9 The Digital Atlantic

The digital economy is booming.[1] Five and a half billion people now use the internet. One of every two companies in the world generates more than 40% of its revenue from digital products and services. Global spending on digital transformation is expected to reach almost $4 trillion by 2027. 70% of the new value created in the global economy in this decade will be digitally enabled.[2]

Digital globalization evokes the image of a seamless global marketplace. Yet digital connections are "thicker" between some continents and "thinner" between others – and they are "thickest" between North America and Europe. With that in mind, we present five ways to look at the Digital Atlantic. These metrics are not mutually exclusive; they are best understood as different lenses through which one can better understand the importance of transatlantic digital connections.

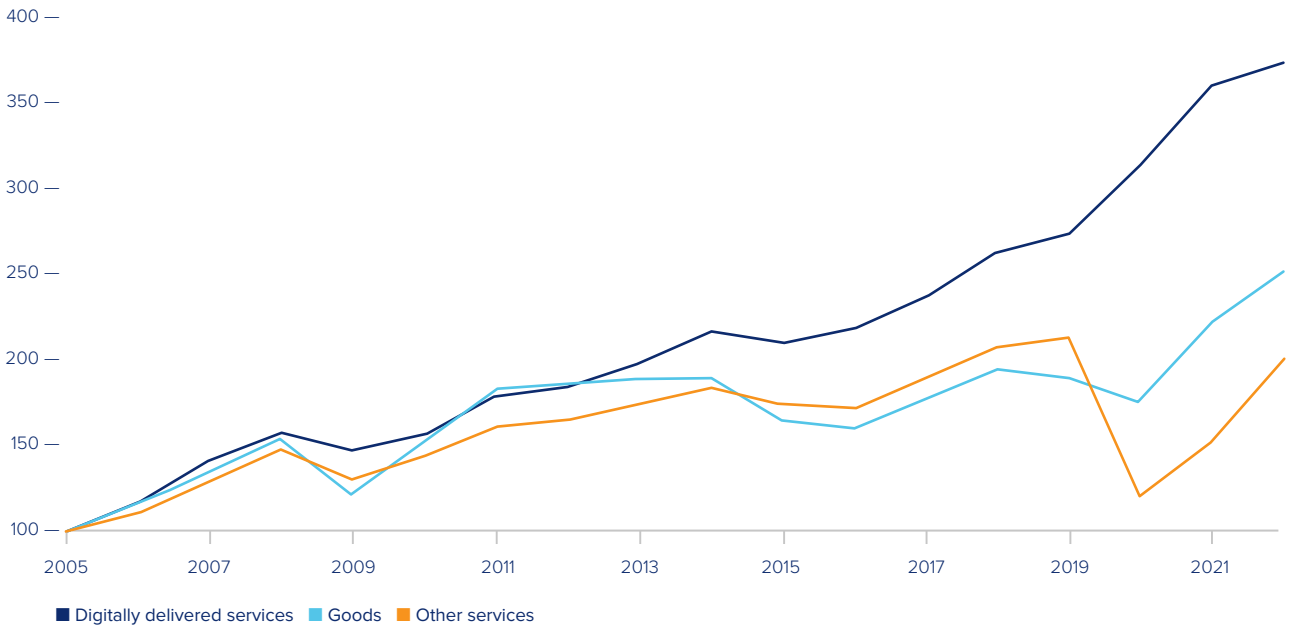
Transatlantic Trade and Investment in Digital Services and Digitally-Deliverable Services

Digitalization is changing the scale, scope, and speed of trade. It has blurred the distinction between goods and services. It has lowered shipping and customs processing times. It offers alternative means of payment and finance. It can boost growth, reduce costs, foster innovation, and promote resilience to disruptive shocks. At a time when trade in many traditional goods and services has flagged, digital trade is thriving.

The importance of digital connectivity for trade is growing. According to the UK's Department of Business and Trade and the OECD, digital connectivity delivers significant dividends: a 1% increase in cross-border digital connectivity leads to a 2.1% increase in domestic sales and a 1.6% increase in exports. On average, a 1% increase in domestic digital connectivity is associated

Table 1. Digitally Delivered Services: The Fastest Growing Segment of International Trade

Export Growth Index (2005=100)



Source: IMF, OECD, UNCTAD, World Bank, WTO, Handbook on Measuring Digital Trade, 2nd Edition, 2023, https://www.oecd-ilibrary.org/docserver/ac99e6d3-en.pdf.

with a 2.1% increase in domestic trade and a 1.5% increase in international trade.[3]

Many services once considered untradable can now cross borders instantaneously. These digitally-deliverable services include many information and telecommunications services, computing and data services, business and professional services such as accounting, architecture, bookkeeping, consulting, design, payroll, project management, research and travel services, as well as banking, insurance, and other financial services.

Cross-border digitally delivered services are the fastest growing segment of international trade, registering a fourfold increase in value since 2005 (Table 1). The value of global trade in digitally delivered services rose to $7.8 trillion in 2023, the last year for which data is available, accounting for half of overall services trade.[4]

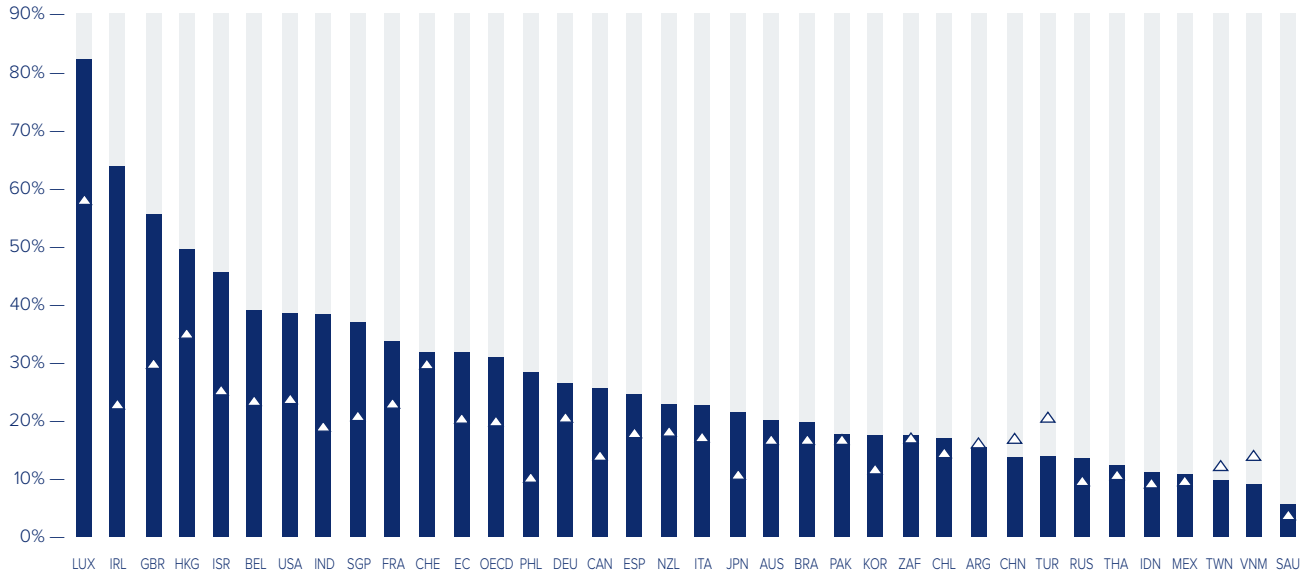
Europe and the United States accounted for two-thirds of global exports of digitally delivered services in 2023, the last year of available information. European exports (much of which were within Europe) accounted for 52% of the global total, followed by the U.S. (15%).[5]

Digitally-deliverable trade accounts for more than half of all exports by the UK, Ireland and Luxembourg, almost 40% of all U.S. exports and 33% of all French exports. The average share for the European Union is 31% (Table 2).[6]

Moreover, the U.S. and the EU are each other's premier partners when it comes to digitally-deliverable trade. The same is true for the UK. More than one-third of the UK's trade in digitally-deliverable services was with the EU, and another 30% was with the United States in 2021, the last year of available data.[7]

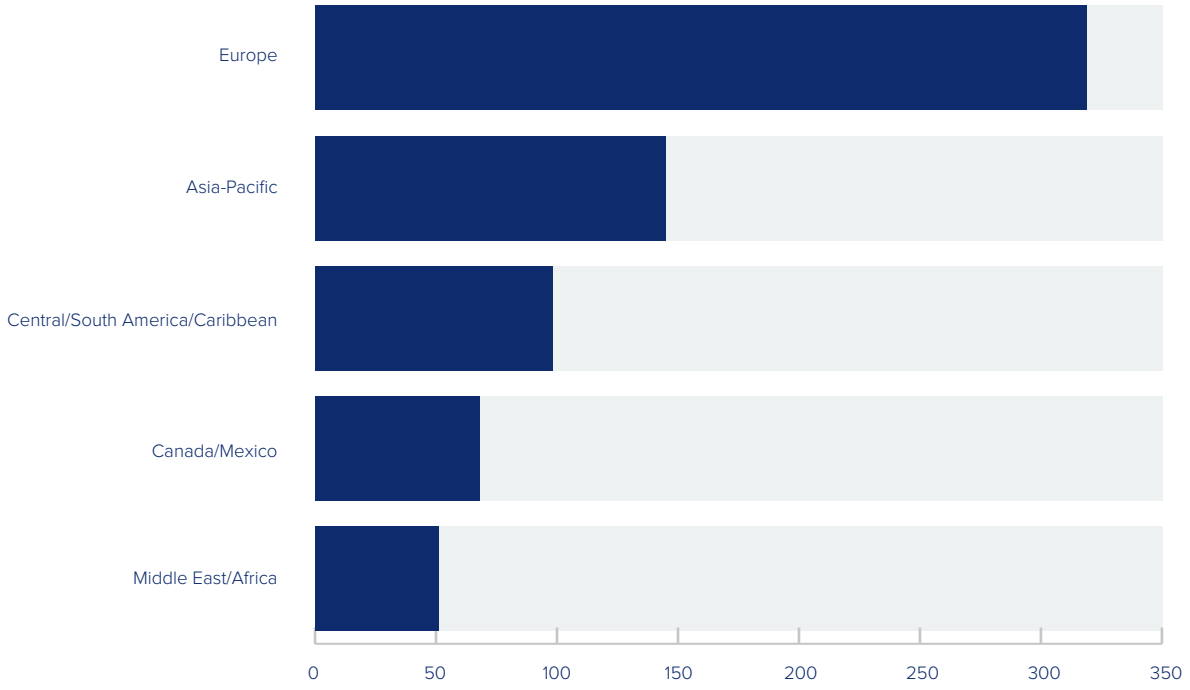
In 2023, the U.S. exported $655.5 billion in digitally-deliverable services to the world, and imported $388.8 billion. The result: a digitally-deliverable trade surplus of $266.7 billion.[8] The UK was the U.S.' top overall trading partner in digitally-deliverable services, and its largest source of digitally-deliverable services imports. Ireland maintained its position as the top recipient country for U.S. exports of digitally-deliverable services for the fifth year in a row.

Table 2. Digitally-Deliverable Services Trade, Share of Total Exports



Source: OECD, using TiVA database (2023): Javier López González, Silvia Sorescu, and Chiara Del Giovane, Making the Most Out of Digital Trade in the United Kingdom, OECD, September 2024, https://www.oecd.org/en/publications/making-the-most-out-of-digital-trade-in-the-united-kingdom_8f31d80b-en.html.

Table 3. U.S. Digitally-Deliverable Services Exports, by Region, 2023 ($Billions)



Source: U.S. Bureau of Economic Analysis. Note: Middle East/Africa estimate.

In 2023 the United States exported $320 billion in digitally-deliverable services to Europe – 49% of all U.S. digitally-deliverable exports to the world, 2.2 times more than what it exported to the entire Asia-Pacific region ($145 billion), and more than combined U.S. exports of digitally-deliverable services to the Asia-Pacific, Latin America and other Western Hemisphere, Africa and the Middle East. U.S. digitally-deliverable services to the EU of $199 billion surpassed its $145 billion in exports of such services to the entire Asia-Pacific (Table 3). Within Europe, the EU accounted for 62%, and the EU+UK+Switzerland accounted for 98%, of U.S. digitally-deliverable exports.

Of the $262.66 billion in overall services the U.S. exported to the EU in 2023, 76% ($199.35 billion) were digitally-deliverable. Of the $185.14 billion in services that the U.S. imported from the EU in 2023, 51% ($93.97 billion) were digitally-deliverable. The U.S. trade surplus with the EU in overall services in 2023 was $76.52 billion of total U.S.-EU services trade of $446.80 billion. Within that overall services trade figure, the U.S. surplus in digitally-deliverable services with the EU was $105.38 billion.[9]

Digitally-deliverable exports account for over half of the total exports of 35 U.S. states, and only in Alaska and Hawaii is that figure under 25%. Every U.S. state exports more digitally-deliverable services to Europe than to any other world region (Table 4). Kansas exports 2.9 times more in digitally-deliverable services to Europe than it does to the entire Asia-Pacific region. Arizona and California each export 2.7 times more; Tennessee and Texas 2.4 times more; Florida, Maryland, and Michigan 2.3 times more; and Indiana and North Carolina 2.2 times more.[10]

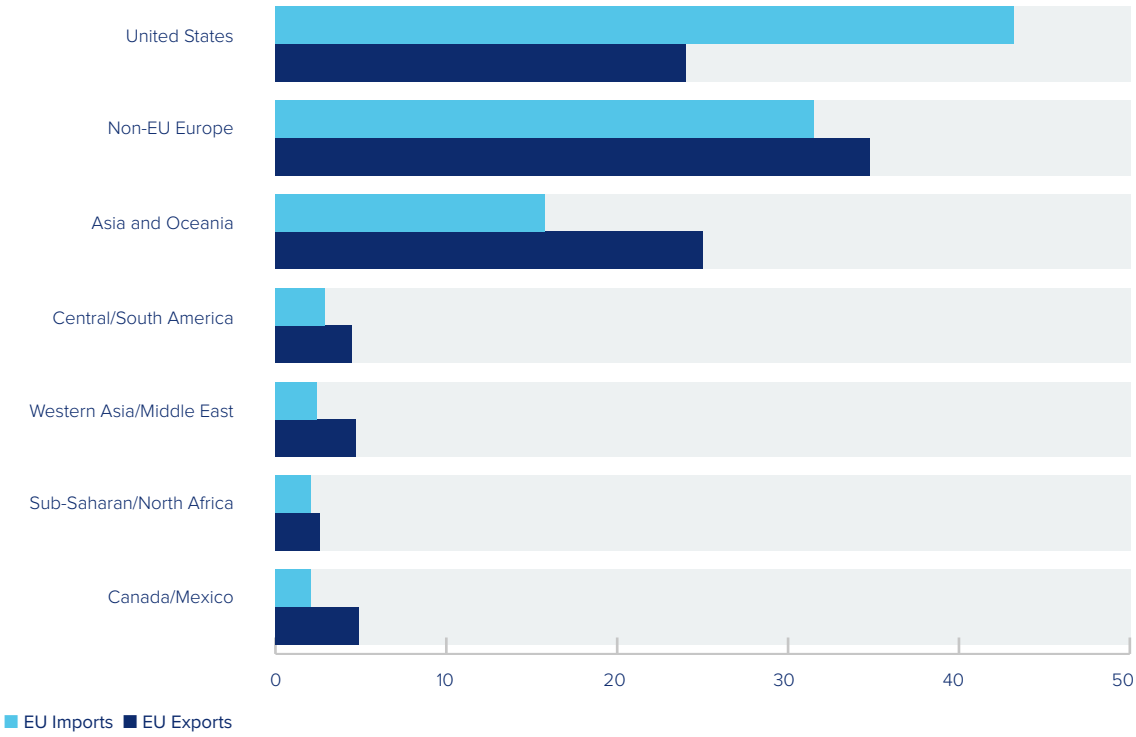
Most of the EU's trade in digitally-deliverable services takes place within the EU itself: over $1.5 trillion in 2023. Outside the EU, the United States is the bloc's leading trade partner, by a wide margin. U.S.-EU trade in digitally-deliverable services in 2023 of $575 billion was 10 times larger than the EU's trade in such services with China/Hong Kong of $57 billion. The U.S. trade surplus with the EU in digitally-deliverable services in 2023 was $150 billion.

Table 4. Europe's Share of U.S. State Exports of Digitally-Deliverable Services, 2022 ($Millions)

State	Total to the World	to Europe		to Asia/Pacific/China	
	Value	Value	Share	Value	Share
Alabama	$3,116.40	$1,463.00	47%	$754.00	24%
Alaska	$186.50	$83.00	45%	$47.00	25%
Arizona	$9,578.20	$5,062.00	52%	$2,249.00	23%
Arkansas	$1,315.60	$635.00	48%	$294.00	22%
California	$142,675.90	$73,526.00	52%	$33,360.00	23%
Colorado	$11,940.00	$5,907.00	49%	$3,058.00	26%
Connecticut	$11,868.40	$4,679.00	39%	$2,141.00	18%
District of Columbia	$6,487.40	$3,184.00	49%	$1,356.00	21%
Delaware	$3,556.20	$1,409.00	40%	$945.00	27%
Florida	$24,691.40	$12,266.00	50%	$5,547.00	22%
Georgia	$17,942.60	$8,497.00	47%	$4,123.00	23%
Hawaii	$595.10	$254.00	43%	$186.00	31%
Idaho	$1,318.50	$684.00	52%	$323.00	24%
Illinois	$28,253.30	$13,985.00	49%	$6,109.00	22%
Indiana	$6,307.60	$3,631.00	58%	$1,649.00	26%
Iowa	$3,504.40	$1,669.00	48%	$869.00	25%
Kansas	$2,854.30	$1,592.00	56%	$552.00	19%
Kentucky	$1,989.90	$1,022.00	51%	$479.00	24%
Louisiana	$2,674.20	$1,446.00	54%	$644.00	24%
Maine	$1,023.10	$499.00	49%	$249.00	24%
Maryland	$12,134.80	$6,285.00	52%	$2,818.00	23%
Massachusetts	$32,112.50	$15,388.00	48%	$7,065.00	22%
Michigan	$7,754.20	$4,024.00	52%	$1,904.00	25%
Minnesota	$9,319.20	$4,717.00	51%	$2,083.00	22%
Mississippi	$783.00	$349.00	45%	$193.00	25%
Missouri	$7,534.70	$3,448.00	46%	$1,760.00	23%
Montana	$595.30	$276.00	46%	$139.00	23%
Nebraska	$1,814.00	$868.00	48%	$474.00	26%
Nevada	$2,054.00	$803.00	39%	$610.00	30%
New Hampshire	$2,719.50	$1,389.00	51%	$685.00	25%
New Jersey	$18,969.10	$10,240.00	54%	$4,441.00	23%
New Mexico	$1,378.50	$751.00	54%	$360.00	26%
New York	$95,027.60	$38,287.00	40%	$17,656.00	19%
North Carolina	$20,699.00	$10,928.00	53%	$4,882.00	24%
North Dakota	$378.60	$181.00	48%	$86.00	23%
Ohio	$15,455.20	$7,232.00	47%	$3,698.00	24%
Oklahoma	$1,255.70	$587.00	47%	$310.00	25%
Oregon	$5,548.80	$3,019.00	54%	$1,505.00	27%
Pennsylvania	$17,582.00	$8,024.00	46%	$3,842.00	21%
Rhode Island	$1,074.50	$509.00	47%	$253.00	24%
South Carolina	$3,125.50	$1,578.00	50%	$782.00	25%
South Dakota	$1,318.70	$578.00	44%	$305.00	23%
Tennessee	$7,876.30	$4,171.00	53%	$1,760.00	22%
Texas	$43,321.70	$23,067.00	53%	$9,636.00	22%
Utah	$6,557.60	$3,207.00	49%	$1,776.00	27%
Vermont	$668.50	$352.00	53%	$255.00	38%
Virginia	$16,492.80	$8,237.00	50%	$3,919.00	24%
Washington	$25,385.40	$13,374.00	53%	$7,846.00	31%
West Virginia	$459.10	$243.00	53%	$115.00	25%
Wisconsin	$5,202.60	$2,530.00	49%	$1,395.00	27%
Wyoming	$175.50	$80.00	46%	$43.00	25%
Total US	**$646,653.00**	**357,698.00**	**55%**	**$176,603.00**	**27%**

Source: U.S. Chamber of Commerce.

Table 5. EU Trade in Digitally-Deliverable Services, Major Regions, 2022 ($Billions)



Source: Authors' own calculations based on OECD, Eurostat.
Note: Digitally-enabled services include finance; insurance; IP charges; telecommunications, computer, information services; R&D services; professional and management services; architectural, engineering, scientific and other technical services; trade-related services; audiovisual services; and other personal, cultural, and recreational services.

In 2022, the last year of globally comparative data, the EU's trade in digitally-deliverable services with just one country, the United States, was about the same as the EU's trade in such services with the rest of Europe (Table 5). The EU took in 1.4 times more such services from the U.S. than from the rest of Europe, also 1.4 times more than from the rest of the world outside of Europe, including 2.7 times more than from Asia and Oceania. The EU was also the largest supplier of such services to the United States; U.S imports of such services from the EU of $207 billion rivaled total imports of such EU services by all of Asia and Oceania of $220 billion.

Even more important than digital trade is the delivery of digital services by U.S. and European foreign affiliates – another indicator reinforcing the importance of foreign direct investment, rather than trade, as the major driver of transatlantic commerce.

In 2022, U.S. services supplied by affiliates abroad were valued at $2.1 trillion, roughly 2.2 times more than U.S. global services exports of $949.1 billion. Digitally-deliverable services account for half of all services supplied by U.S. affiliates abroad, and are more than all U.S. global services exports.[11]

The significant presence of leading U.S. and European service and technology leaders in each other's markets underscores the dense nature of the digital Atlantic. In 2022, Europe accounted for 70% of the $518 billion in total global information services supplied abroad by U.S. multinational corporations through their majority-owned foreign affiliates. U.S. overseas direct investment in the information industry in the UK alone, for instance, was 2.8 times more than U.S. information industry investment in the entire Western Hemisphere outside the United States, and 14 times more than such investment in China.[12] Equivalent U.S. investment in Germany was 3.3 times more than in China. Even more striking is the fact that European companies provided 81% of the $176 billion in information services supplied in 2022 by all foreign affiliates based in the United States – dwarfing those of all other regions put together.[13]

E-Commerce

A second way to understand the importance of the Digital Atlantic is by looking at electronic commerce (e-commerce), which refers to transactions in which goods or services are ordered over a computer network (usually over the Internet).[14] Here again we run into some definitional and data challenges. Most estimates of e-commerce do not distinguish whether such commerce is domestic or international. Many metrics do not make it clear whether they cover all modes of e-commerce or only the leading indicators of business-to-business (B2B) and business-to-consumer (B2C) e-commerce. Finally, most countries do not compile reliable statistics on the value of e-commerce, and those that do vary in terms of their definitions, data sources and methods, and approaches to e-commerce value. Many are based on surveys rather than on real data.[15]

Nevertheless, we can evaluate and compare many different estimates and surveys that have been conducted. B2B and B2C global e-commerce revenue is projected to reach $40 trillion in 2025, $48 trillion in 2026, and over $79 trillion by 2030.[16]

When most people hear the term 'e-commerce,' they think of consumers buying things from businesses via websites, social networks, crowdsourcing platforms, or mobile apps. These B2C transactions, however, pale in comparison to B2B e-commerce, which accounts for most global e-commerce, and which is growing much faster. In 2024 B2B e-commerce was valued at $30.4 trillion, 3.8 times that of the $8 trillion B2C e-commerce market. Projections indicate the B2B e-commerce market will grow to $66.9 trillion in 2029.[17]

In the U.S., 74.6% of e-commerce is B2B and 25.4% is B2C. The U.S. B2B e-commerce market was worth an estimated $4.04 trillion in 2024; projections indicate it will grow to $7.53 trillion in 2029. The U.S. accounted for 13.3% of global B2B e-commerce in 2024, 3.6% less than in 2023. North America's B2B e-commerce market was worth an estimated $4.55 trillion in 2024, equivalent to 15% of the global market. Europe's B2B e-commerce market was worth an estimated $2.05 trillion in 2024, 6.3% of the global market. The Asia-Pacific B2B e-commerce market is far larger, estimated to be $23.7 trillion in 2024.[18]

While B2B e-commerce accounts for the bulk of global e-commerce, most B2B e-commerce does not cross a border. Most B2B e-commerce users are manufacturers or wholesalers who are dependent on physically moving goods, and often heavy freight; the lack of freight digitalization ultimately poses a barrier to cross-border B2B e-commerce. The sheer volume of B2B e-commerce, however, means it still is the most important component of cross-border e-commerce sales.[19]

Global B2C e-commerce reached an estimated $6.3 trillion in 2024, up 8.8% from 2023 ($5.8 trillion). Projections indicate that value will increase to $8.5 trillion in 2028. Over 2.77 billion consumers engage in B2C commerce around the world; over half shop for goods or services internationally. 21% of retail purchases will take place online in 2025, which is the highest to date. It is further expected that 22.6% of all retail purchases will be made online by 2027.[20] China accounts for 42.2% of global B2C e-commerce sales, followed by the U.S. (35.8%) and Japan (5.1%). The UK, Germany, and South Korea rank 4th, 5th, and 6th, respectively. Roughly three-quarters of European internet users buy goods or services online.[21]

Table 6. Cross-Border B2C E-Commerce by Country ($Billions)

Country	Exports	Imports	Total
China	$1,716.00	$88.20	$1,804.20
United States	$90.00	$28.20	$118.20
France	$22.30	$80.10	$102.40
Germany	$30.10	$30.60	$60.70
Canada	$1.70	$52.00	$53.70
United Kingdom	$36.70	$10.20	$46.90
India	$8.00	$18.00	$26.00
South Korea	$4.90	$4.50	$9.40
Japan	$2.80	$5.00	$7.80

Source: Capitol One Shopping, "Cross-Border e-Commerce Statistics," April 10, 2024, https://capitaloneshopping.com/research/cross-border-online-shopping-statistics/#:~:text=Cross%2Dborder%20e%2Dcommerce%20accounts,23.6%25%20of%20all%20retail%20sales
Data for 2023.

Trade in digitally-deliverable services (2023)
$199 billion
U.S. to the EU
$94 billion
EU to the U.S.

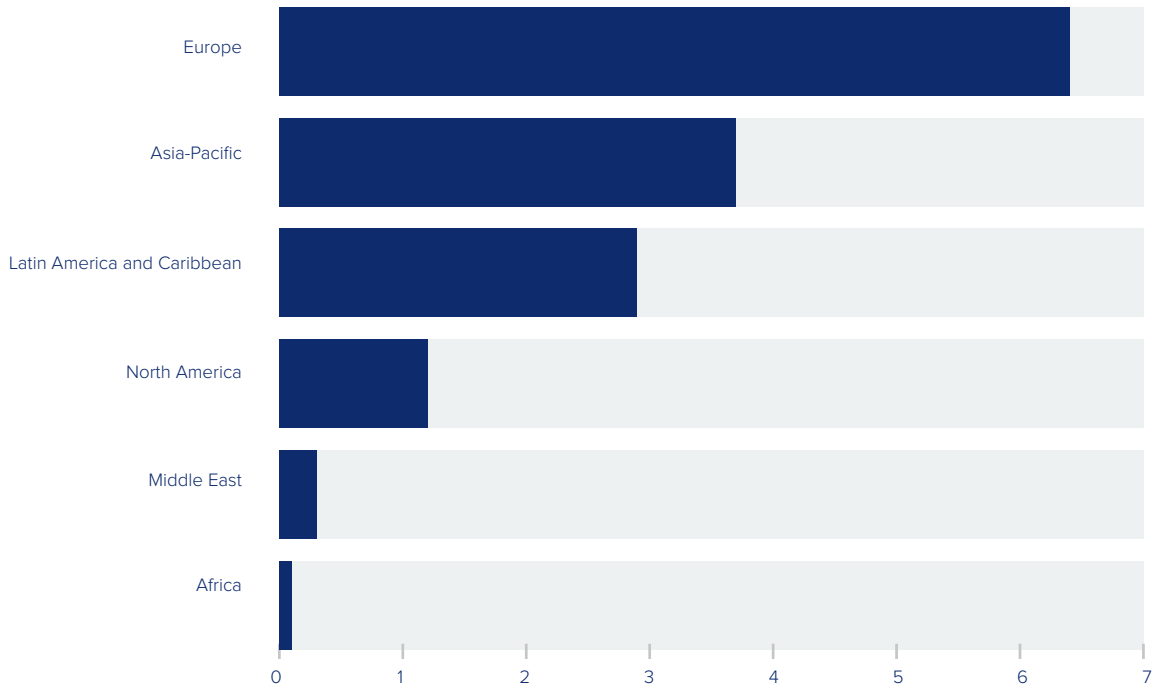
The United States is home to half of the world's 24 million e-commerce stores. Experts predict U.S. B2C e-commerce sales to reach $1.26 trillion in 2025, $1.72 trillion by 2027, and will surpass $2 trillion in 2028. By then, online sales could make up about a quarter of total U.S. retail sales, 10% more than its current share.[22] B2C ecommerce in the United States represented 21.4% of global B2C ecommerce sales in 2023.[23]

The cross-border B2C e-commerce market was worth an estimated $2 trillion in 2024, up significantly from $1.56 trillion in 2023. It is expected to reach $5.06 trillion by 2028, growing twice as fast as global B2C e-commerce as a whole. 72% of worldwide e-commerce sales come from mobile devices; projections indicate the mobile e-commerce share will exceed 90% in 2027.

56% of online shoppers in Canada, and 52% of online shoppers in Spain, purchased items from other countries in the past year. Next was Italy at 47%, followed by France (46%) and the UK (43%). About a third of German and U.S. online shoppers made cross-border purchases during the past year. The American shopping event Black Friday has become the world's biggest online shopping day. E-commerce sales in Türkiye, for example, rise 269% on Black Friday. [24]

33% of total B2C e-commerce turnover in the EU was cross-border within the EU in 2023; 21% was with countries outside the EU. In 2023/2024, the European cross-border e-commerce market reached $353 billion.[25] E-commerce FDI totaled $36 billion between 2016 and 2023, according to estimates. Europe, especially western Europe, is the primary global investment destination. U.S. companies were significant sources of this infusion of foreign direct investment (Table 7).[26]

Table 7. **E-Commerce FDI by Destination Region** ($Billions)



Source: fDi Markets. Announced foreign direct investment capex, 2023. includes estimates.

The Platform Economy

Platform companies that connect individuals and companies directly to each other to trade products and services have become dominant players in the digital economy. Eight of the world's ten most valuable firms currently operate using a platform business model. Platforms have swiftly reshaped the U.S. and European economies, as well as the commercial connections between them, by matching supply and demand in real time and at unprecedented scale, and by connecting code and content producers to develop applications and software such as operating systems or technology standards.[27] The platform economy is itself being reshaped as AI companies adopt platform models to turbocharge global commerce. The 100 most valuable platform companies are valued at $22.67 trillion, about 20% of the size of the entire global economy (Table 8).

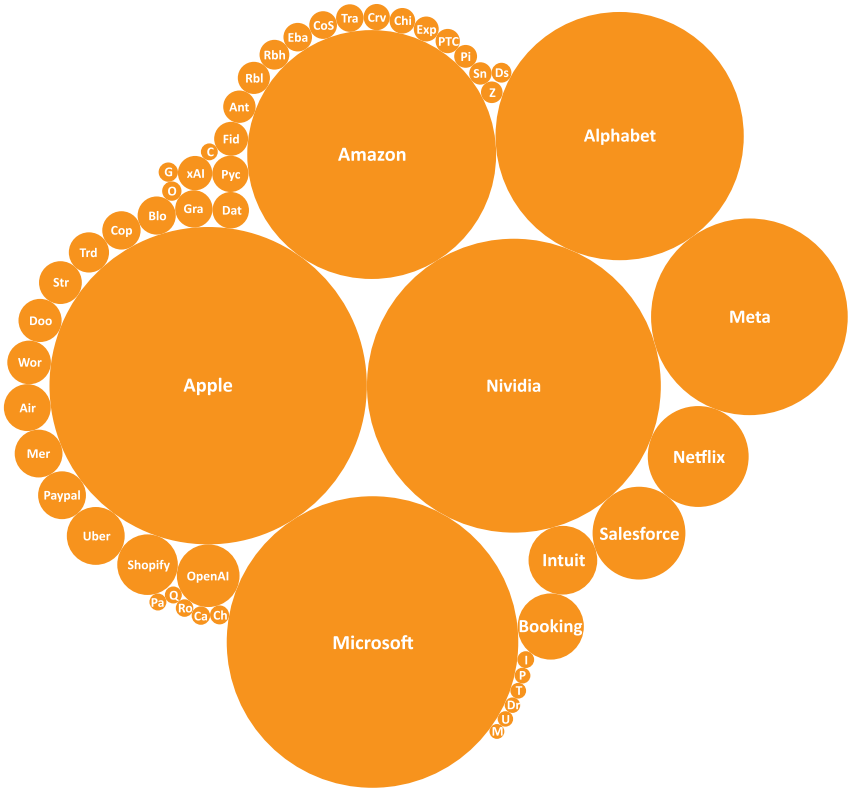
AI is also reshaping the competitive landscape: the share of U.S.-based platforms in the global market has risen to a new record of 86%, up from 64% in 2017. The five largest platforms – Apple, Nvidia, Microsoft, Amazon and Alphabet – increased their stock market values by $3.3 trillion in the 16 months between August 2023 and December 2024. Roblox, Doordash and Netflix doubled in value. Asian platforms now account for only 11% of global value, down from 31% in 2017. Alibaba has lost around 55% of its value in these seven years, while Amazon has gained 320%. U.S. companies have also turned the table in mobility services: Uber's market value increased from $48 to $128 billion dollars during this period, while its Chinese competitor Didi's value shrank from $58 to $17 billion.[28]

European platforms account for only 2% of global value. Eight European platform companies are among the top 100, led by SAP and Spotify.[29] This has generated considerable concern about Europe's future competitiveness. In the end, it is Europe's larger ecosystem that is like to shape its future in the platform economy. This underscores the importance of a true European Single Market, including a more integrated Digital Single Market, that would transcend fragmentation of languages, consumer preferences, rules and regulations to facilitate cross-border research, development and commercialization that could introduce new technologies, fresh business models and expanded digital infrastructure to reach the kind of scale that platform companies have achieved in the large continental markets of the United States or China.[30]

70% of the new value created in the global economy in this decade will be digitally enabled.

Table 8. **Top 100 Worldwide Platforms, Company Values** ($Billions)

America

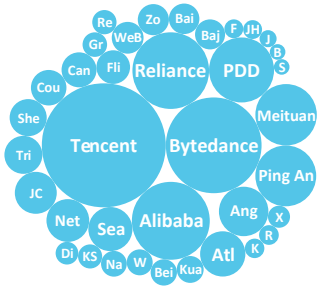


Airbnb (83.9)
Alphabet (2353)
Amazon (2365)
Anthropic (40)
Apple (3846)
Block (55.6)
Booking (167.1)
Carmax (13)
Carvana (26.2)
Ceridian (10.9)
Chewy (13.7)
Chime (25)
Copart (56.1)
CoStar (29.3)
Detadog (50.8)
Discord (15.0)
Doordash (71.0)
Dropbox (9.1
eBay (31.1)
Expedia (23.7)
Fidelity (43.9)
Goodleap (14.2)
Grainer (53.2)
Instacart (10.8)
Intuit (180.1)
Match (8.4)
Mercado Libre (87.2)
Meta (1477)
Microsoft (3246)
Netflix (388.6)
Nvidia (3298)
Okta (14.3)
OpenAI (150)
Paychex (50.2)
Paylocity (11)
PayPal (87.4)
Perplexity (9.5)
Pinterest (19.9)
PTC (22.5)
Qualtrics (11)
Robinhood (33.9)
Roblox (11.7)
Roku (11.7)
Salesforce (328.9)
Shopify (140.1)
Snap (19.1)
Stripe (70)
TradeDesk (61.7)
Tradeweb
Twitter (9.4)
Uber (127.9)
Unity (9.1)
Workday (72.6)
xAI (45)
Zillow (17.8)

Europe

Adevinta (12.7)
Adyen (49.2)
Delivery Hero (8.2)
Revolut (45)
SAP (296.8)
Spotify (93.1)

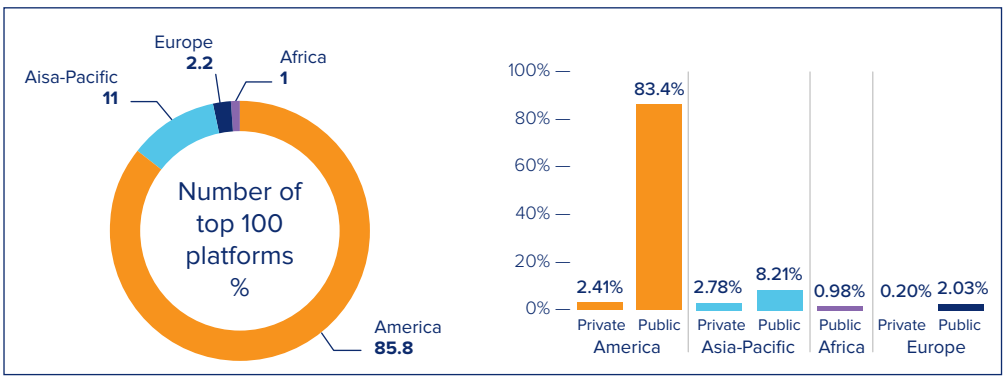
Asia-Pacific



Alibaba (198.6)
Ant Group (80)
Atlassian (67)
Baïdu (30.4)
Bajaj (29.5)
Beike (22.6)
Bilibili (8)
Bytedance (300)
Canva (40)
Coupang (41.3)
Didi Global (16.8)
Flipkart (37)
Full Truck (11.6)
Grab (197)
JD Digits (9.5)
JD Health (11.6)
JD. Com (57.6)
Kakao (12.4)
Kaspi (19)
Kuaishou (23.6)
Meituan (123.4)
Naver (21.7)
Netease (59.8)
PDD (138.2)
Ping An (121.1)
Rakuten (12.7)
Rea (19.3)
Reliance (192.1)
Sea Group (63.5)
SEEK (7.9)
Shein (45)
Tencent (503)
Trip.com (47.2)
WeBank (33)
WuXi App (22)
Xero (15.9)
Zomato (3.7)

Africa

Naspers (41.5)
Prosus (181.9)



Source: Holger Schmidt, Hamidreza Hosseini, http://www.netzoekonom.de. Used with permission.
Valuation based on market cap/most recent financing as of December 20, 2024. Total value: $22.67 trillion.

Cross-Border Data Flows

Another lens through which we can better understand transatlantic digital connections is to appreciate the role of cross-border data flows, which underpin and enable virtually every other kind of cross-border flow. Cross-border data flows are projected to contribute $11 trillion to the global economy in 2025 – about a third of the value of world's total trade in goods.[31]

Transatlantic data flows are critical to the $9.5 trillion EU-U.S. economic relationship. They account for more than half of Europe's data flows and about half of U.S. data flows globally.[32]

Despite broad recognition that data flows are important, there is still no consensus on how to determine their value.[33] One reason is that data is a special resource different than goods and services. UNCTAD calls cross-border data flows "a new kind of international economic flow, which lead to a new form of global interdependence."[34] Data flows are not necessarily a proxy for commercial links, since data traffic is not always related to commercial transactions.[35] Knowing the volume of data flows does not necessarily provide insight on the economic value of their content. The Bureau of Economic Analysis puts it succinctly: "Streaming a video might be of relatively little monetary value but use several gigabytes of data, while a financial transaction could be worth millions of dollars but use little data."[36]

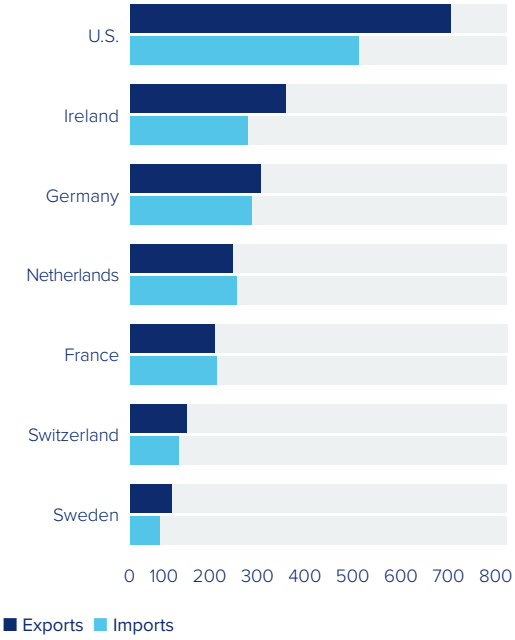
In addition, commercial transactions do not always accompany data, and data do not always accompany commercial transactions. For instance, multinational companies often send valuable, but non-monetized, data to their affiliates.[37] User-generated content on blogs and on YouTube drives very high volumes of internet traffic both within countries and across borders, but consumers pay for very little of this content. Since it does not involve a monetary transaction, the significant value that this content generates does not show up in economic or trade statistics.[38]

In short, data flows are commercially significant, yet their size and their commercial value are hard to measure and are in constant flux.

Cross-Region Data Flows

Globally, the most intense and valuable cross-region data flows continue to run between North America and Europe. They are also almost certainly the most valuable, even if their worth is difficult to measure. The OECD devised metrics to determine the most active countries when it comes to delivering products across borders through data flows, as opposed to considering all transactions facilitated through data flows. It determined that the United States is a major hub for international trade in products delivered through data flows, and that France, Germany, India, Ireland, the Netherlands, Switzerland, and the United Kingdom also feature heavily in trade underpinned by data, all ahead of China (Table 9).[39]

Table 9. International Trade Underpinned by Data Flows, Top Countries ($Billions)



Source: OECD, Perspectives on the Value of Data and Data Flows, December 2020.
Data as of October 2020.
Note: Trade underpinned by data flows includes four categories: (1) "ISIC J production", or trade in products produced by firms classified in ISIC section J (Information and Communication); (2) "ISIC J products," or trade in the products mainly associated with firms classified in ISIC section J but including production by firms classified in other sectors; (3) "Digitally deliverable services," or "potentially ICT-enabled products" per UNCTAD (2015); and (4) "Digitisable products," or products within the WTO HS commodity classification per Banga (2019).

Digital Wiring: Land-Based Hubs and Sea-Based Spokes

The Digital Landscape: Hubs and Hyperscalers

The United States and Europe host key land-based hubs and sea-based spokes of the global digital economy.

European and U.S. cities are major hubs of cross-border digital connectivity. Seven of the ten most internationally connected cities in the world are in Europe or the United States (Table 9). Frankfurt is the most connected city in the world, and is home to the largest internet node in the Northern Hemisphere. Frankfurt, London, Amsterdam, and Paris – together known as FLAP – substantially outpace most other cities across the globe (Table 10).[40]

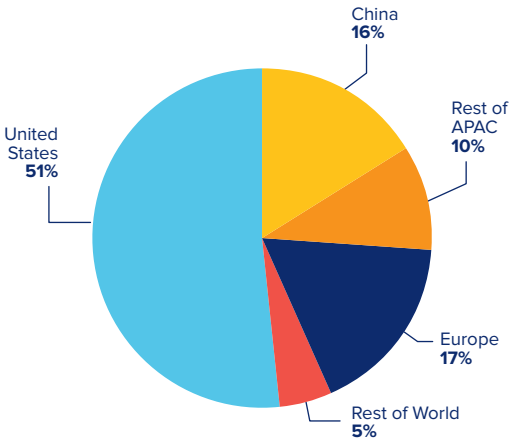
Table 10. Most Connected Cities in the World, 2025

1.	Frankfurt
2.	London
3.	Tokyo
4.	Amsterdam
5.	Singapore
6.	New York
7.	Washington, DC
8.	Paris
9.	Hong Kong
10.	Los Angeles

Source: Jon Hjembo, The Fastest-Growing Cities for Data Center Connectivity (As of Q1 2025), Telegeography,, Jan. 13, 2025, https://blog.telegeography.com/market-connectivity-scores-q1-2025.

The hard-wiring of the transatlantic digital landscape continues to evolve. Three developments are worth noting. First, providers of data centers and cloud-like services have shifted from European and U.S. telecommunication companies and related data-center management enterprises to "hyperscalers," mainly from the United States. Many commentators simplify the term "hyperscalers" to refer to the three largest providers: Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. These three firms account for about two-thirds of hyperscale data market share. Other hyperscalers include Meta, Oracle, Apple, IBM, Scaleway, Switch, Alibaba, Huawei, QTS, Digital Realty Trust, Equinix and SAP. Hyperscalers accounted for 41% of worldwide data center capacity in 2024.[41]

Table 11. Hyperscale Data Center Capacity

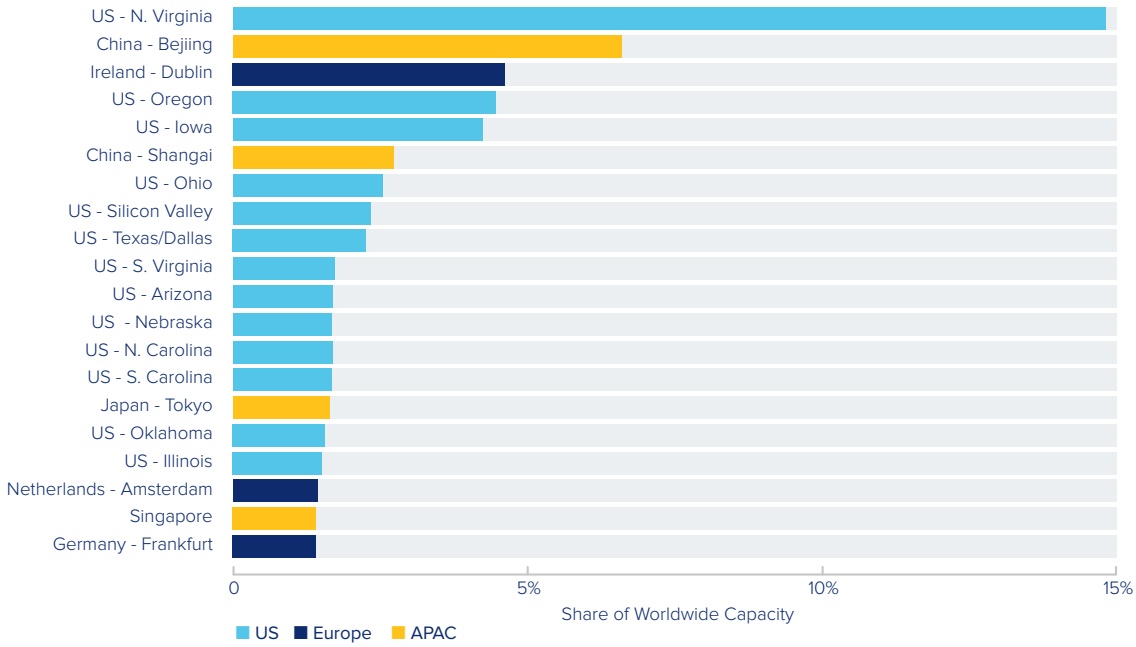


Source: Synergy Research Corporation. APAC: Asia-Pacific As of Oct-Dec 2023.

The global hyperscale data center market is estimated to be worth $370 billion in 2025, and is expected to reach $1.15 trillion by 2030.[42] The United States accounted for over 51% of the world's operational hyperscale infrastructure, measured by critical IT load, followed by Europe with 17% and China with 16%, in mid-2024 (Table 11).[43] More than one-third of U.S. hyperscale capacity is in one state – Virginia.[44] Virginia has double the hyperscale data center capacity than China and more than all of Europe. Much of that is in Northern Virginia, along the border with Washington, DC. The next-largest concentrations of hyperscale infrastructure in the United States are Oregon, Iowa, Ohio, Silicon Valley, and Dallas-Ft. Worth (Table 12).[45]

Second, U.S. enterprises are spearheading record global investments in data centers, as demand for digital connectivity surges, cloud computing grows, and revolutionary developments in artificial intelligence are revolutionizing the landscape. Foreign investors committed more than $106 billion in greenfield FDI to data centers worldwide in the first three quarters of 2024, higher than any previous year and accounting for an all-time high 12% share of total greenfield FDI across all industries (Table 12).[46] Microsoft, Google and Amazon accounted for most of this investment, committing more capital than all investors from China, Singapore, the UAE, India and Canada combined. EU-based data center investors collectively managed less than a fifth of their total.[47]

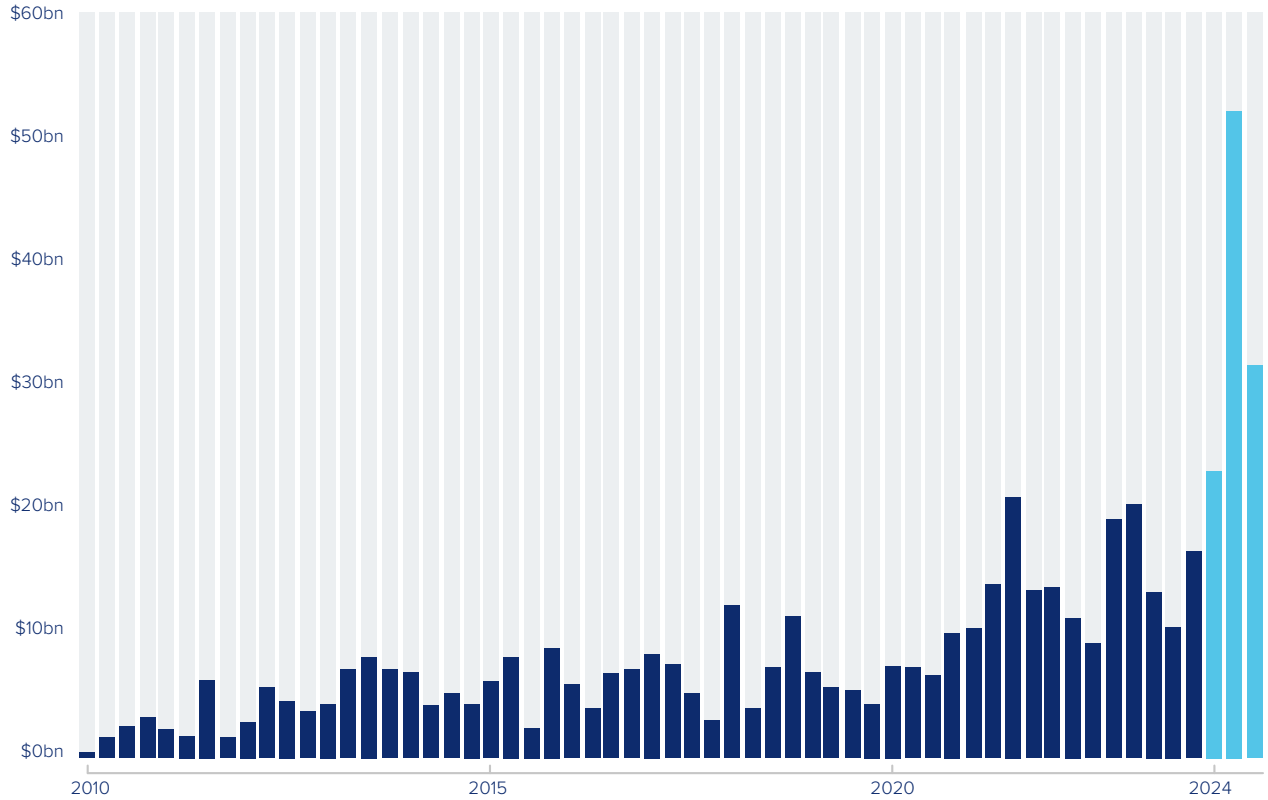
Table 12. Hyperscale Data Center Capacity by Country/Region



Source: Synergy Research Corporation.

Table 13. Record High U.S. and Global Investments Pouring into Data Centers

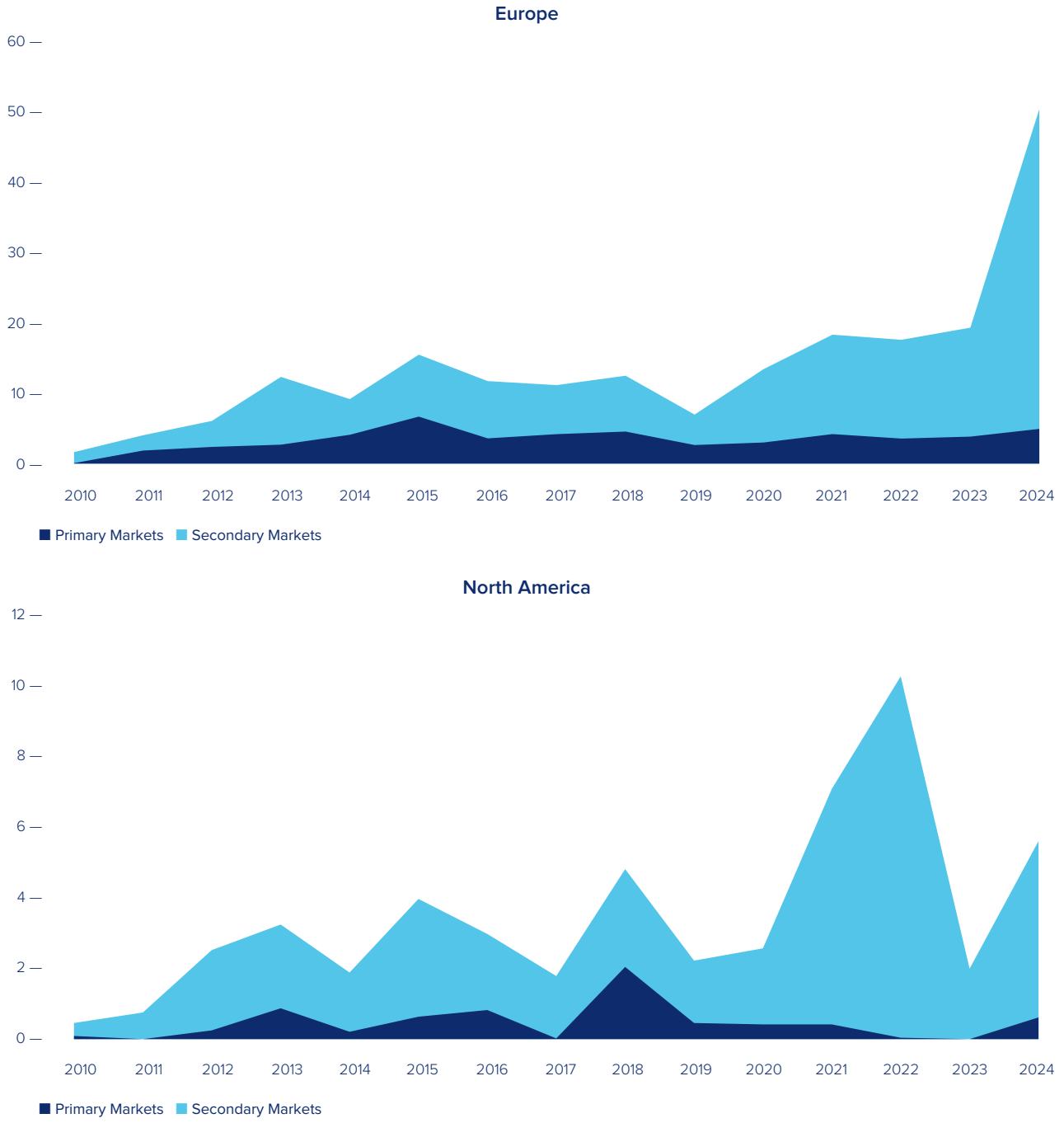
Quarterly greenfield foreign direct investment announcements, 1Q 2010 – 3Q 2024



Source: fDi Markets.

Third, a good deal of this new investment is disbursing more widely across Europe and the United States, in response to soaring data center claims on land and energy resources, and as local opposition to further data center buildouts in dense metros has grown. The four FLAP cities attracted at least 20% of the Europe's total data center FDI every year between 2010 and 2023. But in the first nine months of 2024, FLAP markets made up less than 10% of the $50.5 billion of greenfield data center FDI announced across Europe. FDI is flowing instead to areas like Sines, Portugal; Madrid and the Aragon region of Spain; Berlin, Germany; and Northumberland in the UK. A similar pattern is evident in the United States; greenfield data center FDI is moving from Northern Virgina, Dallas-Ft. Worth, Chicago and Silicon Valley to rust belt and sun belt states (Table 14).[48]

Table 14. Global Investments in Data Centers Moving from Primary to Secondary Markets



Source: fDi Markets; CBRE, "Global Data Center Trends 2024," June 24, 2024, https://www.cbre.com/insights/reports/global-data-center-trends-2024.
Note: Primary markets are the four largest by inventory. Europe: Frankfurt, London, Amsterdam, Paris. North America: Northern Virginia, Dallas-Ft. Worth; Chicago; Silicon Valley.

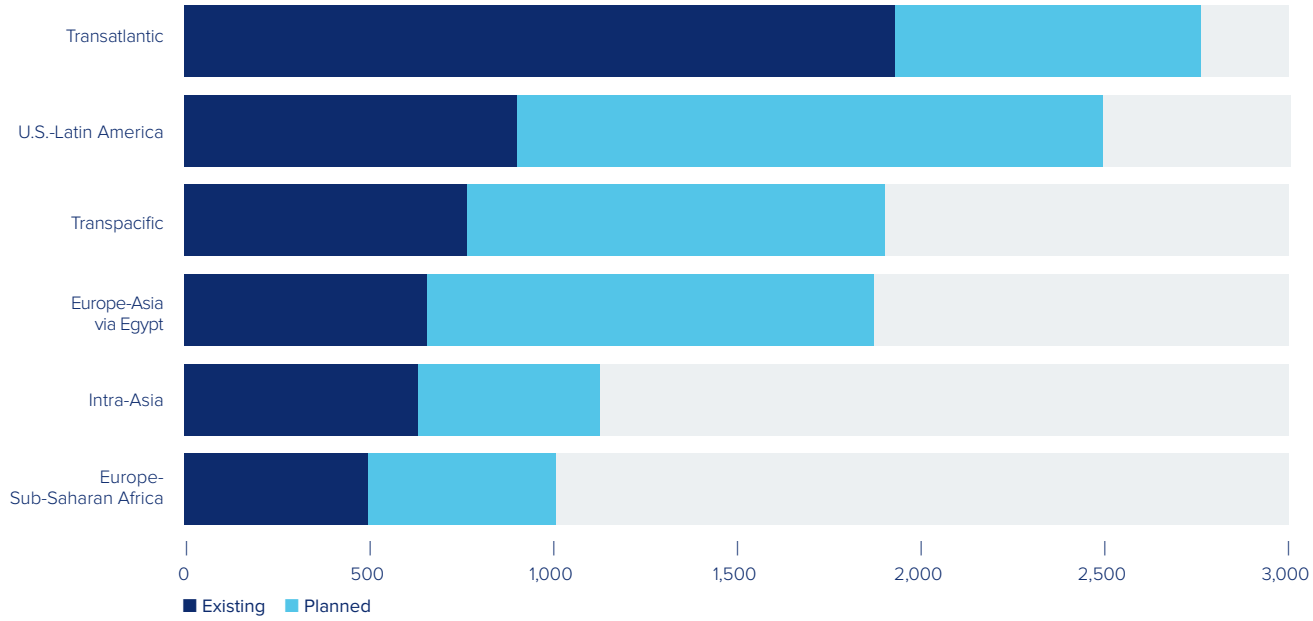
The Digital Atlantic Seascape

Land-based digital hubs are connected to sea-based digital spokes – more than 500 undersea fiber optic cables that span almost 1 million miles, transmit 99% of all intercontinental data traffic, carry more than 15 trillion daily financial transactions worth more than $10 trillion, and serve as the backbone for the global internet. The market for submarine fiber optic cables, valued at $29.9 billion in 2024, is slated to reach $31.7 billion in 2025 and grow to $49.3 billion by 2033.[49] Elon Musk's Starlink and Amazon's Project Kuiper may have popularized the idea of satellite internet, but the digital world is connected by sea, not by air. Satellites cannot compete with submarine cables when it comes to digital communication capacity, cost, speed, or transaction time (latency). They transmit less than one percent of such traffic.[50]

Subsea cables serve as an additional proxy for the ties that bind continents. North America and Europe are connected via 17 subsea cables, with more on the way. They extend from the U.S. East Coast, primarily from New York, New Jersey, Massachusetts, Virginia and South Carolina. They land in the UK, France, Denmark, Norway, Ireland, Spain and Portugal.

The transatlantic data seaway is the densest in the world. Submarine cable capacity across the Atlantic is 2.5 times that of transpacific routes, 3 times that of intra-Asian routes, 3.9 times more than Europe-Africa routes, and 2 times that of U.S.-Latin American routes.[51] The transatlantic route retains its primary position even when all planned future cables are considered (Table 15).

Table 15. Submarine Cable Supply by Route (Tbps)



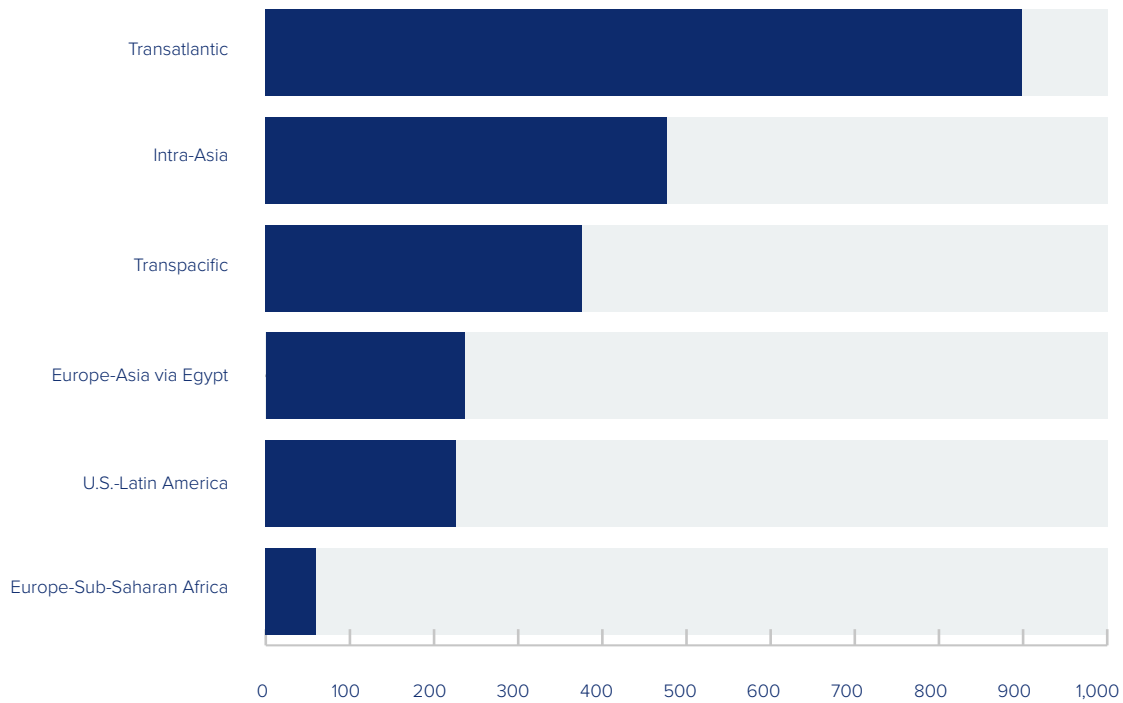
Source: Telegeography.

The transatlantic digital seaway is also the busiest in the world. The transatlantic route's lit share of existing cable capacity – the amount of cable capacity actually being used – is almost 2 times intra-Asian routes, 2.4 times transpacific routes, and 4 times U.S.-Latin American routes (Table 16).

The evolving role of the United States and Europe as critical digital hubs is also illuminated by looking at interregional internet capacity, which is the maximum amount of data that can be transmitted simultaneously between different regions. In 2003, 42% of all interregional internet capacity was connected to the United States. Now the U.S. share of interregional internet capacity has declined to about 27%, as Europe and Asia have built out their own capacities.

A related lens is interregional internet bandwidth, which refers to the speed at which data can be transmitted within available capacity. The difference between capacity and bandwidth is that capacity is the "size of the pipe" and bandwidth is the "flow of data through that pipe." In 2003, about 98% of interregional bandwidth was connected to the United States. That's now down to around 80% – smaller, but still dominant. Close to 60% is connected to Europe, compared to less than 40% for Asia. Almost all of Latin America's interregional bandwidth is U.S.-connected, and most interregional bandwidth of Africa and the Middle East is connected to Europe. The transatlantic route remains the most important for both Europe and North America (Table 17).[52]

Table 16. Lit Share of Cable Capacity by Route (Tbps)

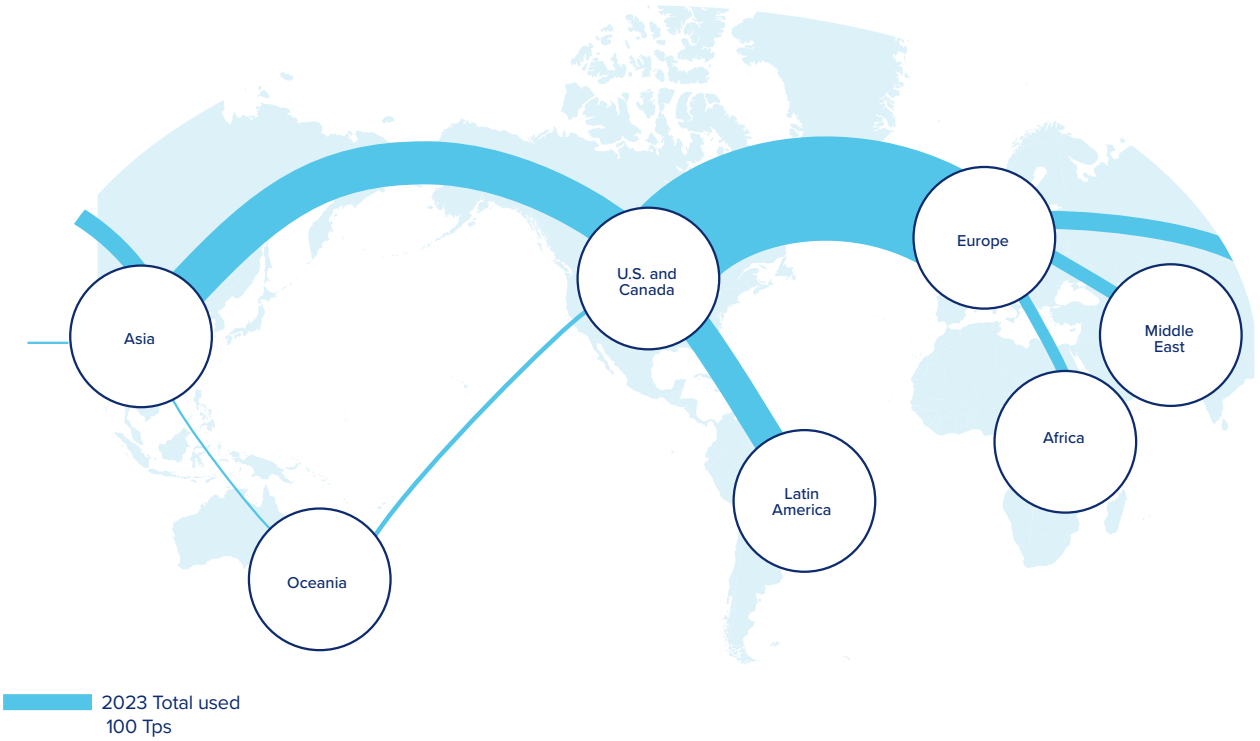


Source: Telegeography, "Submarine Cable Map 2025."
Tbps: terabits per second. "Lit" means how much cable capacity is actually being used. Trans-Atlantic refers to the North Atlantic. Trans-Pacific refers to the North Pacific.

Globally, the most intense and valuable cross-region data flows continue to run between North America and Europe.

Table 17. Transatlantic: Still Our Most Important Route

Used Interregional Bandwidth, 2023.

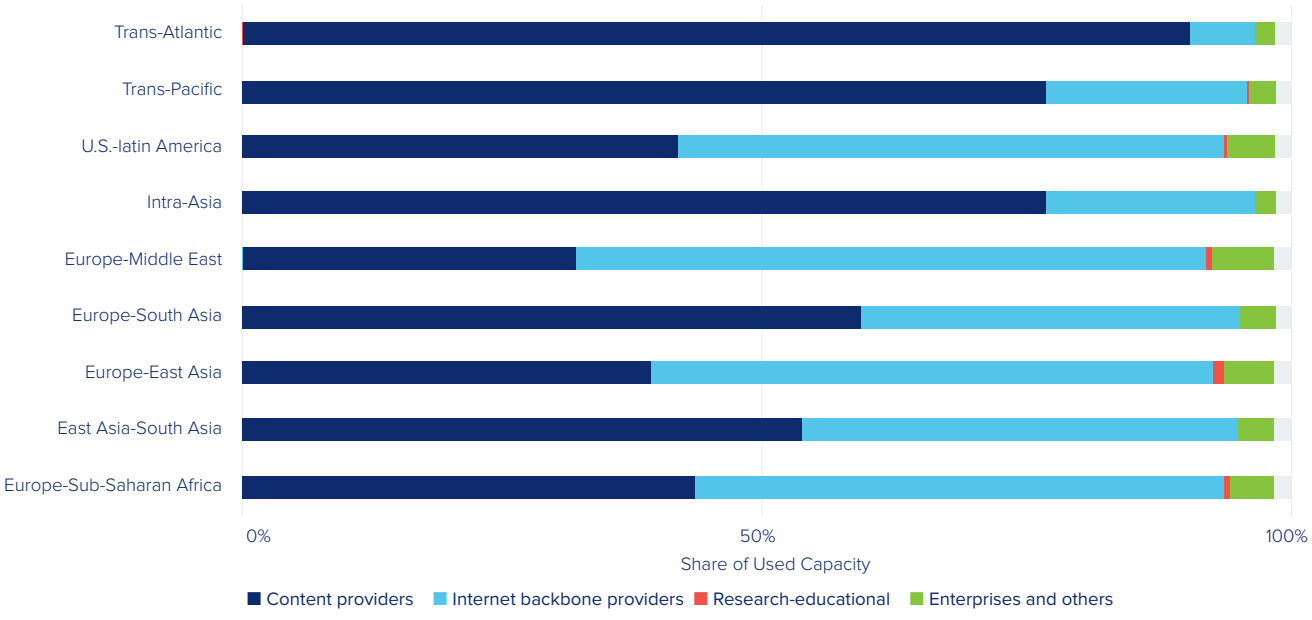


Source: Lane Burdette, "Submarine Cable Connectivity in the Atlantic," Presentation to the Transatlantic Leadership Network Digital Atlantic Working Group, March 1, 2024, https://www.transatlantic.org/wp-content/uploads/2024/04/Digital-Atlantic-TeleGeography-presentation-March-14-2024.pdf.

Just as hyperscalers are transforming global data center markets, "hyper-providers" of content are powering global subsea digital capacity. Here too the densest connections are between North America and Europe (Table 18).

Taken together, these trends all underpin the fact that the transatlantic digital economy – under the sea, on the land, and in the air – is the largest, densest, and busiest in the world.

Table 18. New Trans-Atlantic Cable Investment by Ownership Type



Notes

1 In previous surveys we have offered greater detail on digital opportunities for small- and medium-sized enterprises, the evolution of 3-D printing, the metaverse, digital twinning, the influencer economy, digital finance, the promise of the connected factory, and generative AI. Each of these developments remains significant. For more, see https://transatlanticrelations.org/activity/transatlantic-economy/.
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