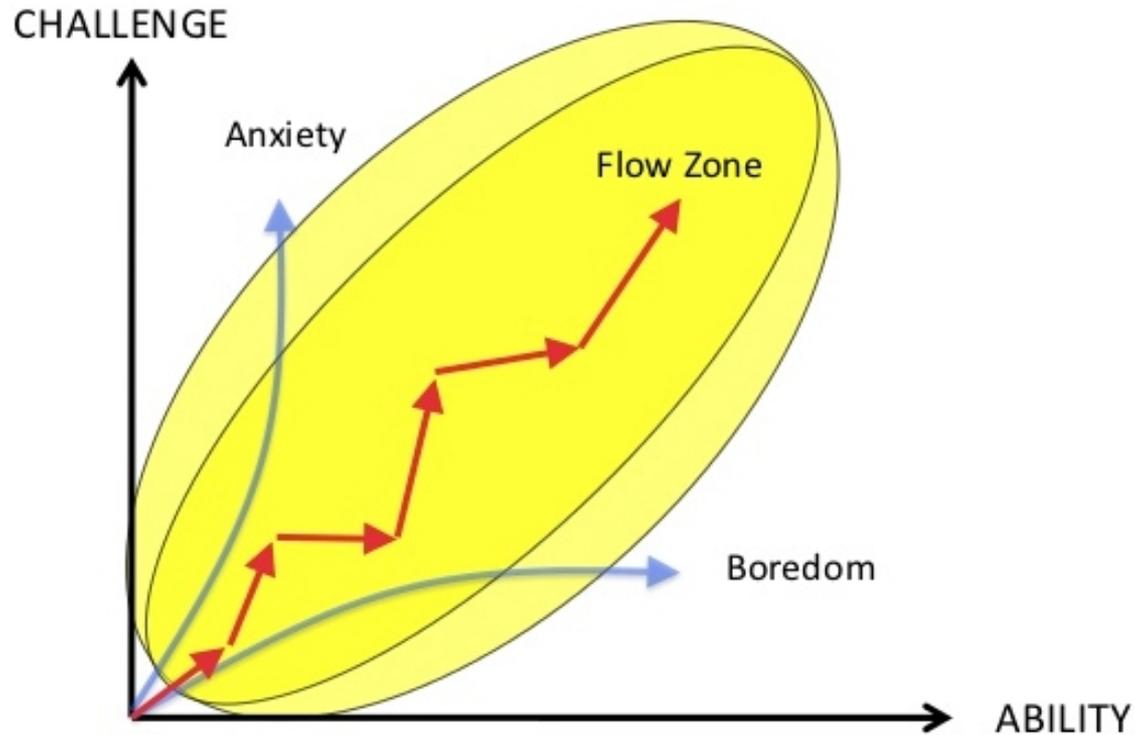
Trial & Error Gaming Lifecycle



...Dynamic Difficulty Adjustment = Ultimate Trial & Error Experience...

Engaging Learning Process

Machine-Learning Fine-Tunes Gaming Mechanics

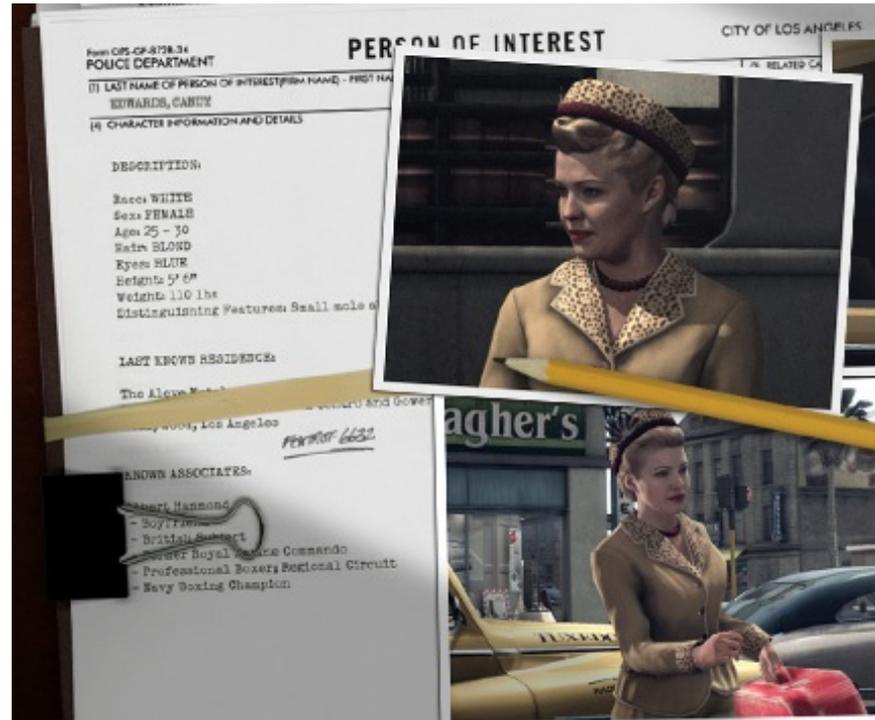


...Solving Puzzles = Pattern Recognition + Critical Thinking...

Defined Rules + Strategy (Short-Form) Minesweeper



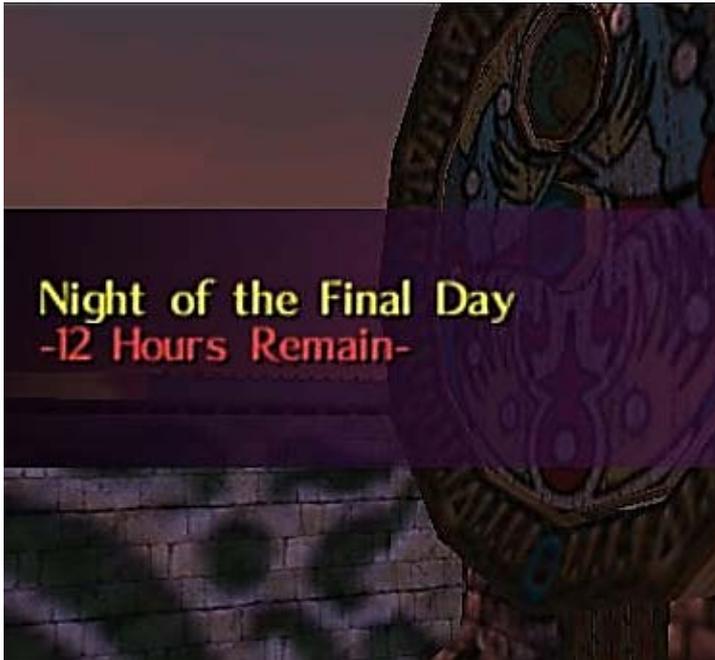
Unstructured Puzzles (Long-Form) L.A. Noire Detective Cases



...Planning Workflows = Manage Time + Resource Efficiency...

Time Management

Legend of Zelda: Majora's Mask Quest
Progress Resets Periodically



Resource Management

Starcraft II 'Require More Minerals'



...Completing Projects = Track Finish Line from Start...

Focus on End Goal

Pokémon 'Gotta catch 'em all!'



Track Experience

Skyrim



...Leveling Up = On-Going Progress Measurement...

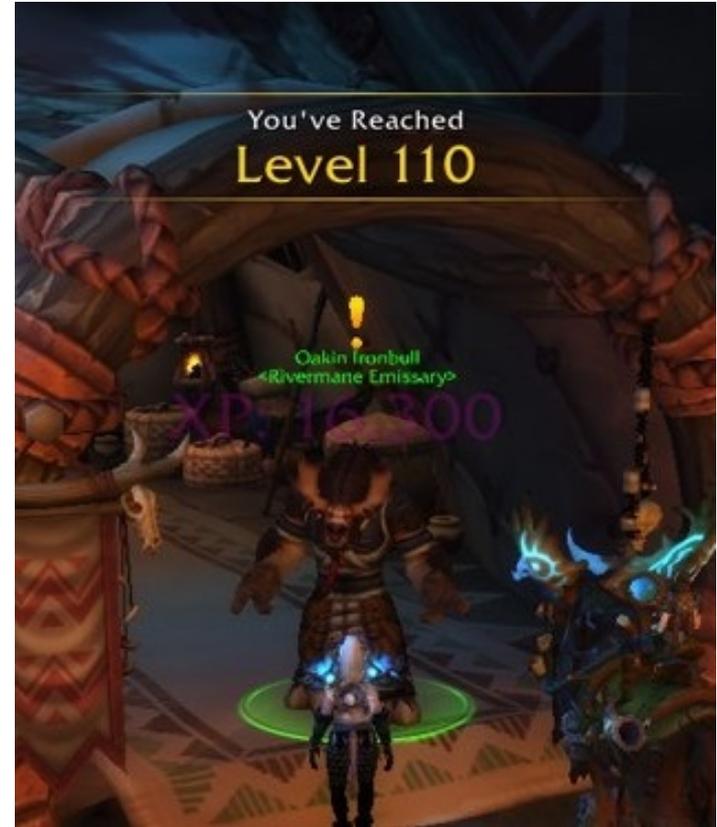
Leveling Up Candy Crush Saga



Gain Experience Completing Puzzles



Quantified Mastery Max Level in World of Warcraft



...Competing = Play Against Self + Others Sharpens Skills...

Competing Against Yourself Time Trials in Mario Kart 64



Competing Against Others Scoring Goals Online in Rocket League



...Exploring / Discovering = Open Closed Doors...Hack to Improvement...

Discovering Glitches

Secret Level in Super Mario Bros



Discovering Easter Eggs

Silent Hill 2 + Tony Hawk's Pro Skater 2



...Following Rules = Structured Play...

A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.

- Salen & Zimmerman, Rules of Play: Game Design Fundamentals, 9/03

Players = Free to Break Rules...



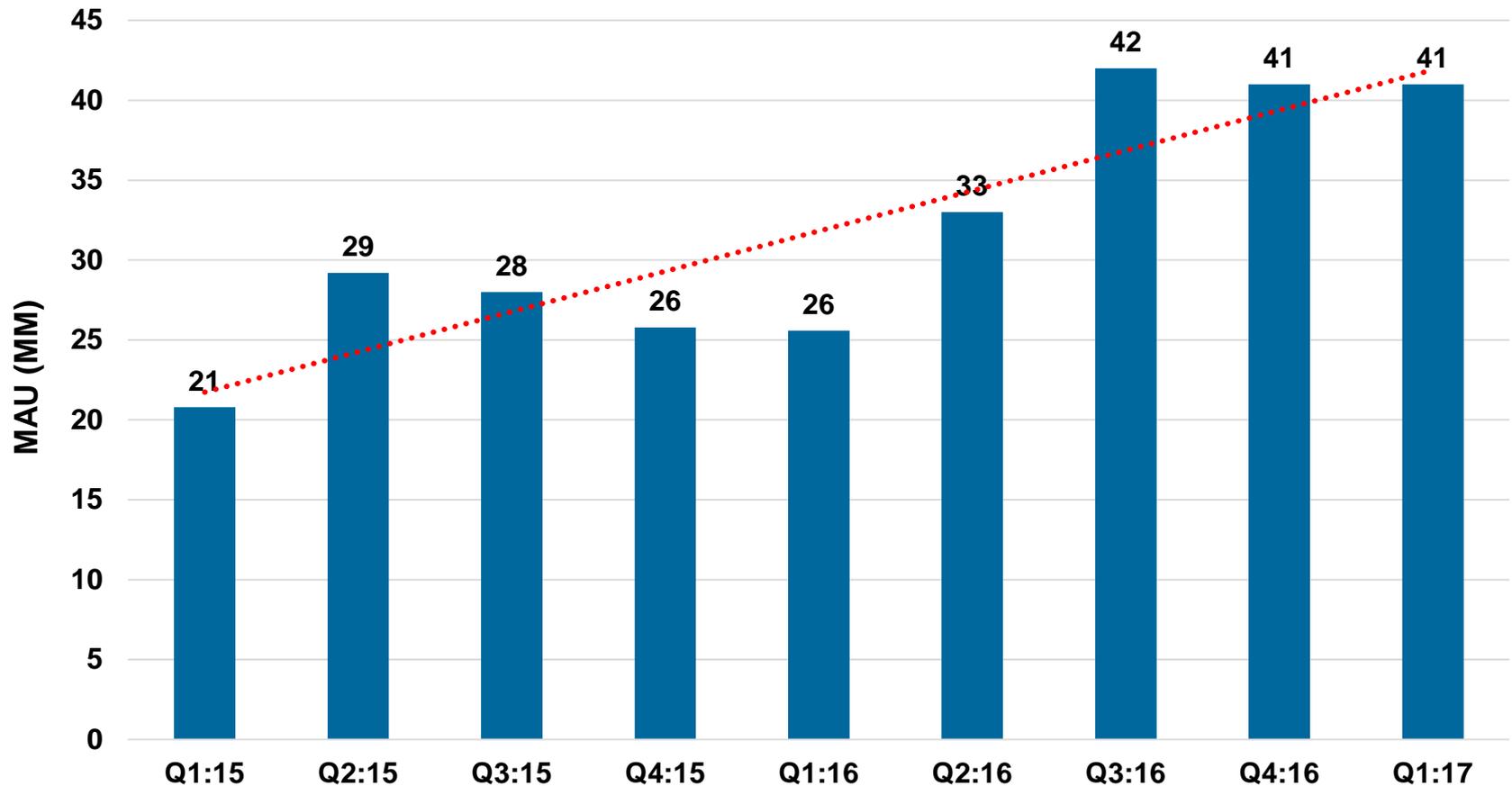
...But = Consequences



...Collaborating – Social Connection / Leadership = Learn From / Work With Others...

Blizzard = Millions Playing Together Online, Global

Key Multiplayer Franchises = World of Warcraft + Diablo + Starcraft + Overwatch

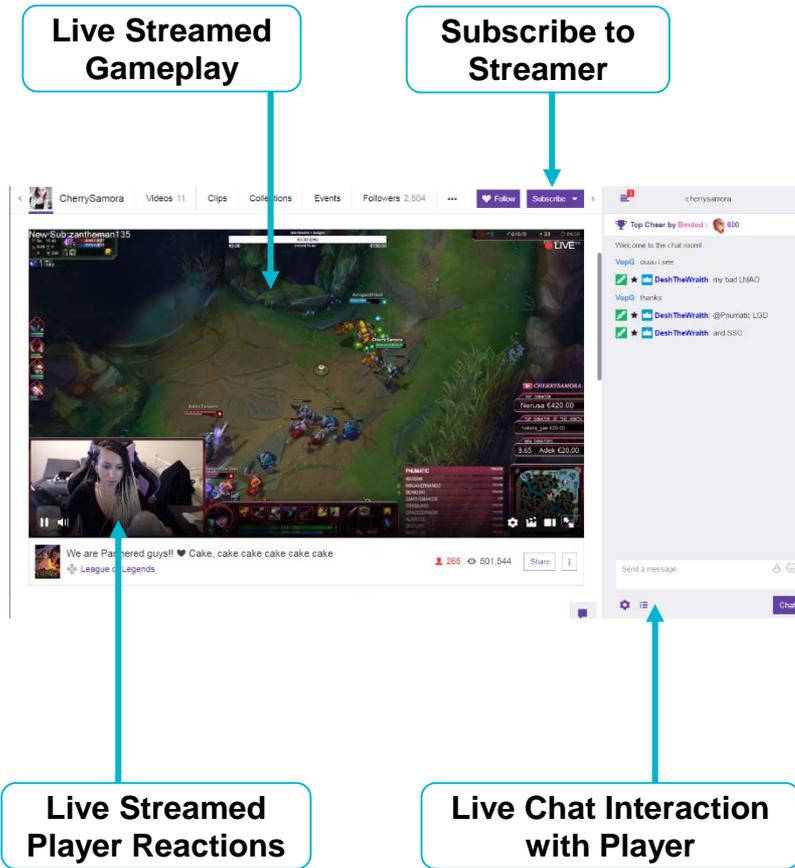


Source: Activision, Morgan Stanley

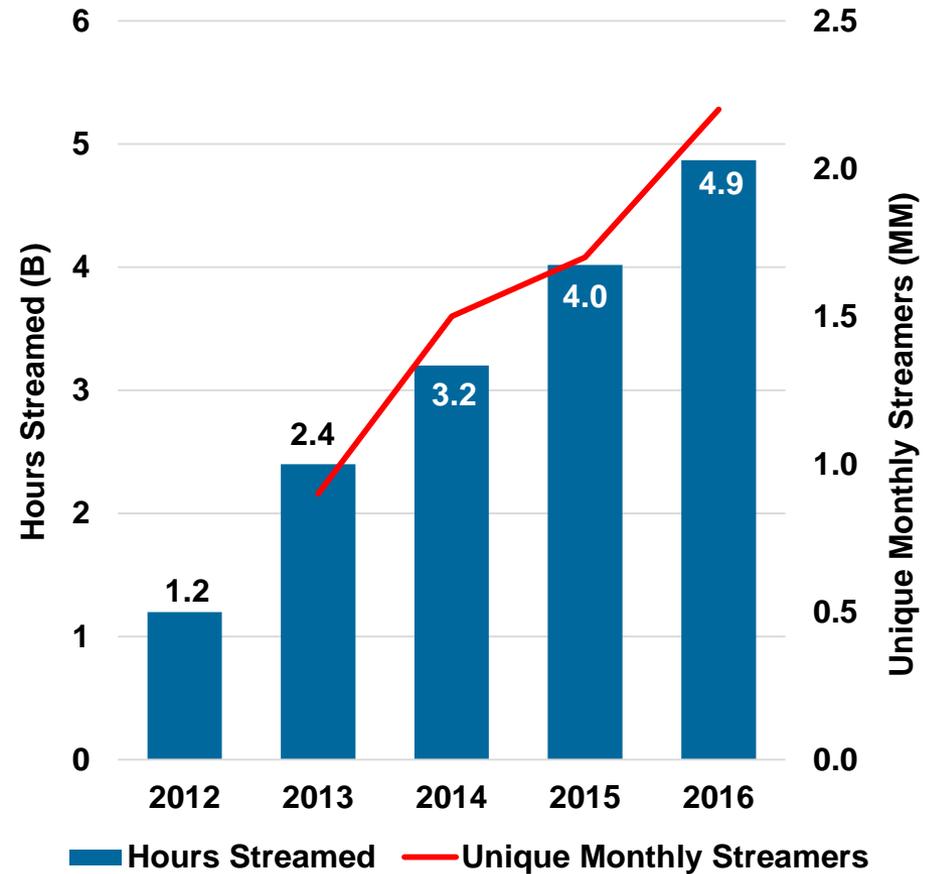
Note: Graph emphasizes Blizzard over Activision and King users due to the multiplayer nature of most Blizzard franchises.

...Observing = Learn From Watching Others Perform...

Twitch Streaming 10MM DAU, 2/17



Twitch Hours Streamed vs. Unique Monthly Streamers



...Interacting With / Analyzing Data = Many Games Have Strong Math Underpinnings...

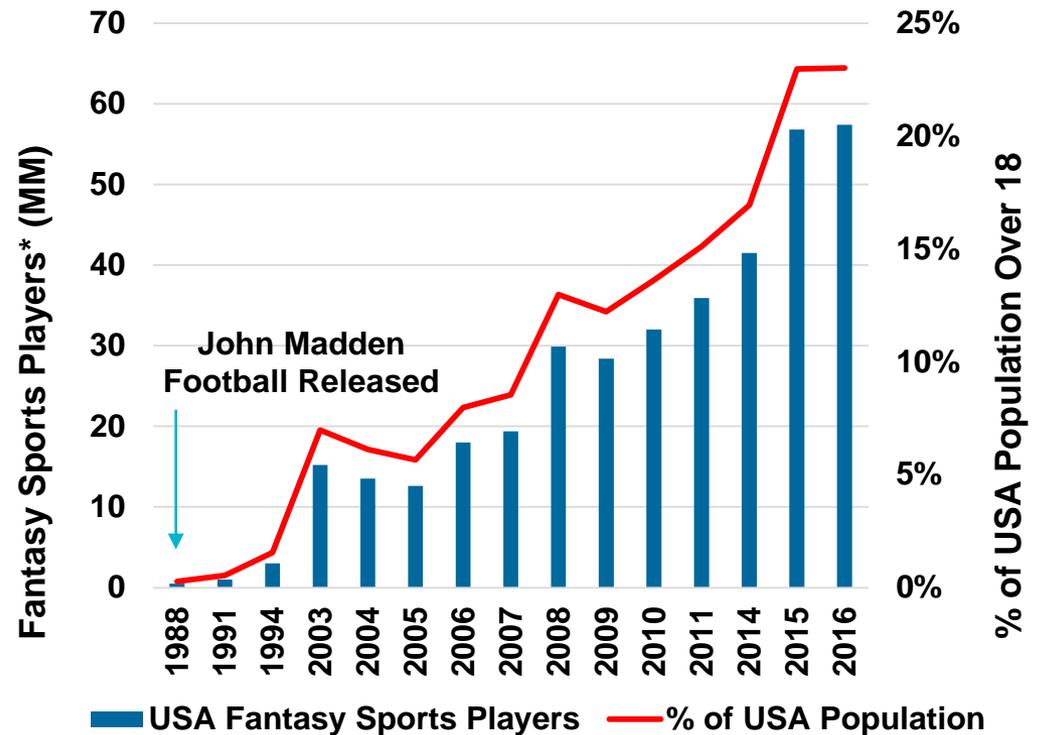
Live Stats

Feed Into Video Games + Fantasy Sports



Fantasy Sports

Fans Engaged in Analytics, USA, 1988-2016



...Self-Optimizing = Driven by Math (Statistics / Metrics / Rankings)...

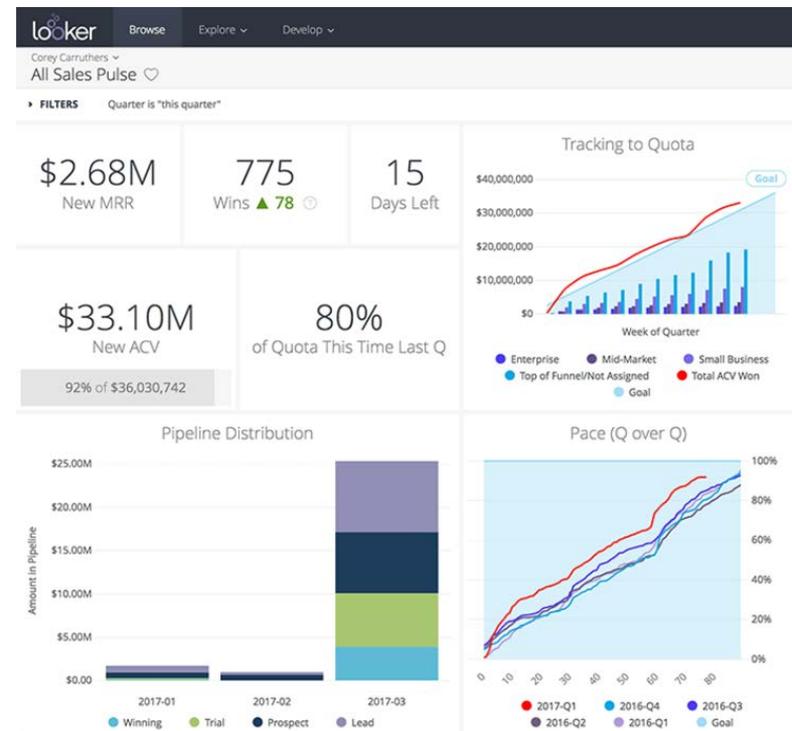
In-Game Player Analytics / Dashboards

Increasingly Found in Enterprise / Consumer Products / Services

Madden 2017 Player Stats

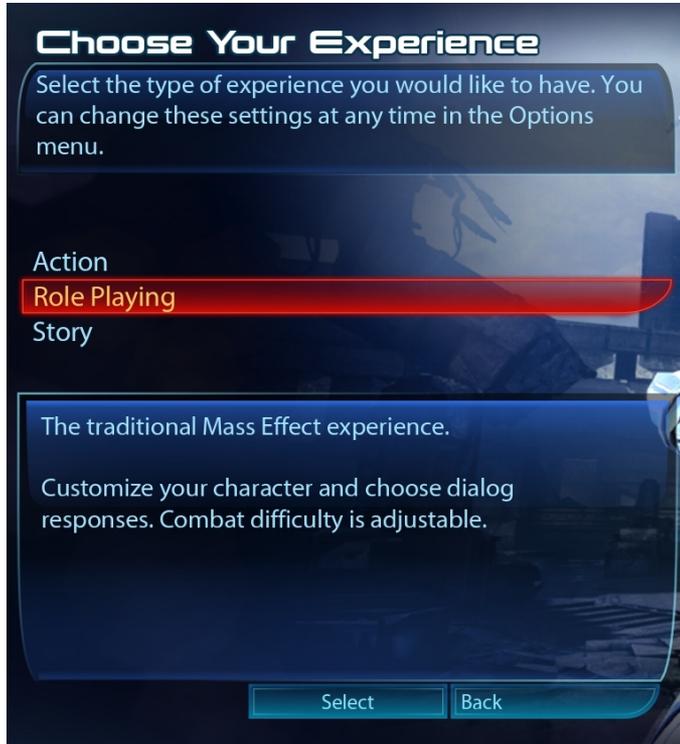


Looker Business Intelligence Dashboard



...Creative Story Telling = Can Be Master of a Universe

Choosing Gameplay Experience Mass Effect 3



Laying Building Blocks of a Virtual World Minecraft



Gaming Tools =

Can Optimize Learning + Engagement...

Foundational for Internet Services

Reputation / Rankings

Digital Recognition

Interactive Storytelling

Interactive Learning

Upgrades + Downloadable Content

Secondary Markets

Messaging

Live Camera Angles

Graphics Computation

Reputation / Rankings = Deep Roots in Gaming...

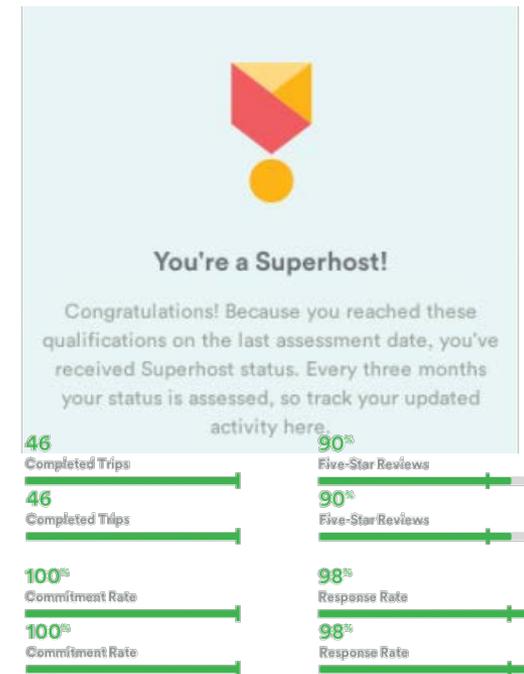
Early Gaming (1978)

Space Invaders
First Arcade Game to Record High Scores



Mainstream Internet (Now)

Airbnb
Superhost Program Recognizes Top Performing Hosts



...Digital Recognition = Deep Roots in Gaming...

Early Gaming (1980)



Mainstream Internet (Now)

Activision 2600 Games

Physical Badges for In-Game Achievements



Facebook

Give Digital Badges to Others

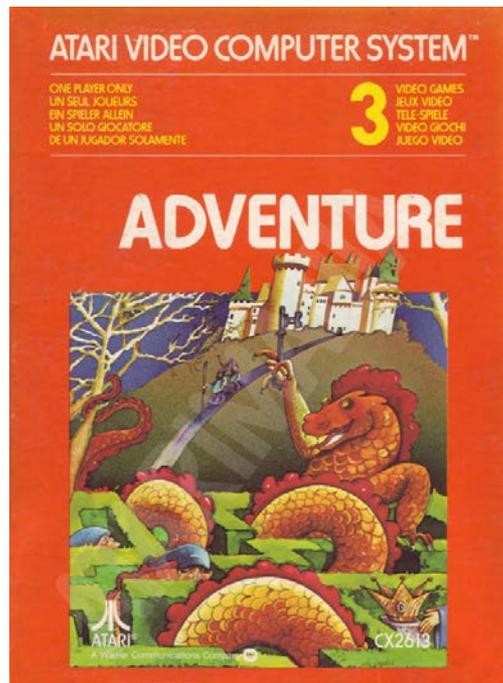


...Interactive Storytelling = Deep Roots in Gaming...

Early Gaming (1980)

Atari

First Role Playing Game



Mainstream Internet (Now)

Netflix + Amazon / Twitch

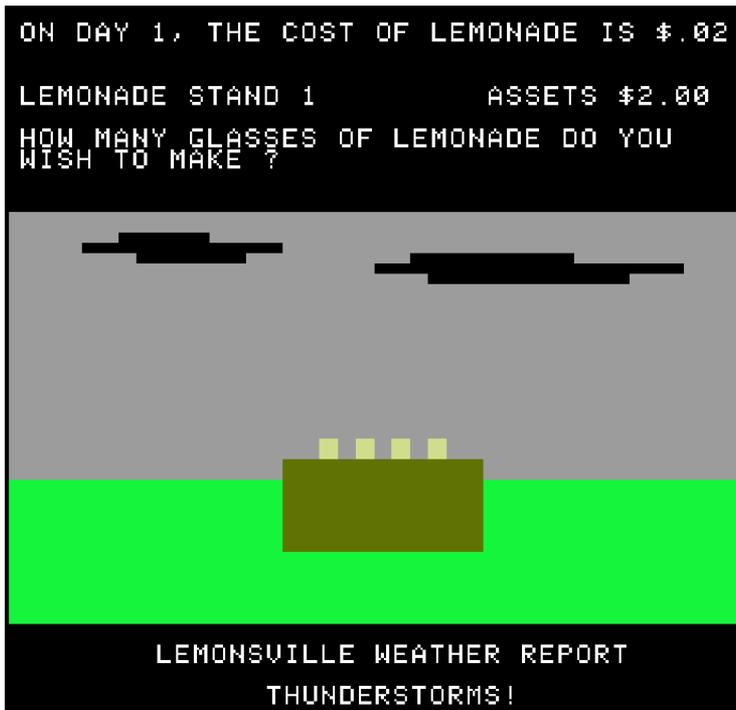
Experimenting with Interactive Shows



...Interactive Learning = Deep Roots in Gaming...

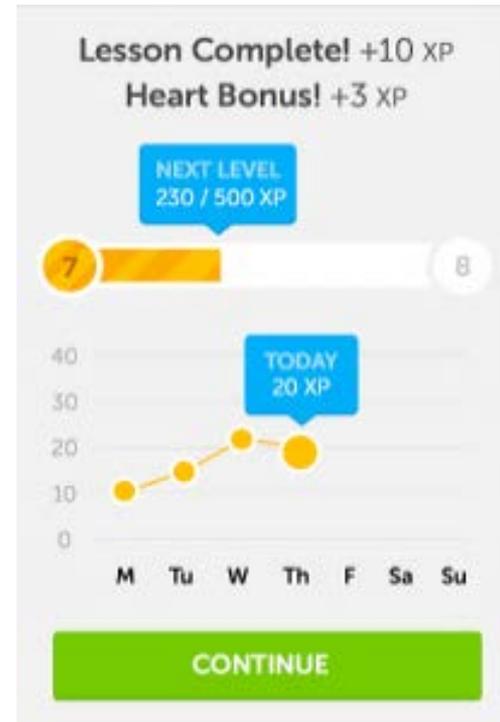
Early Gaming (1979)

Lemonade Stand Teaching Economics 101



Mainstream Internet (Now)

Duolingo Leveling Up in Languages



...Upgrades + Downloadable Content = Deep Roots in Gaming...

Early Gaming (1993)



Mainstream Internet (Now)

Sega

Downloadable Content via Cable



Tesla

Over-the-Air Software Updates



...Secondary Markets = Deep Roots in Gaming...

Early Gaming (2001)

Runescape

Secondary Markets for Items / Currency

A screenshot of a secondary market website for Runescape. The page displays four items for sale, each with a quantity selector and a 'BUY' button. The items are:

- 8 x 10M Runescape 3 Gold: Price \$21.36, You save \$0.24, 5-10 minutes.
- Air Rune (RS3) x 50 000: Price \$1.75, 5-30 minutes.
- Fire Rune (RS3) x 50 000: Price \$3.45, 5-30 minutes.
- Water Rune (RS3) x 50 000: Price \$1.75, 5-30 minutes.



Mainstream Internet (Now)

Apple iMessage

3rd Parties Offer Sticker Packs

A grid of 25 different iMessage sticker packs, each with a unique icon and name. The packs include:

- TTL
- GamePigeon
- GIFwrapped
- ETA
- Nyan Cat: Lost...
- CARROT We...
- Castro
- TV Time
- Record Bird
- Llama
- Mo Mojis by Mo...
- Kaomotion
- Rando Emoji
- Emoji Stickers
- Mixologist
- Happy Toast
- Bananas
- Sweets
- Coffee
- Anitate
- Bright Eyes Ani...
- Face Bomb
- Sticker Pals
- Dramatic Ellipsi...
- Relay FM
- Places
- Passport
- N'Yer Today
- Stuck On

...Messaging = Deep Roots in Gaming...

Early Gaming



Mainstream Internet (Now)



2009



2013



...Live Camera Angles = Deep Roots in Gaming...

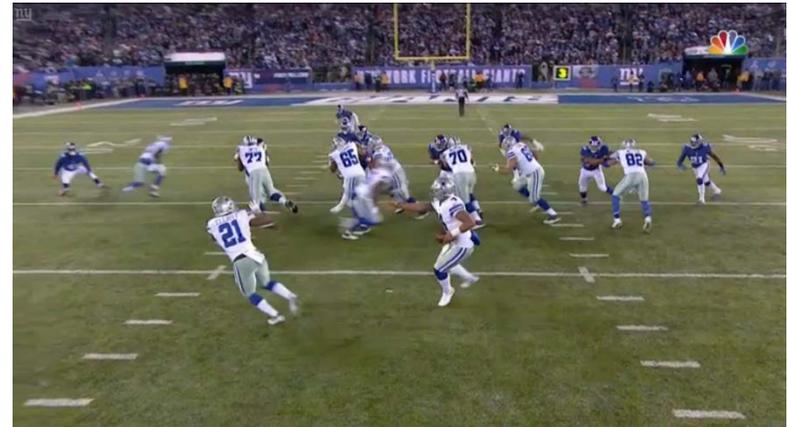
Early Gaming (1996)

Madden Football
Unique Game Perspectives



Mainstream Media (Now)

Cable TV Cameras
Unique Angles of Live Games



...Graphics Computation = Deep Roots in Gaming

Early Gaming (1999)

NVIDIA

Launches GeForce 256 GPU



Mainstream Internet (Now)

Many Companies

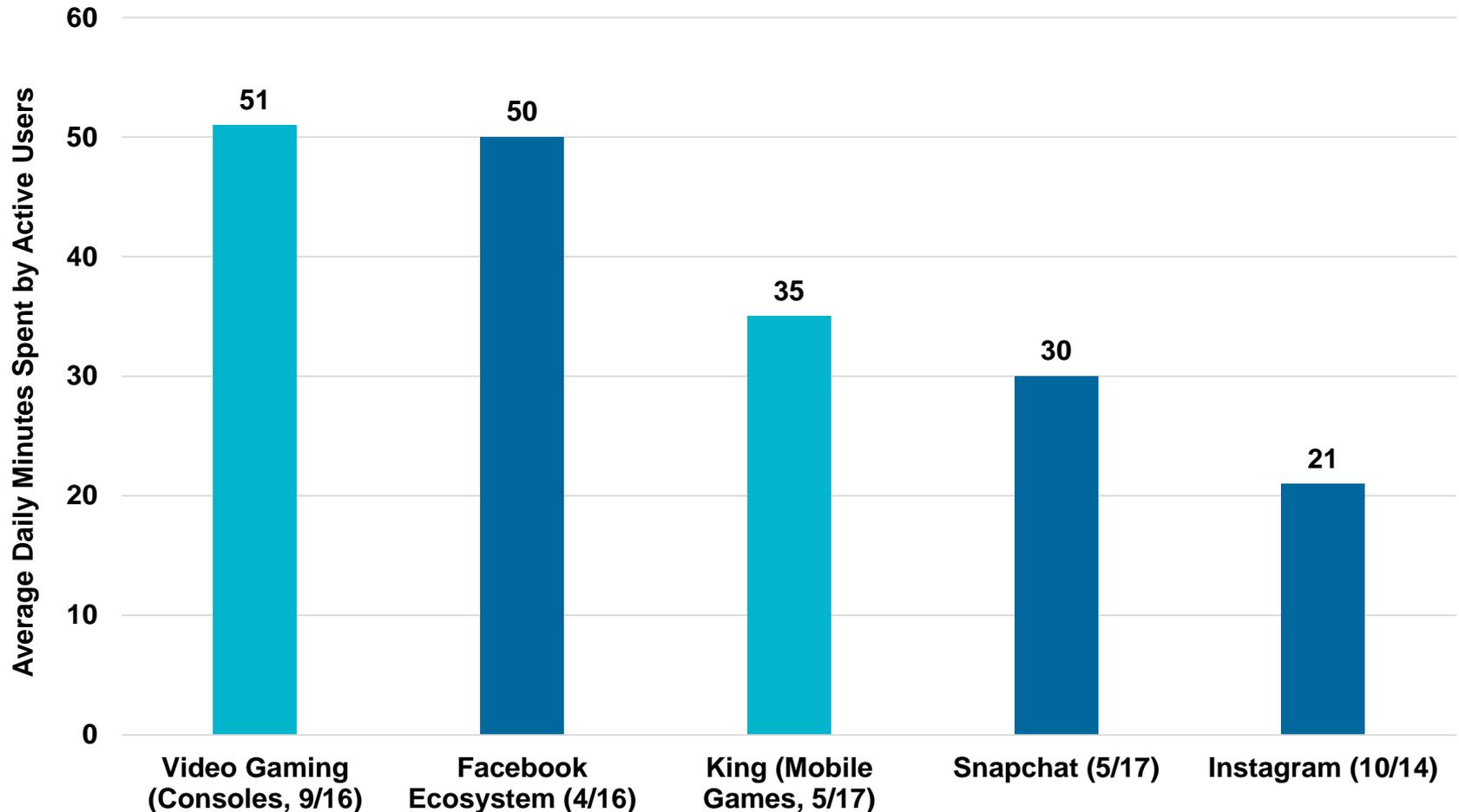
GPUs Used for Artificial Intelligence



*In Era of
Perceived Disengagement =
'Engagement' Rising...*

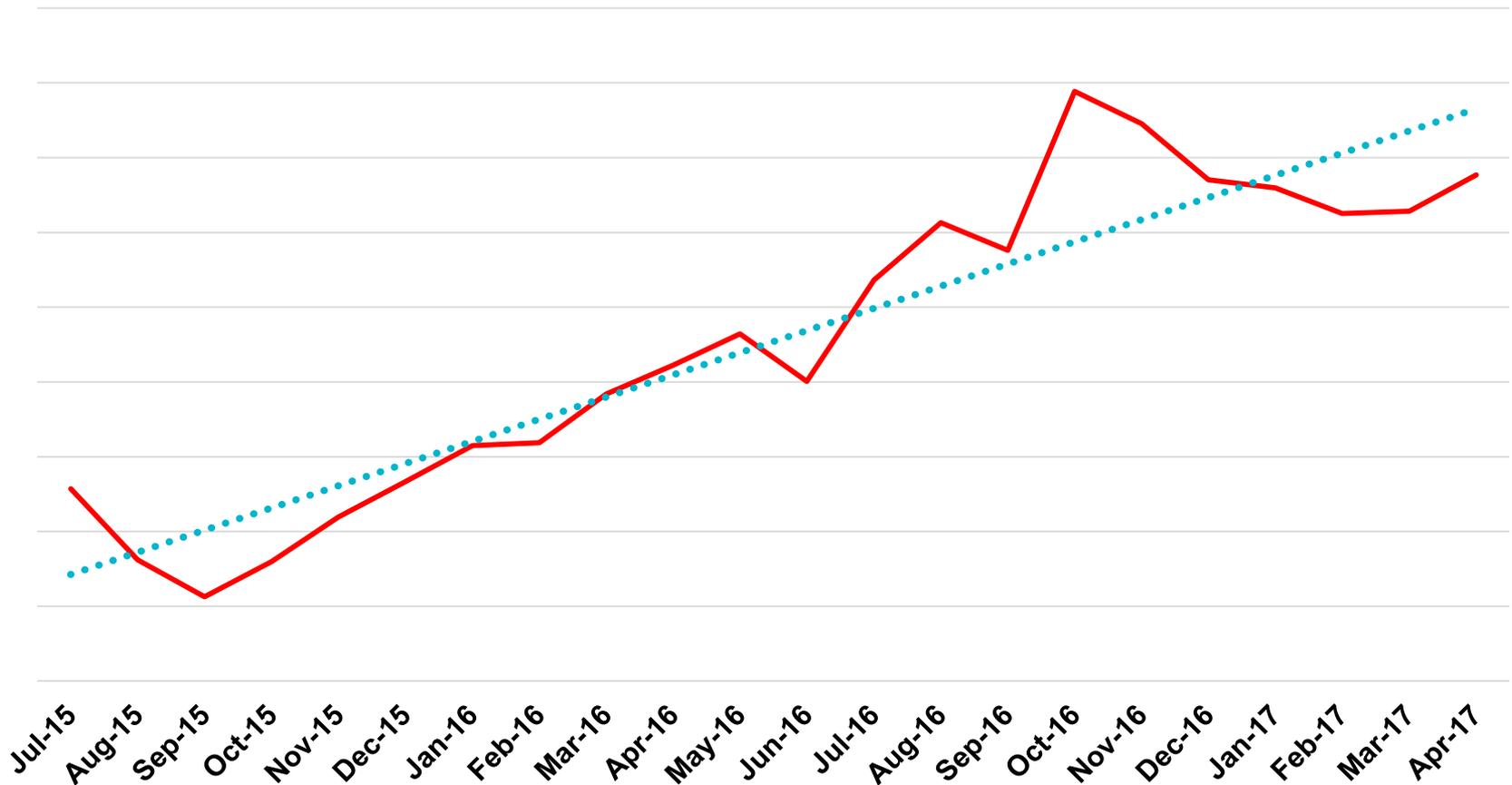
Video Gaming = Most Engaging Form of Social Media

Daily Minutes Spent per User Across Select Digital Media Platforms



Mobile Daily Gaming Session Duration = +33% (3/17 vs. 7/15), Global, per Unity Games

Mobile Average Daily Gaming Session Duration on Unity Games, Global, 7/15 – 3/17



When I play a video game, it's the only time I put away the phone and forget it exists.

Video games command your attention in a way that nothing else can or will.

- Gary Whitta, Screenwriter, Rogue One: A Star Wars Story, 5/17

*Perhaps Interactive Gaming
Evolution / Growth / Usage...*

*Has Been Helping Prepare Society for
Ongoing Rise of
Human-Computer Interaction?*

Gaming Tools =

Improving Human Performance...

***Virtual + Augmented Reality /
Simulations / Real-Time Analytics***

*Immersive Gaming Tools =
Improving Athlete Performance...*

Video + Virtual Reality = Mental Reps Can Improve Performance

STRIVR Labs + Stanford Football

Utilize Video + Virtual Reality to Repeatedly Run Plays / Scenarios



Video + Machine Learning = Visuals + Deep Analytics Can Improve Performance

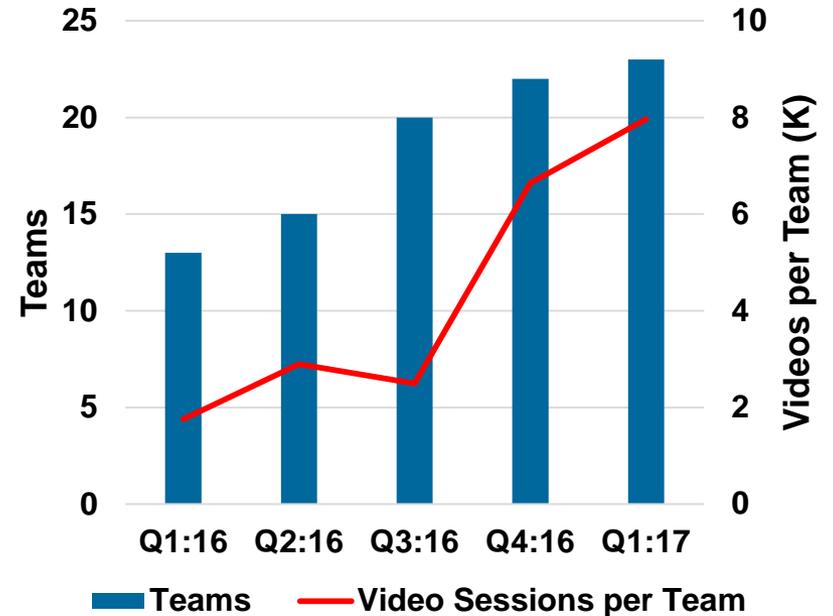
Second Spectrum

150K+ Tracked Events per Game,* 5/17

Video Analytics of Key Plays

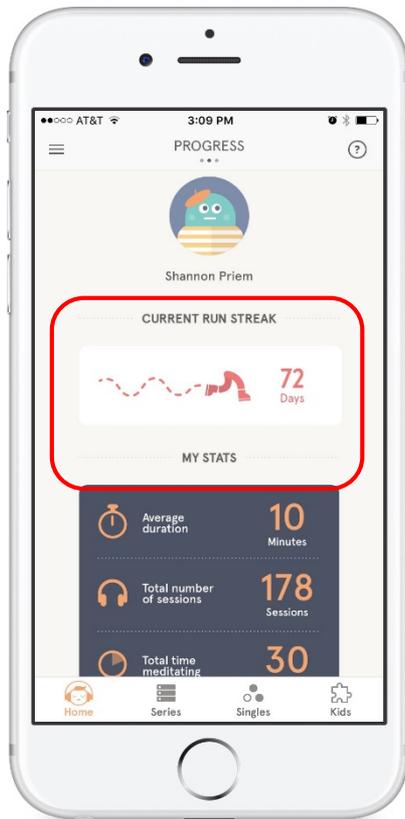


Teams vs. Video Sessions per Team



Audio + Guided Meditation = Mental Focus Can Improve Performance

Headspace Run Streak Reinforce Habits



CJ McCollum, NBA Shooting Guard Uses Headspace to Maintain Focus, 6/16

There's a lot of stress in my job...and a 10 minute Headspace meditation helps you take care of all of those things and more.

- CJ McCollum, 4/17



Physically Interactive Media (PIM) = Real-Time Activity / Analytics Can Boost Intensity / Focus for Athletes

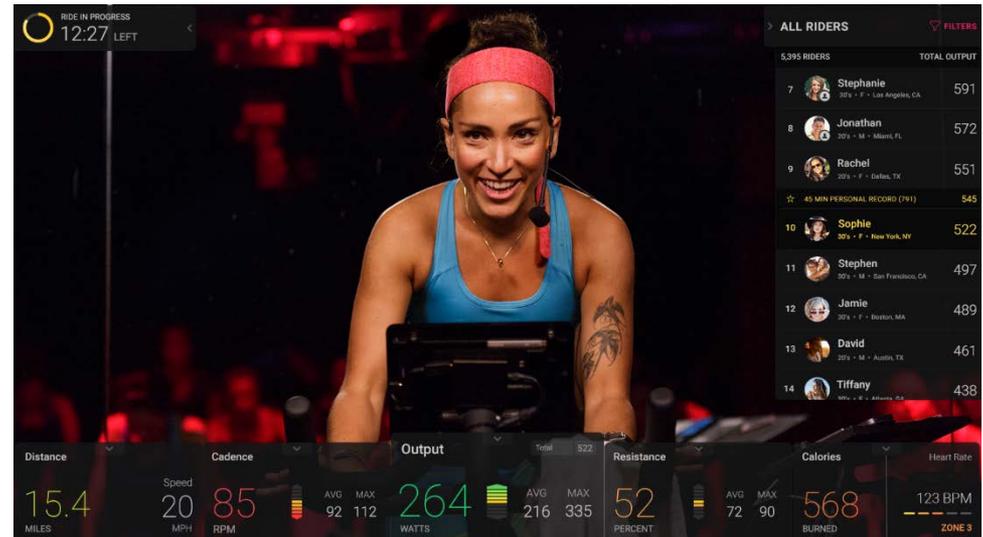
**2 Workouts per Week per
Subscriber**



Peloton

**100K+ Bike Subscribers
(95% Retention After 1 Year)...400K+ Home Riders**

1MM+ Home Workouts Streamed in 3/17



Video Games = Simulations Can Improve Athlete Strategy + Performance...

I could go ten hours at a stretch [playing soccer video games] and I'd often spot solutions in the games that I parlayed into real life.

– Zlatan Ibrahimovic, *I Am Zlatan: My Story On and Off the Field*, 6/14

From FIFA Online...



...To the Real Game



...Video Games = Stats Can Assist Athletes + Coaches...

Players + Coaches View Digital Stats as Important Performance Measure

Video Game Player Stats
Real-Time Feedback Offline, 9/16



Michy Batshuayi
@mbatshuayi

Follow

@EASPORTSFIFA 59 passing 🙄🙄🙄 so weak
12:57 PM - 12 Sep 2016

19,484 18,251

Hoffenheim Scout Discovers Roberto Firmino...
Using Football Manager Video Game, 11/16



...Video Games = Stats Can Be Predictive...

Madden Super Bowl Winner Prediction Accuracy @ 71% (14 Years)

Madden Football Super Bowl Predictions vs. Actual Results, 2004-2017

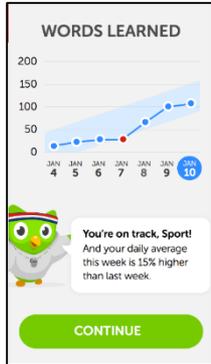
Game	Year	Teams	Madden		Actual	
			Winner	Score	Winner	Score
Super Bowl LI	2017	Patriots vs. Falcons	Patriots	27-24	Patriots	34-28
Super Bowl L	2016	Broncos vs. Panthers	Panthers	24-20	Broncos	24-10
Super Bowl XLIX	2015	Patriots vs. Seahawks	Patriots	25-24	Patriots	28-24
Super Bowl XLVIII	2014	Broncos vs. Seahawks	Broncos	31-28	Seahawks	43-8
Super Bowl XLVII	2013	49ers vs. Ravens	Ravens	27-24	Ravens	34-31
Super Bowl XLVI	2012	Patriots vs. Giants	Giants	27-24	Giants	21-17
Super Bowl XLV	2011	Steelers vs. Packers	Steelers	24-20	Packers	31-25
Super Bowl XLIV	2010	Saints vs. Colts	Saints	35-31	Saints	31-17
Super Bowl XLIII	2009	Steelers vs. Cardinals	Steelers	28-24	Steelers	27-23
Super Bowl XLII	2008	Patriots vs. Giants	Patriots	38-30	Giants	17-14
Super Bowl XLI	2007	Colts vs. Bears	Colts	38-27	Colts	29-17
Super Bowl XL	2006	Steelers vs. Seahawks	Steelers	24-19	Steelers	21-10
Super Bowl XXIX	2005	Patriots vs. Eagles	Patriots	47-31	Patriots	24-21
Super Bowl XXXVIII	2004	Patriots vs. Panthers	Patriots	23-20	Patriots	32-29

Source: Electronic Arts, ESPN, USA Today, Forbes

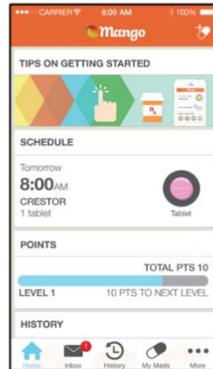
*...Immersive Gaming Tools =
Improving Performance
Across Disciplines*

Gamification = Influencing Multiple Consumer Services...

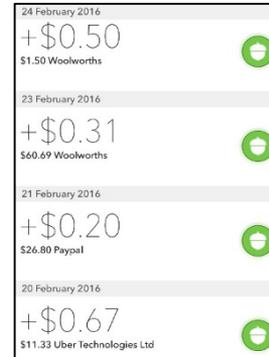
Education Duolingo



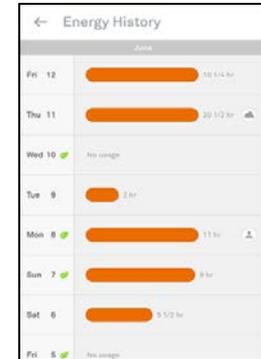
Personal Health Mango Health



Personal Finance Acorns



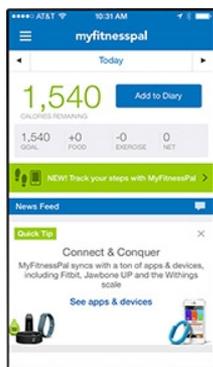
Energy Conservation Nest



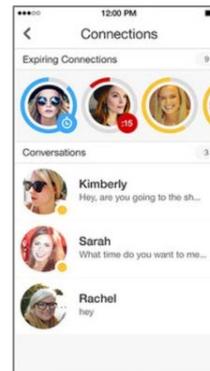
Food Starbucks



Exercise myfitnesspal



Dating Bumble



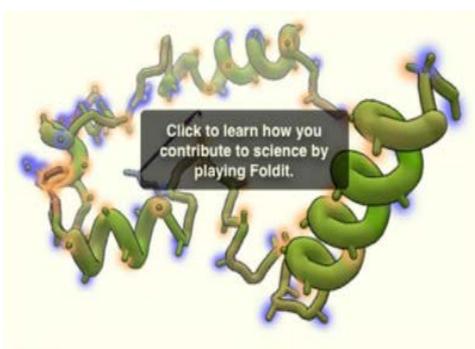
Advertising Snapchat



...Gamification = Influencing Multiple Businesses...

Healthcare Research

Foldit

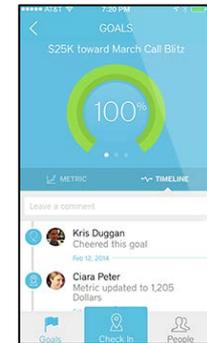


Military Training



Work Productivity

Betterworks



Pilot Training

Boeing



Healthcare Training

Simulated Surgery



Neuroscience

PTSD Therapy



...Gamification = Influencing Complex Virtual Worlds + Real-World Simulations

Improbable in Gaming Simulate Vast Virtual Worlds



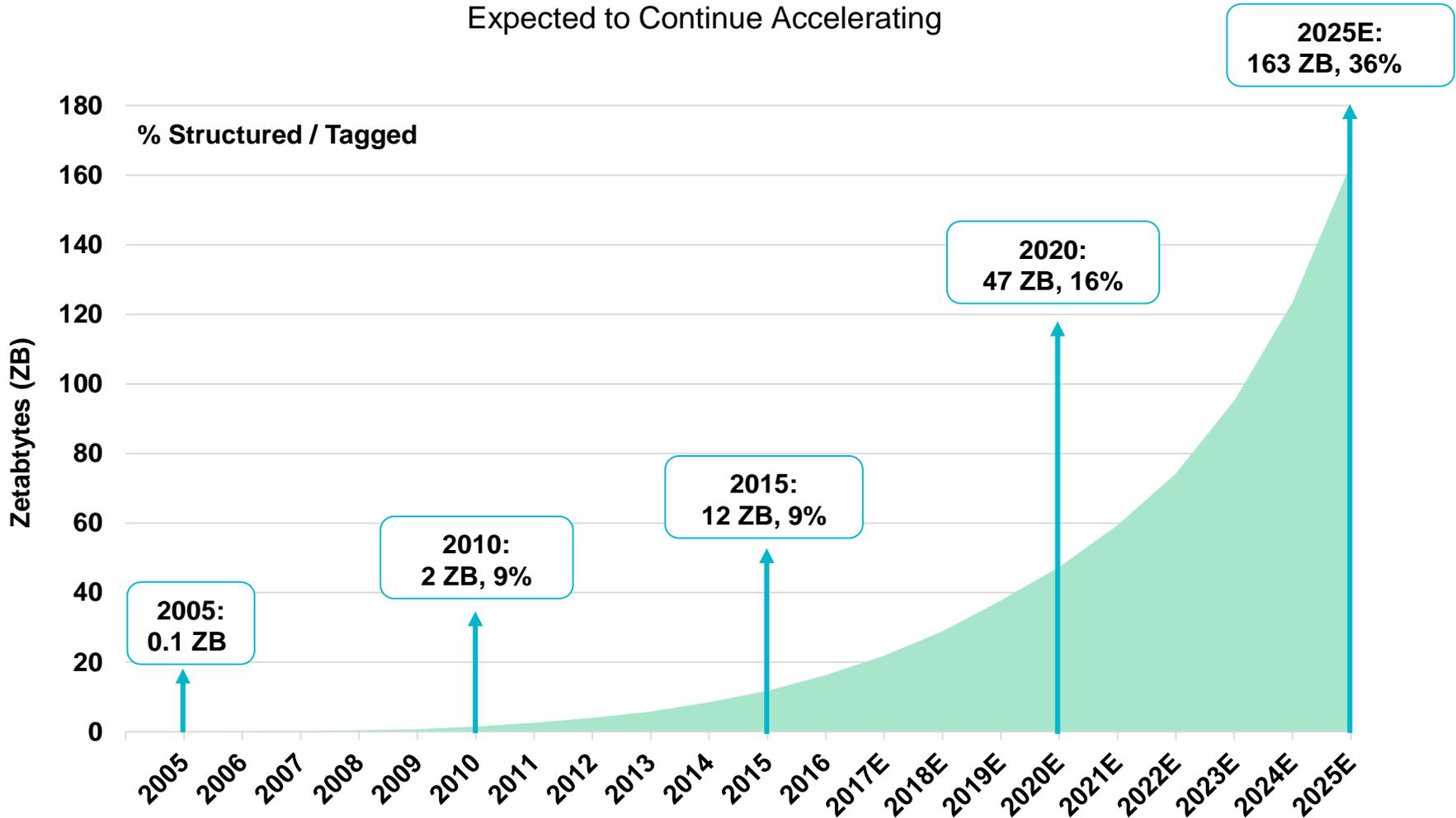
Improbable in Real World Simulate Cities + Power / Web Networks



*As Rapid Data Growth Continues =
Gaming Tools / Interfaces / Processors
Will Continue to
Organize + Drive Usefulness*

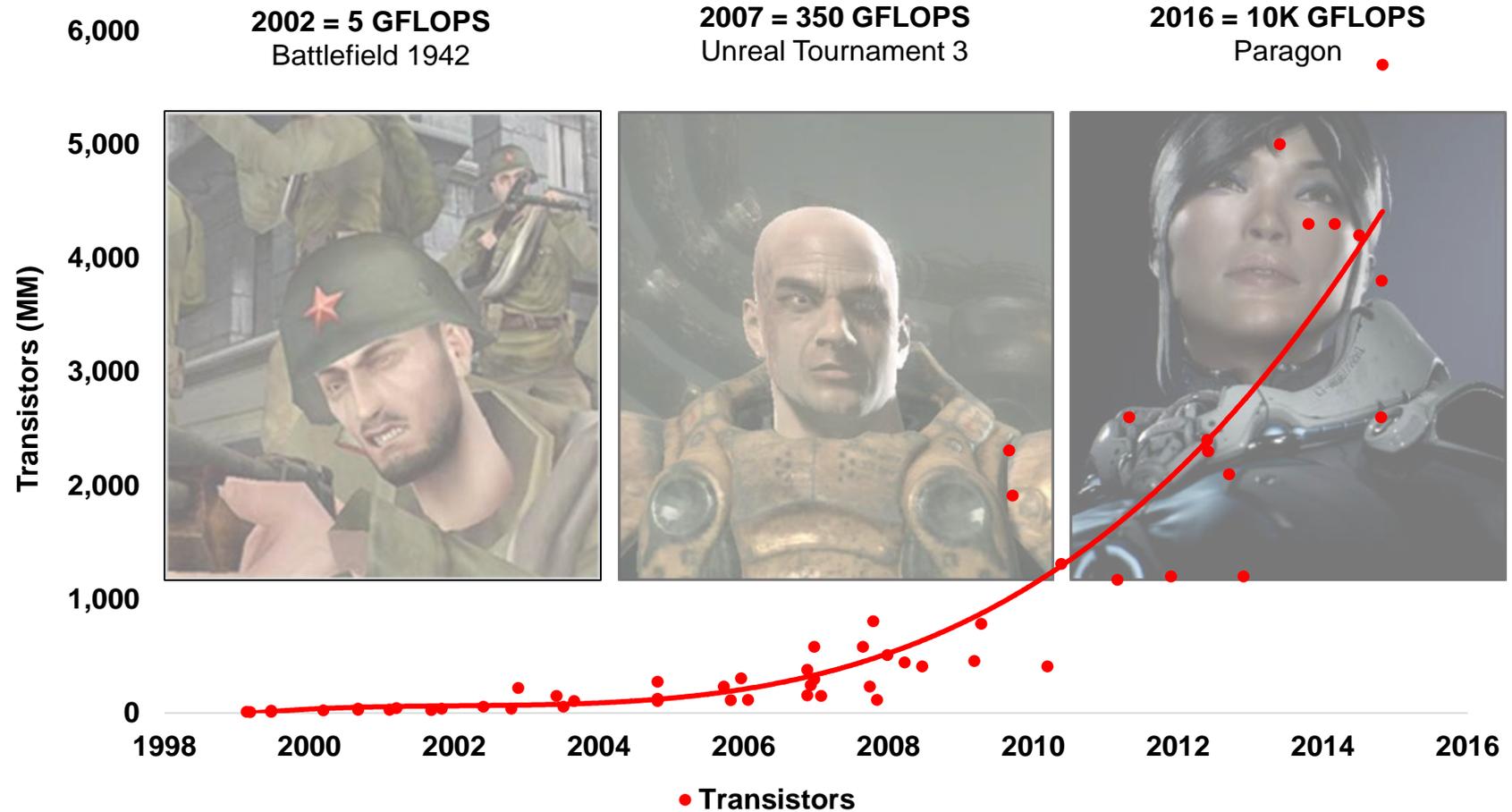
Data Volume Growth Continues @ Rapid Clip... % Structured / Tagged (~10%) Rising Fast...

Information Created Worldwide =
Expected to Continue Accelerating



...GPU Processing Power Ramp Continues

NVIDIA Transistors, 1998-2016



***Gaming Platforms =
Evolving @ High Speed***

New Gaming Development Tools / Platforms = Evolving to Continue to Build Virtual Worlds...

Developers

Development Platforms

Players

Build Virtual Worlds / Share Ideas



Explore Virtual Worlds

Construct Virtual Worlds with New Dimensions

VR / AR Platforms



Have Virtual Experiences

Build / Share Creations

In-Game Sandboxes



Build / Share / Explore Creations

Distribute Content

Gaming Marketplaces

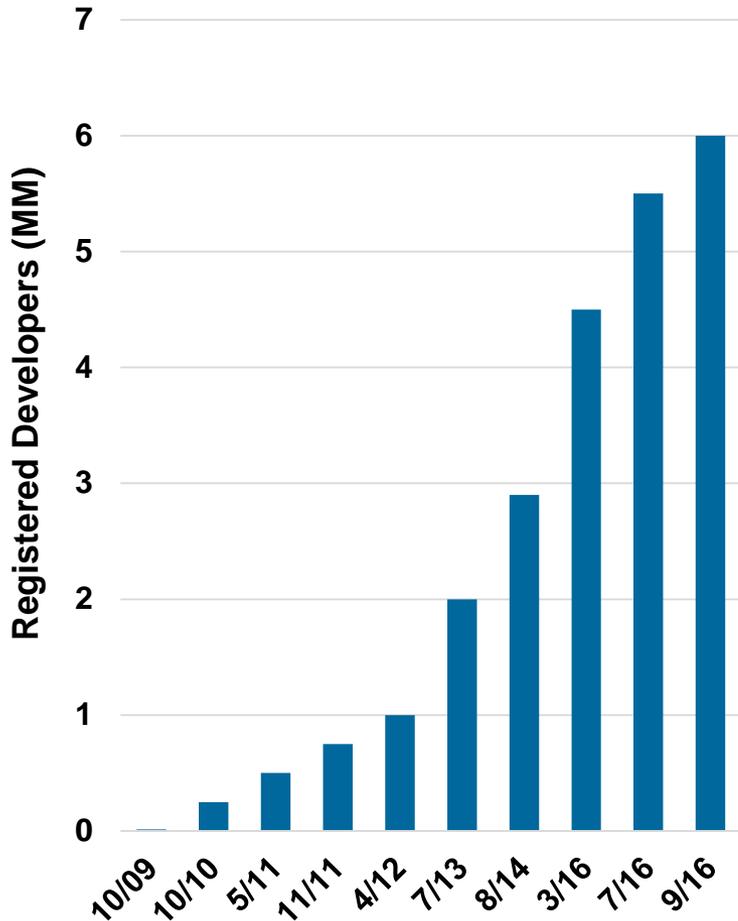


Discover / Buy / Share Content

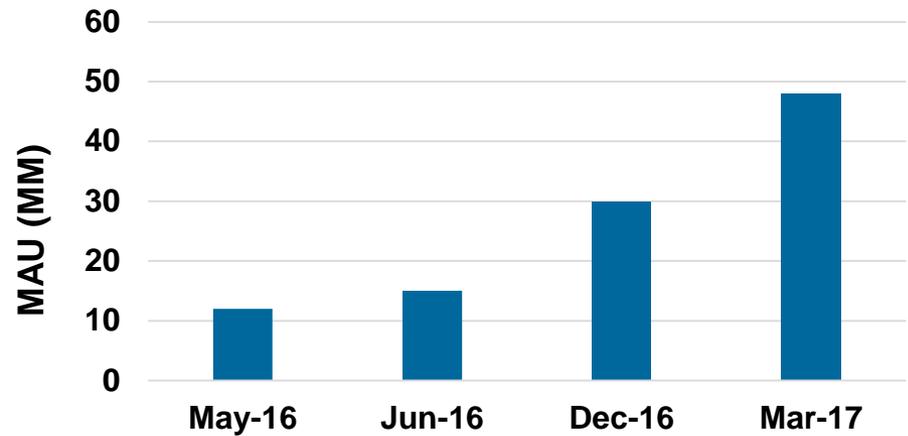
Source: Unreal, Unity, HTC Vive, Oculus (Facebook) Microsoft, Minecraft, Roblox, Tencent, Steam (Valve), Sony

...New Gaming Development Tools / Platforms = Supporting Rapid Growth

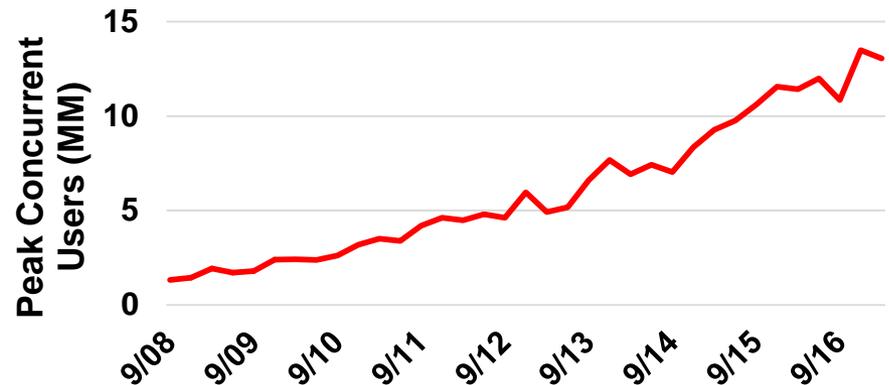
Unity = Registered Developers



Roblox = Monthly Active Users



Steam = Peak Concurrent Users*



eSports =

***Expanding Gaming Ecosystem via
Fans / Spectators***

eSports = 45 Year Evolution to Global Stage

1972



**Stanford University
AI Lab = First Ever
Gaming Tournament
(Spacewars)**

1980



**Atari Space Invader
Competition = Early
National Gaming
Tournament**

1997



**Red Annihilation
Quake Tournament =
Early eSports
Competition**

2000



**Electronic Sports
League + Korea
eSports Assn. =
Emerge as First
eSports Leagues**

Evolution of Global eSports

2006



**Justin.tv Founded =
Precursor to
Twitch.tv**

2009



**League of Legends
Released =
Becomes One of
Most Played Strategy
Games (100MM MAU,
9/16)**

2012



**OnGameNet Begins
Broadcasting League
of Legends =
First Major Korean
Tournament on TV**

2016



**League of Legends
2016 World
Championship =
43MM viewers**

eSports = People Watch What They Play...

League of Legends Expands from Home to Staples Center, LA (Worlds 2016 Finals = ~20K in Stadium + 43MM Online)

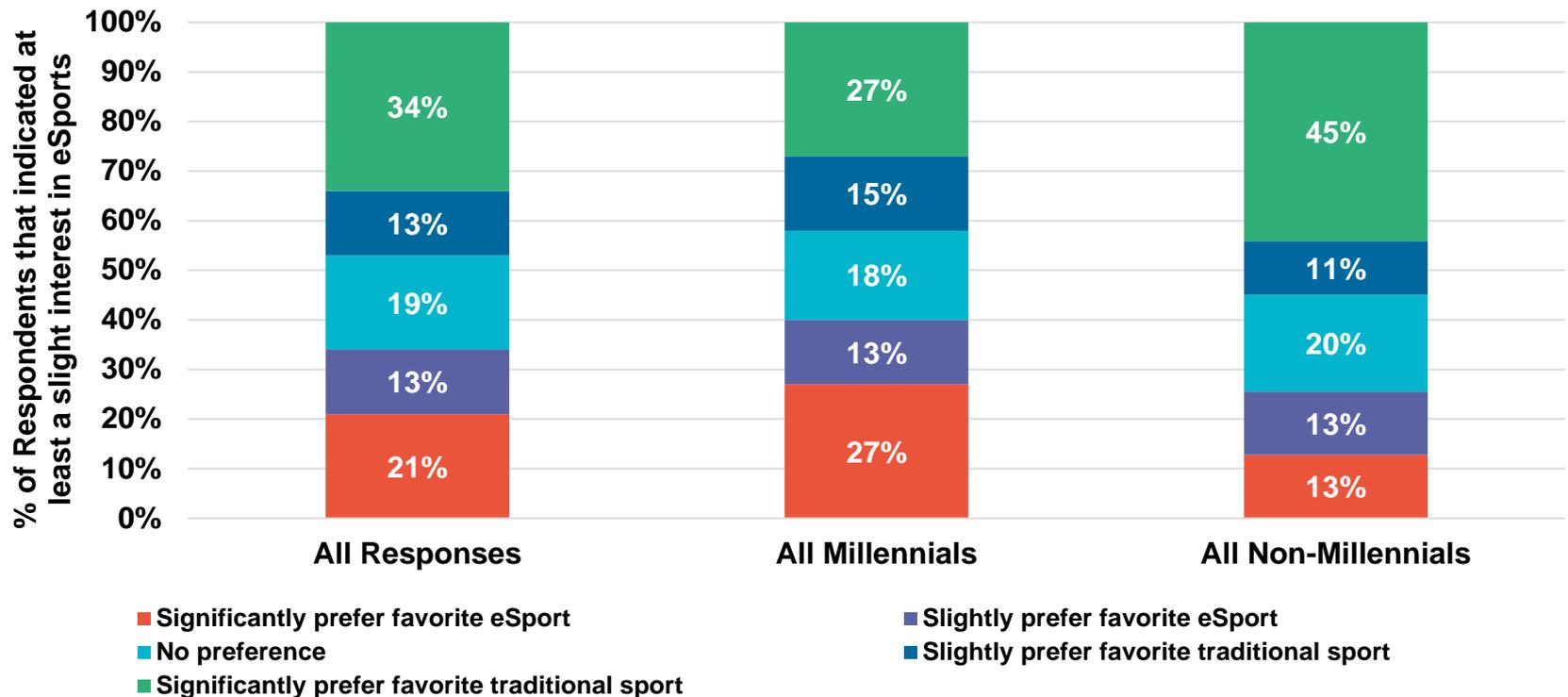


...eSports Trending vs. Traditional Sports = Very Strong with Younger Generations

Millennials = 27% 'Significant Preference' for eSports vs. 27% for Traditional Sports

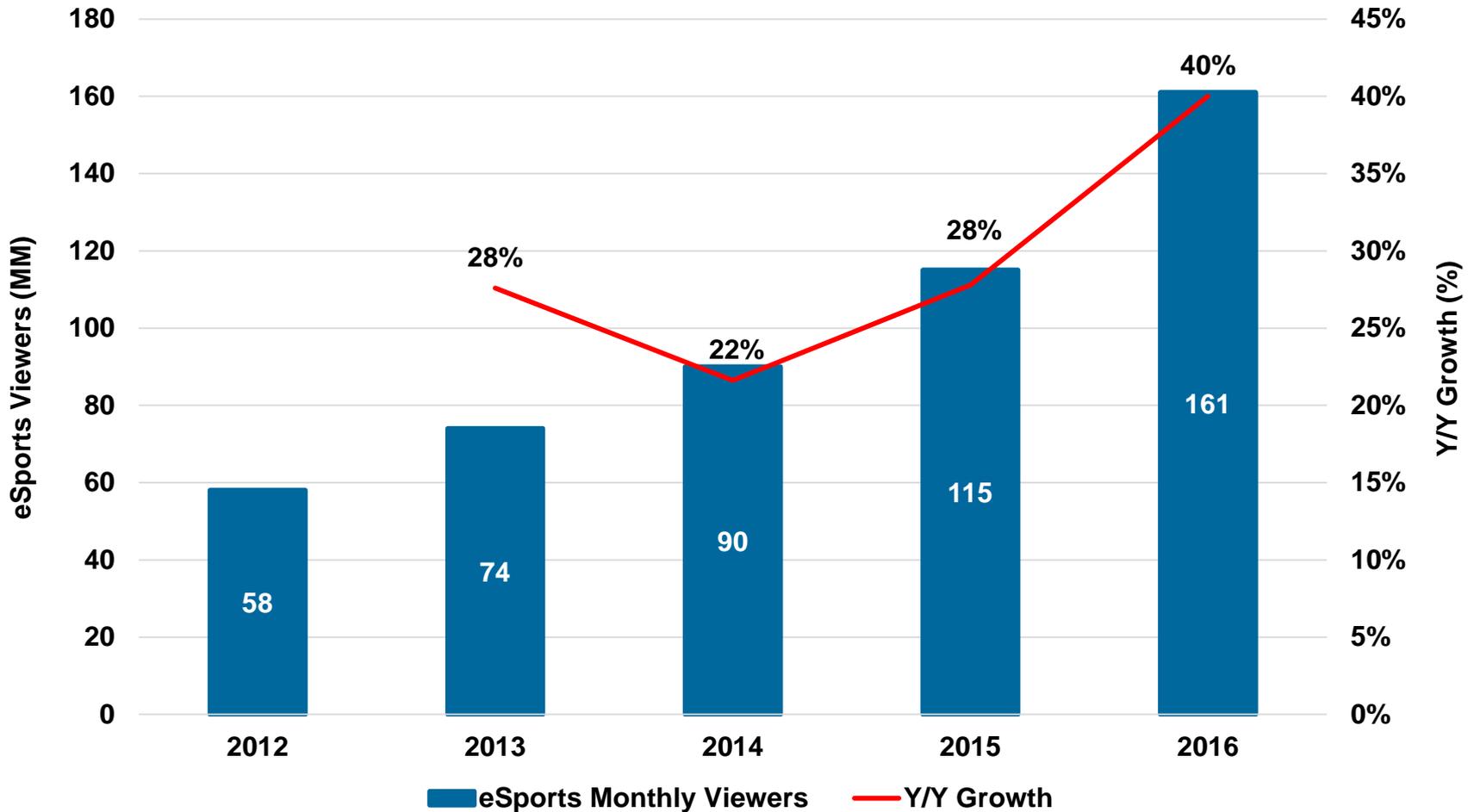
Non-Millennials = 45% for Traditional Sports vs. 13% for eSports

Which do you prefer, your favorite traditional sport or favorite eSports?



eSports Monthly Viewers @ 161MM... +40% Y/Y & Accelerating

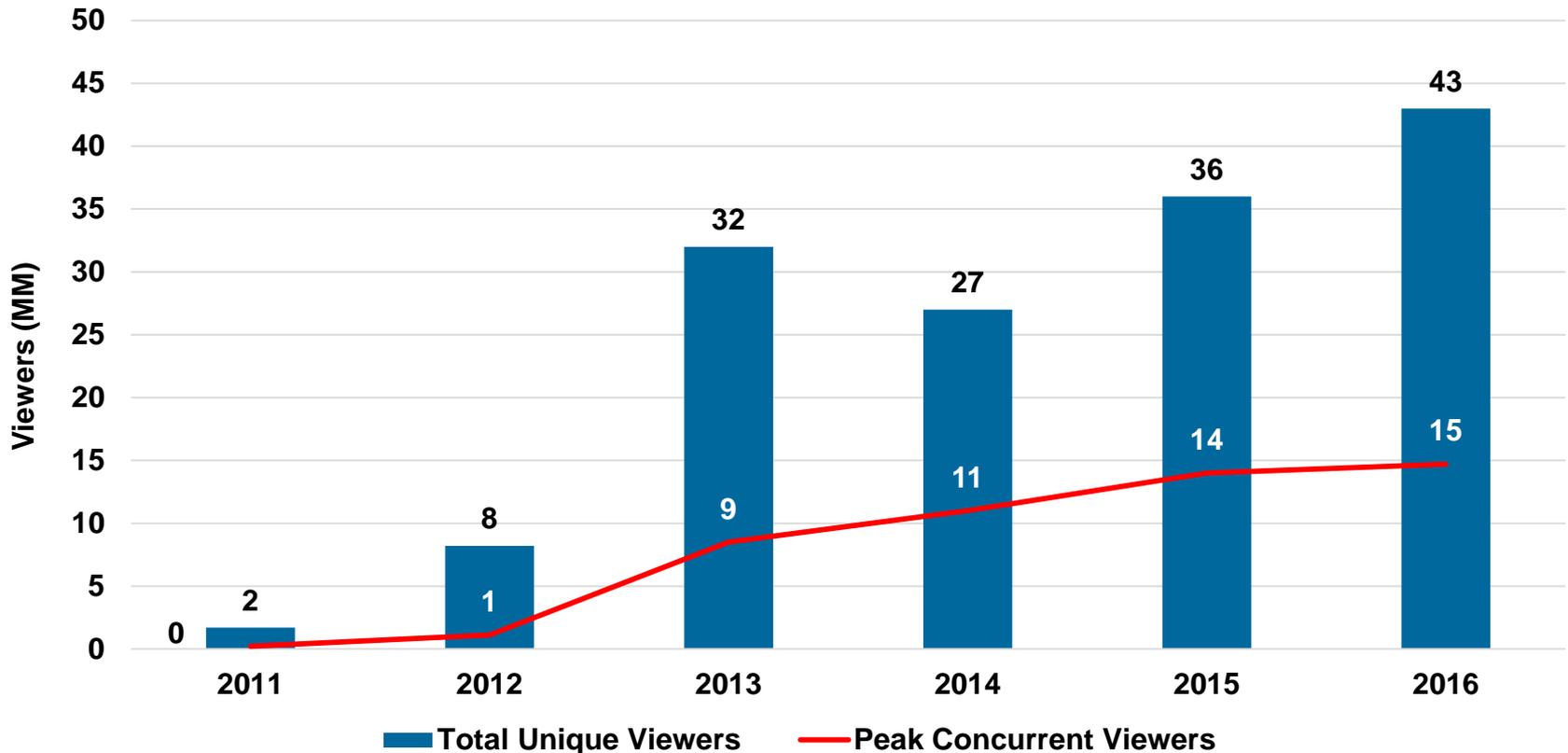
eSports Monthly Viewers, Global, 2012-2016



eSports League of Legends Championship Viewers @ 43MM... +19% Y/Y

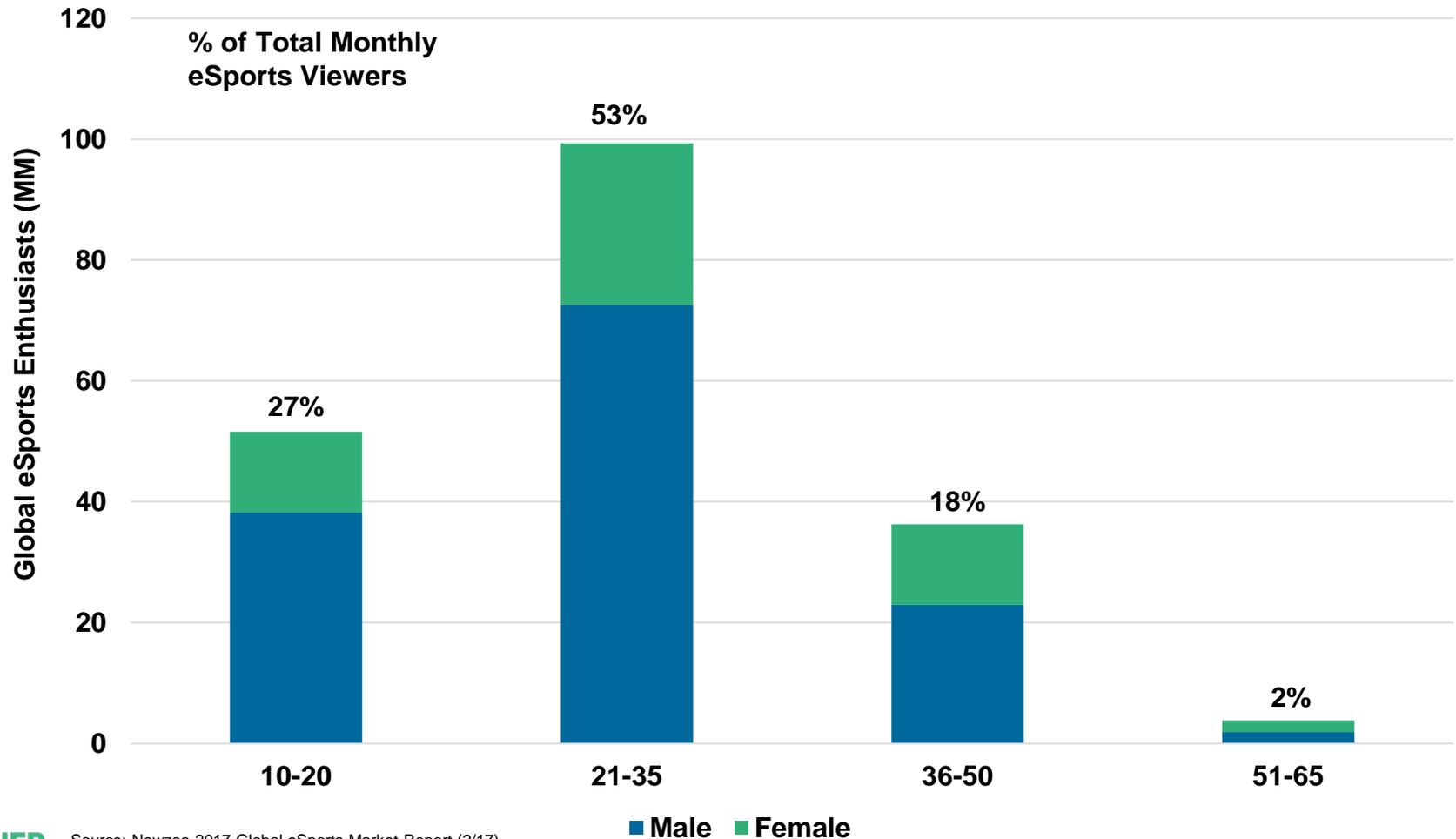
League of Legends World Championship Global Viewership Largest eSports Viewer Base

Total Unique Viewers vs. Peak Concurrent Viewers



eSports Monthly Viewers = 79% <35 Years Old...29% Female

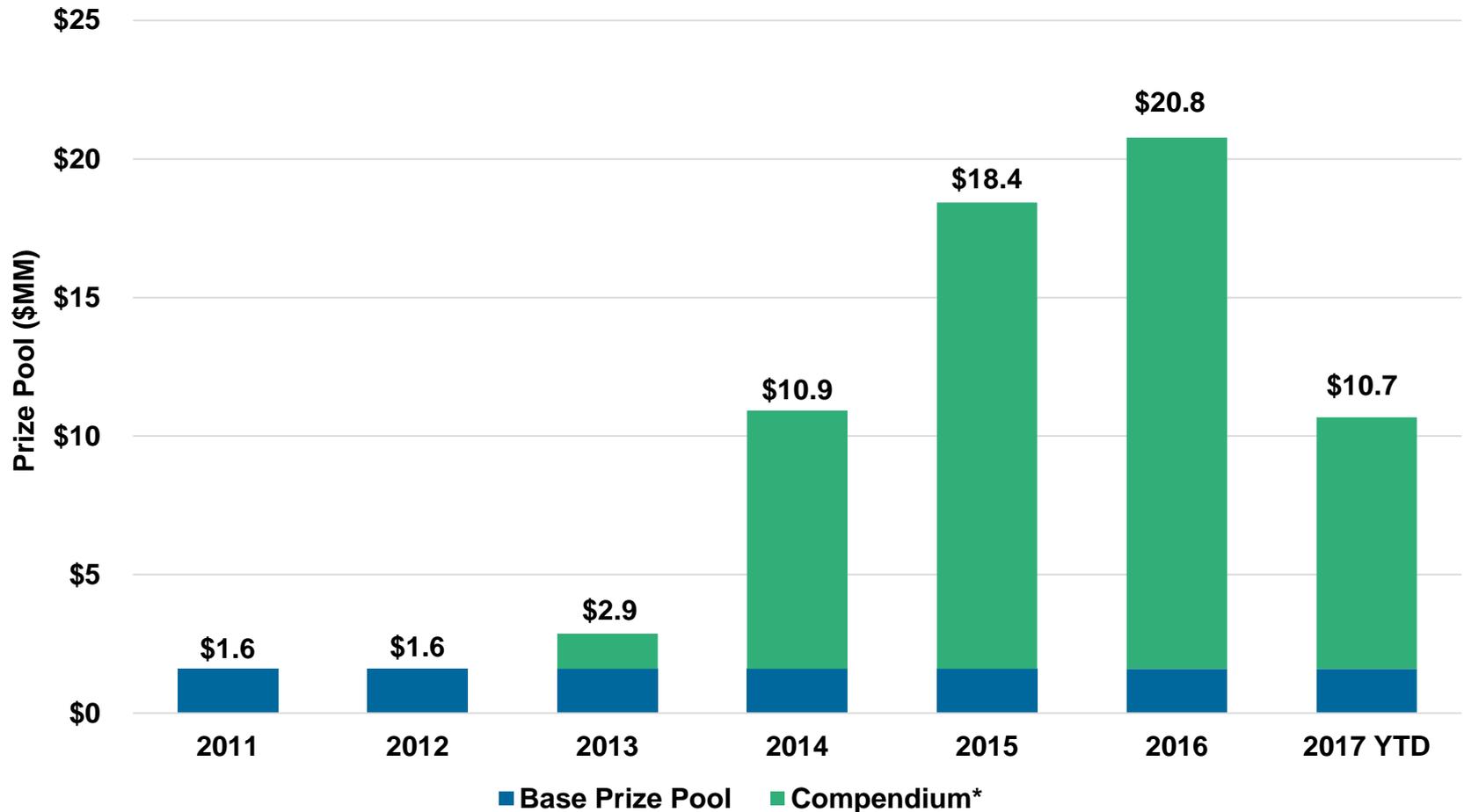
Monthly eSports Viewers by Age / Gender, Global, 2016



Source: Newzoo 2017 Global eSports Market Report (2/17)

eSports (Like Sports) = Money Follows Viewers + Winners... Fan In-Game Purchases Boost Prize Pools

Prize Pool for The International (DOTA 2), 2011-2017



Partnerships + Investments = Helping Bring eSports into Mainstream

**German Soccer Club,
FC Schalke 04 =
Acquires eSports
Team, Elements, 5/16**



**Philadelphia 76ers =
Acquire eSports
Teams, Dignitas &
Apex, 9/16**



**Riot Games +
BAMTech = \$300MM
6yr LoL Streaming
Rights, 12/16**



**Miami Heat = Invests
in eSports Team,
Misfits, 1/17**



Expanding Connections with Sports / Media Platforms

**Italian Soccer Club AS
Roma = Partners with
eSports Team, Fnatic, 2/17**



**NBA + Up with Take Two =
2K eSports League, 2/17**



**Facebook = Expands
eSports Relationships with
ESL Streaming Deal, 5/17**



Gaming Experience =>

***Technology
Leadership + Innovation?***

Ten Years Ago (2007) = A Stanford Professor Said...

*If you want to see what
business leadership may look like in
three to five years, look at what's
happening in online games.*

- Byron Reeves, Professor of Communication, Stanford University, 6/07

...~Ten Years Later = Entrepreneurs Often Fans of Gaming Experience

I like video games. In fact, that's what got me into software engineering when I was a kid. I wanted to make money so I could buy a better computer so I could play better video games.

- **Elon Musk**, CEO Tesla & SpaceX, 10/16

As a child I played a lot of Avalon Hill board games. And each board game is actually a complex set of rules and circumstances... So it was actually in fact my childhood gaming — for being able to build a model of what a game was — that was essentially the fundamental thing that informs my strategic sense.

- **Reid Hoffman**, Co-Founder of LinkedIn, 8/15

I do think this dynamic around kids growing up, building games, and playing games, is an important one because I think this is how a lot of kids get into programming. I definitely wouldn't have gotten into programming if I hadn't played games.

- **Mark Zuckerberg**, CEO Facebook, 5/15

*Perhaps Interactive Gaming
Evolution / Growth / Usage With
Related Data Collection / Analytics /
Real-Time Simulations + Engagement...*

*Has Been Helping Prepare Society for
On-Going Rise of
Human-Computer Interaction?*

Interactive Games = Motherlode of... Tech Product Innovation + Modern Learning

- 1) **Global Gaming** = Mainstream / Evolving Rapidly / Still Early Days
- 2) **Gaming Tools** = Pervasive Online
- 3) **Gaming Tools** = Improving Human Performance
- 4) **Gaming Platforms** = Evolving @ High Speed
- 5) **eSports** = Expanding Gaming Ecosystem via Fans / Spectators
- 6) **Gaming Experience** => Technology Leadership + Innovation?

MEDIA =

**DISTRIBUTION DISRUPTION @
TORRID PACE**

Digital Leaders =

Transforming Media With

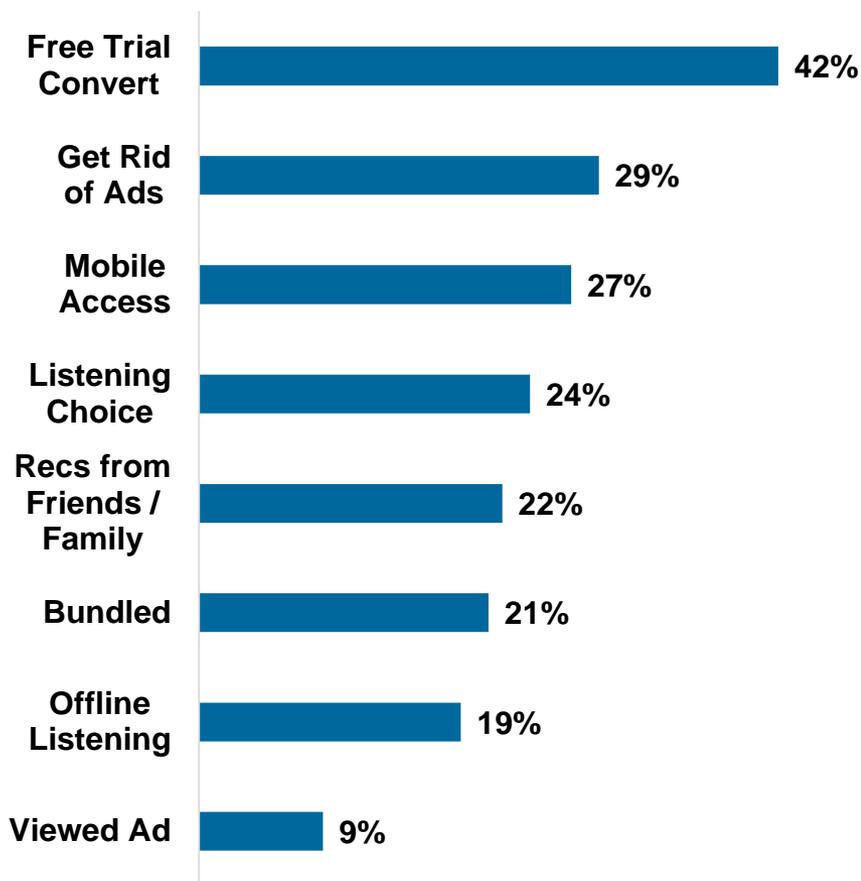
Better User Experiences +

Lower Prices...Data + Scale

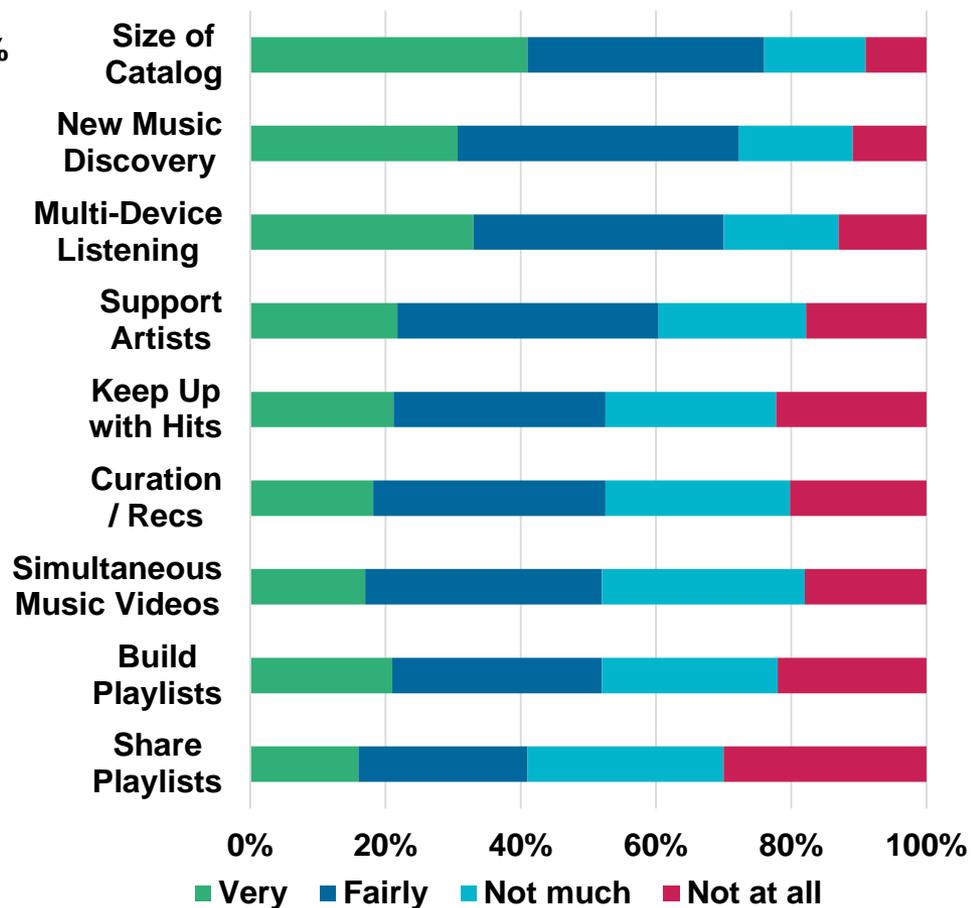
Music = Why Streaming?

Access / Choice / Discovery / Personalization / Mobile / Fewer Ads

Reasons for Paying for Music Streaming, 12/15

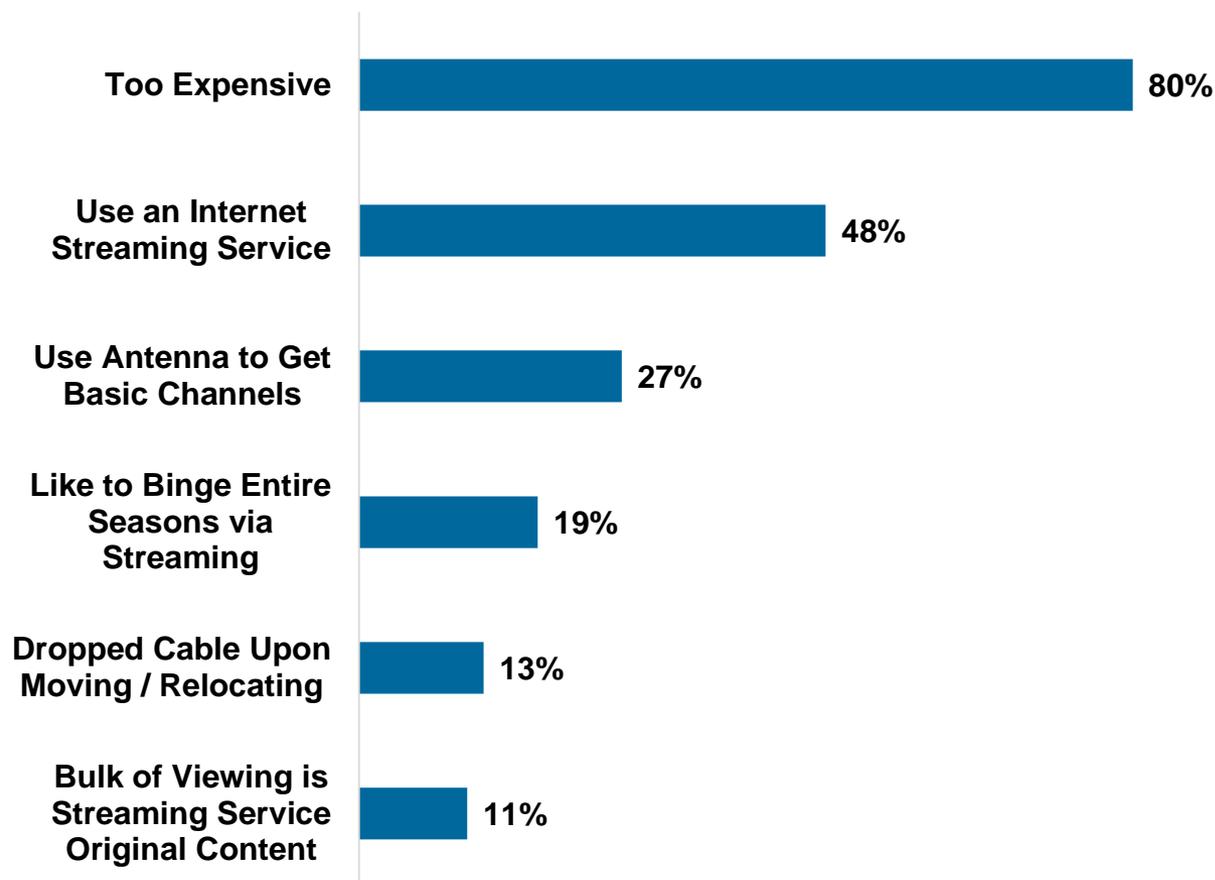


Importance of Streaming Product Features, 12/15



Video = Why Cord-Cutting? Lower Price + Convenience

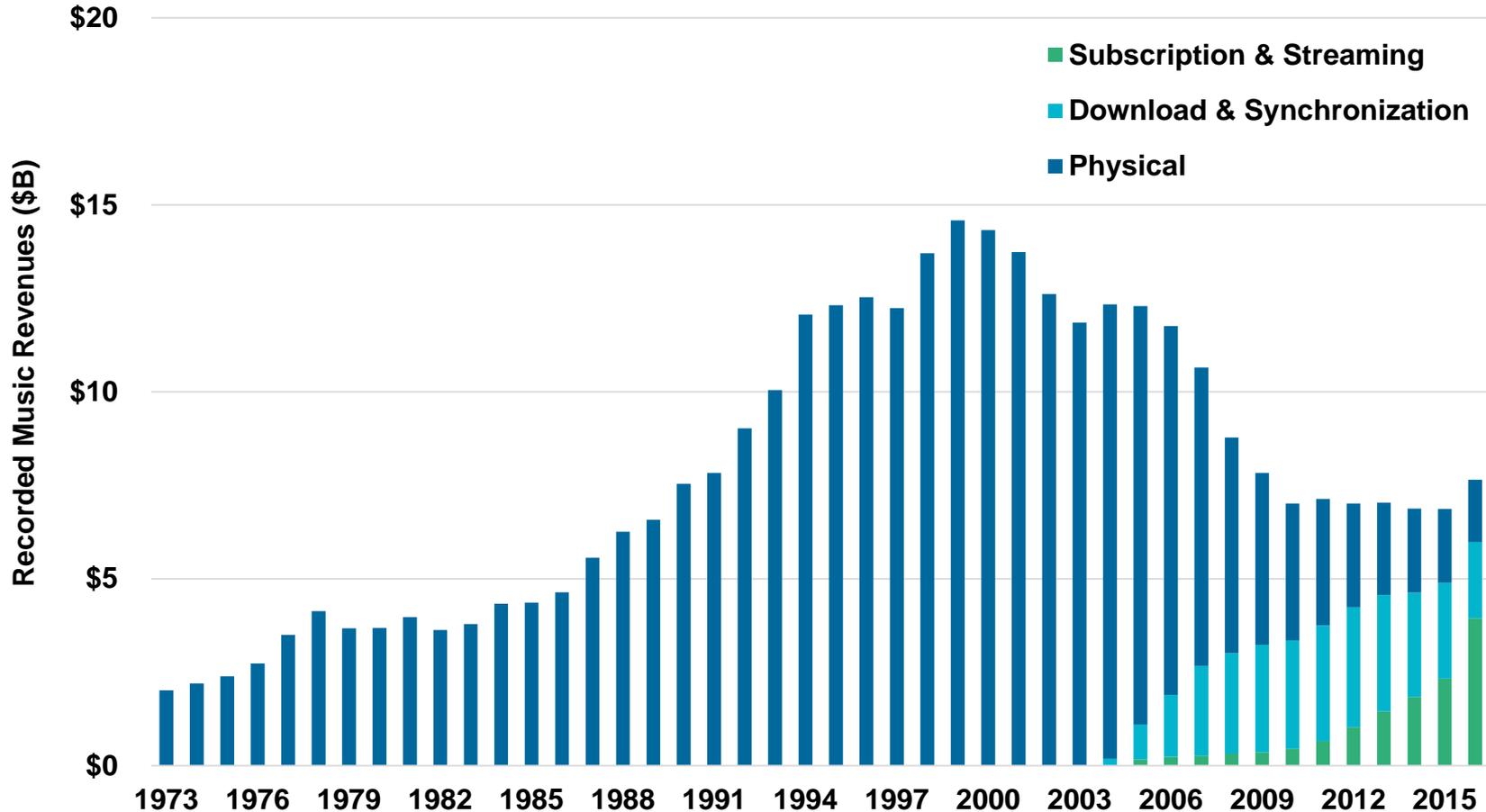
Reasons for Cutting Pay-TV Service, Q4:16



*Digital Evolution of
Music + Video =
Ramping Rapidly...*

Recorded Music = Revenue +11% After 16 Years of -4% Annual Average Growth... Subscription & Streaming @ 52% of Revenue vs. 0% Thirteen Years Ago, USA

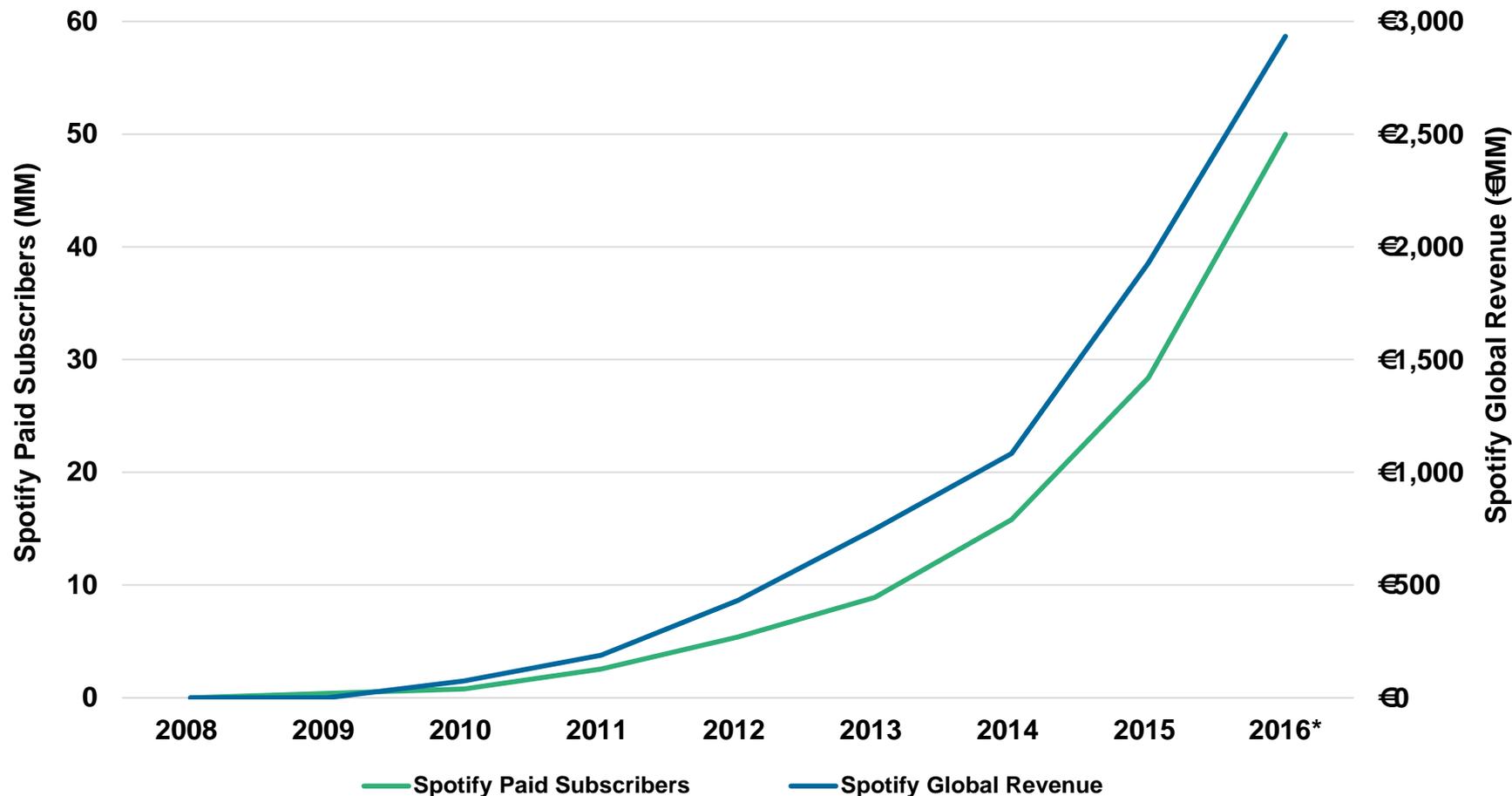
Recorded Music Revenues by Format (\$B), USA, 1973-2016



Spotify = Catalyst for Internet-Driven Evolution of Music Industry... 0 → 50MM Paid Subscribers / 126MM MAUs in <9 Years...

Spotify Subscribers (MM) & Revenue (€MM), 2008 – 2016*, Global

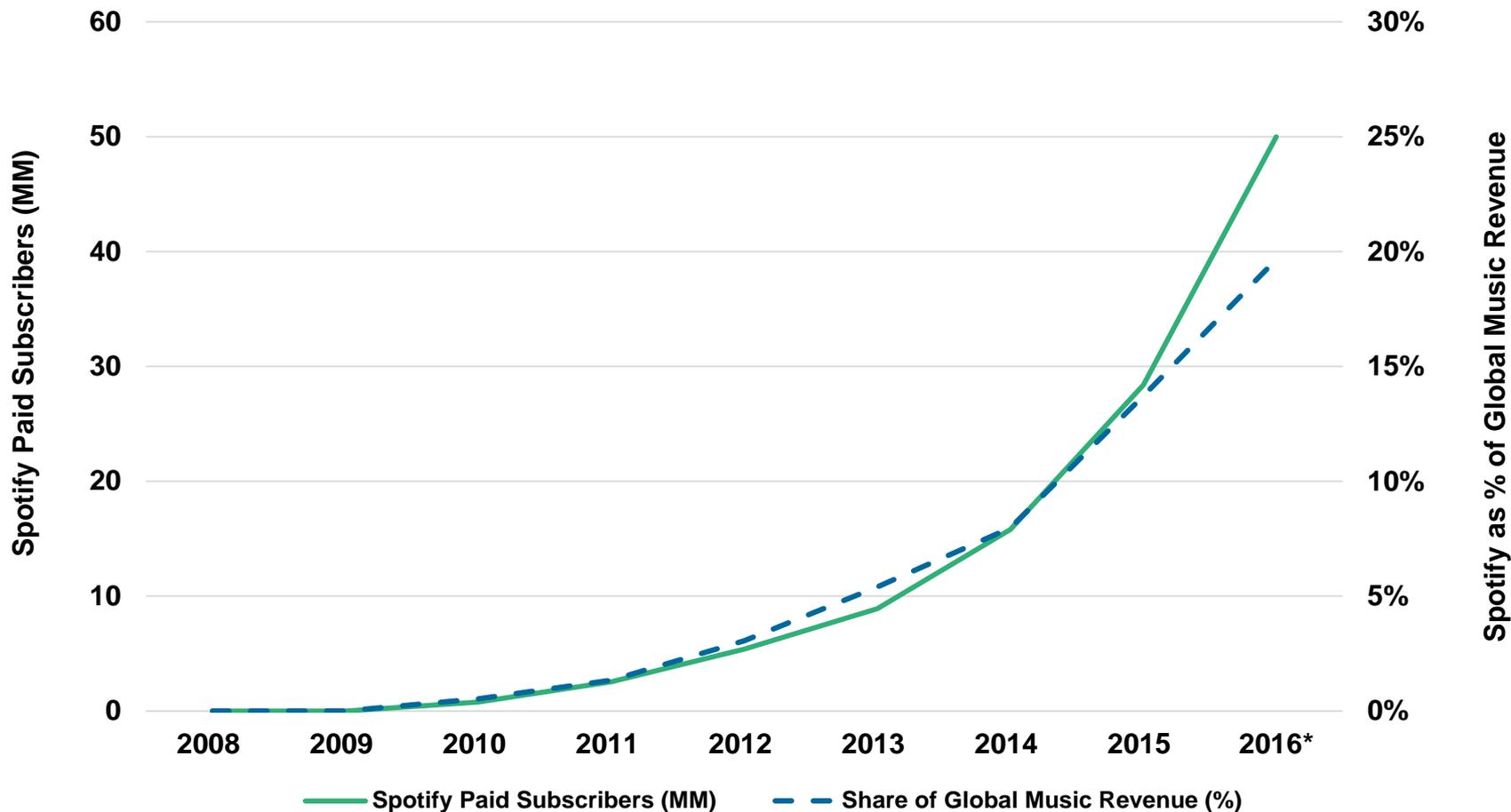
Q4:16 Monthly ARPU = €5.80 (\$6.10)



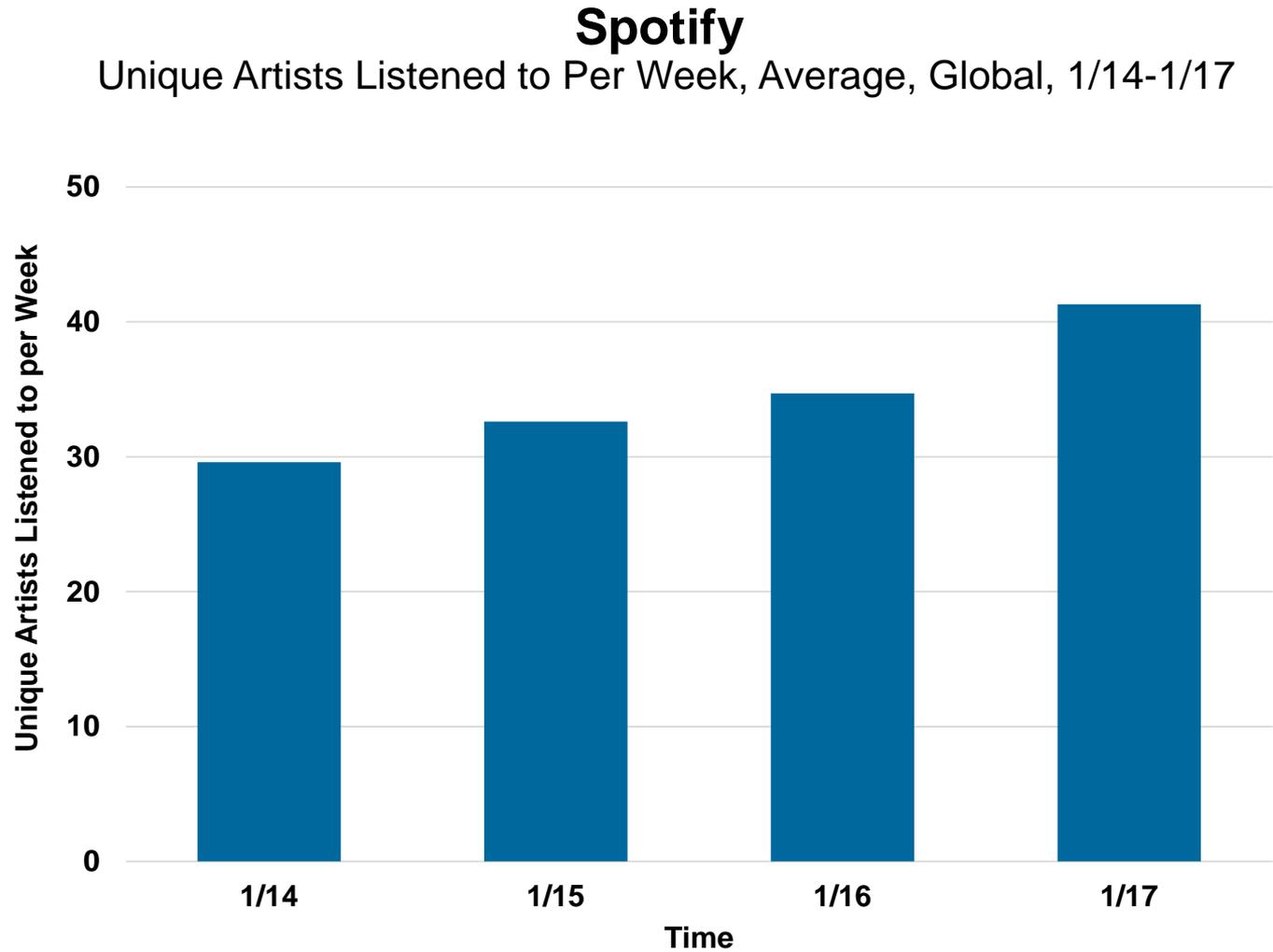
...Spotify = 20% of Global Music Industry Revenue vs. 0% in 2008

Spotify Subscribers (MM), 2008 – 2016*, Global

Q4:16 Monthly ARPU = €5.80 (\$6.10)

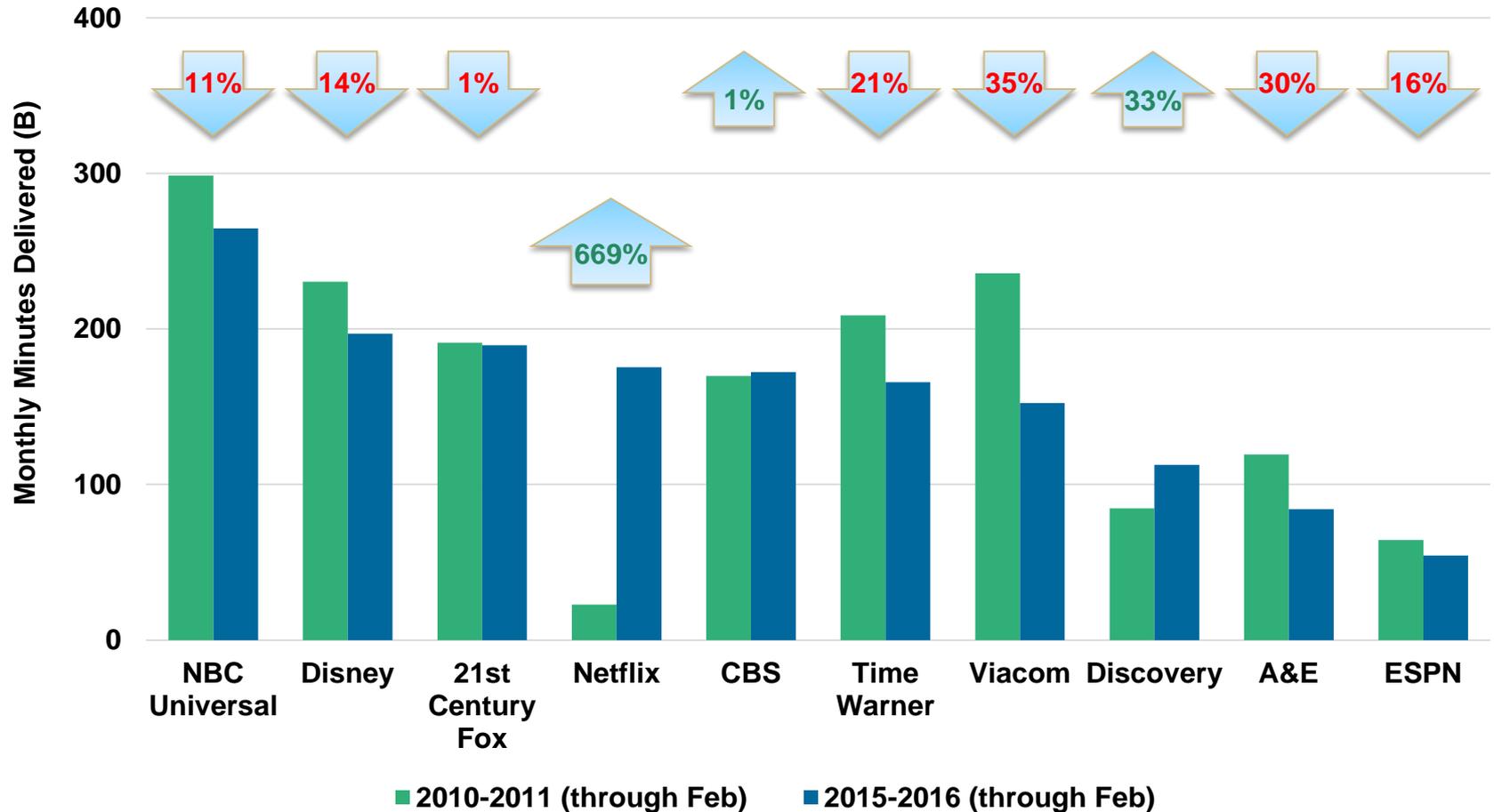


Spotify = Users Listen to 41 Artists per Week, +40% (vs. 1/14) Owing to... Recommendation Engine (Data + Algorithms)



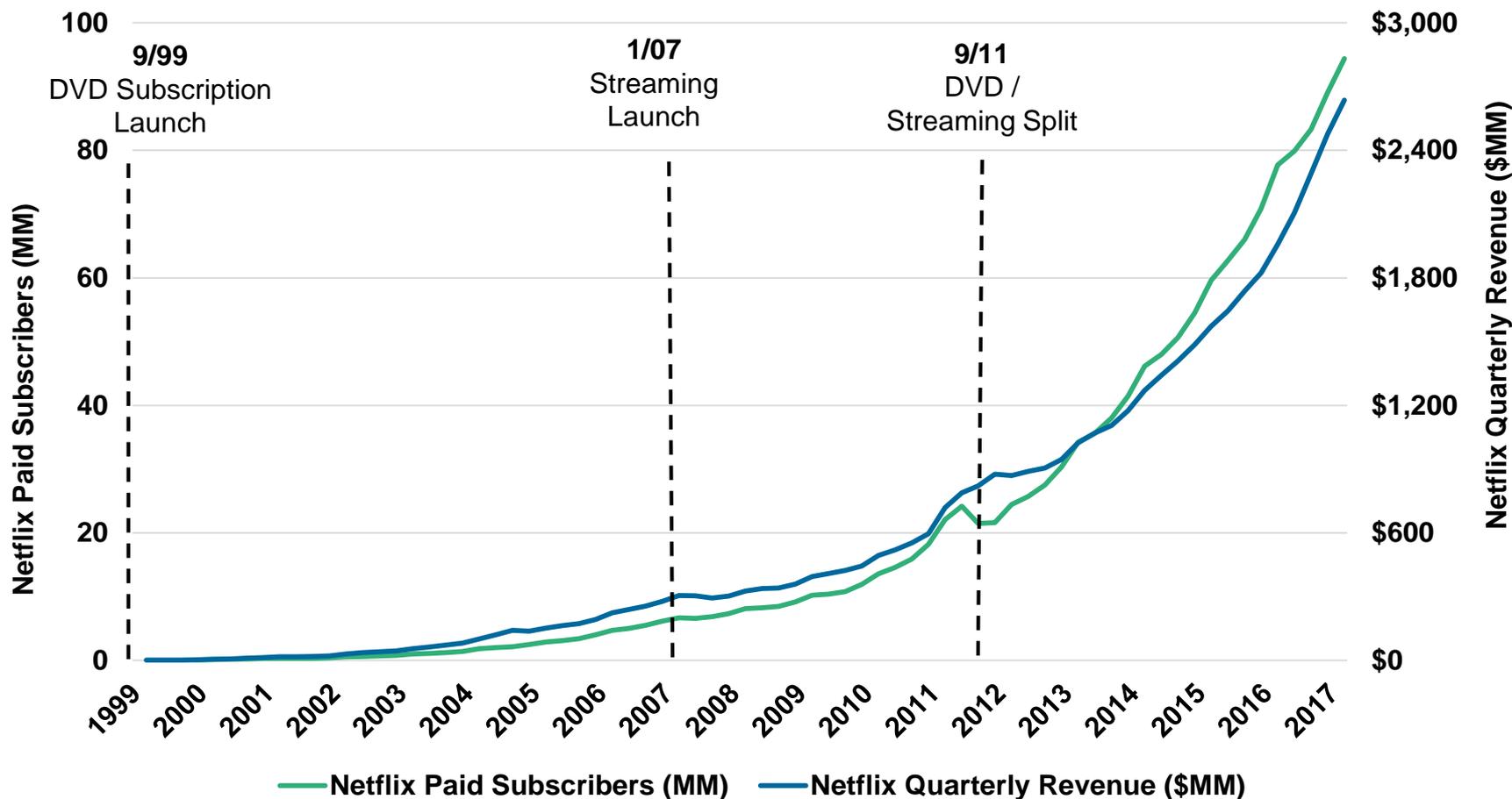
Network TV* Minutes Delivered = 2011 Top 5 Networks -10% Average... Netflix +669% Over 5 Years, USA...

Monthly Minutes Delivered By Network Group, USA, 2010/11-2015/16



Netflix = Catalyst for Internet-Driven Evolution of Video Industry... 95MM Streaming Subscribers in 10 Years...

Netflix Subscribers (MM) & Quarterly Revenue (\$MM), 2/99 – 3/17, Global Q1:17 Streaming ARPU per Month = \$9.14



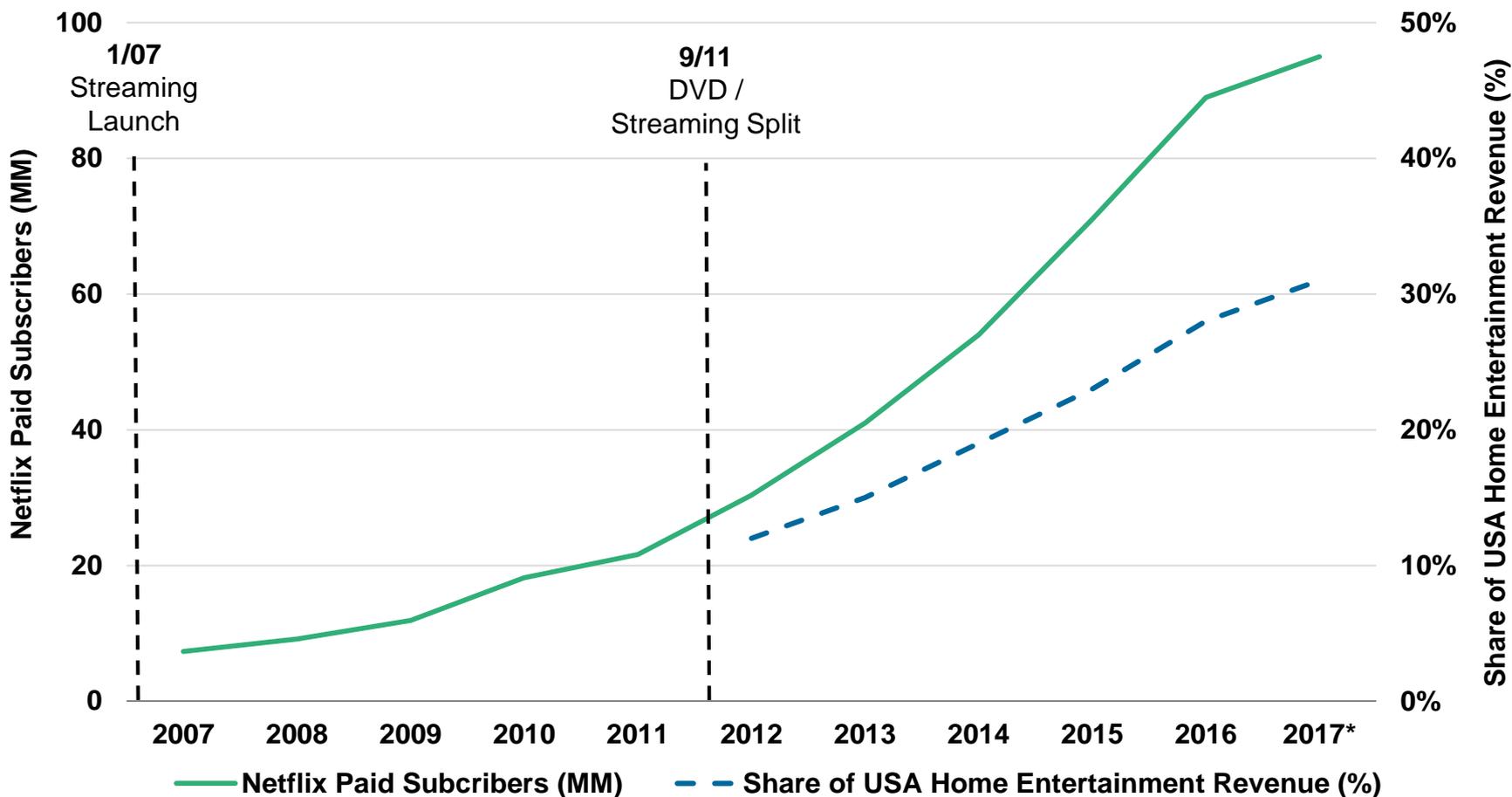
Source: Netflix

Note: Netflix subscription DVD service launched 9/1998. Data before Q3 2001 represents all subscribers because paid subscribers not broken out. Netflix split streaming subs from DVD subs in Q3 2011; graph shows only streaming subs thereafter. ARPU shown ex-DVD.

...Netflix Streaming = From 0% to >30% of Home Entertainment Revenue in 10 Years, USA

Netflix Subscribers, 2009 – 2017*, Global

Q1:17 Streaming ARPU per Month = \$9.14

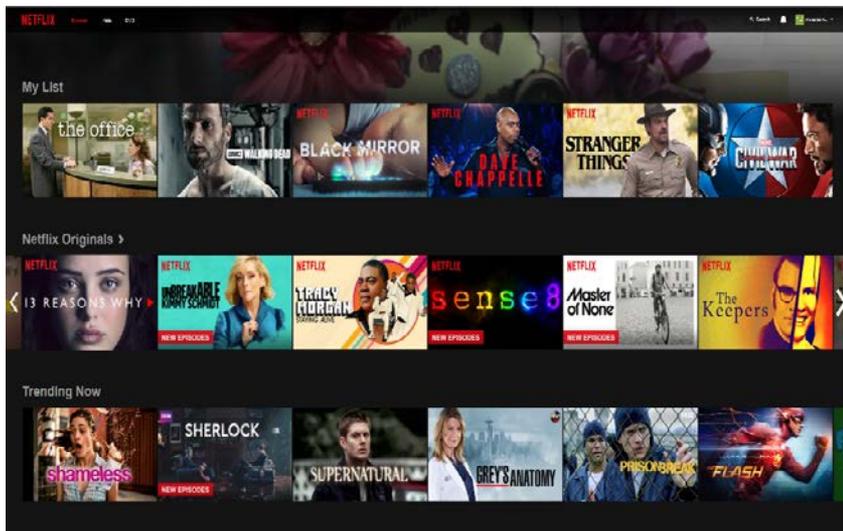


Google Pioneered Search / Find / Obtain (SFO) for Content + Products... Netflix + Spotify Pioneered Search / Find / Serve Up (SFS) for Media

From Give to Get...With Data + Algorithms

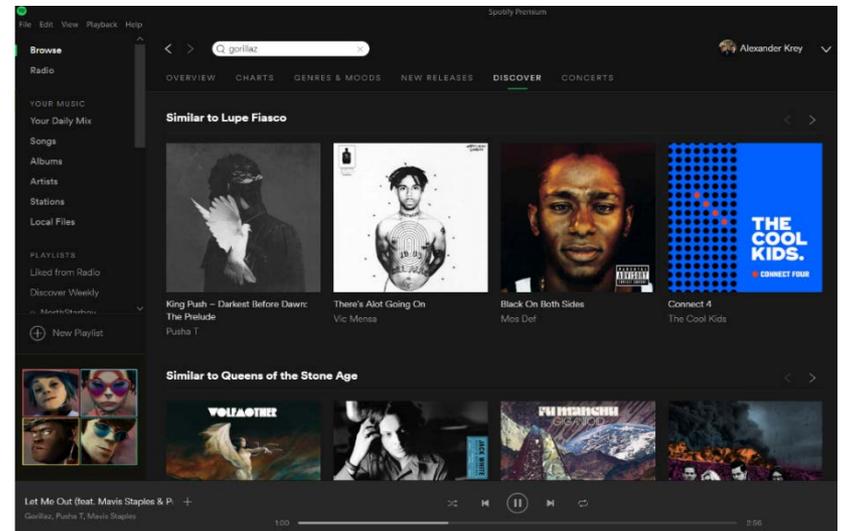
98MM Different Netflixes...

*\$1B cost savings / year
from recommendations (12/15)*



126MM Different Spotifys...

*~5B Discover Weekly streams in
<1 year post-launch (5/16)*

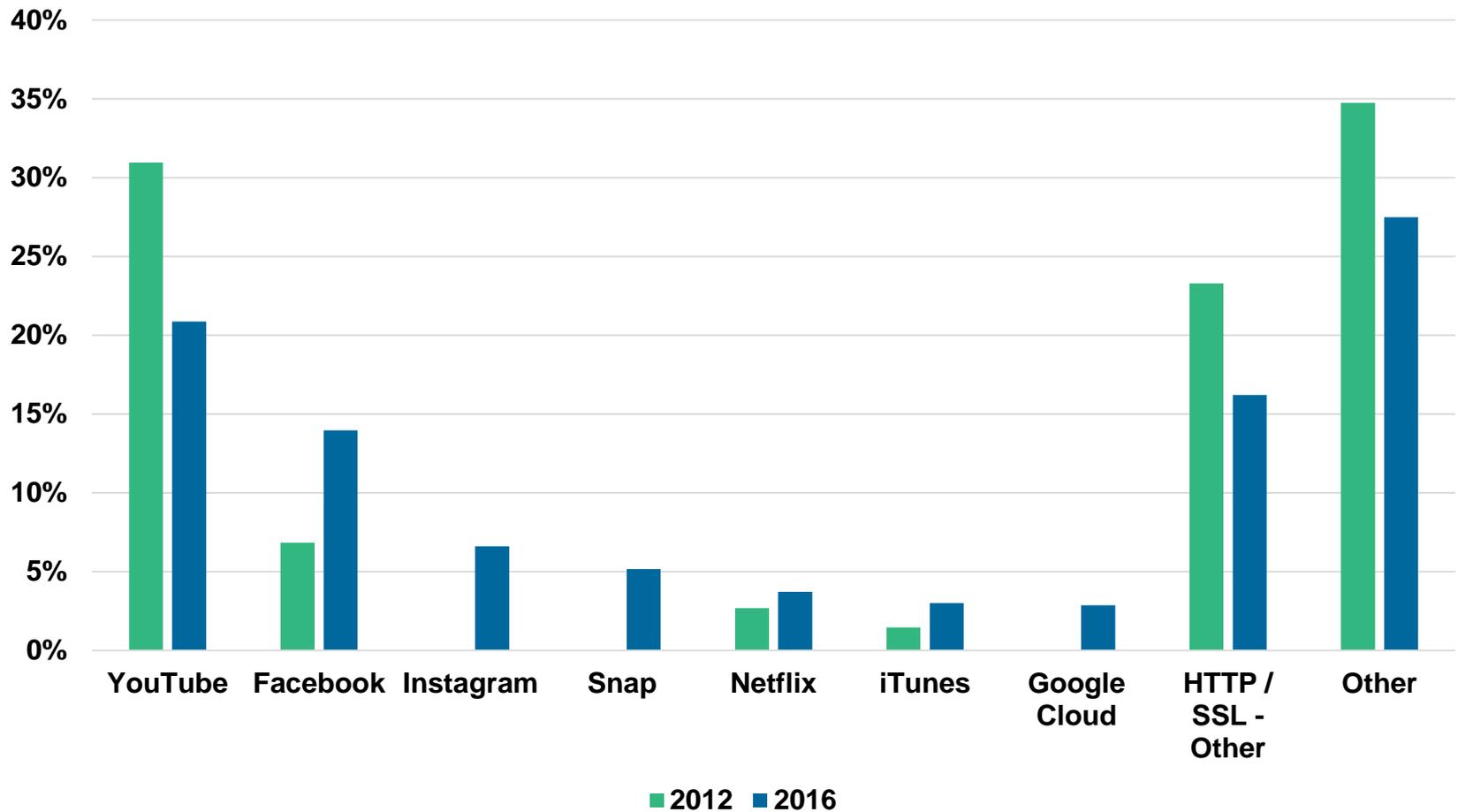


*Digital Evolution of
Music + Video =*

Multiple Approaches...

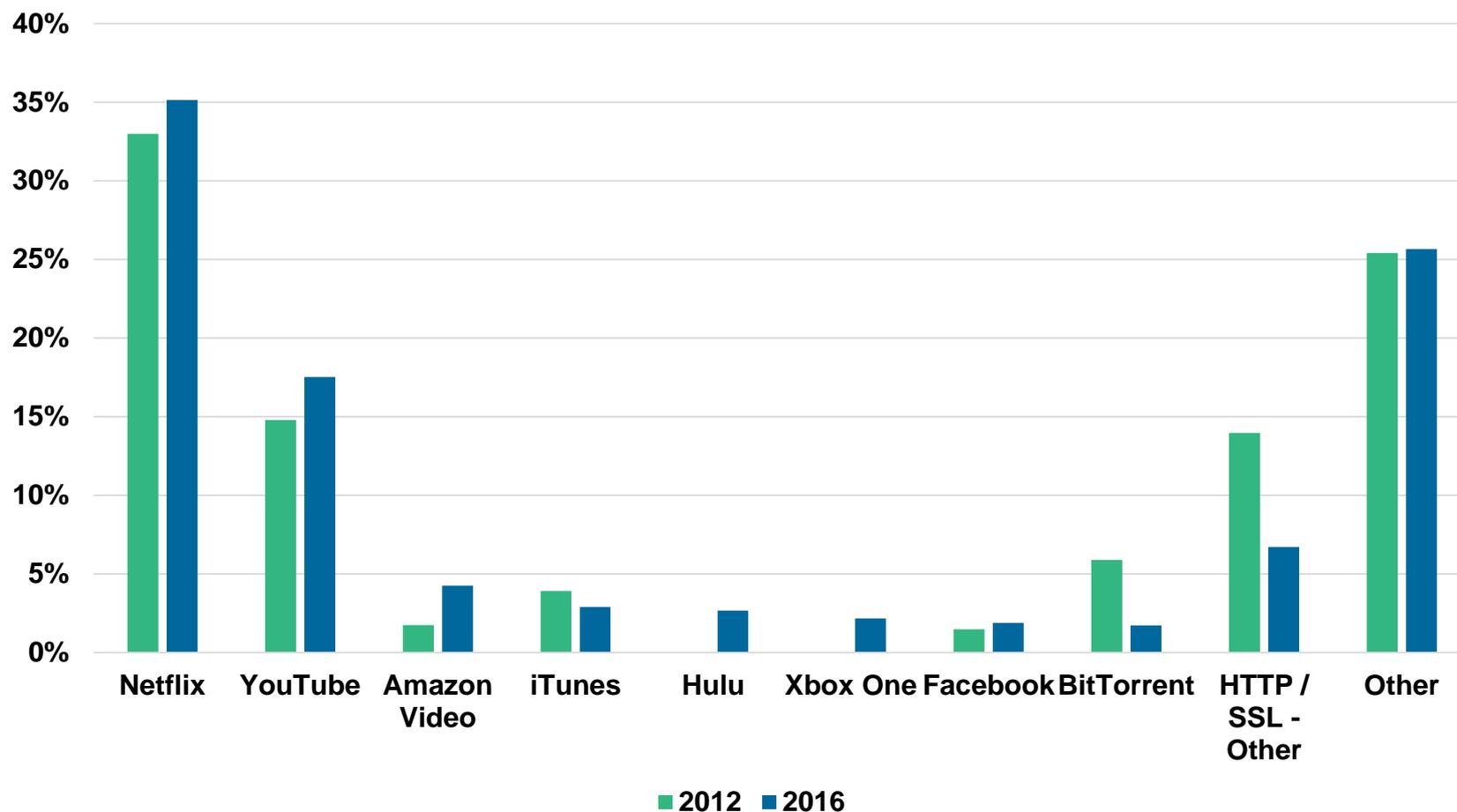
Facebook / Instagram / Snap = Mobile Video Traffic Share Gainers Over 4 Years...

Share of Downstream Video Traffic (%), North America, 2H 2016



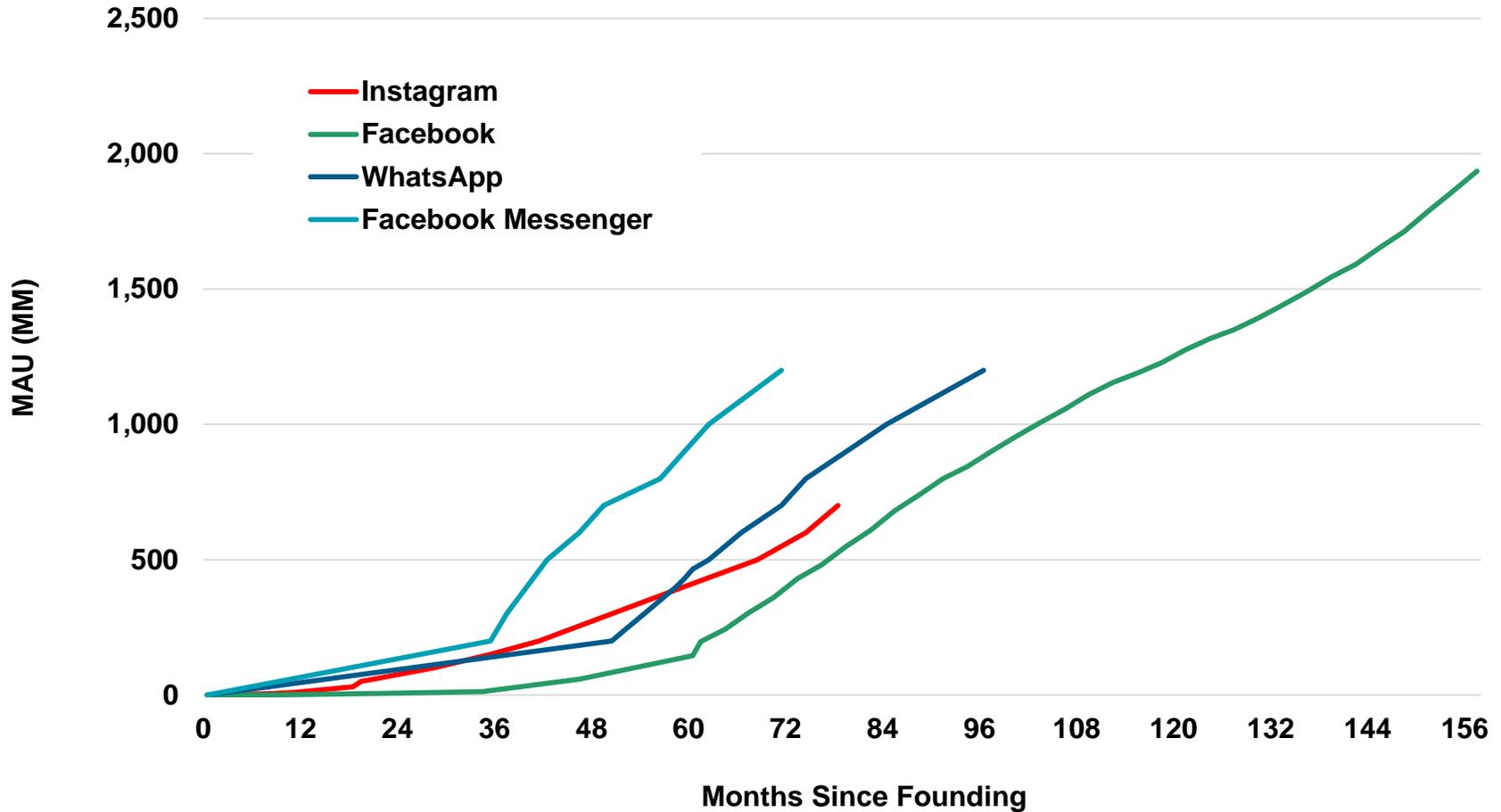
...Netflix / YouTube = Fixed-Access Video Traffic Share Leaders

Share of Downstream Video Traffic (%), North America, 2H 2016



Facebook (Facebook / WhatsApp / Messenger / Instagram) = Video Ramping Across Platform

Facebook Platform MAUs, Global, Months Since Launch



Source: Facebook, Instagram, Whatsapp, Financial Times, TechCrunch

Snap = Ramping Original Short-Form Content

Snap 'Original Shows'

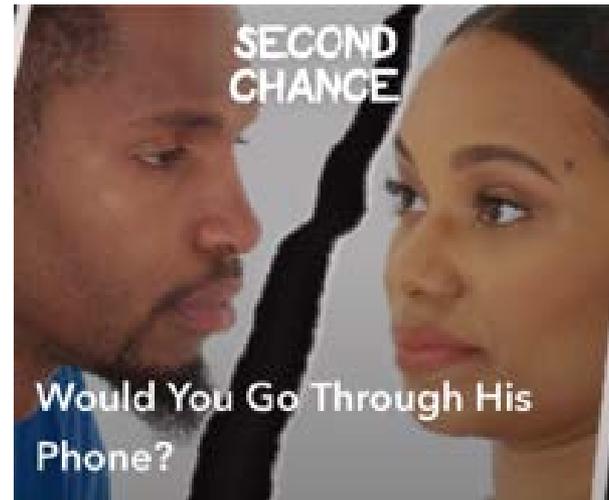
Phone Swap

10MM+ Views for 1st Episode, 5/17



Second Chance

8MM+ Views for 1st Episode, 5/17



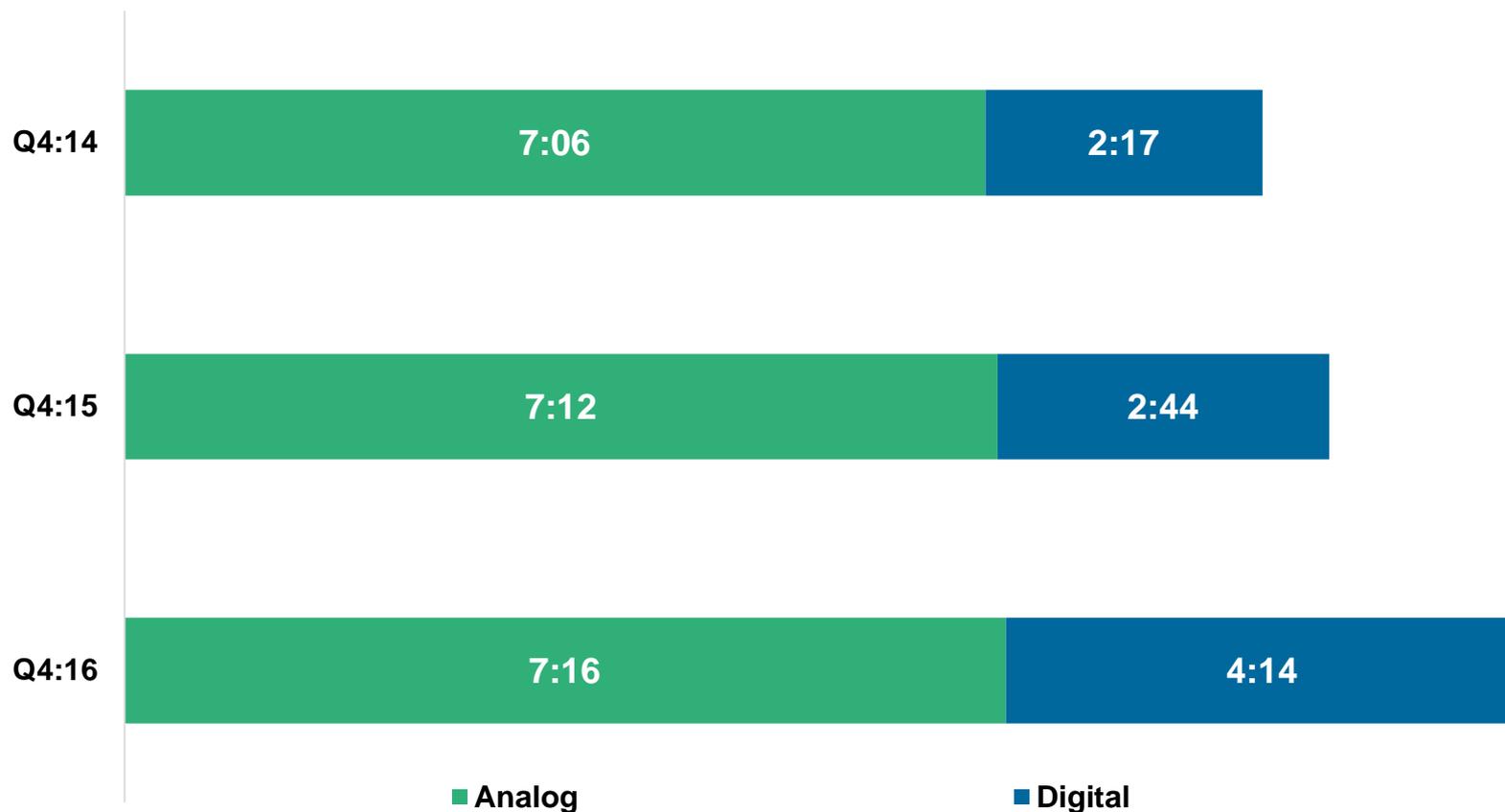
Generational Media Usage =

Chasm Increasing...

***Shifts to Internet-Enabled
Media Continue***

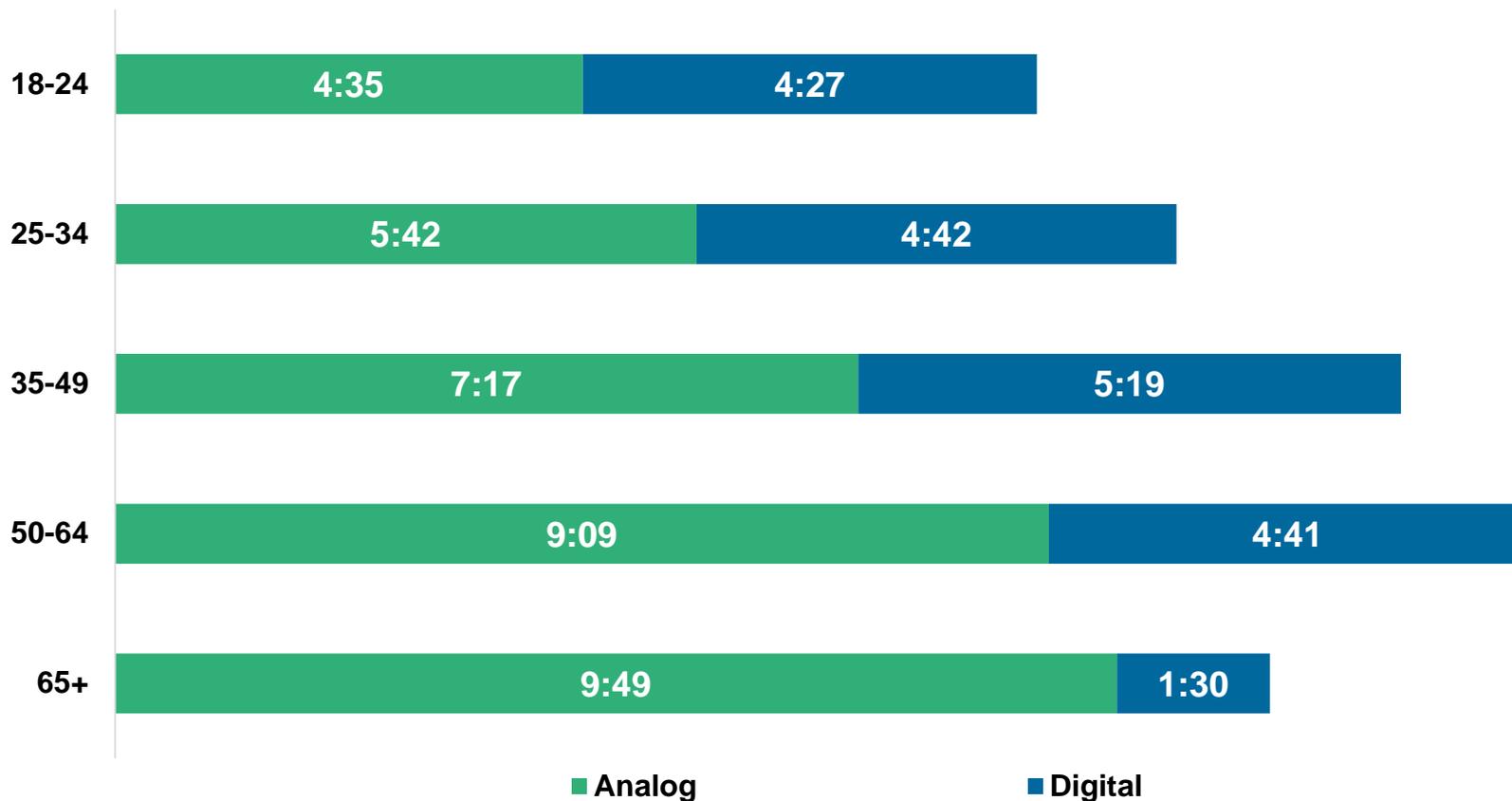
Mobile Device Time per Day = +2x Over 2 Years...

Daily Time Spent by Media (Not De-Duped), USA, Q4:14-Q4:16



...Mobile Device Time per Day = 18-24 Year-Olds @ 49% Digital...65+ Year-Olds @ 13%, USA

Daily Time Spent by Media & Age Bracket (Not De-Duped), USA, Q4:16



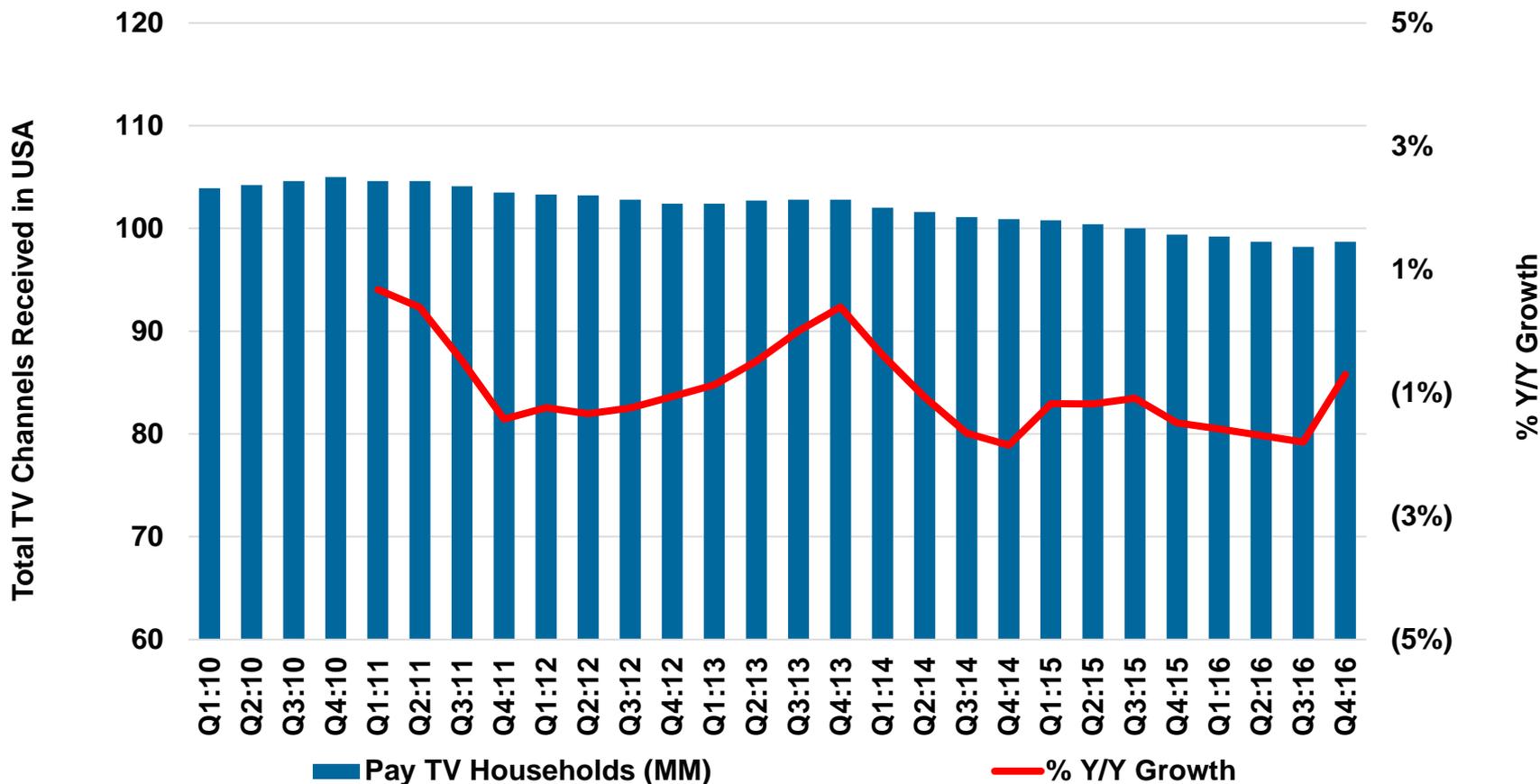
Traditional Cable Conundrum =

***Channels + Consumer Prices +
Programming Costs Rising...***

Subscribers Falling

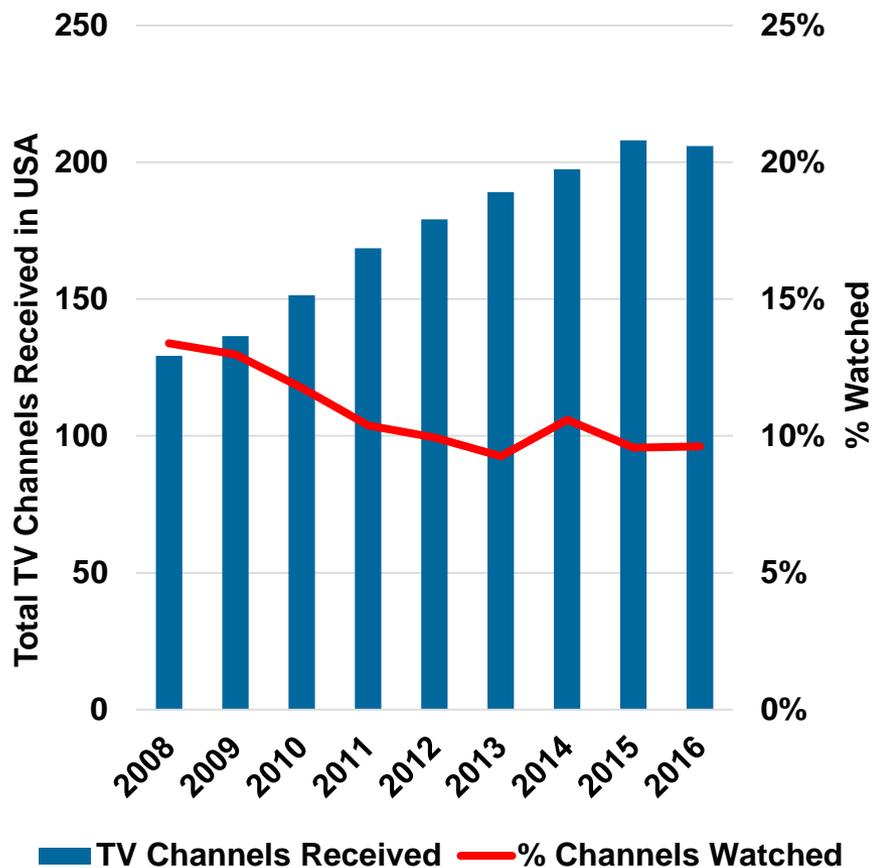
Pay TV Household Growth = -1.3% Average for Last 12 Quarters... While Programming Costs >2x+ since 2006...

Pay TV Households (MM), USA, 2010-2016

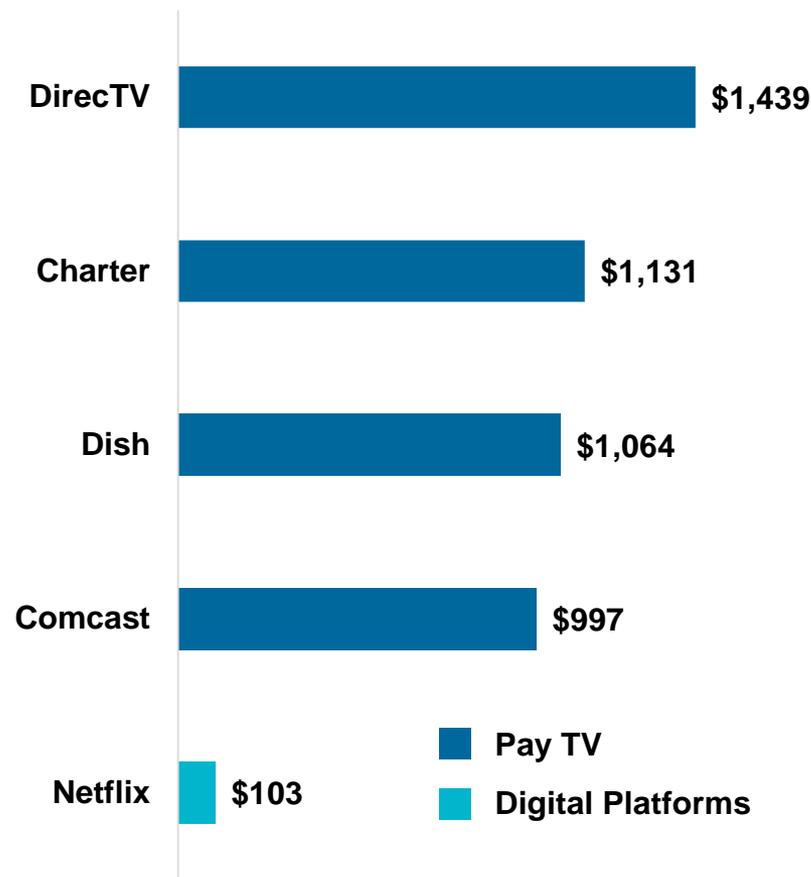


...# TV Channels Watched <10% of Channels Received... Pay TV ARPU 10-15x > Netflix...

Average TV Channels Received vs. Watched per Household, USA, 2008-2016



Annual ARPU, Selected Platforms, 2016



Digital Subscriptions =

***Rising Owing to Massive
User Experience Improvements...***

***On-Demand / A La Carte Selection +
Choice / Personalization / Payment
Systems / 2-Way UGC / Mobile...***

Media Evolution (1950-2017) = Market of Millions → Market of One x Millions

Network Era 1950s-1980s

*Cater to All /
High Viewership /
No Personalization*



Cable Era 1980s-2010s

*Broad Genres /
Focus on Programming /
Limited Bundle Choices*



Digital Era Current

*Cater to Sub-Genres /
Power Users /
A La Carte + Subscription*

Digital Distributors



Digital Studios



Media = Distribution Disruption @ Torrid Pace

- 1) **Digital Leaders** = Transforming Media With Better User Experiences + Lower Prices...Data + Scale
- 2) **Generational Media Usage** = Chasm Increasing as Shifts to Internet-Enabled Media Continue
- 3) **Traditional Cable Conundrum** = Channels + Consumer Prices + Programming Cost Rising...Subscribers Falling
- 4) **Digital Subscriptions** = Rising Owing to Massive User Experience Improvements (On-Demand / Selection + Choice / Personalization / Payment Systems / 2-Way UGC / Mobile...)

THE CLOUD =

**ACCELERATING CHANGE ACROSS
ENTERPRISES**

ALEX KURLAND @ KLEINER PERKINS

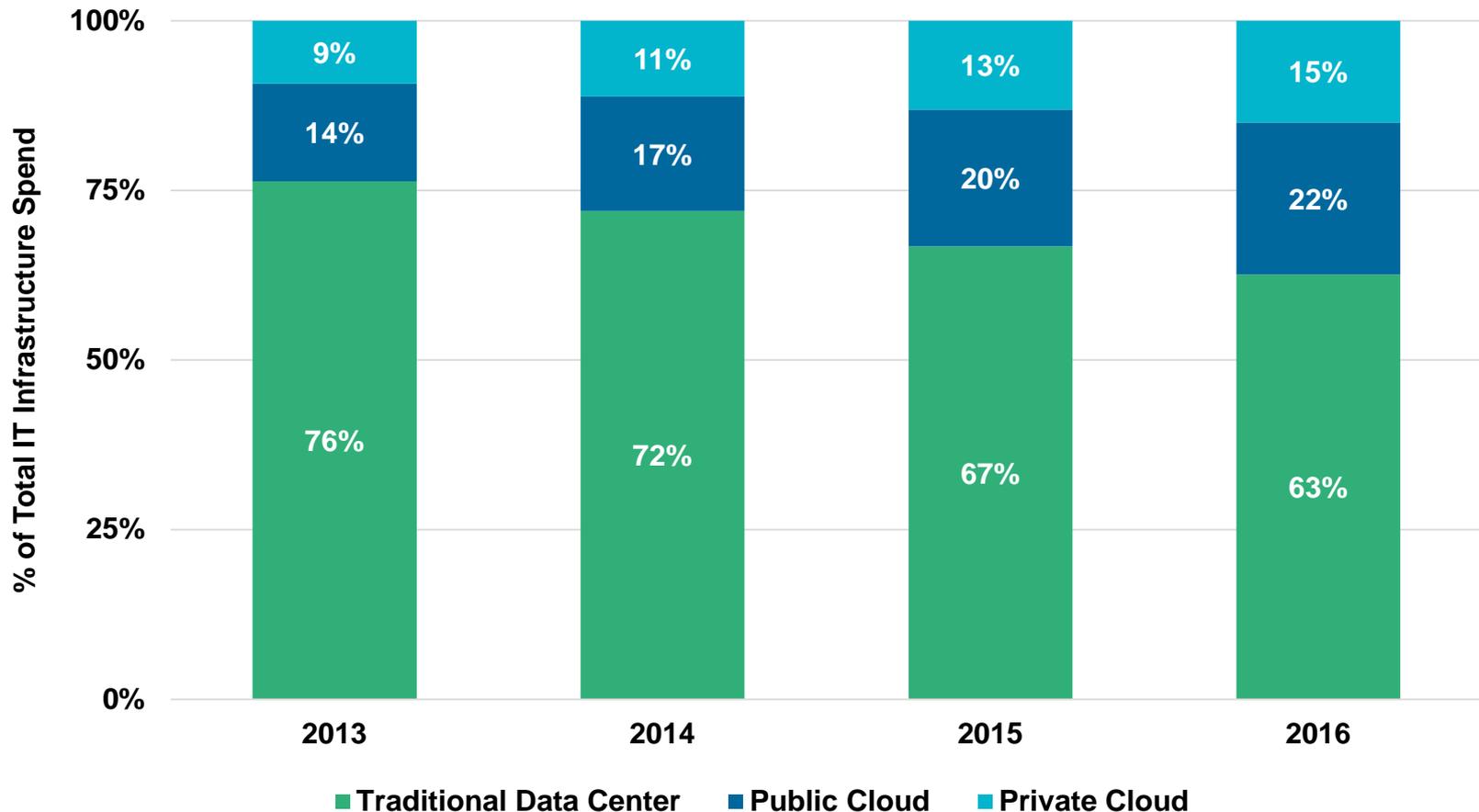
The Cloud = Accelerating Change Across Enterprises

- 1) **Cloud Adoption** = Reaching New Heights + Creating New Opportunities
- 2) **Enterprise Software** = Customer Expectations → Mirroring Those of Consumer Apps
- 3) **Security** = More Applications → More Vulnerabilities

***Cloud Adoption =
Reaching New Heights +
Creating New Opportunities***

Public + Private Clouds = Approaching Traditional Data Center Spend... +37% to \$36B vs. 2014

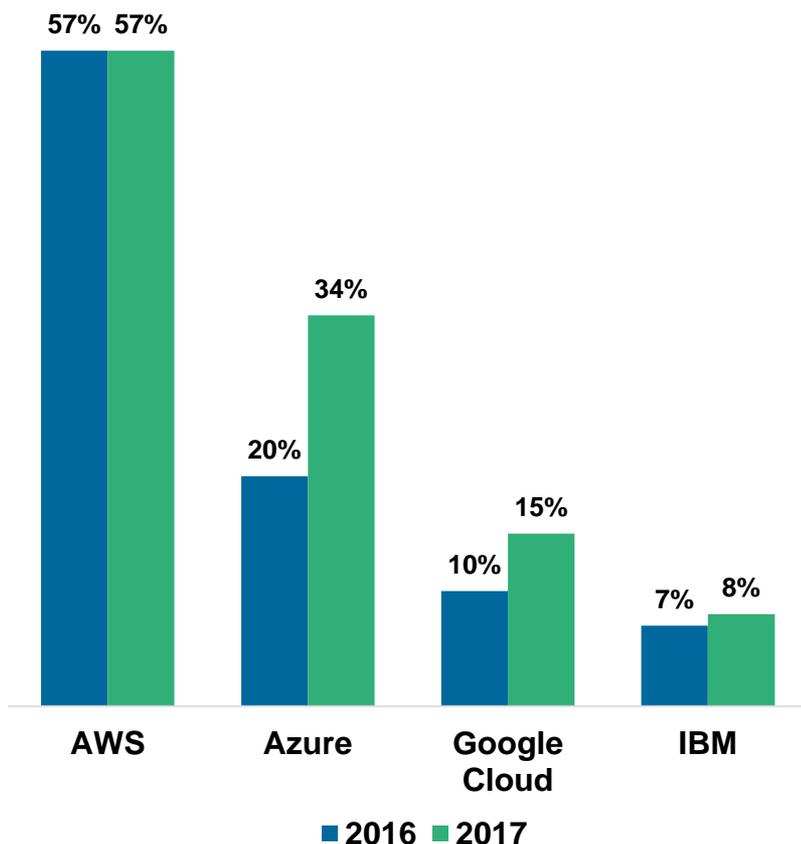
IT Infrastructure Spend, Global, 2014-2016



Public Cloud Adoption Trends = AWS Maintains Lead...Azure + Google Rising

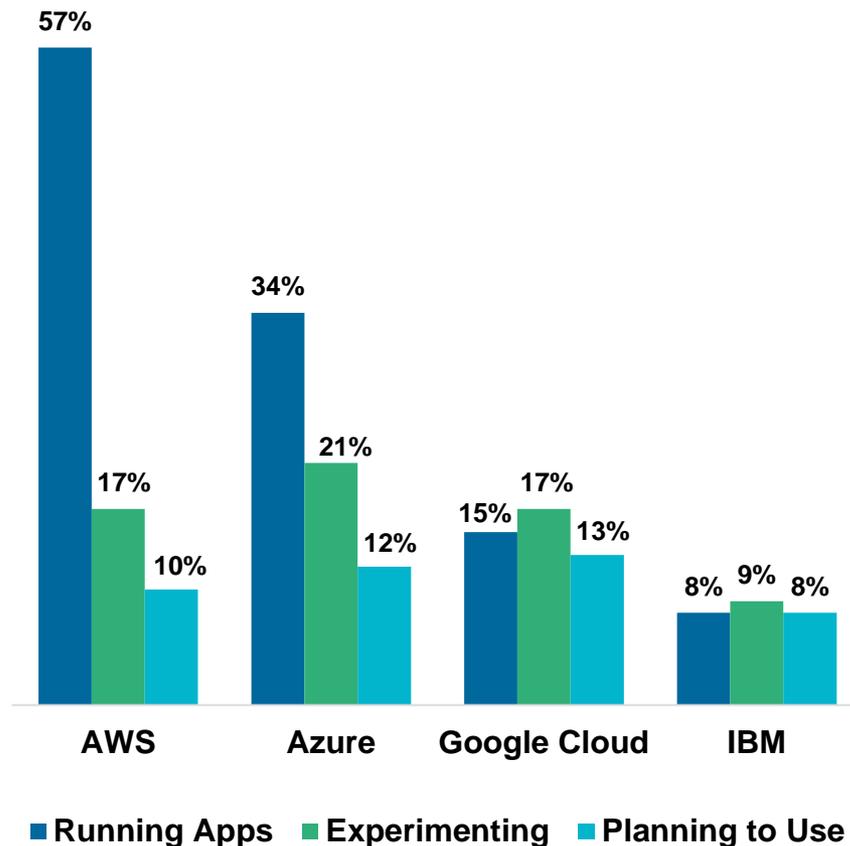
Public Cloud Adoption, 2016 vs. 2017

% of Respondents Running Applications



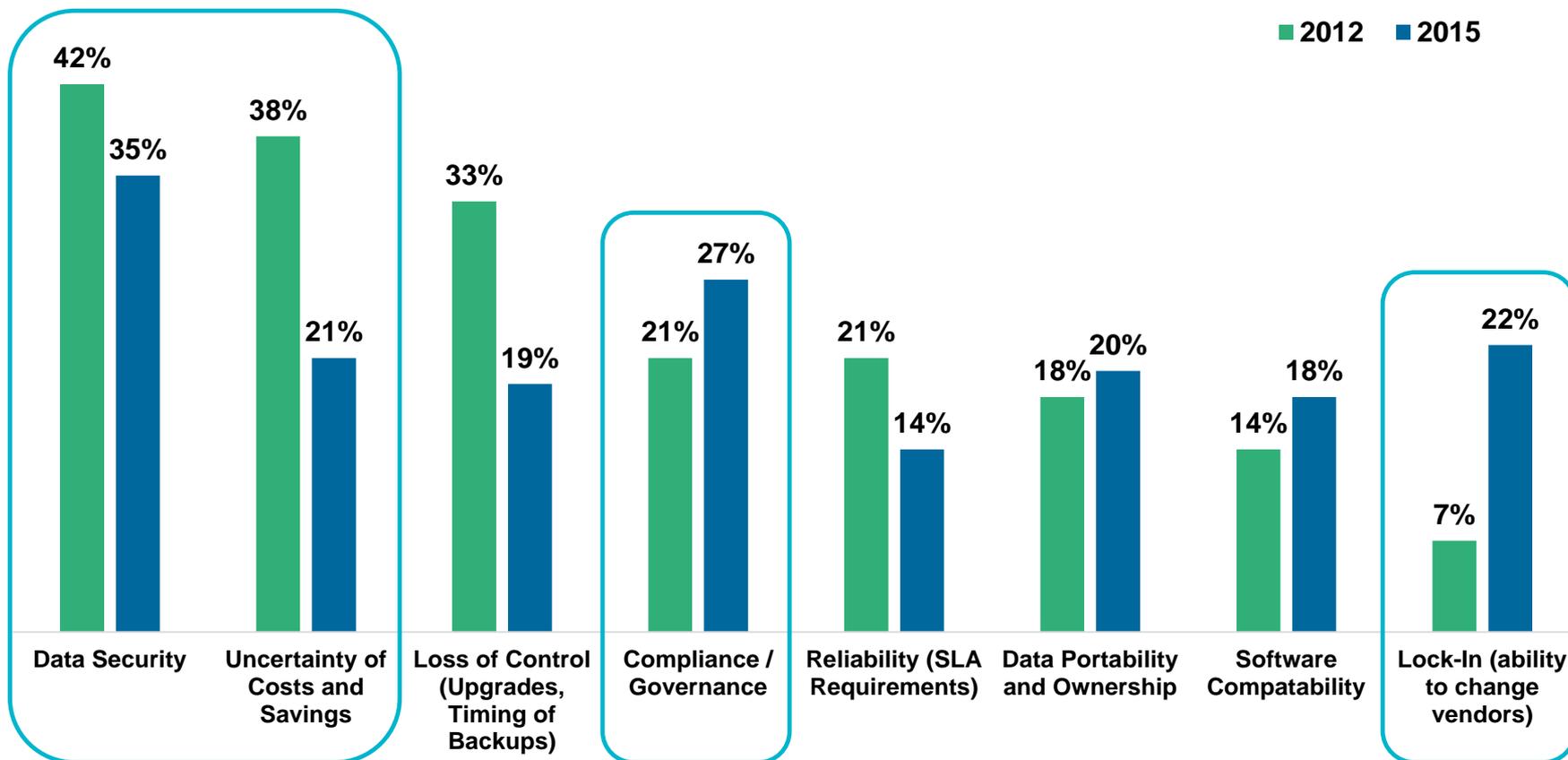
Public Cloud Adoption, 2017

% of Respondents Running, Experimenting, or Planning to Use Applications

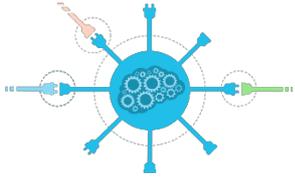


Cloud Concerns = Shifting from Data Security + Cost Uncertainty → Vendor Lock-In + Compliance / Governance

Share of Respondents Citing Criteria as Top-Three Concern, USA, 2012-2015



Cloud Evolution / Tools = Paving Way for... Innovation Across Infrastructure Landscape...



New Methods of Software Delivery =

APIs / Browser Extensions...creating new wave of capabilities (+ companies) for both companies and end users



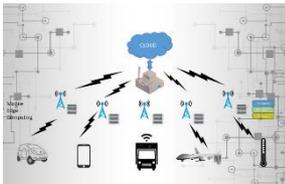
Containers / Microservices =

Simplify software development process / improve consistency between testing & production environments / reduce complexity of managing & updating apps due to modular approach



Elastic Analytical Databases =

Likes of Google BigQuery / Snowflake / AWS Redshift Spectrum nearly infinitely scalable / usage based + have minimal maintenance requirements



Edge Computing =

Pushing compute away from centralized nodes & closer to sources of data... addresses many IT challenges when running data-centric workloads in cloud – reduces latency / can have security + compliance benefits...

...New Cloud Companies Emerging... Providing Elegant + Intuitive Experiences for End Users

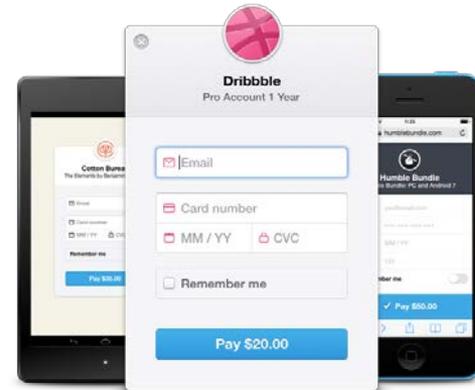
Rubrik

Managing data across cloud & on-prem infrastructure, approaching \$100MM in annualized bookings



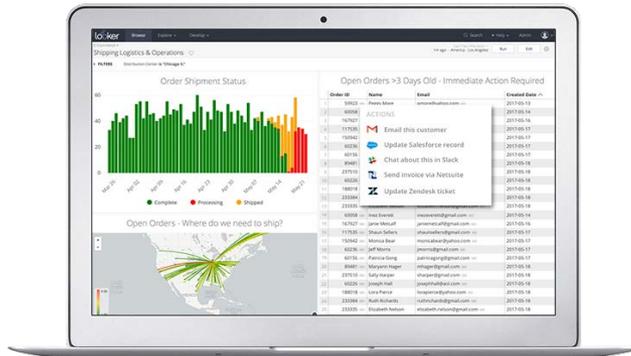
Stripe

Processing billions of transactions a year across 100K+ businesses in 100+ countries



Looker

Empowering data analysis for 40K users across every department, each averaging 2 new queries every day



CloudHealth

Actively managing more than 1.3MM policies globally for hybrid & multi-cloud environments



Enterprise Software =
Customer Expectations →
Mirroring Those of Consumer Apps

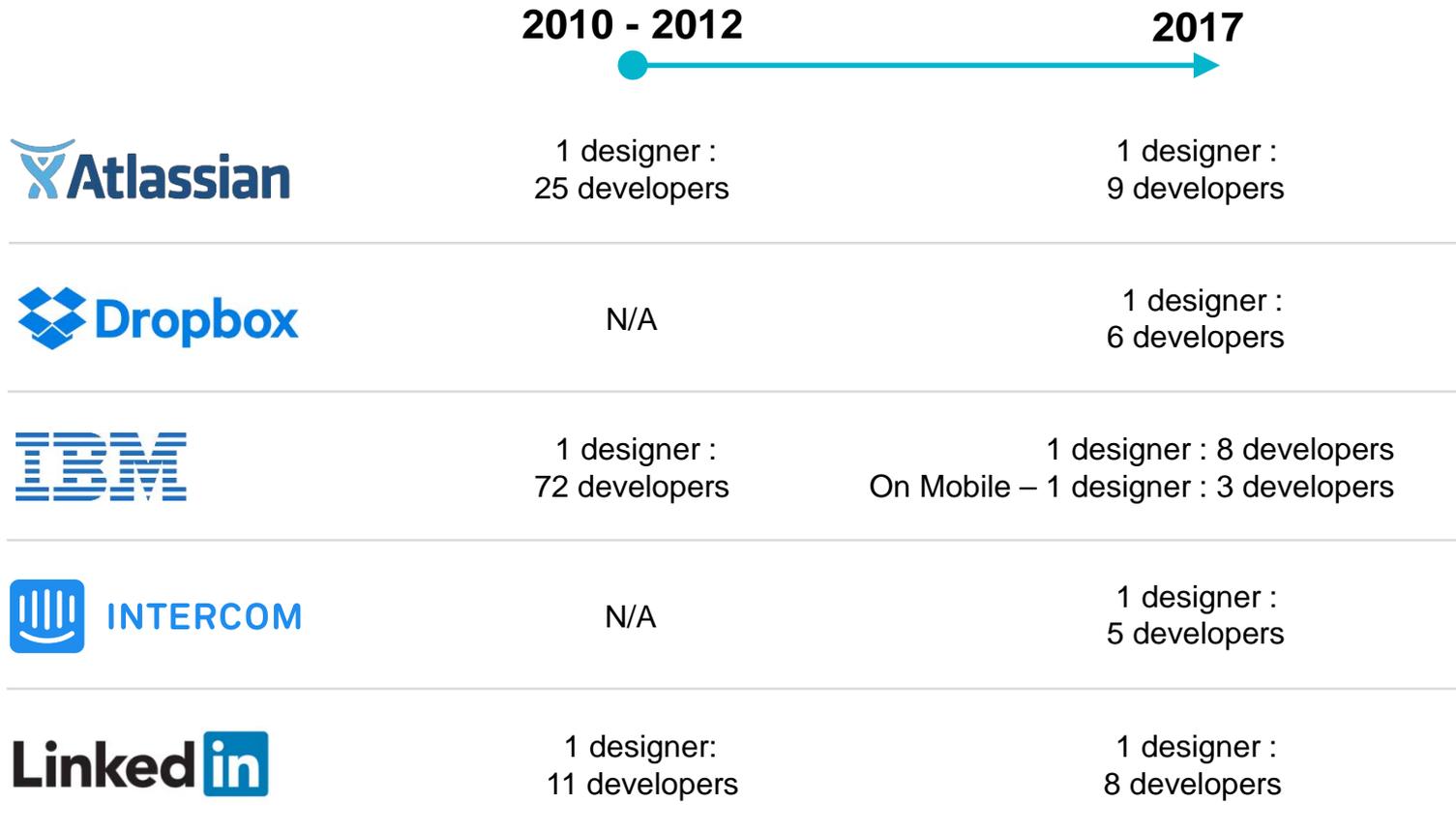
Enterprise Software (2000 → 2017) = Users Expect Products to be as... Well Designed / Easy-to-Use / Reliable as Consumer Apps

Perpetual, On-Premise Software → Cloud-Based SaaS Apps → Mobile-First Smart Apps

	2000	2017
Delivery Method	On-Prem	Cloud-based
Pricing	Perpetual License	Subscription
UX	Generic	Personalized
Intelligence	Constrained	Unlimited (AI / ML)
Growth Engine	Sales	Product
Purchase Decision	Top-Down	Bottoms-Up
Measure of Engagement & Customer Satisfaction	N/A	DAUs / MAUs / NPS

Design = Increasingly Core to Enterprise R&D... End-Users Demanding Consumer-Quality Product Experiences

Change in Designer : Developer Ratio, Selected Enterprises, 2010-2017



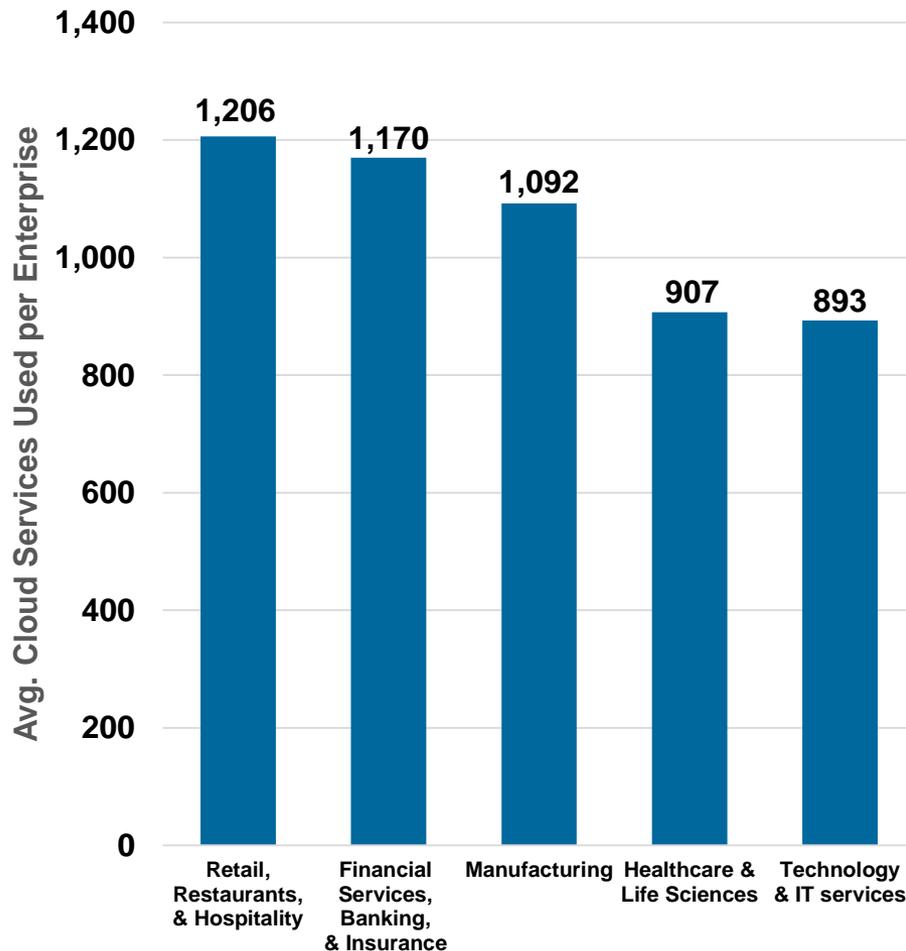
Source: Company data, Figma
 Note: Ratios for entire orgs, unless noted otherwise. Atlassian historical ratio from 2012; Dropbox data for product org only; IBM historical ratio from 2012, data for product org only; Intercom data for product org only; LinkedIn historical ratio from 2010.

Security =

More Applications → More Vulnerabilities

Cloud-Enabled App Use in Enterprises = Rising Rapidly... Cheaper to Build / Easier to Adopt / Harder to Secure...

Avg. # of Cloud Apps Used by Vertical, Global, April 2017



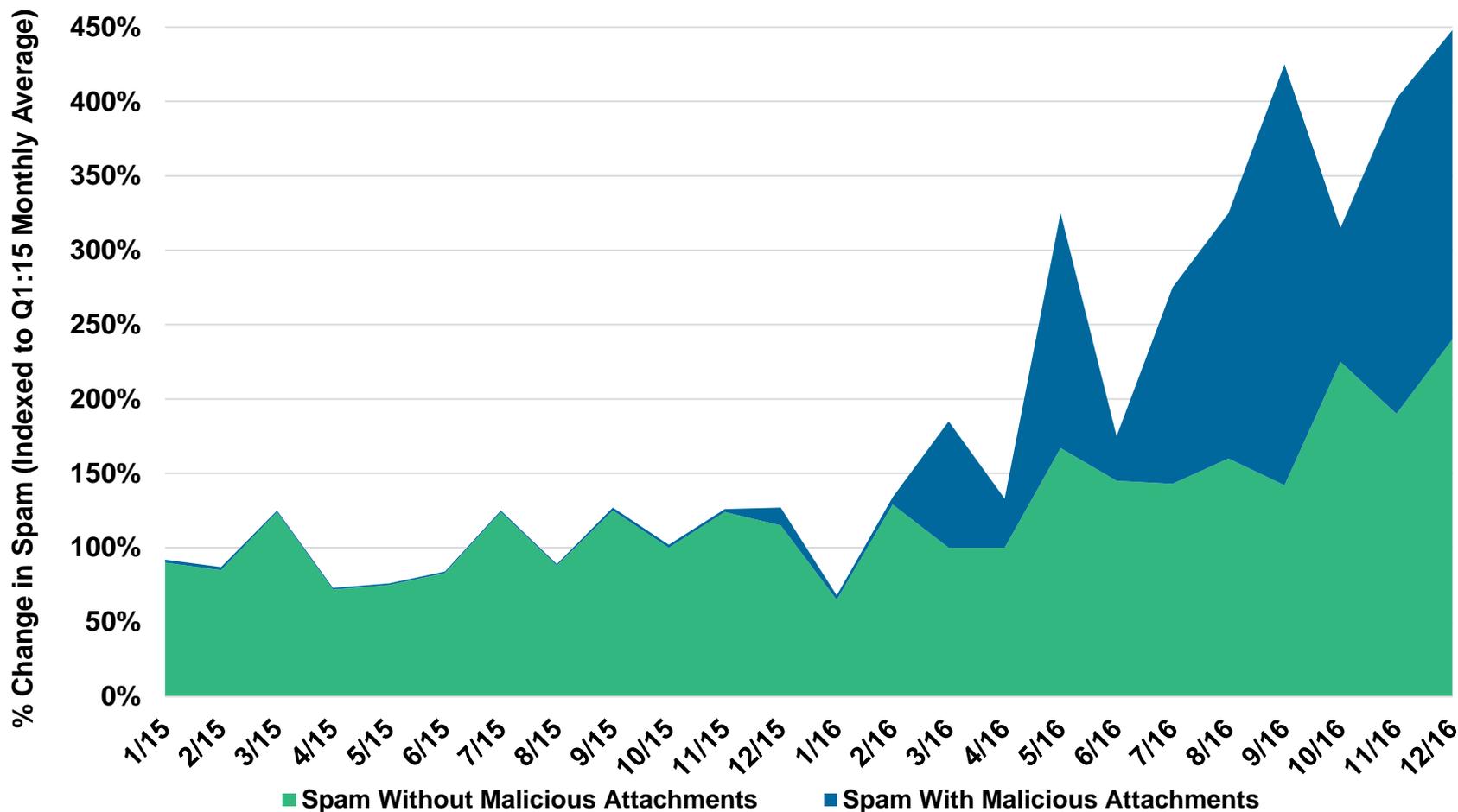
Avg. # of Cloud Services used by Category, Global, April 2017

Category	# Per Enterprise	% Not Enterprise Ready
Marketing	91	97%
HR	90	96%
Collaboration	70	87%
Finance / Accounting	60	95%
CRM / Sales	43	94%
Software Development	41	96%
Productivity	37	95%
Social	30	91%
Cloud Storage	27	72%
IT Service / Application Management	25	98%

This has serious security & compliance implications...
94% of all cloud apps used are not "enterprise-ready,"
per Netskope

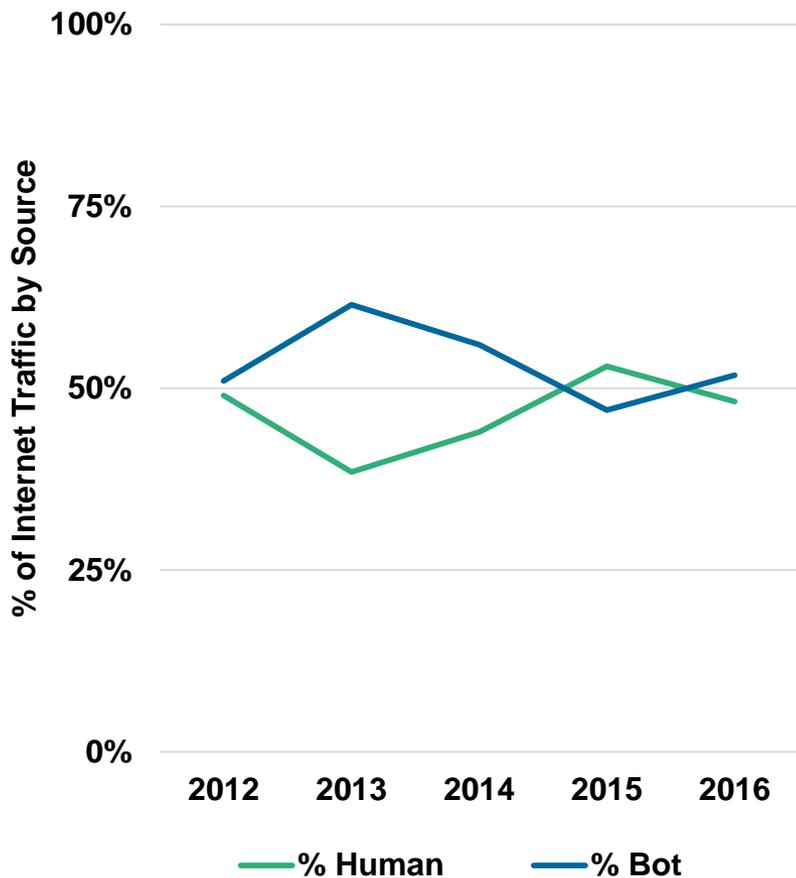
...Network Breaches = Increasingly Caused by Email Spam / Phishing... Spam +350% vs. Q1:15 Monthly Average...

Change in Amount & Type of Spam, Global, 2015-2016 Indexed to Q1:15 Monthly Average

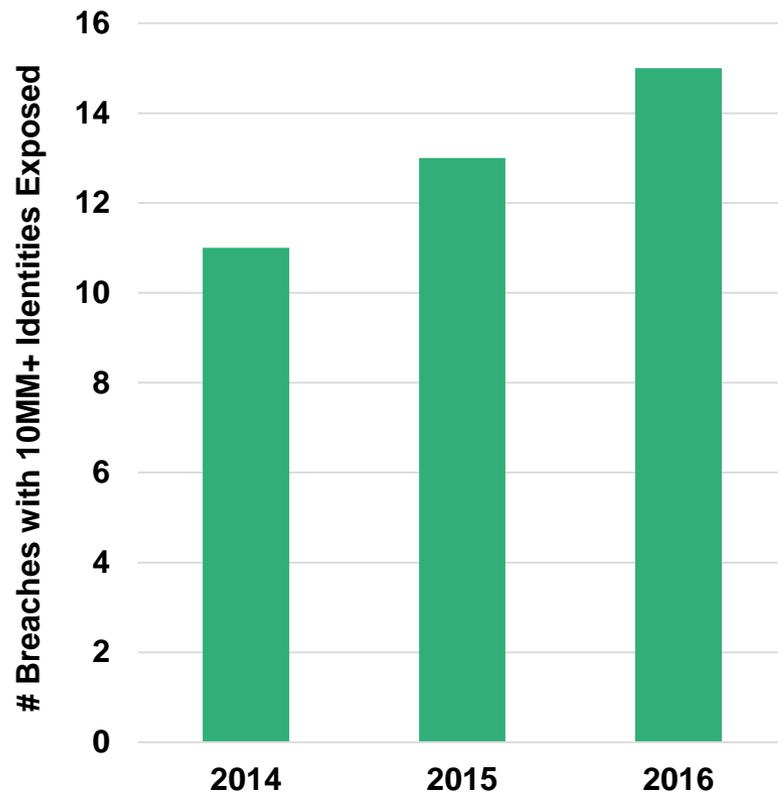


...Cyber Threats Severity Rising = 10MM+ Identities Exposed in... 15 Breaches in 2016...vs. 11 in 2014

% of Internet Traffic by Source, Global, 2012-2016



Breaches with 10MM+ Identities Exposed, Global, 2014-2016



CHINA INTERNET =

GOLDEN AGE OF ENTERTAINMENT + TRANSPORTATION



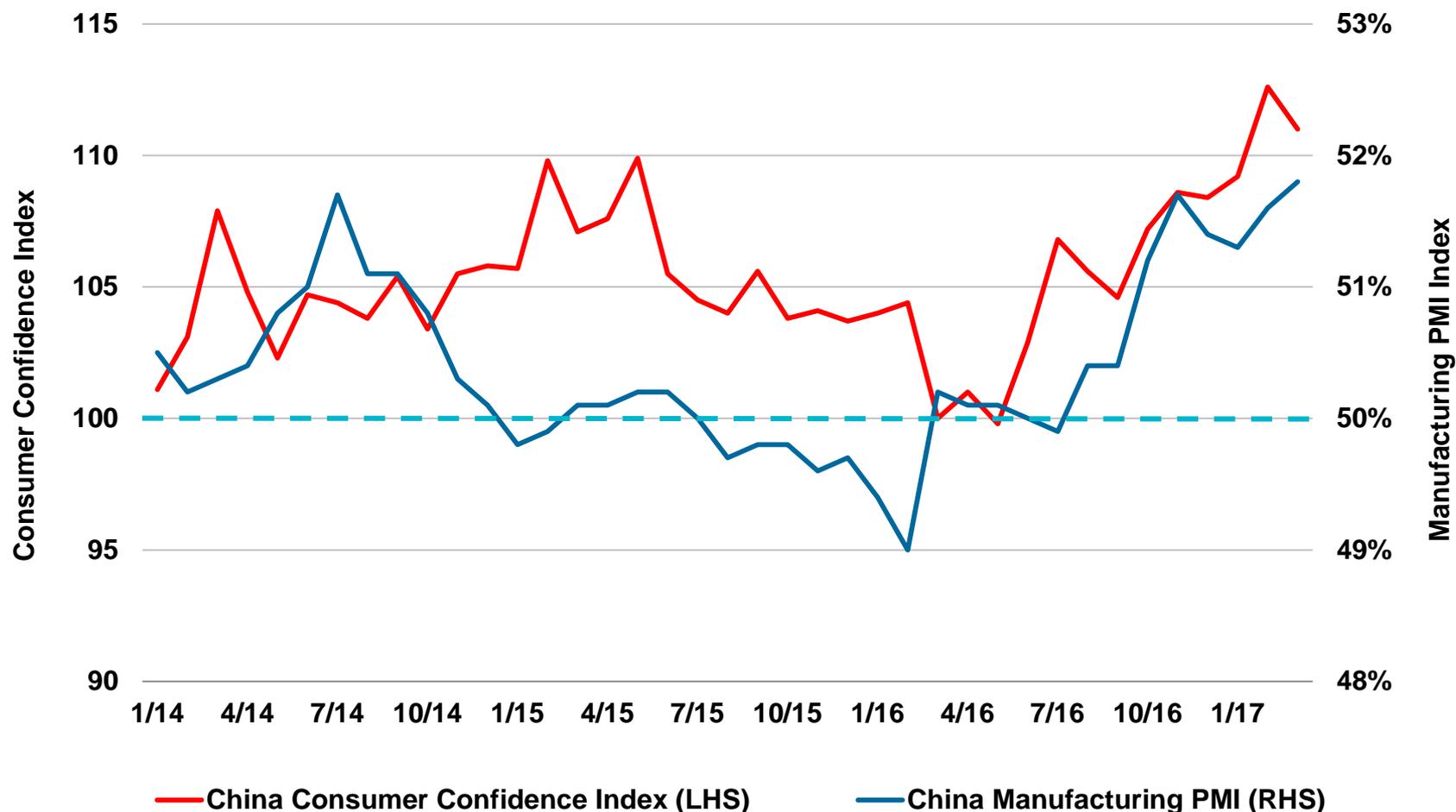
Hillhouse
Capital

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***China Macro =
Positive Trends***

China Macro = Confidence Improving Since CH2:16

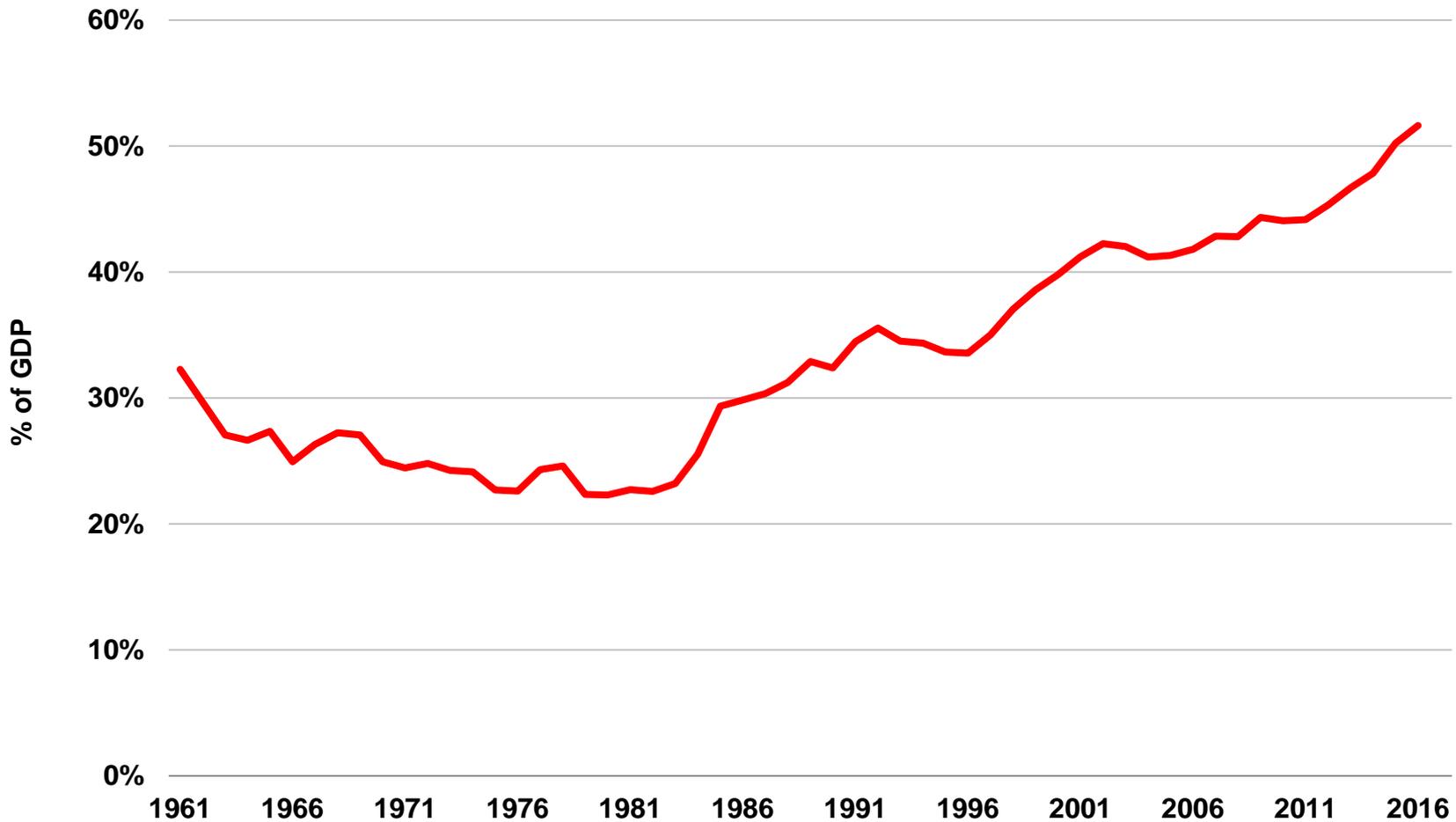
Consumer Confidence Index & Manufacturing PMI Index, China, 1/14 – 3/17



Source: China National Bureau of Statistics, Bernstein Research

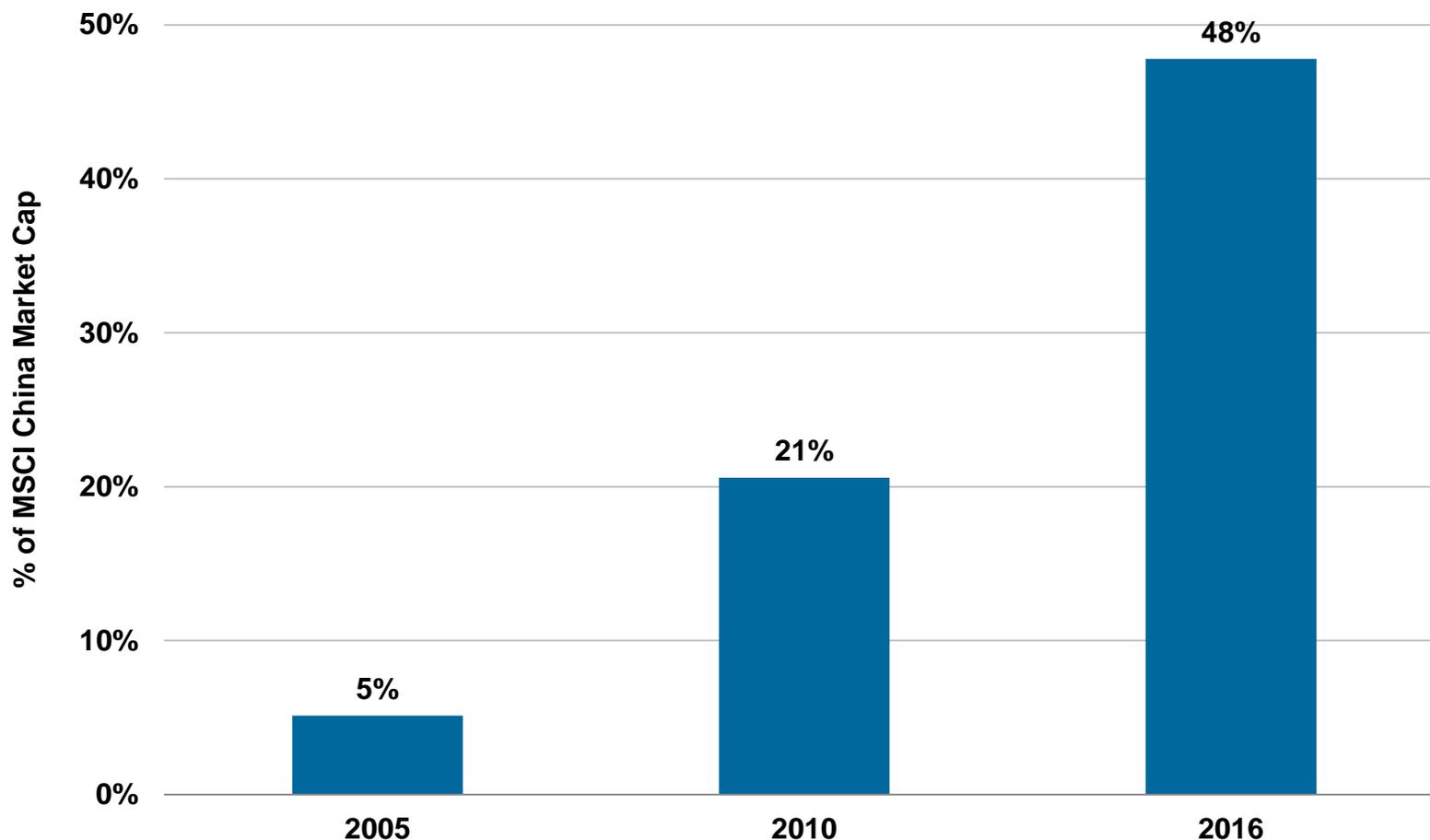
China Macro = Service Sector @ 52% GDP Share vs. 23% Thirty-Five Years Ago

Service Sector Output as % of Nominal GDP, China, 1961 – 2016



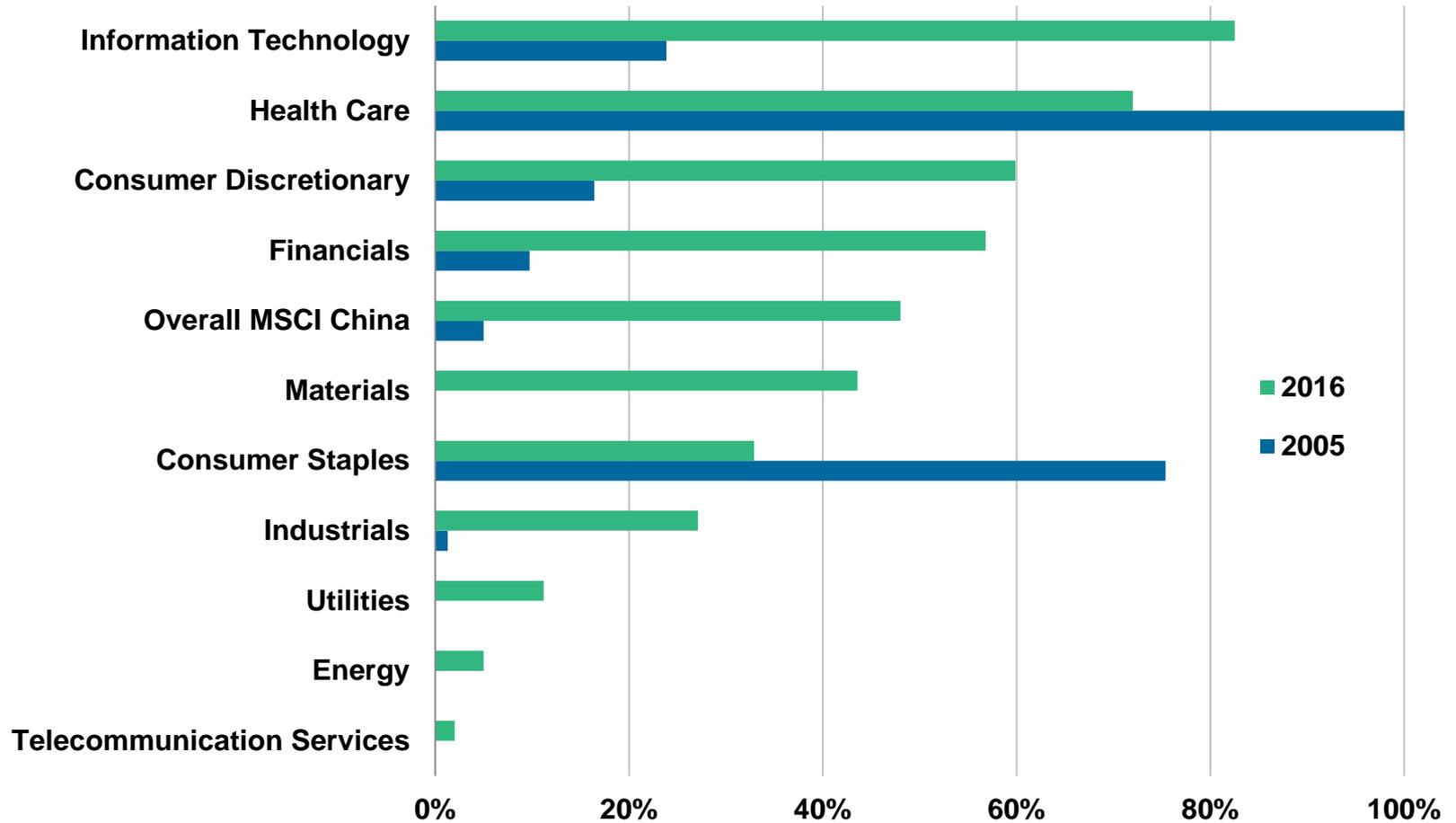
China Macro = Private (Non-SOEs) Enterprises... Increasingly Driving Wealth Creation + Economic Growth + Jobs

Private Enterprise (Non-SOE*) % Share of MSCI China Weighted Market Cap



China Macro = Technology Companies Lead Public Market Wealth Creation

Private Enterprise (Non-SOE) % of MSCI China Market Cap by Sector, 2005 vs. 2016

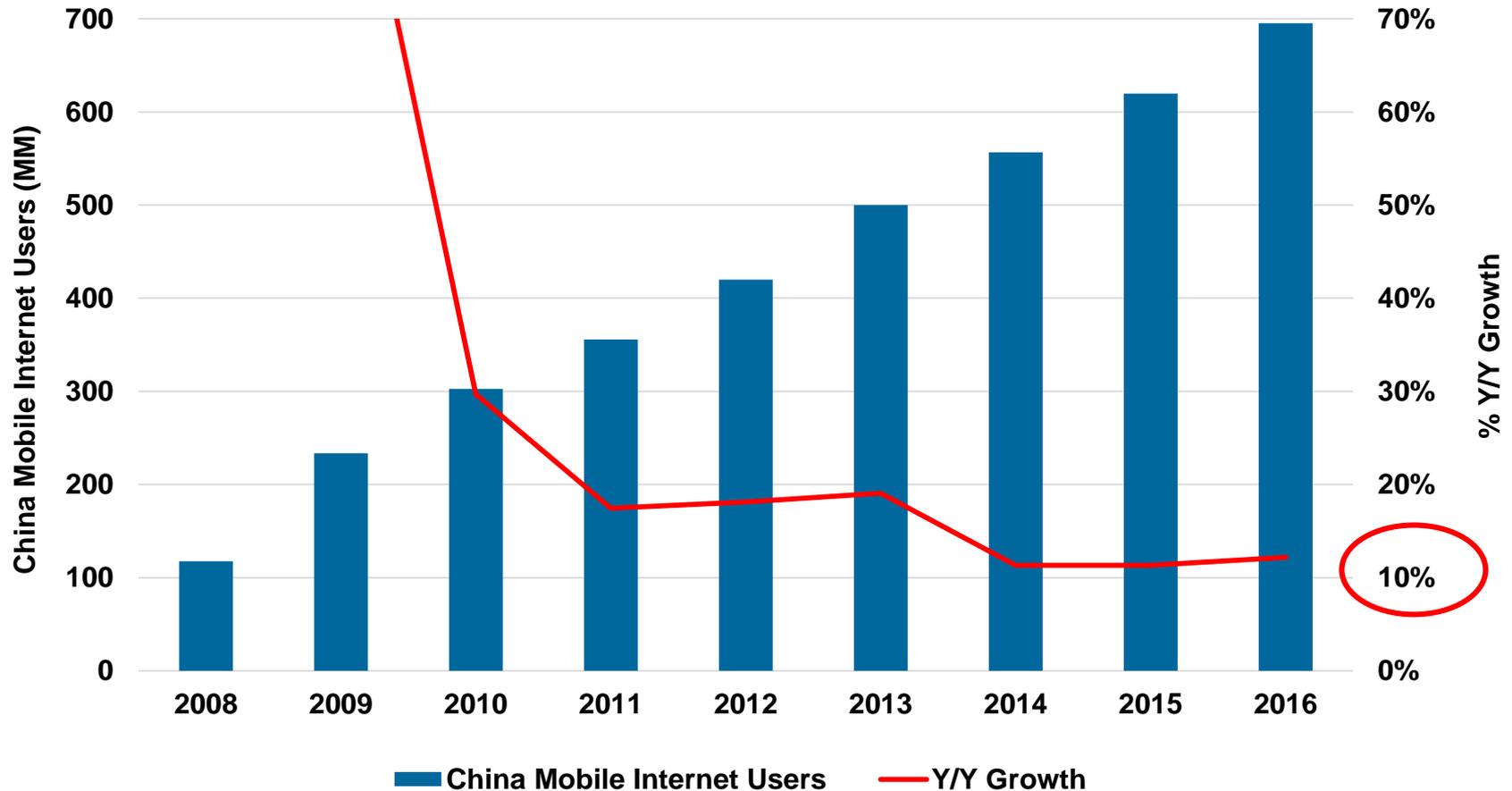


China Internet Users + Usage =

***Healthy User Growth...
Usage Outpacing Users***

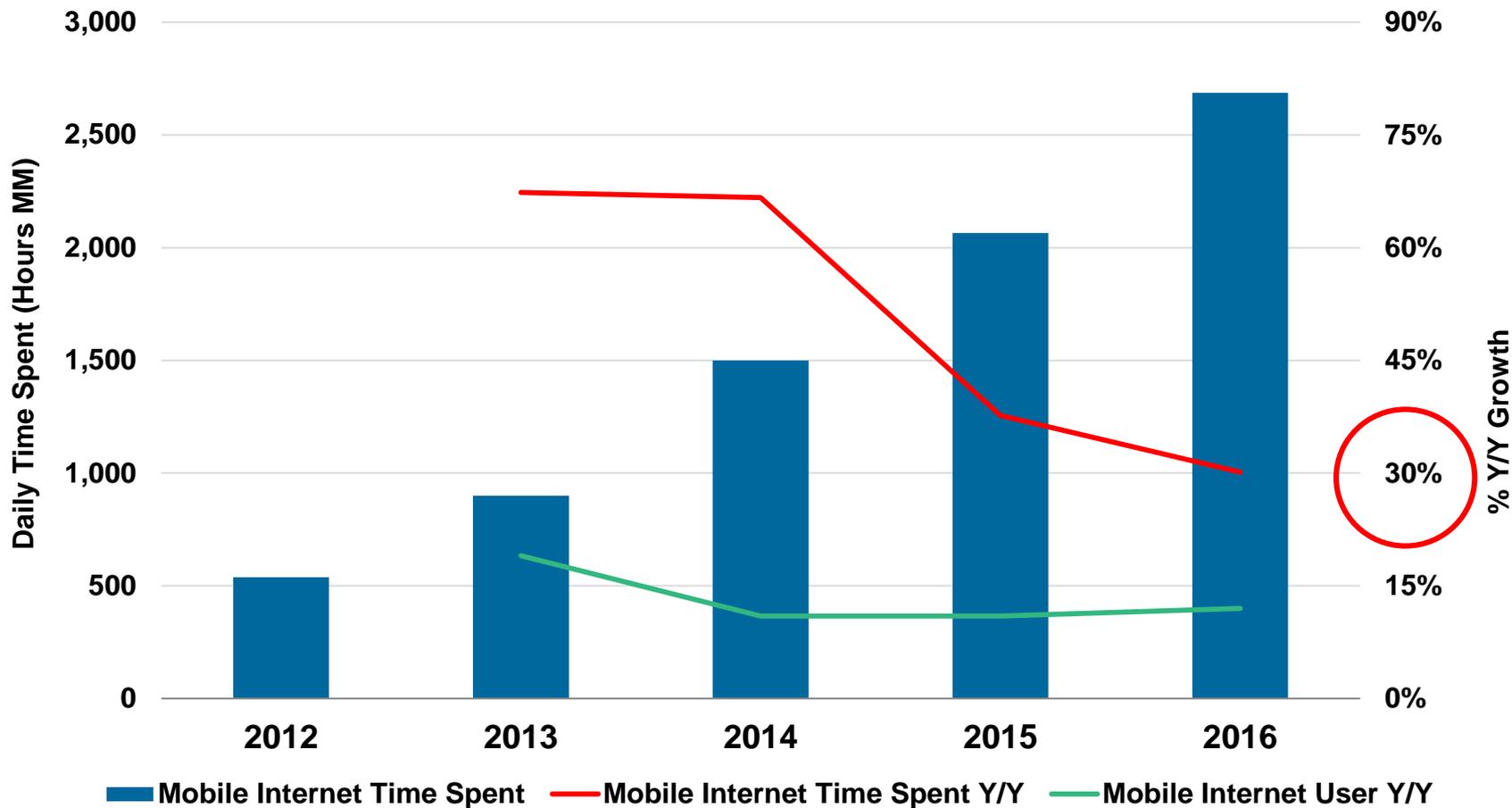
China Mobile Internet Users = @ ~700MM, +12% Y/Y vs. 11% in 2015

Mobile Internet Users & Y/Y Growth, China, 2008 – 2016



China Mobile Internet Usage Outpacing User Growth = +30% Y/Y for Usage...+12% for Users

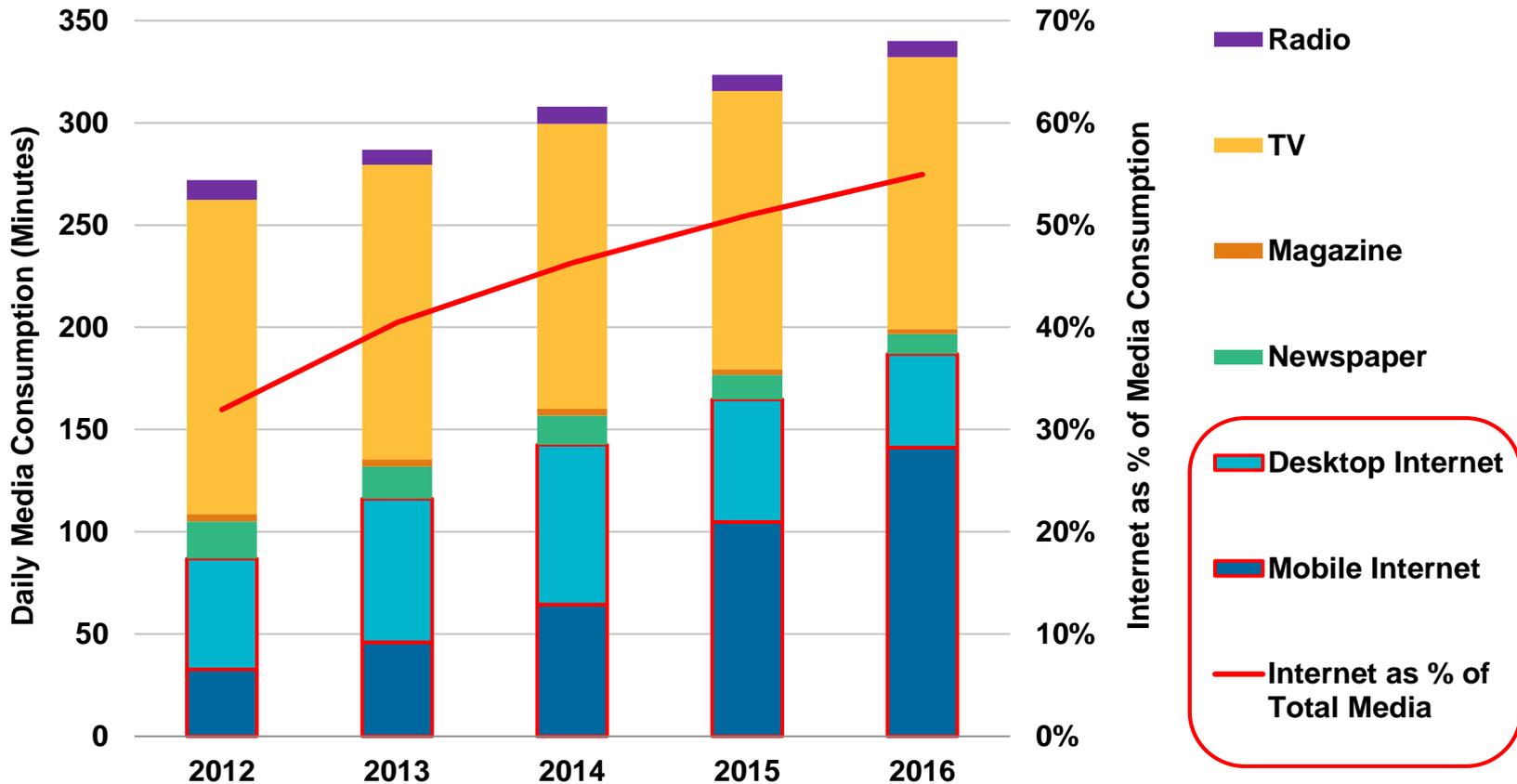
Estimated Mobile Internet Daily Time Spent, China, 2012 - 2016



***China Entertainment =
Online Innovation Driving
Robust User + Usage +
Monetization Growth***

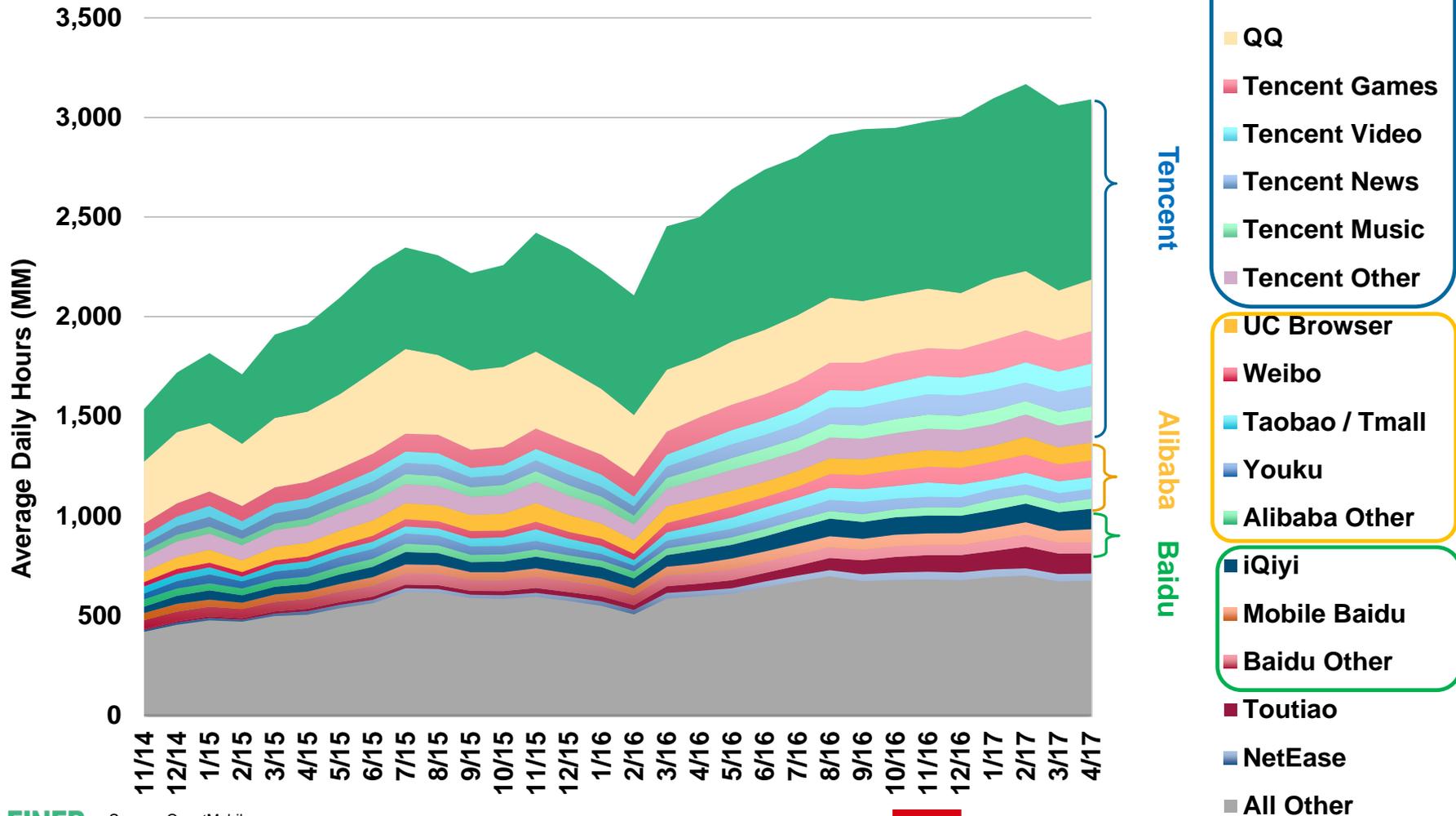
China Media = Internet @ 55% of Time Spent...Mobile > TV (2016)

Average Daily Media Consumption Minutes by Medium, China, 2012 - 2016



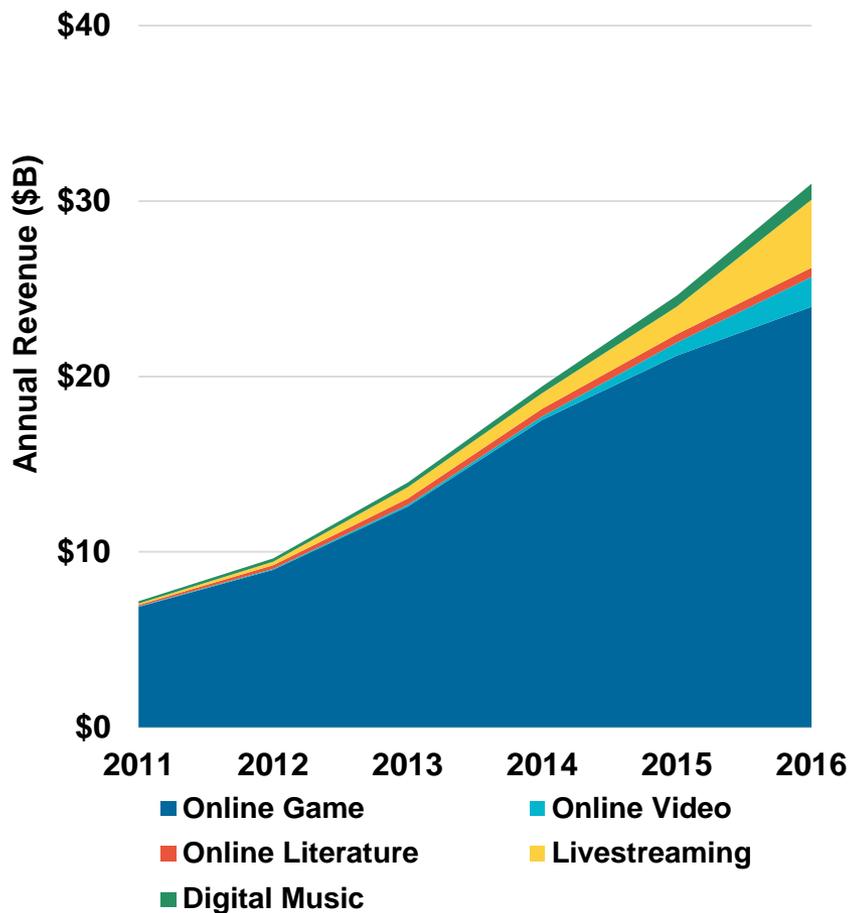
China Entertainment = Key Driver of Mobile Time Spent... eCommerce + Games = Monetize Best Per Time Spent...

China Mobile Internet Daily Hours By App, 11/14 – 4/17

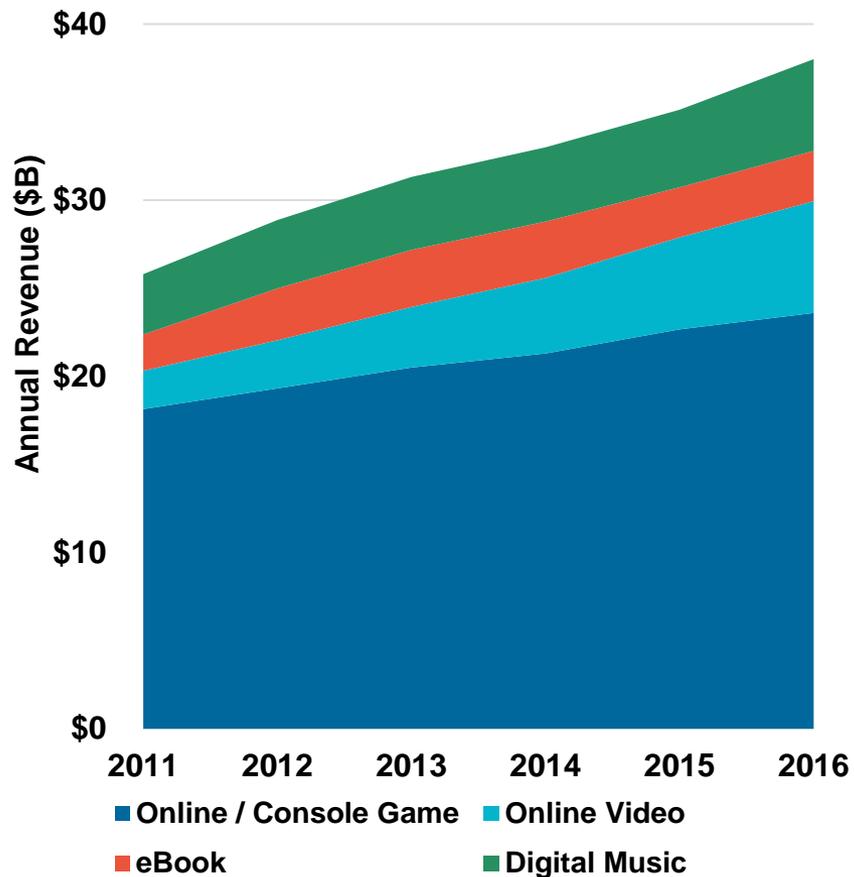


China Online Entertainment = Consumers Increasingly Willing to Pay... Led by Games + Livestreaming + Video

Online Entertainment User-Pay Revenue By Vertical, China, 2011-2016

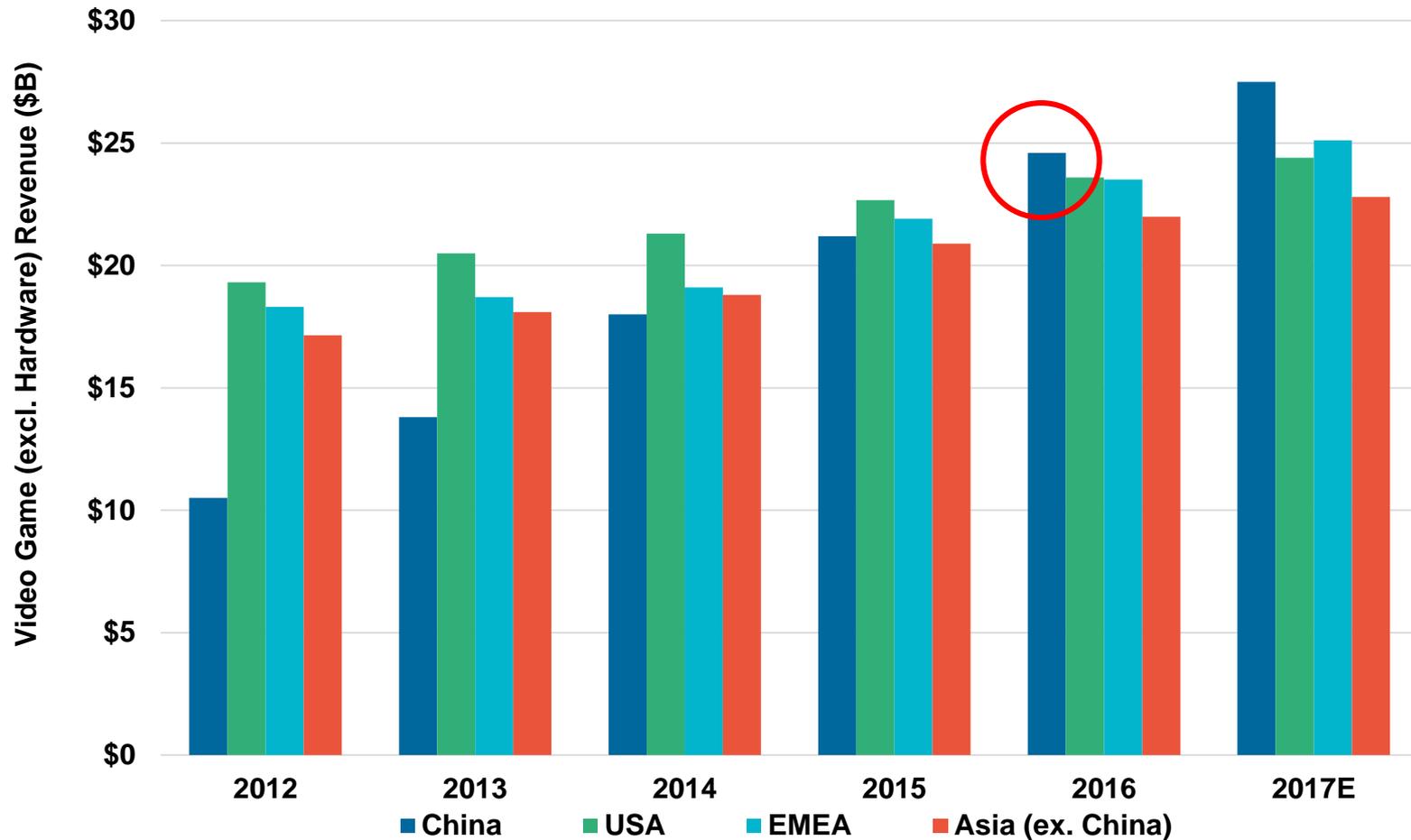


Online Entertainment User-Pay Revenue By Vertical, USA, 2011-2016



Global Interactive Game Revenue = China #1 Market in World* > USA (2016)

Interactive Game Software Revenue by Region, Global, 2012 – 2017E



China Online Gaming = Tencent + NetEase... Mobile MOBA + MMORPG Game Leaders...

Tencent – Honor of Kings

Mobile Multiplayer Online Battle Arena (MOBA) Leader...

50MM+ DAU, \$3B+ Annualized Bookings
Driven by Social + Simple UI + Constant Product Improvement



NetEase

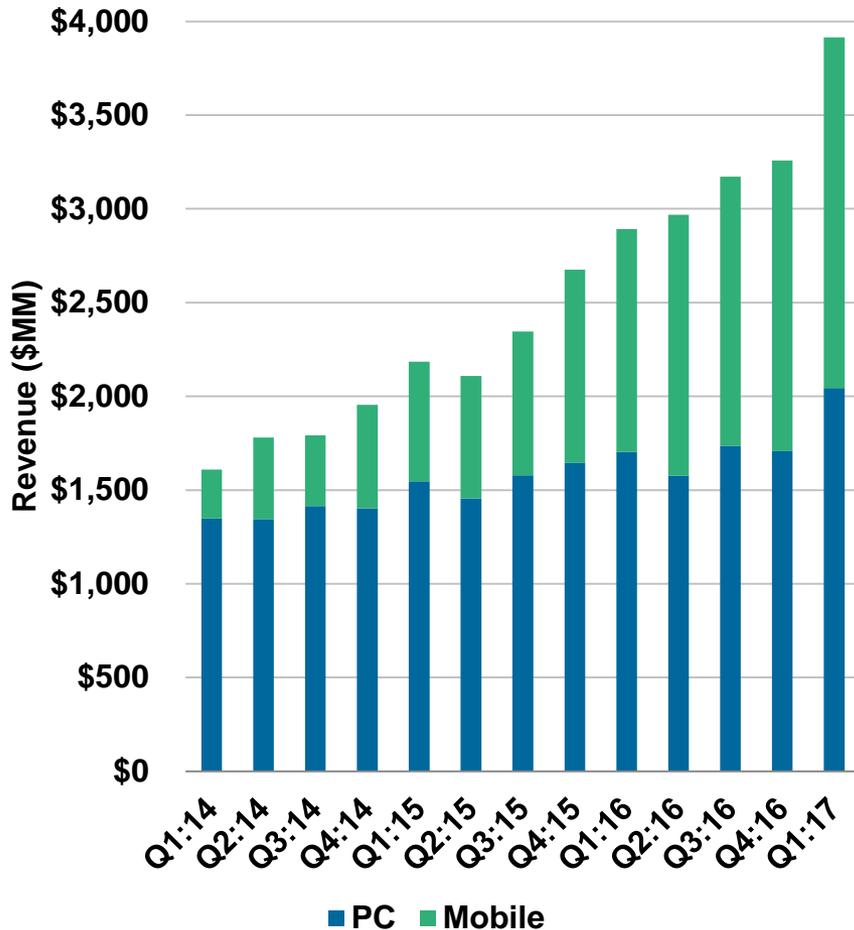
Portfolio of Leading Mobile Massively Multiplayer Online Role Playing Games (MMORPGs)..
Driven by Mobile First Mover Advantage + IP + Social Design + Quality Production



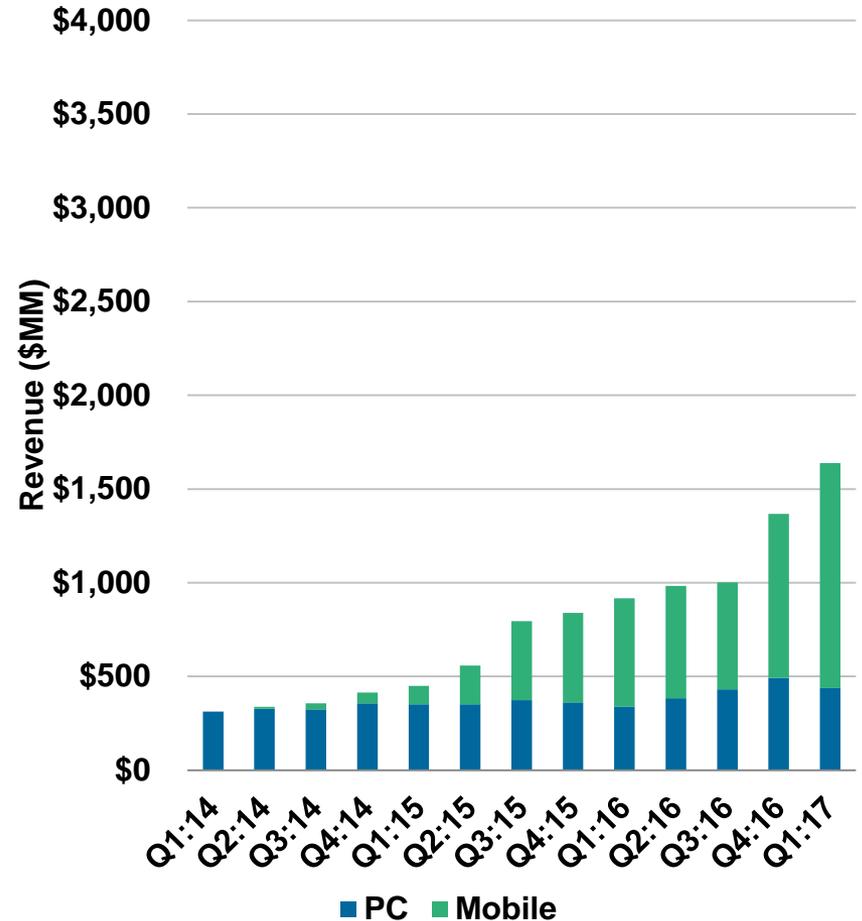
Ranked amongst Top10 grossing games in China iOS store

...China Online Gaming = Tencent + NetEase Driving Mobile Innovation + Revenue

Tencent Online Game Revenue, PC vs. Mobile, Q1:14-Q1:17



NetEase Online Game Revenue, PC vs. Mobile, Q1:14-Q1:17

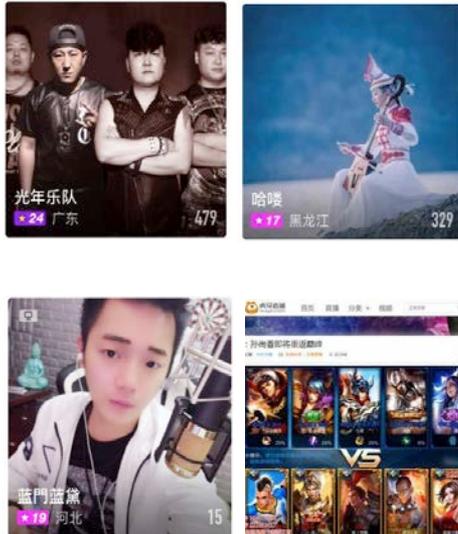


Source: Tencent, NetEase, Goldman Sachs Investment Research
 Note: Assuming 1USD = 6.9RMB.

China Livestreaming = High Consumer Engagement + Willingness to Pay...

Diverse Live Content Type

Singing / Dancing /
Talk Show / Game Play...



Interactive / Social / Gamified

Like / Chat with Hosts & Audience /
Buy Virtual Gifts to Support Performers



20+ Virtual Gift
Categories
priced from Rmb0.01



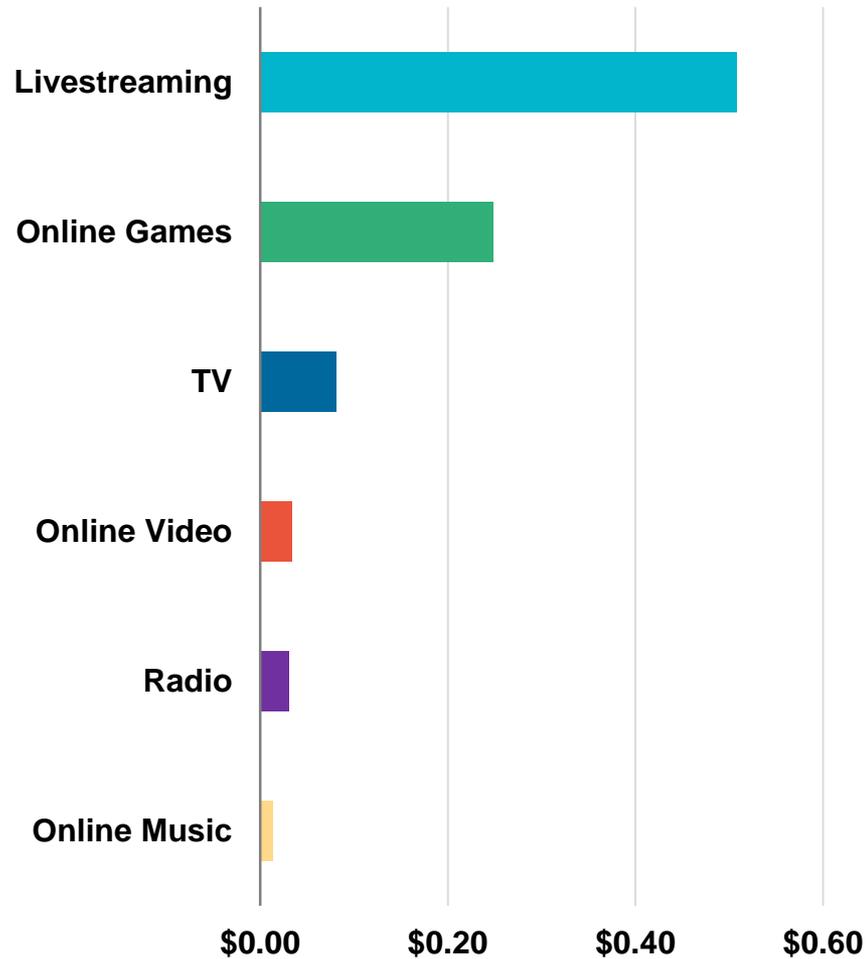
Local / Social

Nearby Livestreams /
Chat & Add Friends



...China Livestreaming = Compelling Monetization

Estimated Revenue per Hour, China, 2016

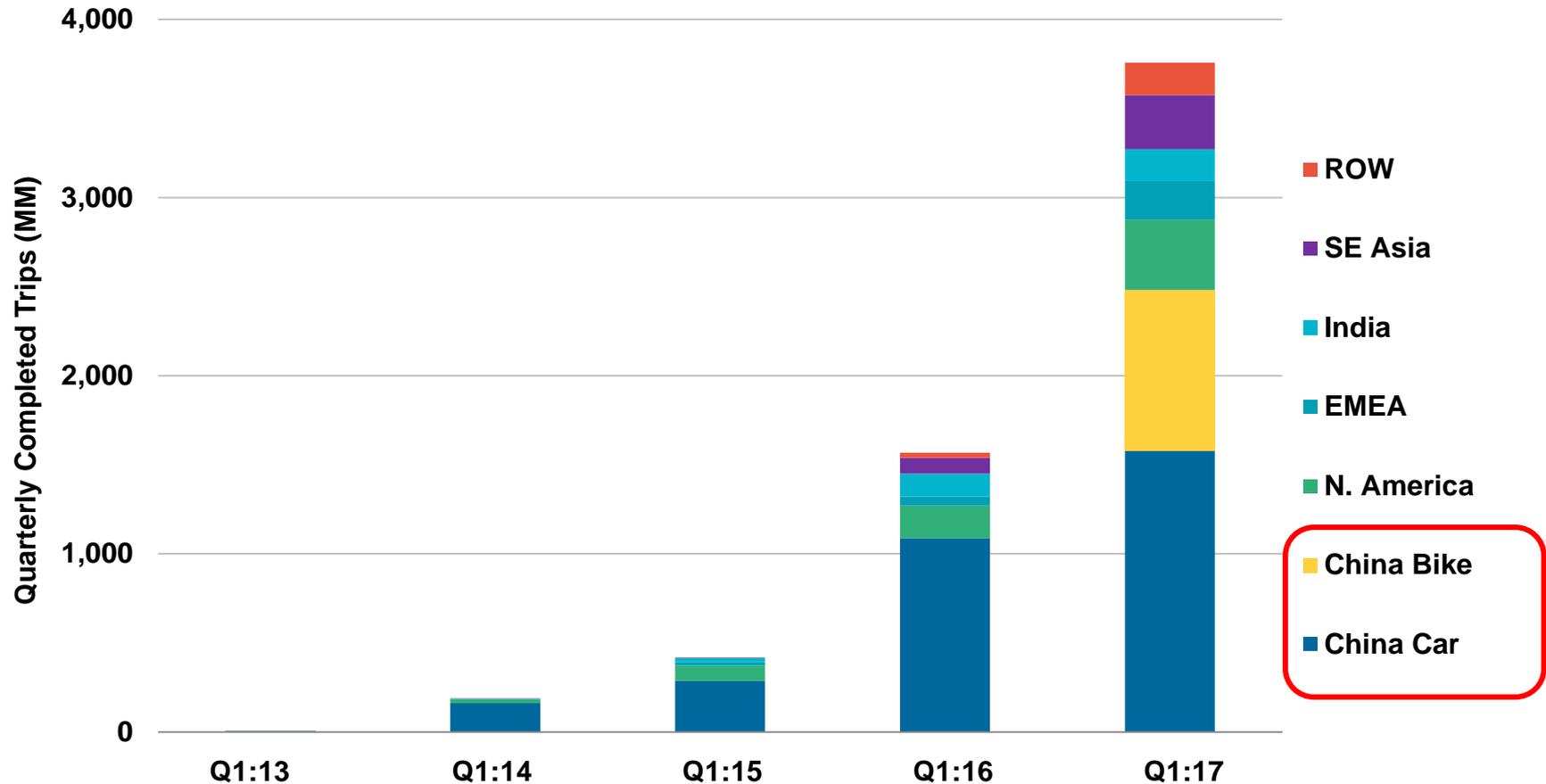


Source: Hillhouse estimates based on Newzoo, iResearch, Questmobile, and select company disclosures
Note: Revenue data includes subscription, advertising and paid download revenue streams.

***China On-Demand Transportation =
#1 Global Market...
Cars + Bikes***

China On-Demand Transportation (Cars + Bikes) = Global Leader @... ~67% Global Share (10B+ Annualized Trips, + >2x Y/Y)

On-Demand Transportation Trip Volume by Region, Global, Q1:13 – Q1:17



China On-Demand Bike Sharing = Mobile Innovation Driving Significant Usage Ramp

Mobike Product Innovation

In-Bike GPS + Smartphone

Bike Sharing Without
Stations...Location-Based Virtual
Red Envelope Drives Utilization



QR Code + Mobile Payment

Easy Unlock & Low Friction
Payment



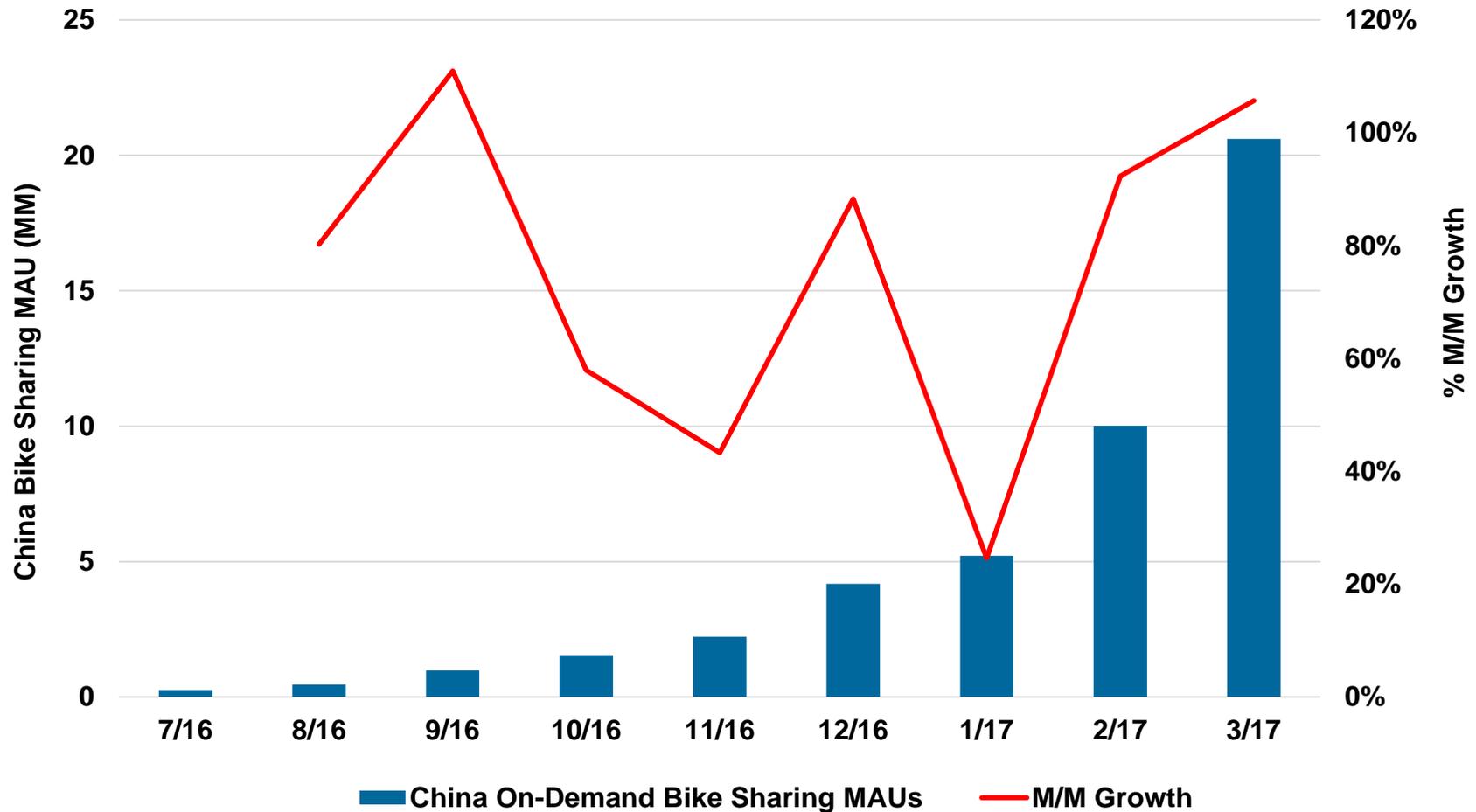
Ubiquity + Low Cost (¥1/~\$0.15 per 30 min) +

Convenience
Mass Adoption &
Bike Utilization



China On-Demand Bike Sharing =... @ 20MM+ MAU...100%+ M/M Accelerating Growth

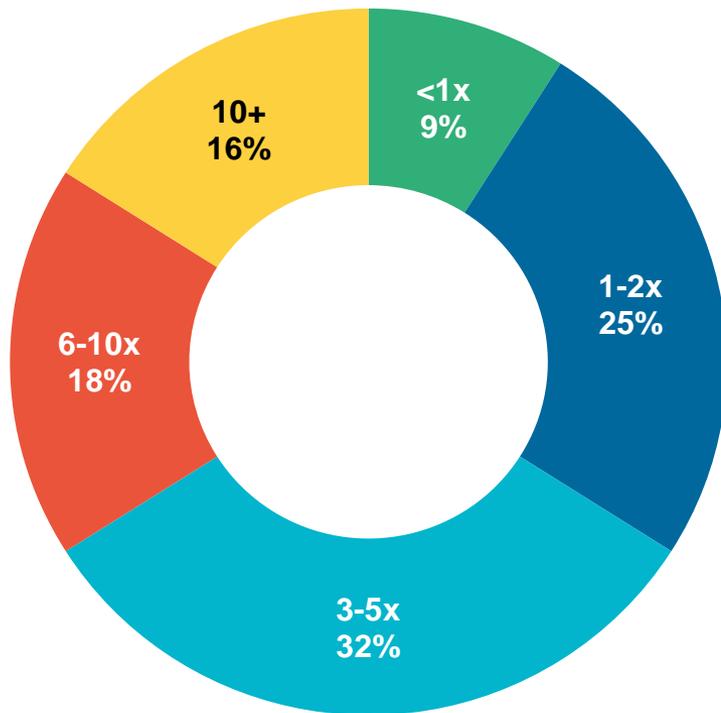
China On-Demand Bike Sharing MAU, 7/16 – 3/17



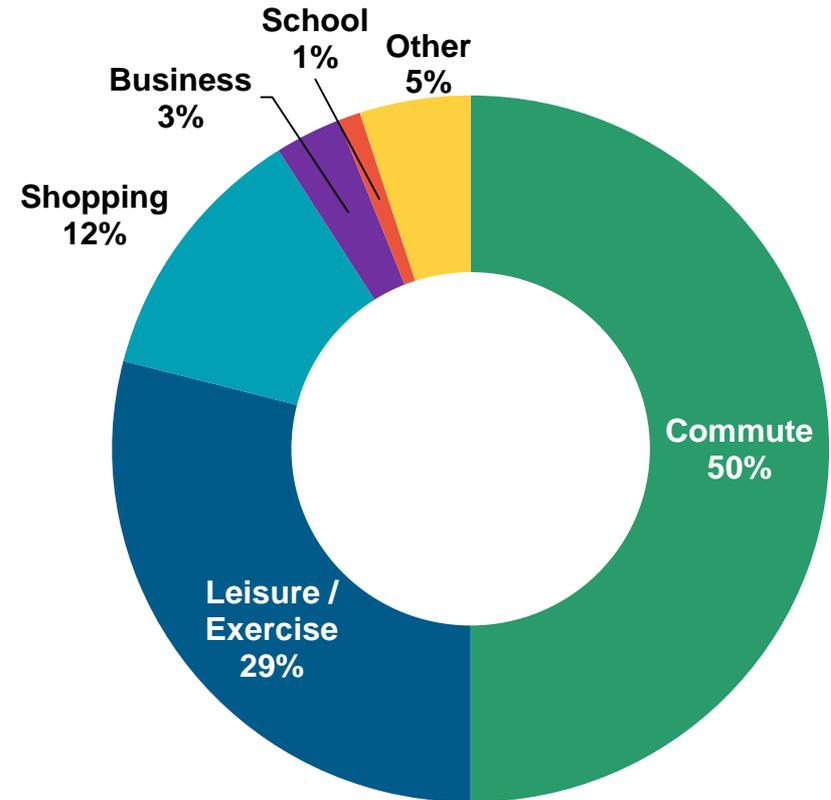
China On-Demand Bike Sharing = High Frequency... 2/3 Users Ride 3+ Times Per Week

Highlights from Shenzhen Municipality On-Demand Bike Sharing Study, 5/17

On-Demand Bike Trips per Week



Purpose of On-Demand Bike Trips



On-Demand Bike Sharing = Positive Environmental Impact + High Customer Satisfaction

Highlights from Shenzhen Municipality On-Demand Bike Sharing Study, 5/17

11MM

Registered Users in
Shenzhen, China

530K

Available Bikes

2.6MM

Daily Trips

5

Trips per Available Bike per
Day

50%

On-Demand Bike Trips Serving as Last-Mile
Connection to Public Transit Trips

10%

Bike Trips Replacing Private Car Driving Trips

100K+ Tons

Reduction in Annual CO2 Emission*

95%

Respondents Support Continued Development
of Bike Sharing

China On-Demand Bike Sharing = Complements On-Demand Cars... @ 75% Shorter Trip Distance & 80% Lower Cost per Mile

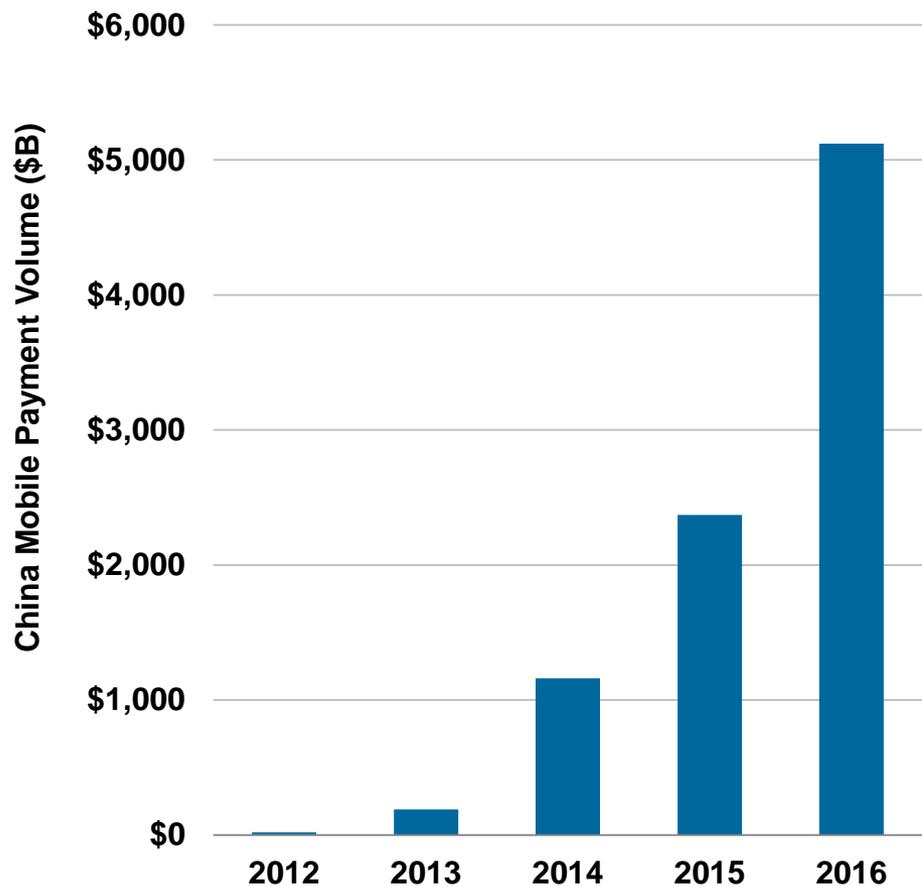
	On-Demand Car Share (Didi)	On-Demand Bike Share (Mobike / Ofo)
Average Trip Distance	8 KM ~5 Miles	2 KM 1.2 Miles
Average Trip Cost	20 RMB ~3 USD	~1 RMB ~0.15 USD
Cost per Km	~2.50 RMB	~0.50 RMB
Cost per Mile	~0.60 USD	~0.12 USD

***China Mobile Payment
Infrastructure =***

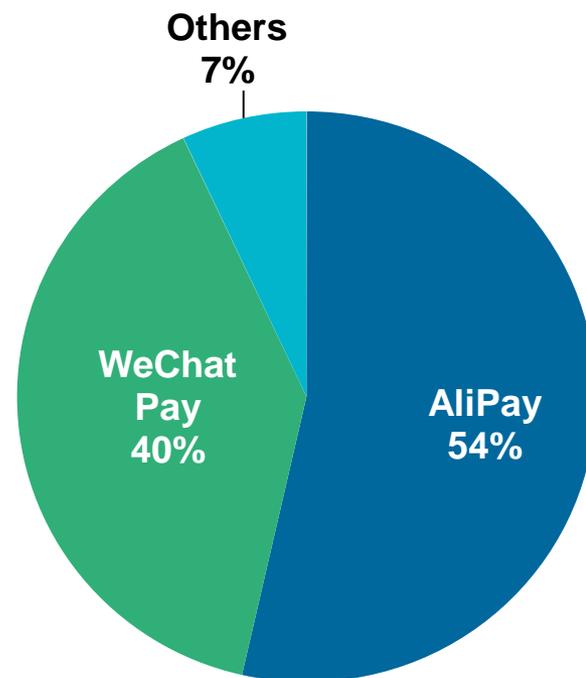
***Enabling Rapid Growth +
Monetization of Internet Usage***

China Mobile Payment Volume = +2x Y/Y to \$5T+ Led by AliPay + WeChat Pay

China Mobile Payment Volume, 2012 - 2016

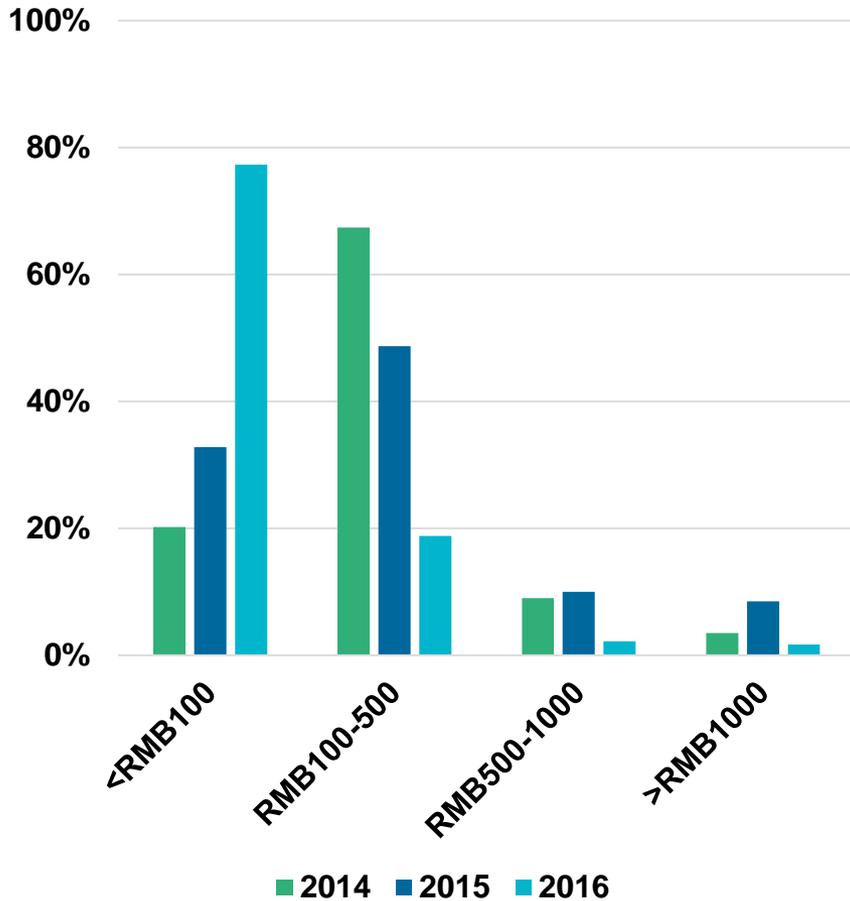


China Mobile Payment Market Share*, Q1:17

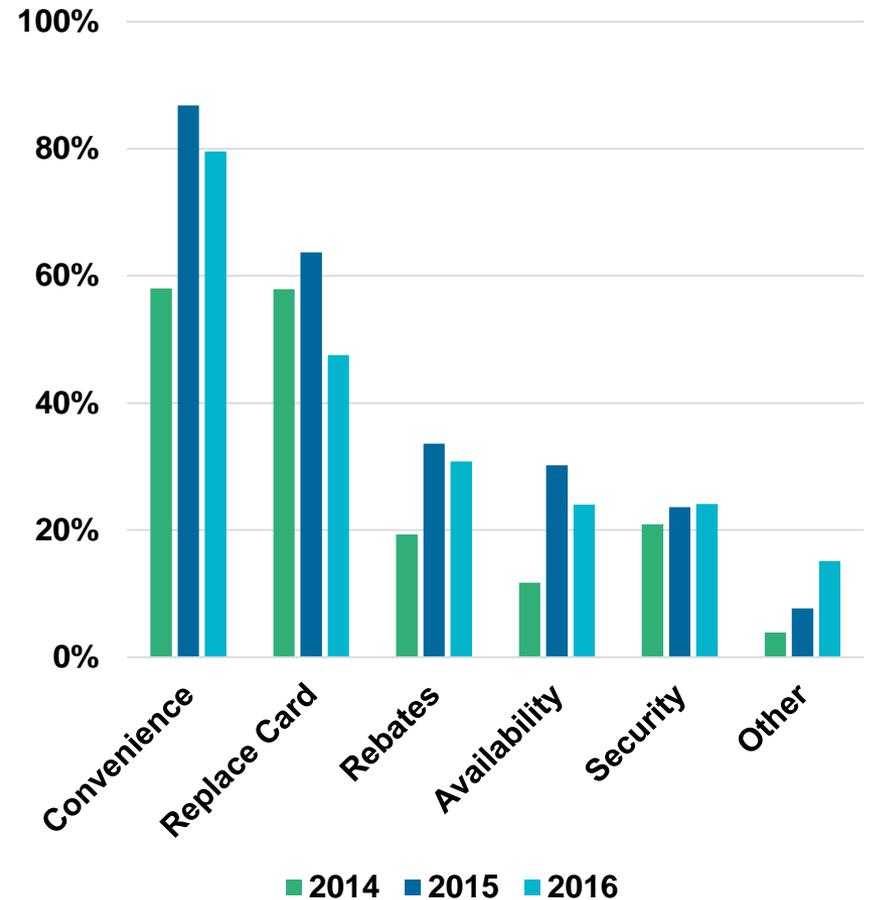


China Mobile Payments = Convenience vs. Cash & Bank Cards... Small Transactions Growing Especially Fast (<100RMB / \$15)

Size of Mobile Payment Transactions, 2012 - 2016



Reasons for Using Mobile Payments, 2012 - 2016



AliPay + WeChat Pay on Mobiles = Digitizing Micro Payments On + Offline

~\$0.15 for On-Demand Bike



~\$0.15 for On-Demand Mobile Recharge



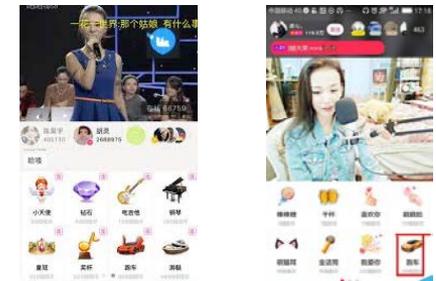
\$0.50+ for Street Food



\$0.01+ for Article / Author Tipping

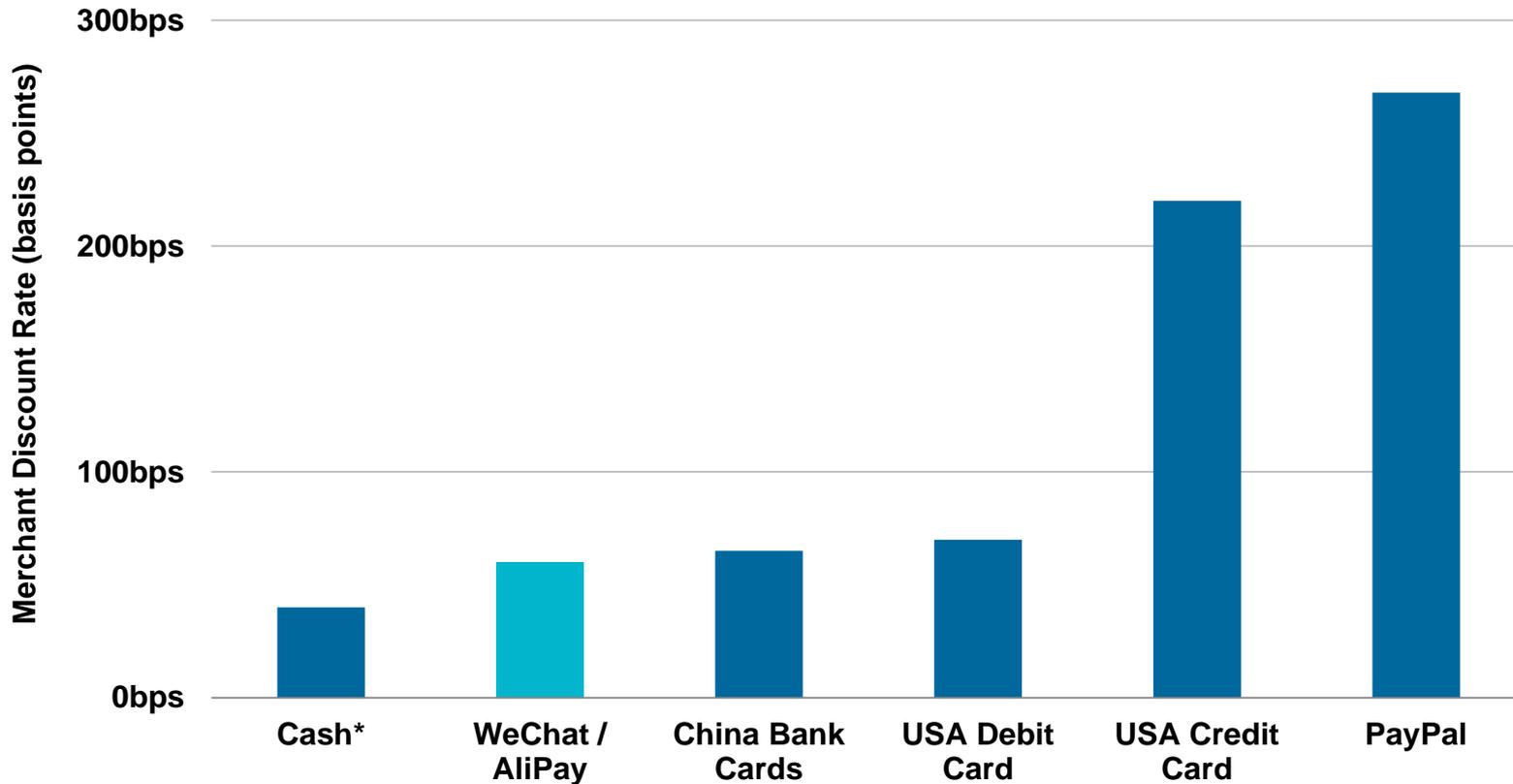


\$0.01+ for Livestreaming Tipping



China Mobile Payments = Low Relative Cost... Helped by Regulated Interchange Rates...

Average Merchant Discount Rate, Basis Points (100bps = 1%)



Mobile Payments = Gateway for China Internet Leaders to... Become Diversified Financial Services Platforms

Payment

Wealth Management

Financing

Insurance

Credit Rating / History



Ant Financial

451MM
Annual Active Users¹

>300MM
Cumulative Users²

>100MM Cumulative Consumer Finance Users³, **>5MM** Cumulative SME Borrowers⁴

380MM
Cumulative Users⁵

130MM
Cumulative Users⁶



Tencent

WeChat Pay
>600MM
MAU⁷

>80MM
Cumulative Users⁸

>30MM Cumulative Users⁹



JD Finance

119MM
Annual Active Users¹⁰

>20MM
Cumulative Users¹¹

>30MM
Cumulative Users¹¹

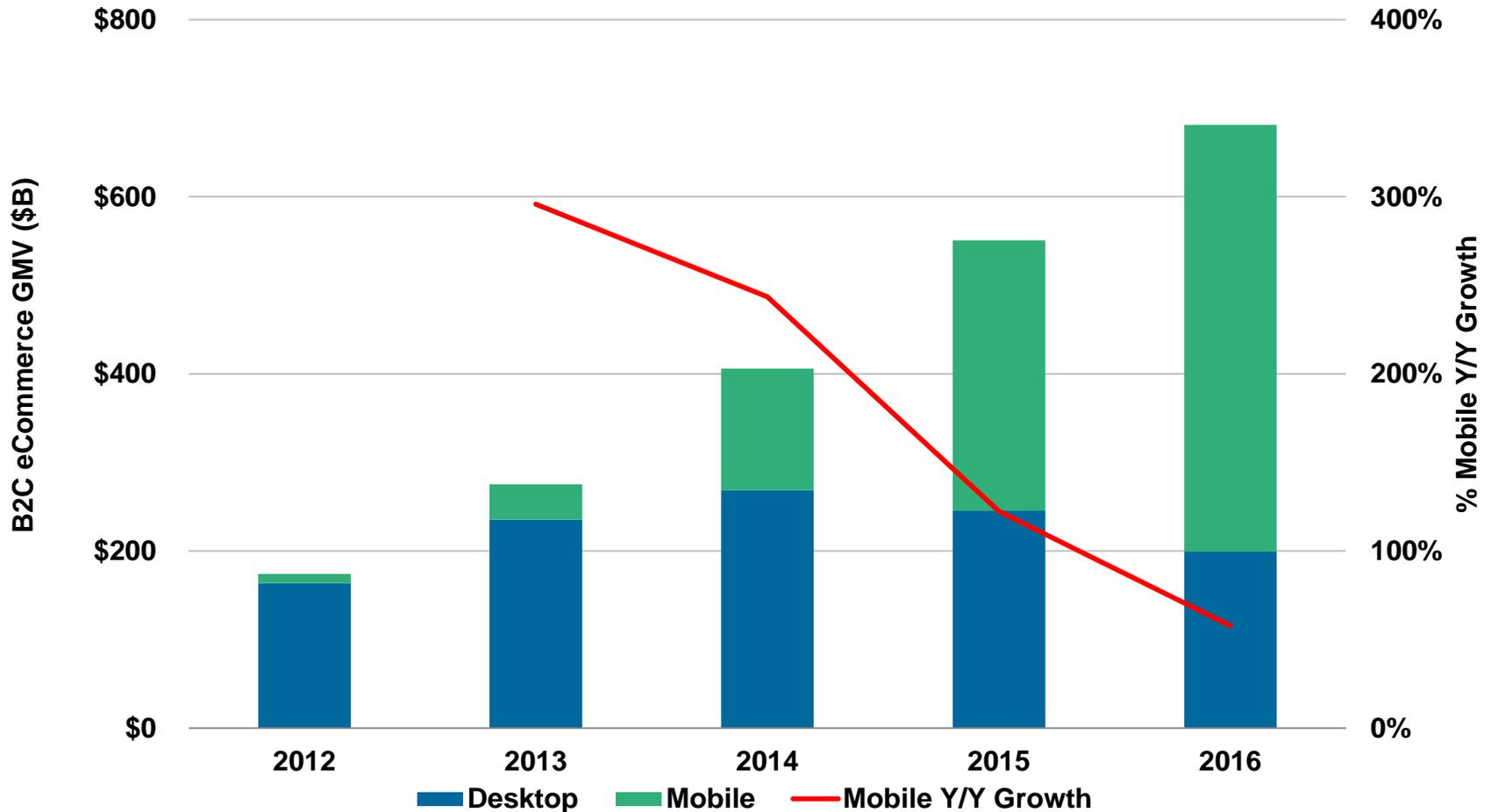
168MM
Cumulative Users¹¹

>35MM
Cumulative Users¹¹

***China eCommerce +
Advertising =
Innovation + Growth***

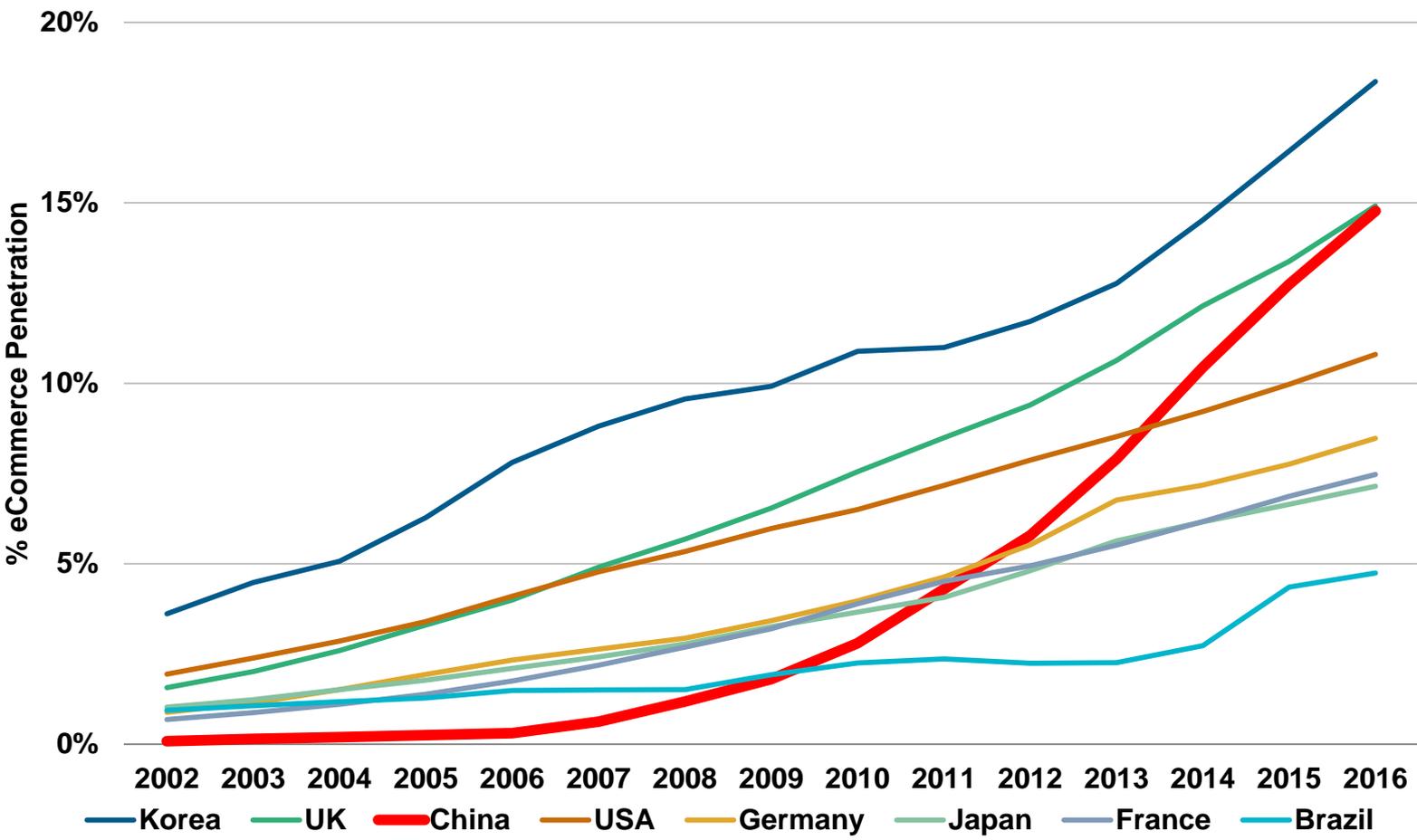
China eCommerce = Strong Growth +24% Y/Y @ \$681B GMV...71% Mobile

China B2C eCommerce Gross Merchandise Value (\$B), Desktop vs. Mobile, 2012 - 2016



China B2C eCommerce @ 15% of Retail Sales... Penetration Ramping Faster Than Peers

B2C eCommerce as % of Retail Sales by Country, 2002 - 2016



Alibaba = Massive Scale + Engagement + Innovation...

**507MM Mobile MAUs, +24% Y/Y...41% DAU/MAU Ratio...
24+ Minutes Daily Time Spent per User**

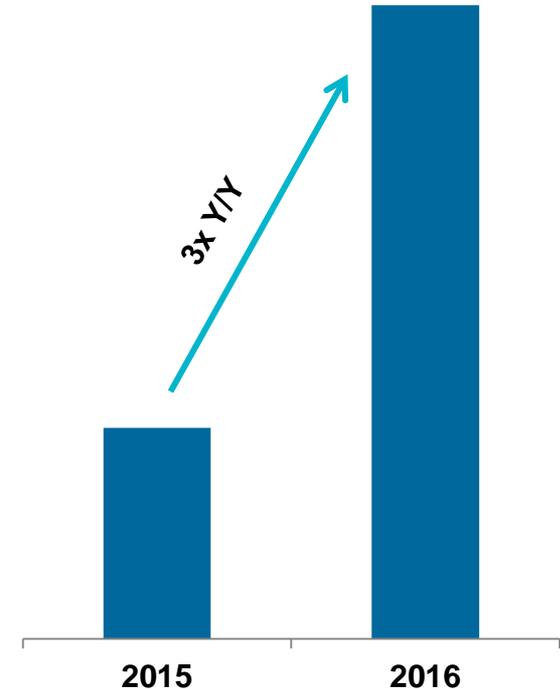
Taobao App with Livestreaming / Microblog / Personalization



Cainiao Logistics Smart Label / Routing

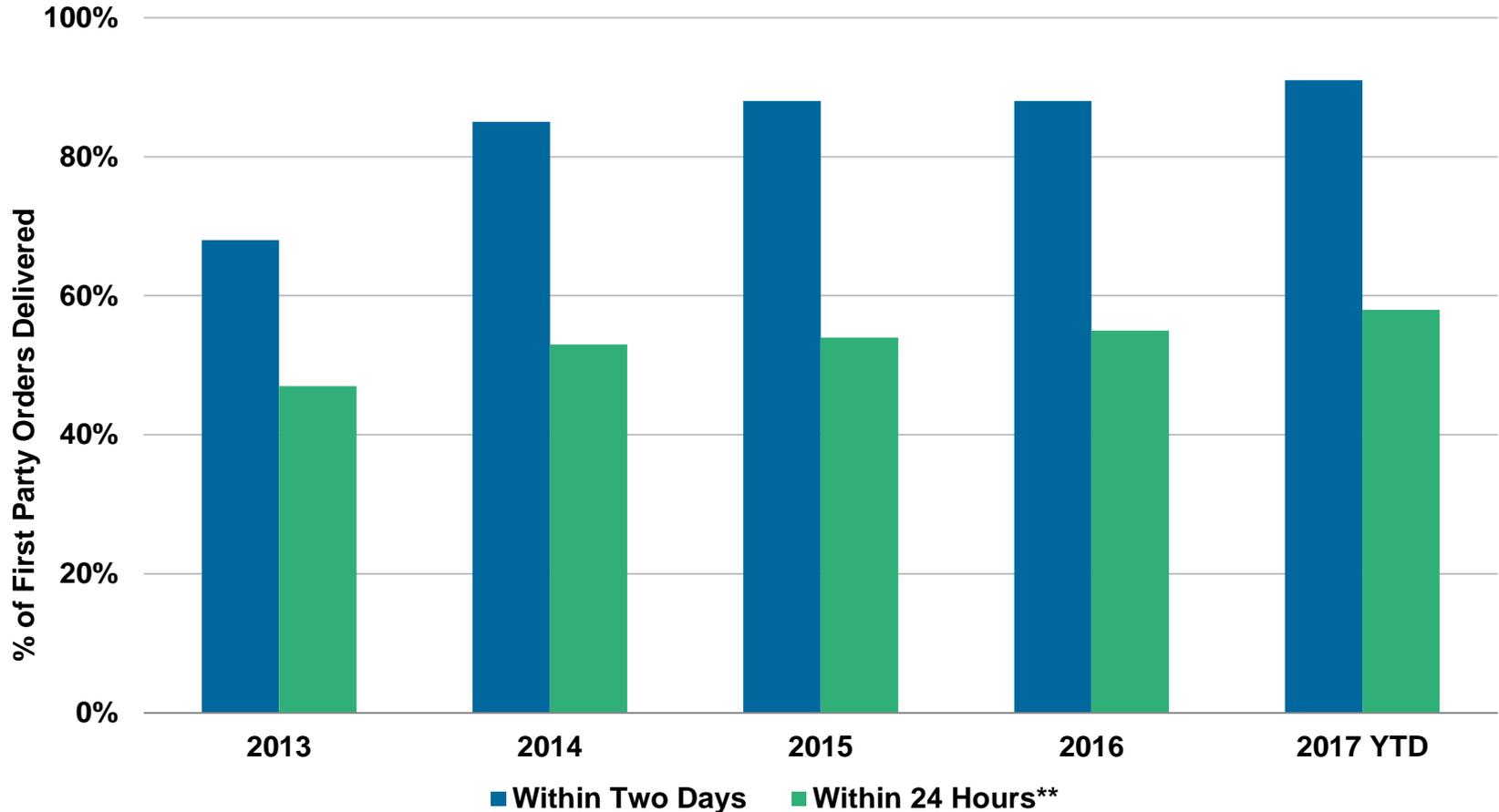


GMV Generated from Recommendations, 2015-2016



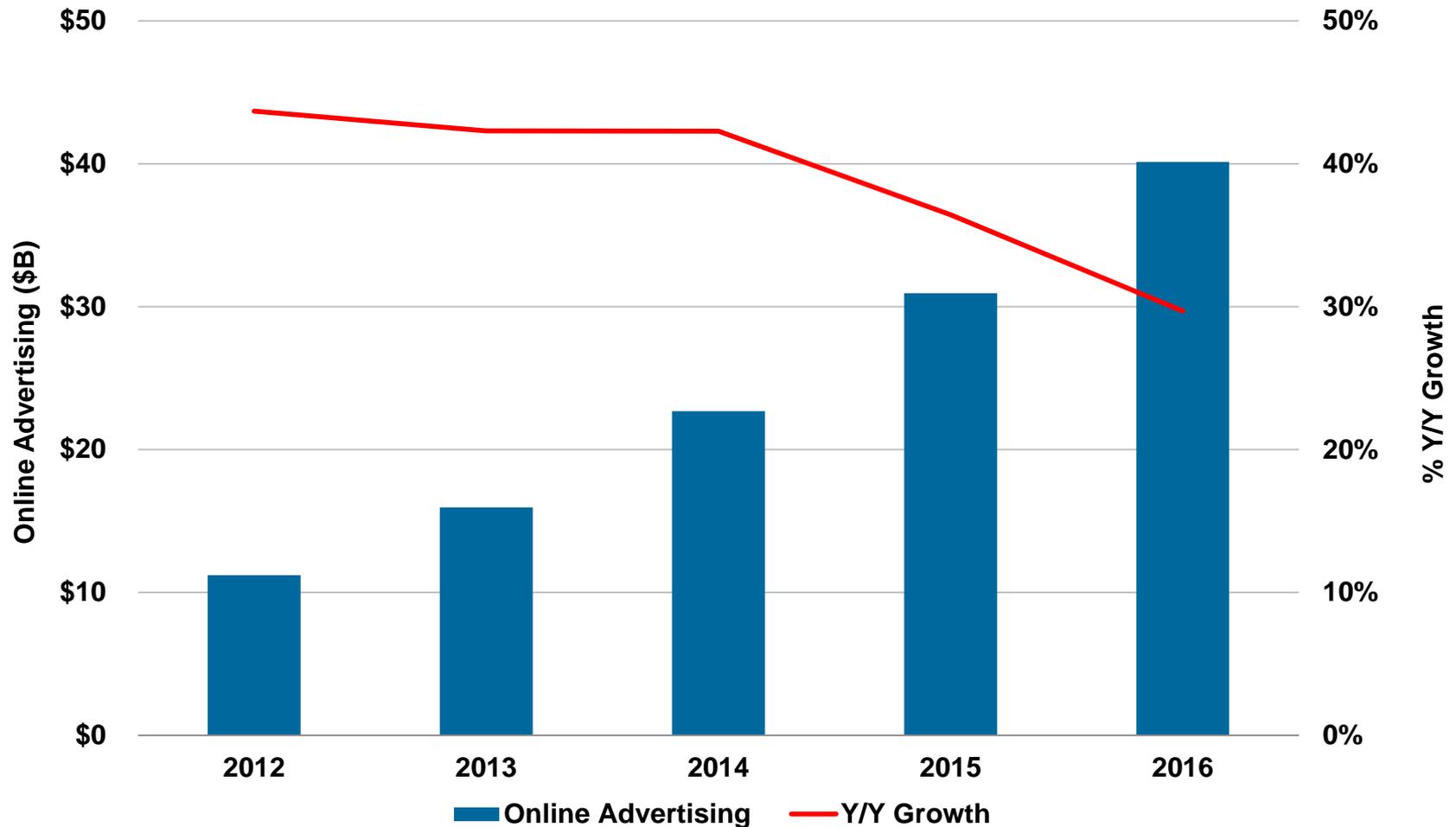
JD.com = World Class Fulfillment + Delivery...91% / 58% Orders* Delivered Within 2 Days / 1 Day, Up from 68% / 47% Four Years Ago

JD.com % of First-Party Orders Delivered by Speed, 2013 – 2017 YTD



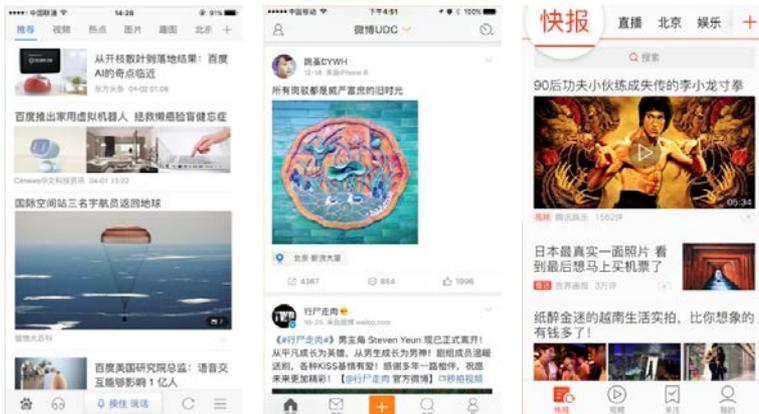
China Online Advertising Revenue = +30% Y/Y @ \$40B

China Online Advertising Revenue, 2012 - 2016

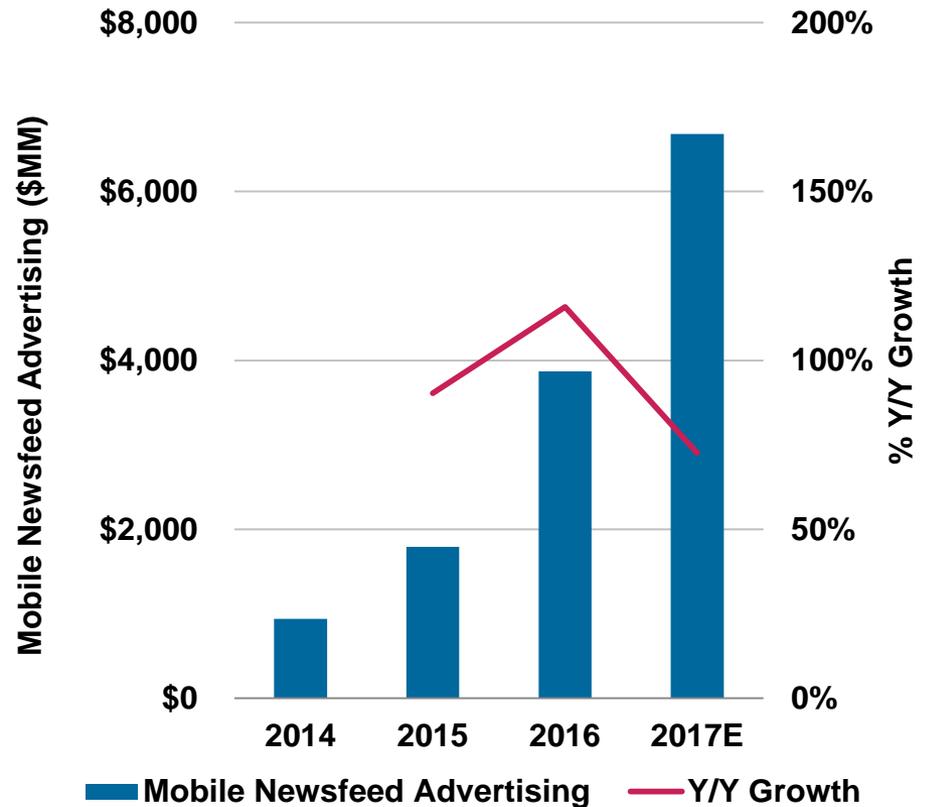


Algorithmic Mobile Newsfeeds = Driving Usage + Advertising Growth (Toutiao / Baidu / Weibo / Tencent...)

Toutiao / Baidu / Weibo / Tencent Mobile Newsfeeds with Personalization



China Mobile Newsfeed Advertising Revenue & Y/Y Growth, 2014 – 2017E



China Internet = Golden Age of Entertainment + Transportation

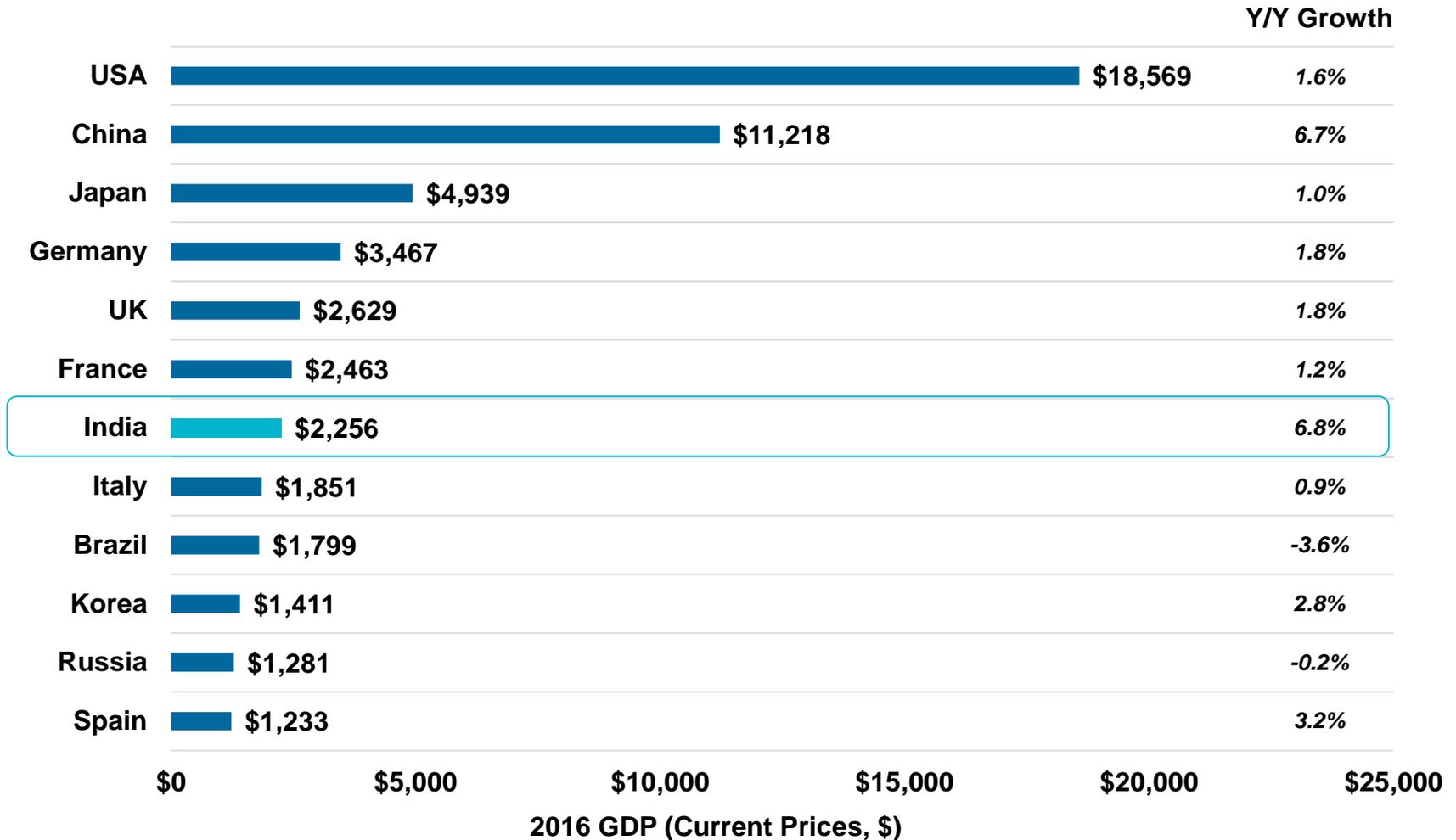
- 1) **Macro** = Positive Trends
- 2) **Internet** = Healthy User Growth...Usage Outpacing Users
- 3) **Entertainment** = Online Innovation Driving Robust User + Usage + Monetization Growth...
- 4) **On-Demand Transportation** = China #1 Global Market...Cars + Bikes
- 5) **Mobile Payment Infrastructure** = Enabling Rapid Growth + Monetization of Internet Usage...
- 6) **eCommerce + Advertising** = Innovation + Growth

INDIA INTERNET =

**COMPETITION CONTINUES TO INTENSIFY...
CONSUMERS WINNING**

India Economy (GDP) = Fastest Large Grower... +7% Y/Y @ #7 Global GDP Rank

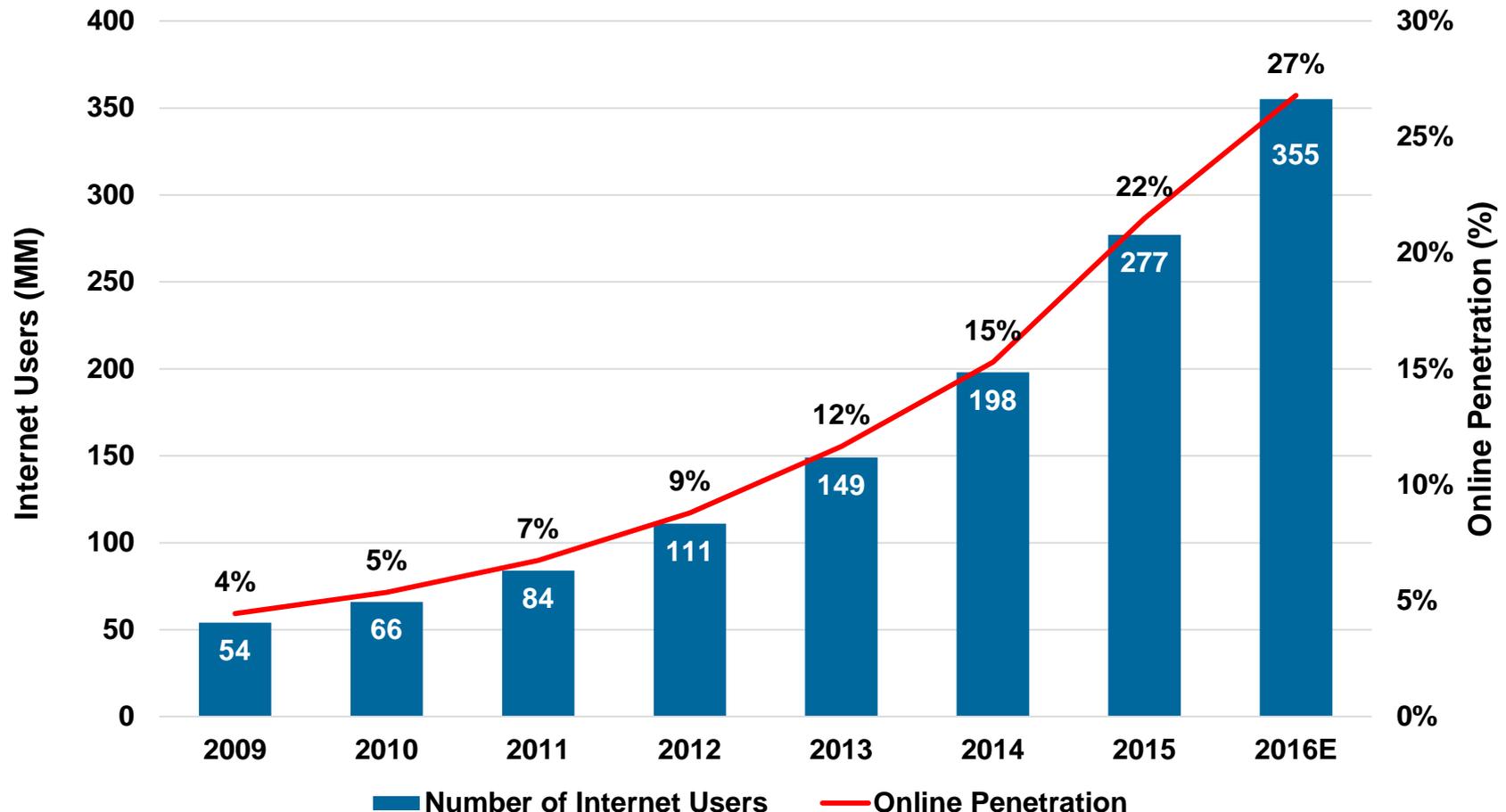
2016 GDP (\$B) and GDP Growth Rates (%), Selected Countries >\$1T of GDP



Source: IMF, 4/2017
Note: Y/Y growth based on constant prices.

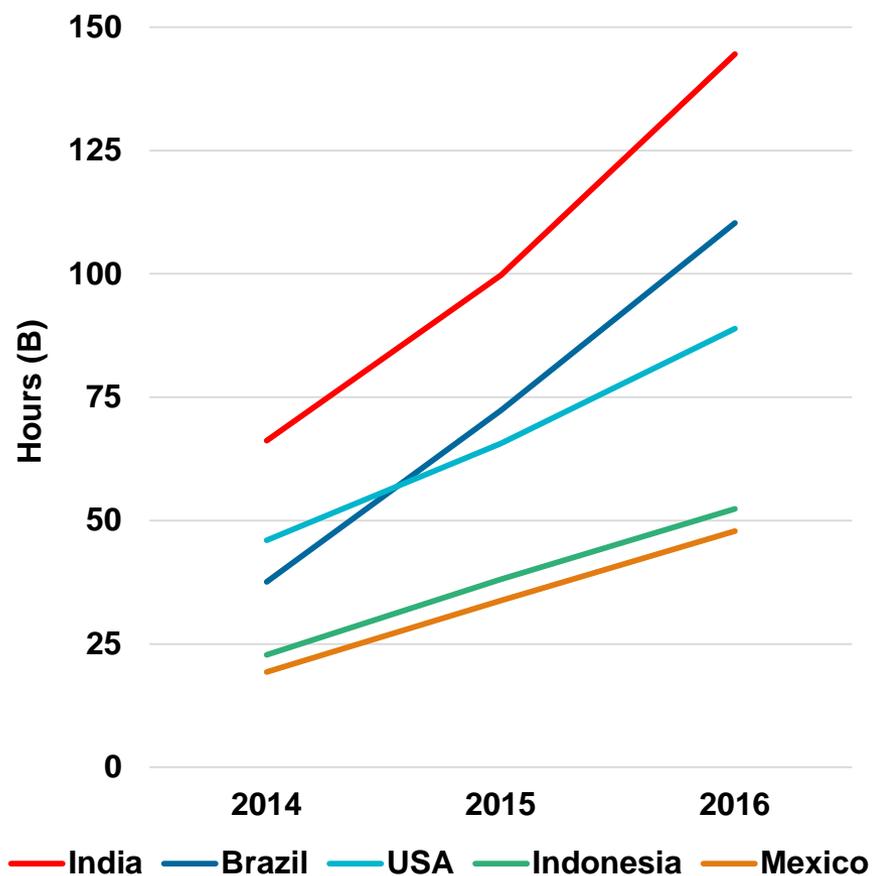
India Internet Users = +28% (2016-June) vs. 40% Y/Y Growth... @ 27% Penetration...355MM Users...#2 Behind China

India Internet Users (MM) & Penetration (%), Monthly Active*, Mid-Year (June) 2009 – 2016E

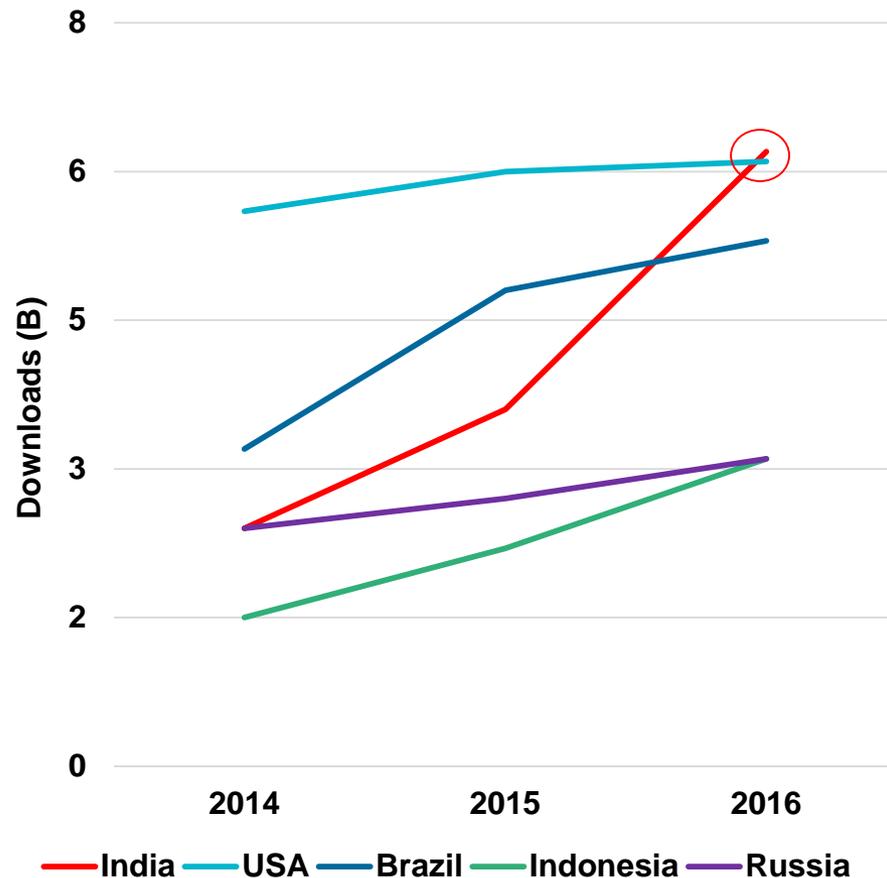


India = #1 Global Market (ex-China) Android Phone Time Spent... Google Play Downloads > USA (2016), per App Annie

Total Time Spent* on Android Phones, 2014-2016

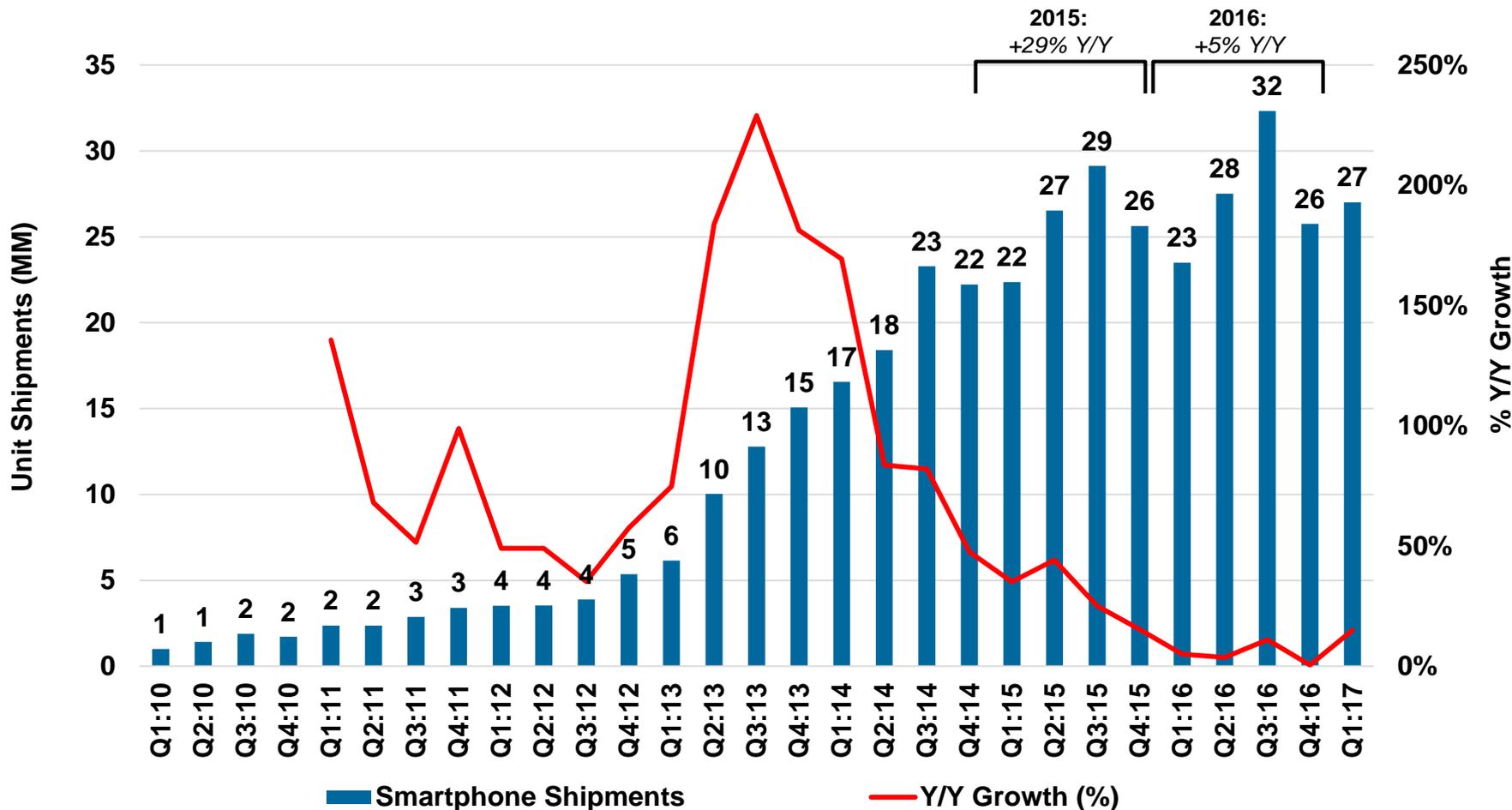


Total Google Play Downloads, 2014-2016



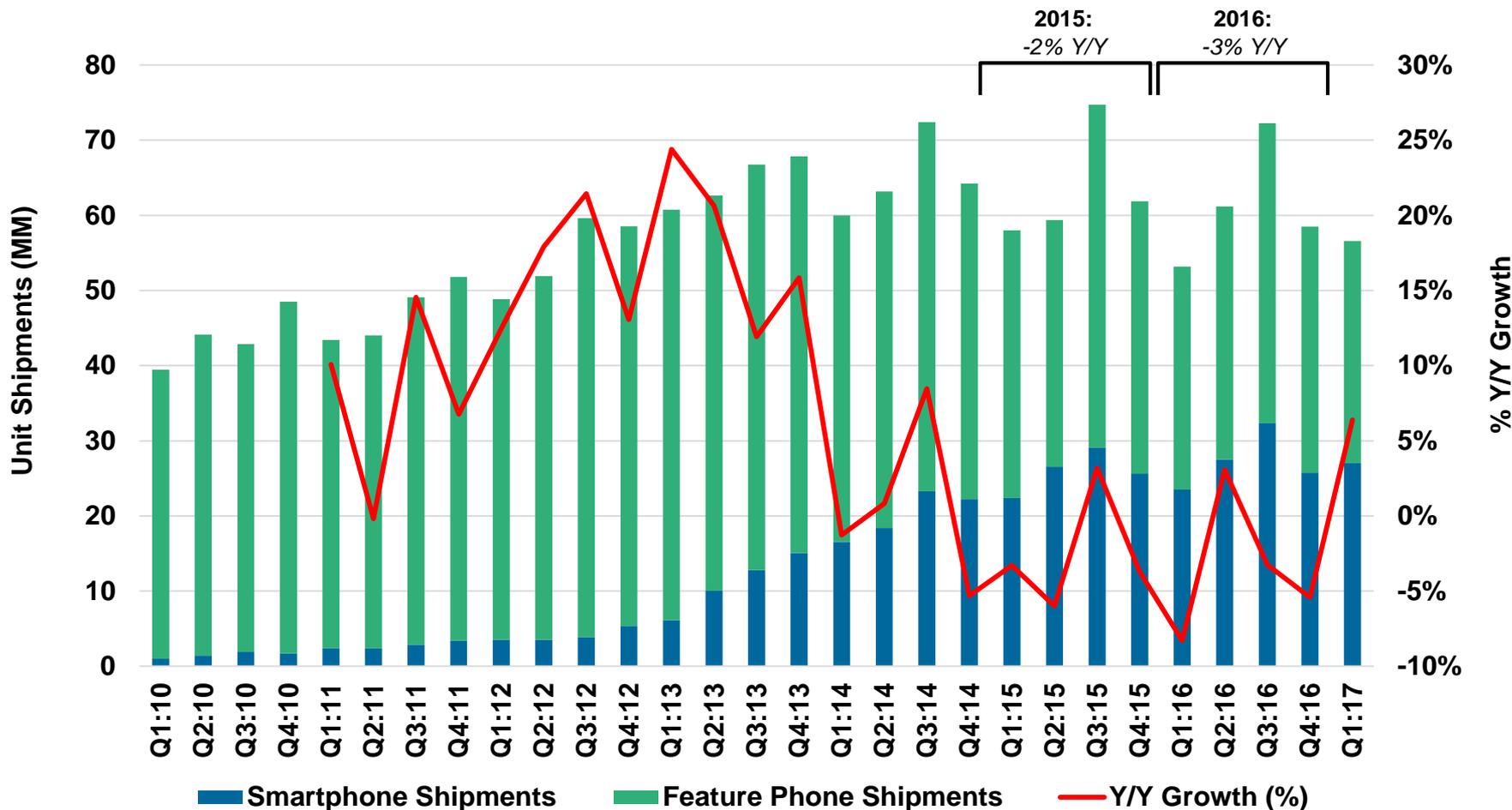
India Smartphone Shipments = +15% Y/Y (Q1:17)...+5% (2016)...+29% (2015)

India Smartphone Unit Shipments, Q1:10 – Q1:17



Smartphone + Feature Phone Shipments =
 +6% Y/Y (Q1:17)...-3% (2016)...-2% (2015)

India Mobile Phones Unit Shipments, Q1:10 – Q1:17



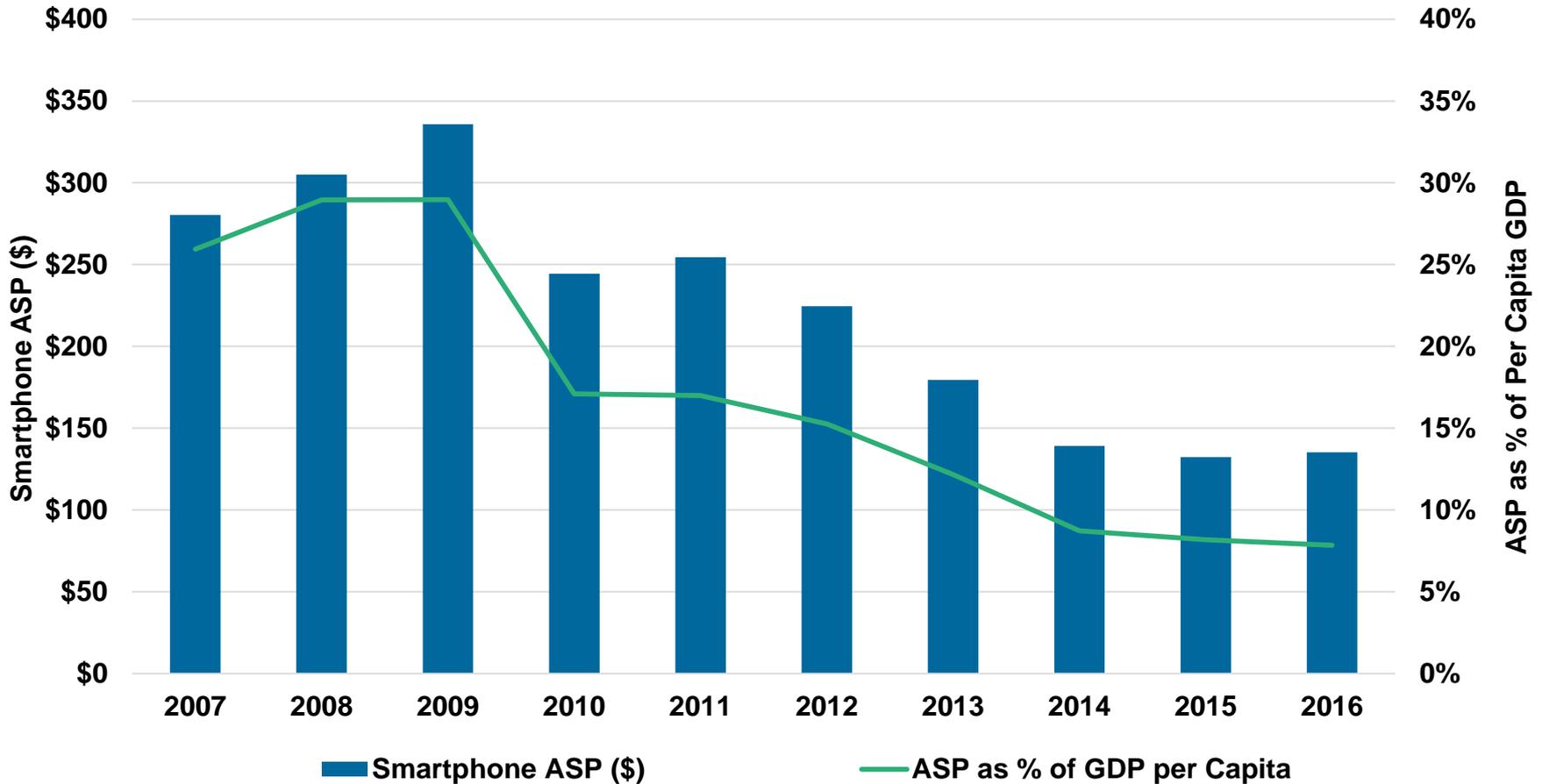
Source: Morgan Stanley, IDC

India Smartphone + Data Costs =

*Declining But Still High for
Majority of India's 1.3B Citizens*

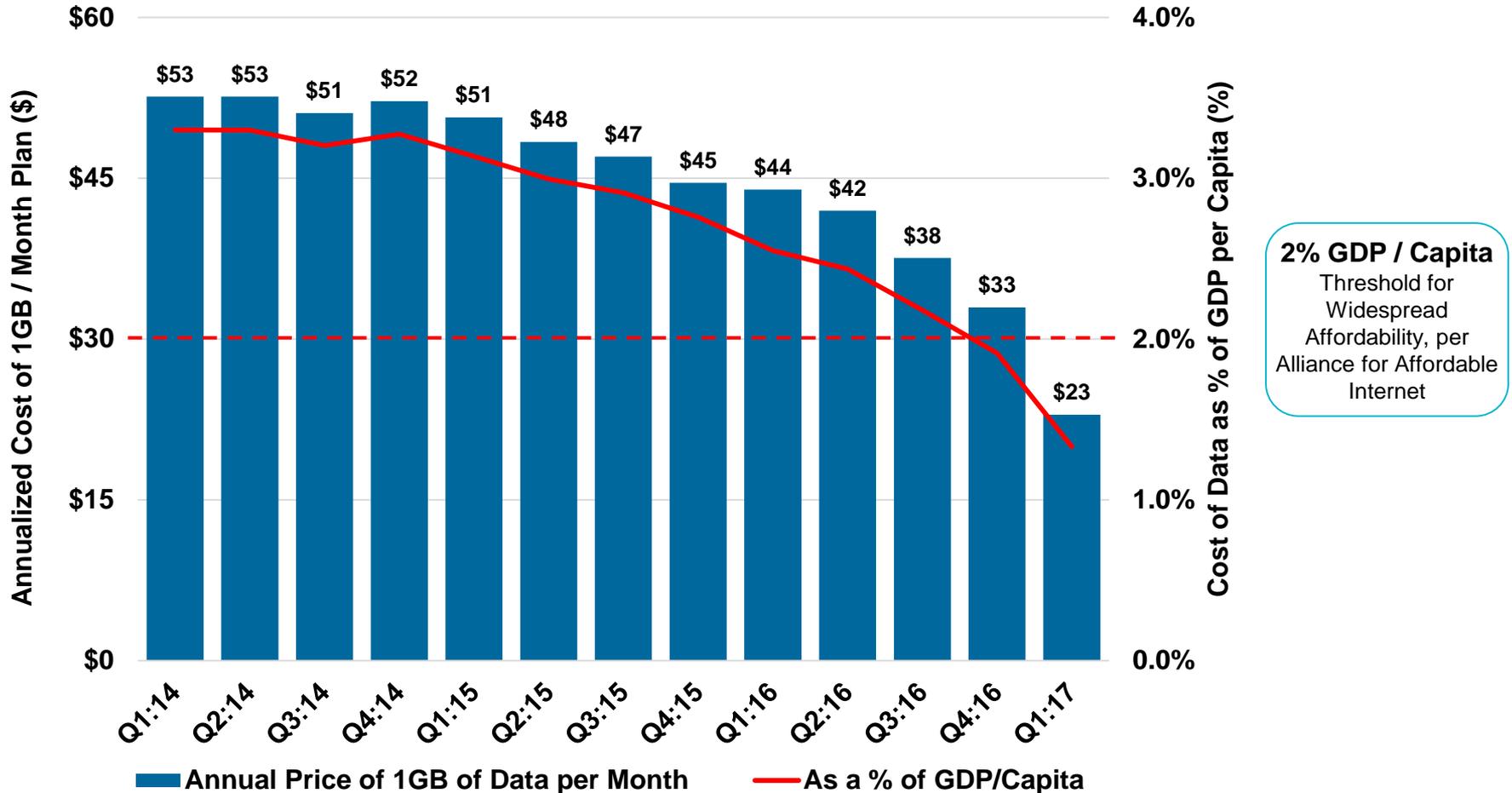
India Smartphone Cost (excluding Data) = Unaffordable for Many... @ 8% of Annual Average GDP per Capita...

India Smartphone Average Selling Price (ASP, \$) & ASP as % of GDP per Capita, 2007 - 2016



...India *Wireless Data Cost** = Declining to More Affordable Levels... @ 1.3% of Annual Average GDP per Capita (3/17) vs. 3% (3/15)

Annualized Cost of 1GB / Month vs. % of GDP per Capita, Q1:14 – Q1:17



Source: JP Morgan, Bharti Airtel, Idea Cellular, IMF, Alliance for Affordable Internet.
 *Industry average calculated using average cost of 1 GB of data from Bharti Airtel and Idea Cellular and exclude the impact of Reliance Jio.
 Chart is illustrative and assumes an average consumption of 1GB / month. Alliance for Affordable Internet data suggests that 2% of monthly income for 1GB of data is within affordable range.

India Internet =

***Fierce Global Battleground
(Hardware / Carriers / Software /
Commerce)...***

India Mobile Hardware (2012-Q1:17) = Intense Competition → Massive Share Shifts

Rise of India OEMs (2012-H1:14)

Likes of Micromax / Lava / Karbonn Fight for Feature Phone Market Share via Price...ASP's Fall ~40%...Shares Rise

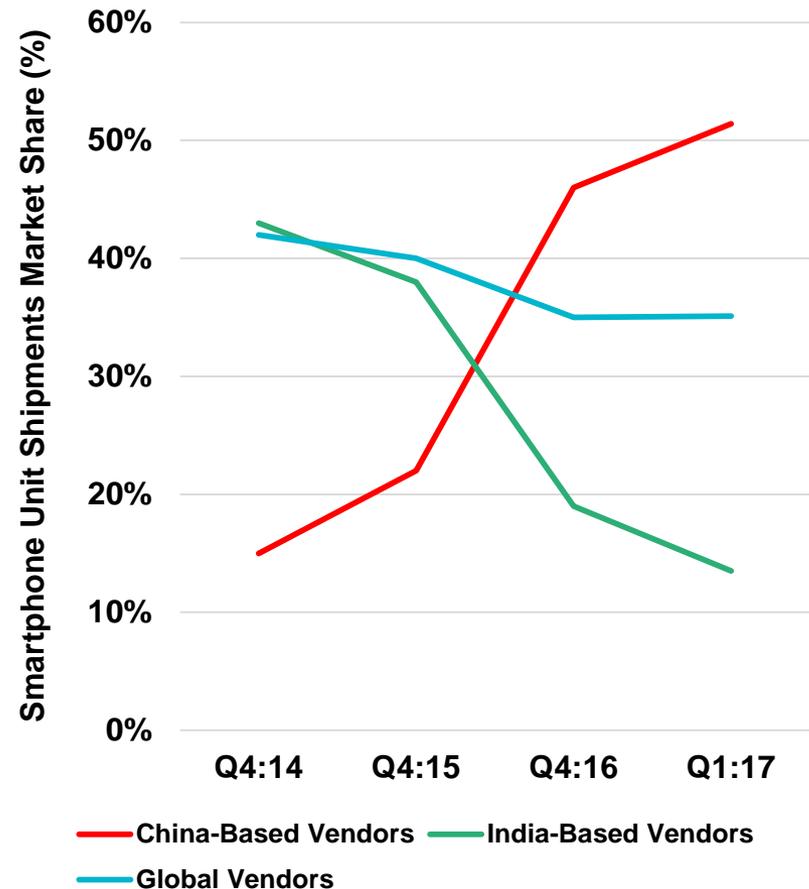
Rise of China OEMs + Reliance (H2:14-Q1:17)

Likes of Lenovo / Xiaomi / Oppo / Vivo Fight for Smartphone Market Share via Quality / Features / Online Distribution...ASP's Stable...Shares Rise...Reliance Gains Share in 2016 on Launch of Jio 4G Service + LYF-Branded Smartphones...

Competition Intensifies (H1:17...)

Xiaomi / Oppo / Vivo Share Gains Continue... Smartphones Get Cheaper / Better... Lava / Micromax / Jio Fight for Low-Cost 4G Feature Phone Share...

India Smartphone Shipments Market Share by Vendor Country of Origin (%), Q4:14 – Q1:17



India Wireless Carriers = Incumbents + New Entrants... Fighting Aggressively for Share Over Past 4 Quarters...

2015 – 1H:16

Top 3 India wireless carriers Bharti Airtel / Vodafone / Idea collectively maintain ~60% share of broadband subscribers + ~\$2.80 – \$3.00 monthly ARPU (Voice + Data + Value-Added Services).

Q2:16

Wireless incumbents begin to cut data rates in anticipation of Reliance Jio launch in 9/16. Data costs per GB decline from \$3.50 to ~\$3.15 (-10%) Q/Q. Voice costs decline 4% Q/Q.

9/16

Reliance Jio – after investing \$25B over 7 years – rolls out 4G Pan-India Jio network + \$0 Monthly ARPU (post 3/17 when ARPU rose to \$4.70)

Q4:16 – Q1:17

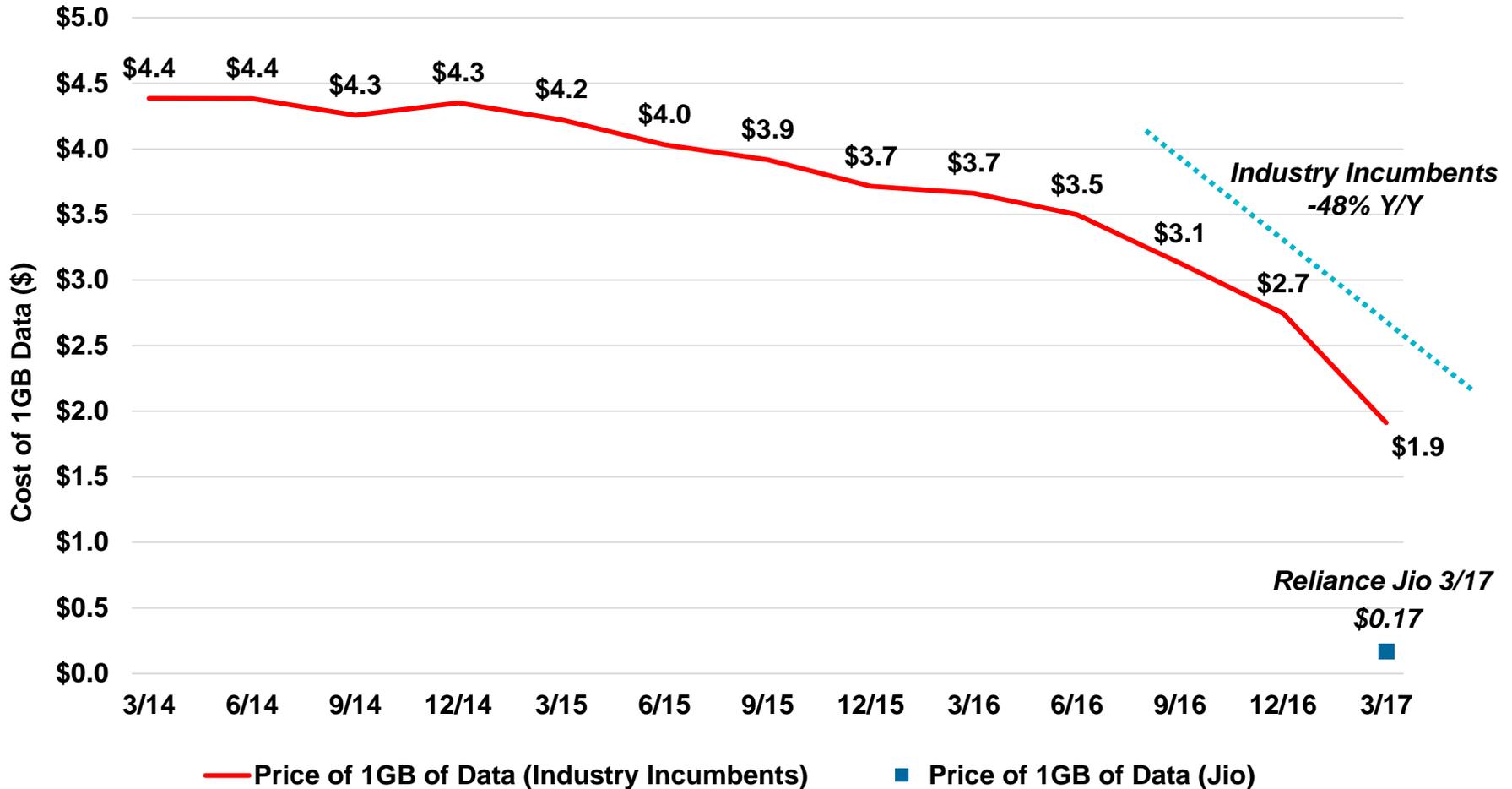
Wireless incumbents begin to lose data subscribers. In response, they cut data prices further over next 2 quarters. As of 3/17, average cost of 1GB of data @ ~\$2 among incumbents, -48% Y/Y...ARPU -20%. Including Jio, average cost of 1GB of data @ \$0.33 (3/17).

3/17

Reliance Jio free-data period ends with ~67% paid migration (72MM convert to paid Jio Prime subscribers out of 108MM sign-ups)

...India Wireless Consumer Data Prices = -48%+ in Last Year* as... Incumbent Carriers Responded to Jio's Low Pricing...

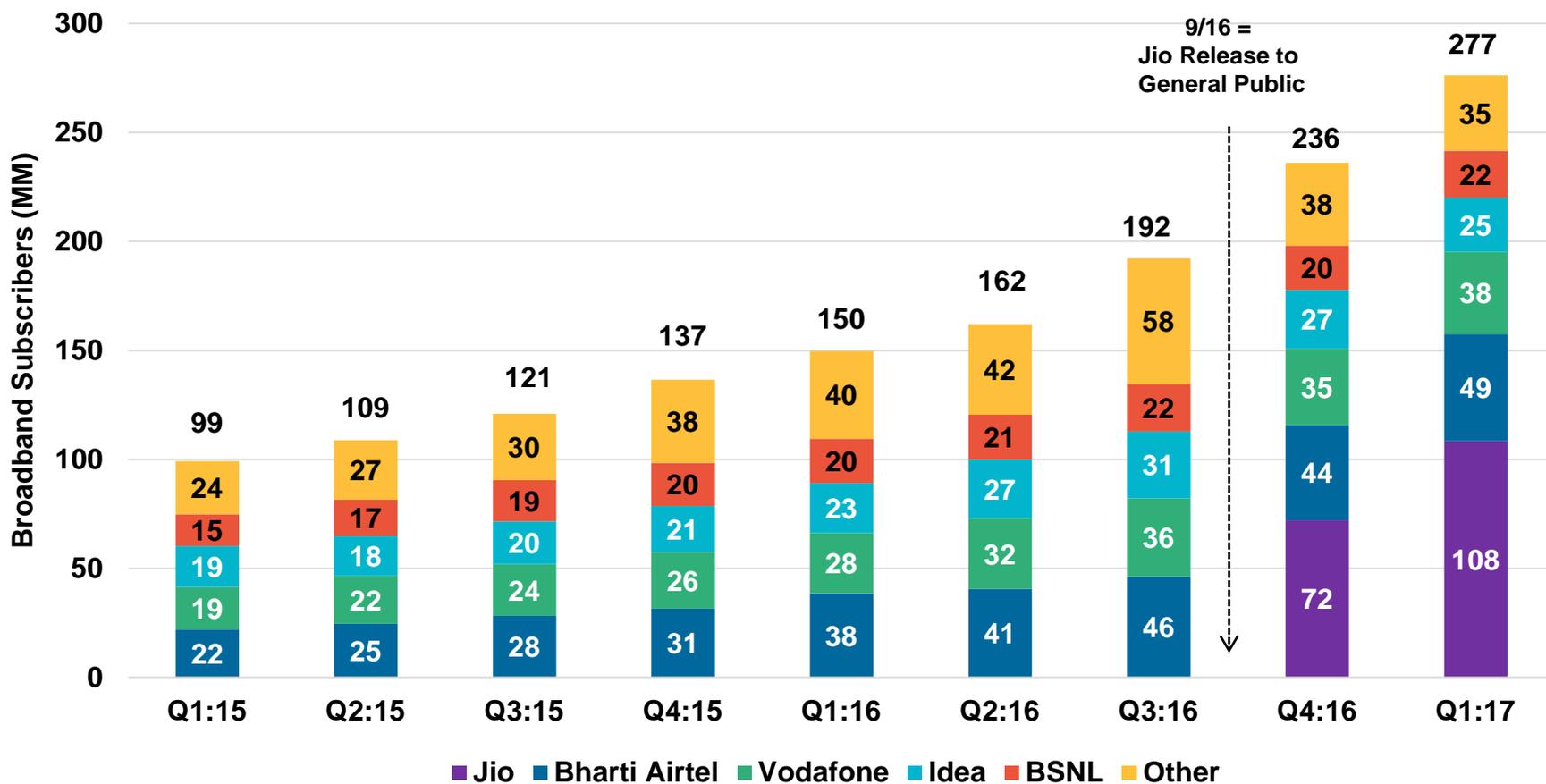
Data Prices per GB, Industry*, CQ1:14 – CQ1:17



Source: JP Morgan, Bharti Airtel, Idea Cellular, Reliance Jio.
 *Industry incumbent average calculated using weighted average cost of 1 GB of data realization from Bharti Airtel / Idea Cellular.
 Reliance Jio data assumed at 10 INR / GB based on March realization.

...India Broadband Subscribers* = +85% Y/Y (Q1:17)...Accelerating...
 Reliance Jio Rose to 39% Share vs. 0% (Q3:16) Owing to Low Price Launch

India Broadband (>512 Kbps) Subscribers* by Service Provider, CQ1:15 – CQ1:17



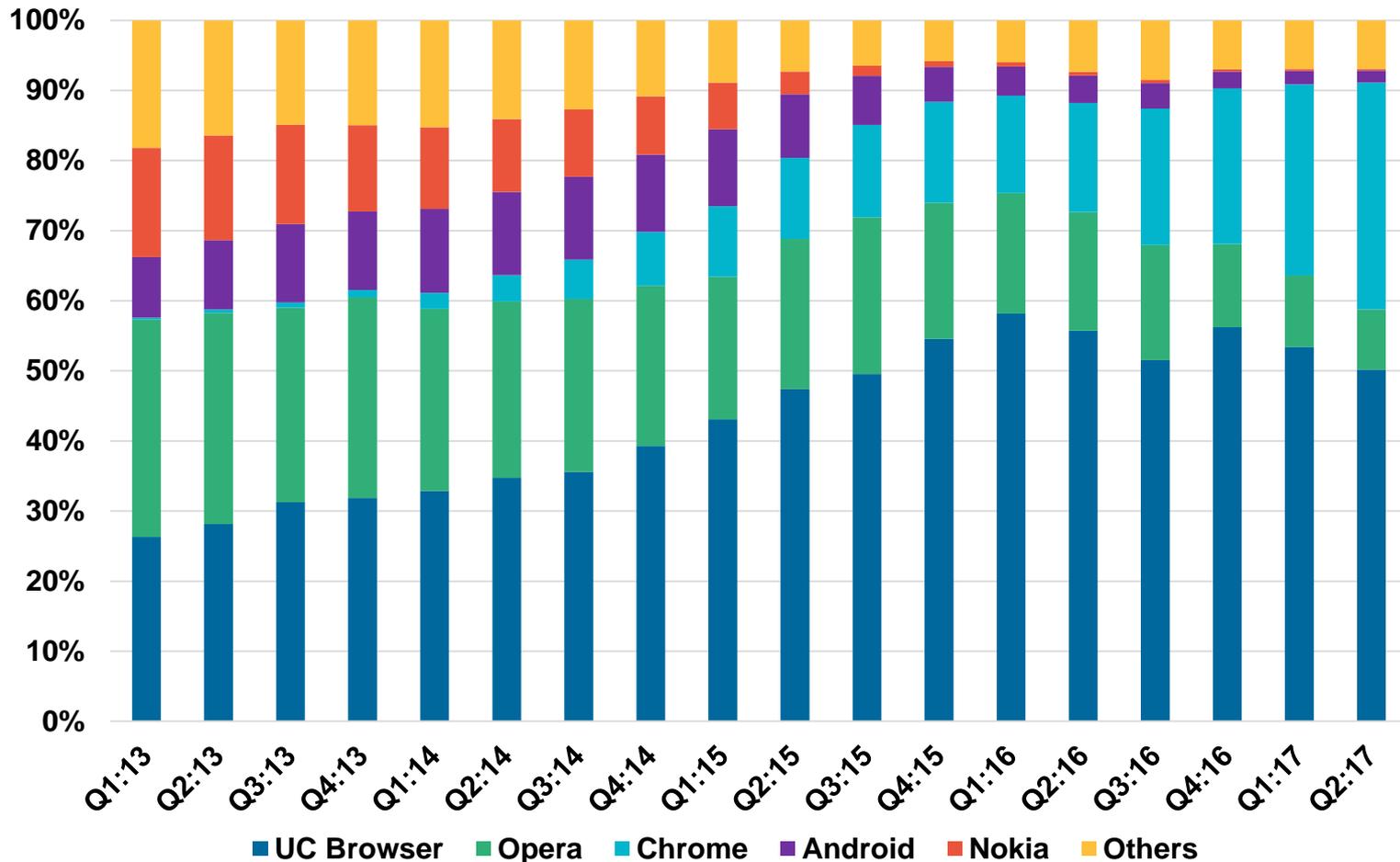
Source: TRAI reports.

*Subscribers are defined as all unique SIMs within a carrier's database, less test/service cards, employees, stock in hand, SIMs where the subscriber retention period has expired, and service suspended pending disconnection.

Note that as of 3/17, Jio's subscribers mentioned here were on free data plans. Subsequent to this free trial period, 72MM so far have converted to paying subscribers.

India Software – Mobile Browser Usage Market Share = China (UC/Alibaba) @ 50%...USA (Google Chrome) @ 32%...

India Mobile Browser Usage Market Share, Q1:13 – Q2:17



...India Software – Top Downloaded Android Apps = USA @ 4 of 10...China @ 2 of 10...India @ 2 of 10

Google Play Store Rank (5/29/17)	App	Origin	Category	Rank on 5/30/16 (1 Year Ago)
1	WhatsApp (Facebook)	USA	Messaging	1
2	Facebook Messenger	USA	Messaging	3
3	ShareIt	China	Utility – file transfer	5
4	Truecaller	Sweden	Utility – dialer	11
5	Facebook	USA	Social	2
6	UC Browser (Alibaba)	China	Browser	4
7	MX Player	Korea	Utility – video player	13
8	Hotstar	India	Entertainment	6
9	JioTV	India	Entertainment	301
10	Facebook Lite	USA	Social	9

Source: *Top 10 Non Gaming Apps, Google Play Store, India, 5/29/17
 Note: Google Play Store ranks reflect rankings based on **daily** download volumes
 Blue indicates a Facebook app. Green indicates an app owned by Alibaba.

India eCommerce = Many Players Fighting for Share...

Flipkart



amazon.com

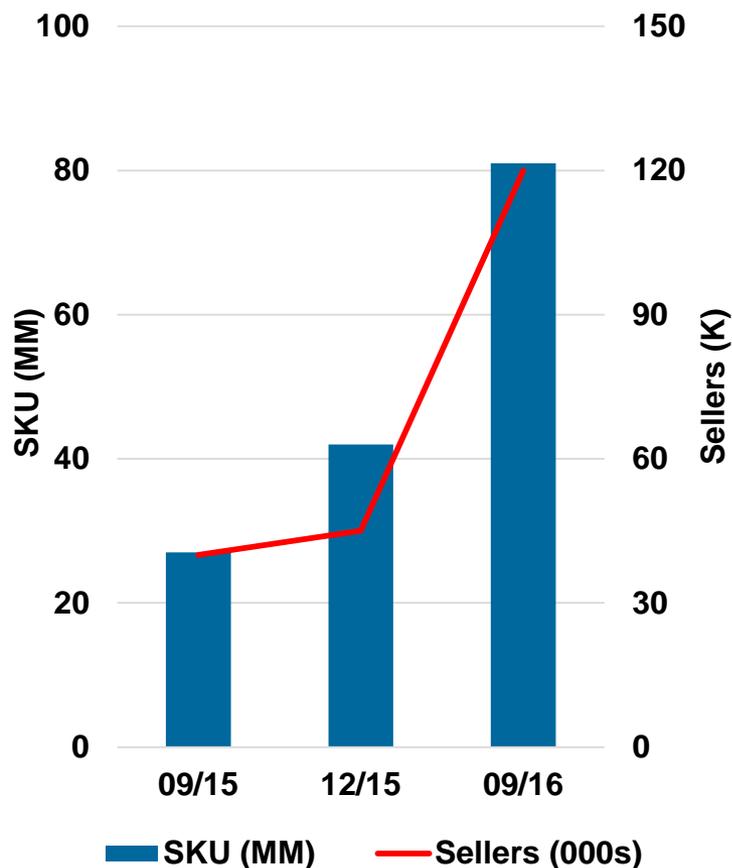
paytm

 **snapdeal**

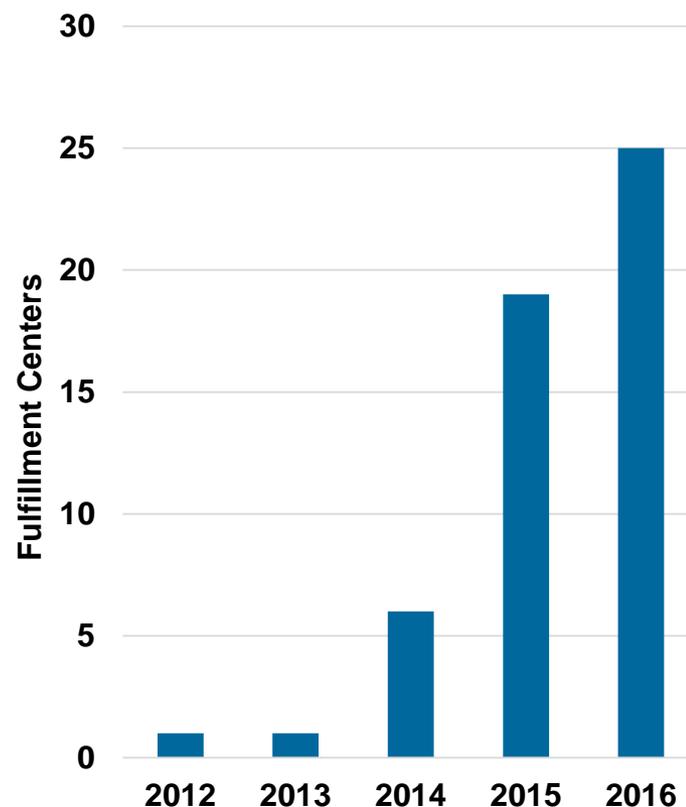
 **SHOPCLUES.COM**

...Amazon India = Inventory (SKUs) & Sellers +3x Y/Y... Fulfillment Centers +30% Y/Y...Aggressive / Investing Heavily

Amazon India SKUs & Sellers, 9/15 – 12/16



Amazon India Fulfillment Centers, 2012 – 2016

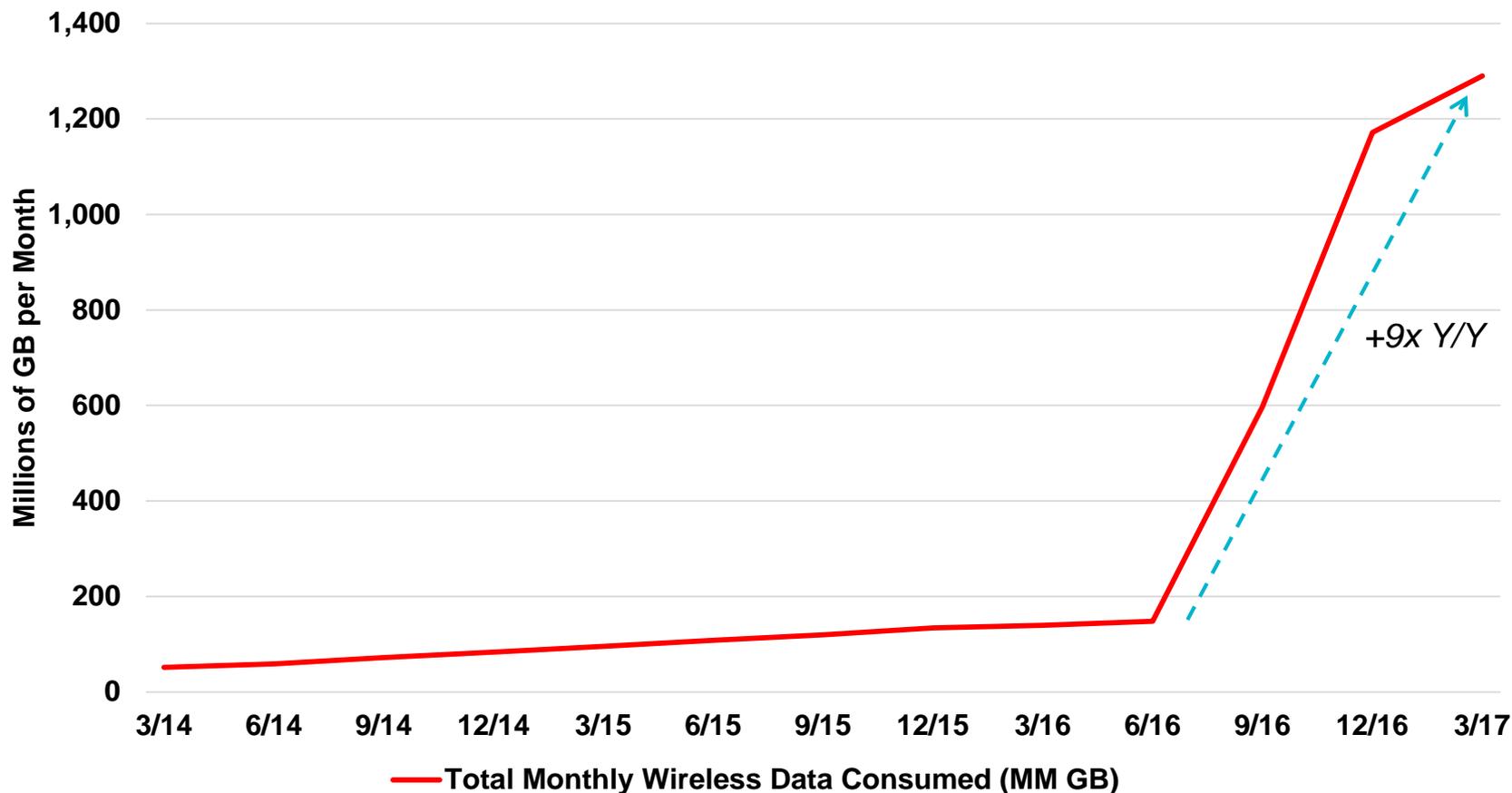


Source: Barclays Research, Amazon.com, MWPVL International
Per public statements, Amazon has pledged to invest \$5B into India

***India Internet Usage =
Rising Owing to...
Cheaper / Faster Access***

India Wireless Internet Data Usage = Rising Dramatically as Access Costs Have Fallen...

Total Monthly Wireless Data Consumed (MM GB)*, 3/14 - 3/17

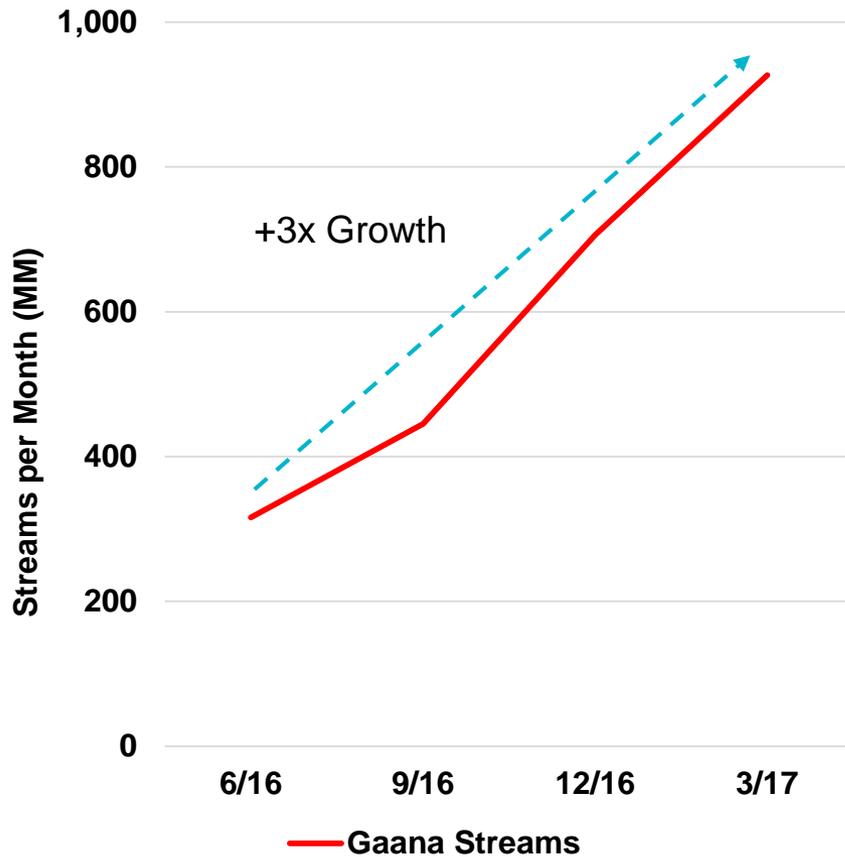


Source: Reliance Jio, Bharti Airtel, Idea, Reliance Communications, Vodafone India.

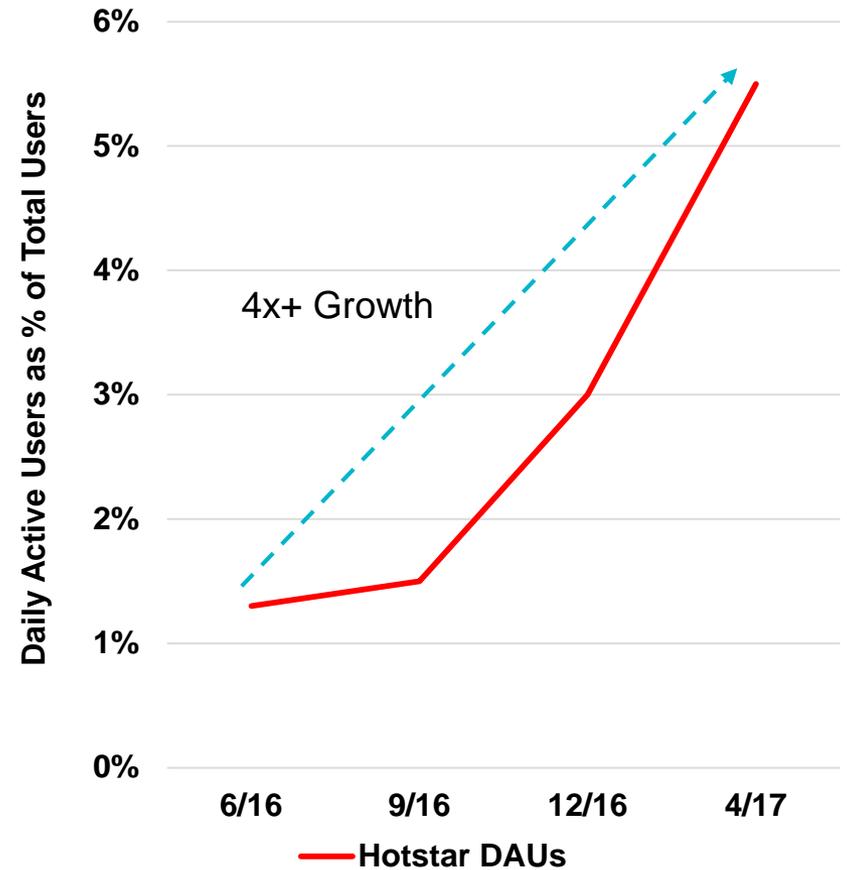
*Note total data consumed based on publicly available data from Reliance Jio, Bharti Airtel, Idea, Reliance Communications, Vodafone and may not be collectively exhaustive.

...India Wireless Internet Data Usage = Bandwidth Intensive App Usage Growing Dramatically

Gaana Streams, 6/16 – 3/17 (Music Streaming App)



Hotstar DAUs, 6/16 – 4/17* (Video Streaming App)



***India Leadership =
Focused Pro-Digital Policies***

India Leadership = Digital-Focused Government Policies Rolled Out with Speed + Scope

Narendra Modi Elected India Prime Minister = 5/14

Key Policies

'Banking for All' 'Jan Dhan Yojana' = 8/14

~280MM+ new bank accounts opened to deliver financial services directly to underbanked in effort to bypass corruption

'Power for All' Rural Electrification = 7/15

Program to electrify 100% of villages by 2019, with 133MM rural households electrified to date...~45MM remaining

Demonetization = 11/16

~85% of paper currency in circulation replaced overnight to clean 'black' money (estimated at 22%+ of total GDP) & boost digital payment adoption

Nationwide Tax (GST) Reform = 3/17

Single indirect tax replacing 17 different state & central taxes, turning India into single national market & eliminating double taxation for consumers

Other Notable Policies

Digital India = 7/15

National rollout of high speed broadband access & digital delivery of land records, income tax filings & other government services

Skills & Entrepreneurship = 6/15

Dedicated ministry to upgrade youth skills...goal to train 10MM new workforce entrants per year

Startup India = 1/16

High level support of Indian startups via funding & fast tracking of regulatory support for new companies

Infrastructure Enhancements = 2/17

\$59B targeted to upgrade railways / airports / roads

*India Internet Usage Growth Strong Owing In Part to
Broader Availability of Low Cost Data Access...*

India Internet User Base @ +355MM is Large...

*Ongoing Smartphone + Access Price Declines
Key to Onboarding Next 200MM Users...*

*Driving Free Cash Flow for Many Internet
Businesses Challenging Owing to Fierce Competition...*

*Consumers Benefitting from
Competition & Government Policies*

India Internet Innovation = Leapfrogging + Re-Imagining

Leapfrogging

Mobile

Identity

Bandwidth

Payments

Re-Imagining

Entertainment

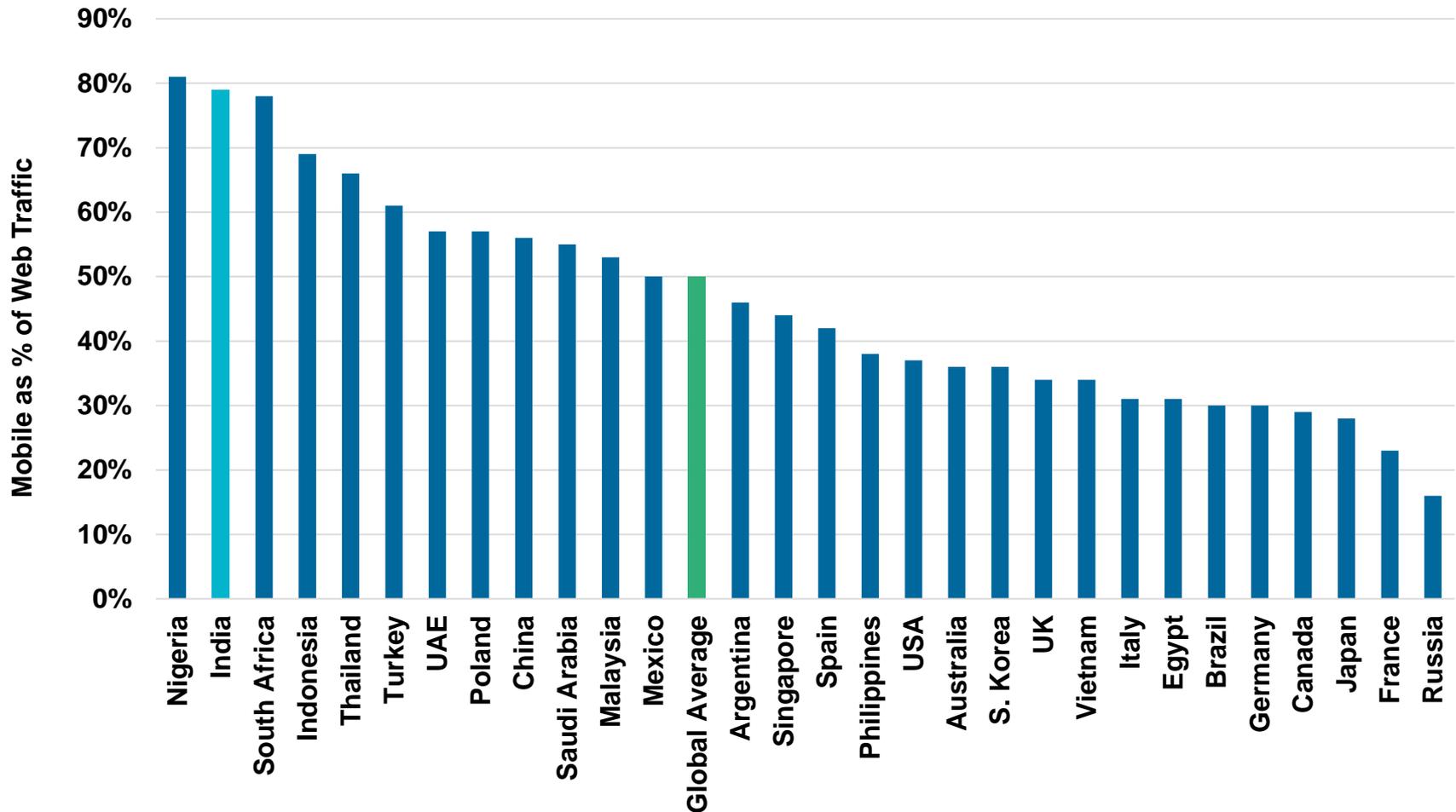
Education

Healthcare

Marketplaces

India Mobile Usage = A Global Leader vs. Desktop Usage... ~80% of Internet Usage on Mobiles...

Mobile Share of Web Traffic, 1/17



Source: Hootsuite, Statcounter, 1/17.

India Identity = Aadhaar + eKYC – Digital Authentication for 1B+ People... Use Growing Rapidly @ 16MM Authentications per Day (3/17) vs 3MM Y/Y...

Aadhaar Authentication =

Are You Who You Claim To Be?

- Binary Yes / No Answer Only
- Uses Biometrics (Fingerprint + Iris)
+ Unique 12-Digit Number to Verify

If Yes

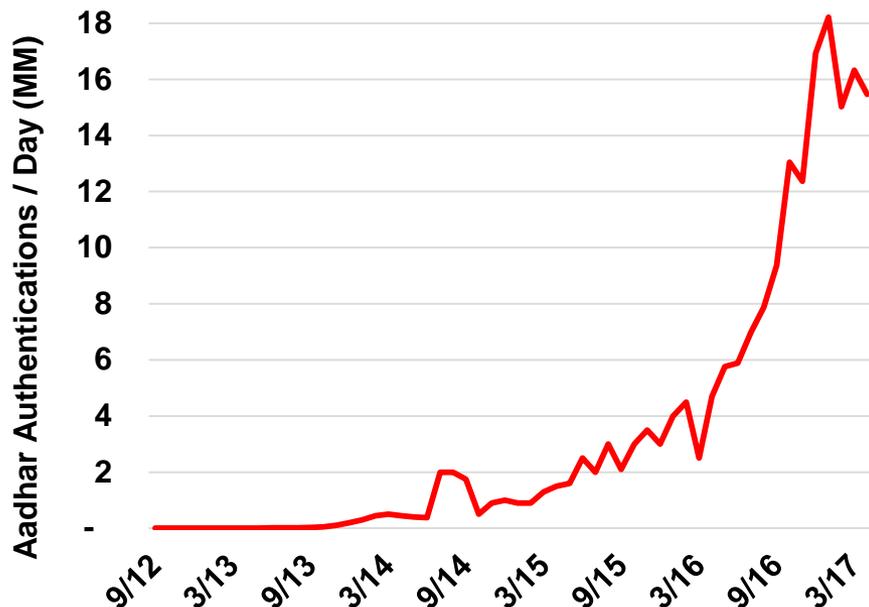


eKYC Authentication

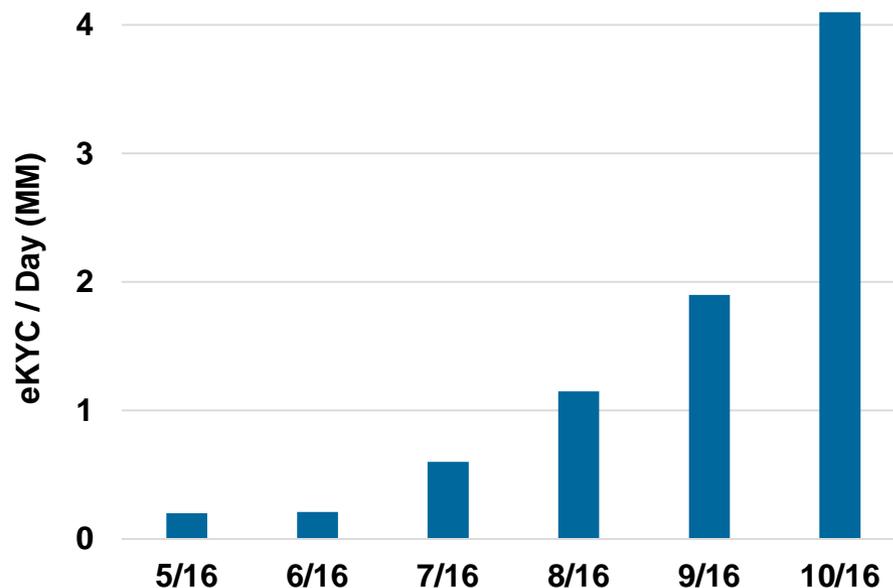
Proof of Address / Birth / Photos...

- Secure Dropbox for Basic Paper Records
- Can Only be Accessed if Aadhaar ID is Authenticated + User Gives Consent

**Aadhaar Authentications / Day,
9/12 - 3/17**

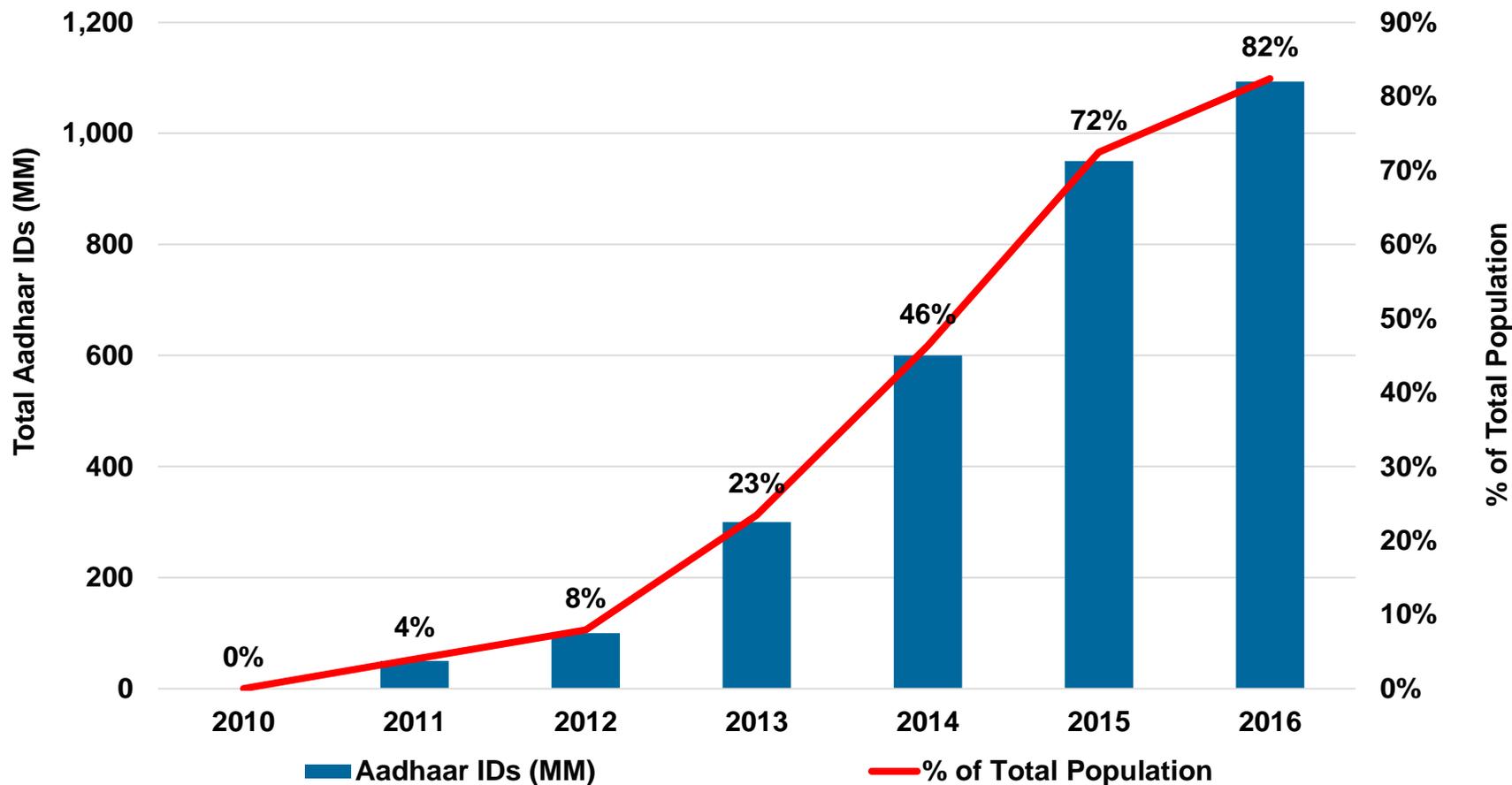


**eKYC Verifications / Day,
5/16 – 10/16**



...India Identity = India Aadhaar Digital IDs Have Broad Coverage...
@ 82% of Population (1.1B People) vs. Zero 6 Years Ago...#1 in World...

Total Aadhaar IDs (MM), 2010 – 2016



...India Identity = Aadhaar IDs + eKYC Improving Foundational Access to Broad Services

Sim Card Activation

Before Digital ID = 1-3 Days

Proof of Address / original photo IDs / attested photocopies + potential fraud...



After-Digital ID = 15 Minutes

Aadhaar number + fingerprint / biometric eSign



Bank Account & Digital Wallet Opening

Before Digital ID =

Physical visit to bank, paper-based KYC, lack of ability to scale, improper documentation



After-Digital ID =

Open account on mobile phone...
in secure / scalable way



Pensions & Social Services

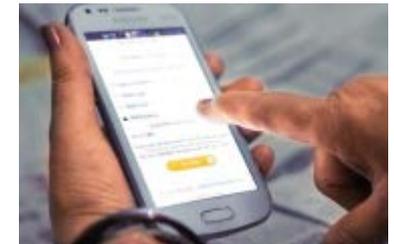
Before Digital ID =

Cash-based / leakage of payments to government officials / corruption / fraud



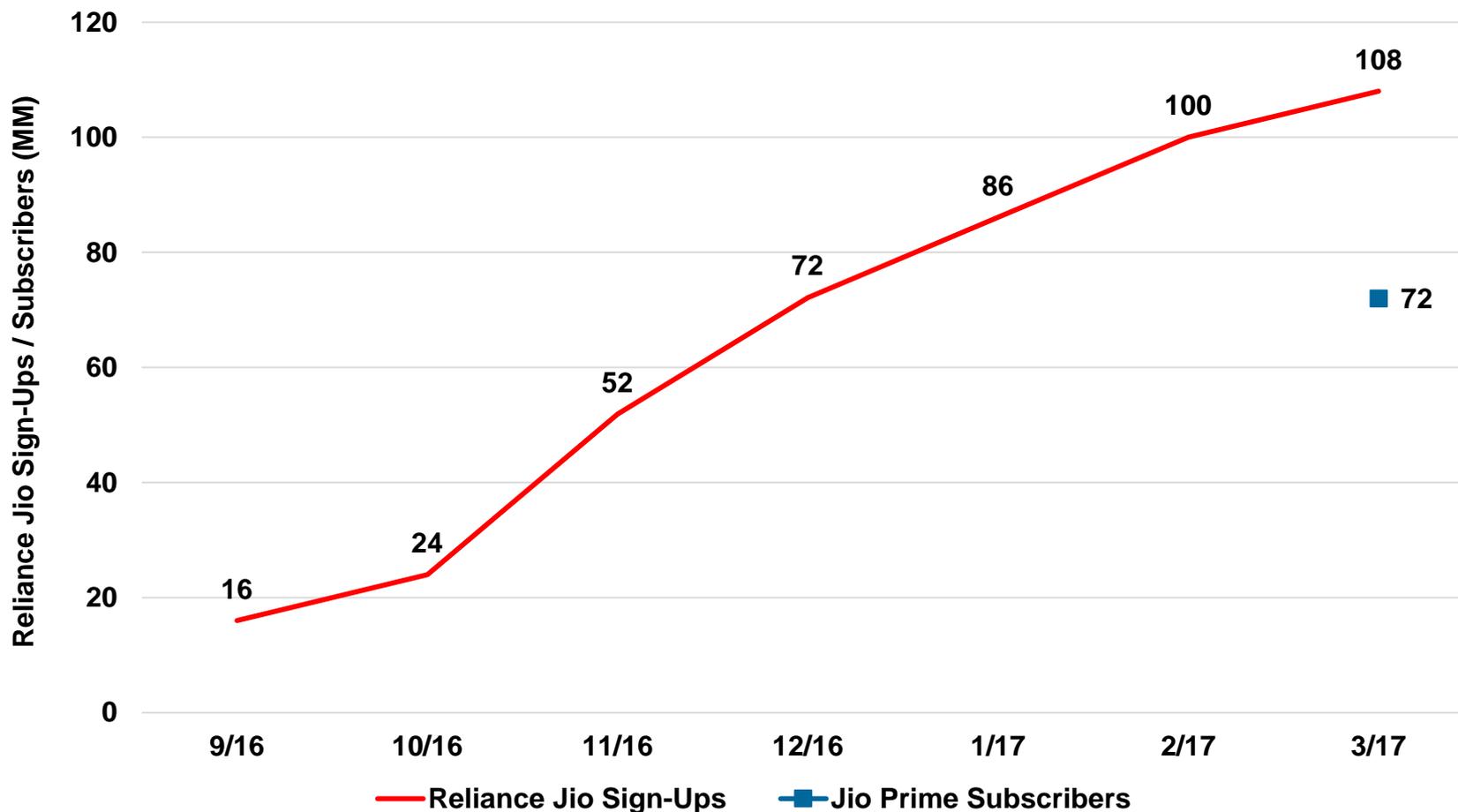
After-Digital ID =

12-15% increase in final payouts to workers
owing to reduced leakage



India Bandwidth = Reliance Jio High-Speed Bandwidth Ramp... @ 108MM Sign-Ups* in 7 Months...72MM Converted to Paying Subscribers

Reliance Jio Sign-Ups and Subscribers (MM), 9/16 – 4/17



Source: Cellular Operators Association of India (COAI), Reliance Jio, various press releases

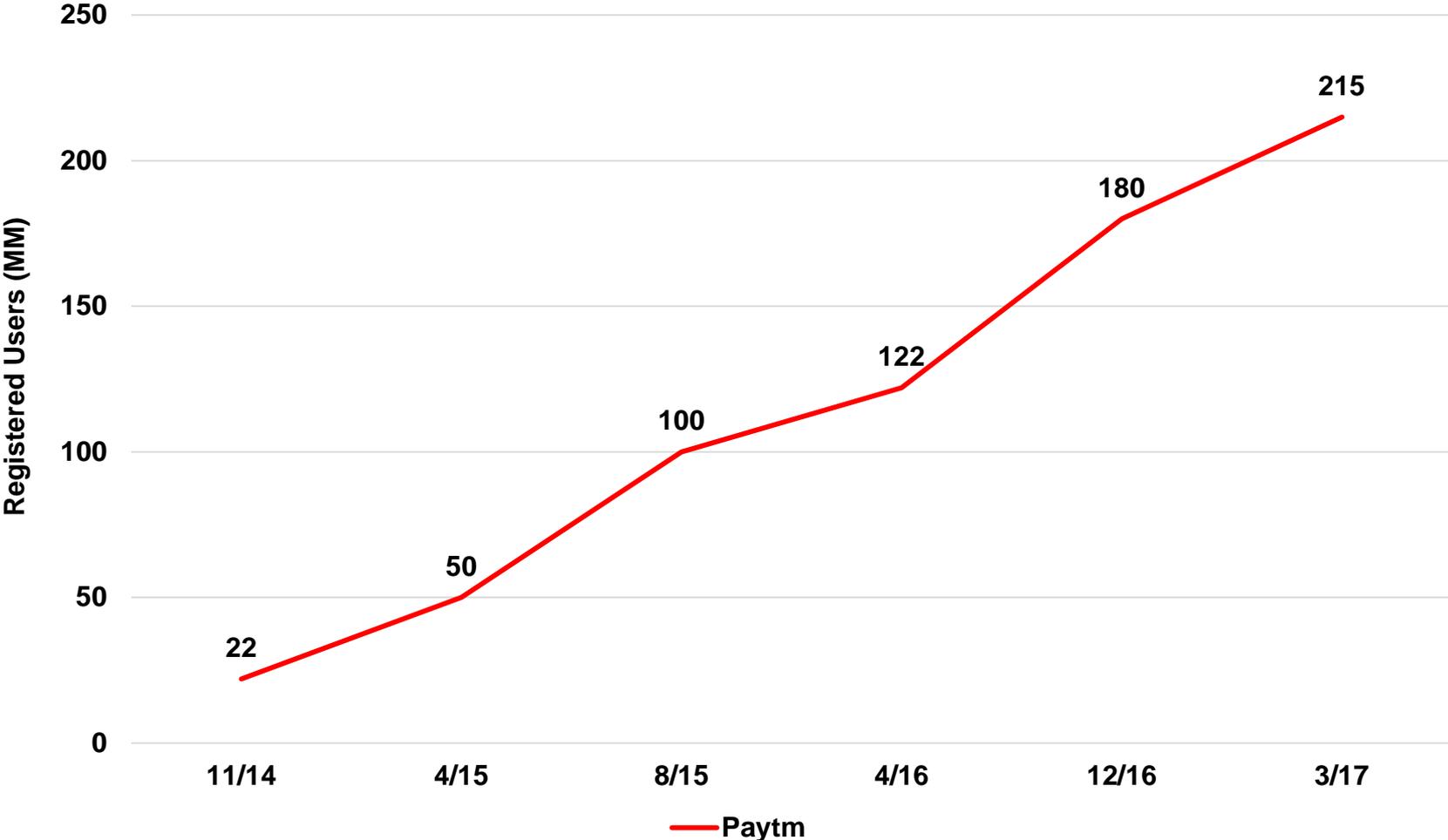
*Sign ups represent all those who have signed up for a Jio SIM card. Subscribers are those who remained with Jio after their free trial period ended on 3/31/2017 and became Jio Prime subscribers.

India Payments = Evolution of Building Blocks for... Digital Payment / Data Infrastructure for 1B+ Indians (2009 → 2017)...

Phase	Project	Functionality	Results
1) Identity	Aadhaar (1/09) + eKYC (5/13)	Single digital ID + authentication database	<ul style="list-style-type: none"> • 1B+ Aadhaar cards issued since 2010 • ~16MM authentications/day (4/17)
2) Banking	Jan Dhan Yojana (8/14) 'Banking for All'	Bank accounts tied to Aadhaar for previously non-banked citizens	<ul style="list-style-type: none"> • 280MM+ accounts opened in 3 years... 50% of existing bank accounts • Direct subsidies to citizen bank accounts have saved \$775M owing largely to reduced corruption leakage (12/16)
3) Mobile Services	Universal Payments Interface (UPI) (7/16)	Instant money transfer between bank accounts via phone numbers	<ul style="list-style-type: none"> • ~\$380MM monthly transaction volume (4/16) • Use accelerated after demonetization (11/16)
	Bharat Interface for Money (BHIM) (12/16)	Government App for UPI based payments	<ul style="list-style-type: none"> • 17MM+ downloads within 2 months of launch (2/17)

...India Payments = Online Leader Paytm Ramping Users Rapidly... Bolstered by Uptake of Online + Offline Commerce...

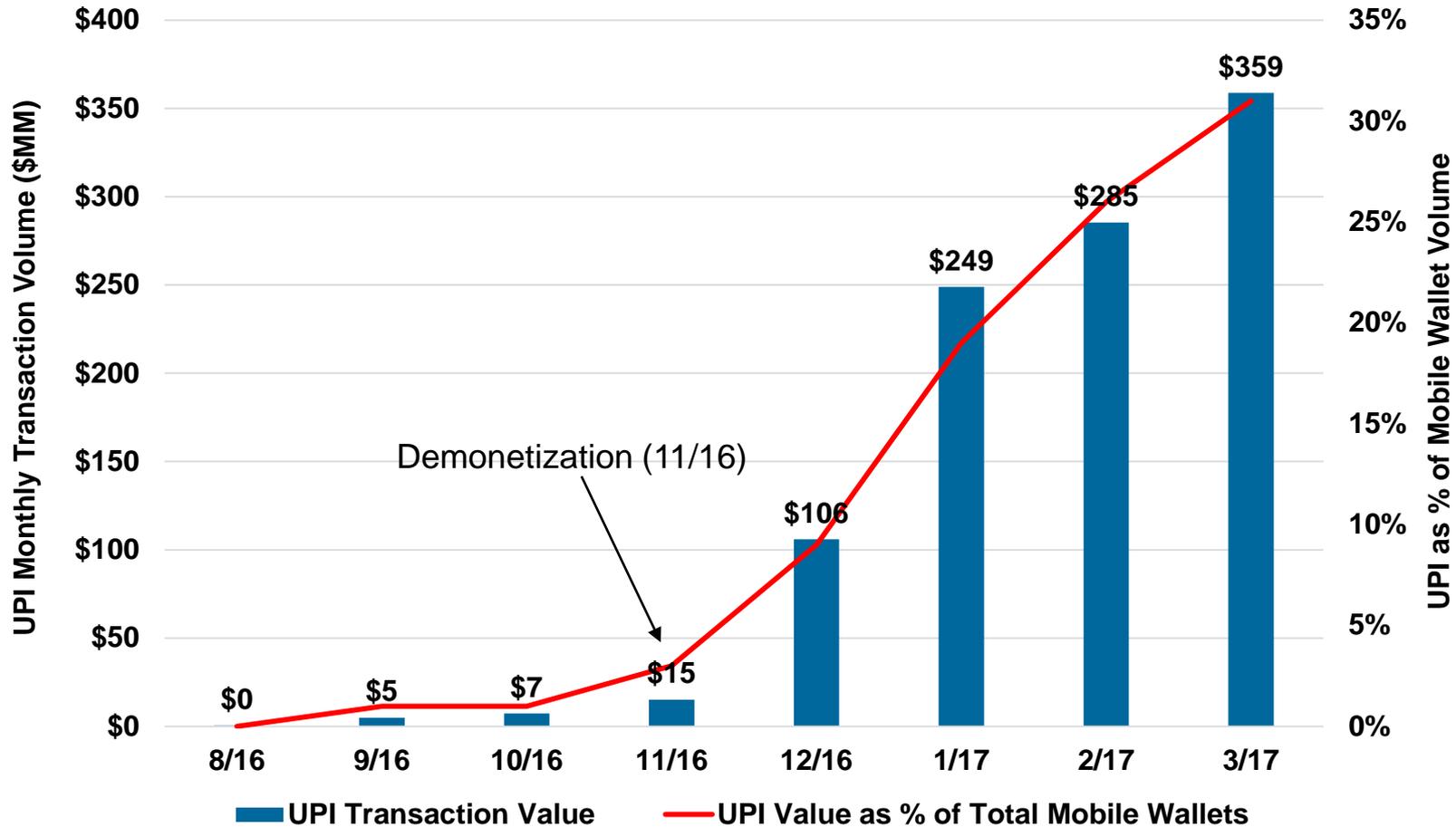
Paytm Registered Users (MM), 11/14 - 3/17



Source: Paytm.

...India Payments = UPI (Universal Payments Interface)... Rapidly Enabling Bank-to-Bank Mobile Money Transfers

Monthly Digital Payments Volume in India via UPI (\$MM), 8/16 – 3/17



Source: Reserve Bank of India, Monthly Bulletin (Payments and Settlement Systems)

India Internet Innovation = Leapfrogging + Re-Imagining

Leapfrogging

Mobile

Identity

Bandwidth

Payments

Re-Imagining

Entertainment

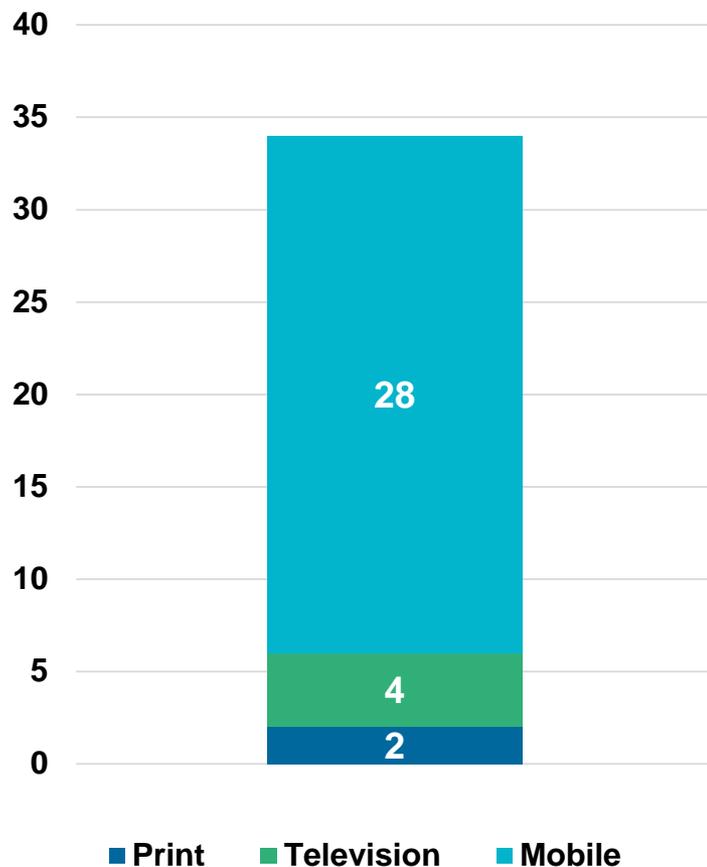
Education

Healthcare

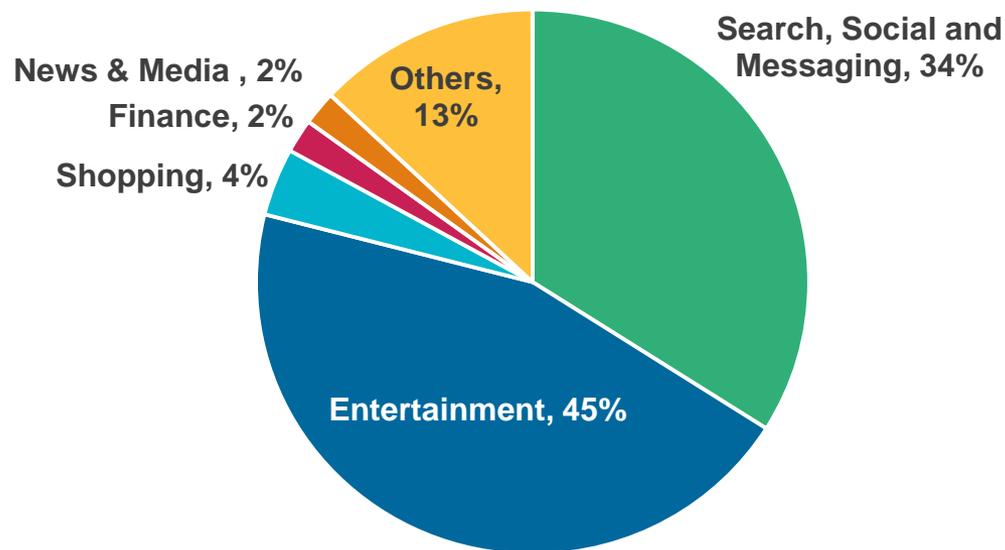
Marketplaces

India Entertainment = Weekly Mobile Time Spent @ 7x TV... 45% Mobile Time = Entertainment...

Time Spent with Media per Week (Hours), 2016



Percent of Time Spent on Mobile by Category, 2016



...India Entertainment Re-Imagined = Internet-First Shows Optimized for Mobile... Replacing Longer / Linear Programming Optimized for TV

THEN

TV Soap Operas + Reality Shows

- Scripted, family-focused dramas targeted @ older viewers + families with 'rinse & repeat' plots
- Produced for linear programming without user data / feedback
- Little to no user data, often based on small TV rating sample sizes / surveys



NOW

On-Demand Web-Video Shows

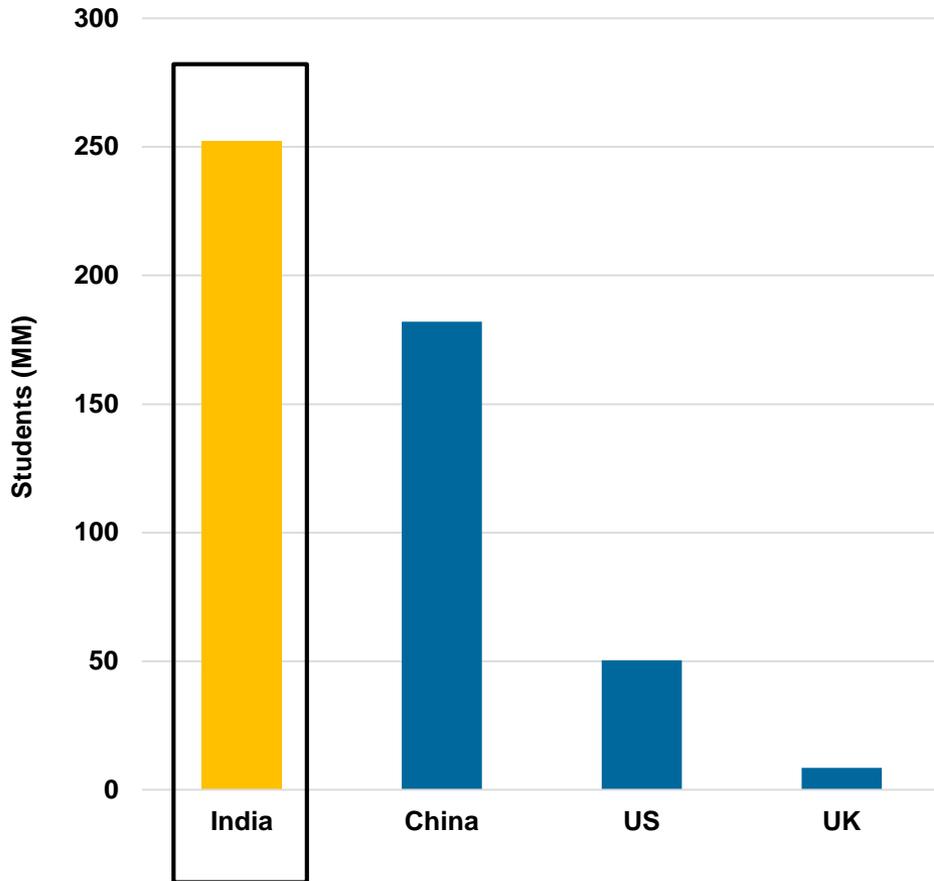
ex. AIB Roasts, Hotstar

- Millennial focused / short-form content such as 'Hinglish' standup comedy
- Made for mobile / shared via messaging channels (Whatsapp, FB, etc)
- Instant user data + feedback (Views, Geos, Replays etc.)
- Dramatic growth assisted by 4G rollout of Jio...AIB Channel @ 100MM+ views

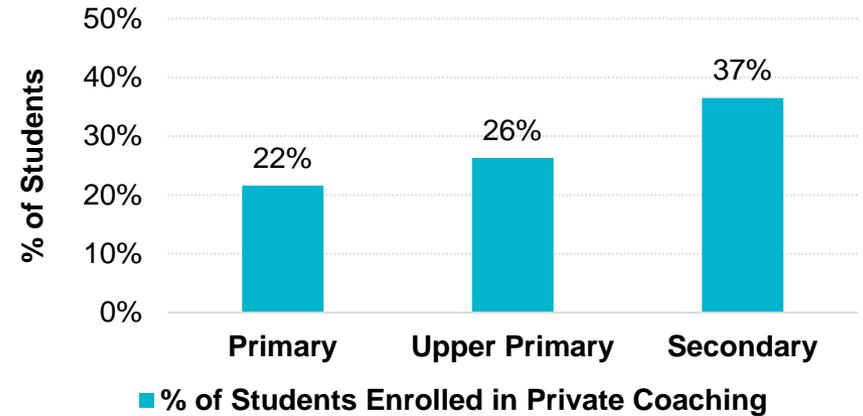


India Education = Largest K-12 School System (250MM+ Students) in World With... High Demand for After-School Education...

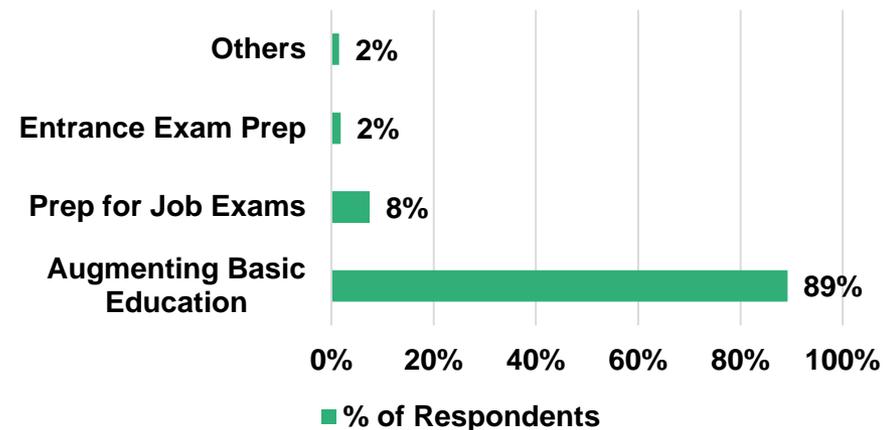
Total K-12 Student Enrollments by Country (MM), 2015



Indian Private Coaching Industry, 2014



Reasons for Private Coaching



Source: Nielsen K-12 India Book Publishing Report, 2016. UNESCO Education & Literacy China Statistics, 2015. U.S Department of Education, 2016. UK Department for Education National Statistics, 1/15.

...India Education Re-Imagined = Increasingly Accessible (via Mobiles) + Self-Paced + Personalized

THEN

Offline Private 'Tuition' Centers

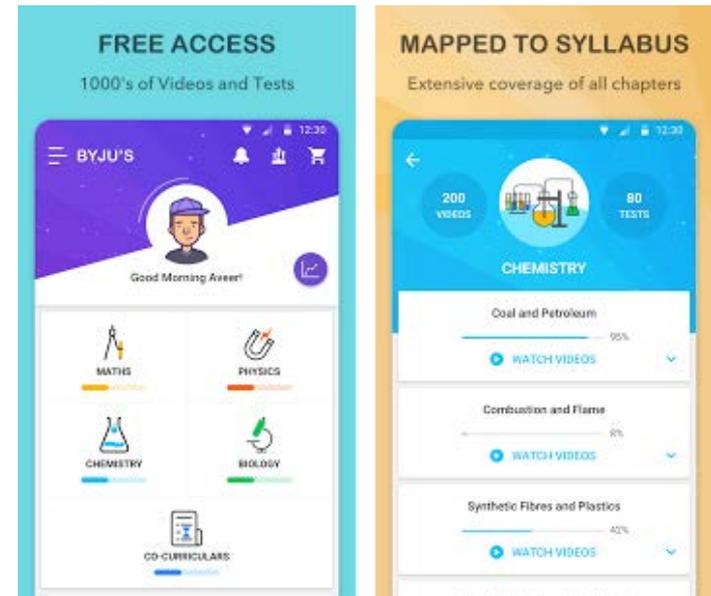
- Offline lectures + in-person testing
- Directly based on income & geography
- 1:35+ student-teacher ratio
- One-size-fits-all approach
- Extreme focus on test taking



NOW

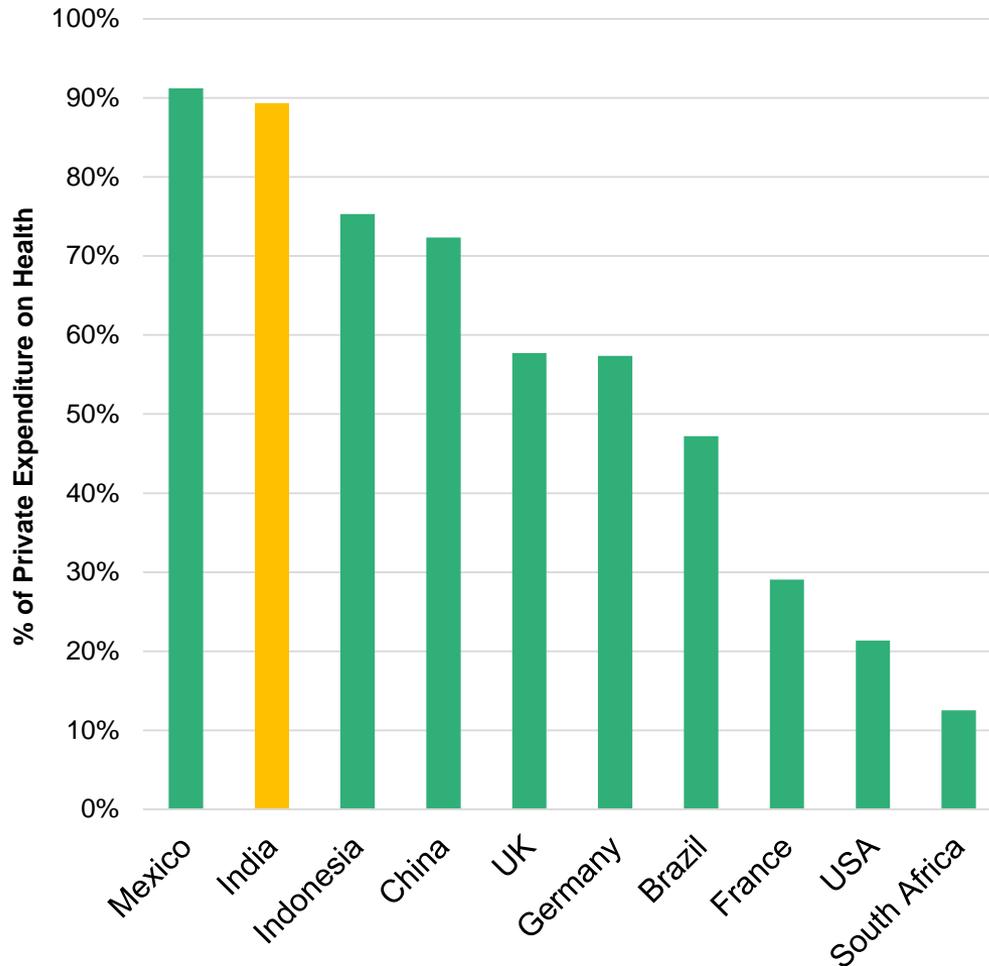
Mobile Self-Paced Learning ex. Byju's

- Math + science with games + videos
- Anyone / anywhere with smartphone
- 40+ minutes average daily usage
- Personalized
- Learning outcomes* improved 15%+



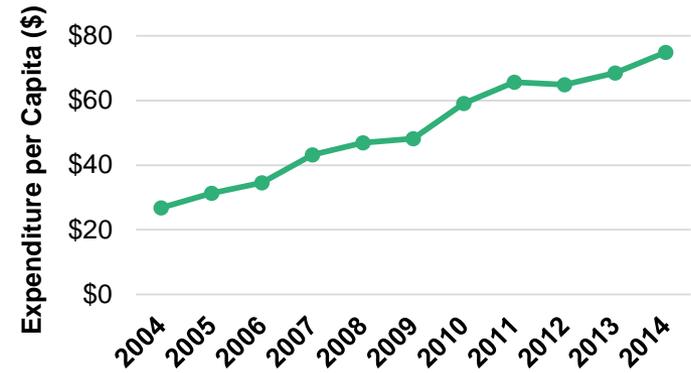
India Healthcare = High (& Rising) Out-of-Pocket Spend... <20% Insurance Penetration...

**India Out-of-Pocket Spend
(% of Private Expenditure on Health), 2014**

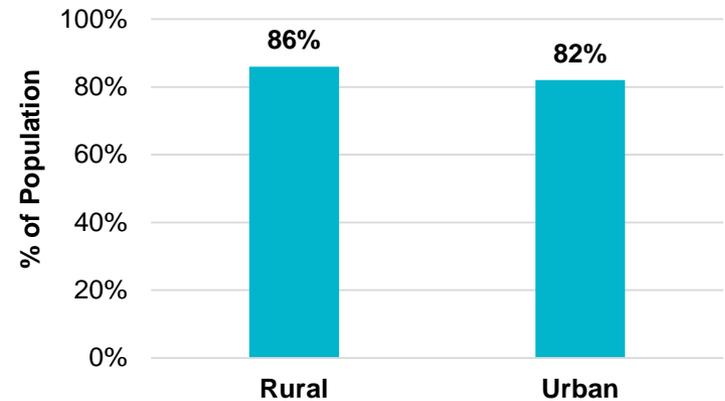


Source: World Bank 2014 Census.

**Health Expenditure per Capita in India (\$),
2004 - 2014**



**Percent of Indian Population Not Covered by
Insurance, 2014**



...India Healthcare Re-Imagined = Increasingly Accessible (via DIY / Mobile) + Affordable (via Online Aggregation + Pricing Transparency)

THEN

Offline Labs & Pharmacies

- Long wait times for standard lab tests
- Limited drug inventory
- Geography dependent
- Up to 60-80% price variance for identical drugs owing to lack of price transparency

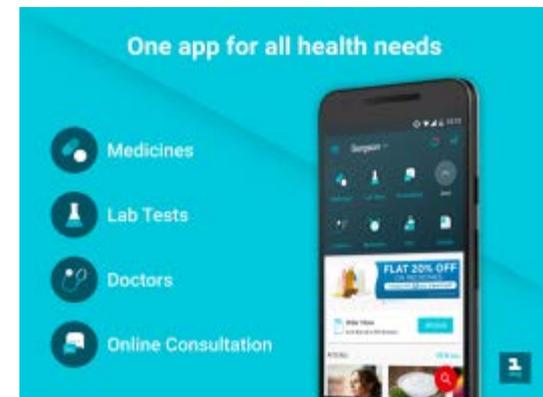


NOW

Online Health Hubs

ex. 1Mg, Portea

- In-home tests ordered online
- Access to aggregated inventories of multiple pharmacies in metro
- 40-50% lower prices for lab tests
- Instant drug price comparisons offer transparency, saving users 20 - 30% per prescription



India Marketplaces = Organizing the Un-Organizable... Replacing Middlemen with Smartphones + Direct to Consumer Marketplaces

THEN

Hyperlocal Offline Markets

ex. Fish Mandis

- Multiple middlemen
- High price variance
- No consumer visibility into quality

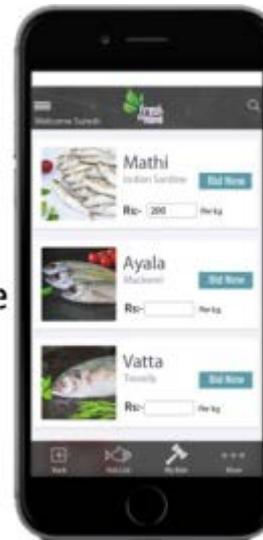


NOW

Mobile / Direct-to-Consumer

Ex. Freshtohome.com

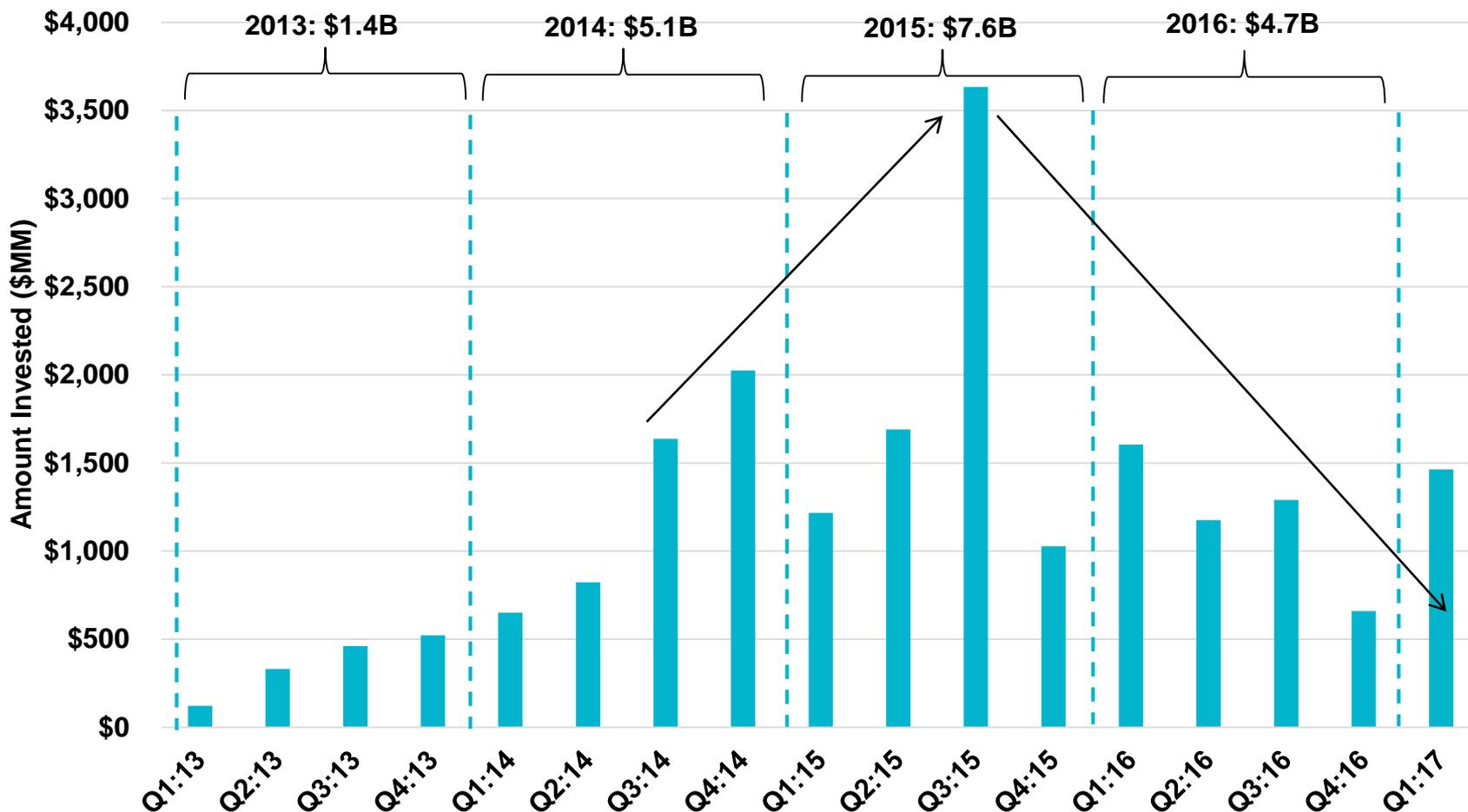
- High quality produce sourced directly from fishermen
- Online distribution allows 20-25% lower prices for consumers



***India Internet Challenges =
Fundraising Environment +
Language***

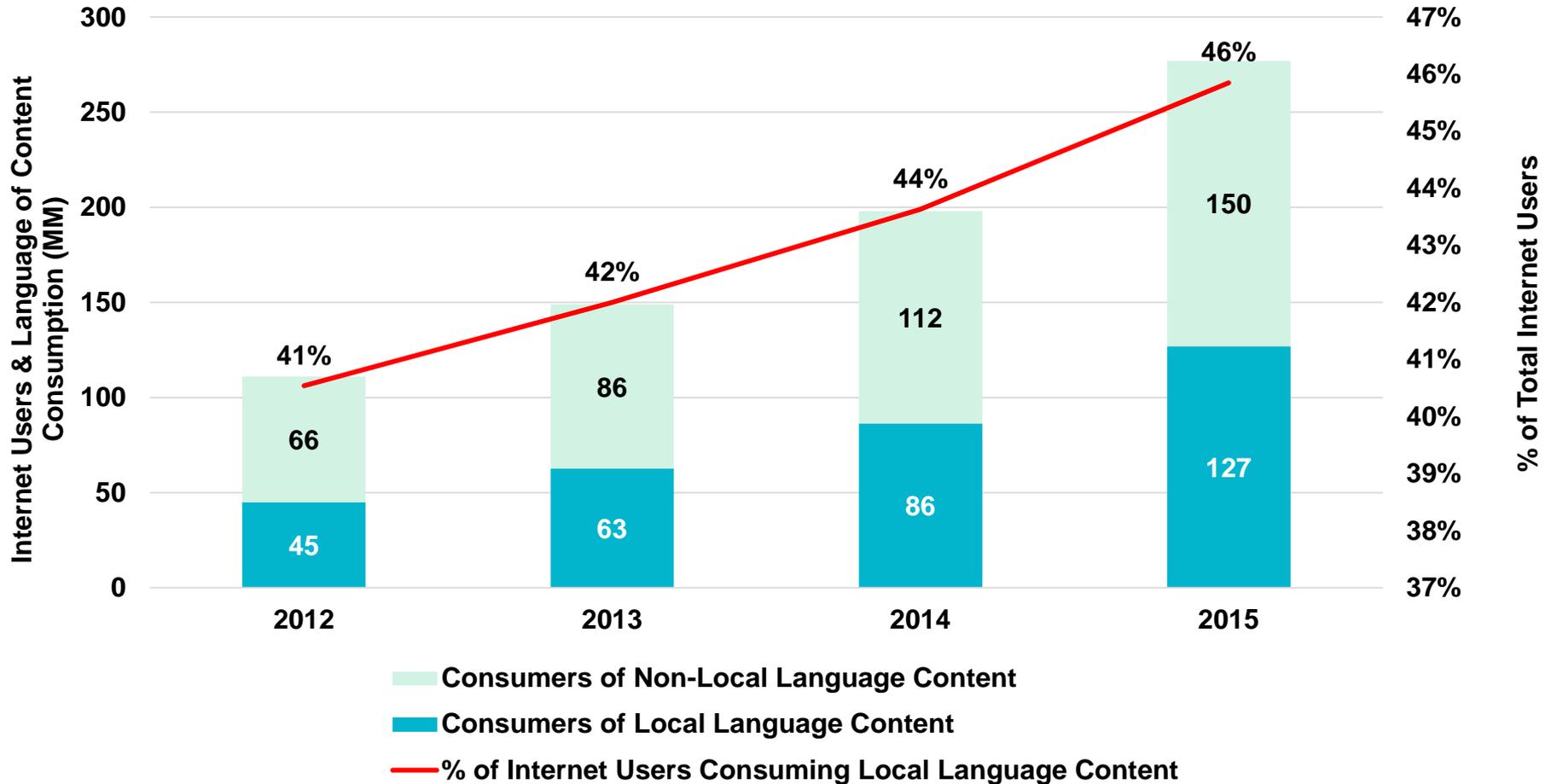
India = Especially High Venture Capital Funding in H2:14 – 2015... Helped Drive Aggressive Start Up Valuations + Spending + Competition

Indian VC Funding by Quarter, Q1:13 – Q1:17



India = 29 Languages Spoken by >1MM People...6 >50MM (ex-English)... 46% of Internet Users Primarily Consume Local Language Content

Indian Internet Users & Primary Language for Content Consumption, 2012 – 2015



India Macro...

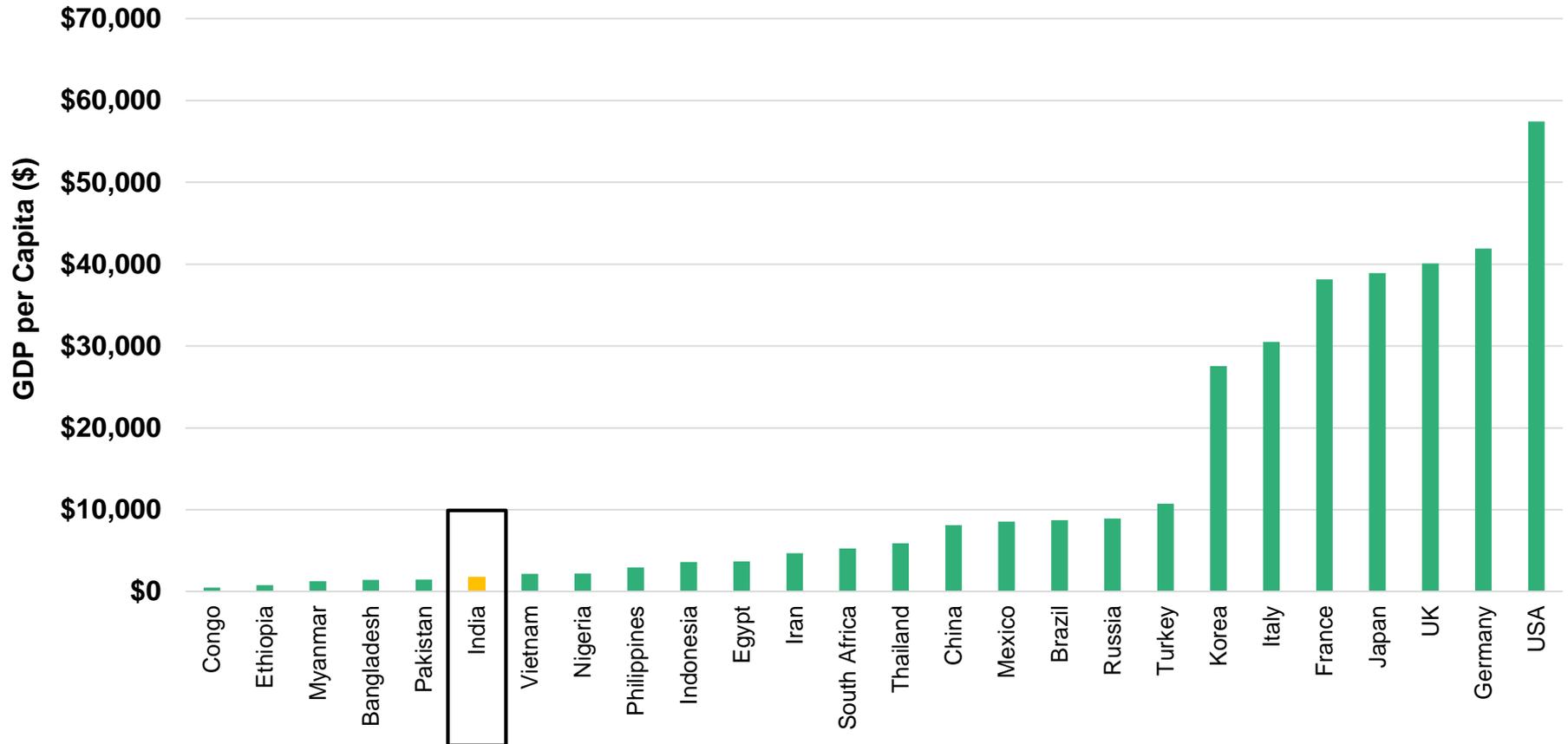
Demographics = Bad & Good

Other Challenges =

- 1) Job Creation***
- 2) Business Basics***
- 3) Education***
- 4) Logistics***
- 5) Gender Disparity***

India = Low Relative GDP per Capita...Poverty Levels... While Improving...Remain High

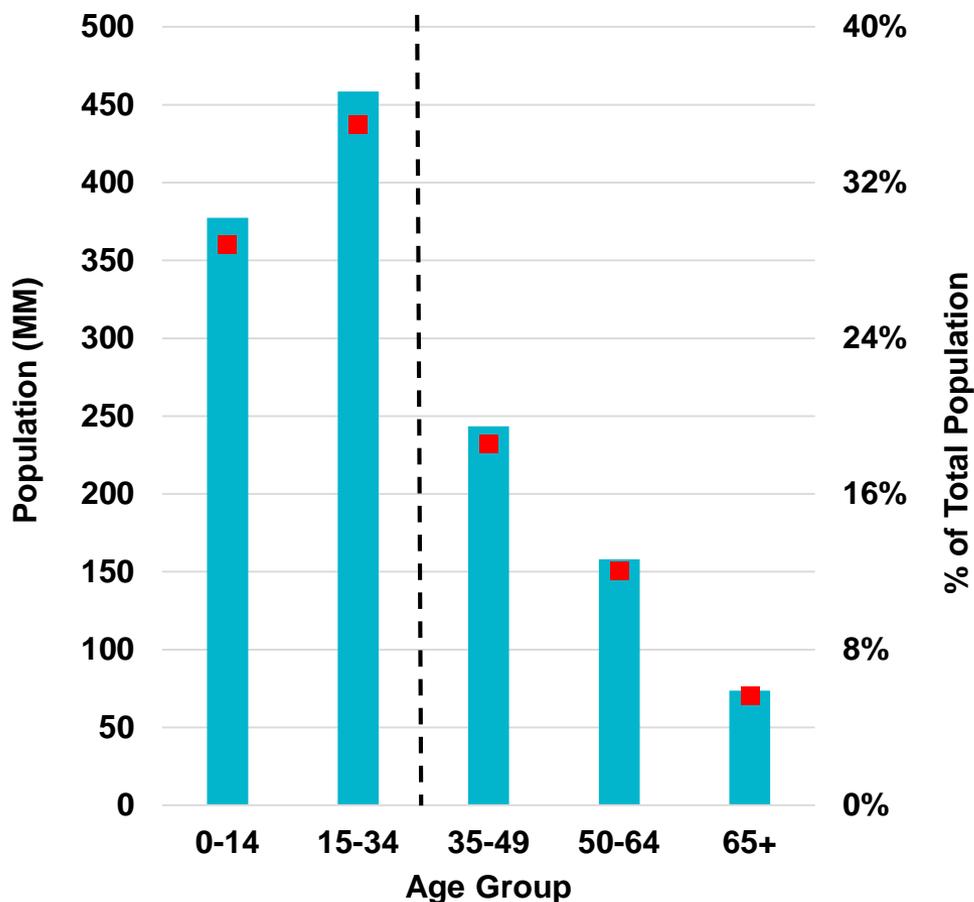
**GDP per Capita (\$) Among Countries >50MM in Population,
Current Prices, 2016**



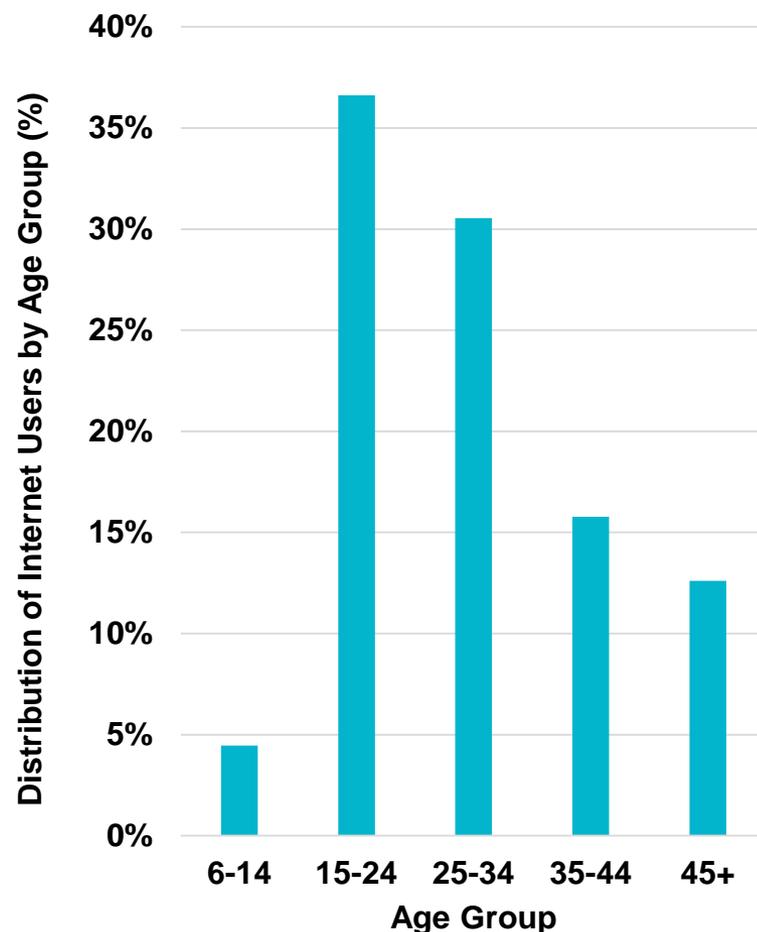
India = Lots of Young People...

64% of Population...72% of Internet Users <35 Years Old...

India Population by Age Group, 2015



Distribution of India Internet Users by Age Group, 2017



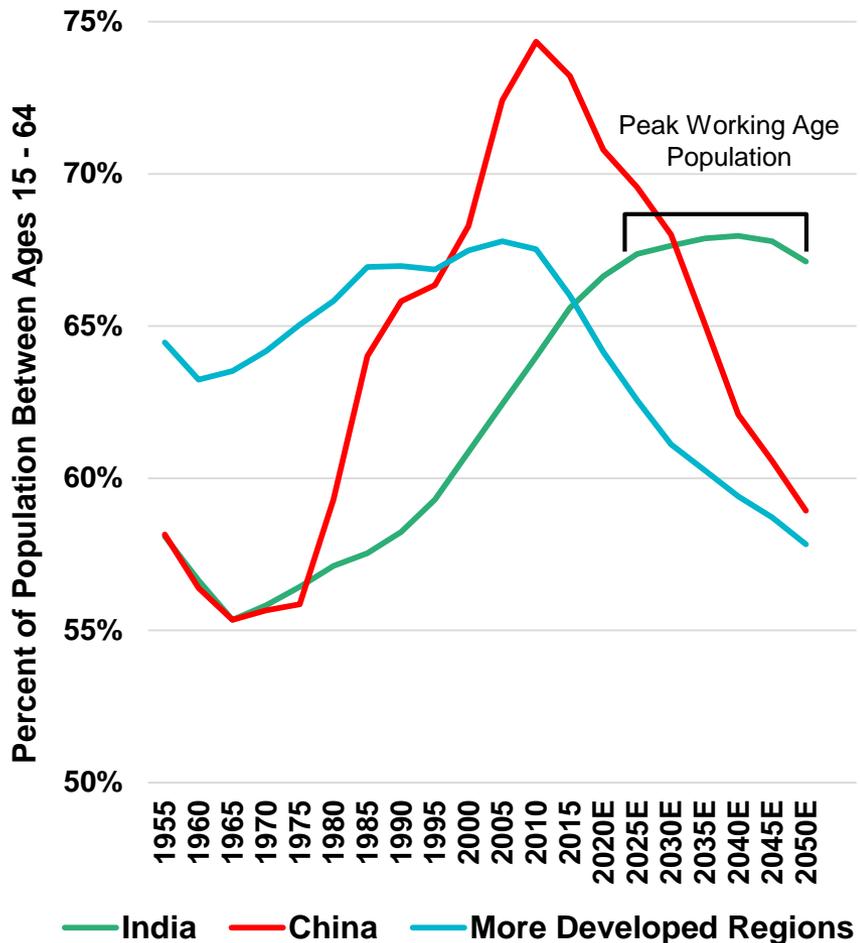
■ Population by Age Group (MM) ■ % of Population

■ Internet Users by Age Group

Source: UN Population Division., ComScore, 3/17.
ComScore data based on panel and census and only includes Android.

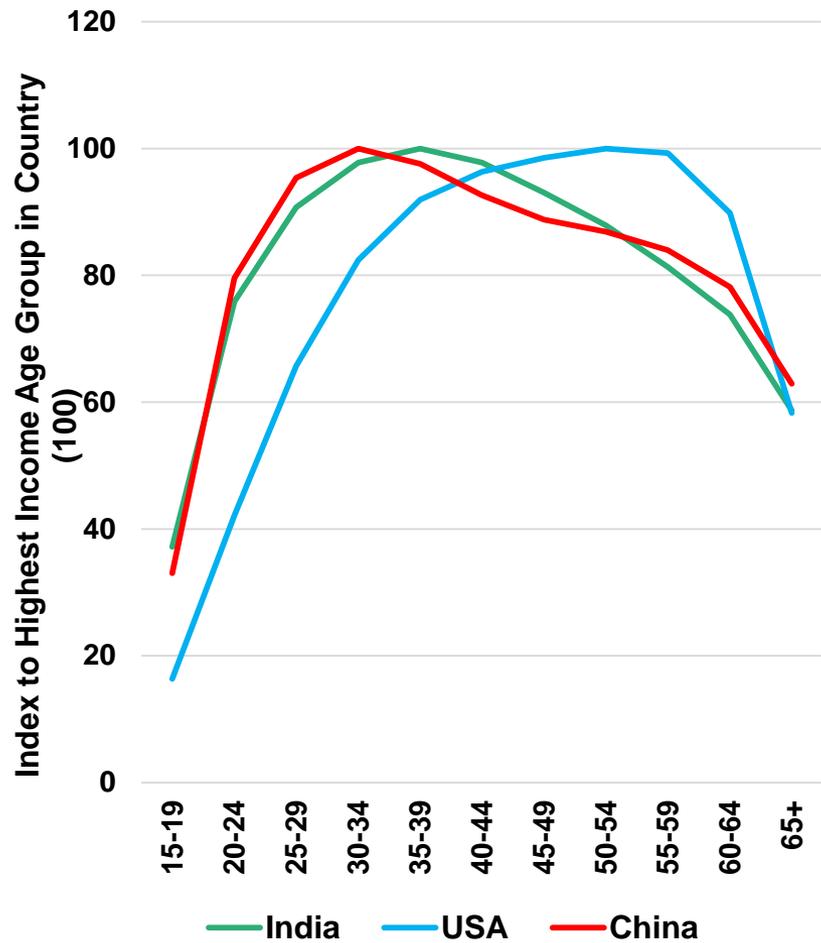
India = Working Age Population Growth + Millennial Per Capita Income... Compare Favorably with Other Countries

Percent (%) of Population 15 – 64 Years Old, India vs. China vs. More Developed Regions, 1950 – 2050E



Per Capita Income Distribution, India / USA / China by Age, 2015

(Index to the Highest Income Age Category for Corresponding Country)

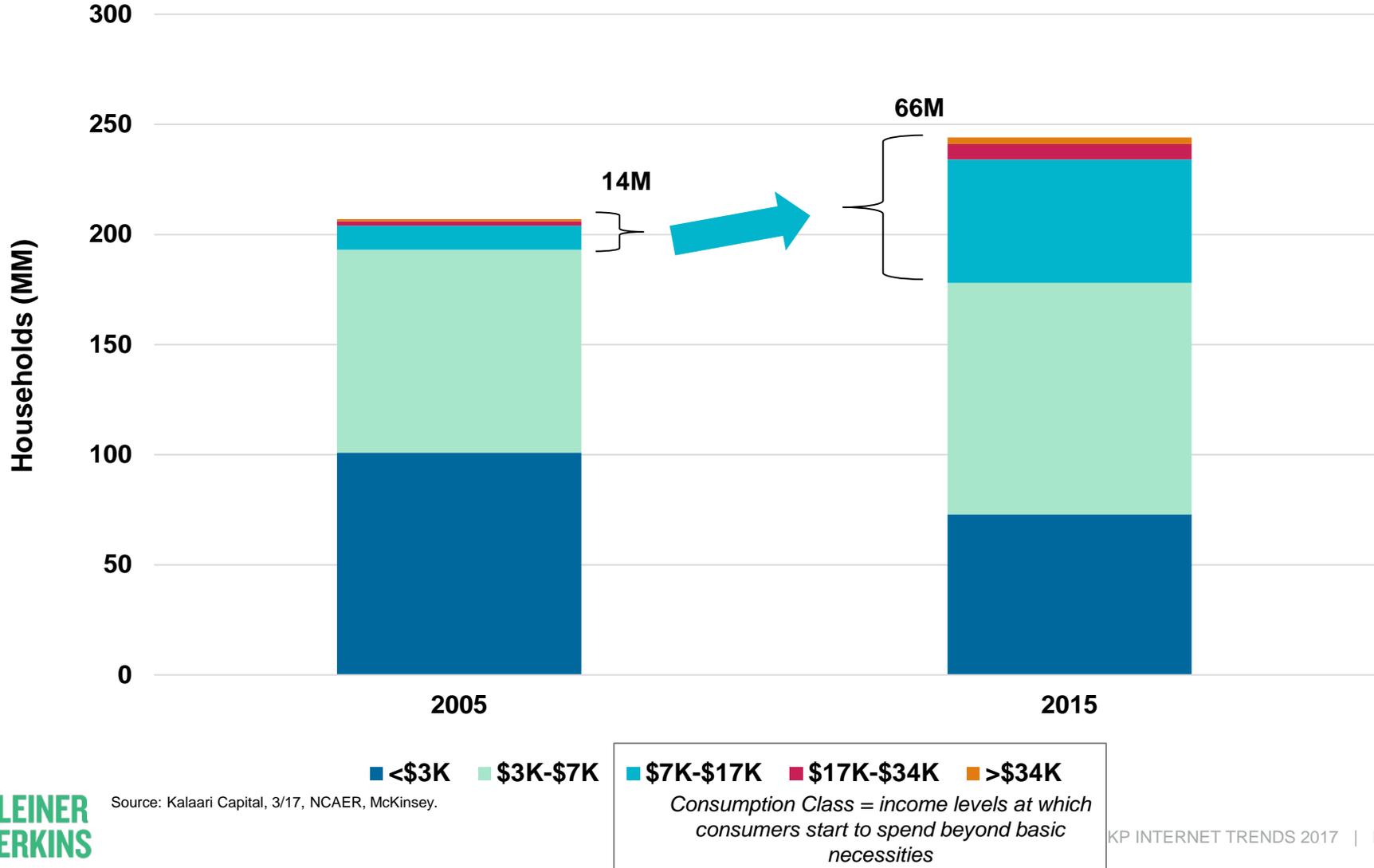


Source: UN Population Division, Euromonitor, Morgan Stanley. Projections data based on medium variant estimates. "More Developed Regions" comprised of N. America, Europe, Japan, Australia, New Zealand. Projections begin after 2015. UN provides projections on a 5-year time frame.

India = 'Consumption Class' Growing Rapidly... @ 27% of Households (66MM) vs. 7% Ten Years Ago

India Households by Income Bracket, 2005 vs. 2015

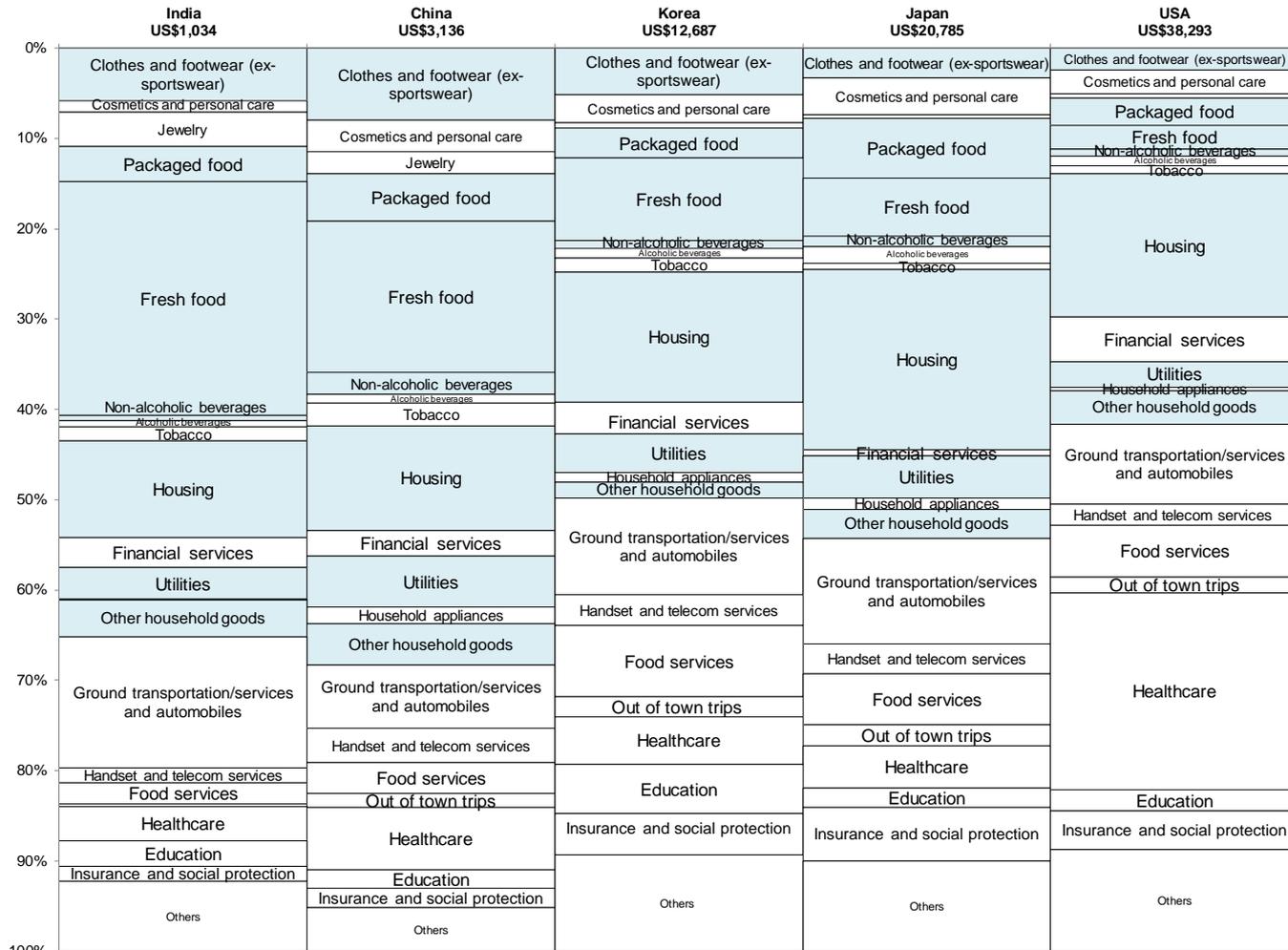
(in constant 2015 dollars)



Source: Kalaari Capital, 3/17, NCAER, McKinsey.

India Consumption = Mostly Focused on Basics... “Roti, Kapda Aur Makaan”... @ 54% of Personal Consumption Expenditure

Personal Consumption Expenditure by Category, 2016

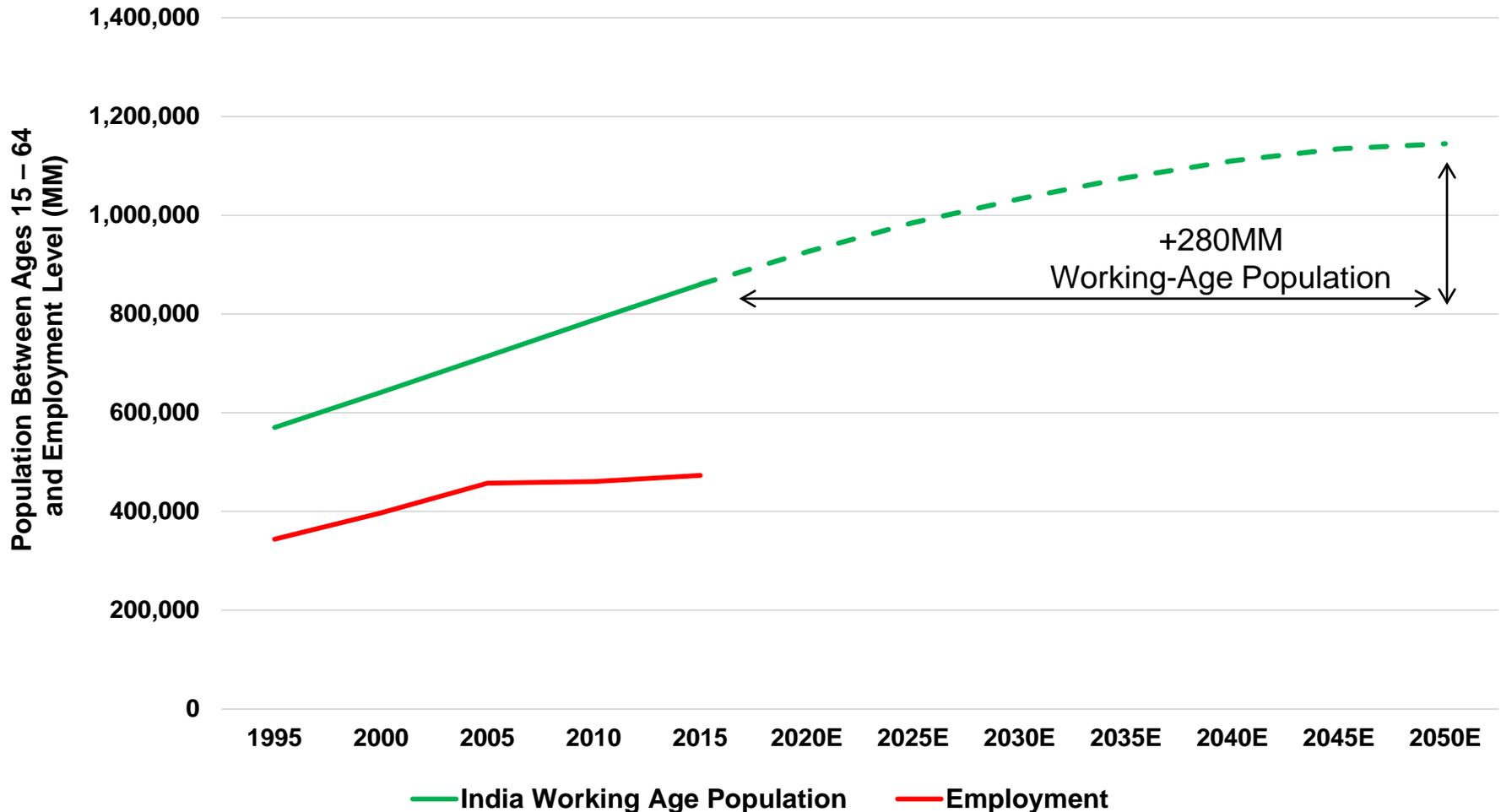


Basics

Source: Euromonitor, Goldman Sachs Investment Research.

India Job Creation = Employment Levels @ 55% of Working Age Population... Employment Trending Slower than Population Growth

India Working Age (15-64 Years Old) Population vs. Employment, 1995 – 2050E

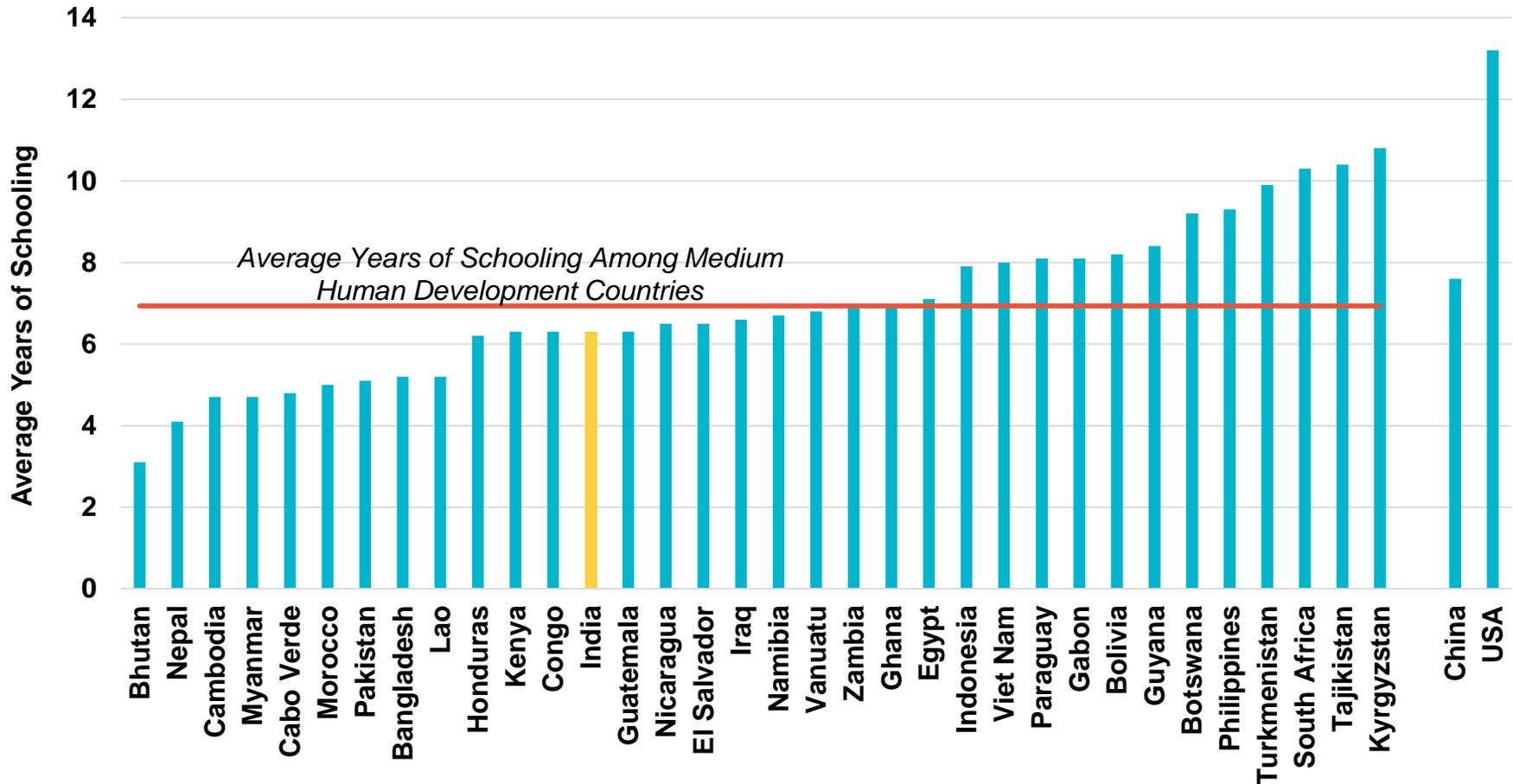


India Business Basics = Ease-of-Doing Business Lags Behind Many Countries

Topics	India	China	USA	OECD
Overall Ease of Doing Business (Rank out of 190)	130	78	8	--
Ease of Starting a Business (Rank out of 190)	155	127	51	--
# Procedures to Register Business (Number)	14	9	6	5
Time to Register Business (Days)	26	28	4	8
Cost to Register Business (% of Income Per Capita)	16.5%	0.6%	1.3%	3.1%

India Education = Average Years of Schooling Lags Peers

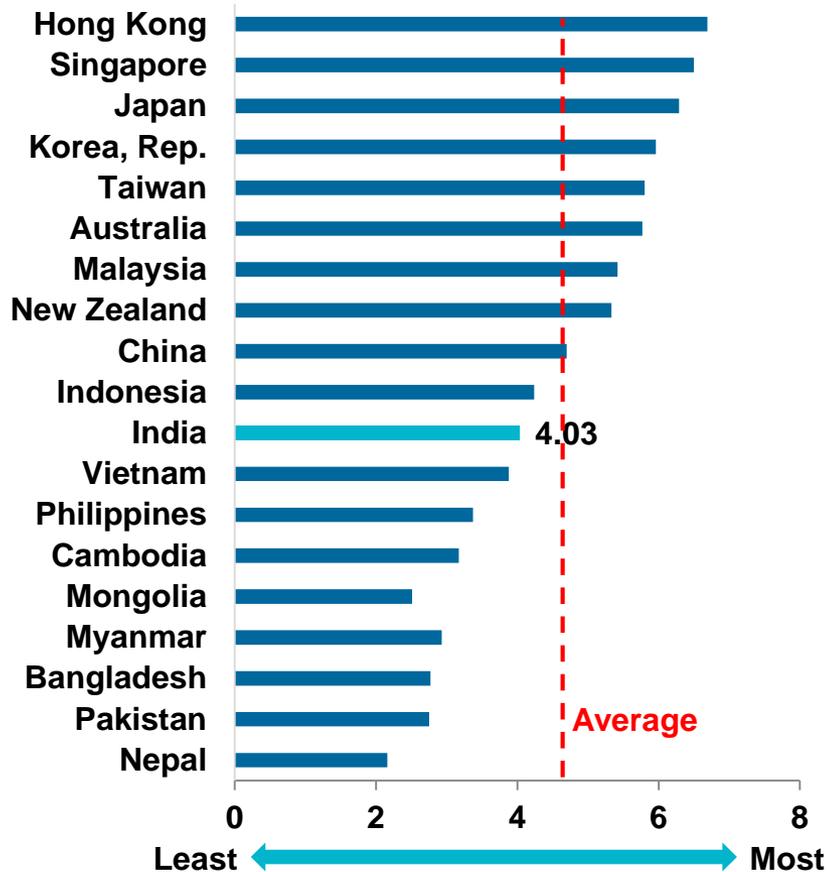
Average Years of Schooling Among Selected Medium Human Development Countries, 2015



India Logistics = Low Infrastructure Competitiveness

Infrastructure Rankings Across Asia, 2016

World Bank Infrastructure Competitiveness Score

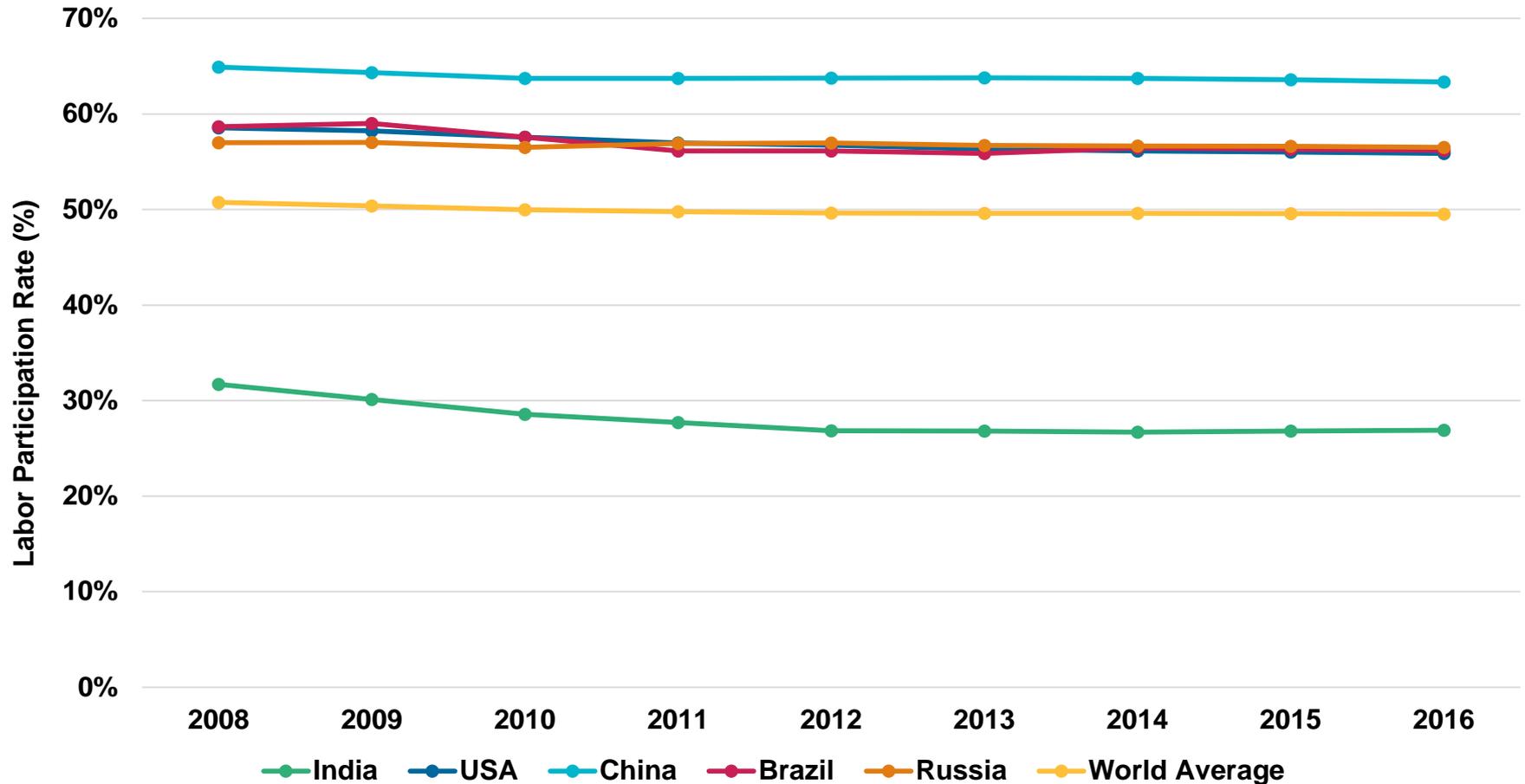


Top 10 Most Congested Cities Globally, 2016*

Rank	City	Country	Traffic Index	2015 Population (MM)
1	Kolkata	India	337	12MM
2	Dhaka	Bangladesh	317	18MM
3	Mumbai	India	308	21MM
4	Sharjah	UAE	298	1MM
5	Nairobi	Kenya	295	4MM
6	Manila	Philippines	283	13MM
7	Jakarta	Indonesia	280	10MM
8	Tehran	Iran	272	8MM
9	Mexico City	Mexico	272	21MM
10	Istanbul	Turkey	263	14MM

India Gender Disparity = Female Labor Participation Rate @ 27%...Below World Average

Female Labor Force Participation Rate, 2008 - 2016



India Internet = Competition Continues to Intensify...Consumers Winning

- 1) **Economy** = Strong Growth
- 2) **Internet Users** = Solid Growth
- 3) **Mobiles** = Choppy Growth...Recent Acceleration
- 4) **Internet** = Fierce Global Battleground (Hardware / Carriers / Software / Commerce)
- 5) **Internet Usage** = Rising Owing to Cheaper / Faster Access
- 6) **Leadership** = Focused Pro-Digital Policies
- 7) **Internet Innovation** =
Leapfrogging = Mobile...Identity...Bandwidth...Payments
Re-Imagining = Entertainment...Education...Healthcare...Marketplaces
- 8) **Internet Challenges** = Financing Environment...Language Diversity
- 9) **India Macro** = Demographics = Bad & Good...Challenges = Job Creation...Business Basics...Education...Logistics...Gender Disparity

HEALTHCARE @ DIGITAL INFLECTION POINT

NOAH KNAUF @ KLEINER PERKINS

Healthcare @ Digital Inflection Point

100 Years Ago Human Touch



25 Years Ago Machine Assisted / Analog



Today Technology Enabled / Digital



Digitization of Healthcare = Virtuous Cycle of Innovation

1) Digital Inputs = Rapid Growth in Sources of Digital Health Data



2) Data Accumulation = Proliferation of Digitally-Native Data Sets



3) Data Insight = Generated Following Accumulation & Integration of Data



4) Translation = Impact on Therapeutics & Healthcare Delivery

5) Outcomes = Measure Outcomes & Iterate...
Innovation Cycle Times Compressing



Digital Inputs =

***Rapid Growth in Sources of
Digital Health Data***

Measurement = Most Widely Used Medical Technology Now Digital / Connected...

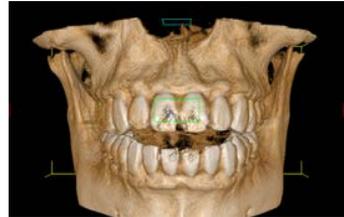
2000's

2017

2D / Analog

3D / Digital

X-Ray



2000's

2017

Manual / Analog Automatic / Digital

Blood Pressure



Paper-Based / Analog Wearable / Digital

ECG



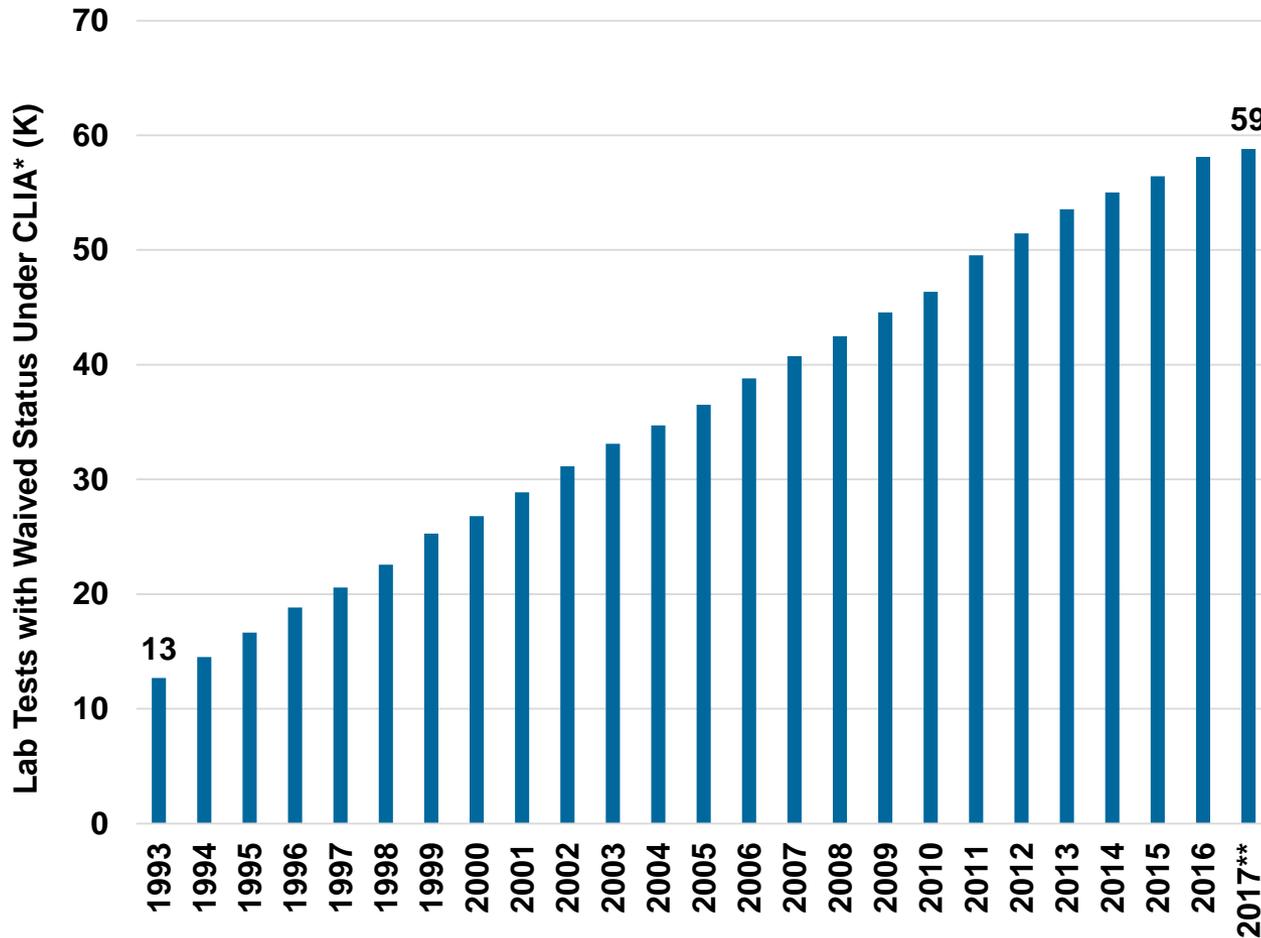
In-Room / Analog Remote / Digital

Hospital Monitoring



...Diagnostic Technology = Measured / Monitored Data Attributes Rising Rapidly...

Commercially Available Lab Tests, 1993-2017



Amylase

988 Distinct
Analytes

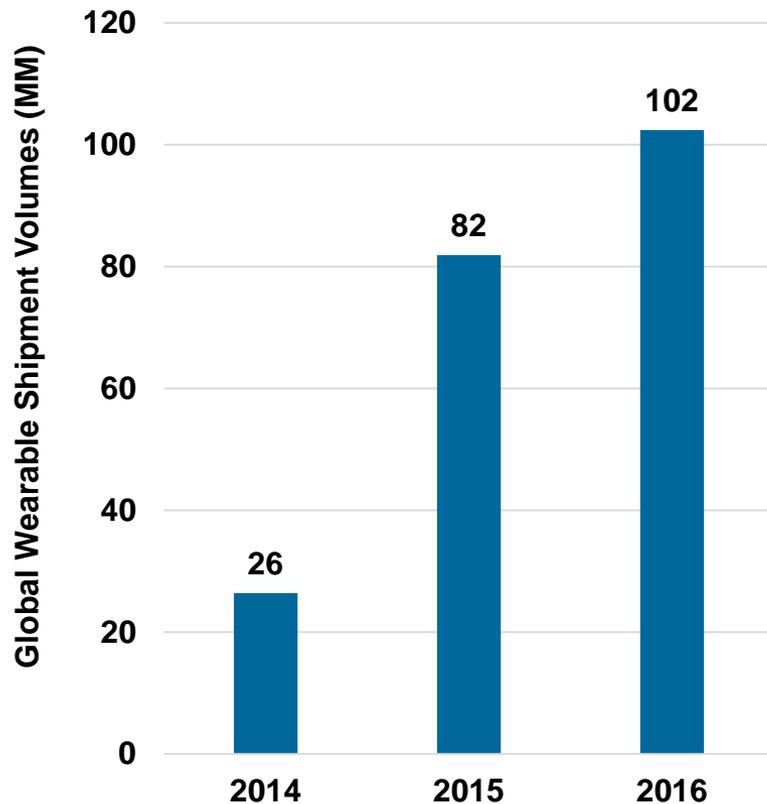
Zinc

...Wearables = Consumer Health + Wellness Data Capture Rising Rapidly...

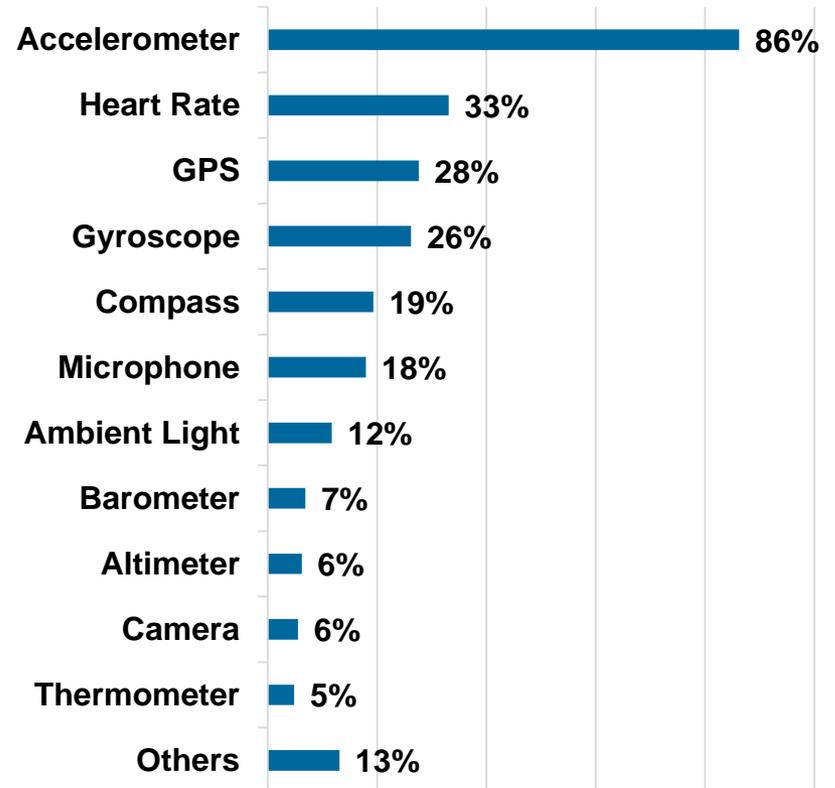
Wearables = Gaining Adoption

~25% of Americans own a Wearable, +12% Y/Y, 2016

Global Wearable Shipments



Sensors in Wrist Wearables, 9/16



% of Wrist Wearables*

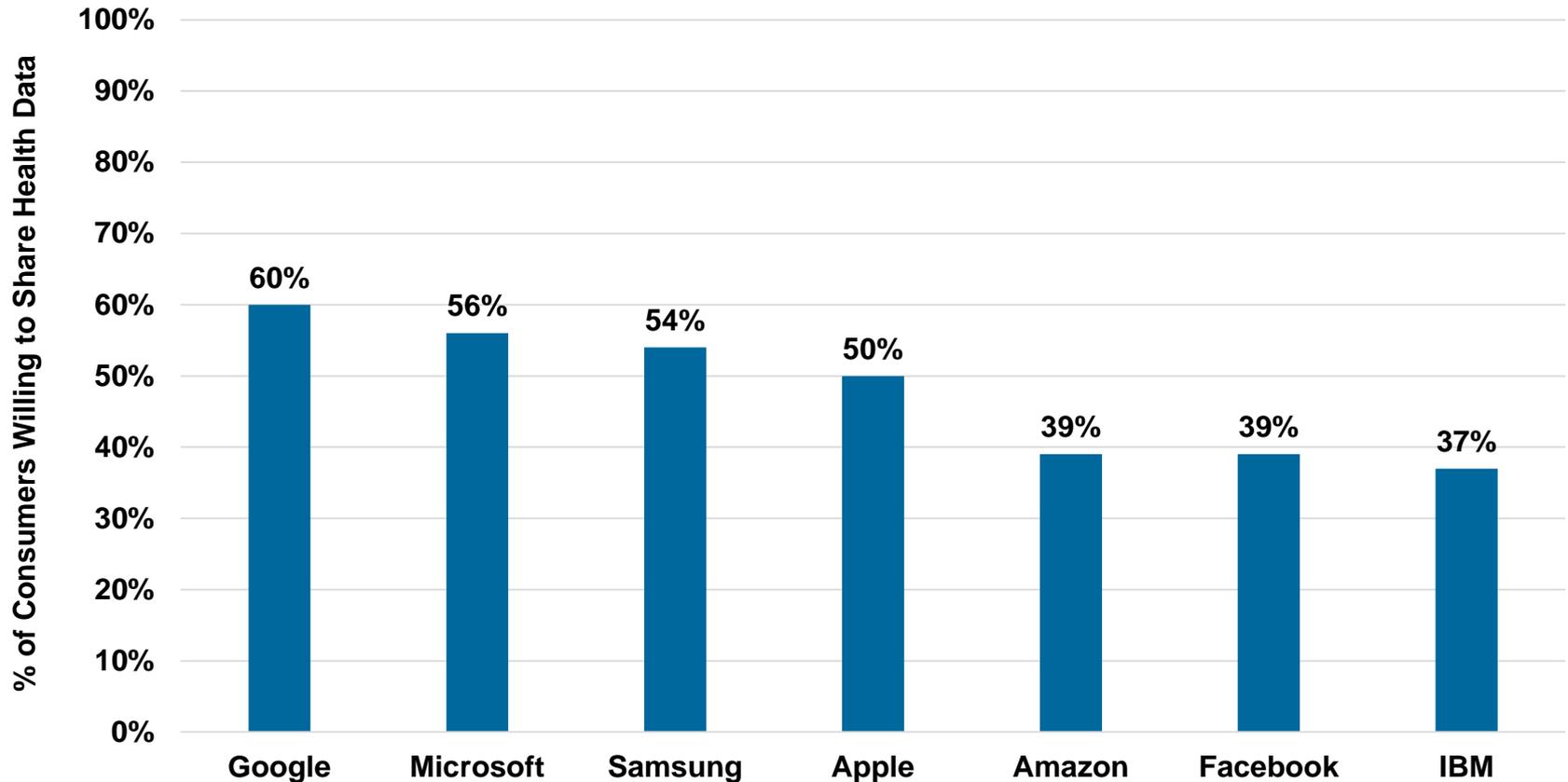
Source: Rock Health 2016 Consumer Survey (12/16), IDC, Collection and Processing of Data from Wrist Wearable Devices in Heterogeneous and Multiple-User Scenarios (9/16)

* Based on analysis of 140 different wrist wearable devices

...Consumers = Willing to Share Health Data

Leading Tech Brands Positioned Well for Digital Health, 2016

With which tech company would you share your data?



Source: Rock Health 2016 Consumer Survey
Note: Based on consumer survey with 4,015 participants; as % of respondents willing to share their health data with tech company at all.

Data Accumulation =

Proliferation of

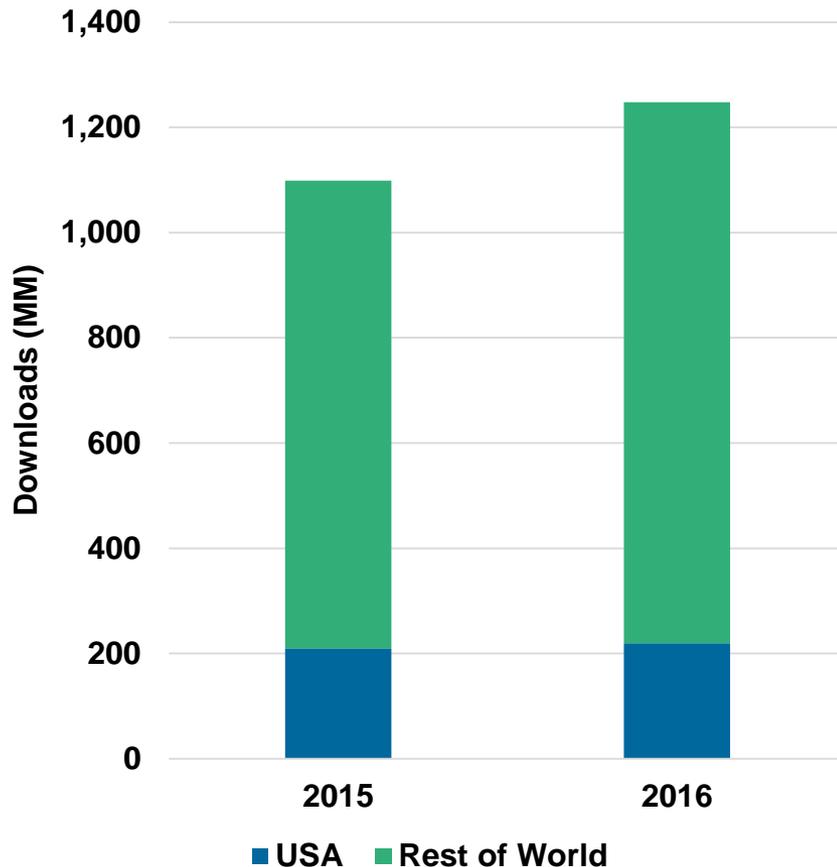
Digitally-Native

Health-Related Data Sets

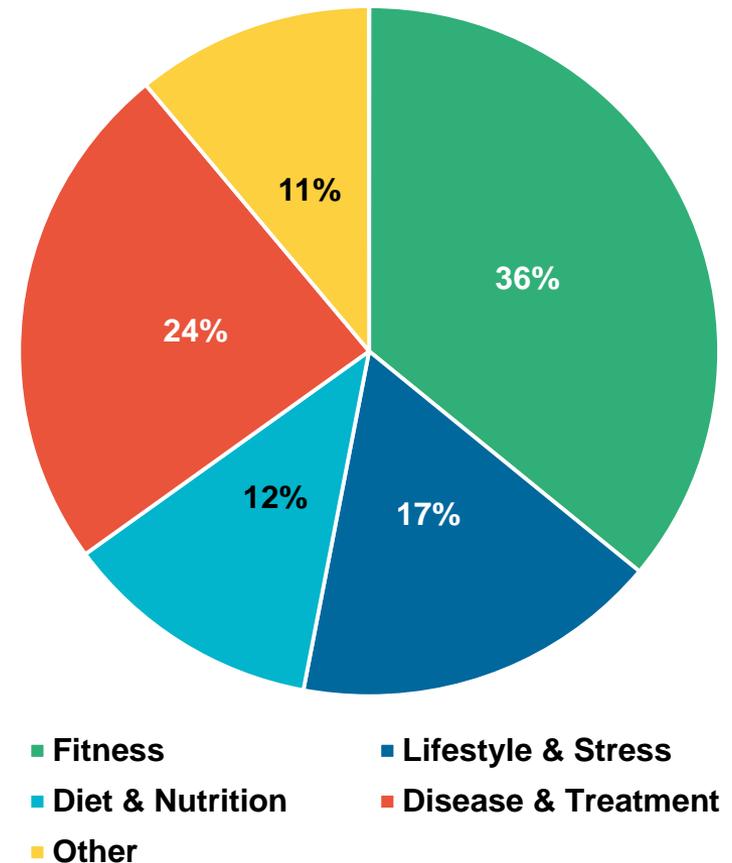
Proliferation of Health Apps = Rapid Rise of Empowering Data in Consumer Hands...

Health & Fitness App Downloads*, Per App Annie

+5% Y/Y in US, +15% Y/Y in ROW

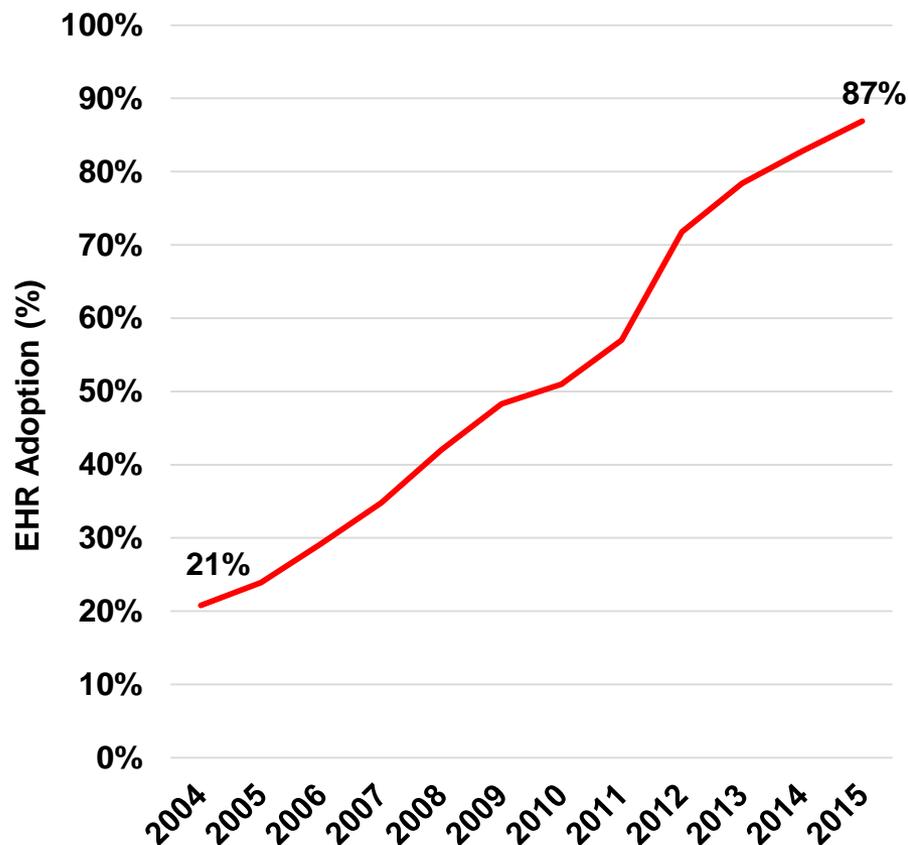


Health Apps by Category, Global, 2015

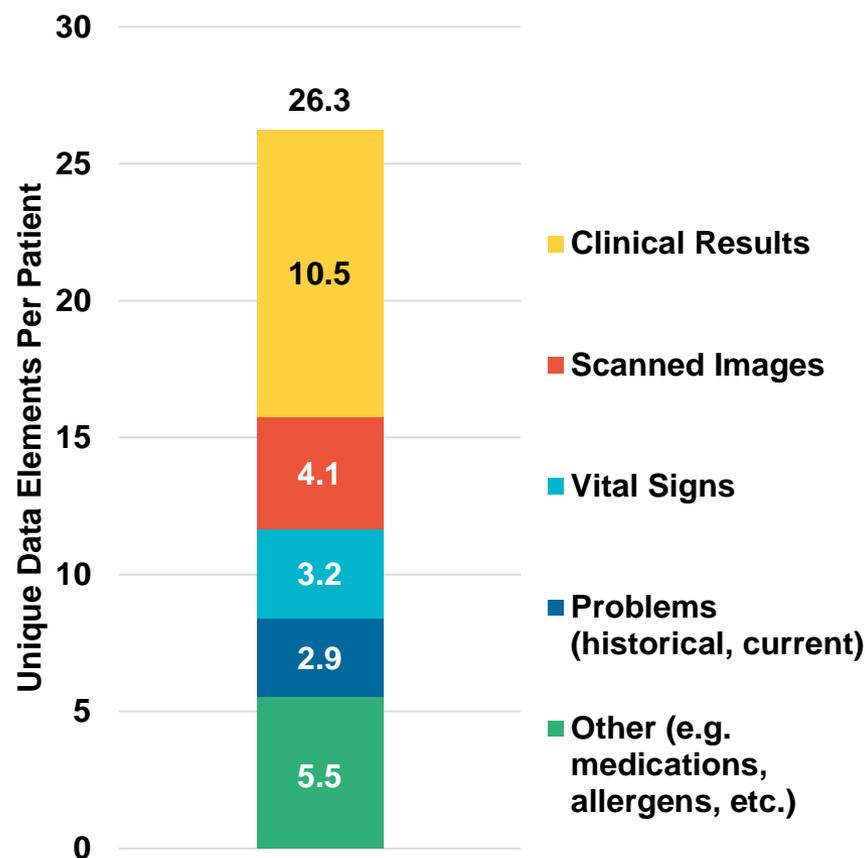


...Electronic Health Record (EHR) Adoption = Broad + Centralized Accumulation of Data...

EHR Adoption Among Office-Based Physicians, USA 2004-2015



Average Amount of Clinical Data Elements per Patient per Year*, 8/16

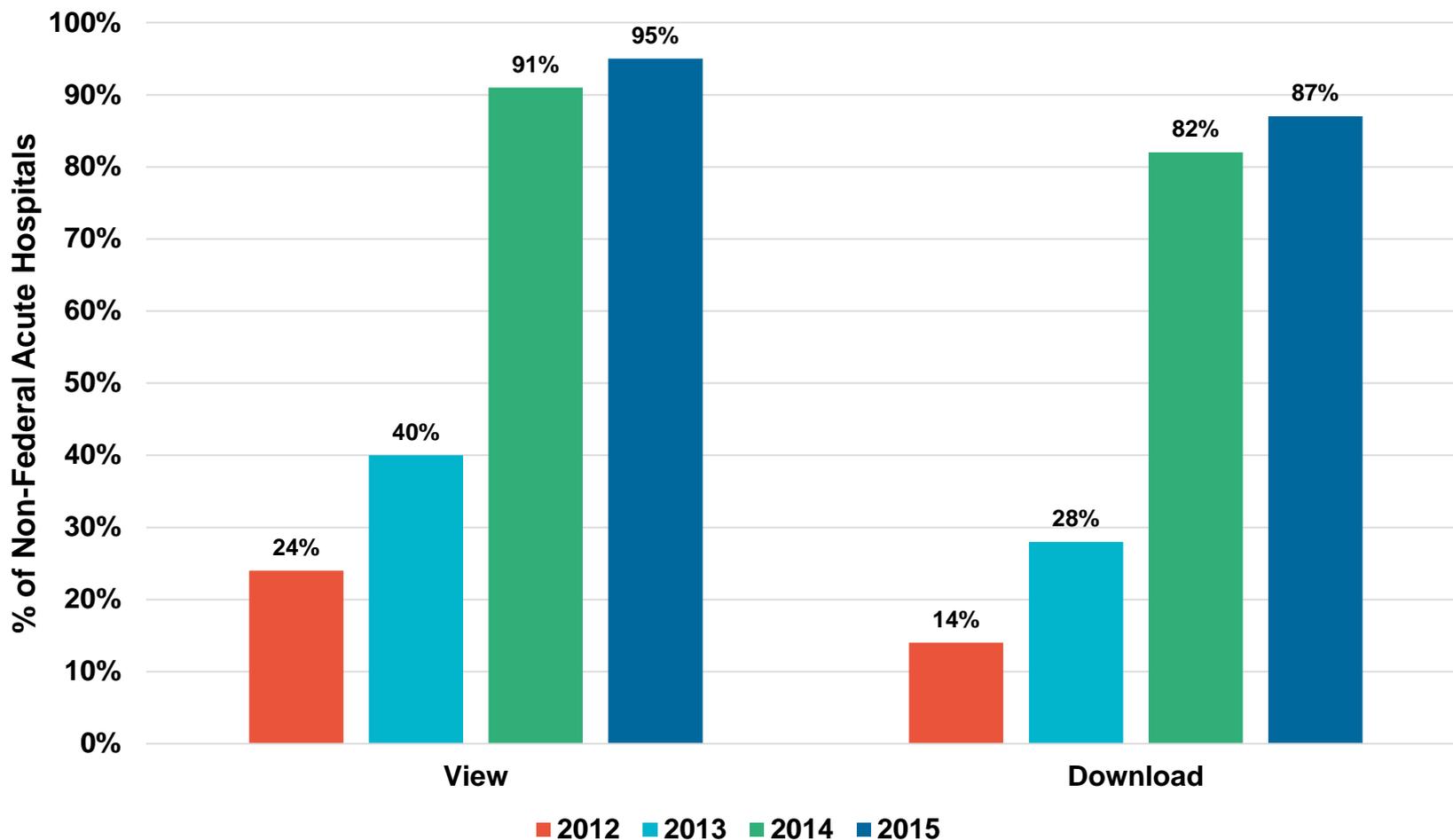


Source: Office of the National Coordinator for Health Information Technology (12/16), Galen Healthcare (8/16)

*Estimated per year clinical data element collection based on data elements collected over 6 years for 165,399 patients, average 49yrs old

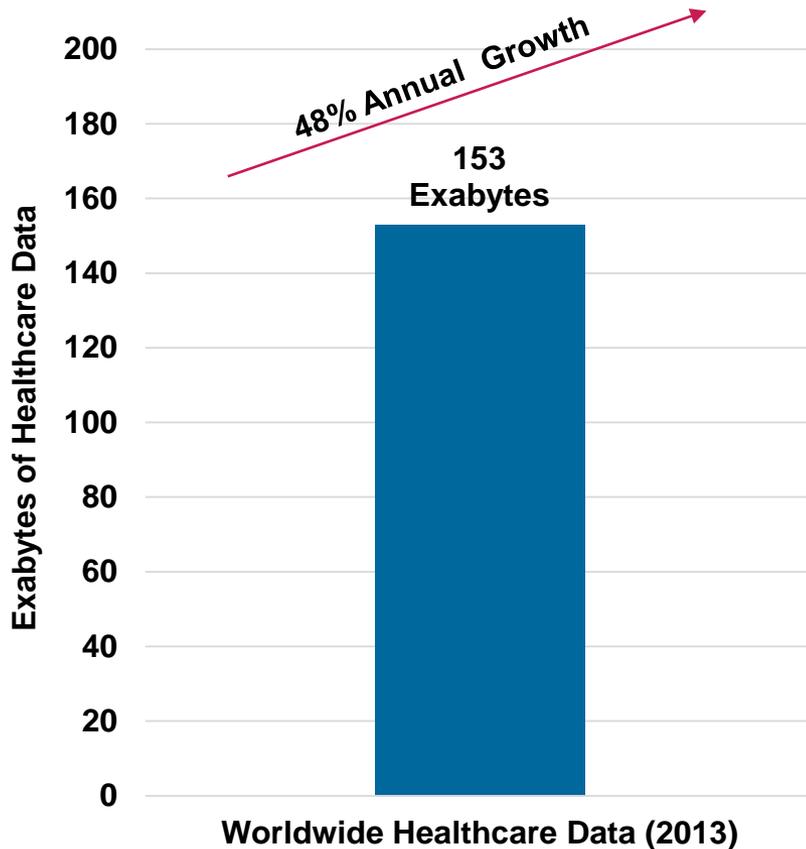
...Hospitals Providing Digital Access to Healthcare Information = +7x Since 2013...

Hospitals that Enable Patient Digital Data Access, 2012 - 2015



...Increasing Digitization of Inputs = Healthcare Data Growing at 48% Y/Y

Growth in Healthcare Data



Data Drivers

Typical 500 Bed Hospital

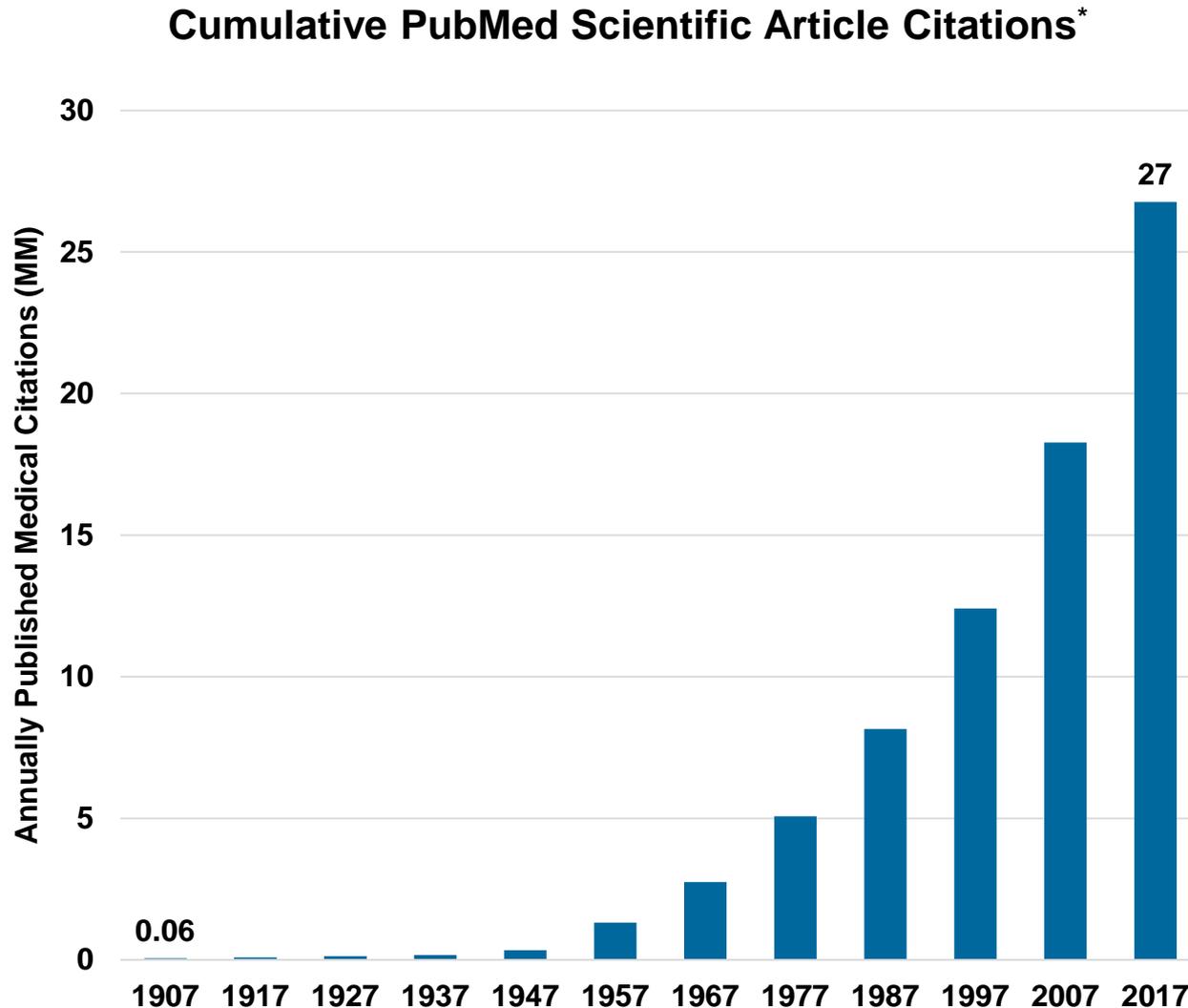
- 500 Beds
- 8,000 Employees
- 400 Applications
- 500 Databases
- 1,000 Interfaces
- 10,000 Desktops
- 500 Owned/Controlled Tablets
- 2,000 Owned/Controlled Mobile Devices

**50
Petabytes
of Data per
Hospital**

Data Insight + Translation =

***Early Innings of Impact on
Therapeutics***

Rise in Inputs + Data = Medical Research / Knowledge Doubling Every 3.5 Years...



Years to Double Medical Knowledge**

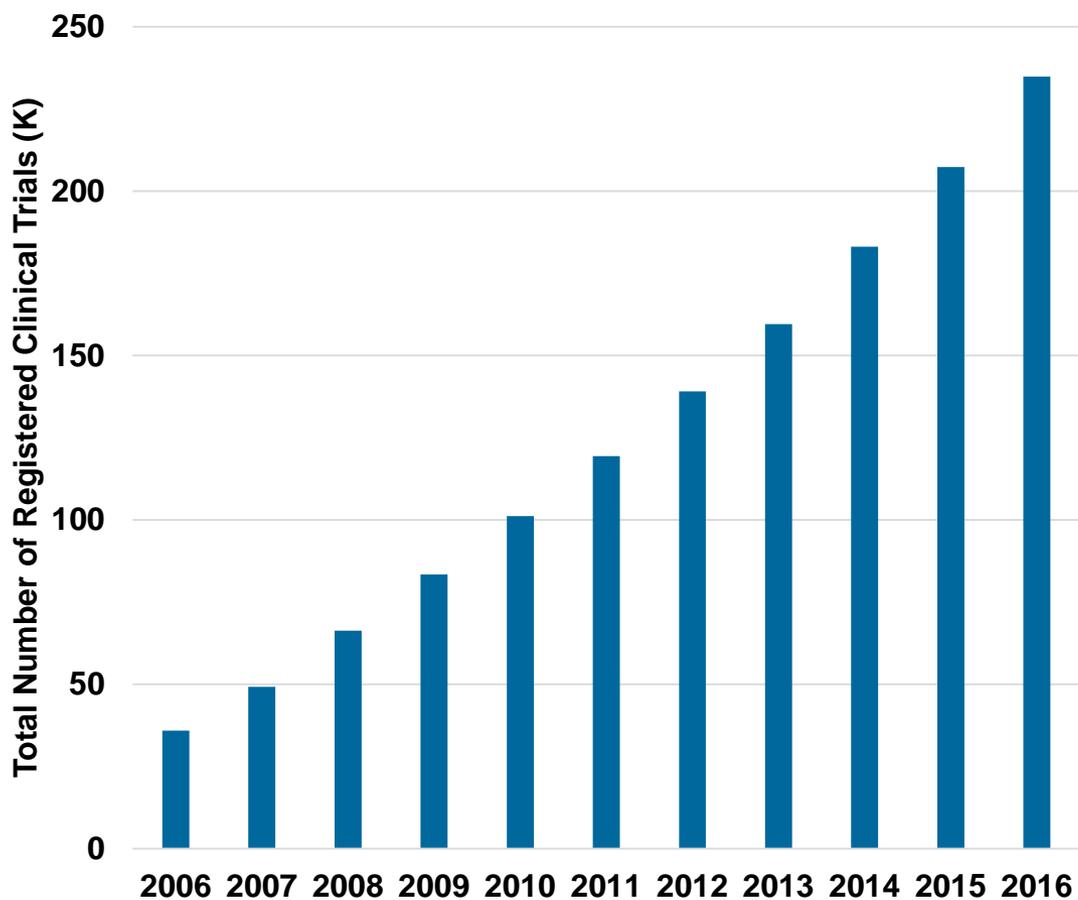
1950
50 years

1980
7 years

2010
3.5 years

...Clinical Trials = Follow Expansion of Research Insight But... Clinical Impact Lags Owing to Length of Trials...

Growth in Clinical Trials



Average Clinical Trial Duration

Phase 0

~3.5 Years

Phase 1

1.8 Years

Phase 2

2.1 Years

Phase 3

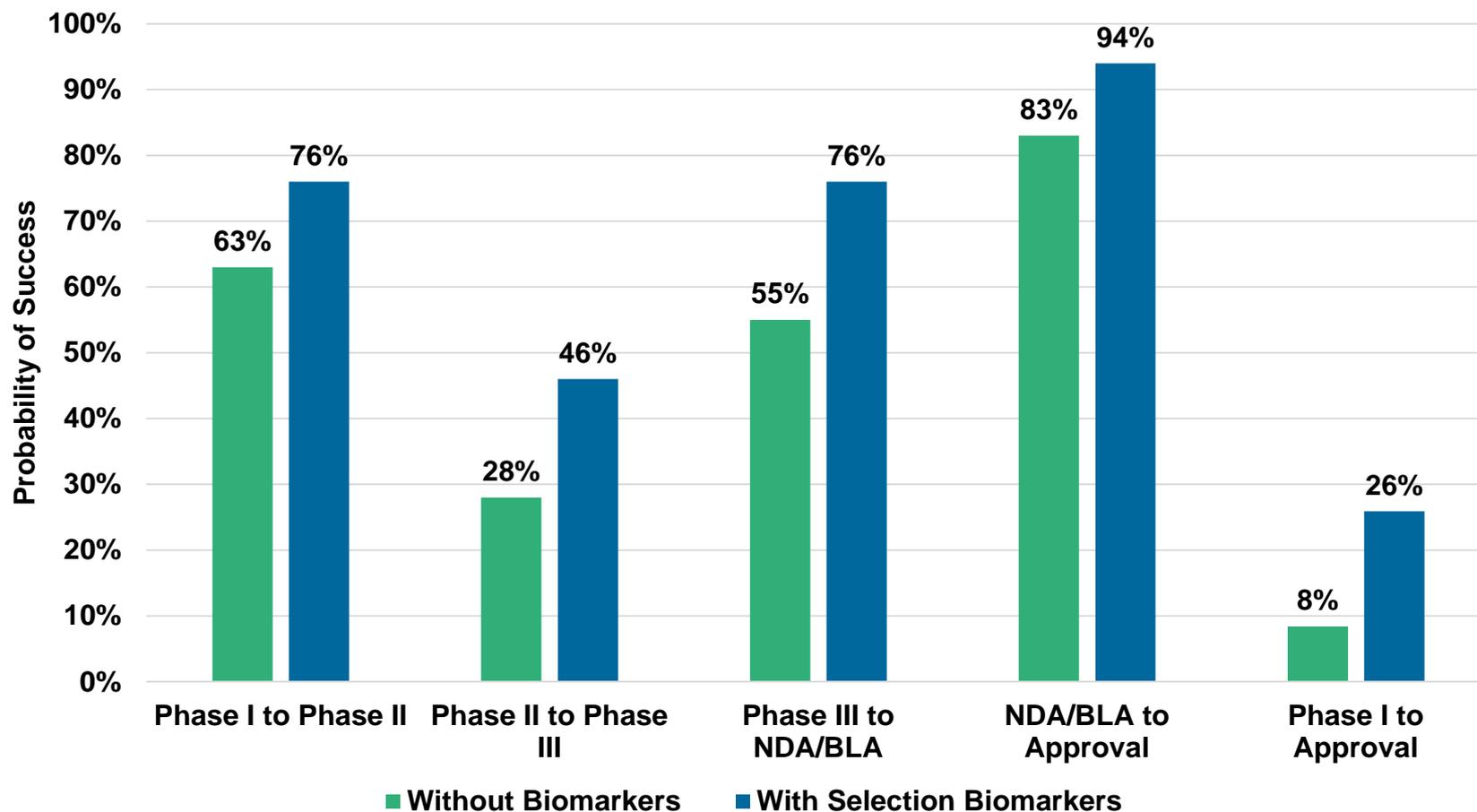
2.5 Years

Average Time to Market (New Drug)

~12 Years

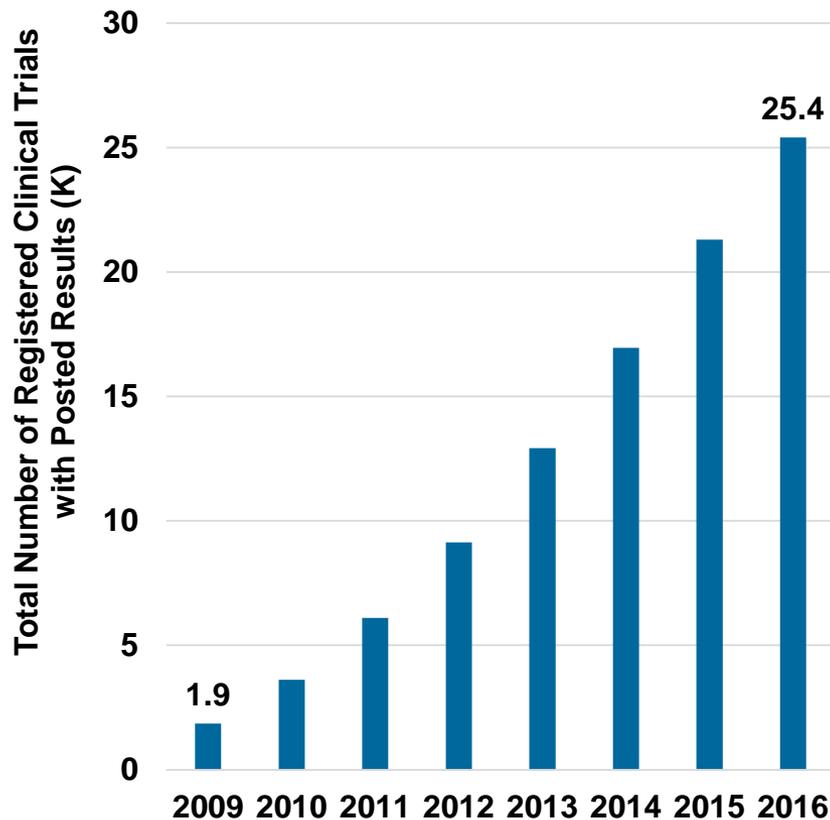
...New Data Streams = Enhancing & Perhaps Accelerating Clinical Trials...

Selection Biomarkers (Enabled by DNA Sequencing) for Enrolling Patients in Clinical Trials Improves Probability of Success



...Data Silos = Breaking Down Owing to Broad Efforts to... Share Data Among Scientific Community...

Growth in Publically-Available Clinical Trial Results



In 2014, Nature launched a peer reviewed open-access scientific journal focused on publishing datasets in machine-readable format for sharing across the natural sciences. Nature encourages authors to submit to Scientific Data in parallel but requires authors to enter the following data in community-endorsed, public repository prior to publishing in Nature:

Mandatory deposition	Suitable repositories
Protein sequences	Uniprot
DNA and RNA sequences	Genbank DNA DataBank of Japan EMBL Nucleotide Sequence Database
DNA and RNA sequencing data	NCBI Trace Archive NCBI Sequence Read Archive
Genetic polymorphisms	dbSNP dbVar European Variation Archive
Linked genotype and phenotype data	dbGAP The European Genome-phenome Archive
Macromolecular structure	Worldwide Protein Data Bank Biological Magnetic Resonance Data Bank Electron Microscopy Data Bank
Microarray data	Gene Expression Omnibus ArrayExpress
Crystallographic data for small molecules	Cambridge Structural Database

...As Data Accumulates & Silos Breakdown... Research Insights Could Accelerate...

Growing Evidence That Data = Cheaper + Faster Clinical Trials

Traditional Trial vs. Simulation		
	Traditional UK Department of Health Study	Archimedes Data Simulation
Number of Patients	2,838	50,000
Years of Data	7 Years	30 Years
Length of Study	7 Years	2 Months
Conclusion	Out of 4 principal findings Archimedes predicted 2 exactly right, 1 within the margin of error, and 1 slightly below.	

Archimedes Simulation = a mathematical model to simulate (1) human physiology and disease, (2) care process models, and (3) healthcare system resources. Ran virtual trials of large, simulated populations in a fraction of the time and cost of a traditional study.

Source: Wired (11/09), National Academy of Engineering (David Eddy, 2015)

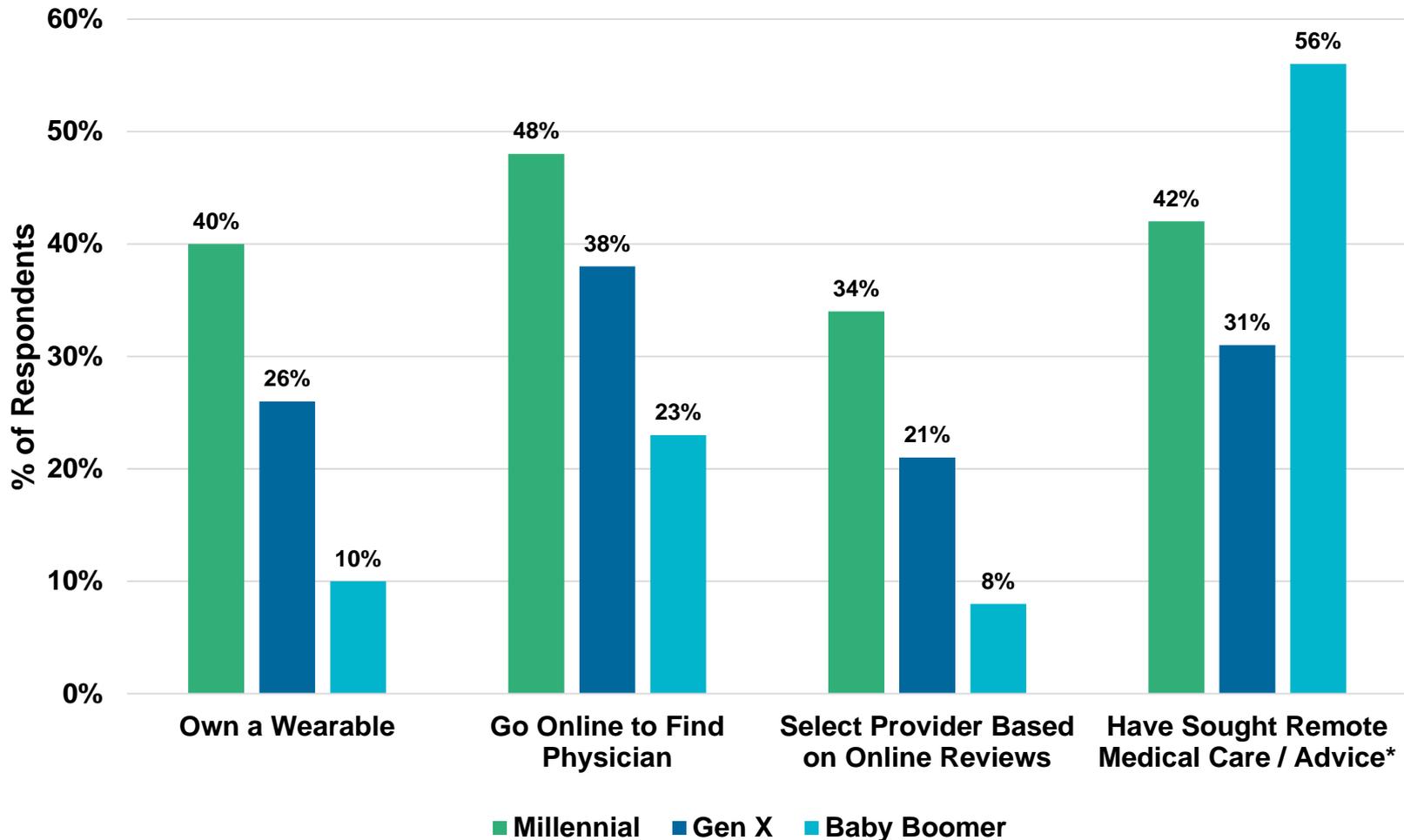
Note: The UK Department of Health launched a trial study, Collaborative Atorvastatin Diabetes Study (Cards), and the American Diabetes Association asked David Eddy to conduct a simulation addressing the same issues before the UK results were released.

Data Insight + Translation =

***Healthcare Delivery
Could Change Faster With
Consumer Engagement &
Faster Innovation Cycles***

Consumers = Increasingly Expect Digital Health Services... Especially Millennials...

Digital Health Adoption Across Generations



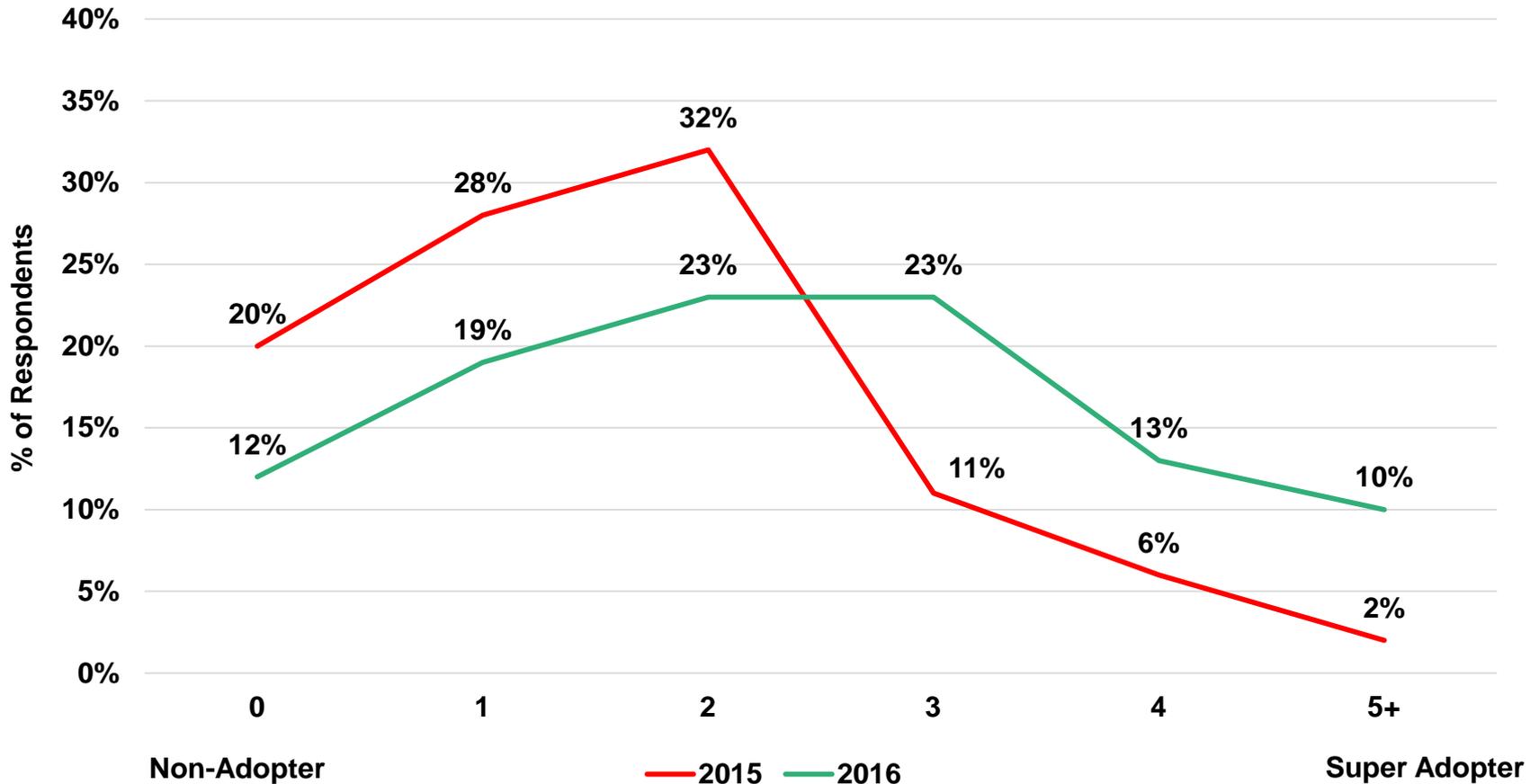
Source: Rock Health Digital Health Consumer Adoption (12/16)

*Represents % of Millennials that have sought medical care/advice over live video, % of Gen X that have over text message, and % of Baby Boomers who have over phone
Millennials include 18-34 year olds; Gen X include 35-54 year olds; Baby Boomers include 55+ year olds

...Consumers = Increasingly Use Digital Health Tools

Consumers Using Digital Health Tools (Telemedicine, Wearables, etc.)

88% Using at Least One Tool, 1 in 10 are Super Adopters



Healthcare Practices = Being Re-Imagined... Leveraging Data to Optimize Outcomes

Patient Empowerment & Health Management

Propeller Health + Bluetooth Inhaler Sensor = Improved Medication Adherence + Insights



Livongo + Connected Glucose Meter = Personalized Coaching + \$100/Month Savings for Payers



Improvements to Clinical Pathways / Protocol

Ayasdi AI + Mercy Health System Patient Data = Clinical Anomaly Detection + Improved Clinical Pathway Development

AYASDI



Flatiron + Foundation Med (FMI) = 20,000 Liked Cancer Patients Records + Personalized Medicine

FLATIRON



Preventative Health

Kinsa + Crowdsourced Temperature Data = Local Flu Predictions + Proactive Treatments for Populations

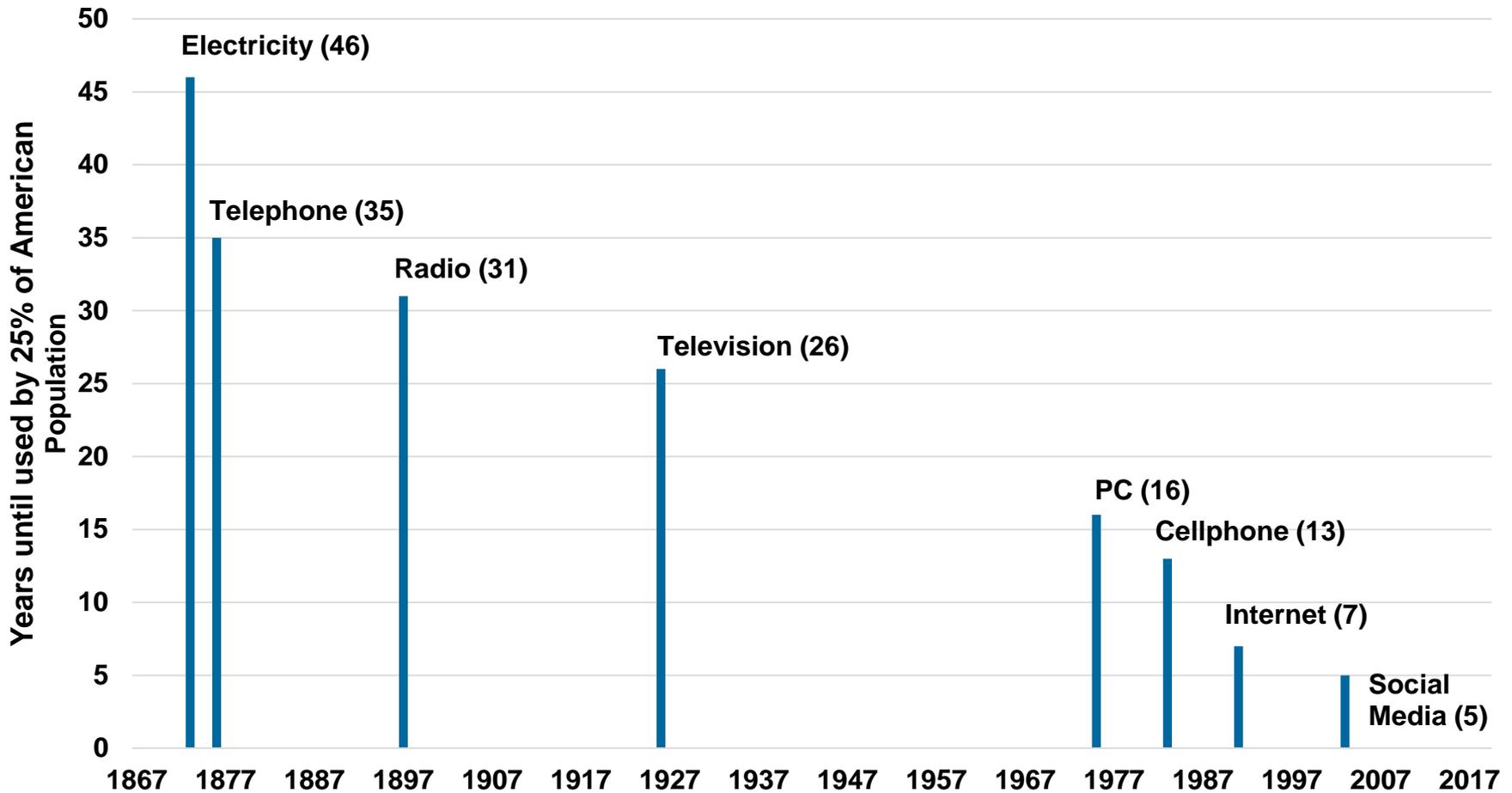


Omada + Preventative Program = 4-5% Body Weight Reduction + Reduced Risk for Stroke and Heart Disease



Digital Health = Could It Follow Tech-Like Rapid Adoption Curves?

Acceleration of Technological Adoption Curves 1867-2017



Source: The Economist (12/15), Pew Research Center (1/17)

*Social Media Adoption based on founding date of MySpace (2003) and Social Media Penetration calculated by Pew Research Center

Evolution of Genomics =

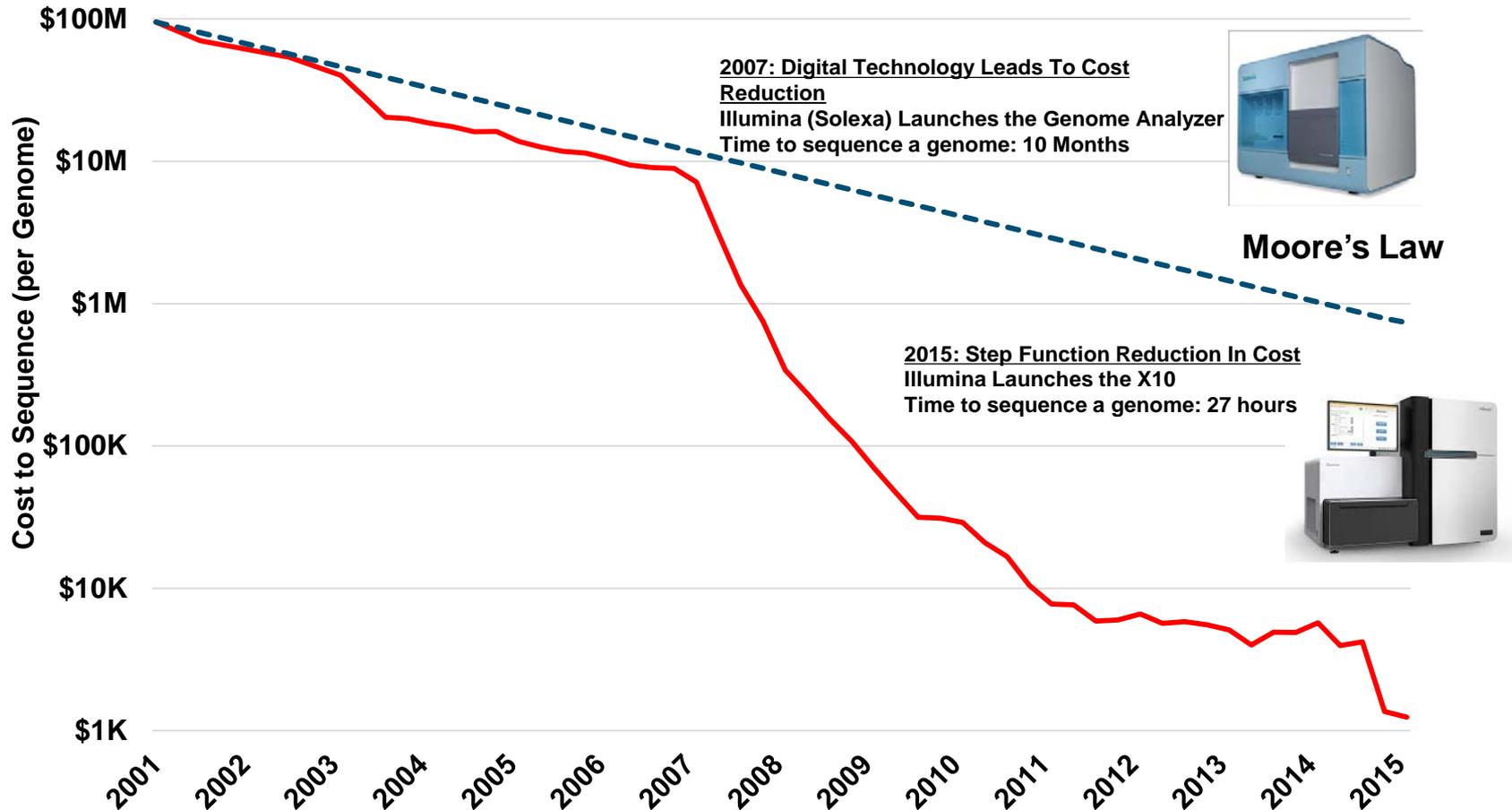
***Case Study in
Virtuous Cycle of Innovation...***

Input...Data Accumulation...

Insight...Translation...

Genomics Digitizes = Gets Faster / Better / Cheaper...

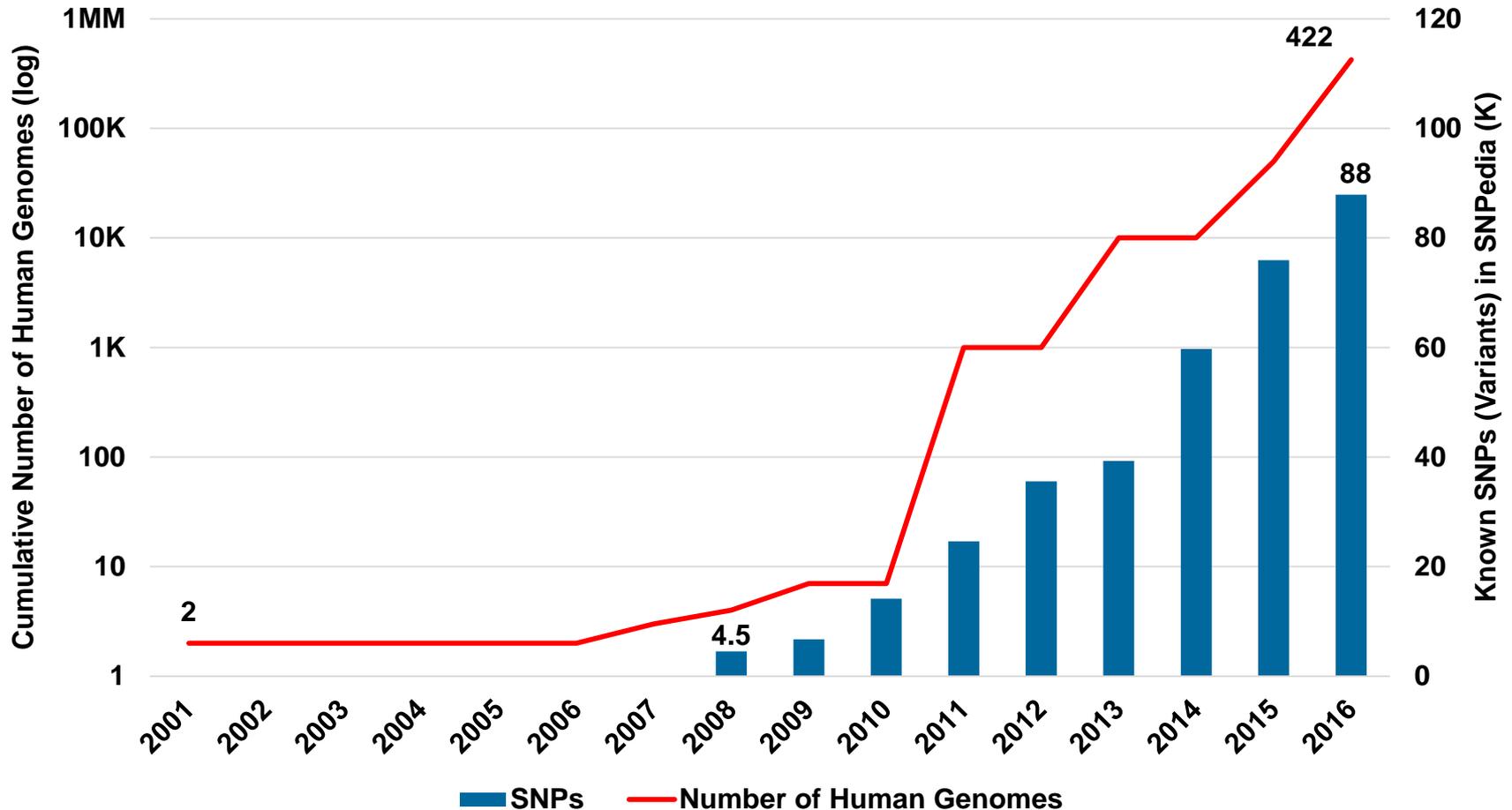
Introduction of Digital Technology Accelerates Cost Reduction Faster Than Moore's Law



Source: National Institute of Health, National Human Genome Research Institute (7/17), Biology Reference, Illumina

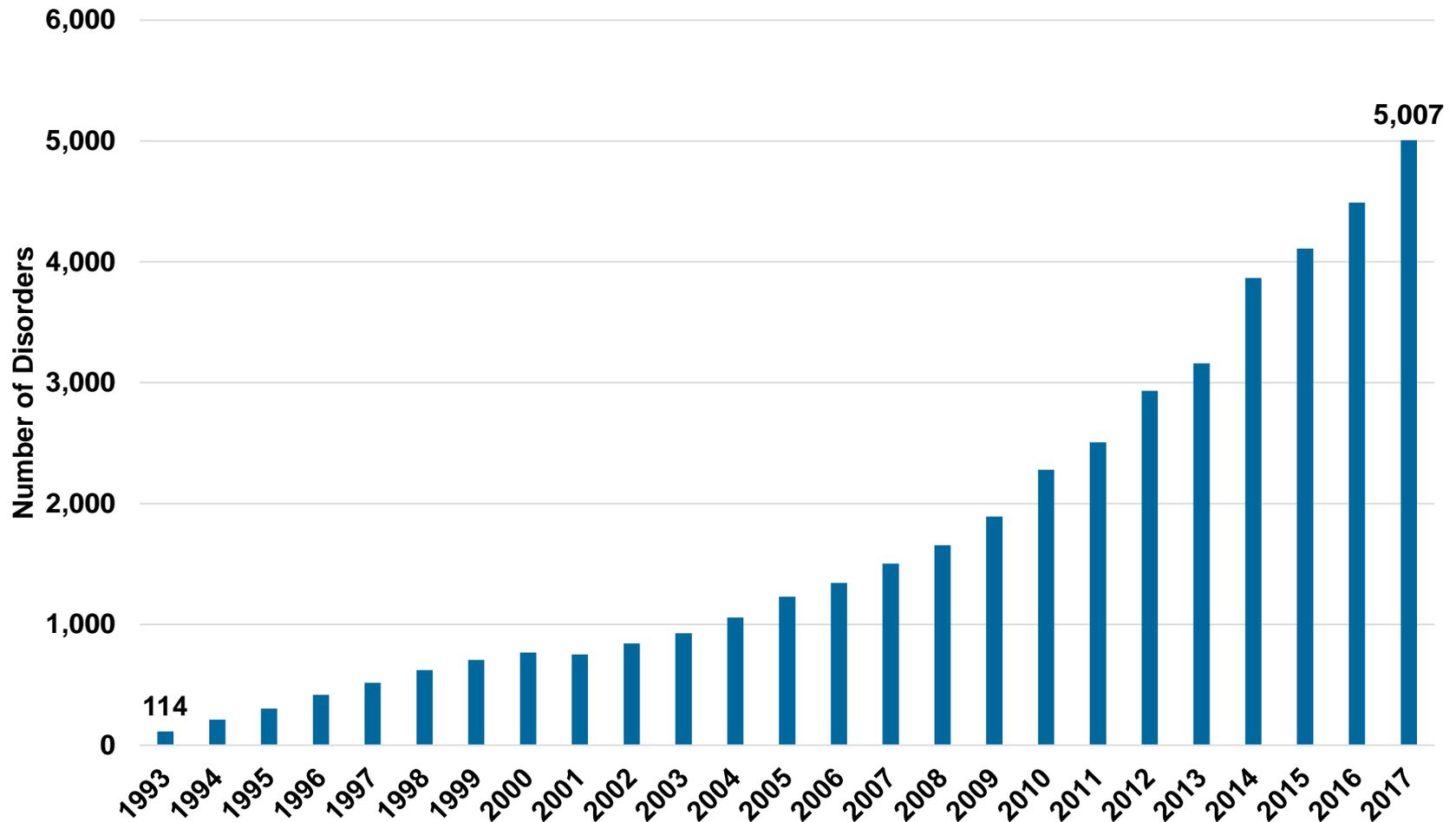
...Accumulation of Genomic Data Leads to... 19x Increase in Genomic Knowledge...

Insight (Measured in Known Variants) Tracks Number Of Genomes Sequenced



...Genomics Research & Insights Lead to Rapid Increase in... Available Genetic Tests...

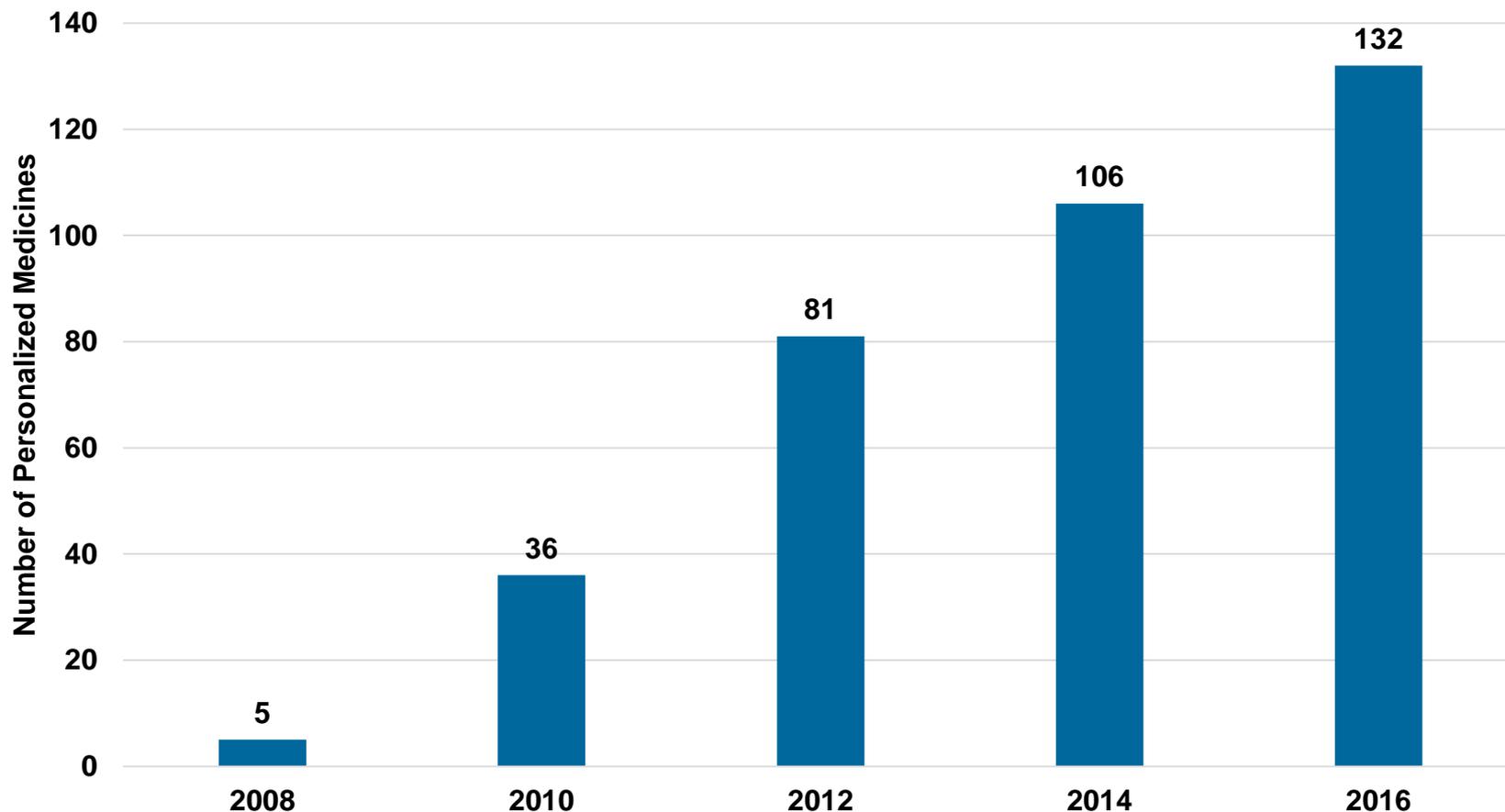
Genetic Disorders with Diagnostic Tests Available, 5/29/2017



Source: Genetests (5/17)

...Genomics Insight Translates to Therapeutics...

Number of Personalized* Medicines Up From Almost None in 2008, 2008-2016



Source: Personalized Medicine Coalition (2017)

*Number of personalized medicines calculated based on PMC's Case for Personalized Medicine and the FDA's Table of Pharmacogenomic Biomarkers in Drug Labeling

...Evolution of Genomics Technologies Enable Deeper Research... Consumer Genomics Evolving Similarly...

Research

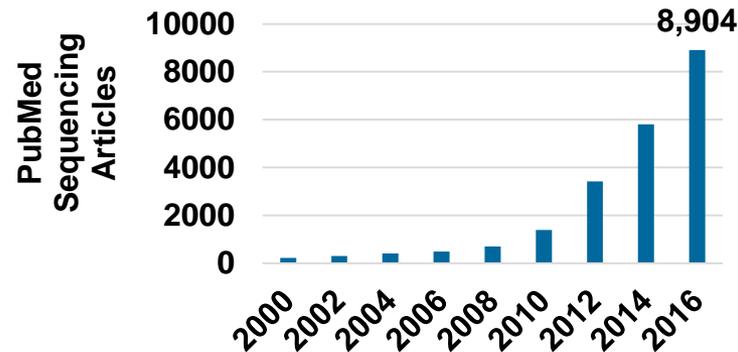
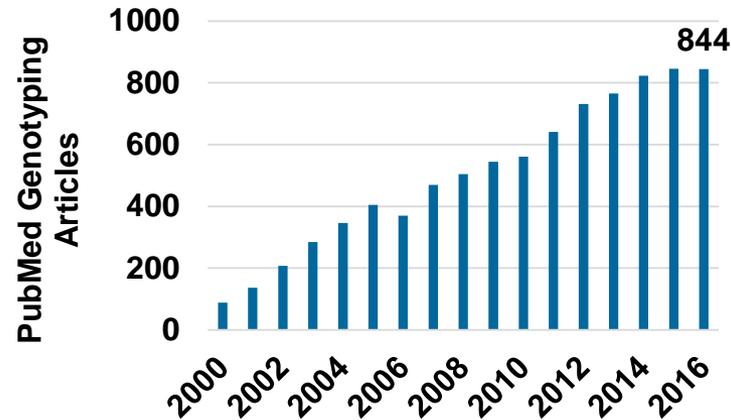
SNP Arrays and Genotyping (v1.0)

Identifies variations in specific, pre-defined single letters within a gene



Next Generation Sequencing (v2.0)

Looks for variations throughout the entire gene

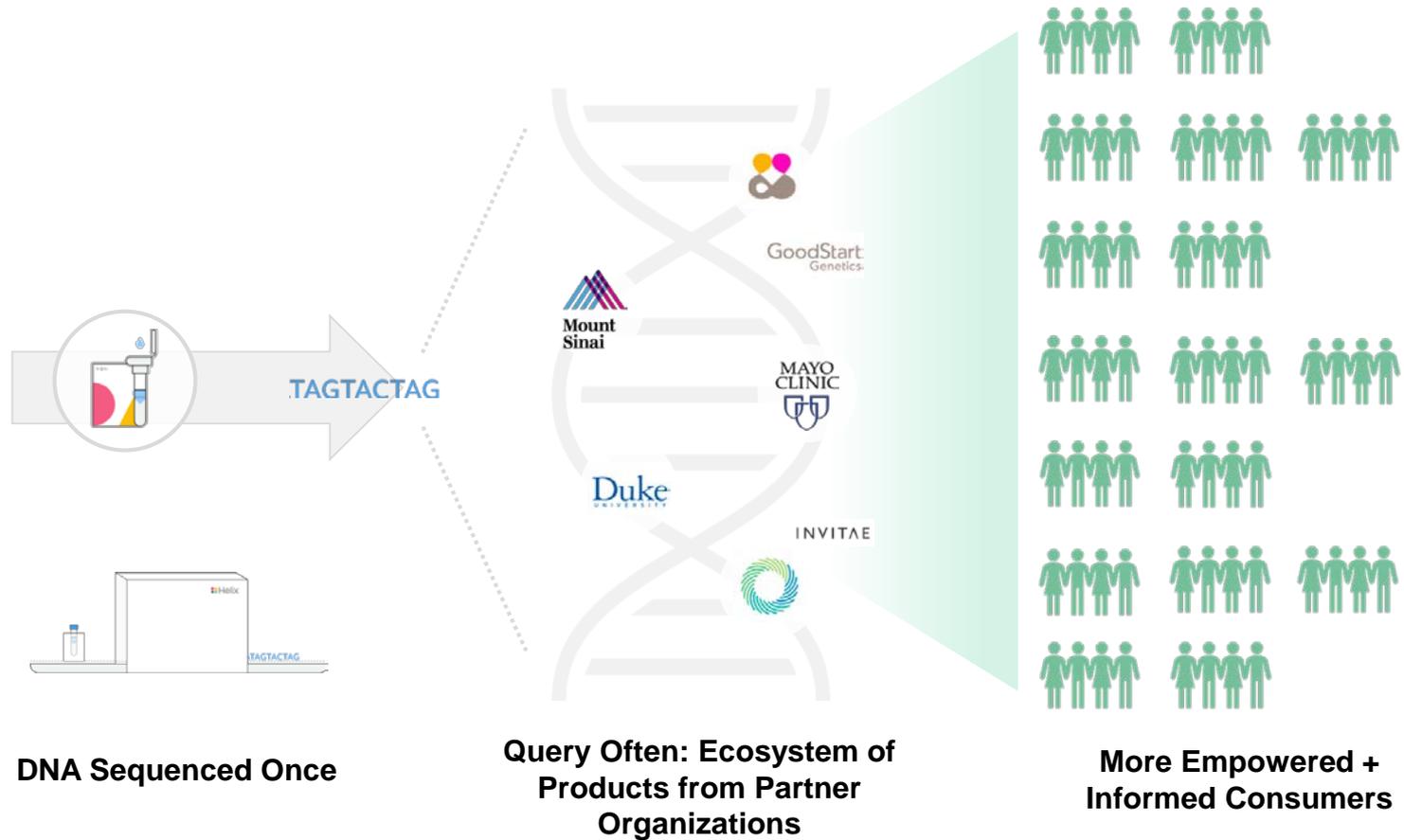


Consumer



...Digitization = Democratization

Digitization = Enabling New Business Models in Genomics



DNA Sequenced Once

Query Often: Ecosystem of Products from Partner Organizations

More Empowered + Informed Consumers

Source: Helix (5/17)

Healthcare @ Digital Inflection Point

100 Years Ago Human Touch



25 Years Ago Machine Assisted / Analog



Today Technology Enabled / Digital



**GLOBAL PUBLIC / PRIVATE
INTERNET COMPANIES =**

**IT'S BEEN A GOOD TIME TO BE A
LEADER / INNOVATOR**

Global Internet Companies =

*An Epic Half-Decade for
Public + Private
Internet Companies*

2017 Global Internet Market Capitalization Leaders = Most Extending Leads... Apple / Google-Alphabet / Amazon / Facebook / Tencent / Alibaba

Rank	Company	Region	Current Market Value (\$B)
1	Apple	USA	\$801
2	Google - Alphabet	USA	680
3	Amazon	USA	476
4	Facebook	USA	441
5	Tencent	China	335
6	Alibaba	China	314
7	Priceline	USA	92
8	Uber	USA	70
9	Netflix	USA	70
10	Baidu	China	66
11	Salesforce	USA	65
12	Paypal	USA	61
13	Ant Financial	China	60
14	JD.com	China	58
15	Didi Kuaidi	China	50
16	Yahoo!	USA	49
17	Xiaomi	China	46
18	eBay	USA	38
19	Airbnb	USA	31
20	Yahoo! Japan	Japan	26
Total			\$3,827

Source: CapIQ, CB Insights, Wall Street Journal, media reports. Market value data as of 5/26/17.

Note: For public companies, colors denote current market value relative to Y/Y market value. Green = higher. Red = lower. Yellow = private companies, where market value represents latest publicly announced valuation. Ant Financial and Didi Kuaidi valuation per latest media reports as of 6/16 and 4/17 respectively. Xiaomi valuation per latest media reports as of 4/17. Ant Financial treated separately from Alibaba as Alibaba retains no control of Ant and will receive a capped lump sum payment in the event of an Ant liquidity event. Cash includes cash and equivalents and short-term marketable securities plus long-term marketable securities where deemed liquid.

Global Public Companies =

*An Epic Half-Decade for
Internet Companies*

2017 Global Market Capitalization Leaderboard = Tech = 40% of Top 20 Companies...100% of Top 5...

Rank	Company	Region	Industry Segment	Current Market Value (\$B)	2016 Revenue (\$B)
1	Apple	USA	Tech – Hardware	\$801	\$218
2	Google / Alphabet	USA	Tech – Internet	680	90
3	Microsoft	USA	Tech – Software	540	86
4	Amazon	USA	Tech – Internet	476	136
5	Facebook	USA	Tech – Internet	441	28
6	Berkshire Hathaway	USA	Financial Services	409	215
7	Exxon Mobil	USA	Energy	346	198
8	Johnson & Johnson	USA	Healthcare	342	72
9	Tencent	China	Tech – Internet	335	22
10	Alibaba	China	Tech – Internet	314	21
11	JP Morgan Chase	USA	Financial Services	303	90
12	ICBC	China	Financial Services	264	85
13	Nestlé	Switzerland	Food / Beverages	263	88
14	Wells Fargo	USA	Financial Services	262	85
15	Samsung Electronics	Korea	Tech – Hardware	259	168
16	General Electric	USA	Industrial	238	120
17	Wal-Mart	USA	Retail	237	486
18	AT&T	USA	Telecom	234	164
19	Roche	Switzerland	Healthcare	233	51
20	Bank of America	USA	Financial Services	231	80
Total				\$7,207	\$2,497

Source: CapIQ. Market value data as of 5/26/17

Note: For public companies, colors denote current market value relative to Y/Y market value. Green = higher, red = lower.

...2012 Global Market Capitalization Leaderboard = Tech = 20% of Top 20 Companies...40% of Top 5

Rank	Company	Region	Industry Segment	5/31/2012 Value (\$B)	2011 Revenue (\$B)
1	Apple	USA	Tech – Hardware	\$540	\$128
2	Exxon Mobil	USA	Financial Services	368	434
3	PetroChina	China	Energy	267	318
4	Microsoft	USA	Tech – Software	245	72
5	ICBC	China	Financial Services	227	70
6	Wal-Mart	USA	Retail	224	447
7	IBM	USA	Tech – Hardware	223	107
8	China Mobile	China	Telecom	203	84
9	General Electric	USA	Industrial	202	143
10	AT&T	USA	Telecom	200	127
11	Royal Dutch Shell	Netherlands	Energy	197	470
12	Berkshire Hathaway	USA	Financial Services	196	141
13	Chevron	USA	Energy	194	236
14	Google / Alphabet	USA	Tech – Internet	189	38
15	Nestlé	Switzerland	Food / Beverages	180	90
16	China Construction Bank	China	Financial Services	173	58
17	Johnson & Johnson	USA	Healthcare	171	65
18	Procter & Gamble	USA	Consumer Goods	171	84
19	Wells Fargo	USA	Financial Services	170	73
20	BHP Billiton	Australia	Metals / Mining	170	75
Total				\$4,512	\$3,257

Source: CapIQ. Market value data as of 5/31/12.

Note: For public companies, colors denote current market value relative to Y/Y market value. Green = higher, red = lower.

*Big Get Bigger =
& Go After Other Bigs...*

*Often Led by Founder-Driven
Innovation / Seeing Around Corners*

Internet Bigs Expansion / Growth = A Long Way from Where They Started

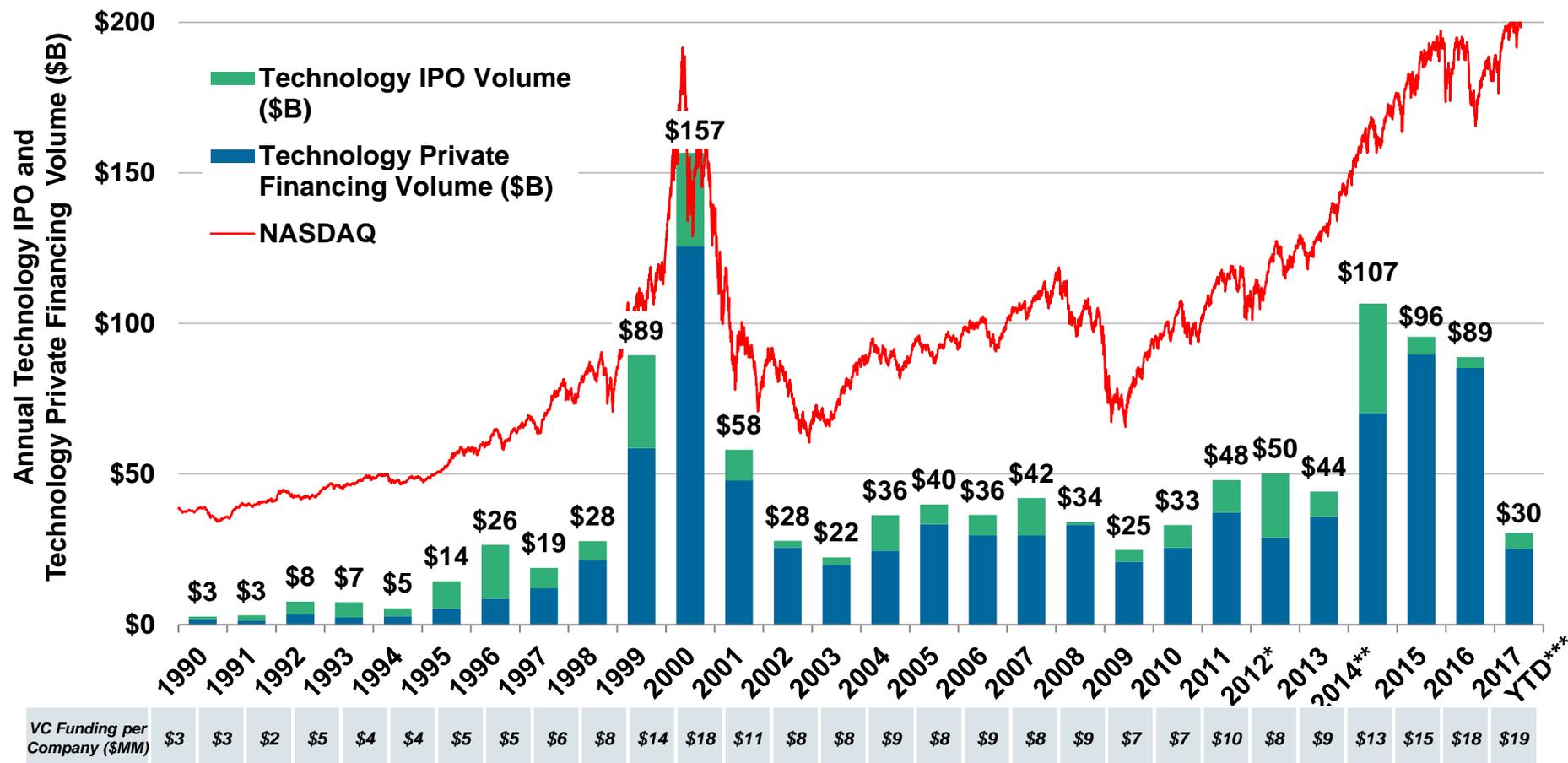
Company	Founding Year	Original Business	Current Businesses
Apple	1976	Personal Computer Maker	Smartphone / Computer / Tablet Maker...Content / Media Marketplace...Cloud Services
Google - Alphabet	1998	Online Search Engine	Online Search Engine...Ad Ecosystem...Web Browser...Mobile Operating System(s)...Digital Video Platform...Content Marketplace...Mobile + IoT / OTT Device Maker...Navigation Tools...Productivity Software...Cloud Services...AR / VR Software + Hardware...Moonshot Chaser
Amazon	1994	Online Bookseller (USA)	Global B2B B2C / C2C Commerce...Content Ecosystem...Digital Video / Music Platform...eReader / Tablet / IoT / OTT Device Maker...Cloud Services...Logistics...Ad Ecosystem
Facebook	2004	Social Network (USA)	Global Social Network...Instant Messaging Platform...Image Sharing Platform...AR / VR Software / Hardware...Ad Ecosystem
Tencent	1998	Instant Messaging Platform (China)	Instant Messaging Platform...Gaming...Content Ecosystem...Social Network...Ad Ecosystem...Payments...Digital Video / Music Platform...Cloud Services
Alibaba	1999	B2B Commerce Platform (China)	Global B2B / B2C / C2C Commerce Platform...New Retail...Ad Ecosystem... Payments...Cloud Services...Logistics Data Platform...Digital Media & Entertainment Platform...Content Ecosystem...Content Creator...Web Browser

Global Technology Financings =

*Strong Relative to History...
Slowing @ Margin*

Global Technology Financings = Strong Relative to History...Slowing @ Margin

Global USA-Listed Technology IPO Issuance & Global Technology Venture Capital Financing, 1990 – 2017YTD

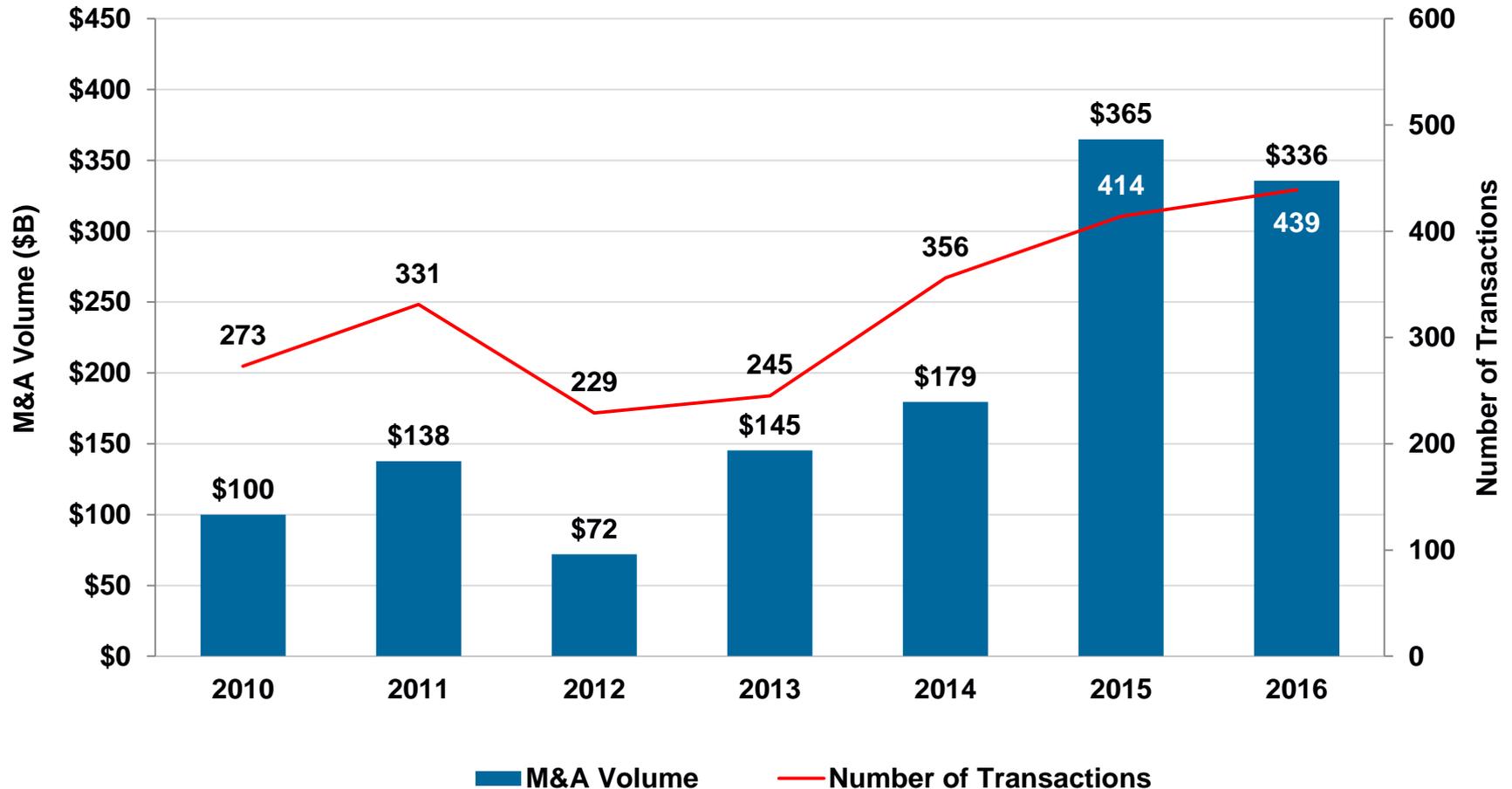


Source: Morgan Stanley Equity Capital Markets, 2017YTD as of 5/12/17, Thomson ONE 2017YTD as of 5/12/17. All global U.S.-listed technology IPOs over \$30MM, data per Dealogic, Bloomberg, & Capital IQ. VC Funding per Company (\$MM) calculated as total venture financing per year divided by number of companies receiving venture financing.
 *Facebook (\$16B IPO) = 75% of 2012 IPO \$ value. **Alibaba (\$25B IPO) = 69% of 2014 IPO \$ value. ***Snap (\$4B IPO) = 74% of 2017 YTD \$ value.

*Global Technology
Mergers & Acquisitions =
Robust Relative to History*

Global Technology Merger & Acquisition Volume = Robust Relative to History

Global Technology M&A Deals, 2010-2016



There are pockets of Internet company overvaluation but there are also pockets of undervaluation...

*Very few companies will win
– those that do – can win big...*

*Over time, best rule of thumb for valuing companies =
value is present value of future cash flows.*

Global Public / Private Internet Companies = It's Been a Good Time to be a Leader / Innovator

- 1) **Global Internet Companies** = An Epic Half-Decade for Public + Private Internet Companies
- 2) **Global Public Companies** = An Epic Half-Decade for Internet Companies
- 3) **Big Get Bigger** = & Go After Other Bigs...Often Led by Founder-Driven Innovation / Seeing Around Corners
- 4) **Global Technology Financings** = Strong Relative to History...Slowing @ Margin
- 5) **Global Technology Mergers & Acquisitions** = Robust Relative to History
- 6) **Value of a Business...**

SOME MACRO THOUGHTS

USA, Inc.* =

***Understanding Where Your
Tax Dollars Go***

* USA, Inc. Full Report: <http://www.kpcb.com/blog/2011-usa-inc-full-report>

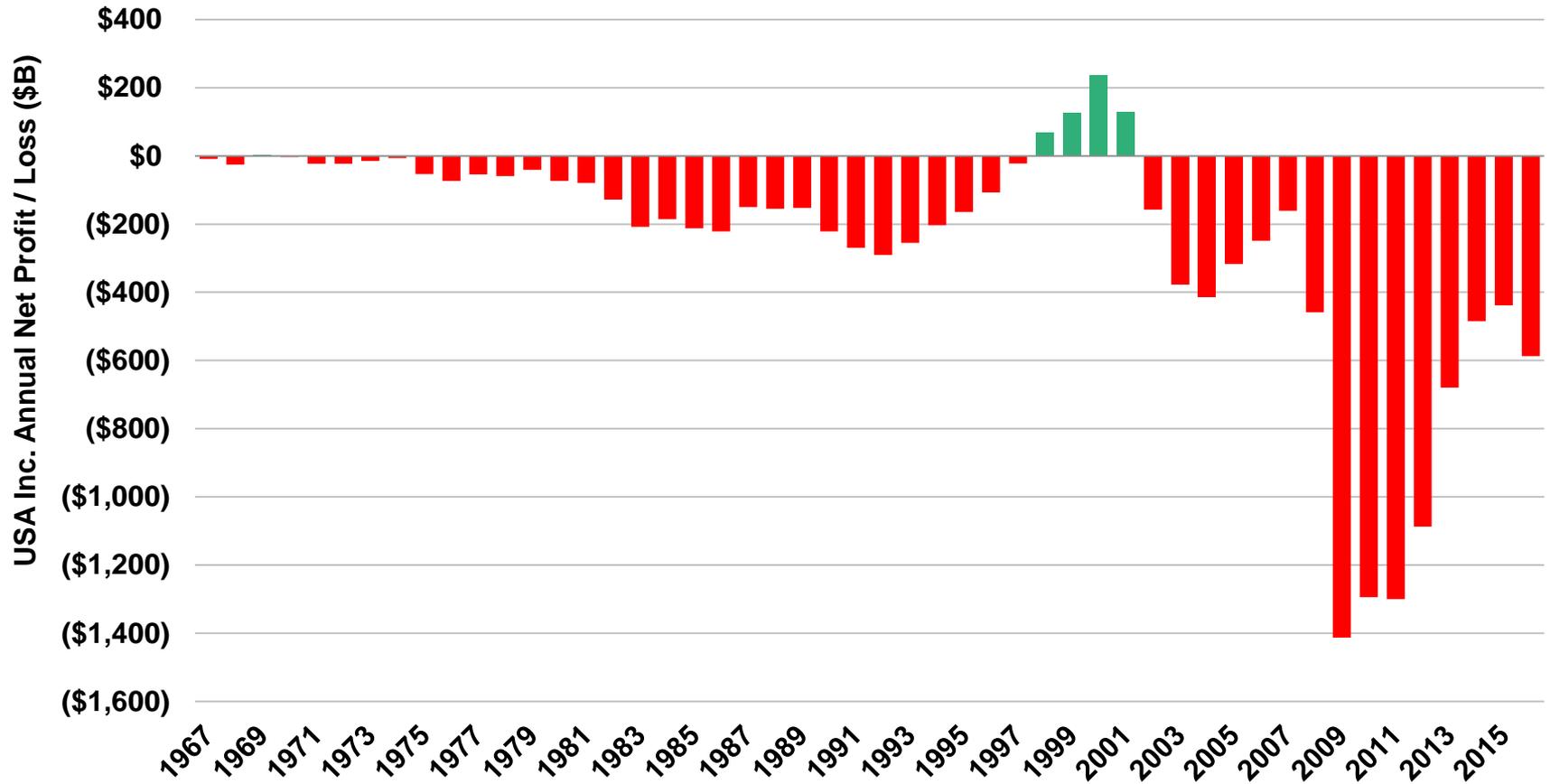
USA Income Statement = -19% Average Net Margin Over 25 Years...

USA Income Statement, F1986 – F2016

	F1986	F1991	F1996	F2001	F2006	F2011	F2016	Comments
Revenue (\$B)	\$769	\$1,055	\$1,453	\$1,991	\$2,407	\$2,303	\$3,267	+5% Y/Y average over 25 years
Y/Y Growth	5%	2%	7%	-2%	12%	7%	1%	
Individual Income Taxes*	\$349	\$468	\$656	\$994	\$1,044	\$1,091	\$1,546	Largest driver of revenue
<i>% of Revenue</i>	45%	44%	45%	50%	43%	47%	47%	
Social Insurance Taxes	\$284	\$396	\$509	\$694	\$838	\$819	\$1,115	Social Security & Medicare payroll tax
<i>% of Revenue</i>	37%	38%	35%	35%	35%	36%	34%	
Corporate Income Taxes*	\$63	\$98	\$172	\$151	\$354	\$181	\$300	Fluctuates with economic conditions
<i>% of Revenue</i>	8%	9%	12%	8%	15%	8%	9%	
Other	\$73	\$93	\$115	\$152	\$171	\$212	\$316	Estate & gift taxes, duties / fees...
<i>% of Revenue</i>	10%	9%	8%	8%	7%	9%	10%	
Expense (\$B)	\$990	\$1,324	\$1,560	\$1,863	\$2,655	\$3,603	\$3,854	+4% Y/Y average over 15 years
Y/Y Growth	5%	6%	3%	4%	7%	4%	4%	
Entitlement / Mandatory	\$416	\$597	\$787	\$1,008	\$1,412	\$2,026	\$2,429	Risen owing to rising healthcare costs + aging population
<i>% of Expense</i>	42%	45%	50%	54%	53%	56%	63%	
Non-Defense Discretionary	\$165	\$214	\$267	\$343	\$497	\$648	\$600	Education / law enforcement / transportation / general government...
<i>% of Expense</i>	17%	16%	17%	18%	19%	18%	16%	
Defense	\$274	\$320	\$266	\$306	\$520	\$699	\$584	2006 increase driven by War on Terror
<i>% of Expense</i>	28%	24%	17%	16%	20%	19%	15%	
Net Interest on Public Debt	\$136	\$194	\$241	\$206	\$227	\$230	\$241	Recent benefit of historic low interest rates
<i>% of Expense</i>	14%	15%	15%	11%	9%	6%	6%	
Surplus / Deficit (\$B)	(\$221)	(\$269)	(\$107)	\$128	(\$248)	(\$1,300)	(\$587)	-19% average net margin, 1991-2016
Net Margin (%)	-29%	-26%	-7%	6%	-10%	-56%	-18%	

...USA Income Statement = What Net Losses in 45 of 50 Years Look Like...

USA Annual Profits & Losses, 1967 – 2016



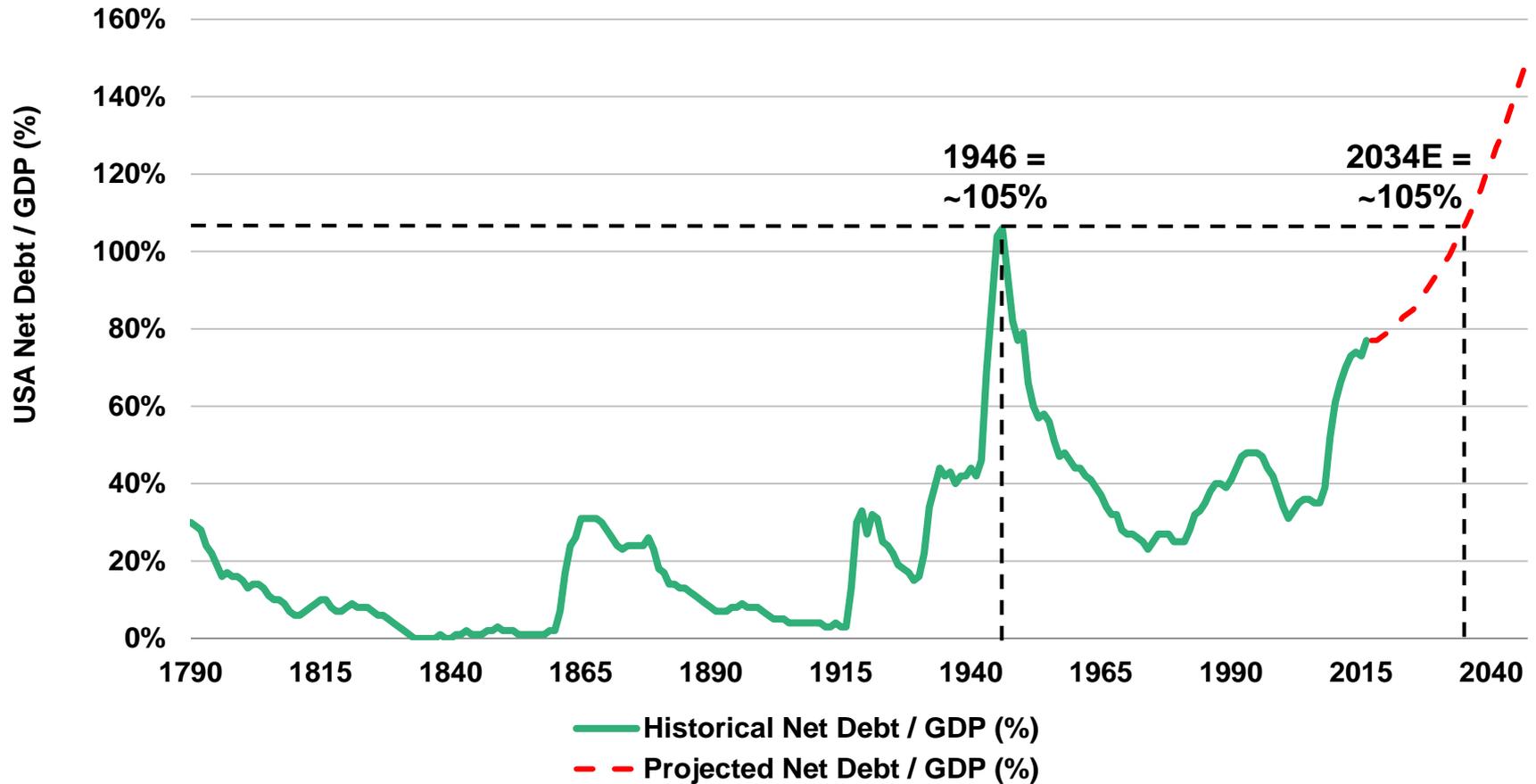
...When Spending > Income → Debt Rises =
Net Debt / GDP @ 77%...Higher than 97% of USA's History...

USA Net Debt / GDP Ratio, 1790 – 2016



...@ Current Course / Speed (& If Government Projections are Correct)... USA Net Debt / GDP Ratio Will Break WWII Record by 2035...

USA Net Debt / GDP Ratio, 1790 – 2047E



Source: Congressional Budget Office Long-Term Outlook (3/17), Wall Street Journal

...USA = 9th Highest Public Debt / GDP Level... Relative to Other Major Economies

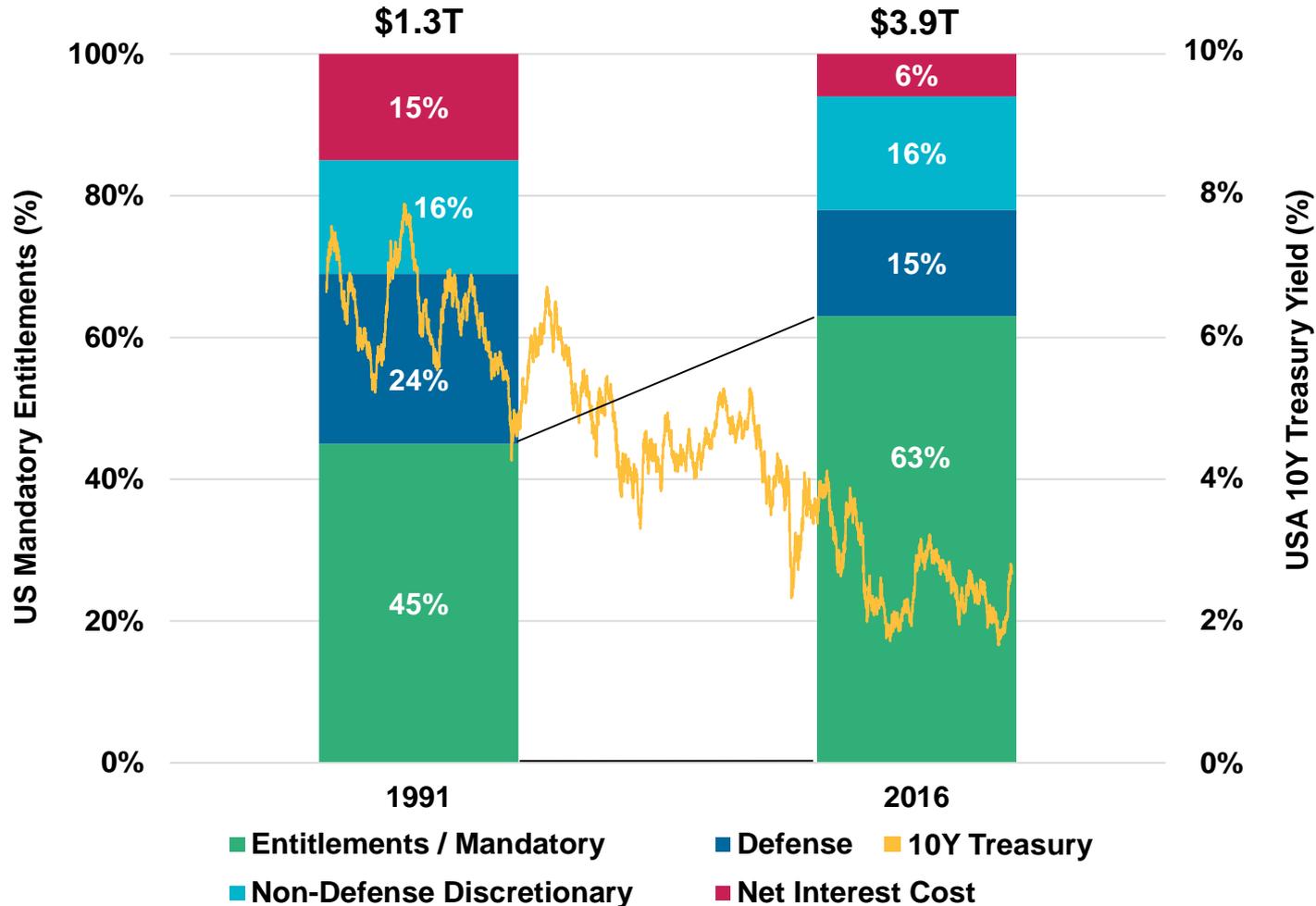
Rank	Country	% of GDP	2015 Public Government Debt (\$B)
1	Japan	248%	\$10,083
2	Greece	177	347
3	Lebanon	138	68
4	Italy	133	2,342
5	Portugal	129	257
6	Jamaica	120	20
7	Cyprus	109	20
8	Belgium	106	478
9	United States	105	18,870
10	Singapore	105	302
11	Spain	99	1,124
12	France	96	2,236
13	Jordan	93	33
14	Canada	91	1,335
15	United Kingdom	89	2,458
16	Egypt	89	280
17	Croatia	87	40
18	Austria	86	302
19	Slovenia	83	30
20	Ukraine	80	37

Source: IMF

Note: Ranking excludes countries with public debt less than \$10B in 2015. Public debt includes federal, state and local government debt but exclude unfunded pension liabilities from government defined-benefit pension plans and debt from public enterprises and central banks.

USA Entitlements = 63% of Spending vs. 45% 25 Years Ago... Interest Expense Down as % Owing to Interest Rate Declines...

USA Expenses by Category, 1991-2016



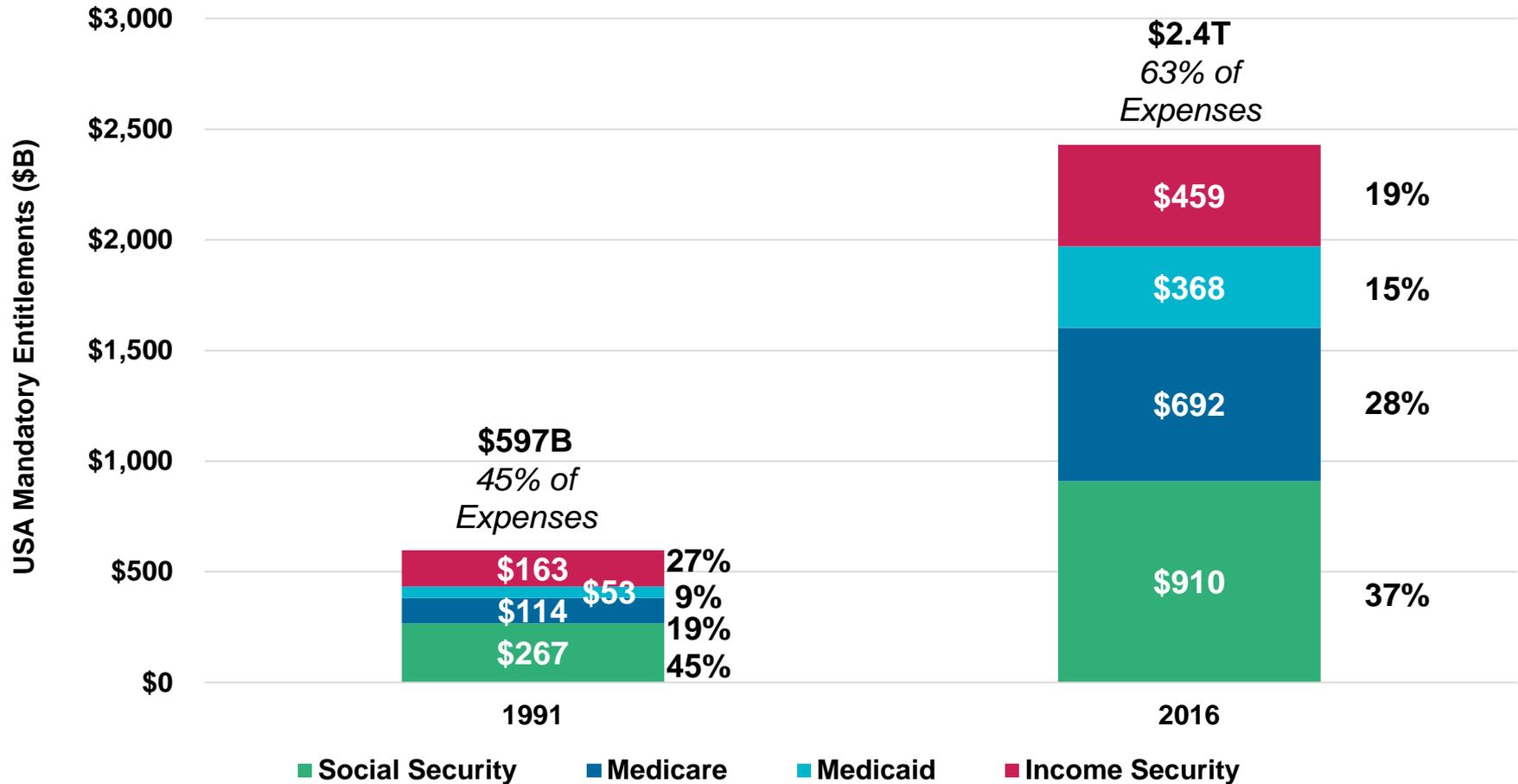
Change by Category, 1991-2016

Debt:
 +\$11T / +427%
Entitlements:
 +\$1.8T / +307%
Non-Defense Discretionary:
 +\$387B / +181%
Defense:
 +\$264B / +83%
Net Interest Cost:
 +\$46B / +24%

Source: Congressional Budget Office, White House Office of Management and Budget, US Treasury
 Note: Yellow line represents yield on 10-year US Treasury bill from 12/31/91 to 12/31/16.

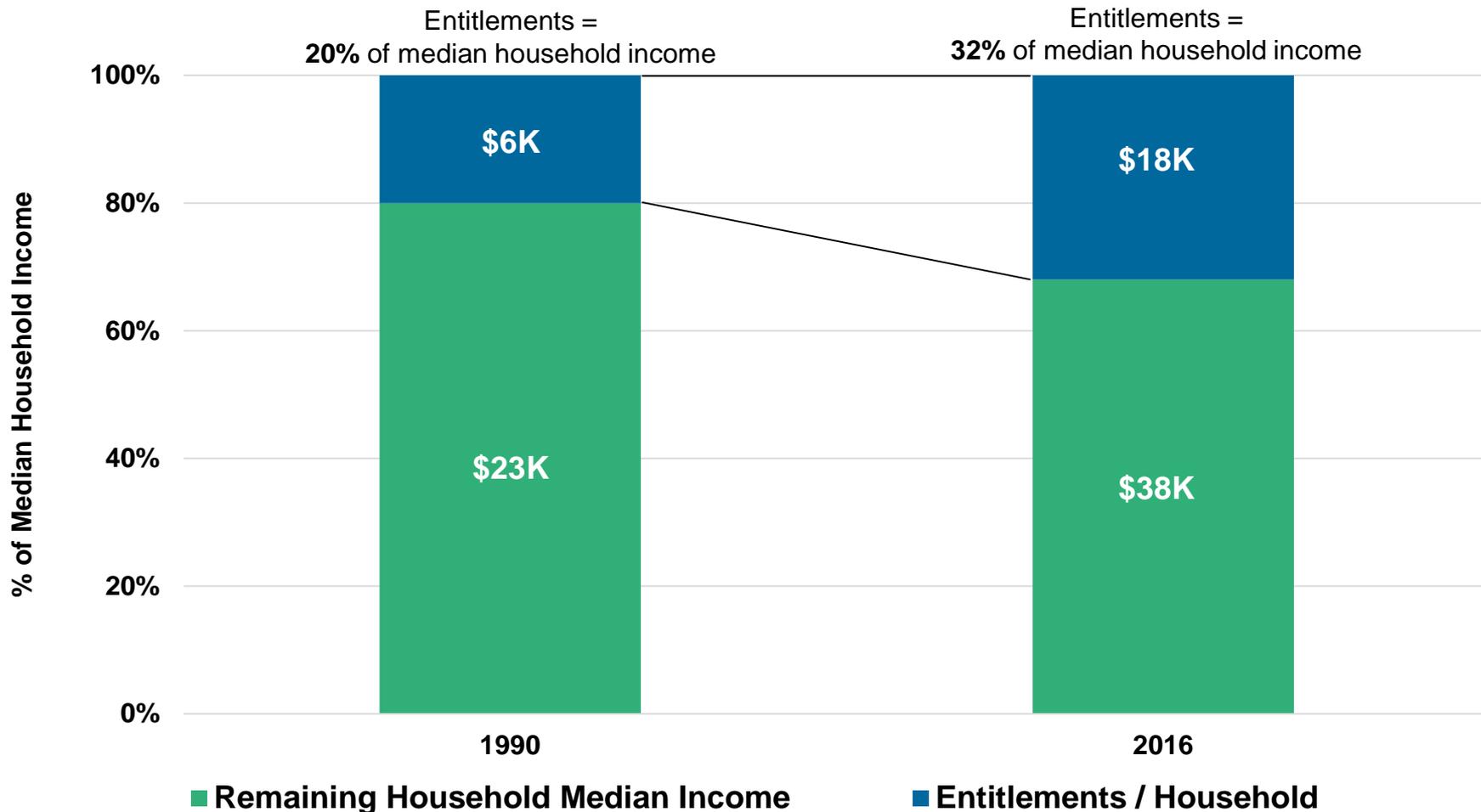
...USA Entitlements = +\$1.8 Trillion Over 25 Years... Paced by Medicare + Medicaid Growth...

USA Mandatory Outlays by Category (\$B), 1991-2016



...USA Entitlements = Equivalent to... 32% of Average Annual Income per Household vs. 20% 25 Years Ago...

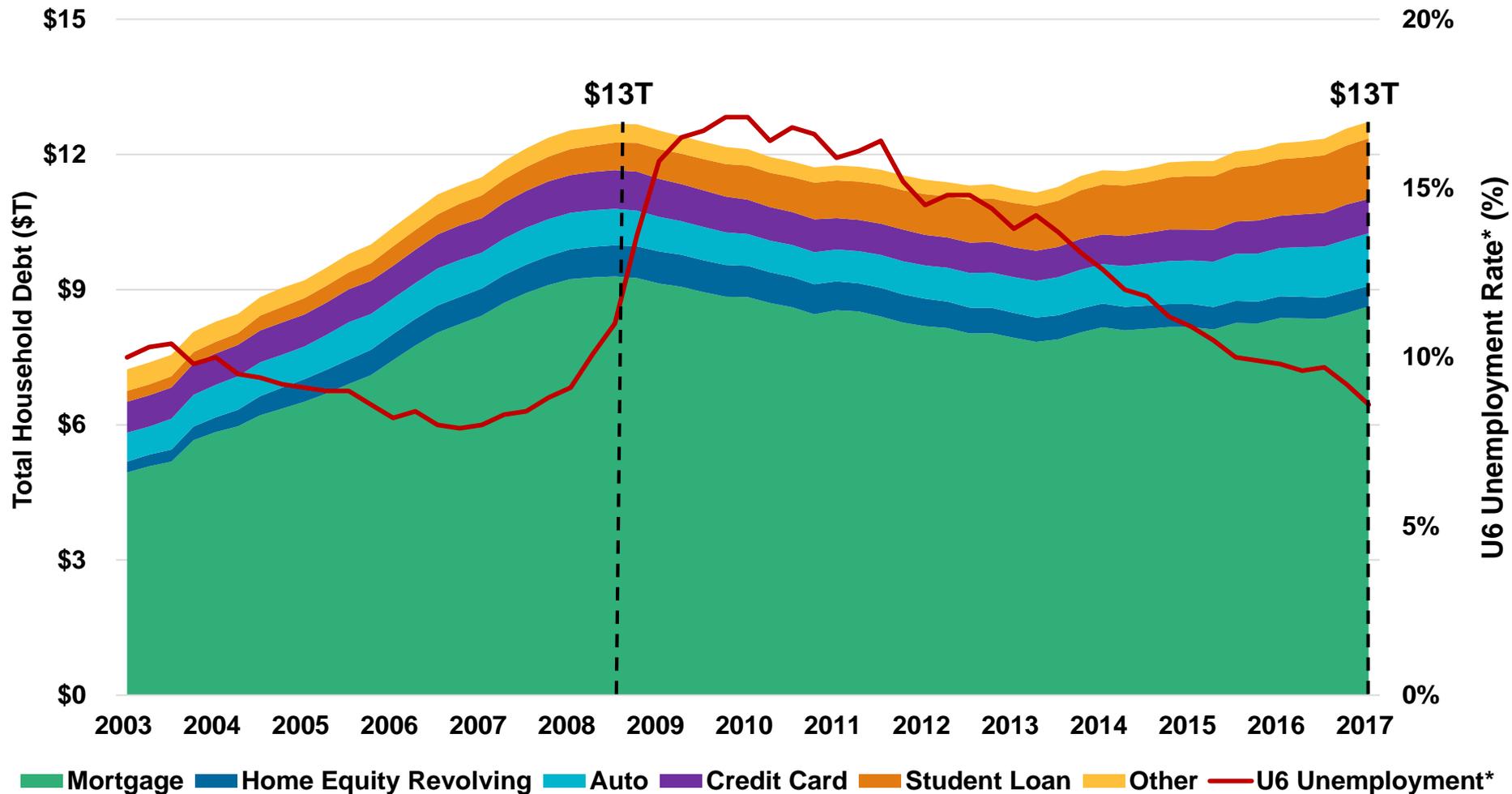
Median Household Income vs. Effective Entitlement \$ Paid per Household, USA, 1990-2016



Household Debt = Back @ Peak (Q3:08) Level & Rising...

Now vs. Q3:08 = Mortgage Debt (-7%) / Student Loans (+44%) / Auto Loans (+44%)

Household Debt By Category (\$T) & U6* Unemployment (%), USA, 2003-2017



*USA Rising
Debt Commitments =*

*Non-Trivial Challenges that
Need to Be Addressed*

Immigration =

Important for USA

Technology Job Creation

Immigration Full Report: <http://www.kpcb.com/blog/immigration-in-america-the-growing-shortage-of-high-skilled-workers>

USA = 60% of Most Highly Valued Tech Companies Founded By... 1st Or 2nd Generation Americans...1.5MM Employees, 2016

Immigrant Founders / Co-Founders of Top 25 USA Valued Public Tech Companies, Ranked by Market Capitalization

Rank	Company	Mkt Cap (\$MM)	LTM Rev (\$MM)	Employees	1st or 2nd Gen Immigrant Founder / Co-Founder	Generation
1	Apple	\$800,898	\$220,457	116,000	Steve Jobs	2nd-Gen, Syria
2	Alphabet / Google	\$679,533	\$94,765	73,992	Sergey Brin	1st-Gen, Russia
3	Microsoft	\$540,127	\$87,247	114,000	--	--
4	Amazon.com	\$475,958	\$142,573	341,400	Jeff Bezos	2nd-Gen, Cuba
5	Facebook	\$440,900	\$30,288	18,770	Eduardo Saverin	1st-Gen, Brazil
6	Oracle	\$186,230	\$37,429	136,000	Larry Ellison / Bob Miner	2nd-Gen, Russia / 2nd-Gen, Iran
7	Intel	\$170,748	\$60,481	106,000	--*	--
8	Cisco	\$157,502	\$48,510	73,390	--	--
9	IBM	\$143,264	\$79,390	380,300	Herman Hollerith	2nd-Gen, Germany
10	Priceline	\$91,597	\$11,014	20,500	--	--
11	Qualcomm	\$84,982	\$23,243	30,500	Andrew Viterbi	1st-Gen, Italy
12	NVIDIA	\$84,395	\$7,542	10,299	Jensen Huang	1st-Gen, Taiwan
13	Texas Instruments	\$80,822	\$13,764	29,865	Cecil Green / J. Erik Jonsson	1st-Gen, UK / 2nd-Gen, Sweden
14	Adobe Systems	\$70,193	\$6,153	15,706	--	--
15	Netflix	\$70,007	\$9,510	3,300	--	--
16	Salesforce.com	\$64,611	\$8,863	25,000	--	--
17	PayPal	\$61,492	\$11,273	18,100	Max Levchin / Luke Nosek / Peter Thiel / Elon Musk***	1st-Gen, Ukraine / 1st-Gen, Poland / 1st-Gen, Germany / 1st-Gen, South Africa
18	Applied Materials	\$48,896	\$12,942	15,600	--	--
19	Yahoo!	\$48,570	\$5,409	8,500	Jerry Yang	1st-Gen, Taiwan
20	Automatic Data Processing	\$45,345	\$12,213	57,000	Henry Taub	2nd-Gen, Poland
21	Activision Blizzard	\$43,923	\$6,879	9,400	--	--
22	VMware	\$39,538	\$7,093	18,905	Edouard Bugnion	1st-Gen, Switzerland
23	Cognizant Technology	\$39,339	\$13,831	261,200	Francisco D'souza / Kumar Mahadeva	1st-Gen, India** / 1st-Gen, Sri Lanka
24	eBay	\$37,774	\$9,059	12,600	Pierre Omidyar	1st-Gen, France
25	Intuit	\$35,501	\$5,089	7,900	--	--

Source: CapIQ as of 5/31/17. "The 'New American' Fortune 500" (2011), a report by the Partnership for a New American Economy, as well as "Reason for Reform: Entrepreneurship" (10/16); "American Made, The Impact of Immigrant Founders & Professionals on U.S. Corporations."

*While Andy Grove (from Hungary) is not a co-founder of Intel, he joined as COO on the day it was incorporated.

**Francisco D'souza is a person of Indian origin born in Kenya.

***Max Levchin / Luke Nosek / Peter Thiel's startup Confinity merged with Elon Musk's startup X.com to form Paypal in March 2000.

USA = ~50% of Most Highly Valued Private Tech Companies Founded By... 1st Generation Immigrants...>48K Jobs, 5/17

Company	Immigrant Founder	Country of Origin	Market Value (\$B)
Uber	Garrett Camp	Canada	\$68
Palantir	Peter Thiel	Germany	20
WeWork	Adam Neumann	Israel	17
SpaceX	Elon Musk	South Africa	12
Stripe	John Collison, Patrick Collison	Ireland	9
Slack	Stewart Butterfield, Serguei Mourachov, Cal Henderson	Canada / Russia / UK	4
Credit Karma	Kenneth Lin	China	4
Tanium	David Hindawi	Iraq	4
Instacart	Apoorva Mehta	India	3
Wish (ContextLogic)	Peter Szulczewski, Danny Zhang	Canada	3
Moderna Therapeutics	Noubar Afeyan, Derrick Rossi	Armenia / Canada	3
Bloom Energy	KR Sridhar	India	3
Oscar Health	Mario Schlosser	Germany	3
Houzz	Adi Tatarco, Alon Cohen	Israel	2
Avant	Al Goldstein, John Sun, Paul Zhang	Uzbekistan / China / China	2
Zenefits	Laks Srini	India	2
ZocDoc	Oliver Kharraz	Germany	2
AppNexus	Mike Nolet	Holland	2
Sprinklr	Ragy Thomas	India	2
The Honest Company	Brian Lee	South Korea	2
Zoox	Tim Kentley-Klay	Australia	2
Jawbone	Alexander Asseily	UK	2
JetSmarter	Sergey Petrossov	Russia	2
Quanergy	Louay Eldada, Tianyue Yu	Lebanon / China	2
Mu Sigma	Dhiraj Rajaram	India	2

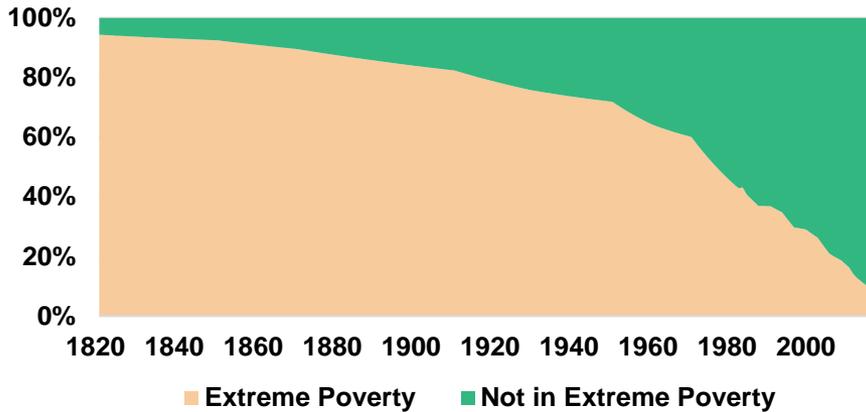
Company	Immigrant Founder	Country of Origin	Market Value (\$B)
Razer	Min-Liang Tan	Singapore	\$2
Unity Technologies	David Helgason	Iceland	2
FanDuel	Nigel Eccles, Tom Griffiths, Lesley Eccles	UK	1
Medallia	Borge Hald	Norway	1
Apttus	Kirk Krappe	UK	1
Robinhood	Baiju Bhatt, Vlad Tenev	India / Bulgaria	1
Rubrik	Bipul Sinha	India	1
Infinidat	Moshe Yanai	Israel	1
Warby Parker	Dave Gilboa	Sweden	1
Actifio	Ash Ashutosh	India	1
Anaplan	Guy Haddleton, Michael Gould	New Zealand / UK	1
Gusto	Tomer London	Israel	1
Proteus Digital Health	Andrew Thompson	UK	1
AppDirect	Daniel Saks, Nicolas Desmarais	Canada	1
Carbon3D	Alex Ermoshkin	Russia	1
CloudFlare	Michelle Zatlyn	Canada	1
Compass	Ori Allon	Israel	1
Eventbrite	Renaud Visage	France	1
Evernote	Stepan Pachikov, Phil Libin	Azerbaijan / Russia	1
Offerup	Arean Van Veelen	Netherlands	1
Tango	Uri Raz, Eric Setton	Israel / France	1
Udacity	Sebastian Thrun	Germany	1
Zscaler	Jay Caudhry	India	1
Zoom Video	Eric Yuan	China	1
ForeScout	Noga Alon, Hezy Yeshurun, Oded Comay, Doron Skikmoni	Israel	1

***High Level,
For All the Angst,
Consider This...***

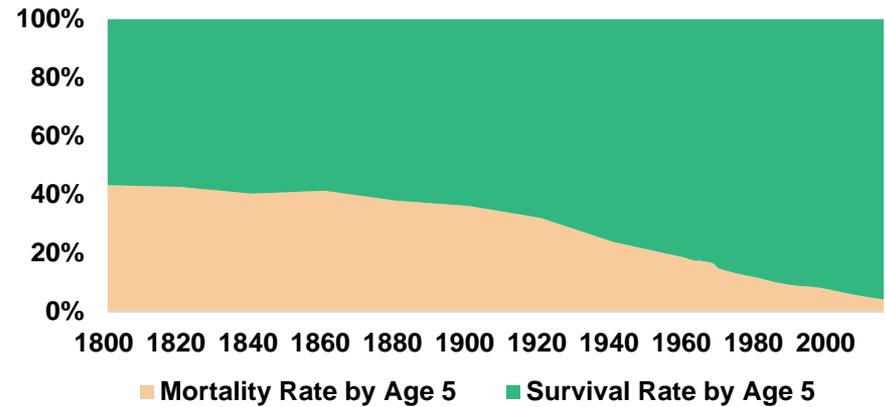
World = Getting Better in Many Ways...

Down = Poverty + Child Mortality...Up = Democracy + Literacy

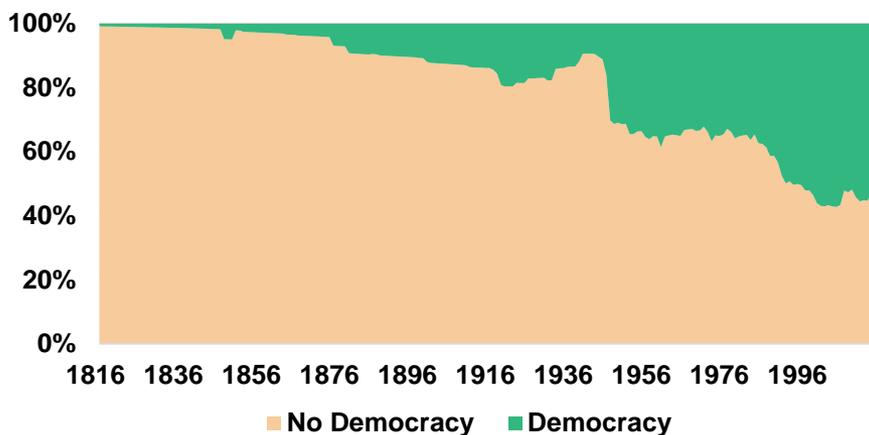
% of People in Extreme Poverty, Global, 1820-2015



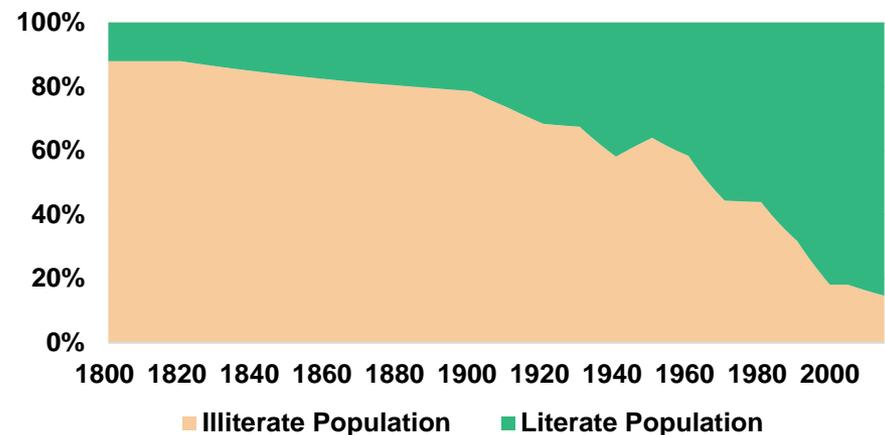
Child Mortality Rates, Global, 1800-2015



% of People Living in Democracy, Global, 1816-2015



Literacy Rate, Global, 1800-2014



- 1) USA, Inc.* =**
Understanding Where Your Tax Dollars Go
- 2) Immigration =**
Important for USA Technology Job Creation
- 3) High Level =**
For All the Angst, Consider This...

* USA, Inc. Full Report: <http://www.kpcb.com/blog/2011-usa-inc-full-report>

** Immigration Full Report: <http://www.kpcb.com/blog/immigration-in-america-the-growing-shortage-of-high-skilled-workers>

CLOSING THOUGHTS...

Economic Growth Drivers = Evolve Over Time

Century

Economic Growth Drivers

Pre-18th

Cultivation & Extraction

19th-20th

Manufacturing & Industry

21st

Compute Power + Human Potential

Internet Trends 2017

- 1) **Global Internet Trends** = Solid...Slowing Smartphone Growth 4-9
- 2) **Online Advertising (+ Commerce)** = Increasingly Measurable + Actionable 10-80
- 3) **Interactive Games** = Motherlode of Tech Product Innovation + Modern Learning 80-150
- 4) **Media** = Distribution Disruption @ Torrid Pace 151-177
- 5) **The Cloud** = Accelerating Change Across Enterprises 178-192
- 6) **China Internet** = Golden Age of Entertainment + Transportation
(Provided by Hillhouse Capital) 193-231
- 7) **India Internet** = Competition Continues to Intensify...Consumers Winning 232-287
- 8) **Healthcare** @ Digital Inflection Point 288-319
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