

Europe, unicorns and global tech diffusion



Benedict Evans / Mosaic Ventures

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ben-evans.com / mosaicventures.com

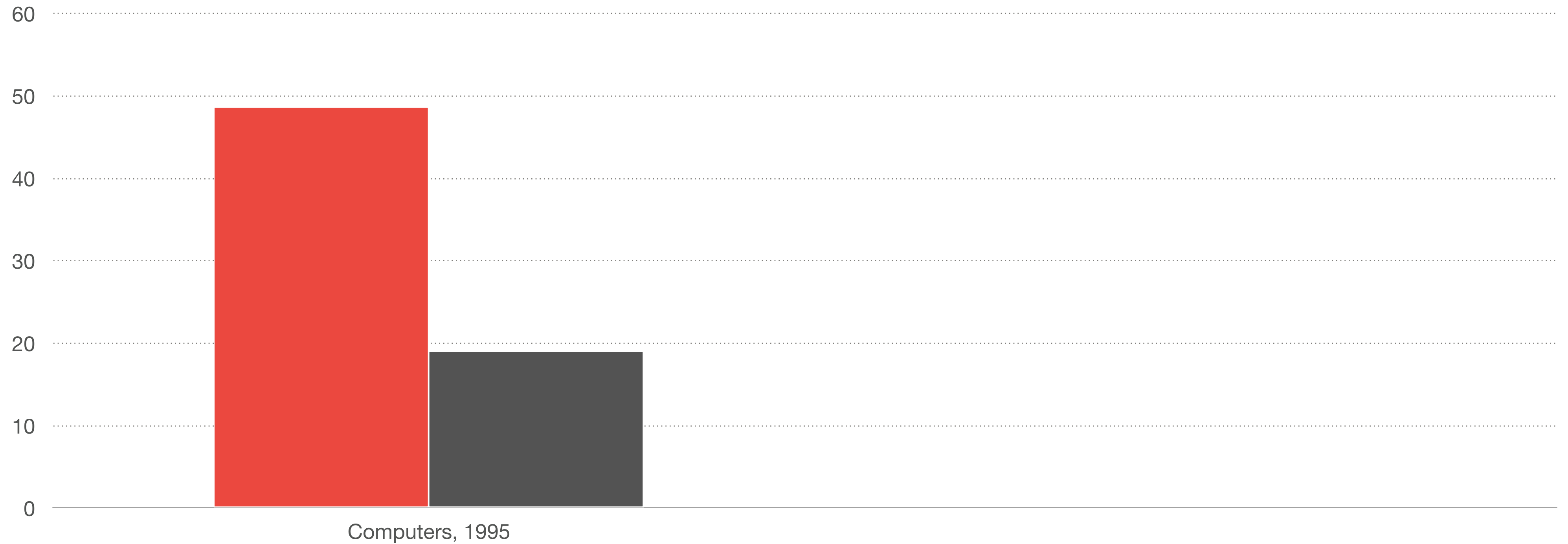
The end of the American internet

The end of the American internet

When the consumer internet began, the majority of computers on earth were in the USA

Global computing installed base (m)

■ USA
■ Western Europe

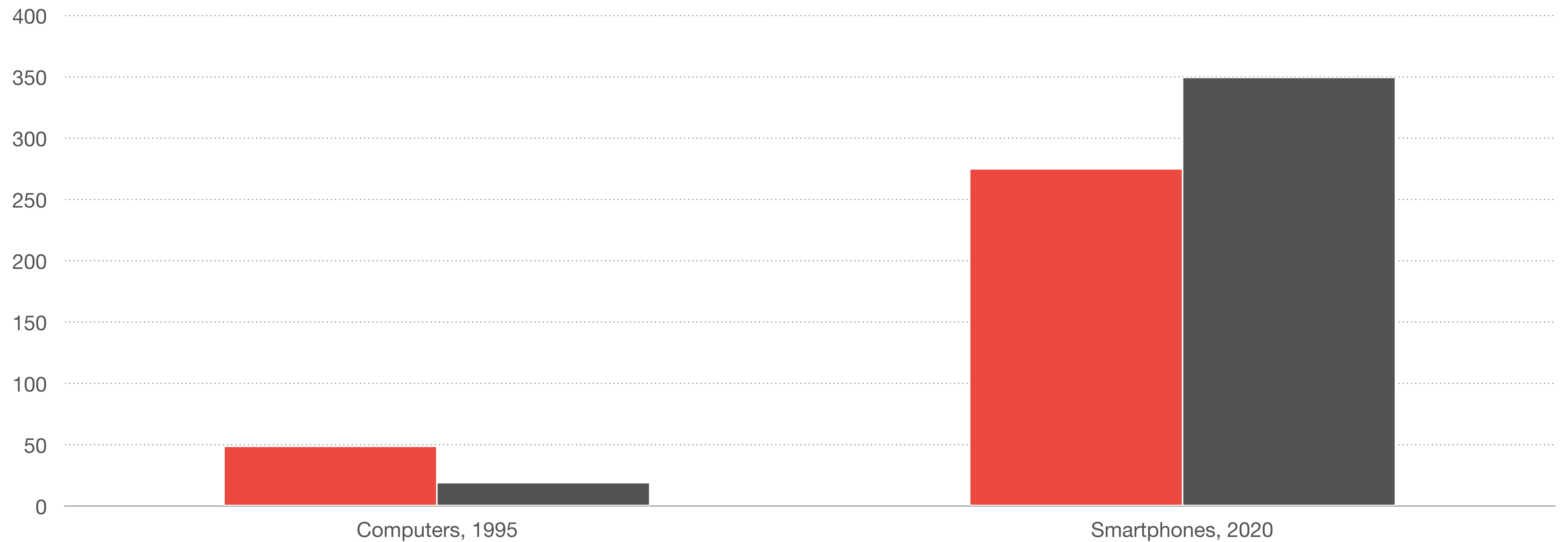


Global diffusion

There are now more smartphones in Europe than the USA

Global computing installed base (m)

■ USA
■ Western Europe

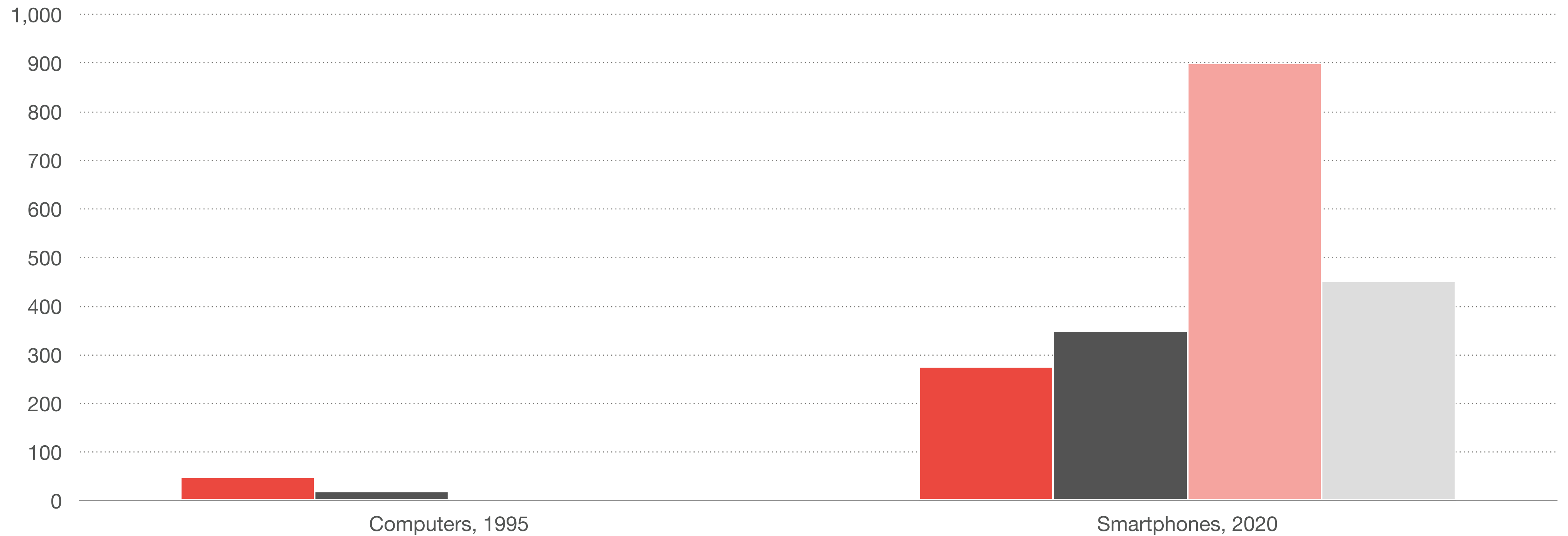


Global diffusion

More smartphones in China than the USA and Europe combined

Global computing installed base (m)

- USA
- Western Europe
- China
- India

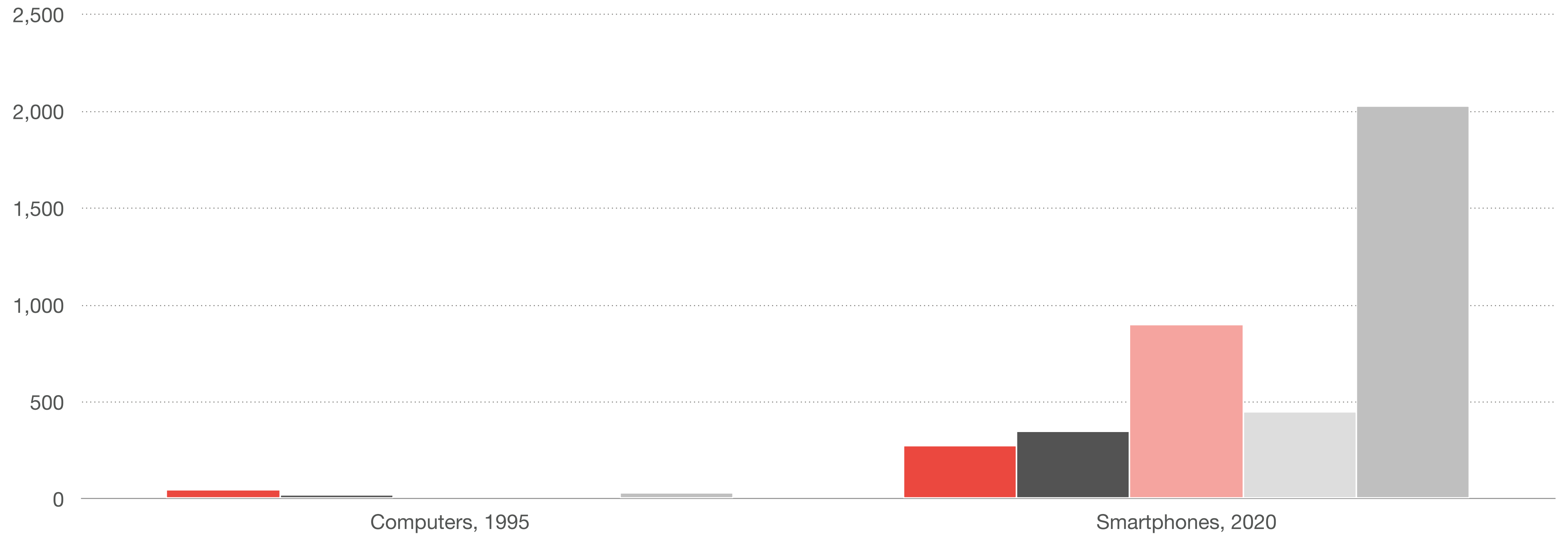


Global diffusion

Computer use has spread far outside the old technology centres

Global computing installed base (m)

- USA
- Western Europe
- China
- India
- RoW

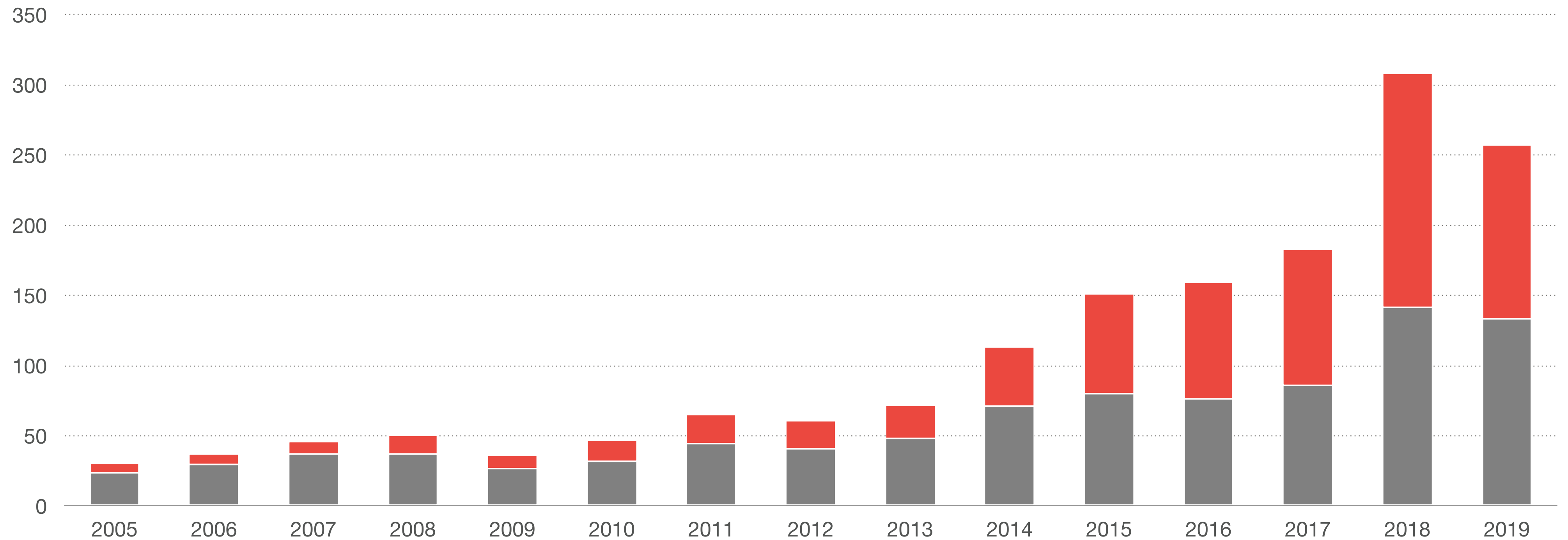


Global company creation

Software company creation spreads from Silicon Valley to the world

Venture capital investments (\$bn)

Rest of World
USA



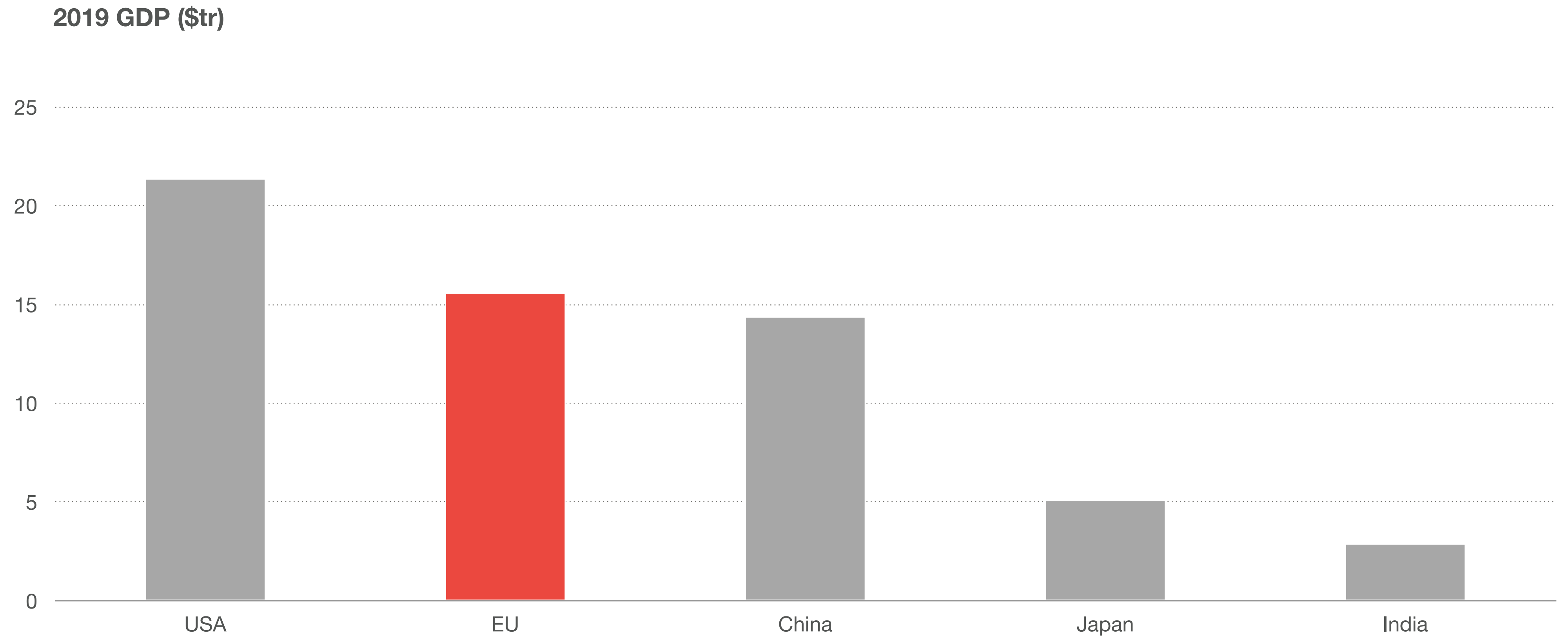
Tech, software and startups go global

You don't have to be in the Valley anymore

So what about Europe?

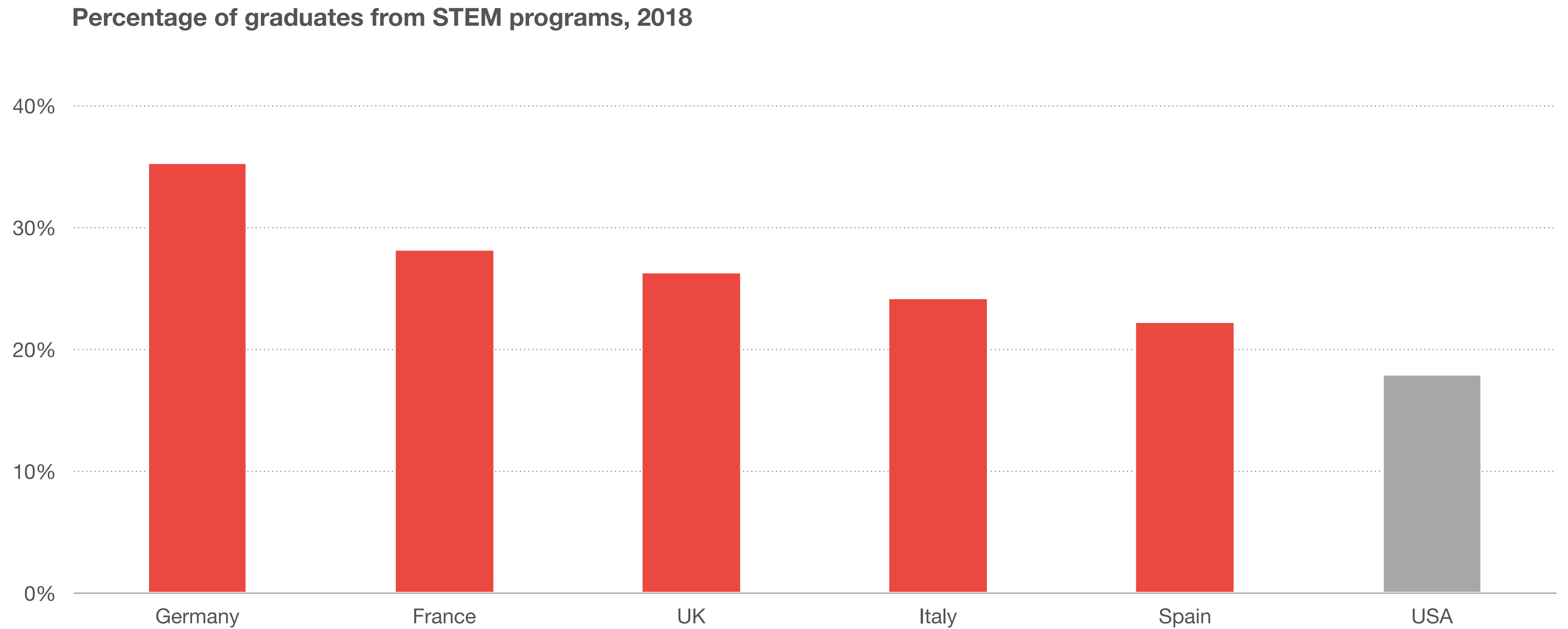
A market with 450m people and \$15tr of GDP

'Big place, Europe...'



Studying STEM

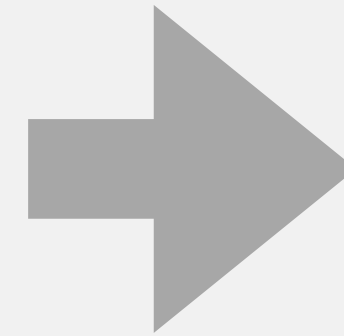
Europe has a higher portion of graduates in STEM subjects than the USA



And some great CS departments

A steady flow of great computer science graduates

Europe has 7 of the top 20 global CS departments

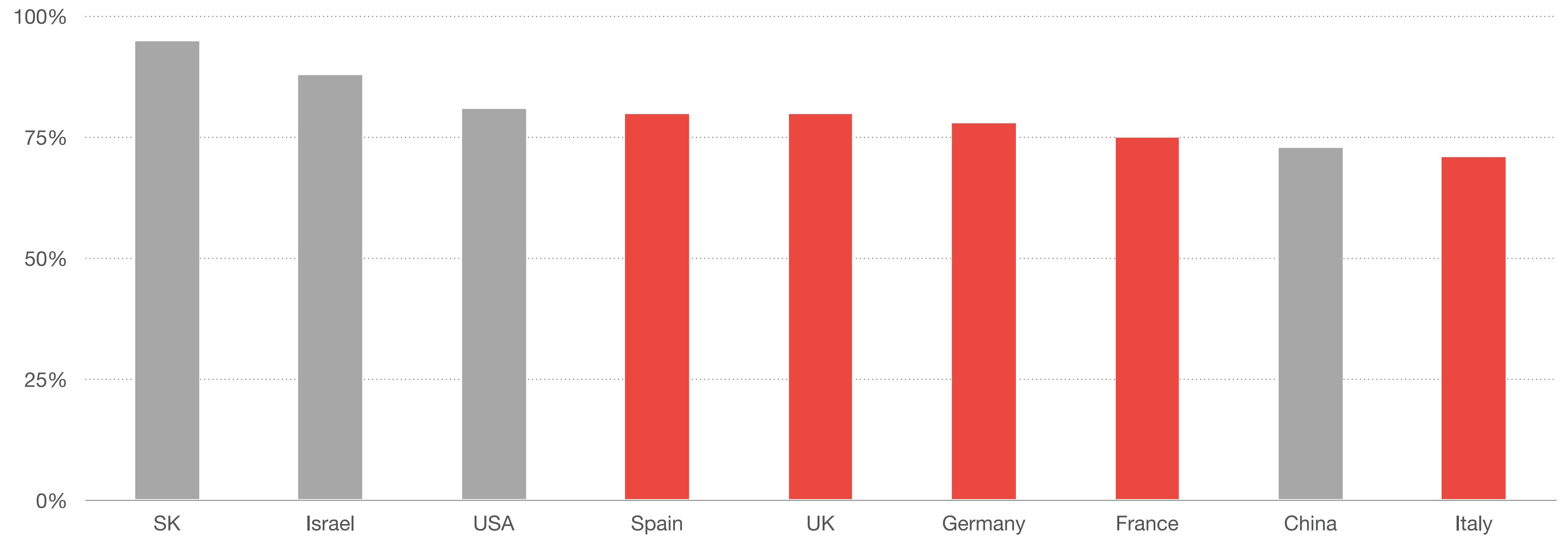


1: Oxford	11: Singapore National
2: Stanford	12: UCLA
3: ETH Zurich	13: Singapore Nanyang
4: MIT	14: Cornell
5: Cambridge	15: Tsinghua
6: CMU	16: Georgia Tech
7: Imperial	17: HKUST
8: Harvard	18: TU Munich
9: Princeton	19: UCL
10: Caltech	20: EPFL

Everyone has a smartphone

Market-leading smartphone adoption

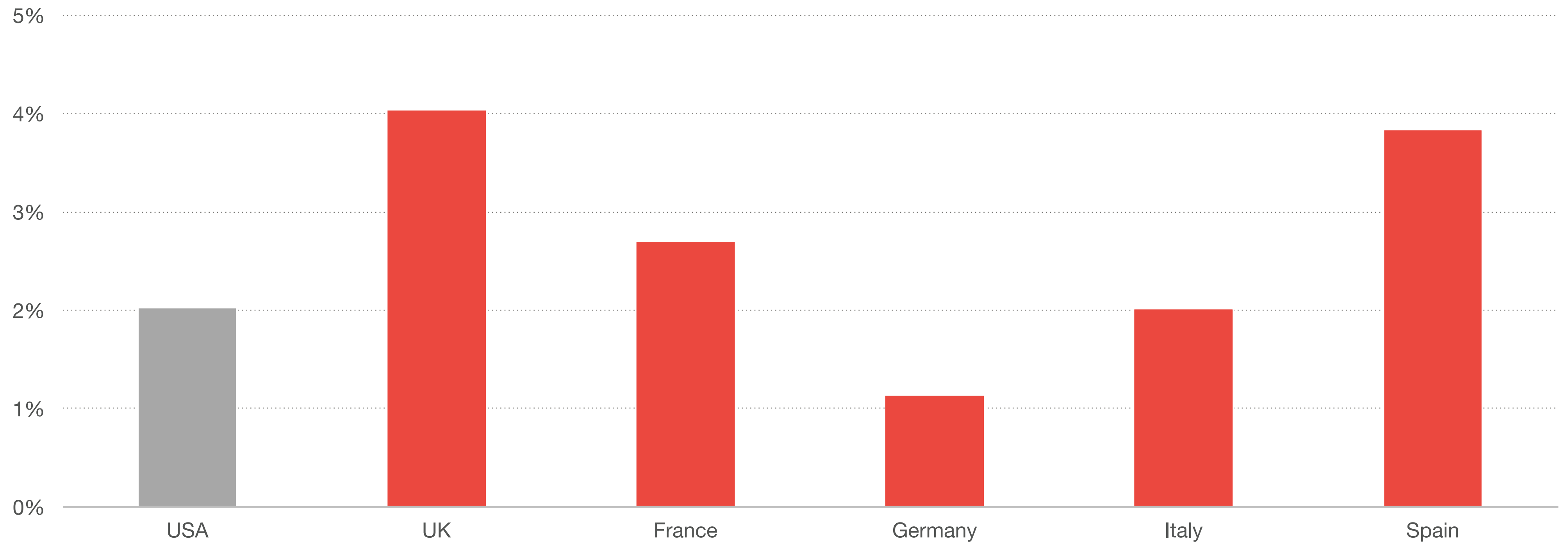
Adult phone ownership, 2019



They even have a word for 'entrepreneur'

Company creation in Europe is comparable to the USA

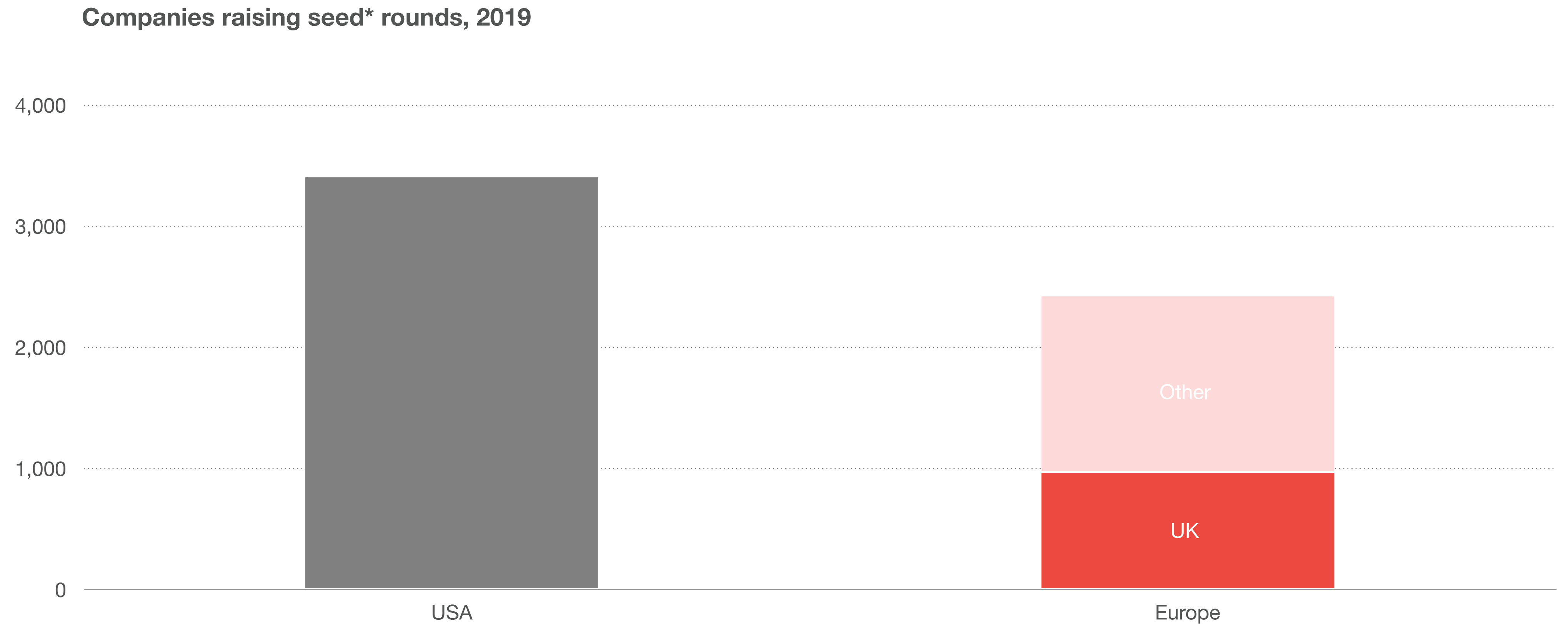
Employees of new companies* as % all employees, 2015



Source: OECD
*Companies founded within the last 12 months

They even have a word for 'entrepreneur'

European companies now raise 70% as many seed rounds as the USA

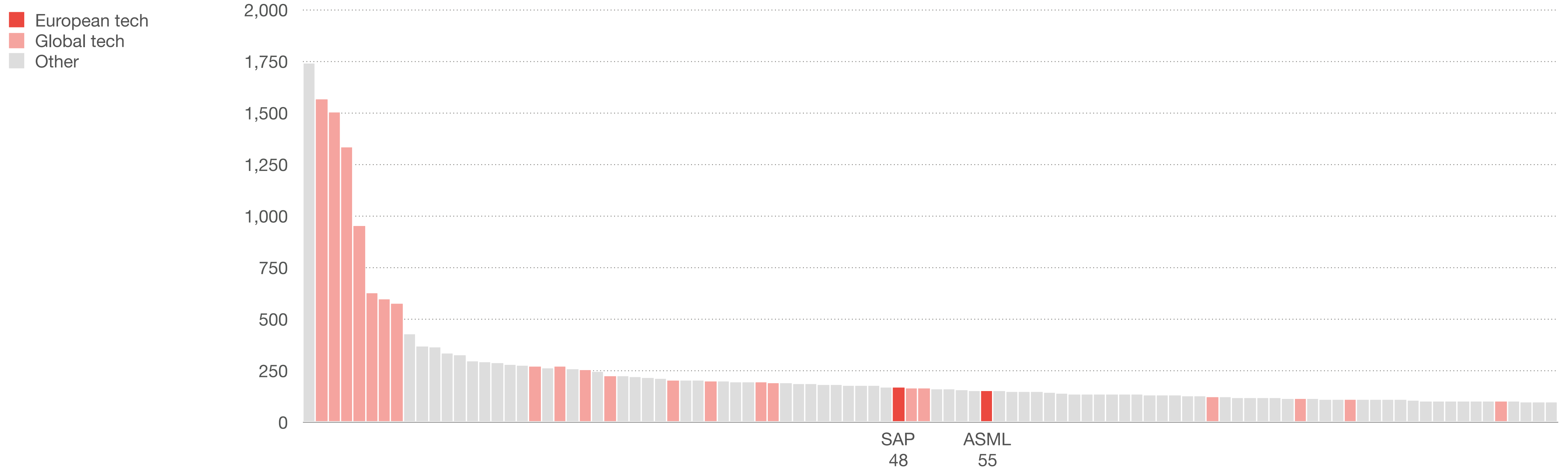


So what's the problem?

Where is Europe?

Only two European tech companies in the top 100 largest global companies, neither in consumer or internet

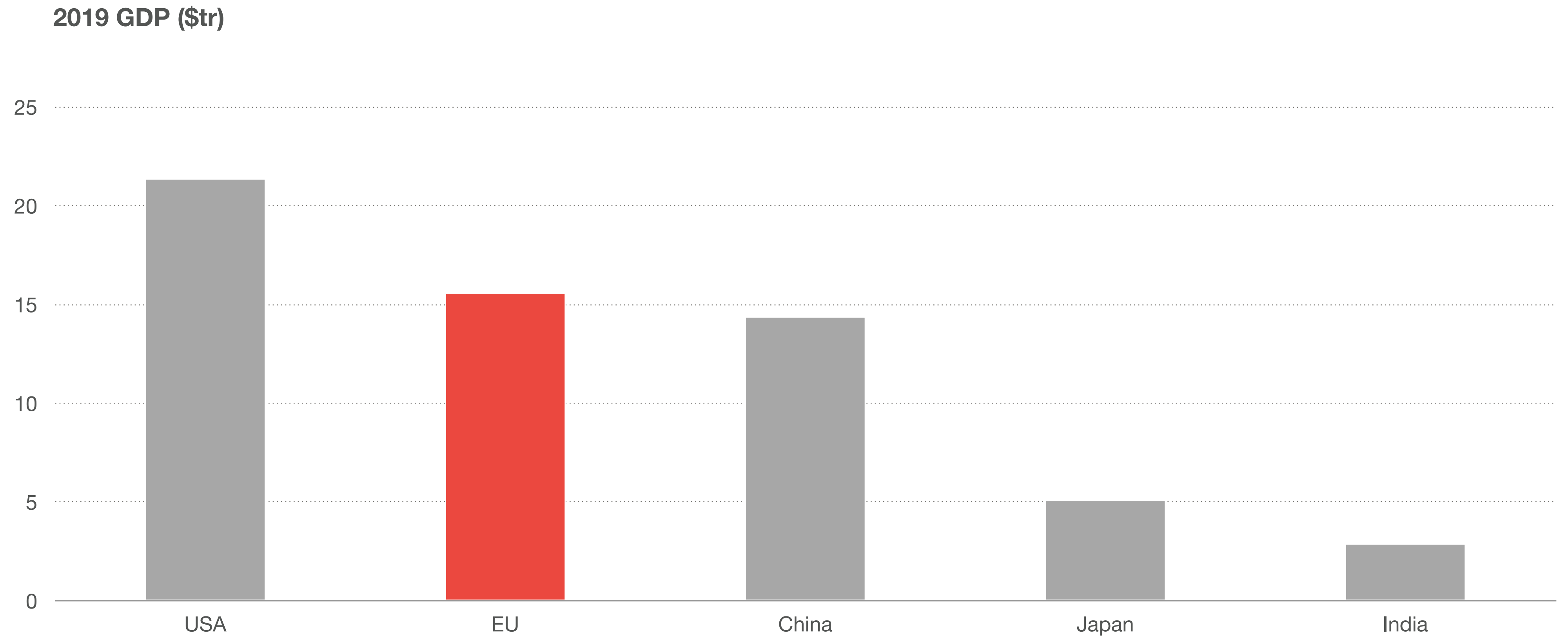
Top 100 public companies by market cap, June 2020 (\$bn)



Source: Bloomberg

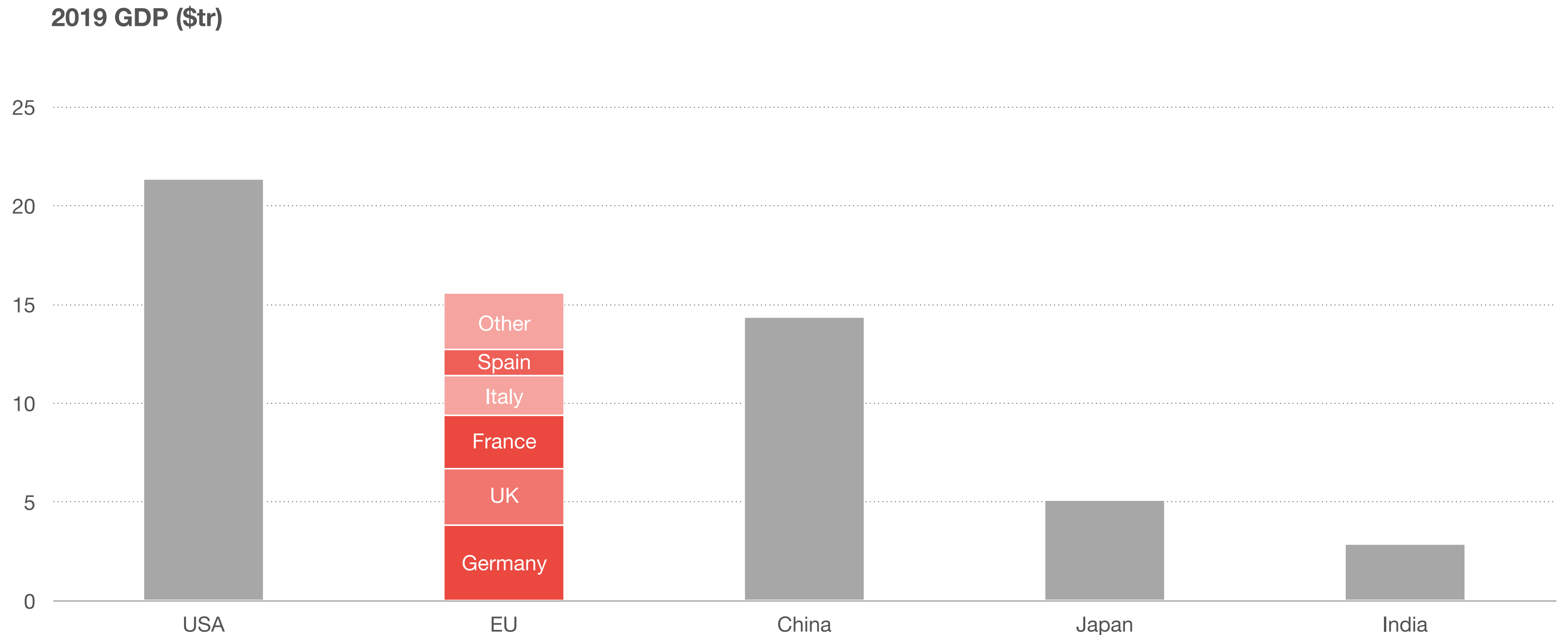
A market with 450m people and \$15tr of GDP...

'Big place, Europe...'



But Europe is not one market

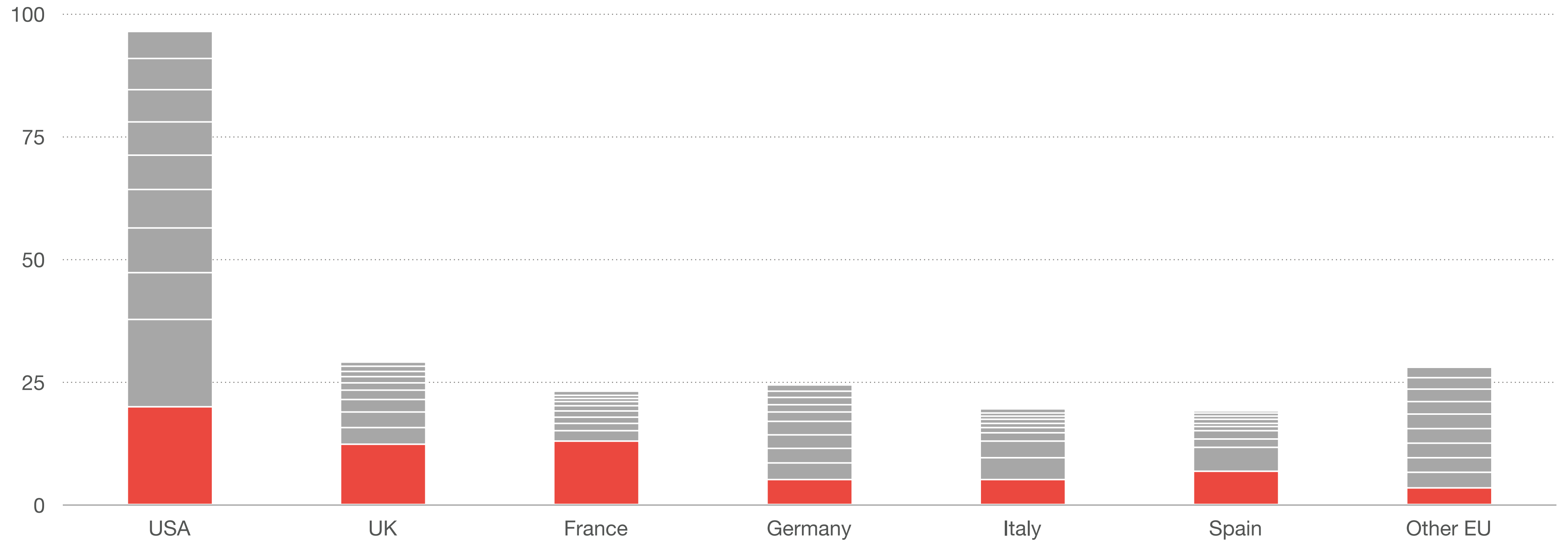
Europe is many different markets that entrepreneurs cannot treat as one



One market, and many

New York and LA get you more people than the top ten cities in any European country

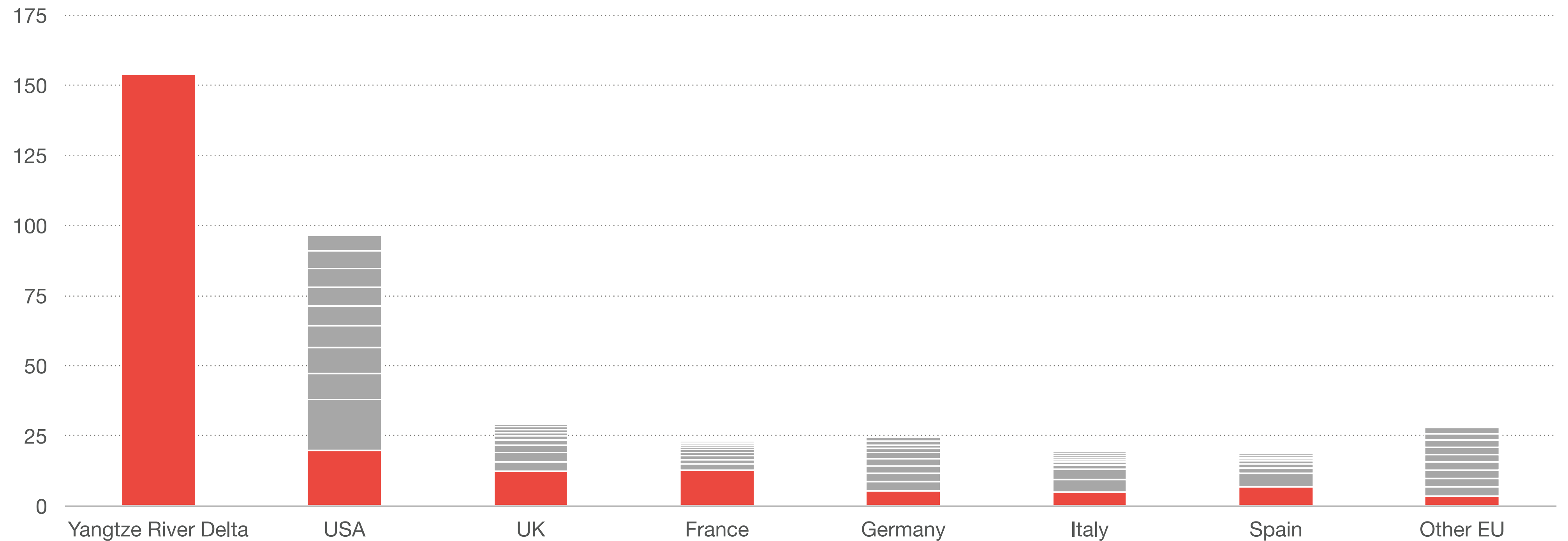
Top ten metro markets by population, 2018 (m)



(Let's not talk about China)

China has over 100 cities with more than 1m people each, and 5 'city clusters' with 500m total population

Top ten metro markets by population, 2018 (m)



The US is more concentrated and homogeneous

Much easier for Americans to move across their continent to a cluster

Distributed

SF Bay Area is 45%
of early-stage

London/Oxford/
Cambridge is 30%
of Europe*

Mobility

0.2% of the EU
moved country in
2017

2% of Americans
moved state

Language

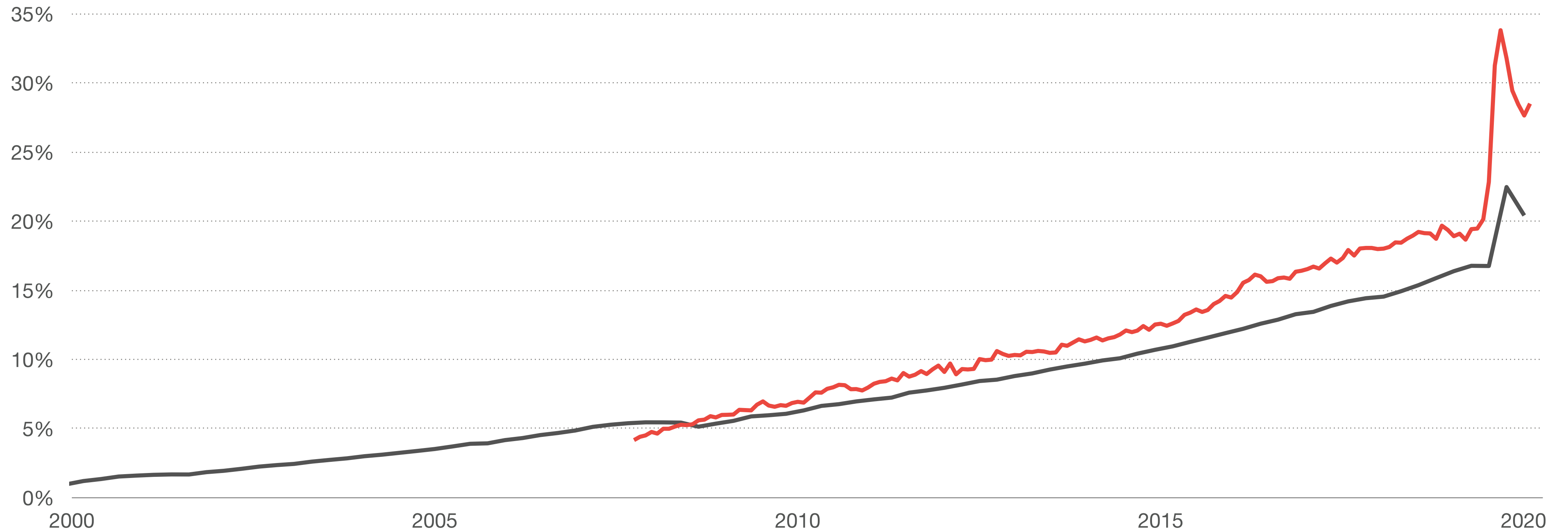
Only 16% of the
EU is proficient in
a foreign
language

UK ecommerce penetration is ahead of the USA...

Up to 5pp ahead of US ecommerce penetration even before the lockdown surge

Ecommerce as % addressable retail*

— UK (monthly)
— USA (quarterly)

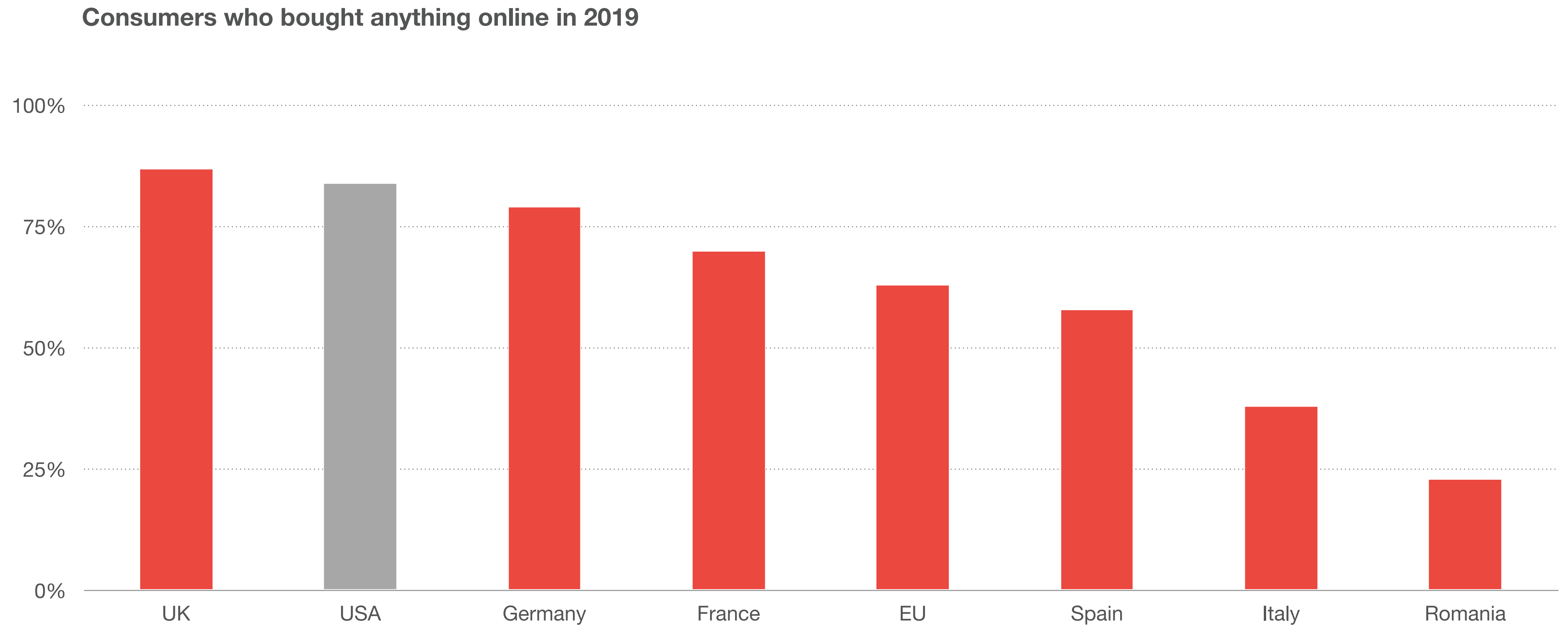


Source: ONS, US Census, @BenedictEvans

* Excluding cars, car parts, fuel, bars & restaurants. Seasonally adjusted.

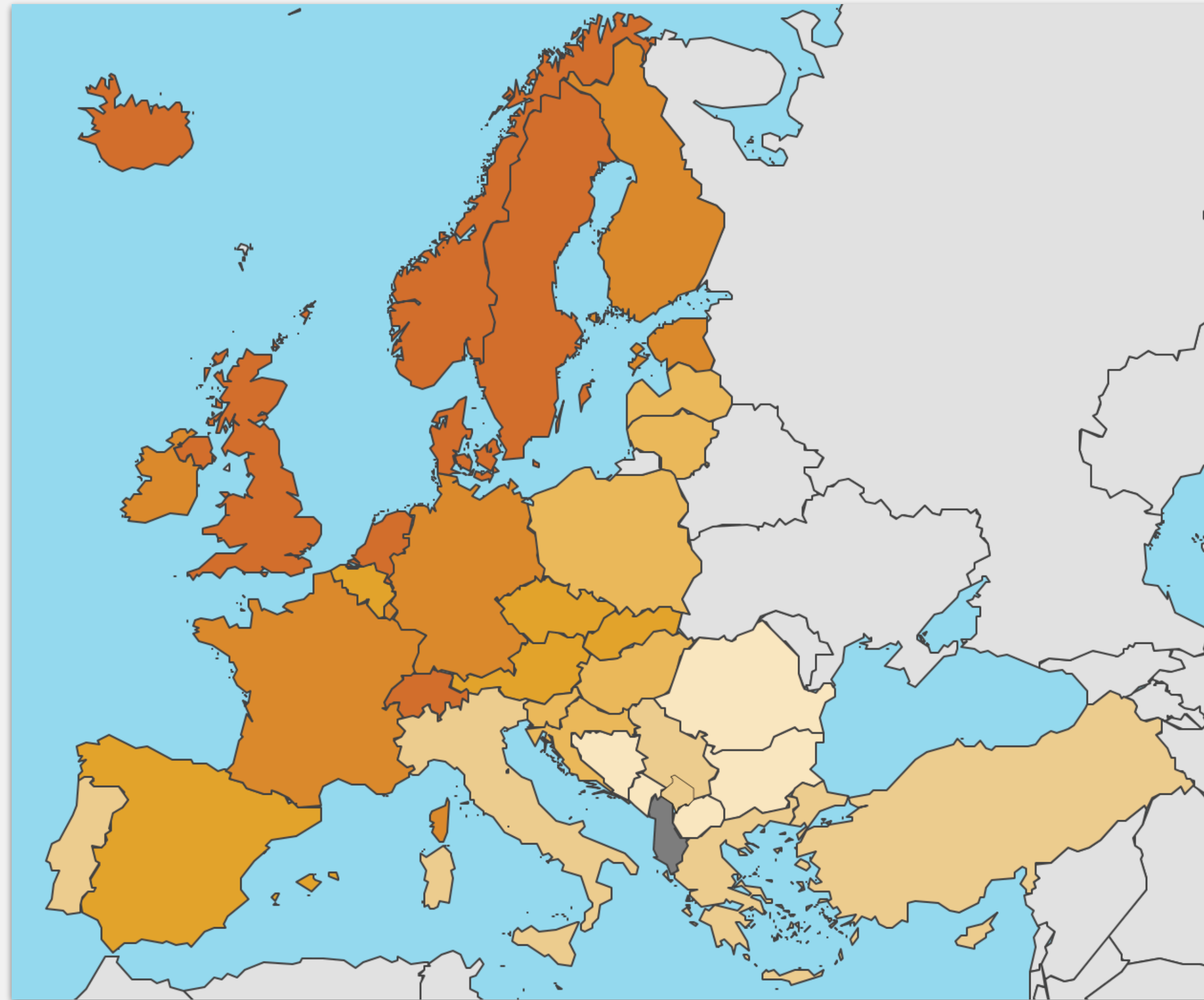
But European digital adoption varies a lot

Only 38% of Italians made any online purchase in 2019



Grape versus grain?

Percentage buying anytime online, 2019



Source: Eurostat

Segmenting Europe by tech adoption

Butter versus olive oil? Beer versus wine?

UK well ahead
of USA

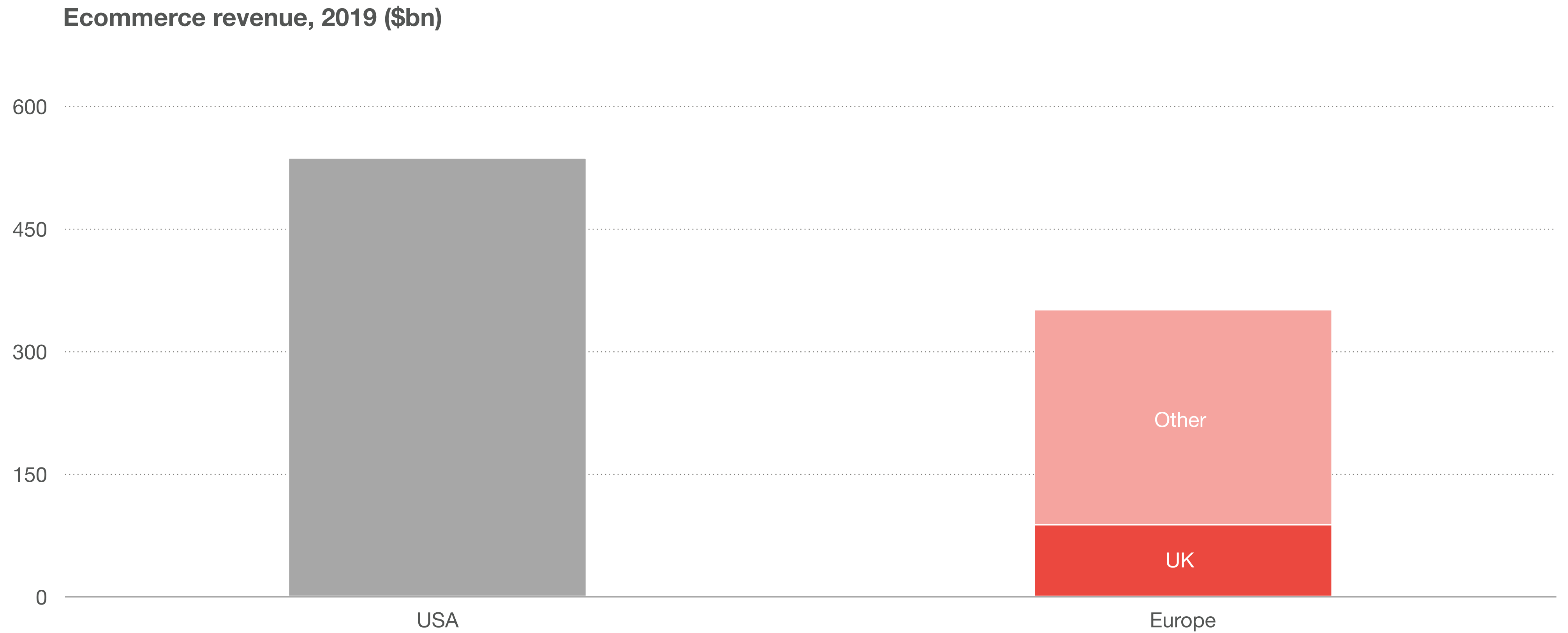
Small
northern
markets also
leading

Germany a
mixed picture

France, Spain,
Italy 3-5 years
behind

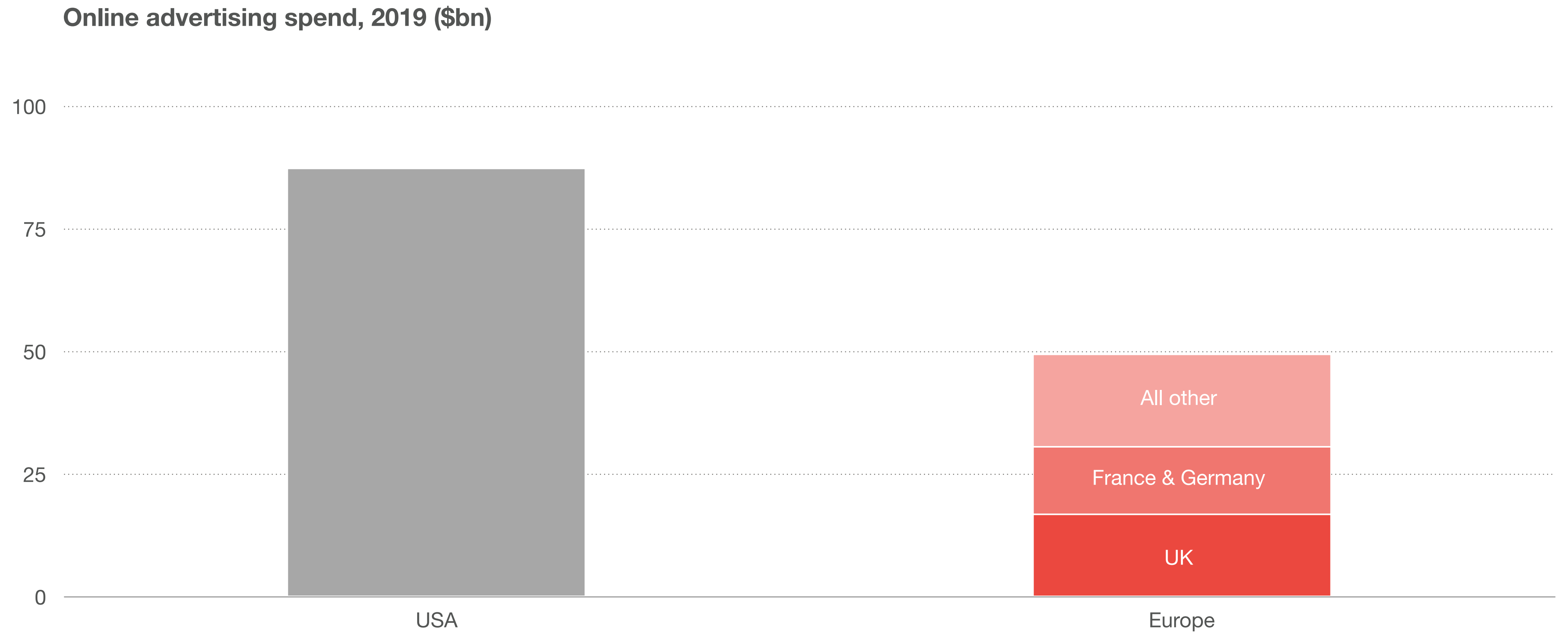
Europe is behind in ecommerce

65% of US ecommerce on 140% of the people, and a quarter of that is the UK



And worse in online advertising

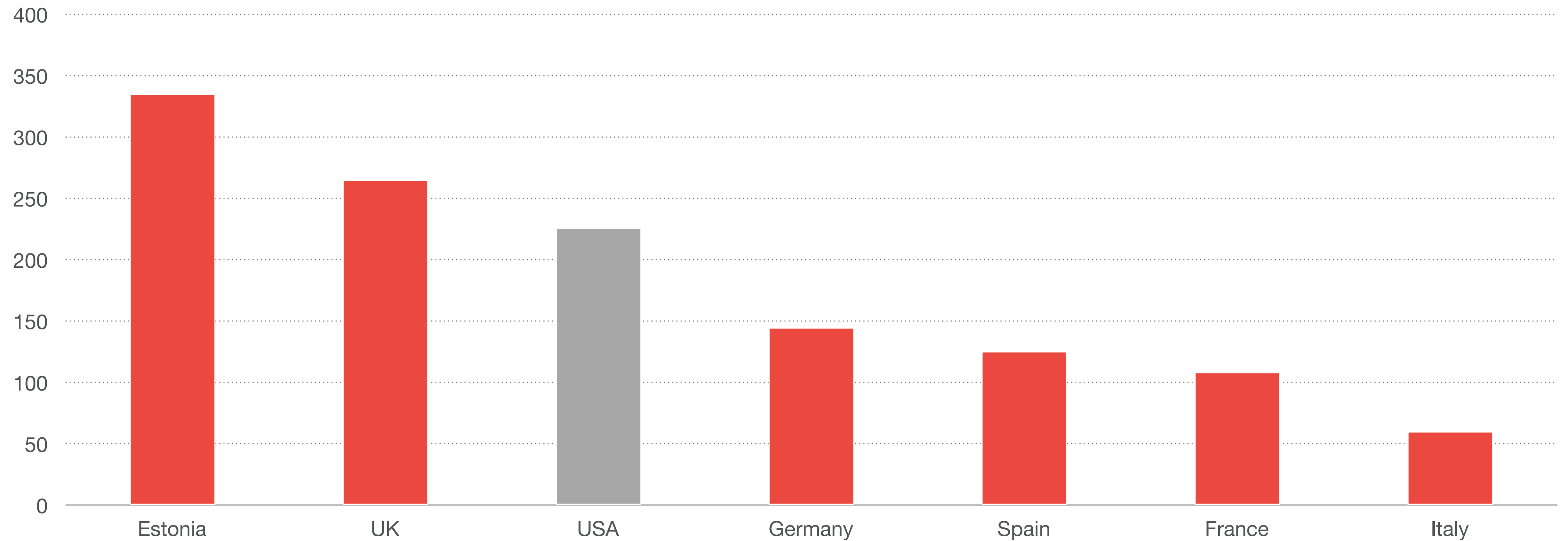
UK online advertising is bigger than France and Germany combined



On any measure, most Europeans are online less

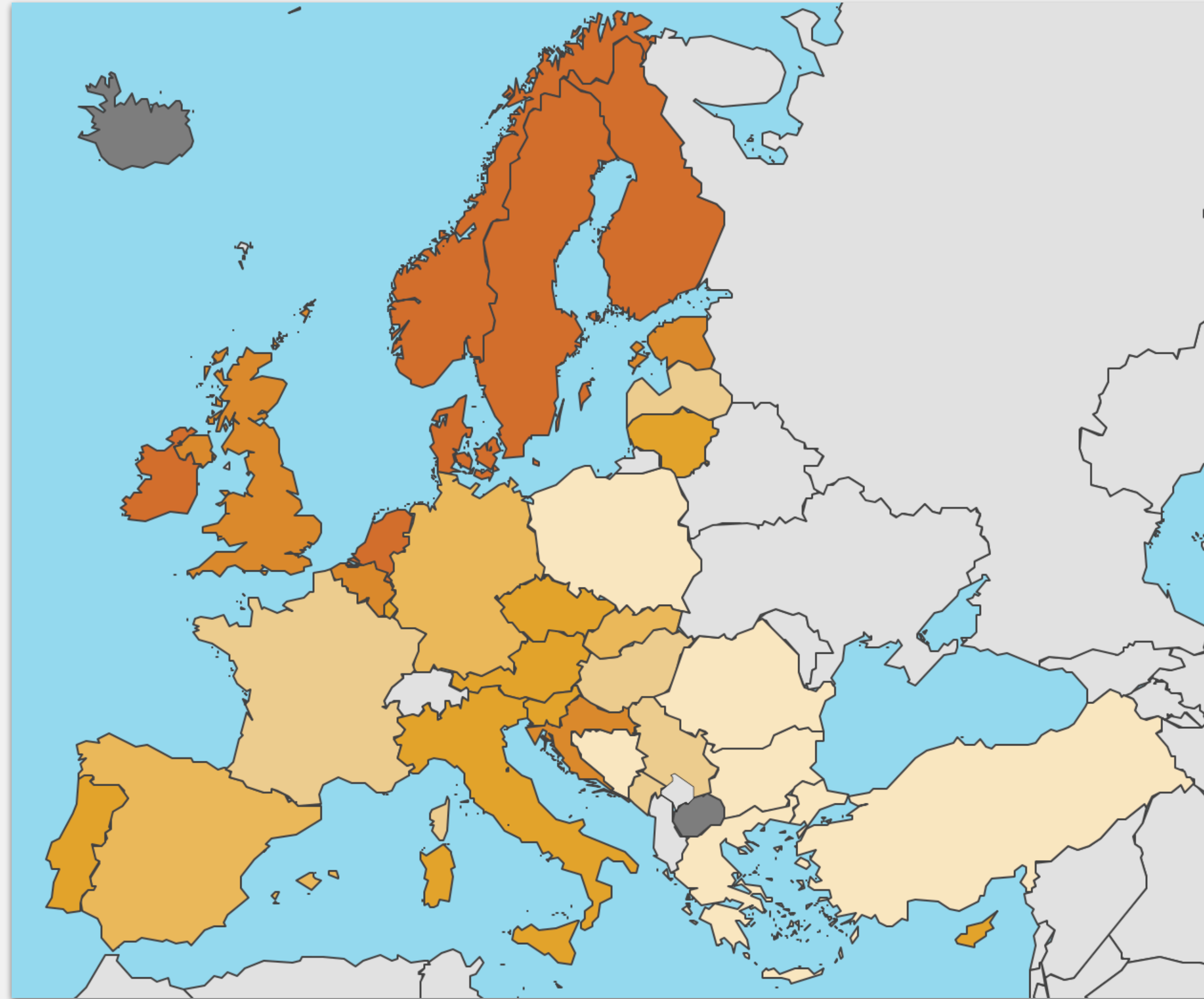
Major European markets spend half as much time online as the USA or UK

Average daily minutes of internet use per individual, 2019



The same spread in the enterprise

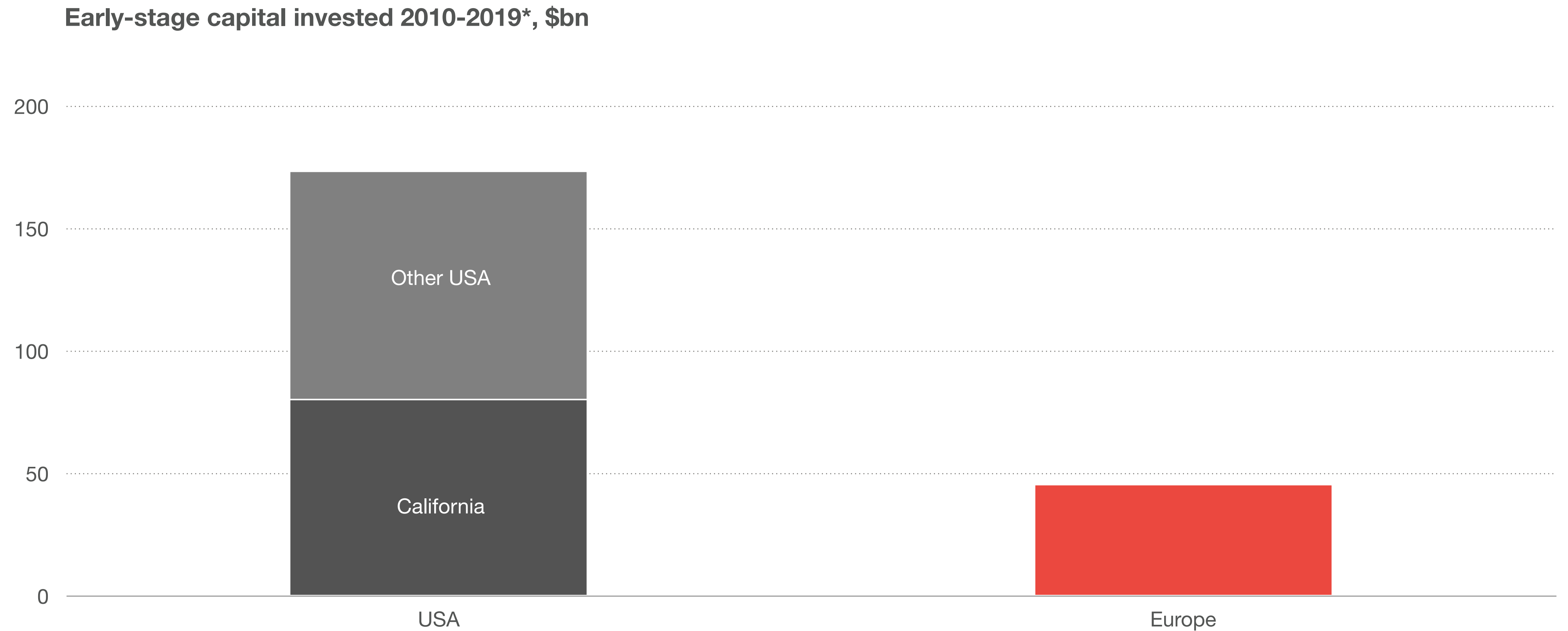
Enterprises using cloud computing, 2018



Source: Eurostat

And this is reflected in funding

Since 2010, there has been almost double the early-stage startup investment in California than all of Europe



Source: Pitchbook

* Funding rounds raising between \$3m and \$20m

Tech in 'Europe'?


Europe was always a harder place to build tech startups



'Europe' is not a
market



Digital adoption
varies a lot

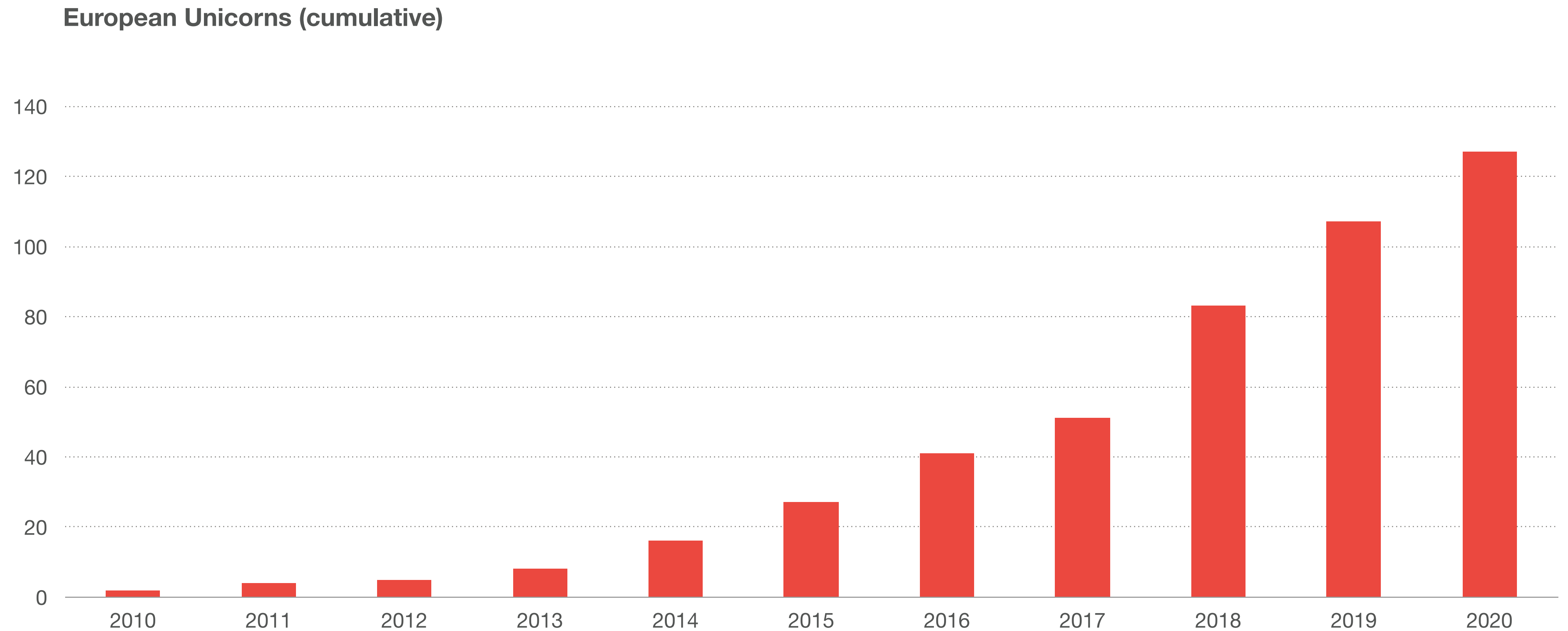


A 'startup'
ecosystem is still
emerging

All change?

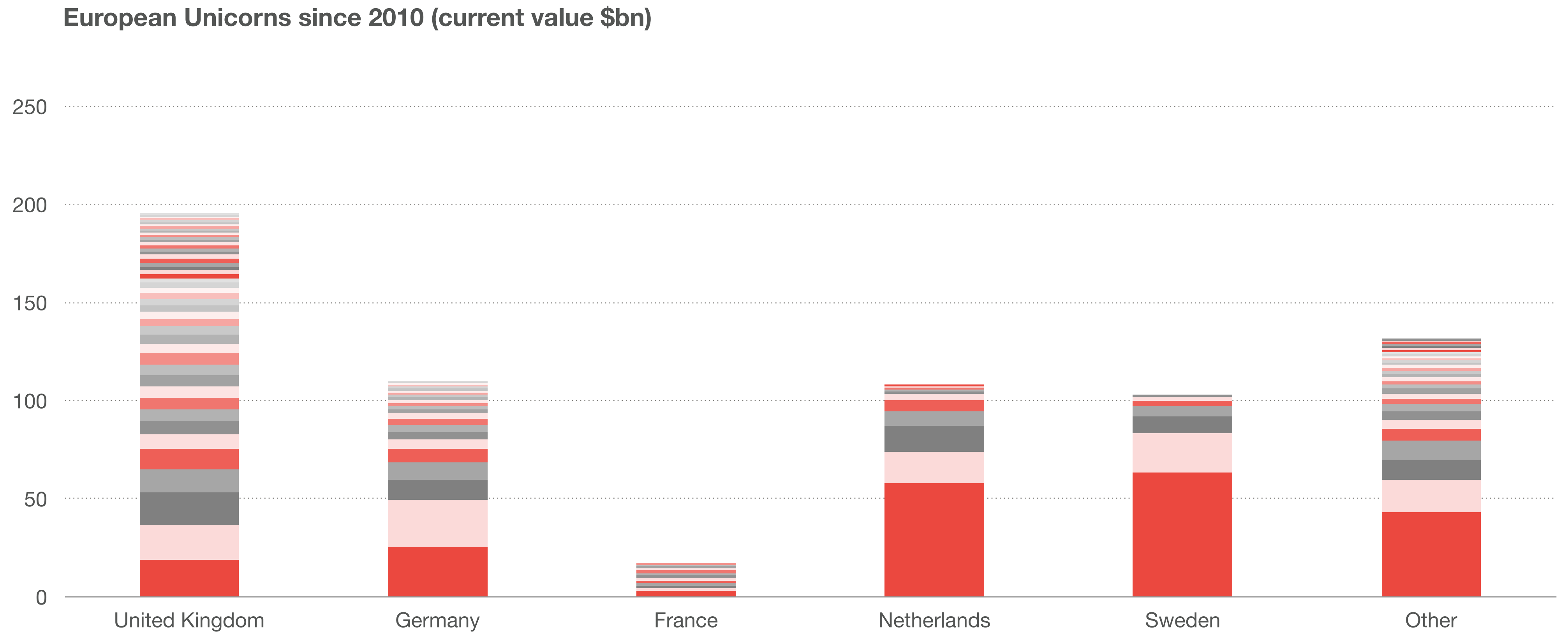
Narrative violation

Over 120 new \$1bn+ tech companies have emerged in Europe in the last decade, today worth \$600bn+



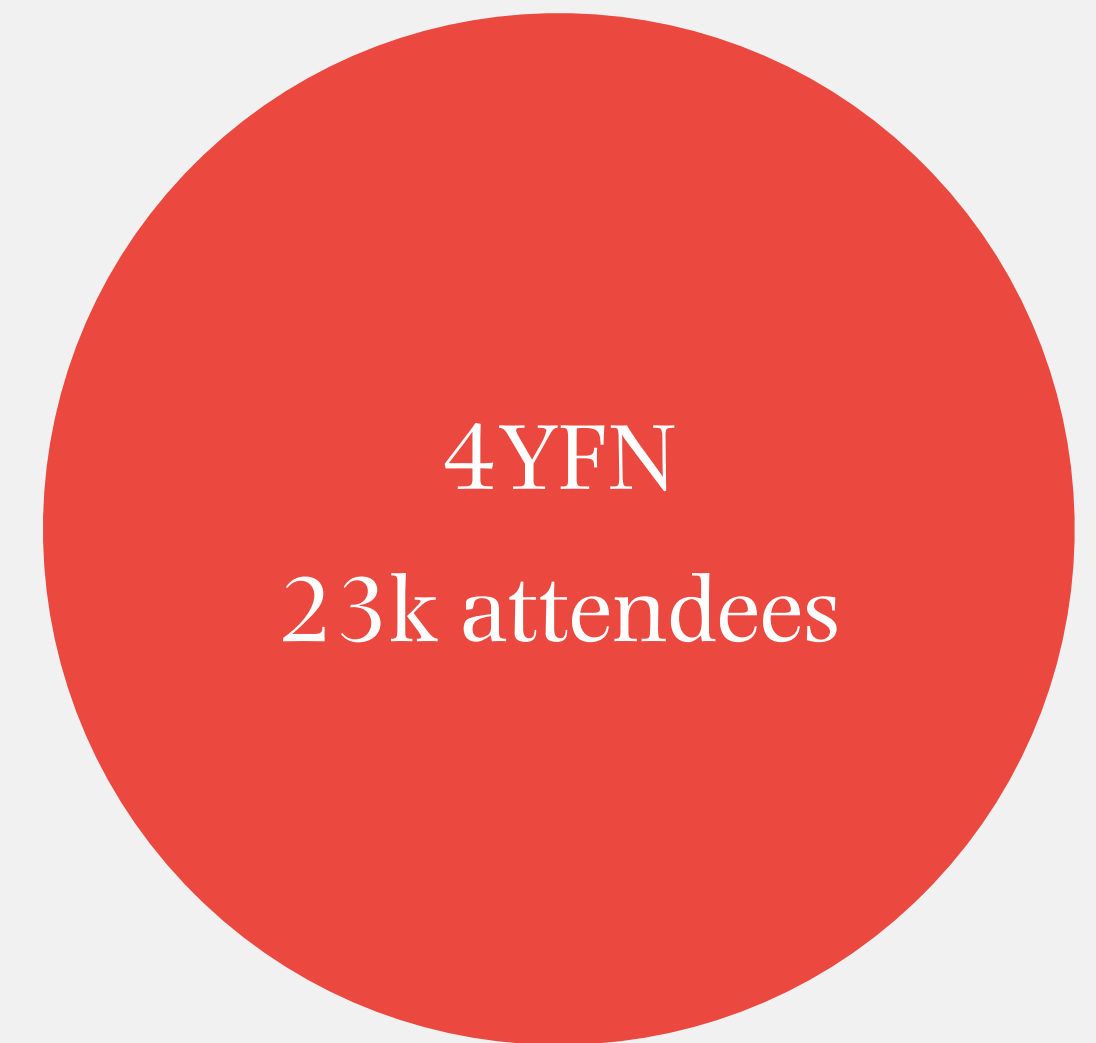
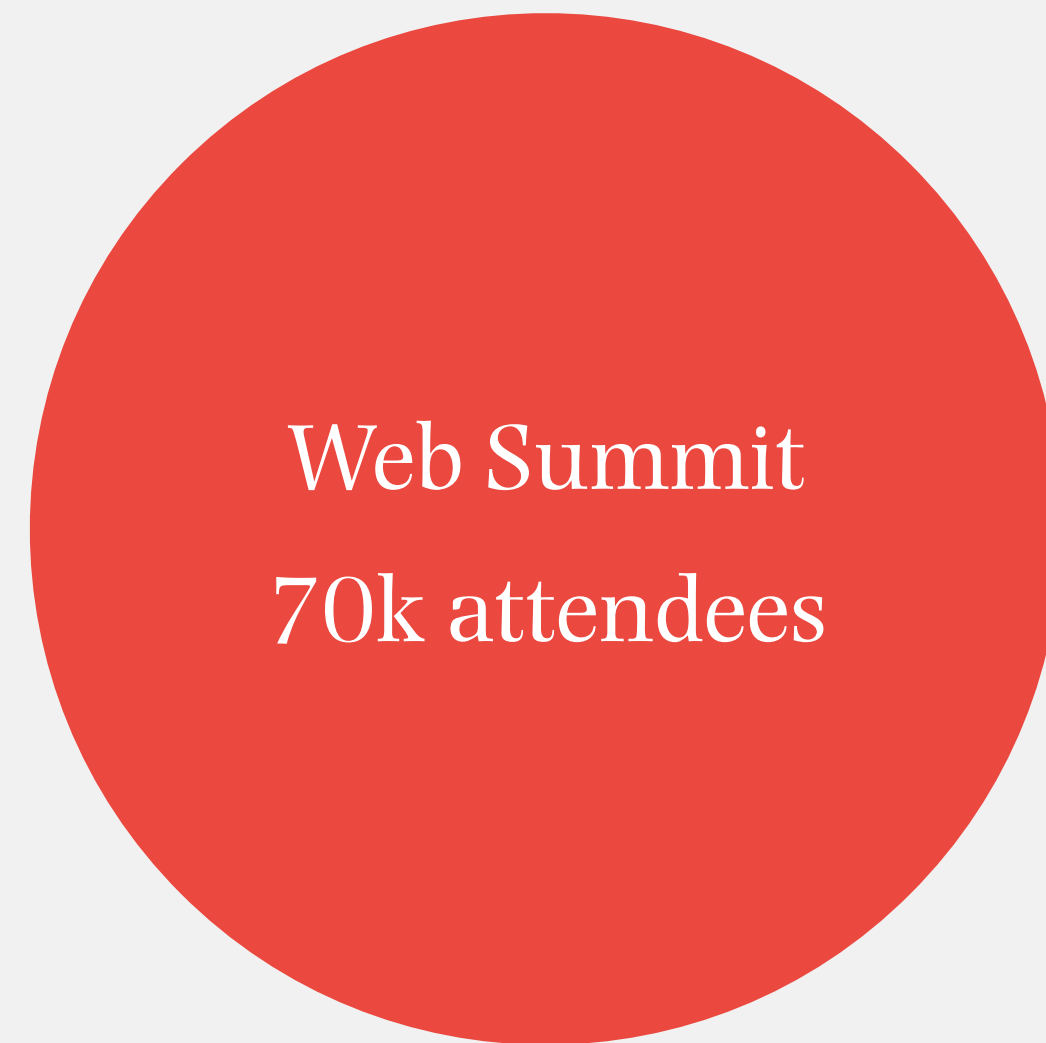
Narrative violation

Over 120 new \$1bn+ tech companies have emerged in Europe in the last decade



And a surge in enthusiasm

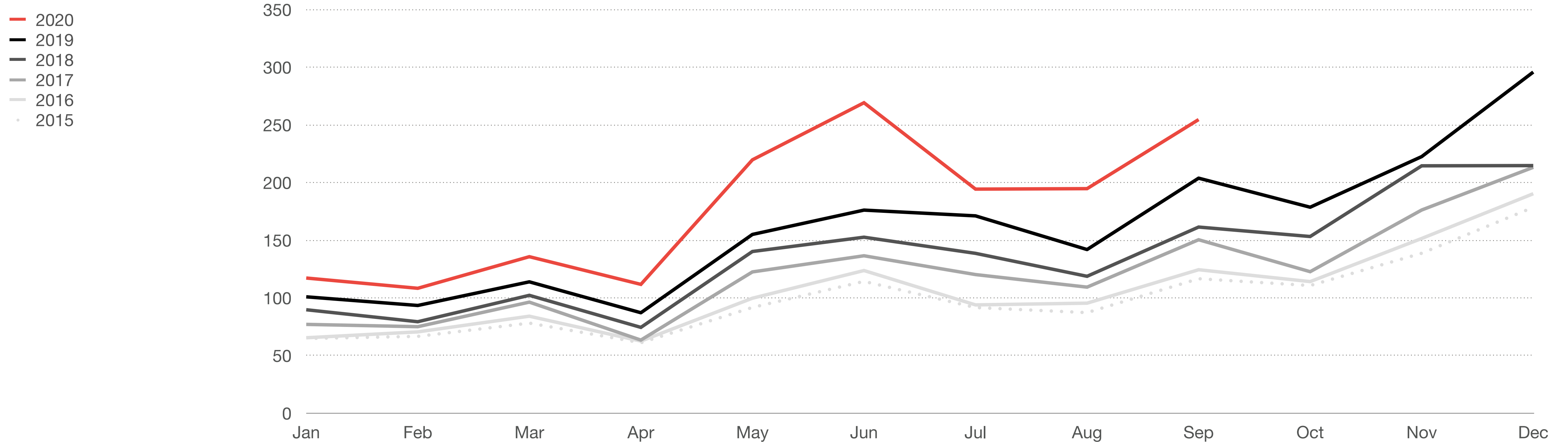
'Startup evangelism' events reflect (and drive) a shift in attitude and consciousness



Even Italian ecommerce is growing (a bit)

Italian ecommerce sales rose 50% in the summer of 2020

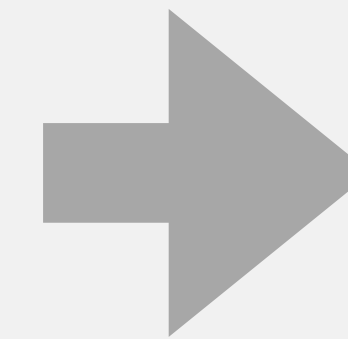
Italian ecommerce sales (indexed to 2015)



Building the startup flywheel

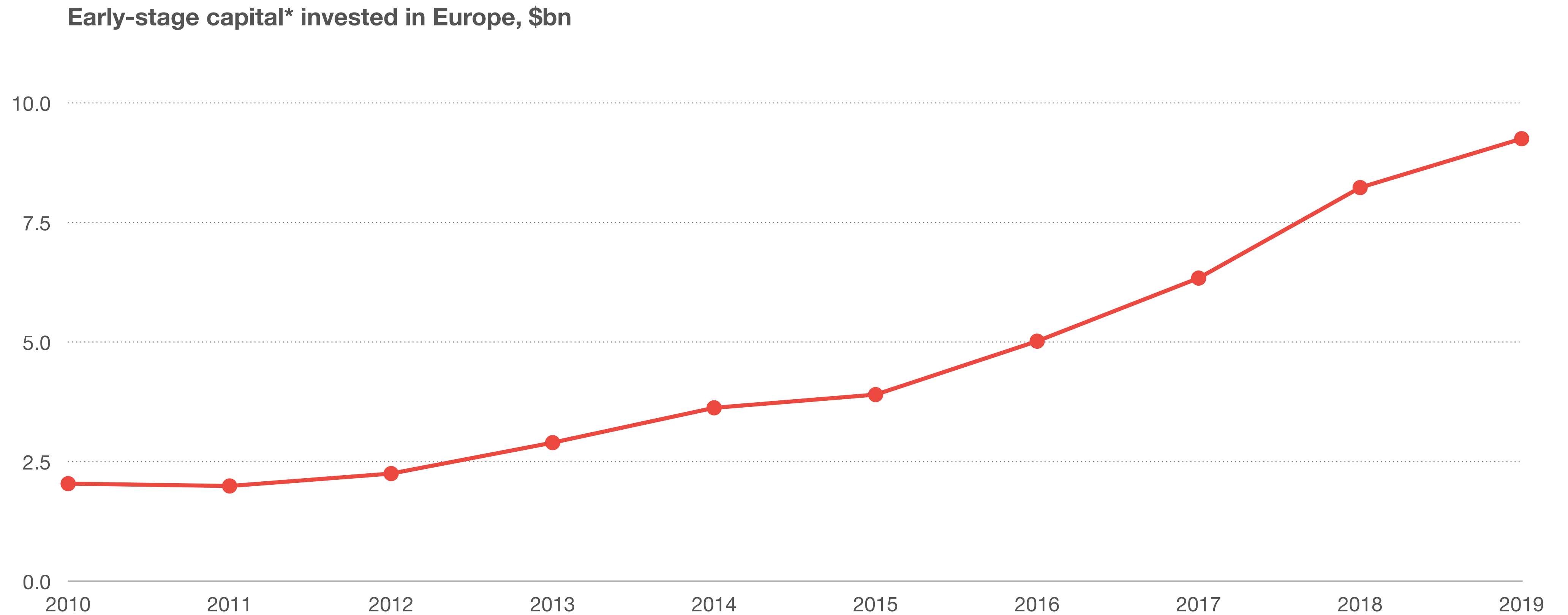
What do you need for a cluster?

Spread of the SV funding/ ownership/ risk startup model	Dense support networks	Startup-led capital in depth
Successes seed angels, founders and new funds	Sophisticated customers	Peer group sets market aspirations
Universities and R&D labs spin out talent	Tax & visa rules don't block startups	And much more...



Hence, early-stage funding up 4x since 2010

Growth in ecosystem, creation, funding

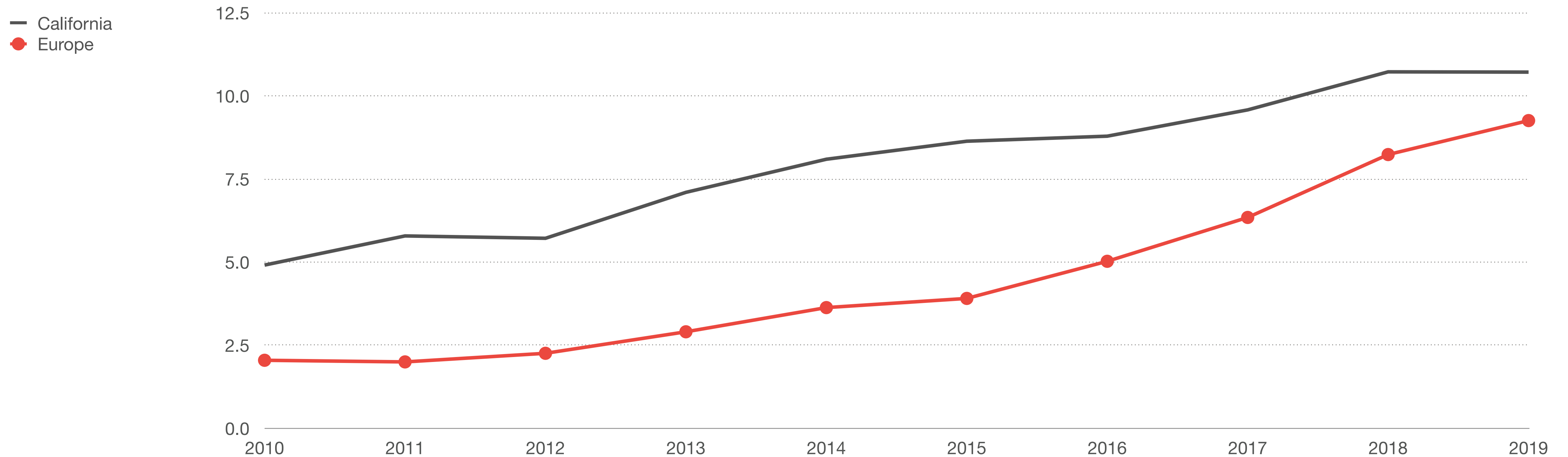


Source: Pitchbook
* Funding rounds raising between \$3m and \$20m

Closing the gap?

From 40% of California in 2010 to 85% in 2019

Early-stage capital* invested, \$bn

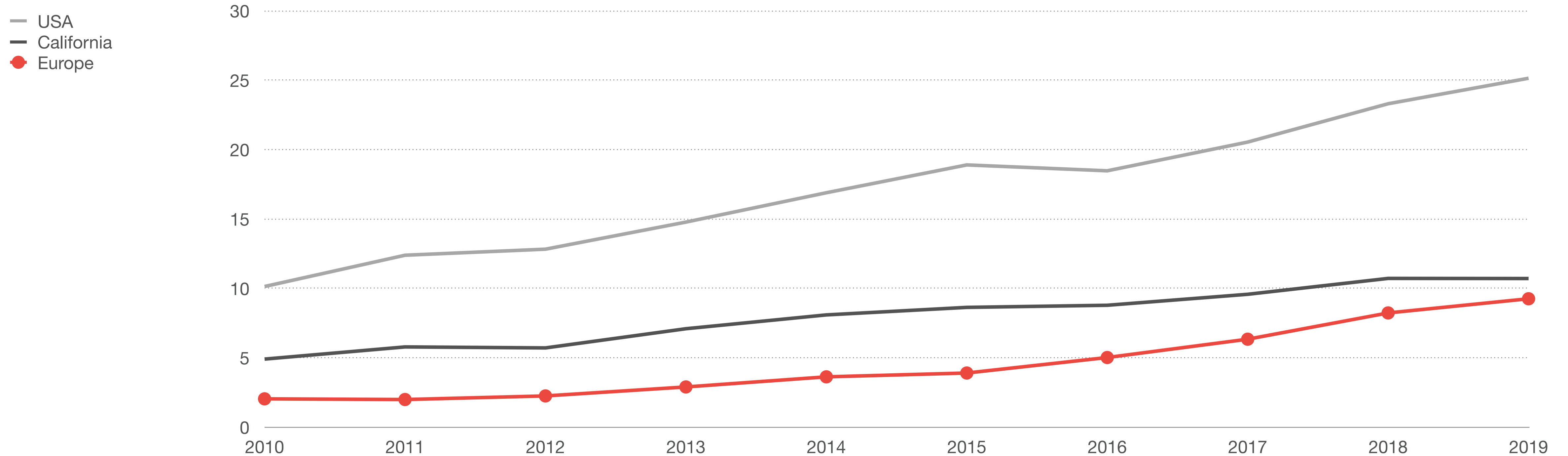


Source: Pitchbook
* Funding rounds raising between \$3m and \$20m

Closing the gap?

... though still only a third of total US investment

Early-stage capital* invested, \$bn



Source: Pitchbook
* Funding rounds raising between \$3m and \$20m

European leverage, or diffusion?

Three things have been top of mind for European tech

Fields where Europe has a specific advantage (these get talked up a lot)

Frontier science

Universities &
research
institutions

Fintech

Modern
infrastructure
Flexible
regulation
City of London

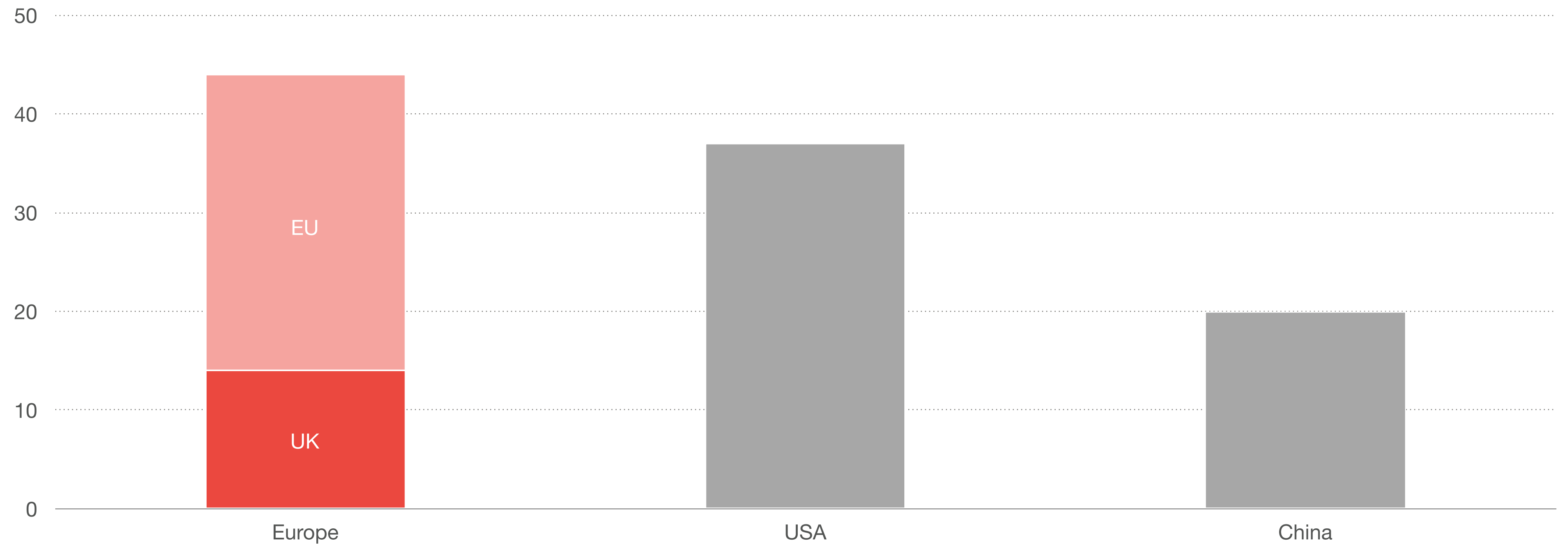
Bio

Huge data pools
Healthcare
systems
Underexploited
research

Europe has a lot of world-class research

Impact-weighted metrics show European research is doing OK...

Share of the world's most highly-cited publications, 2018 (%)

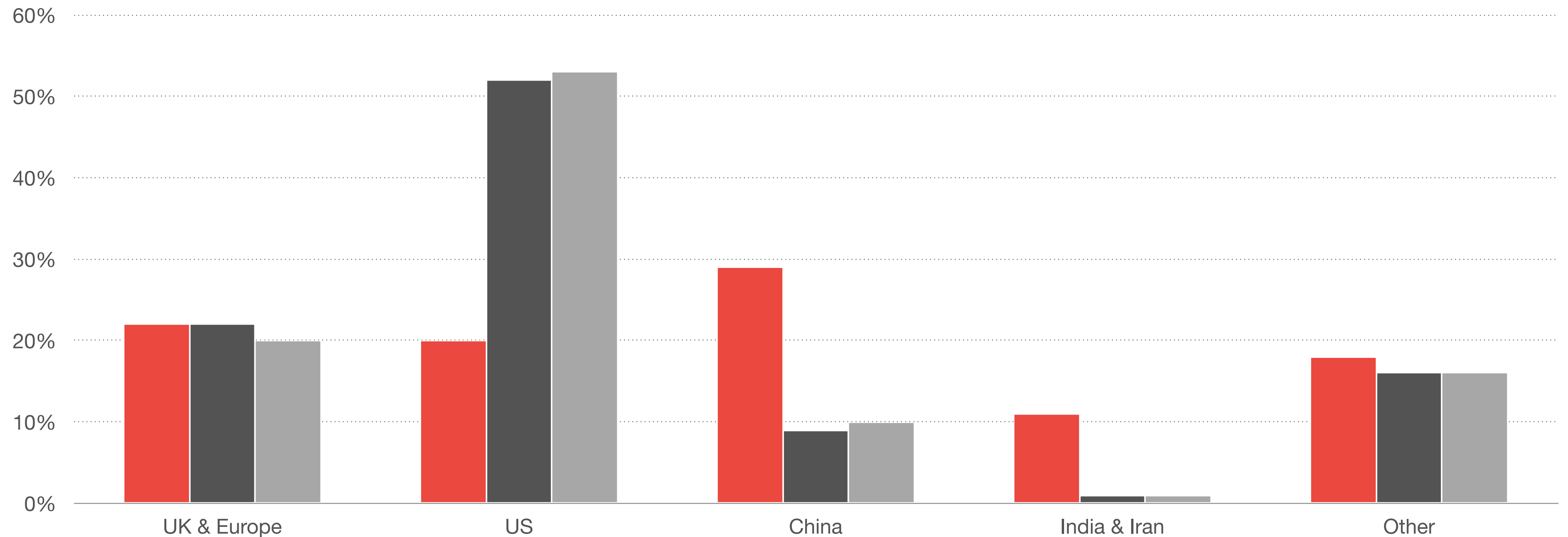


The US is a global magnet, but Europe keeps its talent

The US and Europe produce and retain AI talent, though the US is much better at pulling in researchers from elsewhere

NeurIPS 2019 paper submitters by education*

■ Undergraduate
■ Graduate
■ Post-graduate



Source: Macropolo

* Sample of 671 authors of 175 papers selected from 1,400 total submitted

Regulation as an advantage? (Seriously)

Structure of European markets and their regulators can make life much easier for startups in some sectors

Flexibility

US regulatory models can struggle to change rules as needed

Competition

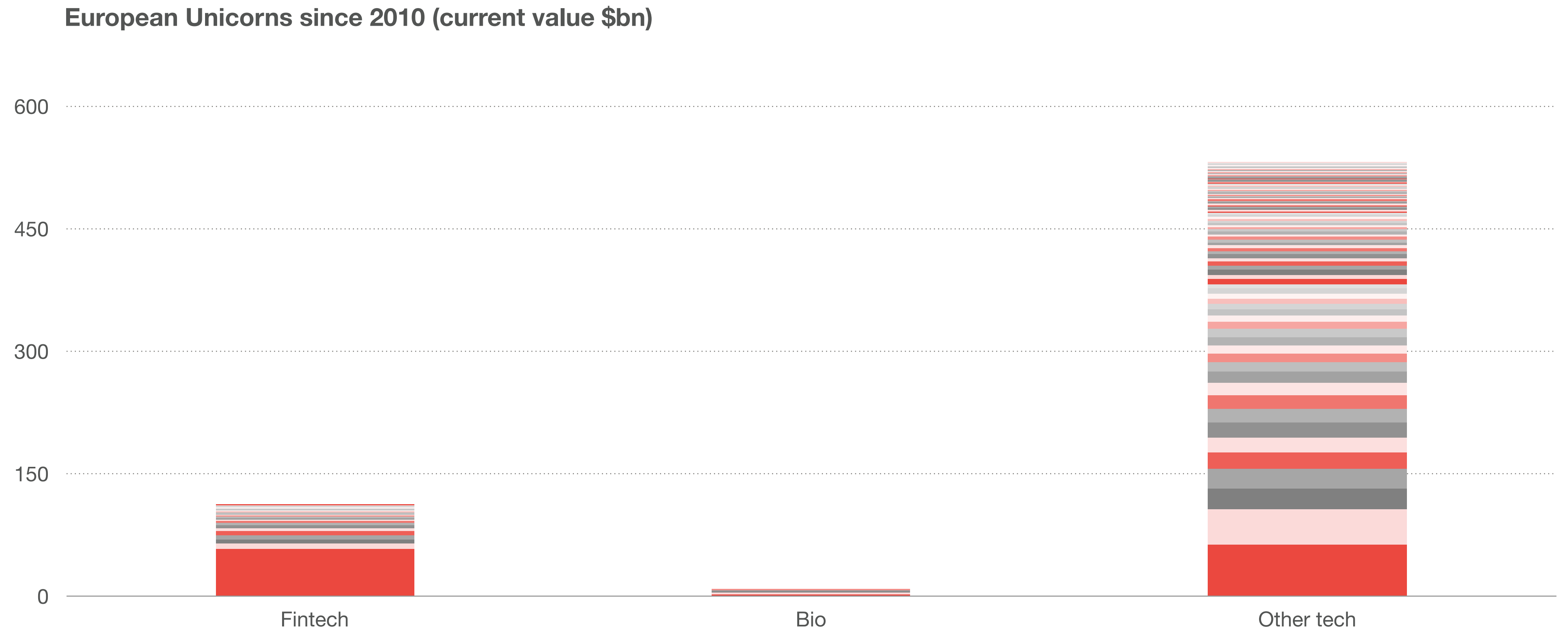
A dozen economies experiment with different rules

Local problems

Solving locally-specific problems *can* be a sandbox for global growth

Narrative violation?

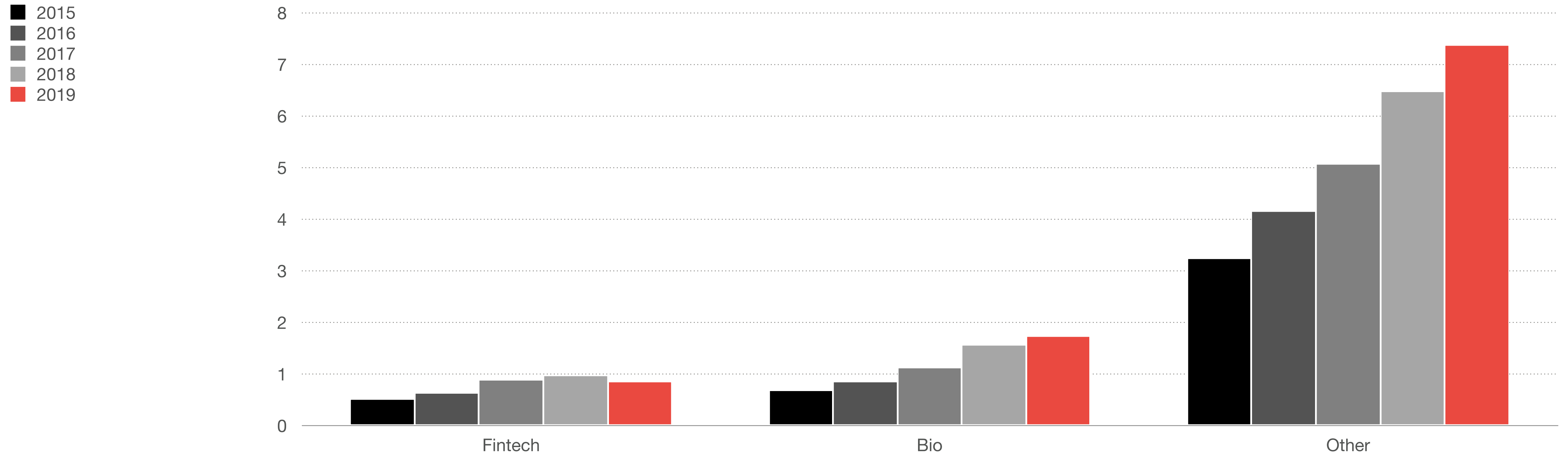
Less than 20% of the value of European unicorns is in fintech and bio



And this is reflected in investing

European startup investing now goes far broader

Early stage* investment in European company by sector, 2019 (\$bn)

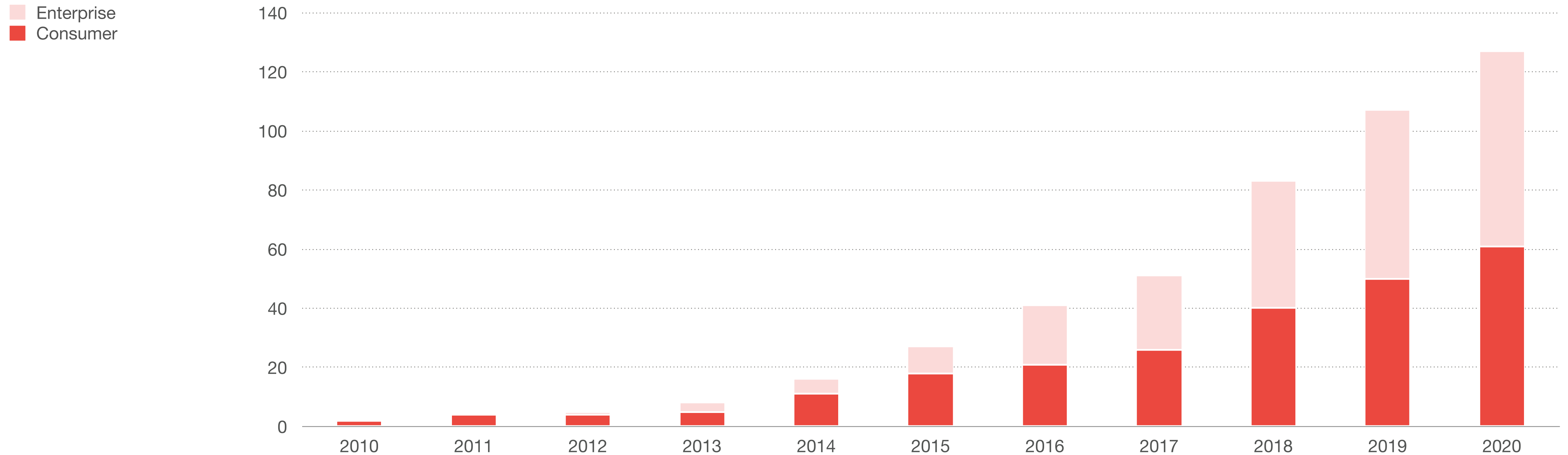


Source: Pitchbook
* Funding rounds raising between \$3m and \$20m

A broadening base

European unicorns have expanded from a largely consumer story to a broader base

European Unicorns (cumulative)

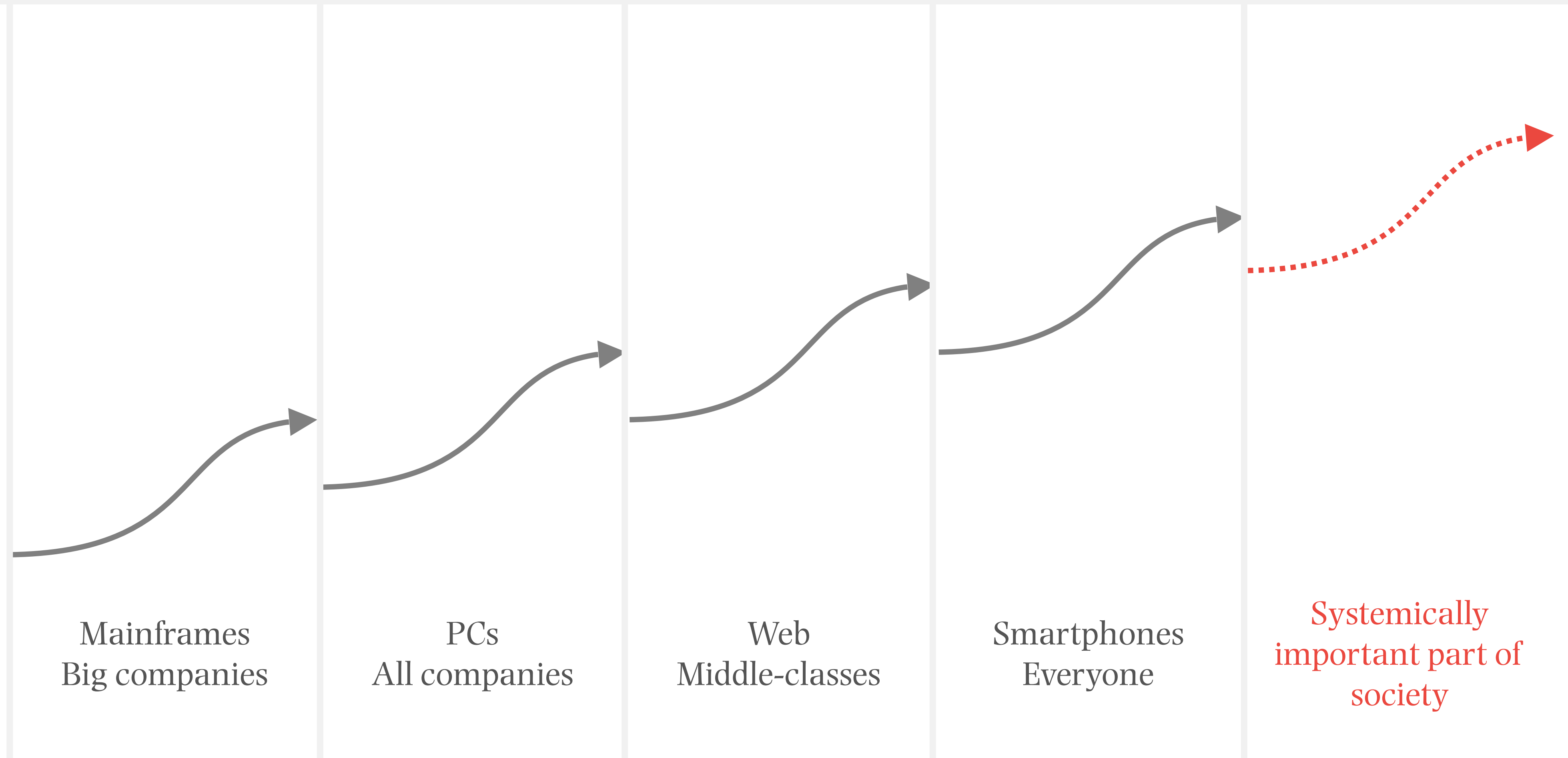


‘Software is eating the world’

(Remember?)

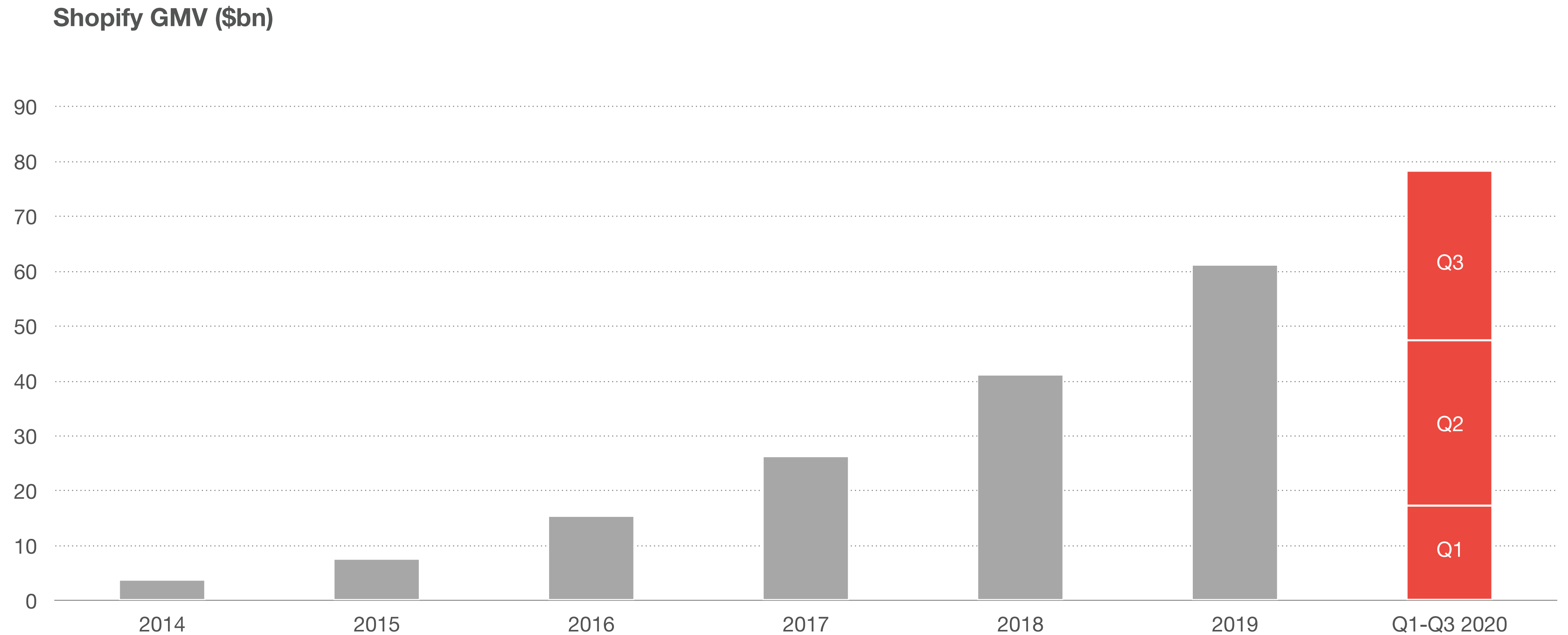
Tech has become central to society

Tech used to sell accounting tools to big companies - now it's part of our life



Shopify has come from nowhere (well, Canada) to \$80bn

Over a million merchants, from the long tail to Unilever and Pepsico



Standing on the shoulders of giants

The scale of consumer adoption and expectation, and the growth of platforms, unlocks far bigger opportunities



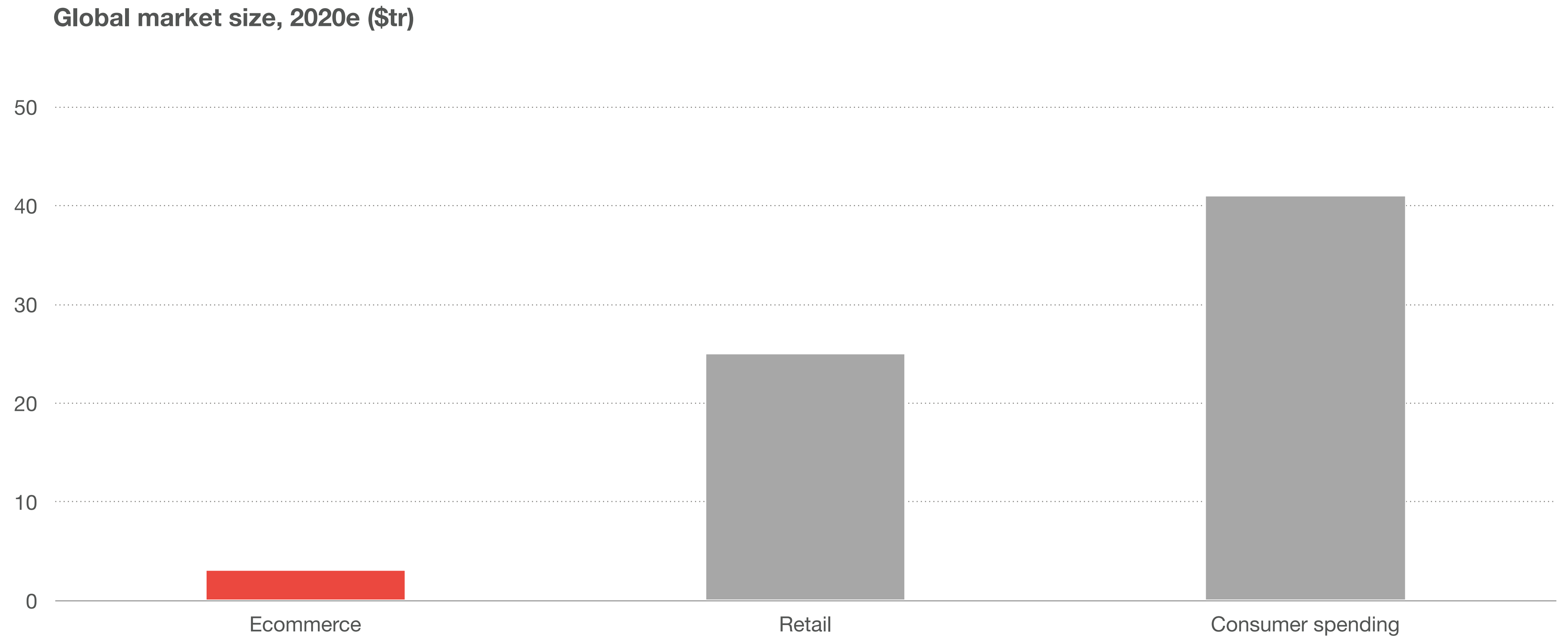
Density &
penetration

Consumer
expectation

Platforms

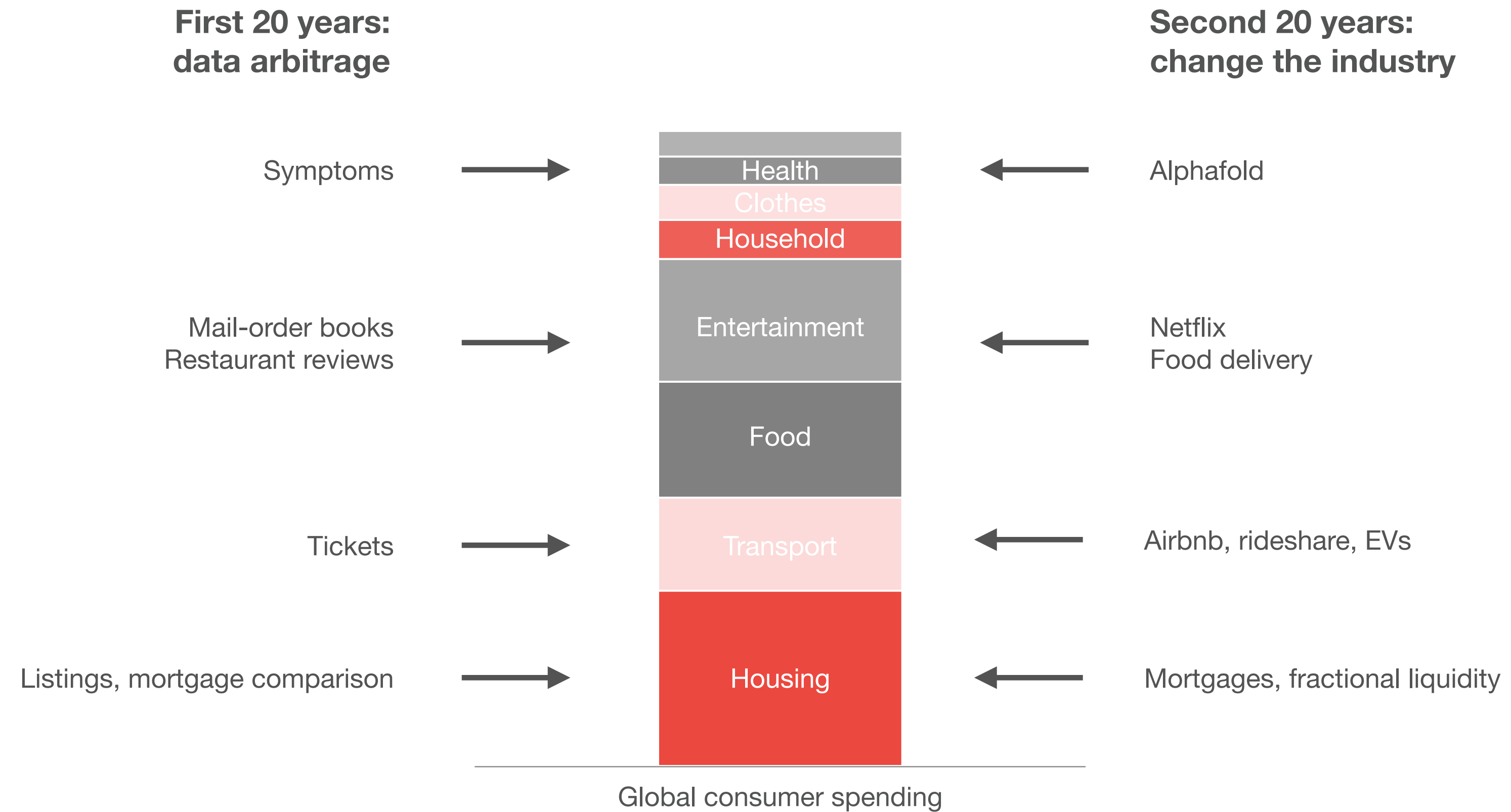
What's the real opportunity?

'Mail order retail by computer' is a tiny portion of total consumer spending



Moving to harder problems

First 20 years: information arbitrage. Second 20 years: change entire industries with software



Taking software from work to life

Software, automation, workflow, and tools...

From work & big business to daily life

From mainframes, to Salesforce, to Tinder

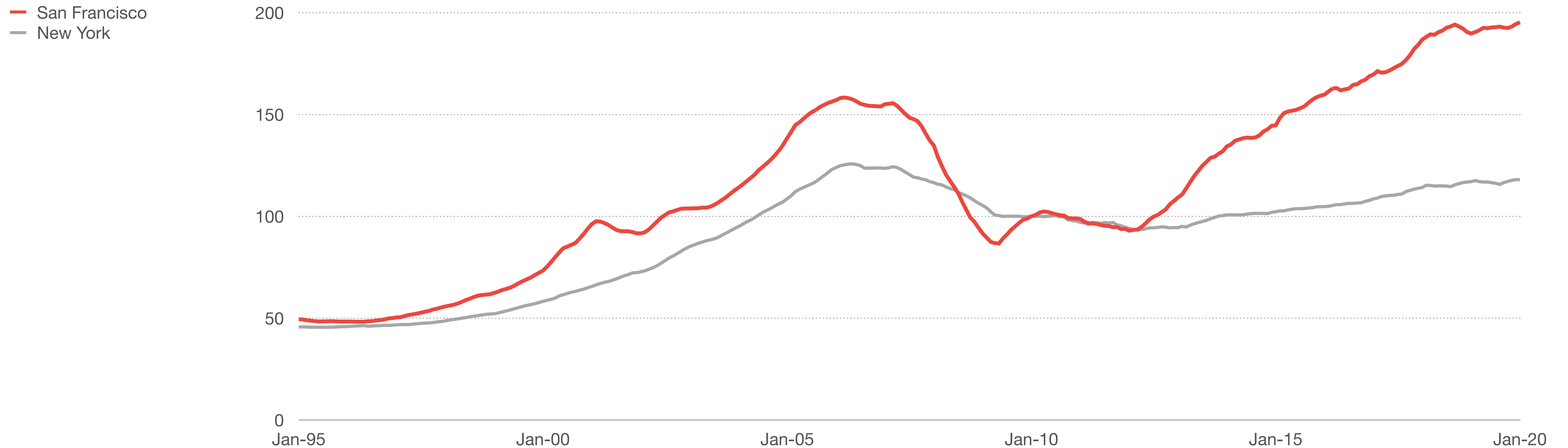


Conclusion

Silicon Valley's 'boiling the frog' moment?

Does 2020 finally prompt tech companies to move outside the San Francisco Bay Area?

Case-Shiller home price index (2010=100)

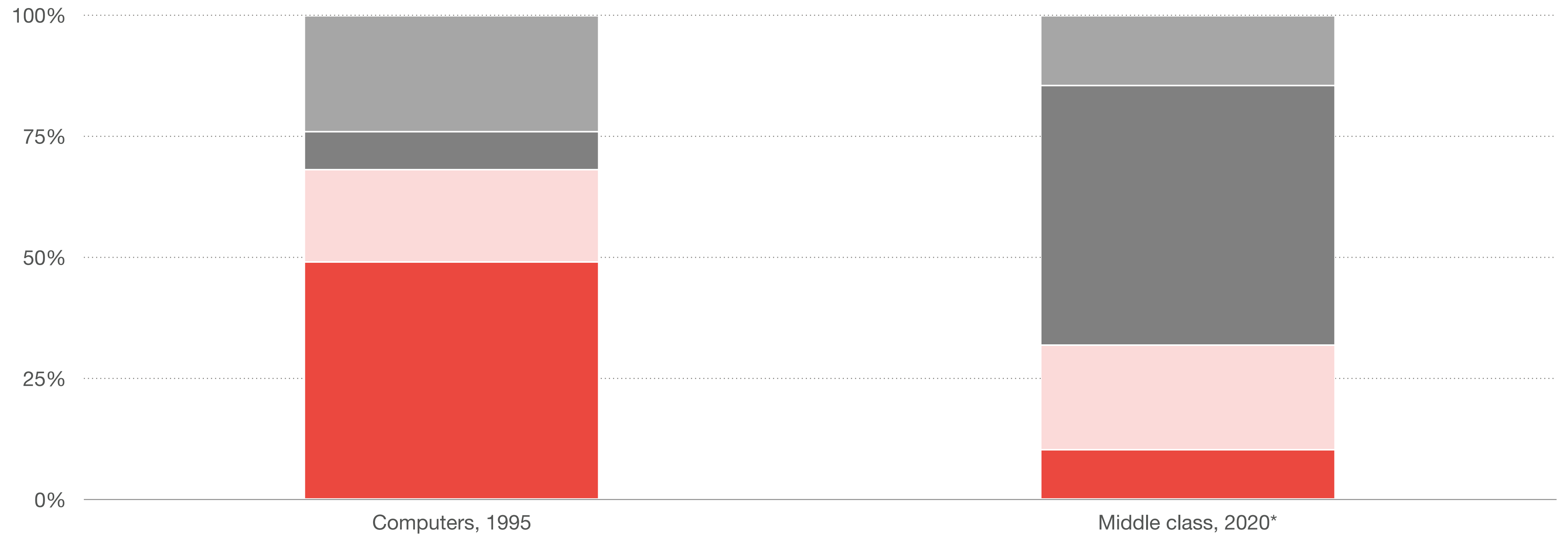


The market moves from 'computers' to 'people'

When the web began, the market was PCs. Now it's everyone on earth

Global addressable market

- All other
- APAC
- Europe
- North America



Source: IMD, OECD

* Daily expenditures between \$10 and \$100 per person in PPP

Global diffusion

Tech changes from a small industry with a cluster in Silicon Valley to global adoption and company creation



Software and
startup creation
goes global

Europe builds a
flywheel

And everyone
will do anything
online

Thank you

Benedict Evans / Mosaic Ventures

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