September 2022

Funding the Next Generation of European Broadband Networks

Progressive Policy Institute

ppi radically pragmatic

Key Takeaways

- PPI has been studying the relationship between the tech and telecom sectors for more than a decade. We have documented high levels of job growth (App Economy) and capital investment from the current environment.

- We believe that transferring revenue from the tech industry to the telecom industry — effectively a new tax — will reduce overall capital expenditures and negatively impact businesses and consumers.

- Online platforms currently play a significant role in the maintenance and development of global network infrastructure.

ppi radically pragmatic

Investment and Job Creation

- The sizable investments in mobile and broadband by the telecom industry in the 2000s did not create more jobs at telecom companies, since it takes fewer workers to maintain fiber optic links and mobile towers than copper networks.

- However, PPI research, starting in 2011, identified downstream job creation linked to investment in mobile networks. To assess these downstream impacts, PPI developed a novel methodology for quantifying “App Economy” jobs by analyzing job postings. The point was to show the contribution of mobile investments to job growth.

ppi radically pragmatic

Mobile and European App Economy Jobs

We applied this methodology first to the United States and then to Europe (30 countries, including the United Kingdom, Norway, and Switzerland).

These figures, based on various reports since 2016, include conservative estimates of spillovers.

The most recent report was released in May 2022.

Date of Estimate	European App Economy Jobs
January 2016	1.64 million
January 2017	1.89 million
April 2018	2.05 million
July 2019	2.09 million *(as originally published)*
July 2019	2.38 million *(revised in 2022 for methodology changes)*
December 2021 *(released May 2022)*	3.03 million *(based on revised methodology)*

ppi radically pragmatic

Europe Leads in App Economy Jobs

We note that as of late 2021/early 2022, Europe's 3 million estimated App Economy jobs considerably exceeded the 2.6 million total in the United States.

Jobs are an important indicator. It suggests a well-functioning mobile network in Europe, able to support a strong App Economy.

Date of Estimate	Date of Publication	U.S. App Economy Jobs *(thousands)*
July 2008	*Creation of first app store*	0
November 2011	February 2012	466
April 2012	October 2012	519
June 2013	July 2013	752
December 2015	January 2016	1660
December 2016	May 2017	1729
April 2019	September 2019	2246
August 2020	August 2020	2520
January 2022	May 2022	2564

ppi radically pragmatic

Levels of Capital Investment Over Time

- Roughly a decade ago, PPI also began studying capital investment patterns in both telecom and tech in our annual “Investment Heroes” reports. The goal was to rank the top 25 companies by U.S. capital investment.

- Our analysis of 2011 data found telecom companies with roughly $48 billion in U.S. capx. That rose to $58 billion over the next decade, a 22% increase. Over the same stretch, domestic capx by tech companies in our analysis rose from roughly $15 billion to $115 billion.

- Data limitations makes it hard to extend this analysis directly to Europe. However, examination of capital spending patterns suggests that the same rapid rise of tech capital investment is true in Europe as well.

ppi radically pragmatic

Capital Expenditure By Tech

- Tech companies' involvement in the development of network infrastructure includes investments into the construction of data centers, subsea cables, and network edge locations — all of which store and transmit data traffic.
- It is estimated that the subsea cable projects by American OTT platforms contributed to an increase in global data transmission capacity by 41% in 2020.
- Data centers are responsible for the storage and processing of data, and network edge locations improve response times for data usage by processing data in a location near the end user.

Data Centers and Network Edge Locations

	U.S. Data Centers	European Data Centers	U.S. Edge Locations	European Edge Locations
Google	14	6	13	23
Amazon	22	18	19	30
Microsoft	8	18	25	31
Meta	17	3	-	-

ppi radically pragmatic

Market Differences – Europe and U.S.

Households Covered by Fixed Broadband Networks: (percentage of total households)

	U.S.		Europe	
	2019	2020	2019	2020
All Areas: High Speed	95	98	83	87
Rural Areas: High Speed	79	91	59	60
All Areas: Any Speed	99	99	97	97
Rural Areas: Any Speed	96	98	90	90

Source: USTelecom, "US vs. EU Broadband Trends 2012 to 2020"

On average, Europeans pay less for internet service than their American counterparts and have had slower consumer adoption of 5G service.

Differences in levels of investment may contribute to differences in service speeds and accessibility of internet access in the U.S. and Europe.

High speed is defined here as download speeds above 30 Mbps.

ppi radically pragmatic

Capital Expenditure By Telcos (2021)

European Union

Company	Annual Revenue *(€billions)*	Capital Expenditure *(€billions)*
Orange	28.7	6.0
Vodafone	27.7	7.9
Telefónica	23.2	3.3
Deutsche Telekom	35.6	6.0
Telecom Italia	12.5	3.1

United States

Company	Annual Revenue *($billions)*	Capital Expenditure *($billions)*
Verizon	133.6	20.3
AT&T	114.7	14.9
T-Mobile	68.1	9.8 *
Comcast	64.3	6.9
Charter Communications	51.7	7.6

** Figure excludes a reported $8.9 billion purchase of spectrum licensing which T-Mobile includes in capital expenditure in their annual report. The inclusion of the purchase puts capital expenditure at $18.6 billion.*

ppi radically pragmatic

The Impact of Regulatory Differences

- Although wireless prices have largely been flat in both European and American markets, U.S. telcos have been able to invest more in 5G and other high-speed network expansion.

- The EU has prioritized the lowest possible price to consumers through rigorous enforcement of competition law to discourage consolidation as well as caps on the prices paid for certain services. U.S. policymakers have emphasized investment in high-capacity networks and rural broadband.

ppi radically pragmatic

Conclusions

- Heavily regulated industries tend to invest less. In moving forward with goals for connectivity and digitalization, the trade-off between low prices to consumers must be weighed with the telecom operator’s propensity to invest such that the industry is not crippled by inability to achieve sufficient scale for network expansion.

- While over-the-top internet platforms are currently experiencing high growth, the mentality that they are therefore too big to fail and can withstand heavy regulation and taxation is an oversimplification of the market. This is a heightened risk given the other regulatory activities affecting the tech industry in Europe such as the Digital Markets Act.

ppi radically pragmatic

Conclusions

- Understanding the relationship between tech and telecom is not easy. In the case of jobs, PPI research shows that investment in mobile networks and data centers has created 3 million App Economy jobs in Europe, resting on a foundation of telecom and tech investment.

- In the United States, domestic telecom/broadband investment has risen compared to a decade ago, even while tech investment has soared.

- Levying a large new fee or tax on the tech industry in Europe will not help job creation or capital investment, hurting the expansion of a global online network and the consumers and business who rely on it.

ppi radically pragmatic

PROGRESSIVE POLICY INSTITUTE

EMAIL
info@progressivepolicy.org

CONNECT
progressivepolicy.org
@ppi

VISIT US
1156 15th Street NW
STE. 400
Washington D.C., 20005