

Mobile is eating the world

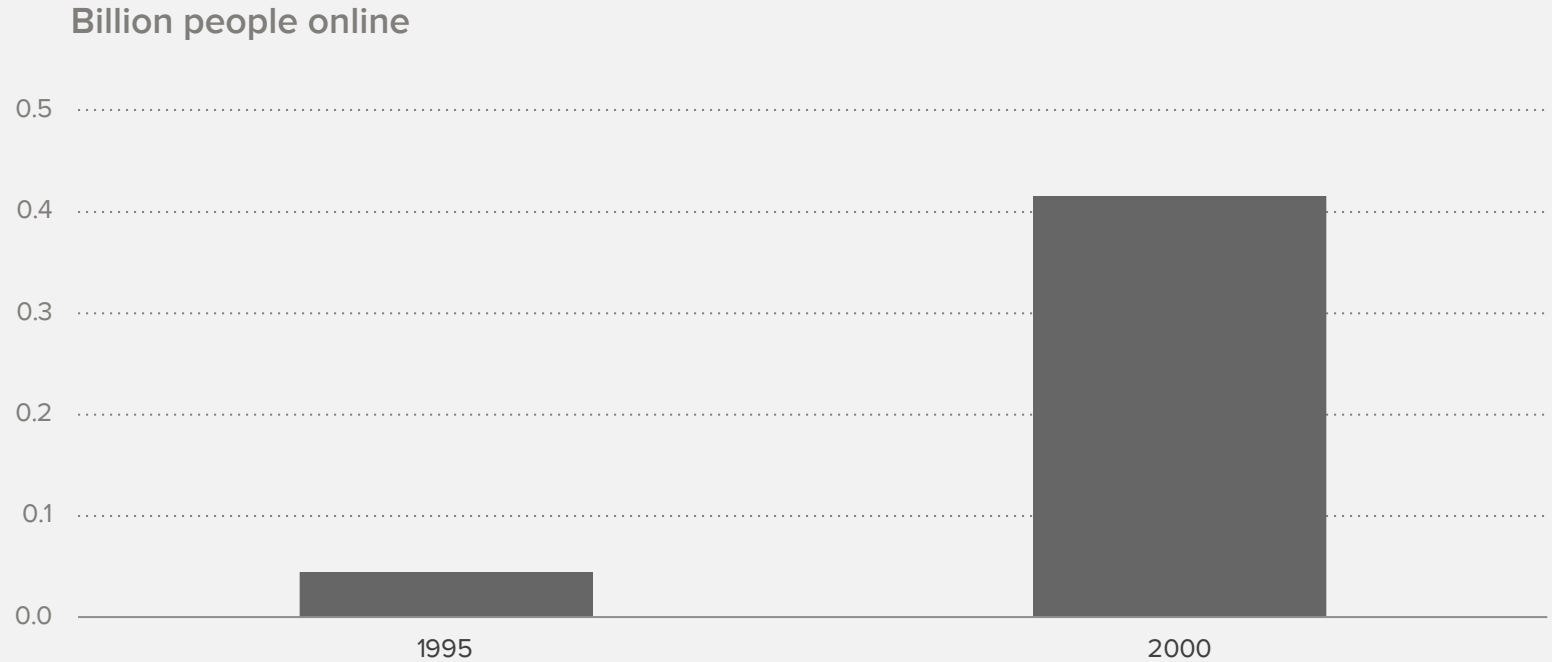
Benedict Evans

May 2015

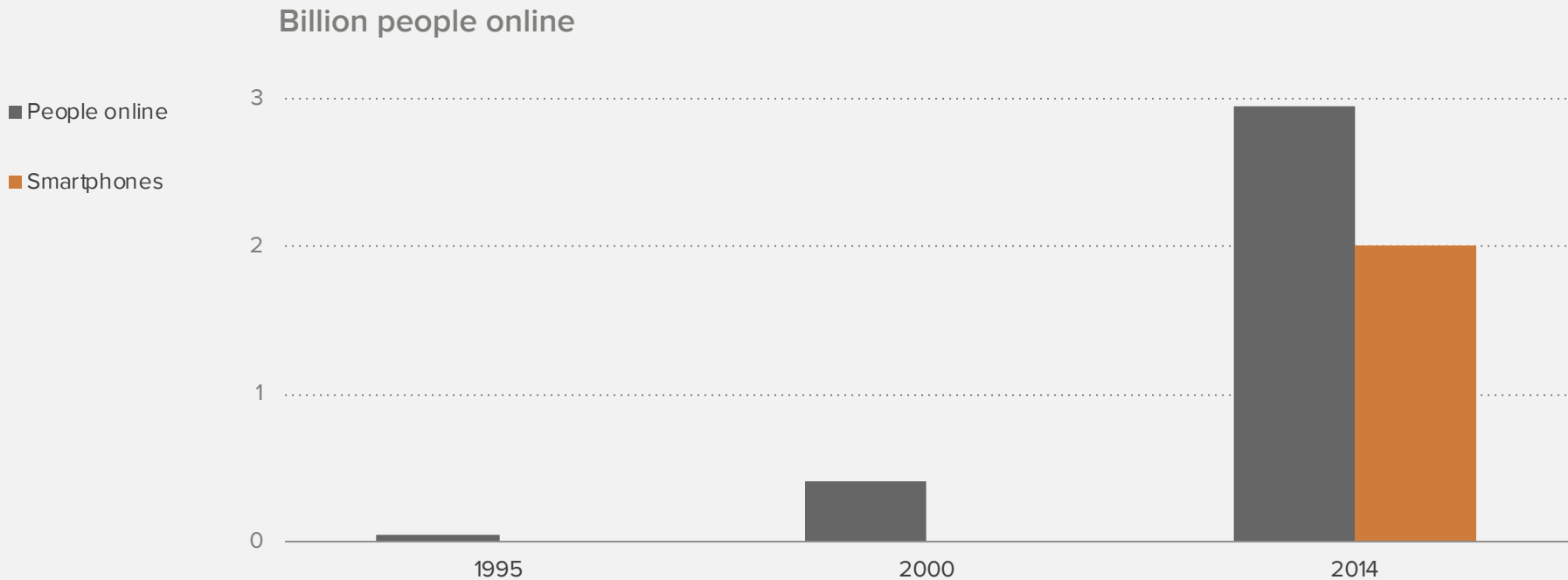
www.ben-evans.com

Mobile is making
technology universal

Growth into the bubble



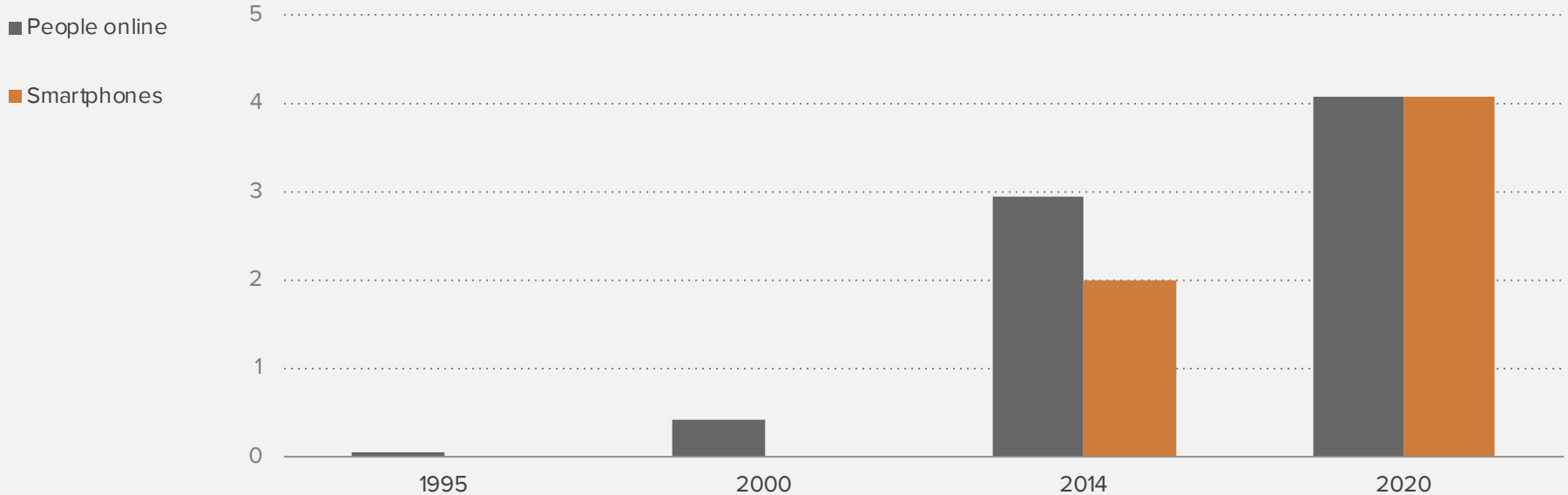
Growth since the bubble



Growth into the future - everyone

Another 1bn people will come online, all due to smartphones

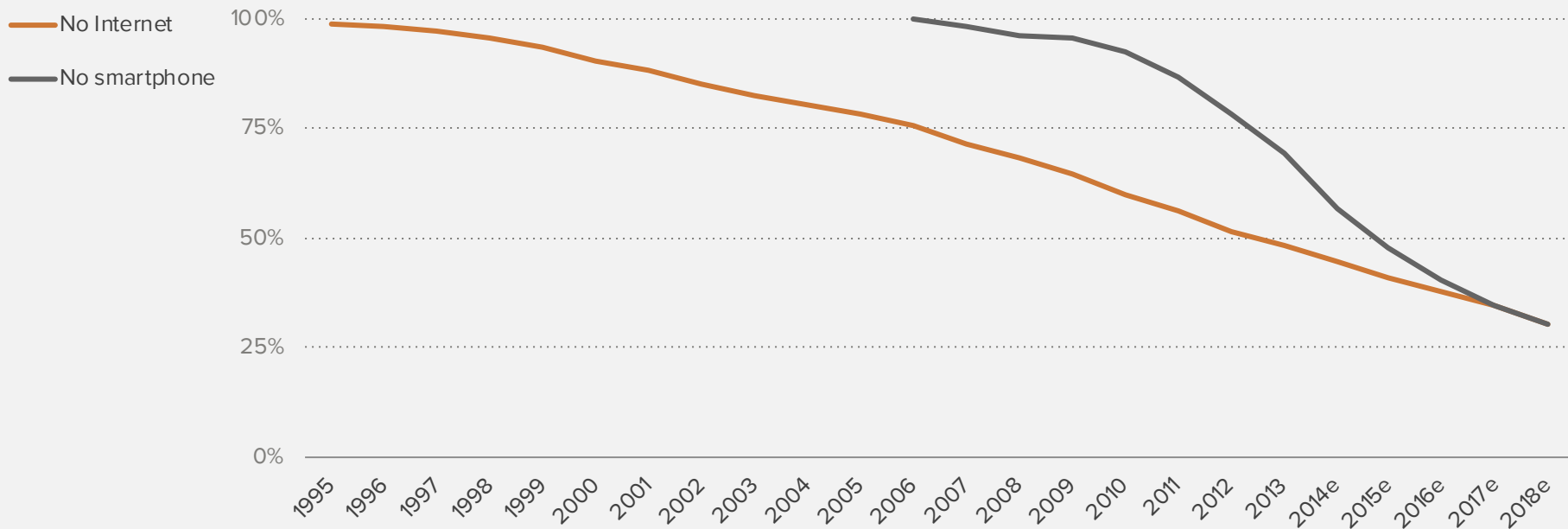
Billion people online



The end of the unconnected

Smartphones drive much greater internet penetration

Global adult population



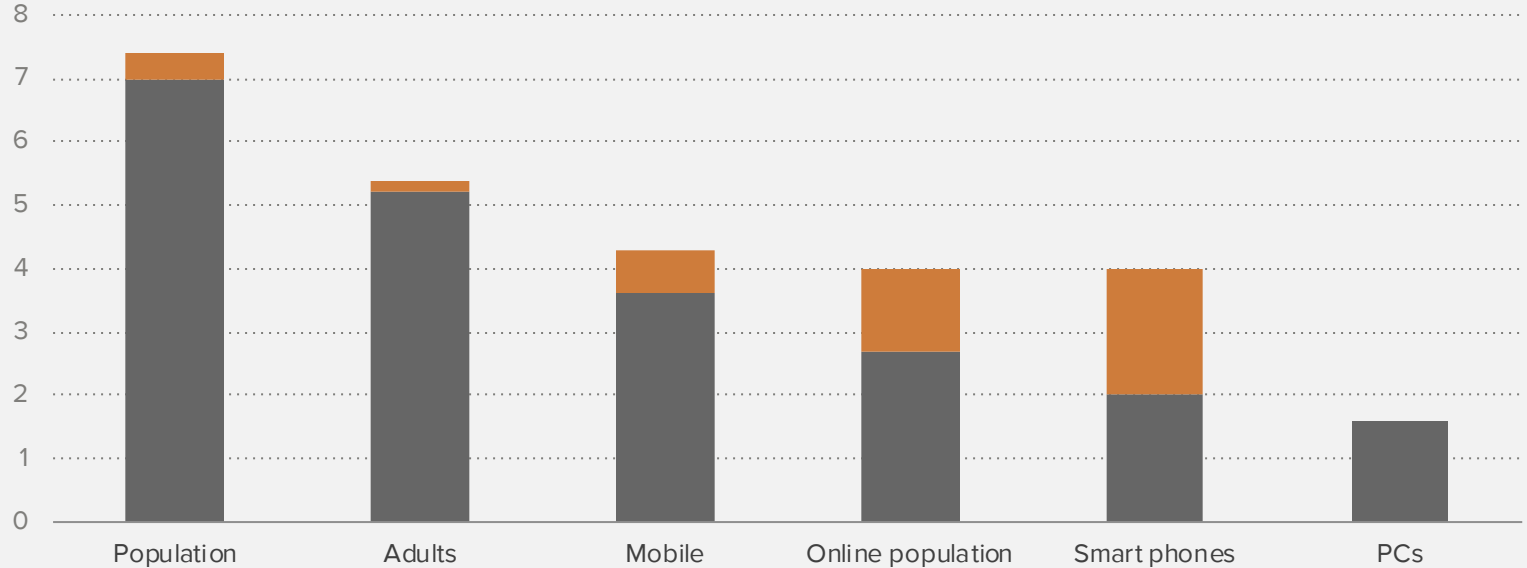
Source: a16z, World Bank, Apple, Google, Nokia

The world in 2020

By 2020 80% of adults on earth will have a smartphone

Global population (bn)

■ Growth to 2020
■ 2014



An iPhone 6 CPU has 625 times more transistors than a 1995 Pentium.

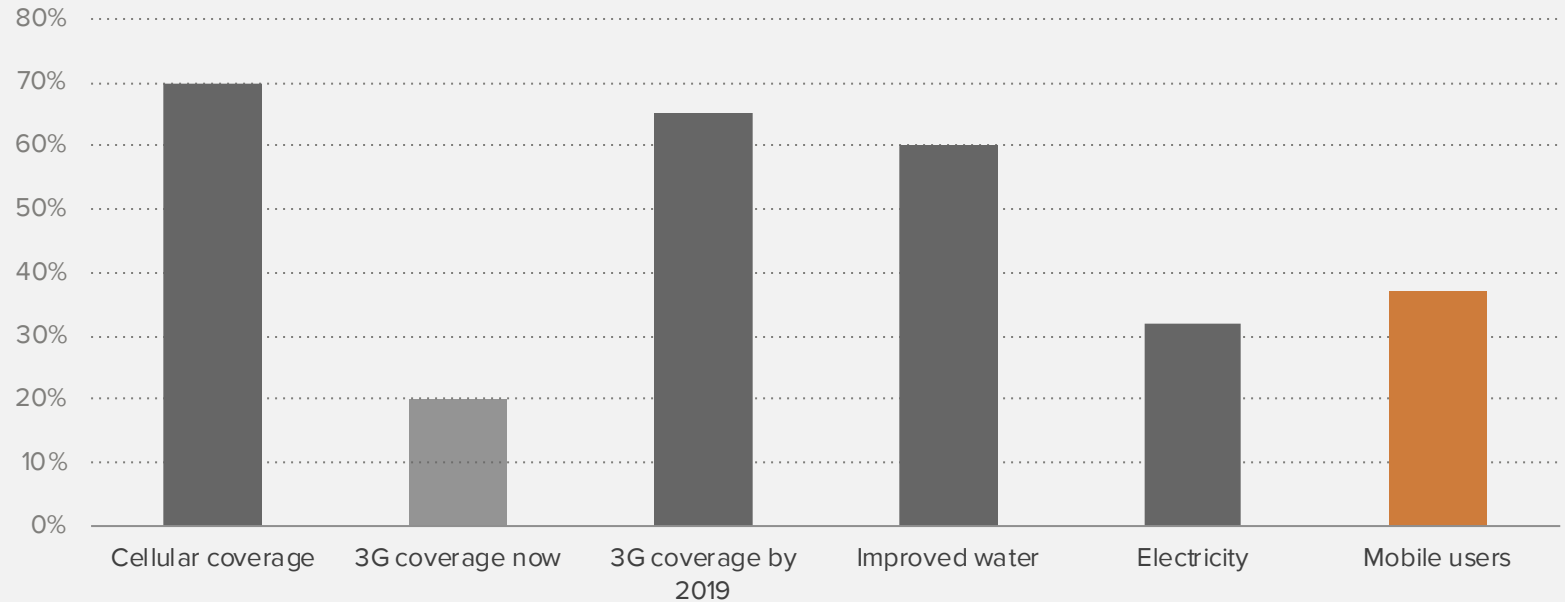
iPhone 6 launch weekend: Apple sold ~25x more CPU transistors than were in all the PCs on Earth in 1995.

Everyone gets a pocket supercomputer.

Yes, everyone

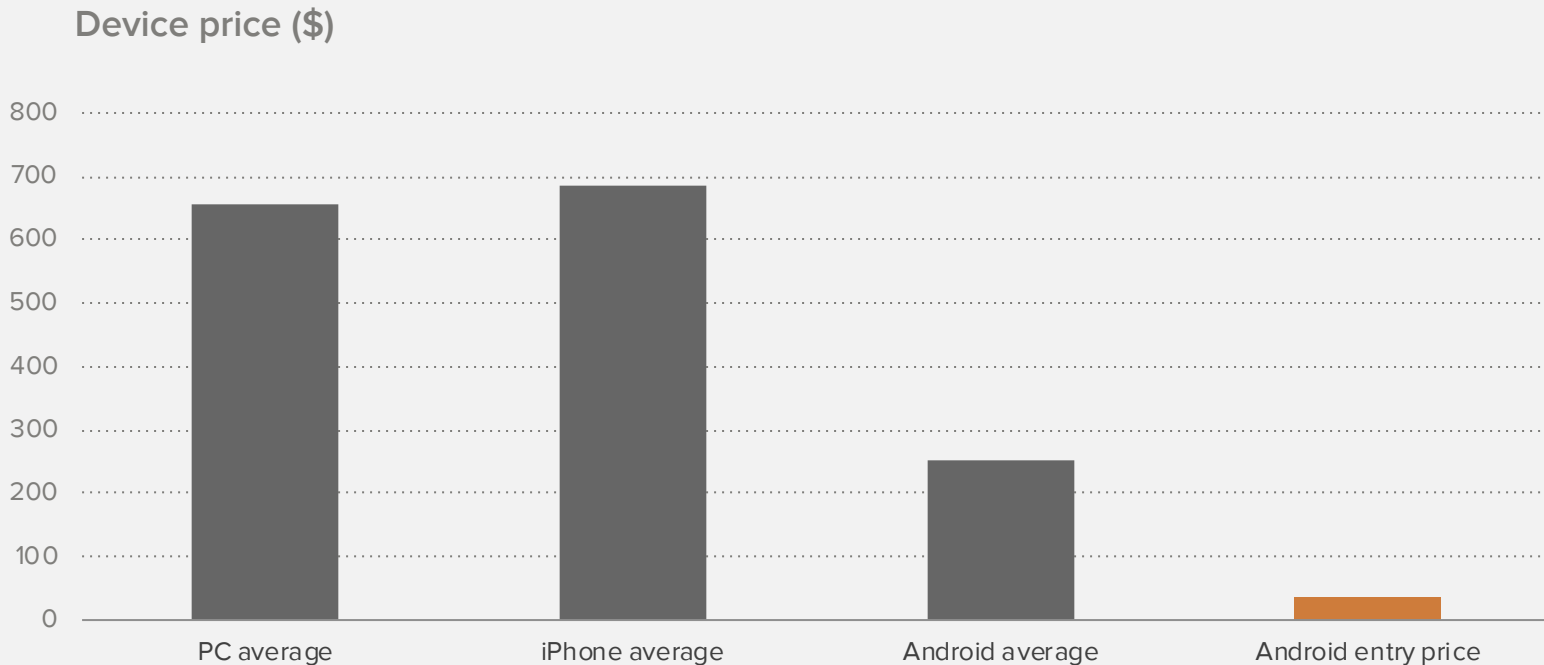
The utility of mobile increases as income falls

Sub-Saharan Africa population coverage

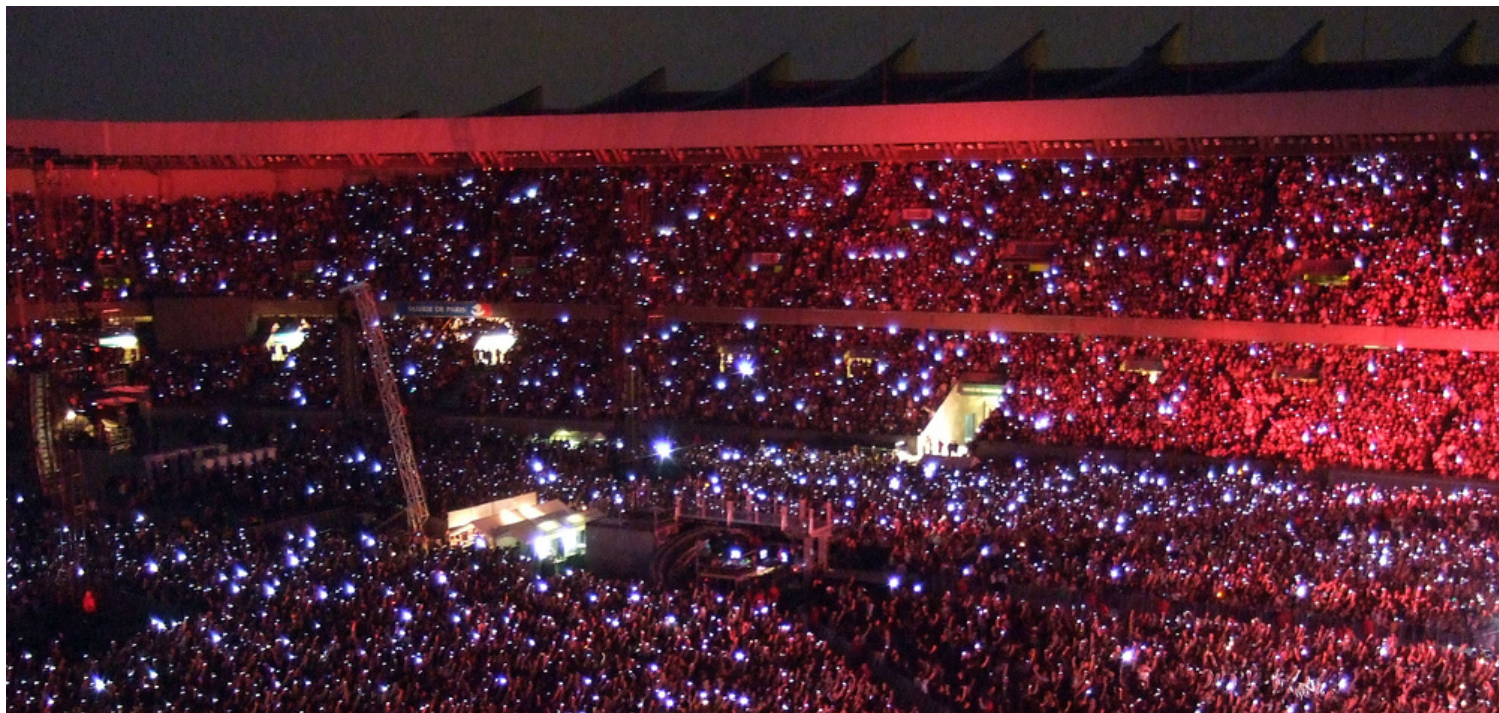


\$35 Android takes computing everywhere

Cost of power and connectivity becomes as material as the cost of the device



We go from this...



Source: James Cridland (<https://www.flickr.com/photos/jamescridland/612782641>)

... To this



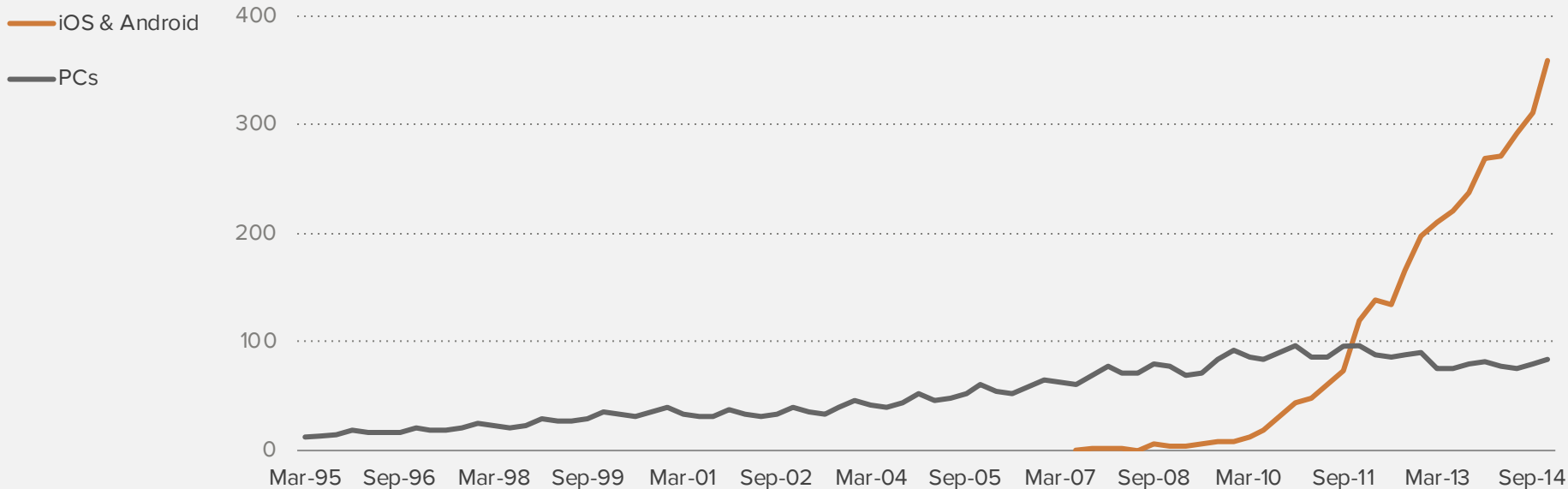
Source: Alan Knott-Craig

Mobile remakes the
tech industry

The smartphone industry dwarfs PCs

4bn people buying phones every 2 years instead of 1.6bn buying PCs every 5 years

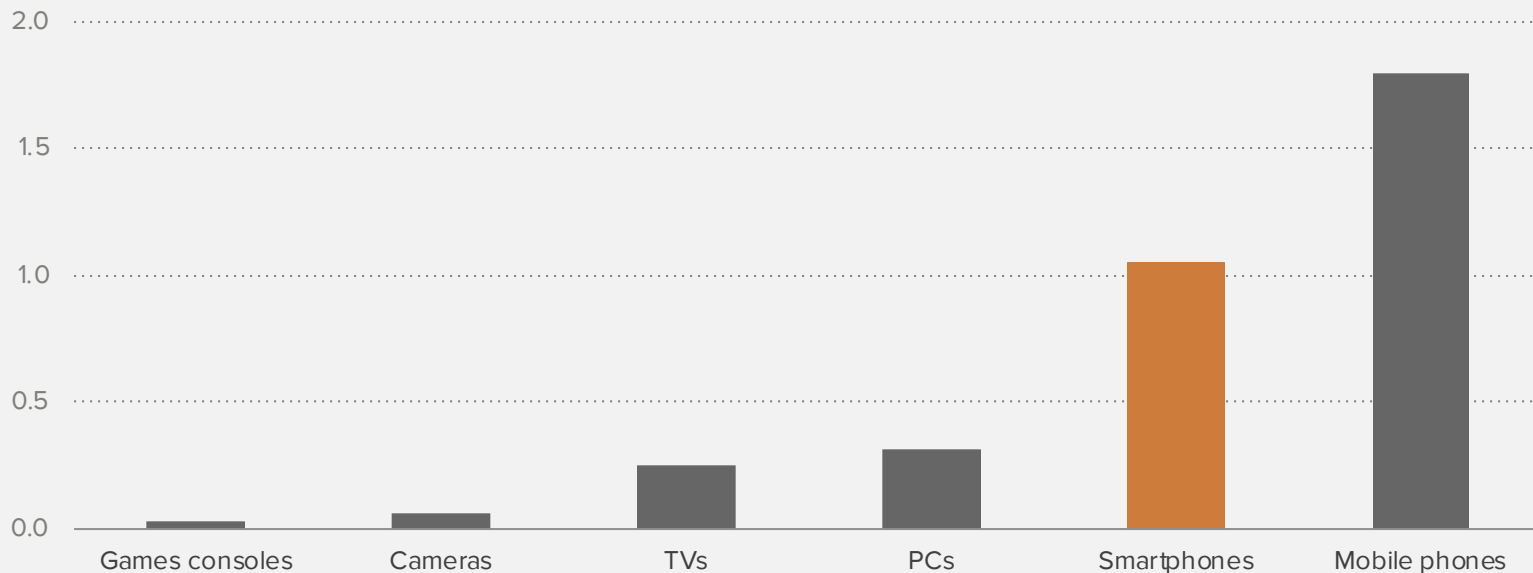
Quarterly unit shipments (m)



Phones have scale that's unique in tech

The first tech product to be bought by almost everyone on earth, every 2-3 years

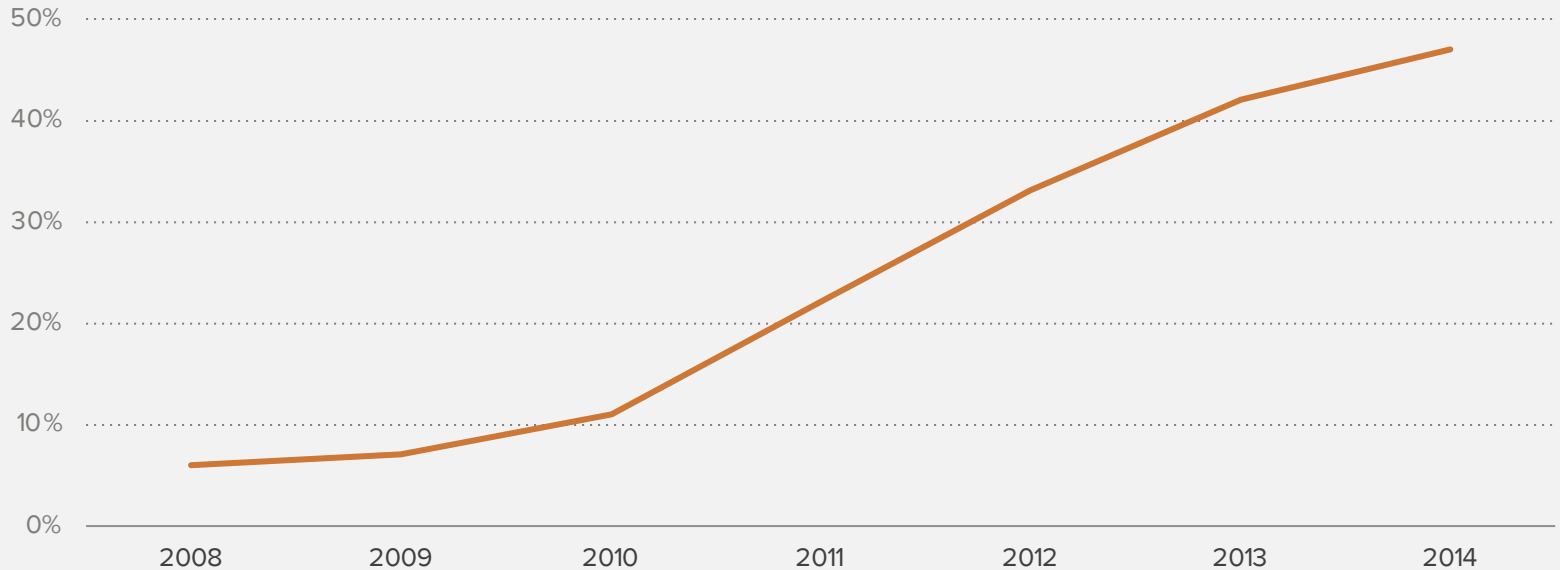
Unit sales, 2014 (bn)



Mobile scale eats consumer electronics

Smartphones & tablets are now close to half of the consumer electronics industry

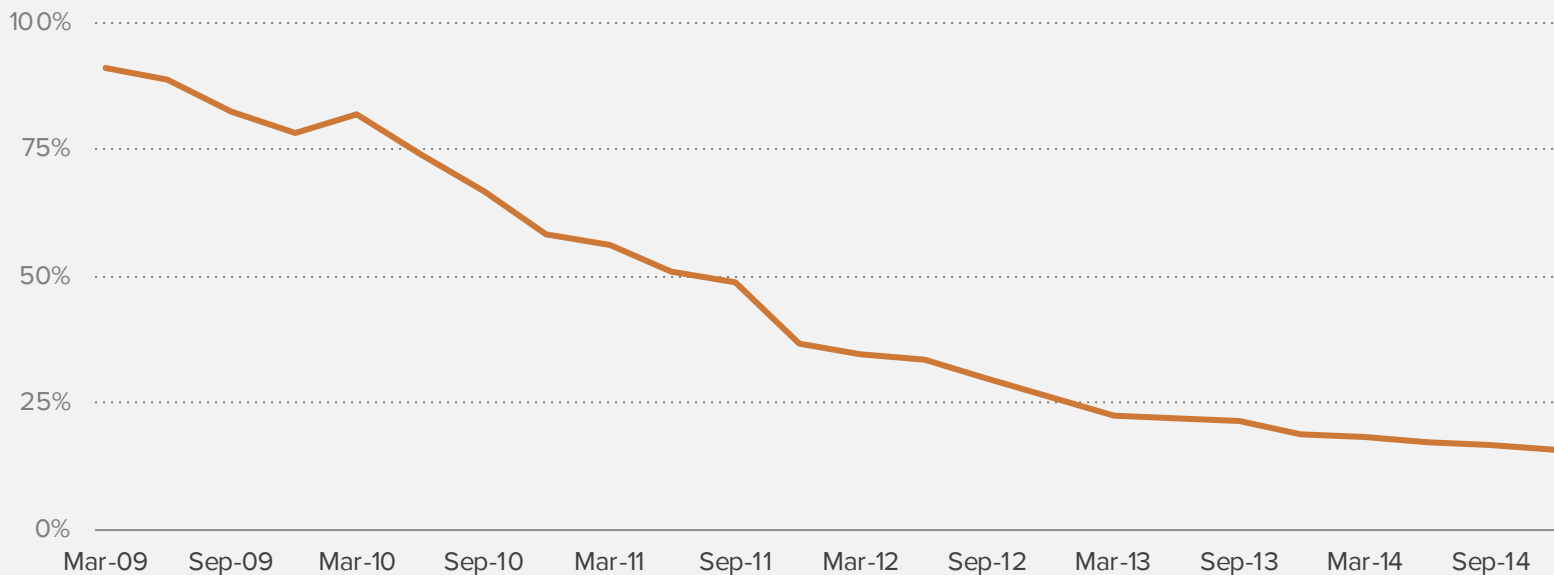
Smartphone & tablet share of global CE retail revenue



Shift away from Microsoft

Microsoft's near-absence from mobile has ended its dominance

Microsoft share of personal computing device sales*

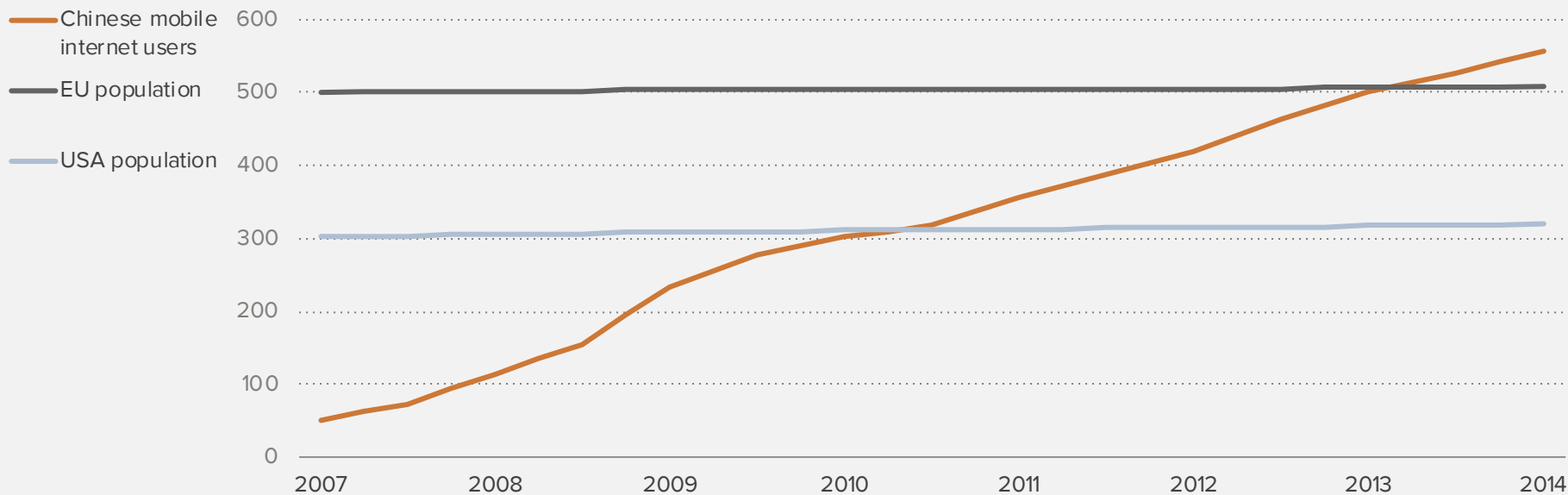


* Smartphones, tablets, PCs & Macs. Source: Gartner, Apple, Google, Microsoft, Nokia, Blackberry, a16z

China is the biggest smartphone market

Historic dominance starting to shift

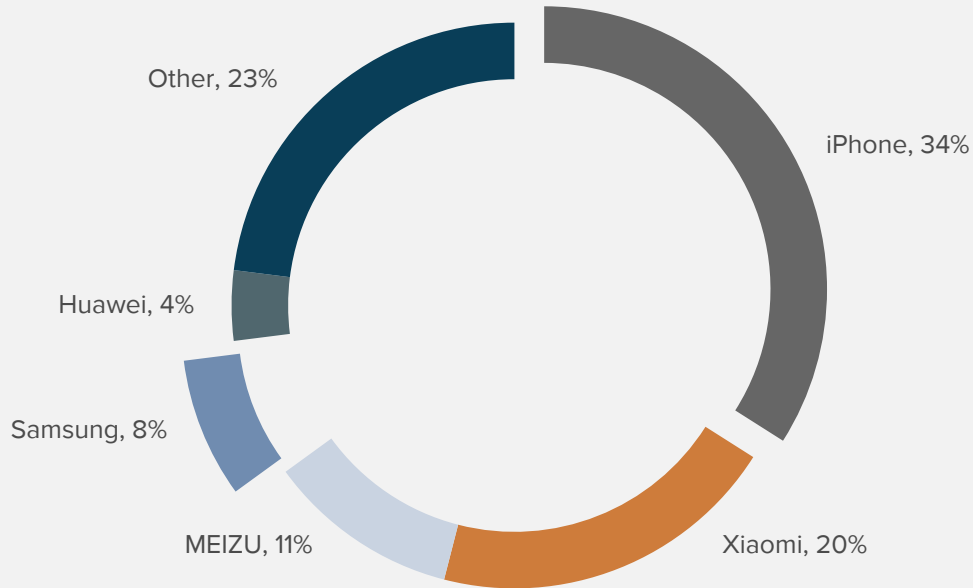
Million people



Chinese handset players growing fast

Chinese brands are stronger than any foreign company – except Apple

What phone brands do Chinese teenagers want? (Q4 2014)



Apple has 15% of the overall market (same as global) - but much stronger brand appeal

New Chinese OEMs with premium positioning are growing fast

Tech center of gravity moves from Seattle and Finland (and Japan)

	Old	New
Computing platform	Microsoft	Apple & Google
Chips	Intel	ARM, Qualcomm, Mediatek
Mobile	Nokia & DoCoMo	China, San Francisco

Mobile supply chain dominates all tech

The size of the smartphone business means it is driving into every other part of tech

Flood of smartphone components – Lego for technology

Contract manufacturers can assemble those components into anything

Augmented Reality,
Virtual Reality,
Wearables, Internet of
Things, connected cars,
connected home,
drones etc

Hardware tech for
almost anything is on
the shelf

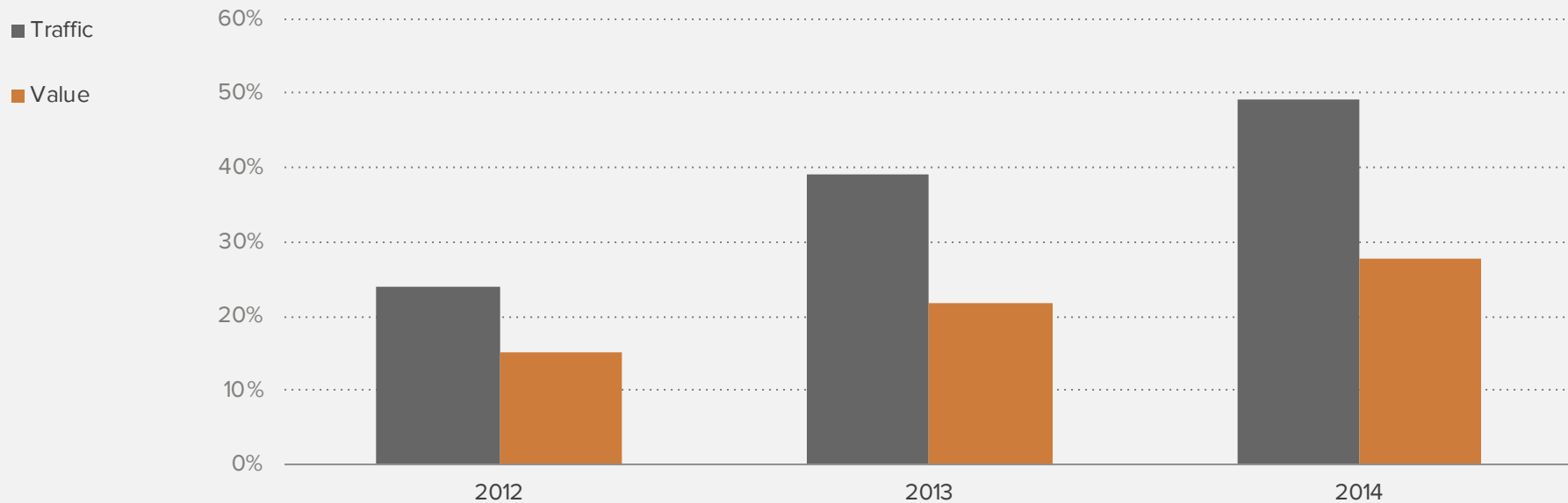
The challenge is vision
and route to market

Mobile remakes the
internet

The growth of post-PC devices

Smartphones and tablets taking half of browsing and a third of purchasing

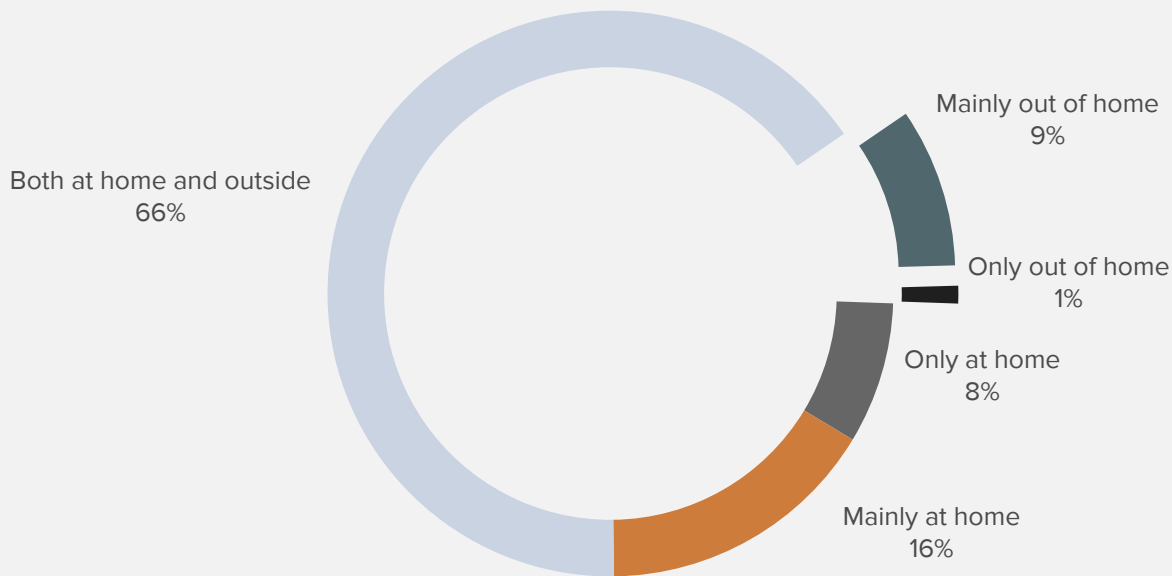
Mobile share of 'Black Friday' ecommerce



'Mobile' doesn't really mean mobile

Mobile devices are used everywhere, not just when people are 'mobile'

Where do you use the internet on your phone? (UK, Q1 2014)



For 20 years, 'internet' meant web browsers, mouse and keyboard. Mobile ended that.

Half of all time spent online in the USA is in smartphone apps.

Post-Netscape, post-PageRank.

Interaction models are totally unsettled

Rapid innovation and change continues

“Android”? Chrome, Xiaomi...

“I installed an app on my Android smartphone”

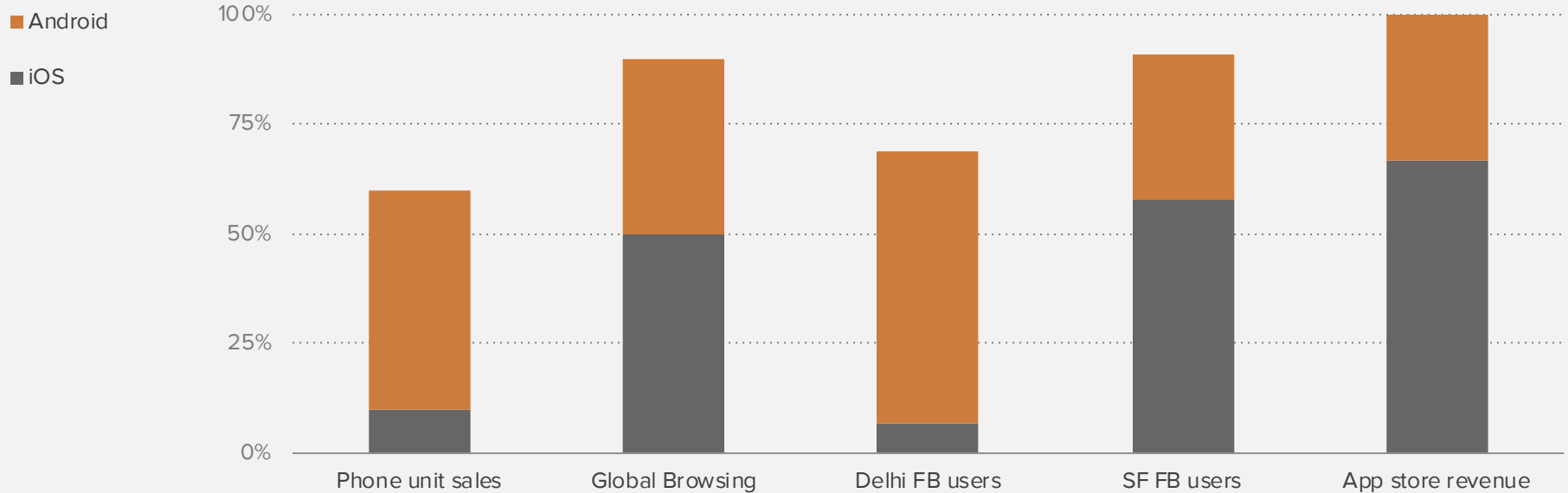
“Installed” an “app”? Web apps,
APIs, push notifications, messaging,
Google Now...

“Smartphone?” Watches,
Glass, wearables, TV,
tablets...

Platforms are more complex

Ecosystem dynamics depend on where you are and what you're doing

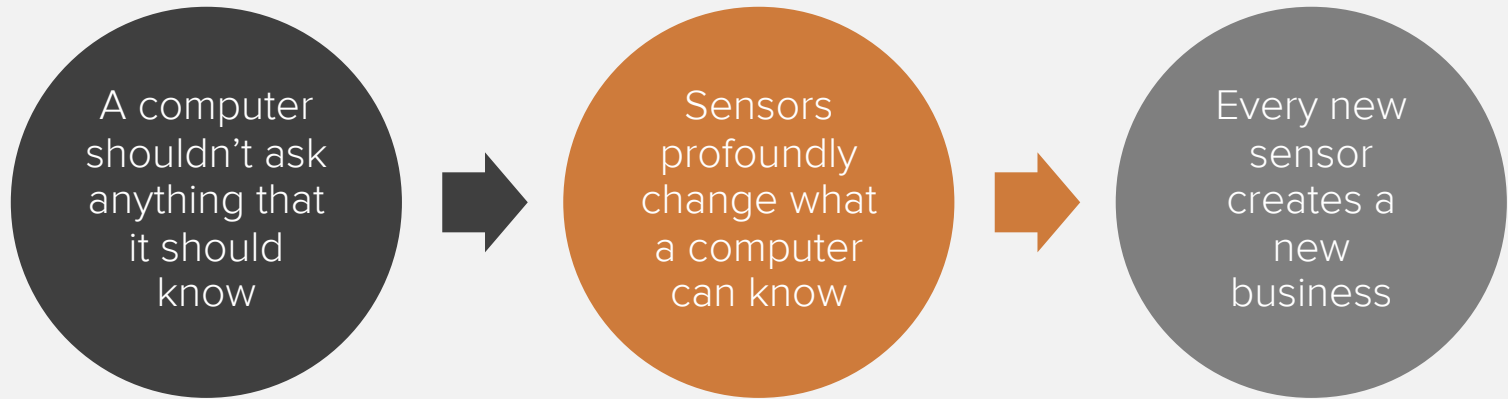
Mobile platform share, Q4 2014



Source: Facebook, Apple, Google, Gartner, Akamai, a16z

Phones are more sophisticated than PCs

Proliferation of sensors creates far more capability and sophistication than PCs



Mobile's multiplier effect

Increased sophistication from mobile is as important as the increase in scale

2-3x more
smartphones
than PCs by
2020

X

Personal
Taken everywhere
Frictionless access
Sensors, cameras
Location
Payment
Social platform
Much easier to use

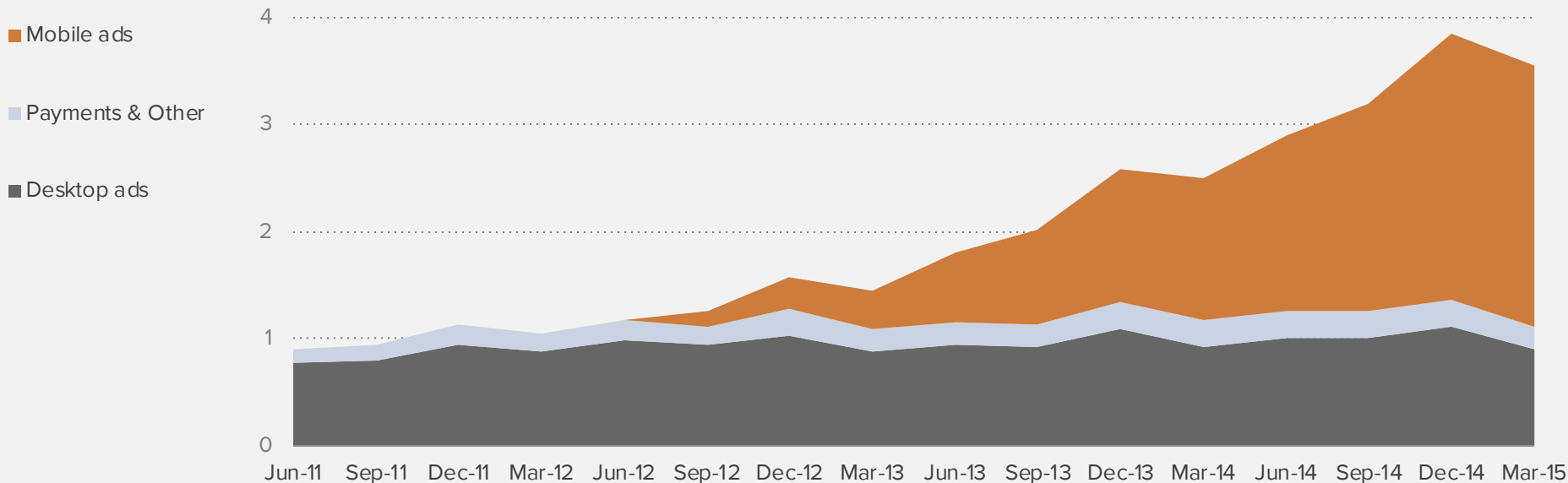
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Vastly bigger
opportunity

Facebook's mobile ad explosion

Mobile ads are now 68% of revenue and brought in \$7.4bn in 2014

Facebook revenue by source (\$bn)



Global SMS: 20bn messages a day.

WhatsApp: 30bn messages a day.

(with just 40 engineers)

Fundamental change in opportunity

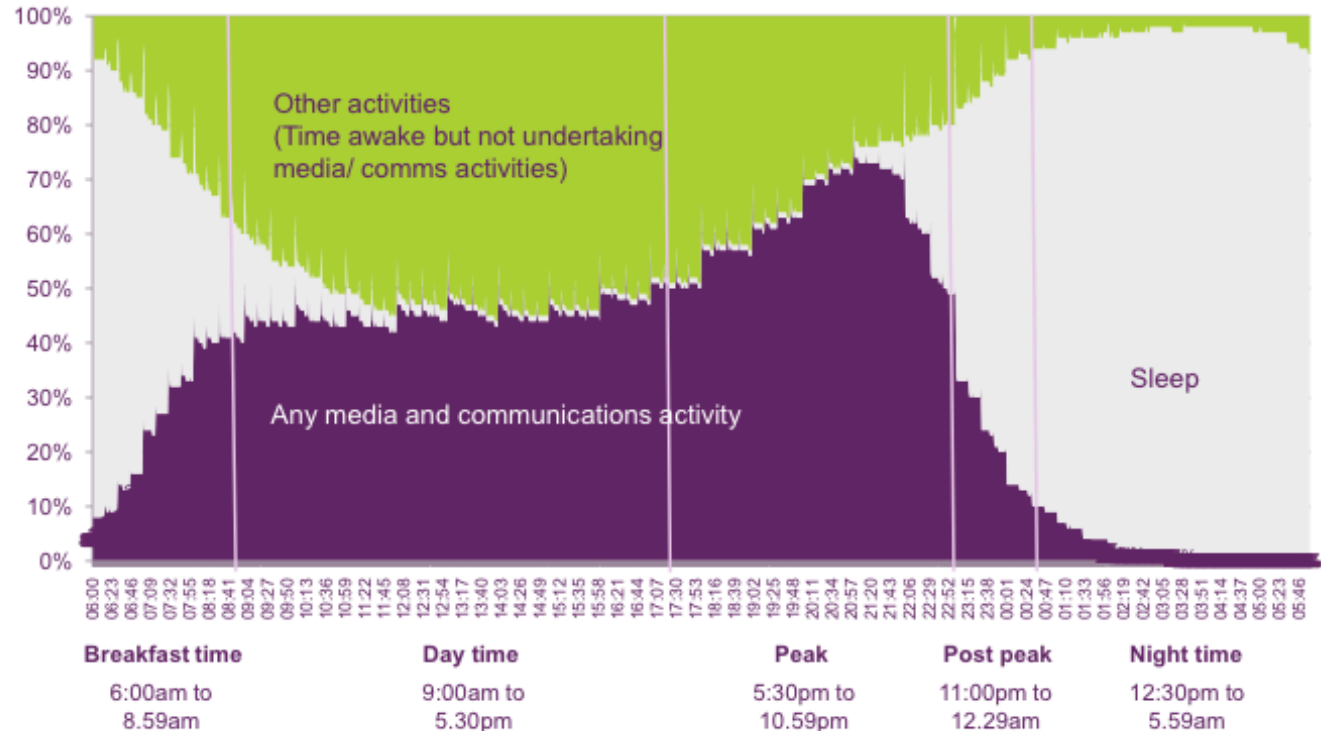
Mobile leverage plus collapse of development costs



Mobile dominates
our attention

Screens dominate our lives

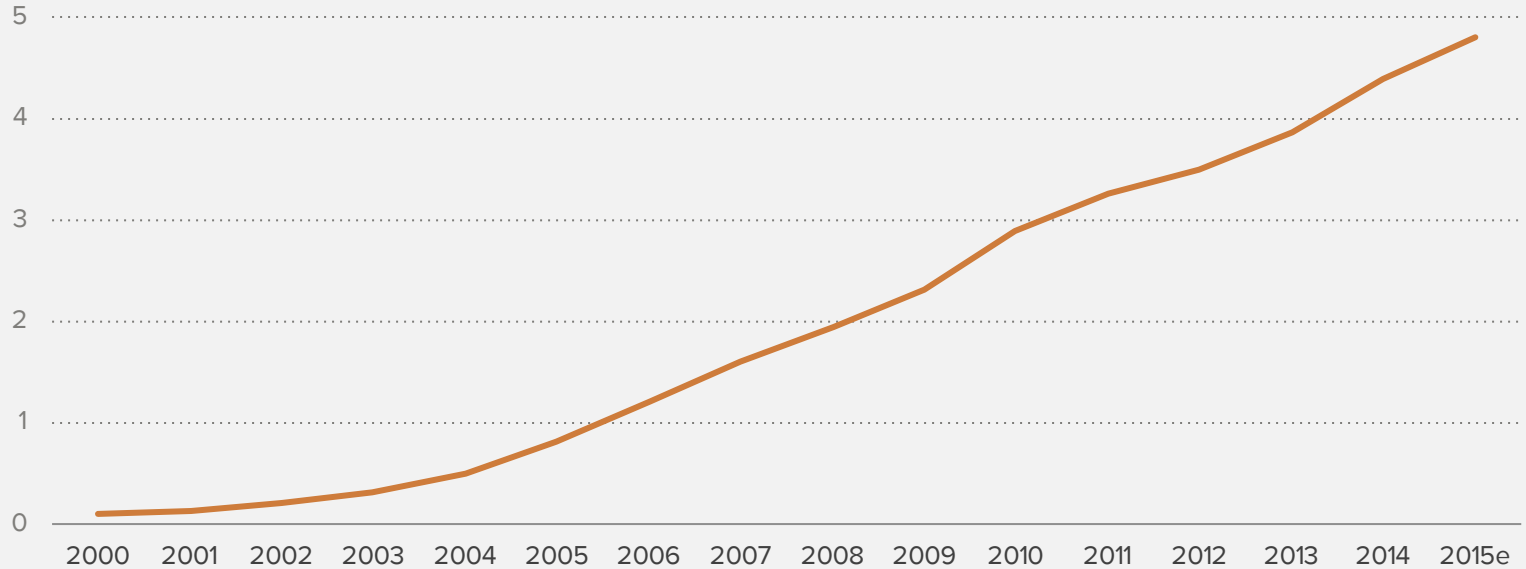
More than half our time awake is spend on media and communications



Glass is eating the world

Close to a square foot of screen sold for every adult on earth

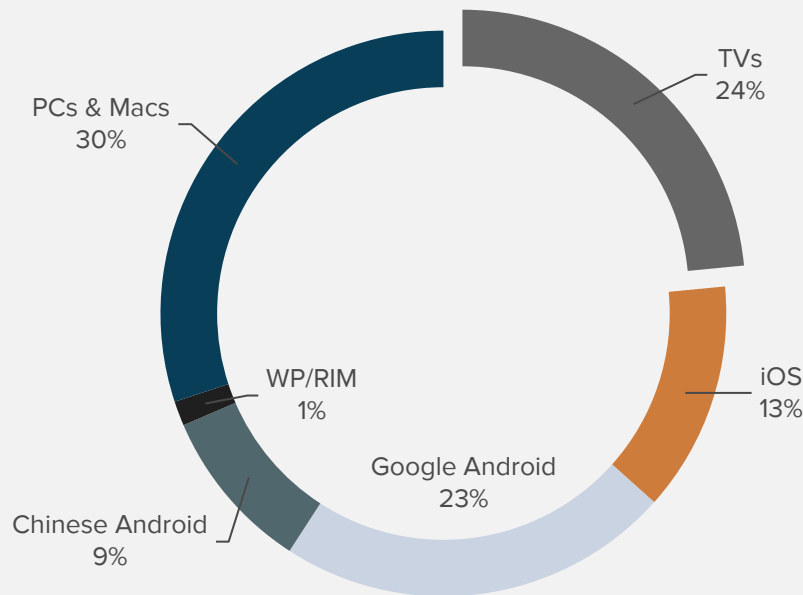
Global LCD screen sales (bn square feet)



TV sets are in the minority

Computing devices used for video now far outnumber actual ‘televisions’

Global install base of video players, 2014



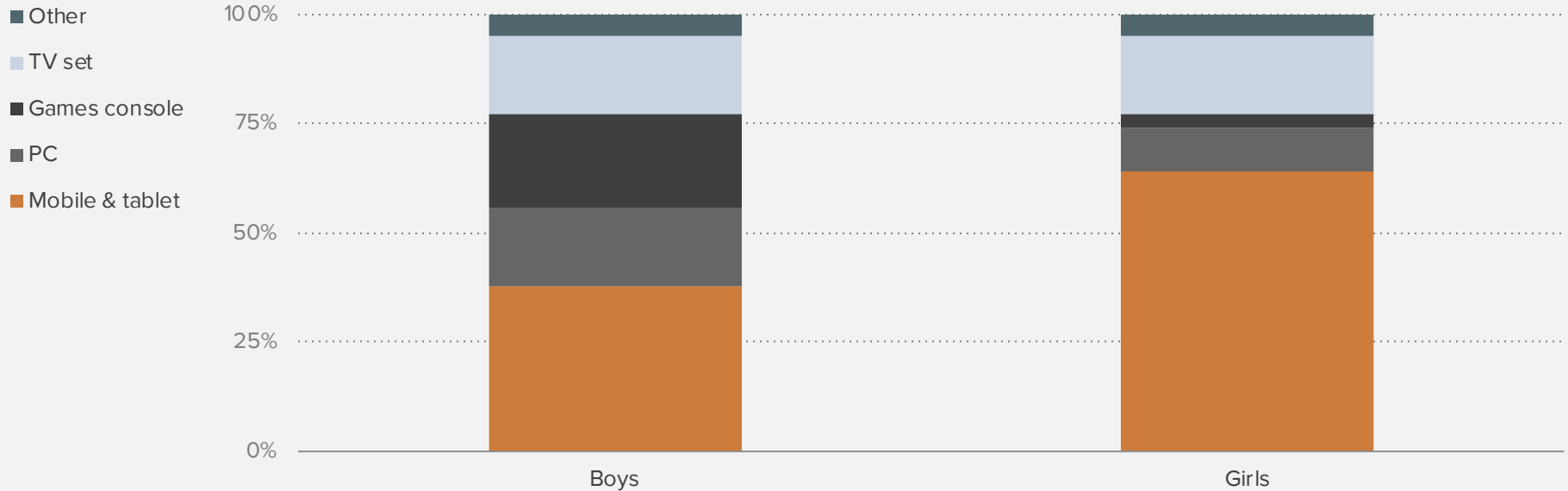
“By the summer of 2012, the majority of the televisions you see in stores will have Google TV embedded”

- Eric Schmidt

What would children miss the most? Mobile

Mobile dwarfs legacy media platforms

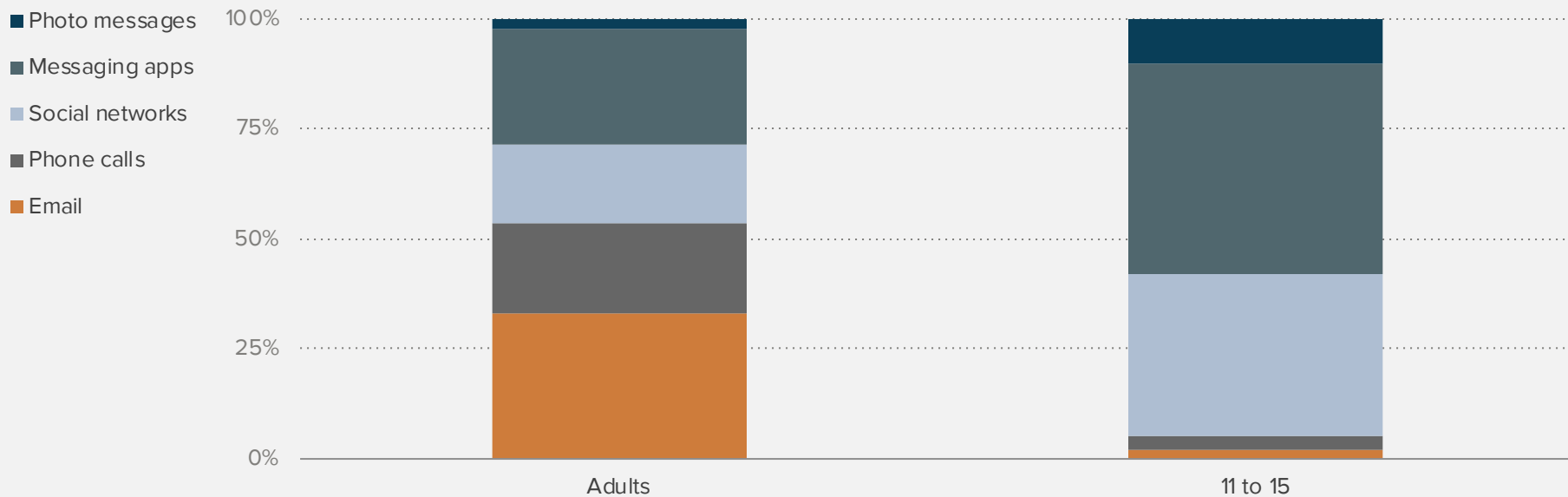
'Media you would miss most', UK aged 11-15, 2014



Comms are going pure digital, pure mobile

Email is for grandparents

Share of communication activity, UK, 2014



1999 – 80bn consumer photos taken on film.

2014 – 800bn photos shared on social networks.

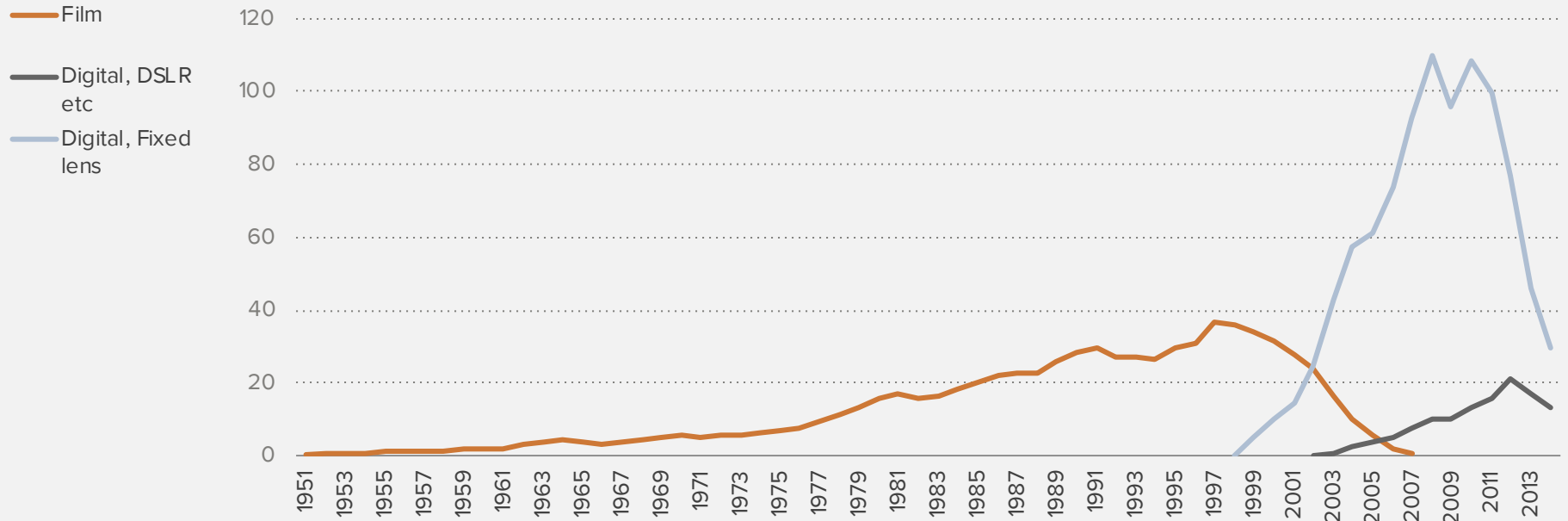
More iPhones & Android phones sold than Japanese cameras ever.

More photos taken this year than taken on film ever.

Digital gives and it takes away

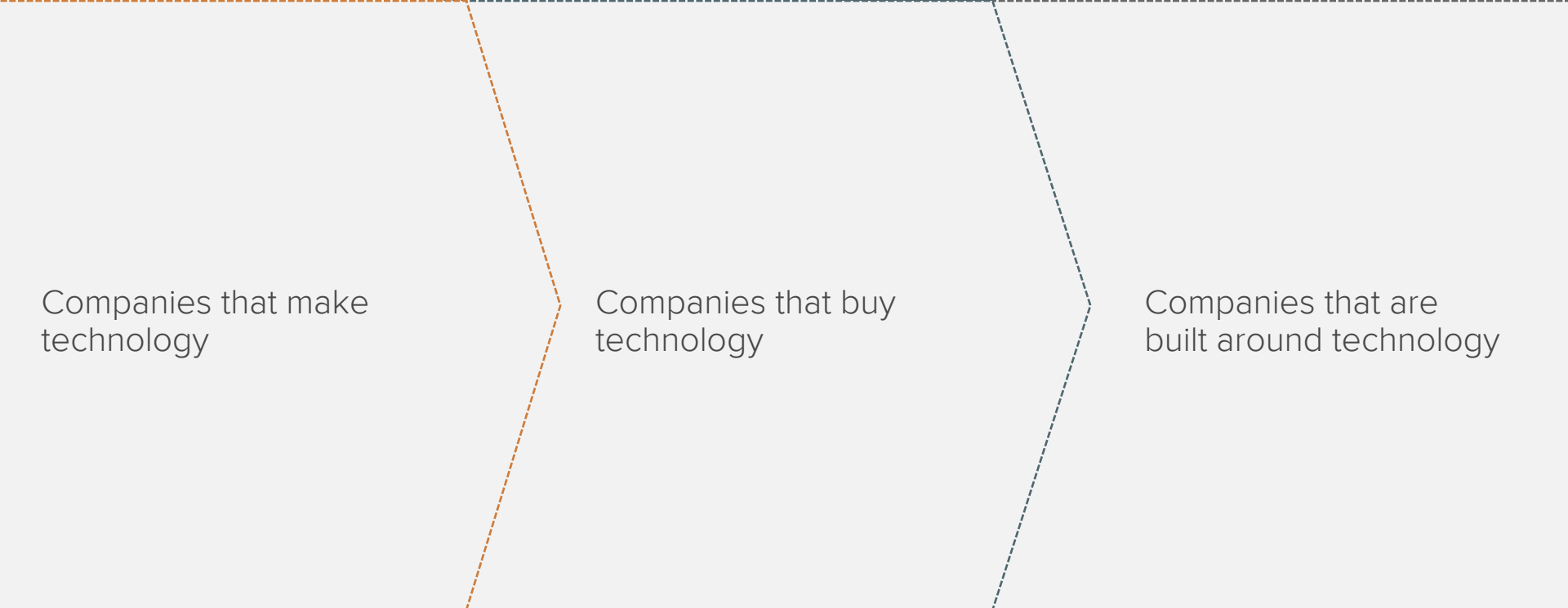
Digital's convenience led to a surge in camera sales, but then smartphones took over

Japanese camera unit sales (m)



Tech outgrows tech

Three phases of technology deployment



Companies that make
technology

Companies that buy
technology

Companies that are
built around technology

Companies that buy technology



Tech has become part of every office

Like plants, tech is part of facilities

But is the business built around it?

Building companies around new technology

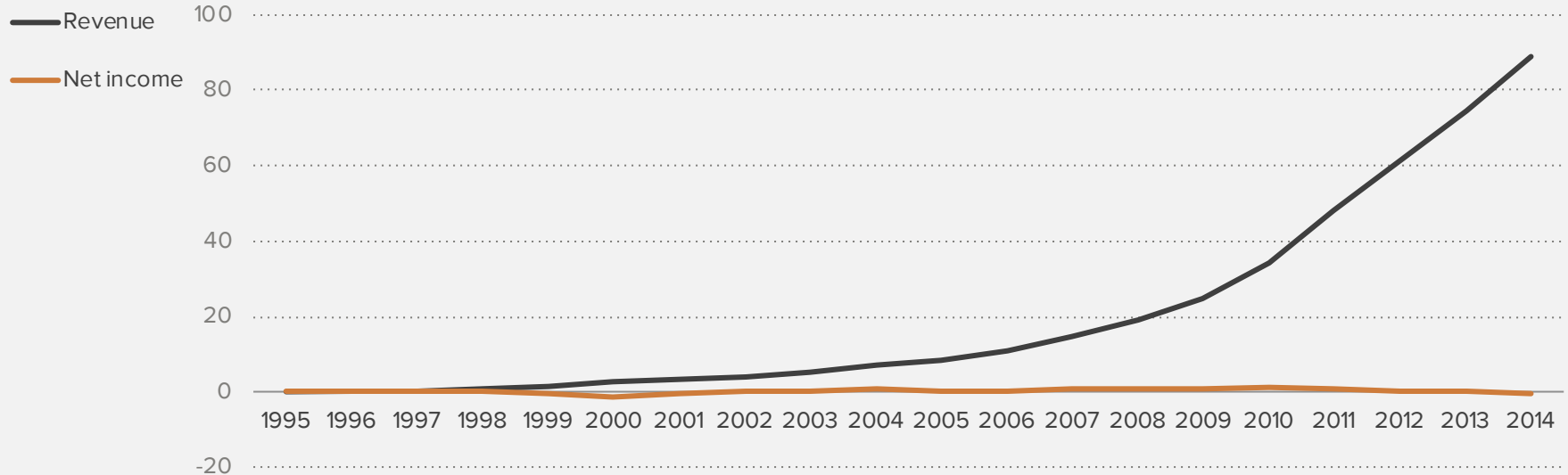
The really important new businesses are native to new technologies



Amazon: a retailer built around tech

Amazon is building the Sears Roebuck of the 21st Century – not a tech company

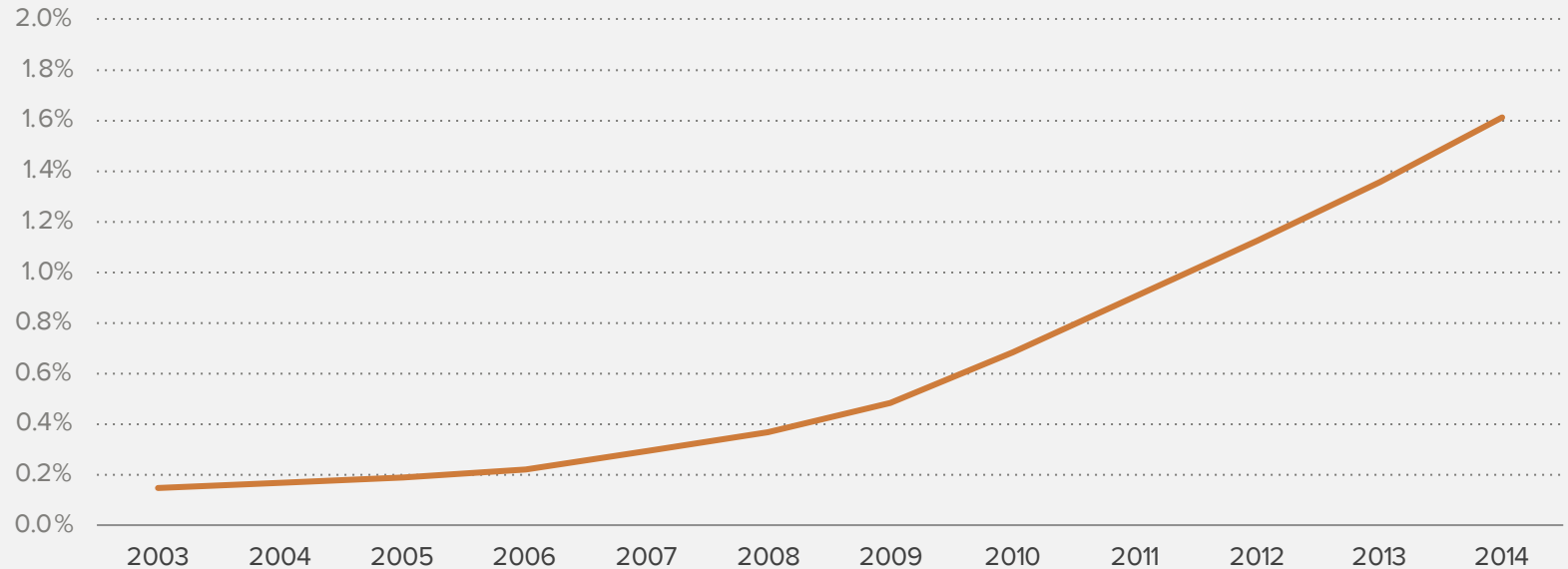
Amazon since launch (\$bn)



And Amazon is only 1.5% of the way

Amazon still only has 1.5% of US retail revenue

Amazon North America ecommerce as % US retail*

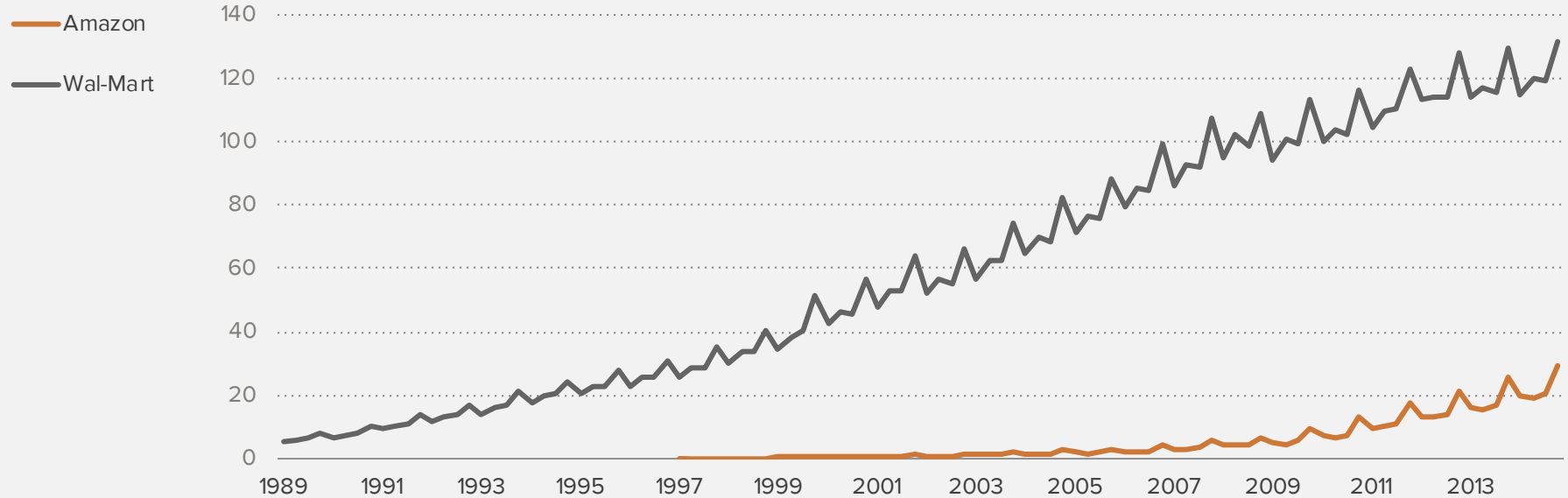


* Excludes automobiles & parts, gasoline and food service. Source: BLS, Amazon, a16z

Amazon versus Wal-Mart

(Why would you stop to take profits?)

Quarterly revenue (\$bn)



Mobile scale allows far more Amazons

Most tech is bought and paid for,
not used to create new businesses

10 years ago, AirBnB would have
sold software to Hilton

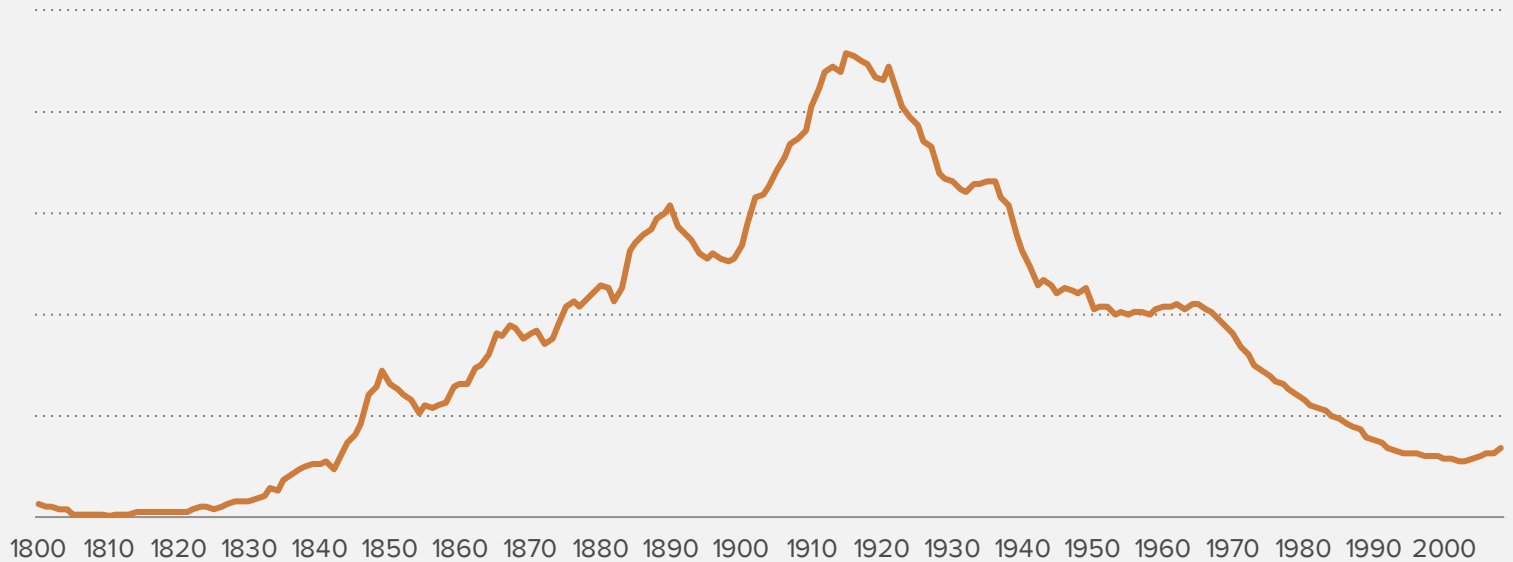
Uber would have sold software to
taxi companies

Scale of mobile, software mean the
opportunity is vastly bigger

More and more companies
following Amazon, Uber, AirBnB to
disrupt existing industries with tech

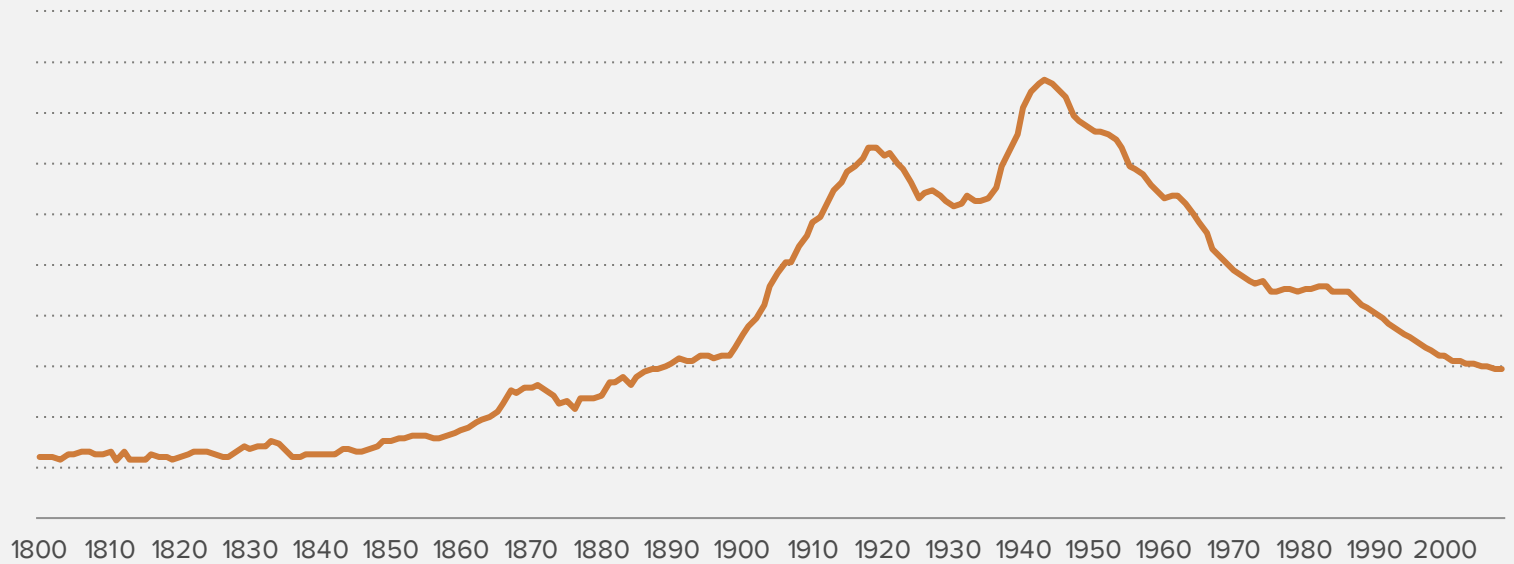
When tech is fully adopted, it disappears

Frequency of 'Railways' in Google Books



Steel

Frequency of 'Steel' in Google Books



Computerization

Frequency of 'Computerization' in Google Books



Software

Software is changing the world just as much

Frequency of 'Software' in Google Books



Software is eating
the world

Tech is outgrowing
the tech industry