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The Ties that Bind the Transatlantic Economy

1 Trade in Goods

Transatlantic merchandise trade is the exchange of goods between the United States and Europe. When politicians talk about trade, they usually mean just trade in goods. When you see a chart about trade in the media, it usually depicts just trade in goods. Goods trade has become a standard shorthand for commercial connections between countries. But goods trade is just a subset of international commercial interactions, and often not the most valuable. It is important, however, so let's start here.

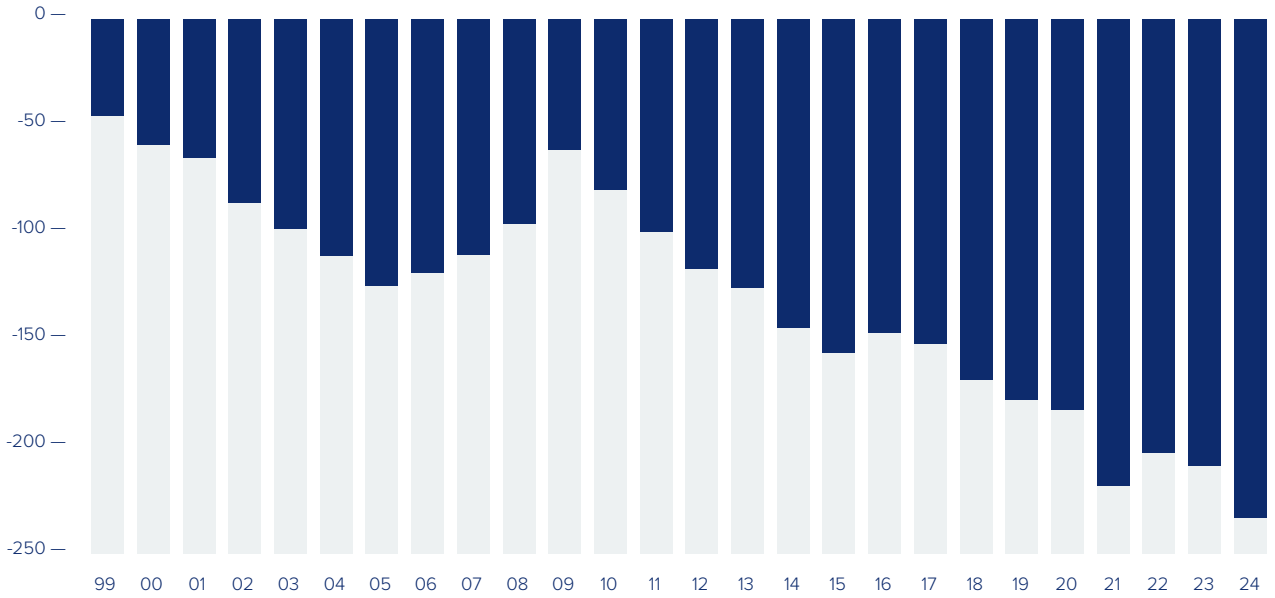
The United States and its NATO allies are not just committed to each other's defense, they are significant trading partners. Goods trade between the United States and its NATO allies totaled a record $1.8 trillion in 2024.

U.S. goods trade with Europe broadly defined was $1.3 trillion in 2024. Most of that consisted of U.S. goods trade with the EU+UK of $1.1 trillion.

The United States and the European Union are key partners for each other when it comes to international trade in goods. U.S.-EU goods trade reached a record high of $976 billion in 2024. The U.S. exported $370 billion in goods to the EU and imported $606 billion. This generated a U.S. trade deficit in goods with the EU of $236 billion in 2024, about $27 billion more than its 2023 trade deficit of $209 billion (Table 1). The overall U.S. trade deficit is much lower, however, since the U.S. has a surplus in services trade with the EU. More on that in the next section.

Almost three-fourths (71%) of the U.S. goods trade deficit with the EU in 2024 was with two EU member states: Germany and Ireland. Germany is America's leading European goods trading partner. Bilateral goods trade totaled $236 billion, about a quarter of overall U.S.-EU goods trade. The U.S. exported $76 billion in goods to Germany and imported $160 billion total, resulting in a U.S. goods trade deficit of $84 billion, 36% of the U.S. goods trade deficit with the EU. U.S. goods trade with Ireland was also substantial at $119 billion. The U.S. goods trade deficit with Ireland of $87 billion was larger than that with Germany and represented 37% of the overall U.S. goods trade deficit with the EU.

Table 1. **U.S. Merchandise Trade Balance with the EU** ($Billions)



Source: U.S. Census Bureau.

Among America's key European goods trading partners, the U.S. recorded goods trade surpluses with the Netherlands (+$56 billion), the UK (+$12 billion), Belgium (+$6 billion) and Spain (+$3 billion) (Table 2). The sizable trade surplus with the Netherlands represents surging U.S. LNG exports to Europe; the Netherlands is the largest single recipient of U.S. LNG in the world. Much of that is re-exported elsewhere within the EU.

U.S. goods trade with USMCA partners Canada and Mexico of $1.6 trillion in 2024 was 40% higher than U.S.-EU goods trade. The U.S. exported $349 billion to Canada and $334 billion to Mexico. It imported $413 billion from Canada and $506 billion from Mexico. The U.S. goods trade deficit with its USMCA partners of $172 billion was lower than its goods trade deficit with the EU (Table 3).

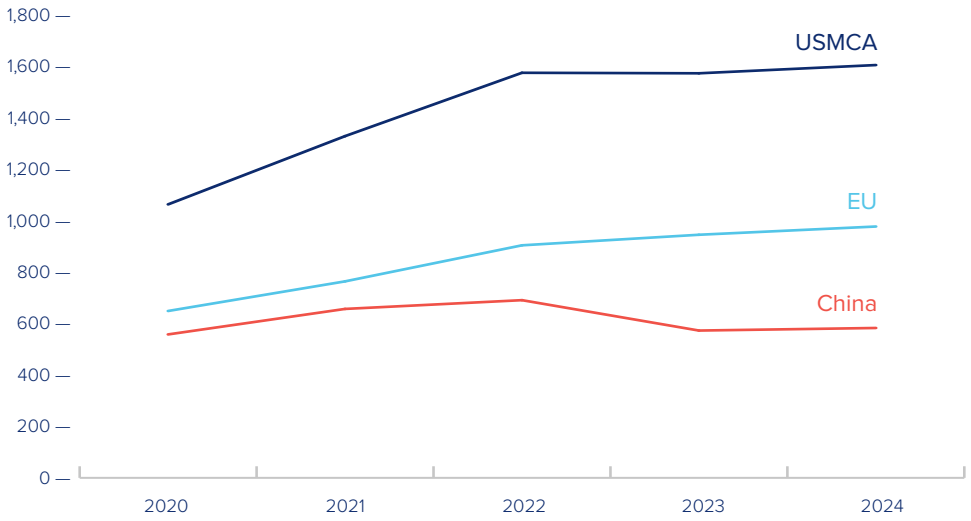
China's rise as a global goods powerhouse can easily lead one to conclude that China is the main trading partner of the United States and the EU. This is not true. U.S.-EU goods trade in 2024 ($976 billion) was 60% higher than U.S.-China goods trade ($583 billion) and 20% higher than EU-China goods trade ($786 billion). The U.S. exported $144 billion in goods to China and imported $439 billion from China in 2024. This means that the U.S. goods trade deficit with China ($295 billion) was higher than its goods trade deficit with the EU ($236 billion), reflecting a considerable imbalance in U.S.-China goods trade, since the overall volume of U.S.-China trade is smaller than U.S.-EU goods trade.

Table 2. U.S. Goods Trade with Europe, 2024
($Billions)

Partner	U.S. Goods Exports	U.S. Goods Imports	Balance
European Union	**370.2**	**605.8**	**-235.6**
Austria	4.5	17.6	-13.1
Belgium	34.2	27.8	+6.4
Bulgaria	0.5	1.5	-1.0
Croatia	1	1	0
Cyprus	0.2	0.1	+0.1
Czech Republic	4.3	8.1	-3.8
Denmark	5.8	10	-4.2
Estonia	0.4	1.1	-0.7
Finland	2.6	8	-5.4
France	44	59.9	-15.9
Germany	75.6	160.4	-84.8
Greece	2.6	2.2	+0.4
Hungary	3.3	12.7	-9.4
Ireland	16.5	103.3	-86.8
Italy	32.4	76.4	-44
Latvia	0.5	0.6	-0.1
Lithuania	1.9	2	-0.1
Luxembourg	1.1	0.7	+0.4
Malta	0.4	0.2	+0.2
Netherlands	89.6	34.1	+55.5
Poland	12	13.7	-1.7
Portugal	3	6.6	-3.6
Romania	1.3	3.9	-2.6
Slovakia	0.6	8.2	-7.6
Slovenia	0.3	6.3	-6.0
Spain	23.9	21.3	+2.6
Sweden	8.2	18	-9.8
Non-EU Europe			
Norway	46	65.8	-19.8
Switzerland	25	63.4	-38.4
Türkiye	15.3	16.7	-1.4
Ukraine	1.7	1.2	+0.5
United Kingdom	79.9	68.1	+11.8

Source: U.S. Census Bureau.

Table 3. **U.S. Top Goods Trading Partners** ($Billions)



Source: U.S. Census Bureau.

Europe: A Key Goods Trading Partner for the 50 U.S. States

Europe is a key goods trading partner for every U.S. state. Various European countries serve as key export markets for many U.S. states, a dynamic that creates and generates growth across the United States. Table 4 ranks the top 20 U.S. state goods exporters to Europe in 2023, the last year of available of full-year data. Texas easily ranked number one, followed by California, New York, and Louisiana. Texas alone exports more goods to Europe than the UK, France or Italy export to the United States – another sign of the important roles that energy and technological innovation play in the transatlantic economy.

U.S. merchandise exports to Europe are more than three times U.S. exports to China (Table 5). Forty-eight of the fifty U.S. states exported more goods to Europe than to China. New York's goods exports to Europe of $34.6 billion were 9 times more than its exports to China of $3.8 billion. Florida exported nearly 9 times more and Texas 4.5 times, while the largest state in the union, the Pacific coast state of California, exported roughly twice the amount of goods to Europe than to China.

These figures underestimate Europe's importance as an export destination for U.S. states because they do not include U.S. state exports of services, as we discuss next.

Table 4. **Ranking of Top 20 U.S. States Total Goods Exports to Europe, by Value** ($Billions)

U.S. State	2023	2000	% Change from 2000	% Change from 2022
Texas	96.9	12.3	689	-2
California	35.3	27.9	26	1
New York	34.6	15.3	126	-23
Louisiana	31.9	6.4	400	-15
Massachusetts	16.7	13.1	28	41
Indiana	16.2	1.3	1110	48
Illinois	16.1	4.7	245	8
Pennsylvania	15.7	7.3	114	3
New Jersey	14.0	2.8	401	1
Florida	13.4	8.0	68	3
Kentucky	13.2	3.9	239	20
Georgia	13.1	3.3	300	16
North Carolina	11.9	4.6	159	23
South Carolina	11.8	4.0	197	13
Washington	9.9	5.0	97	12
Utah	9.5	3.1	210	3
Ohio	8.7	3.1	177	-8
Alabama	8.4	--	--	6
Tennessee	8.0	2.7	196	-12
Michigan	7.9	5.0	58	2
U.S. Total	**491.6**	**187.4**	**162**	**27**

Source: Foreign Trade Division, U.S. Census Bureau. Data as of January 2025.

Table 5. U.S. State Exports of Goods to Europe and China, 2023 ($Millions)

U.S. State	Europe	China
Alabama	8,393	3,742
Alaska	1,116	1,169
Arizona	6,515	1,603
Arkansas	1,257	348
California	35,281	16,866
Colorado	2,290	895
Connecticut	7,192	990
Delaware	1,115	417
Florida	13,399	1,659
Georgia	13,135	3,930
Hawaii	49	16
Idaho	339	181
Illinois	16,136	4,412
Indiana	16,234	4,876
Iowa	3,282	1,122
Kansas	2,641	873
Kentucky	13,192	2,858
Louisiana	31,907	13,936
Maine	471	123
Maryland	7,632	1,019
Massachusetts	16,733	3,325
Michigan	7,927	2,447
Minnesota	5,412	2,166
Mississippi	2,390	778
Missouri	2,889	594
Montana	348	112
Nebraska	1,074	666
Nevada	2,506	787
New Hampshire	3,291	350
New Jersey	14,004	2,280
New Mexico	383	262
New York	34,595	3,838
North Carolina	11,931	5,753
North Dakota	439	33
Ohio	8,701	2,767
Oklahoma	1,715	221
Oregon	3,672	4,032
Pennsylvania	15,651	3,055
Rhode Island	1,236	94
South Carolina	11,782	3,880
South Dakota	262	147
Tennessee	7,979	2,963
Texas	96,905	26,708
Utah	9,509	1,220
Vermont	423	150
Virginia	6,357	1,975
Washington	9,907	10,906
West Virginia	1,316	528
Wisconsin	6,390	1,493
Wyoming	71	85
Total United States	**496,459**	**147,778**

Source: Foreign Trade Division, U.S. Census Bureau. Data as of January 2025.

Putting goods and services trade together helps us understand the significance of overall transatlantic trade.

2 Trade in Services

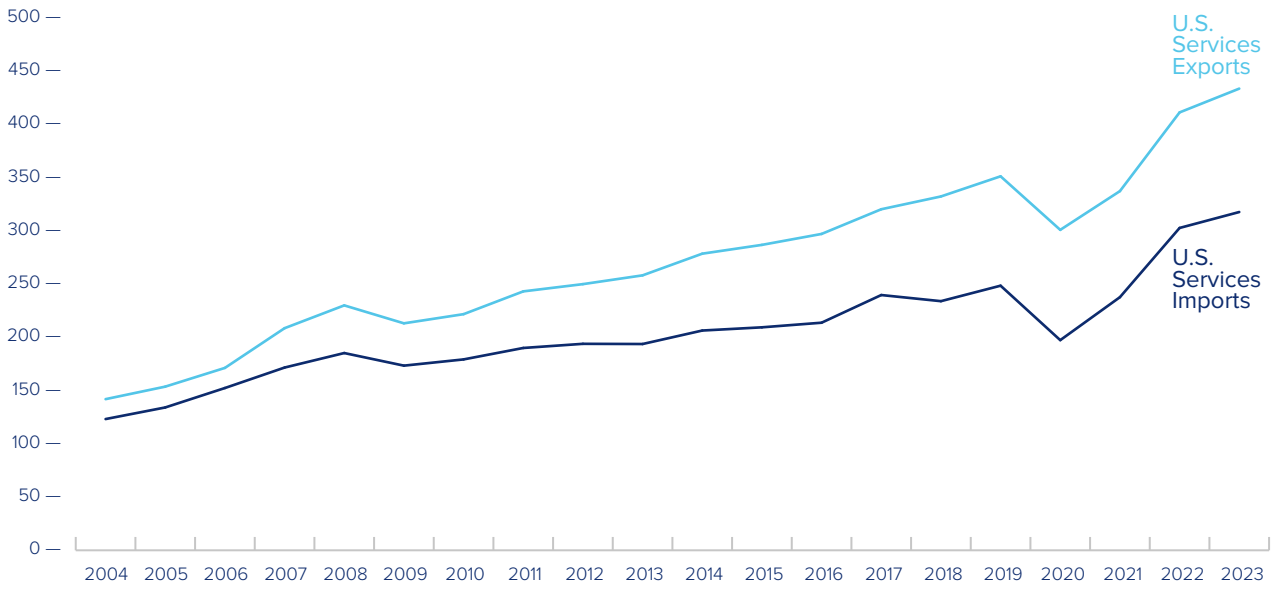
International commerce includes not just trade in goods but also trade in services. Services account for a smaller share of global trade than goods, but they have been growing faster. More American and European jobs depend on services than on goods, and services are a competitive strength for the United States and the European Union.

The United States and the European Union are the two largest traders of services in the world. They are each other's most important services trading partners and services markets. U.S.-EU services trade totaled an estimated $475 billion in 2024, comprised of U.S. services exports of $275 billion and services imports of $200 billion, resulting in a U.S. surplus in services trade with the EU of $75 billion. The United States consistently runs services trade surpluses with the EU (Table 1).

In terms of individual countries, the UK remains the largest market in the world for U.S. services exports and the largest source of U.S. services imports. U.S.-UK services trade, estimated at $181 billion in 2024, consisted of U.S. services exports of $93 billion and imports of $88 billion, leaving the U.S. with a bilateral services trade surplus with the UK of $7 billion. U.S.-Switzerland services trade is also substantial, estimated at $88 billion in 2024, including U.S. services exports of $55 billion and imports of $33 billion that generated a U.S. bilateral services trade surplus of $22 billion.

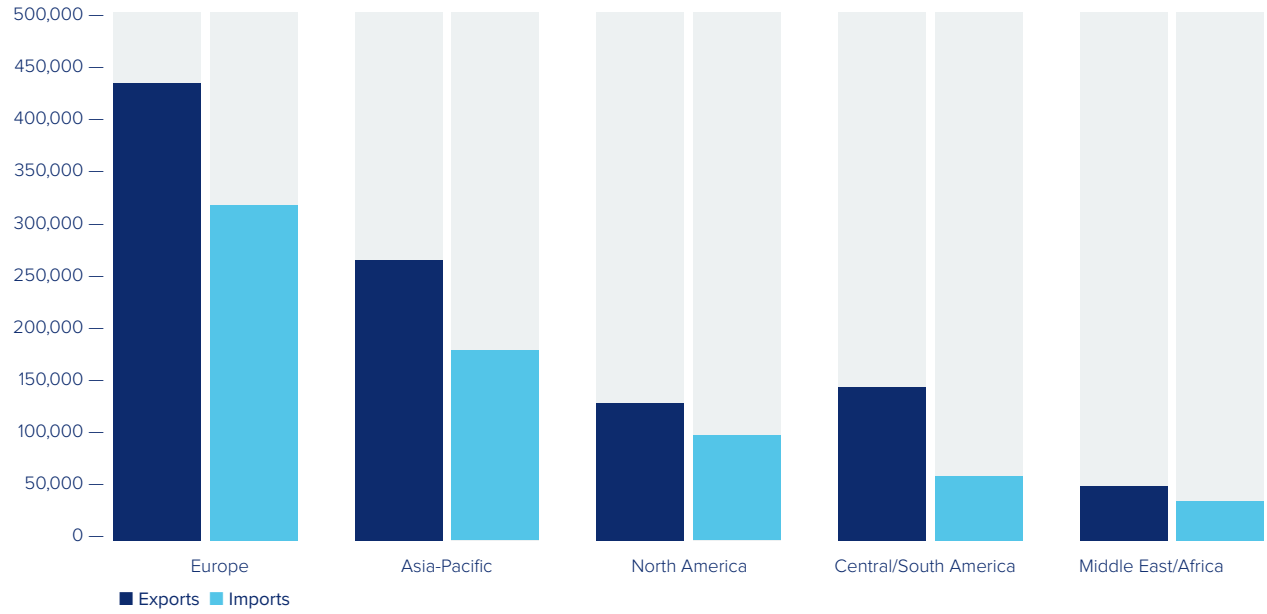
In 2023, the last full year of comparable available data, U.S.-EU services trade totaled $447 billion. That was almost 7 times more than U.S.-China services trade of $67 billion and at least 4 times more than EU-China services trade of $110 billion.[1]

Table 1. **U.S. Services Trade with Europe** ($Billions)



Source: U.S. Bureau of Economic Analysis.

Table 2. U.S. Services Trade, by Region ($Millions)



Source: U.S. Bureau of Economic Analysis, U.S. Census Bureau. As of 2023.

Europe accounted for 42% of U.S. services trade with the world in 2023. The EU accounted for 25% of this European figure; the UK, Switzerland and other non-EU countries represented another 17%.

U.S.-EU services trade was slightly higher than U.S. services trade with the Asia-Pacific region, about double U.S. services trade with its USMCA partners Canada and Mexico, and more than double U.S. services trade with South and Central America and the Caribbean (Table 2).

European countries accounted for four out of the top ten global export markets for U.S. services in 2023, the last year of complete data. The United Kingdom ranked first, followed by Ireland (3rd), Switzerland (7th) and Germany (8th). European states accounted for five of the top ten services providers to the U.S. in 2023. The UK ranked first, followed by Germany (4th), Switzerland (5th) and Ireland (7th) (Table 3).

In the previous section we depicted U.S. state goods trade with the EU. Those figures, already sizable for several U.S. states, underestimate the EU's importance as an export destination for U.S. states because they do not include U.S. state exports of services. The same is true of EU member state goods trade with the United States. Both are incomplete. Services trade represents a significant additional source of jobs and income for U.S. and European workers. Most jobs in the United States and in European economies are tied to services. Comparable, up-to-date state-by-state data for jobs related to services trade is unavailable. If services exports were added to goods services exports by state, suffice it to say that the European market becomes even more important to corporate America. The same is true for America's importance for each of the EU's 27 member states.

Table 3. Top Markets for U.S. Services Trade, 2023 ($Billions)

U.S. Services Exports

Rank	Total Services		Travel		Other Business		Financial		IP Charges		Transport		Telecom/Info Svcs	
1	U.K.	90.8	Canada	21.9	Ireland	43.1	U.K.	23.2	Ireland	28.1	Canada	8.0	Canada	8.2
2	Canada	86.0	China	20.2	Singapore	25.9	Canada	10.7	Switzerland	16.4	U.K.	7.4	U.K.	7.6
3	Ireland	84.3	India	19.3	Switzerland	23.6	Luxembourg	7.8	Netherlands	13.1	Germany	7.0	Japan	4.8
4	Switzerland	49.7	Mexico	18.3	Canada	22.2	Ireland	6.3	Canada	7.7	Japan	7.0	Ireland	4.1
5	China	46.7	U.K.	10.9	U.K.	18.9	Japan	5.7	China	7.1	South Korea	5.6	Germany	3.8
6	Mexico	44.1	Brazil	6.8	Germany	12.6	Germany	4.4	Japan	6.5	Mexico	4.2	Australia	3.5
7	Japan	43.6	South Korea	6.8	Netherlands	12.4	Mexico	4.3	U.K.	6.1	France	4.1	Brazil	3.1
8	Germany	42.0	Germany	5.7	Japan	9.0	Australia	4.3	Germany	5.0	China	3.9	Switzerland	2.5
9	Singapore	37.3	Australia	5.3	Mexico	7.3	China	4.2	Mexico	4.6	Brazil	3.3	Mexico	2.4
10	Netherlands	35.5	Japan	5.1	Denmark	5.7	Netherlands	3.6	Singapore	4.0	Taiwan	2.6	China	2.3
	Total	**1026.6**	**Total**	**189.1**	**Total**	**253.2**	**Total**	**175.5**	**Total**	**134.4**	**Total**	**97.8**	**Total**	**70.6**

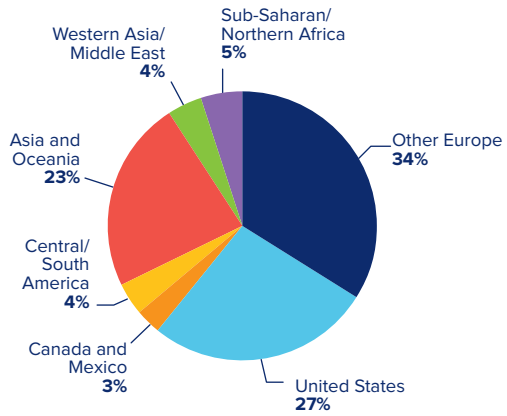
U.S. Services Imports

Rank	Total Services		Travel		Other Business		Financial		IP Charges		Transport		Telecom/Info Svcs	
1	U.K.	86.0	Mexico	26.3	U.K.	20.0	U.K.	18.6	Japan	8.6	Germany	11.5	India	13.5
2	Canada	54.3	U.K.	10.5	India	15.9	Canada	5.9	Germany	8.1	Japan	11.4	Canada	12.4
3	Germany	45.8	Canada	10.5	Canada	11.7	France	3.0	Switzerland	5.9	U.K.	10.4	Ireland	7.0
4	Mexico	44.8	Italy	8.0	Germany	9.2	Japan	2.8	U.K.	5.6	France	10.0	U.K.	5.2
5	Japan	37.9	D.R.	7.0	Ireland	9.0	Singapore	2.3	Ireland	3.0	Mexico	8.1	Netherlands	1.9
6	India	36.4	France	5.5	China	7.8	Hong Kong	2.2	France	2.7	Taiwan	7.9	Philippines	1.7
7	Bermuda	33.5	Spain	5.1	Switzerland	7.1	Australia	2.0	Netherlands	2.2	Canada	7.1	Germany	1.5
8	Switzerland	30.6	Germany	3.8	Mexico	6.8	China	1.7	India	2.1	China	6.5	Mexico	0.9
9	France	27.3	Greece	3.6	Netherlands	4.5	Germany	1.7	Canada	1.2	Switzerland	6.4	Japan	0.7
10	Ireland	26.2	Japan	3.6	Singapore	3.8	Switzerland	1.4	Denmark	0.6	South Korea	5.6	South Korea	0.7
	Total	**748.2**	**Total**	**158.7**	**Total**	**145.1**	**Total**	**62.7**	**Total**	**47.5**	**Total**	**142.9**	**Total**	**60.1**

Source: U.S. Bureau of Economic Analysis. Data as of January 2025.

Most EU services trade takes place within the European Union itself. Intra-EU services trade accounts for 49% of total EU trade in services. If these intra-EU flows are excluded, then non-EU European countries, notably the UK and Switzerland, account for 34% of EU global services trade. The United States accounts for 27% of the total, ahead of the entire Asia-Pacific region (23%) (Table 4).

Table 4. EU Services Trade, excluding Intra-EU, Share by Major Regions



Source: Eurostat. As of 2022.

Getting the Full Trade Picture: Transatlantic Goods and Services Trade

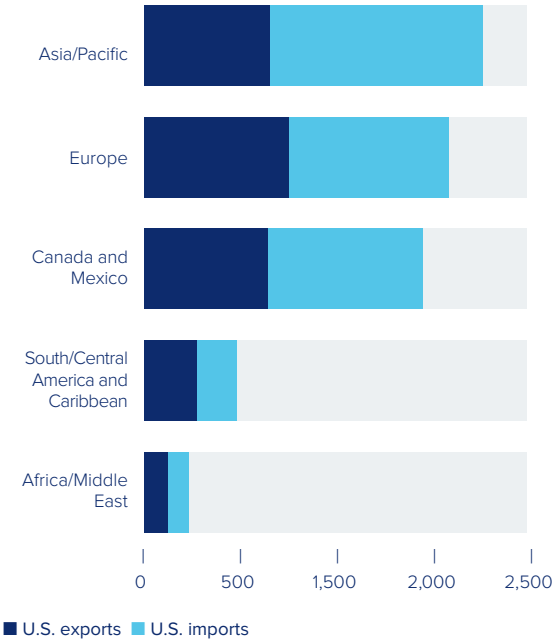
We can appreciate the real size and significance of transatlantic trade only by looking at both trade in goods and services. U.S. goods and services trade with Europe broadly defined topped $2 trillion in 2024, according to our estimates. That includes $1.3 trillion in goods trade and over $750 billion in services trade. Most of that consisted of U.S. goods and services trade with the EU+UK of $1.8 trillion.

U.S.-EU trade in goods and services totaled $1.5 trillion, according to our estimates. The U.S. exported $370 billion in goods and an estimated $275 billion in services to the EU, for a total of $645 billion in overall exports. The U.S. imported $606 billion in goods and an estimated $200 billion in services, for a total of $806 billion in overall imports. We estimate that the overall U.S. goods and services trade deficit with the EU in 2024 was $161 billion – significant, but less than its goods trade deficit of $236 billion, which is often incorrectly cited as reflecting the full magnitude of the U.S. deficit.

The EU accounted for roughly 20% of total U.S. exports of goods and services in 2024, down slightly from 24% at the start of the century. U.S. imports from the EU as a percentage of the total has held steady over the past quarter-century: 20% in 2024 vs. 21% in 2000. In other words, notwithstanding the incessant chop and churn of the global economy, the U.S. and the EU have remained steady trading partners this century.

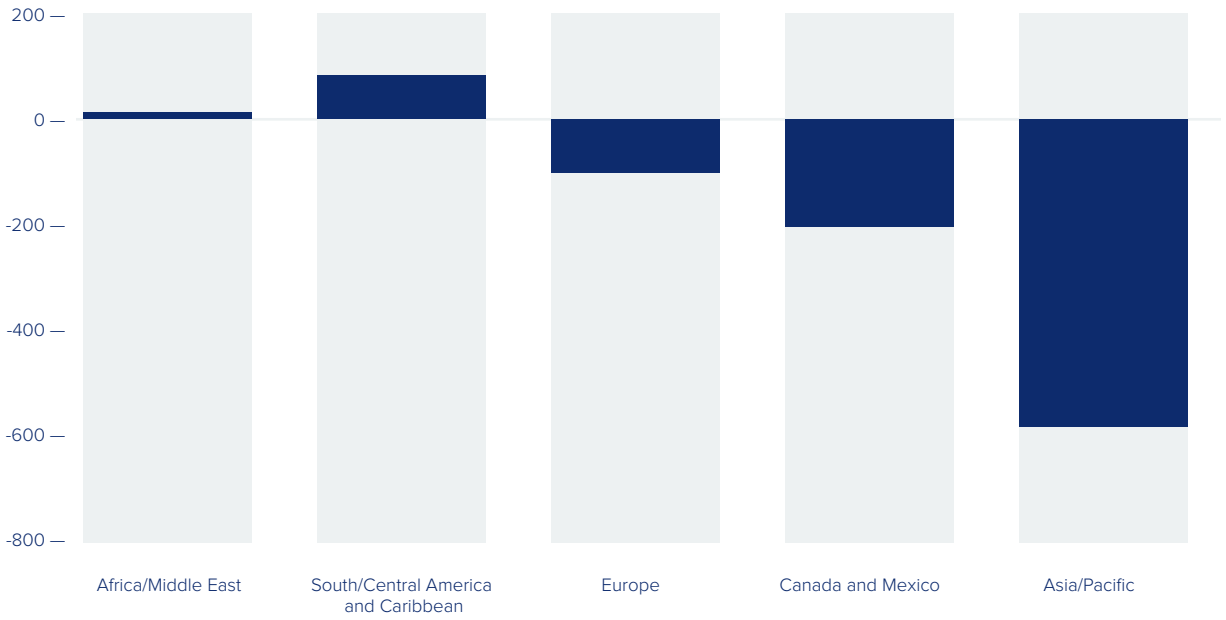
Table 5 compares U.S. trade in goods and services by region in 2023. U.S. trade with the Asia-Pacific region of $2.2 trillion was larger than U.S. trade with Europe of $2 trillion. Trade with USMCA partners Canada and Mexico followed at $1.8 trillion. The U.S. trade deficit was highest with the Asia-Pacific region – $580 billion. The U.S. trade deficit with Canada and Mexico was $203 billion, followed by its trade deficit with Europe of $101 billion. The U.S. deficit in goods and services trade with its Asia-Pacific partners was 5.8 times larger than its deficit with Europe. Its trade deficit with Canada and Mexico was double its trade deficit with Europe. The U.S. recorded trade surpluses in goods and services with South/Central America and the Caribbean of $83 billion and with Africa and the Middle East of $13 billion (Table 6).

Table 5. U.S. Trade in Goods and Services by Region, 2023 ($Billions)



Sources: U.S. Bureau of Economic Analysis, U.S. Census Bureau.

Table 6. **U.S. Trade Balance in Goods and Services, by Region, 2023** ($Billions)



Sources: U.S. Bureau of Economic Analysis, U.S. Census Bureau.

Putting goods and services trade together helps us understand the significance of overall transatlantic trade. Yet just as goods and services are each inadequate and thus misleading measures of trade on their own, trade itself is an insufficient metric of transatlantic commerce. To round out the picture, we need to take account of investment – the real driver of the transatlantic economy. Not only do U.S. and European companies sell and buy more goods and services via their investments than their trade, they use those investments to boost their trade. Investment is Number 3 on our Top Ten list.

In 2023, U.S.-EU services trade totaled $447 billion. That was almost seven times more than U.S.-China services trade of $67 billion and at least four times more than EU-China services trade of $110 billion.

Box 1. Methodological Note: Differing U.S. and EU Classifications

The U.S. Bureau of Economic Analysis (BEA) classifies goods and services differently than Eurostat, the European Union's statistical agency. The result: high asymmetries in services numbers, especially the subcategories of financial services and other business services, and some asymmetries in calculations of trade in goods. We explain this further, and offer additional references, in our section on data sources and methodologies in the Appendix. Differing exchange rate calculations also affect final numbers.

In our study, we use figures from the BEA a) for sake of consistency, b) because we use U.S. dollars as our standard comparative unit of account, and c) because U.S. official calculations for 2024 goods trade are complete, whereas corresponding numbers from the EU were not available in time for publication.

Data availability for services consistently lags data for goods, which means that the last year for which we can track total trade in goods and services is 2023. Below are the respective U.S. and EU assessments of U.S.-EU trade and goods and services – a good example of the different ways U.S. and EU agencies classify trade, and why political leaders might cite different figures when they debate the true size of trade balances.

Table 7. **U.S. and EU Agencies Differ in their Accounting of Bilateral Trade in Goods and Services, 2023** ($Billions)

	Goods				Services				Overall Balance	Overall Total
	U.S. Exports	U.S. Imports	Balance	Total	U.S. Exports	U.S. Imports	Balance	Total		
U.S. BEA	$367.63	$576.31	-$208.69	$943.94	$261.66	$185.14	$76.52	$446.80	-$132.17	$1,390.74
Eurostat	$372.99	$541.75	-$132.17	$914.74	$458.98	$342.89	$116.09	$801.76	-$52.67	$1,716.50

(2023 ave. ex rate as per European Central Bank: €1 = $1.0749)

Note

1 The EU-China services trade number comes from Eurostat, and is likely to be far higher than U.S. analysis would show. The U.S. and the EU differ significantly in their respective presentations of services trade data. We use BEA data in this report, except for this figure. EU data confirms that the U.S. and the EU are the largest services traders in the world, but EU data records far higher levels of such trade. For more on the discrepancies, see Eurostat, "Transatlantic trade in services: Investigating bilateral asymmetries in EU-US trade statistics," https://ec.europa.eu/eurostat/web/products-statistical-reports/-/ks-gq-17-016, Kristy L. Howell, Jessica Hanson, Robert Obrzut, and Olaf Nowak, "Current-Account Asymmetries in U.S.–EU Statistics, " Bureau of Economic Analysis, August 2019, https://www.bea.gov/system/files/papers/WP2019-6_0.pdf, and Kristy L. Howell, Robert Obrzut, and Olaf Nowak, "Transatlantic Trade in Services: Investigating Bilateral Asymmetries in EU-U.S. Trade Statistics," Bureau of Economic Analysis, November 2017, https://www.bea.gov/system/files/papers/WP2019-6_0.pdf.

3 Investment

Transatlantic trade is significant, but trade flows alone are an incomplete and misleading benchmark of transatlantic commercial interaction. Lost in transatlantic trade squabbles is the fact that U.S. and European companies invest more in each other's economies than they do in the entire rest of the world. Mutual investment, rather than trade, drives transatlantic commerce.

Just as trade is more than flows of goods, international commerce is more than just trade. It also includes foreign direct investment (FDI), a deeper form of commercial connectivity. Most U.S. companies would prefer to set up shop close to their customers in overseas markets, rather than send their goods or services across an ocean. They've been doing so for over a century. For decades they have been joined by firms from Europe and many other countries. As a result of their activities, the investment ties between the United States and Europe, and between each of them with many other countries, are far more valuable than their trade links. U.S. companies operating in Europe, and European companies operating in the United States – not trade – form the backbone of transatlantic commercial activity. Trade volumes pale in comparison to the value of transatlantic investment.

In a world increasingly enamored with mercantilism and focused on trade deficits, it is more important than ever that policymakers and media commentators look beyond trade and take notice of the deep, sophisticated linkages that bind the U.S. and Europe together. Understanding these variables is essential to comprehending the enduring strength and importance of the transatlantic partnership. There's no better place to start than by looking at foreign direct investment.

U.S. companies operating in Europe, and European companies operating in the United States – not trade – form the backbone of transatlantic commercial activity.

U.S. FDI in Europe

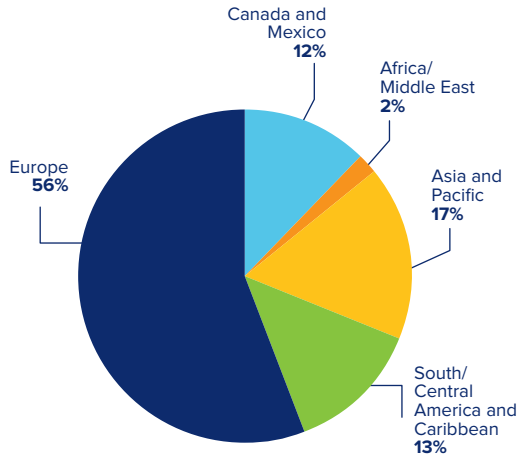
Europe remains the most attractive region in the world for U.S. companies investing abroad. More U.S. foreign direct investment goes to Europe than to the entire rest of the world (Table 1). From 2009 to 2023, the last year of available data, Europe accounted for 56% of U.S. global FDI outflows, far ahead of the Asia-Pacific (17%), South and Central America and the Caribbean (13%), USMCA partners Canada and Mexico (12%), and Africa and the Middle East (2%) (Table 2).

Table 1. Cumulative U.S. FDI Outflows ($Millions)

Decade	All Countries	Europe	Europe as a % of US Global FDI
1950-1959	20,363	3,997	19.60%
1960-1969	40,634	16,220	39.90%
1970-1979	122,721	57,937	47.20%
1980-1989	171,880	94,743	55.10%
1990-1999	869,489	465,336	53.50%
2000-2009	2,056,007	1,149,810	55.90%
2010-2019	2,380,055	1,365,596	57.40%
2020 - Q3 2024	1,342,736	730,687	54.40%

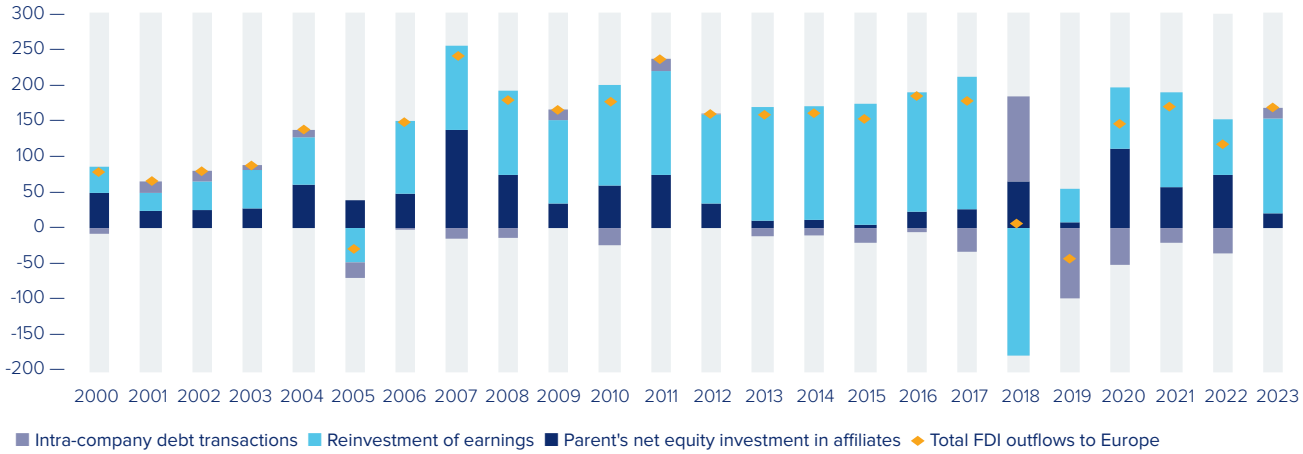
Source: U.S. Bureau of Economic Analysis. Data as of January 2025.

Table 2. Total U.S. FDI Outflows, 2009-2023



Source: U.S. Bureau of Economic Analysis. Historical-cost basis, 2023.

Table 3. U.S. FDI Outflows to Europe by Component ($Billions)



Source: U.S. Bureau of Economic Analysis.
Data as of January 2025.

U.S. FDI of $56.1 billion in Europe in 2023 was more than double that of China ($25.7 billion), 6 times more than Japan ($9.4 billion) and 8 times more than India ($7 billion) (Table 4).

As discussed in previous annual reports, overall FDI accounting usually tells you about immediate investments, i.e. the last country from which an investment entered the destination country. Those figures don't necessarily tell you much about the original source of that investment. Data by "ultimate investing economy" is scattershot. Within the EU, 11 countries record inward FDI by ultimate investing economy. In 2023 that investment totaled $3.53 trillion, up from $3.42 trillion in 2022. U.S. investments accounted for $439.50 billion, 12.5% of the total, just behind those from Germany ($443.79 billion, 12.6%), ahead of France ($385.33 billion, 10.9%), the UK ($313.90 billion, 8.9%) and Switzerland ($228.39 billion, 6.5%). Investments from the U.S. led total inward FDI in these 11 countries in 2022.

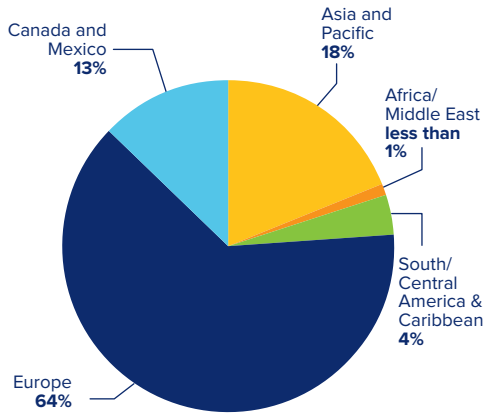
In short, the United States is the largest external source of inward FDI into the EU, and in some years is the most valuable source of FDI for many EU countries – more significant than investments from fellow EU member states.

Table 4. Top External Sources of FDI to Europe
(Country Capex, $Billions)

1. United States	56.1
2. China	25.7
3. Japan	9.4
4. India	7
5. Taiwan	6
6. Canada	5.8
7. Singapore	5.7
8. Israel	3.3
9. South Korea	2.8
10. Australia	2.6

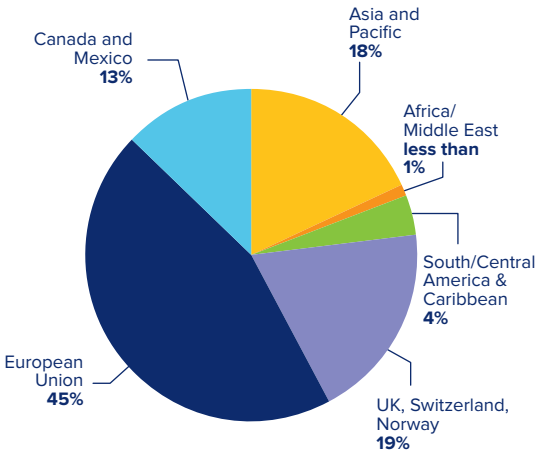
Source: fDi Markets. Note: Includes estimates.
Data as of 2023.

Table 5a. Europe's Share of Foreign Direct Investment in the United States



Source: U.S. Bureau of Economic Analysis. Historical-cost basis, 2023.

Table 5b. The EU's Share of Foreign Direct Investment in the United States



Source: U.S. Bureau of Economic Analysis. Historical-cost basis, 2023.

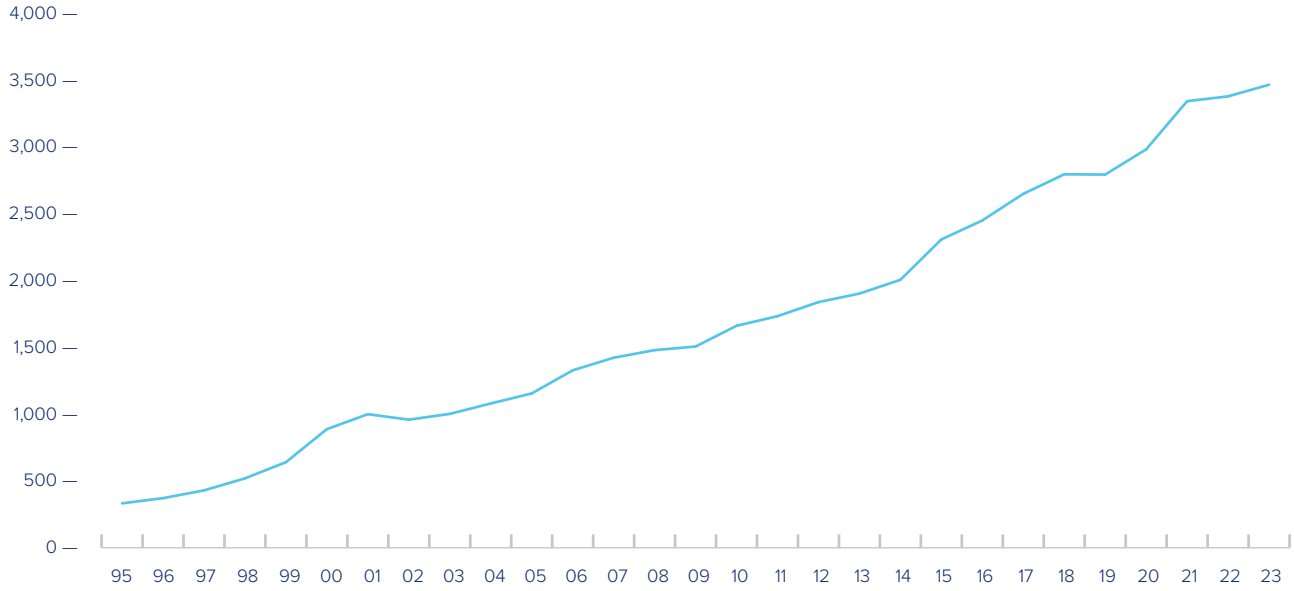
European FDI in the United States

European firms are the largest source of foreign direct investment in the United States, accounting for 64% of all global FDI inflows to the U.S. in 2023, by ultimate beneficial owner, on an historical-cost basis (Table 5a). Companies from Japan invested another 13% and other Asia-Pacific companies an additional 6%. Enterprises from USMCA partners Canada and Mexico accounted for 13% of the total.

Let's break the European total down further. The EU accounted for 45% of all FDI in the United States. The Netherlands had the largest FDI position in the United States of all countries in the world, ahead of Japan. The UK, Switzerland and Norway were responsible for an additional 19% of the global total, about the same as all companies from the Asia-Pacific region (Table 5b). European FDI in the United States has increased steadily, year after year, for more than three decades (Table 6).

These figures add important perspective to current policy debates. For example, European officials and industrialists have complained that the U.S. Inflation Reduction Act, the U.S. Chips and Science Act, and related initiatives would divert capital away from Europe toward the United States. There is no evidence to support these assertions.[1] European FDI into the U.S. is strong and continues to grow, but it has not spiked. Meanwhile, investment in the EU has been stable and FDI inflows, led by those from the United States, have grown.[2]

Table 6. European Foreign Direct Investments in the United States ($Billions)



Sources: U.S. Bureau of Economic Analysis.
Data as of January 2025.

Notes
1 For more, see Martin Sandbu, "Has the US really diverted green investment from Europe?" *Financial Times*, May 30, 2024.
2 European Commission, "Fourth Annual Report on the screening of foreign direct investments into the Union," October 17, 2024, https://ec.europa.eu/transparency/documents-register/detail?ref=COM(2024)464&lang=en.

4 Trade and Investment Synergies

The transatlantic economy is strong because Europe and the United States are each other's major source and destination of trade and investment. Trade and investment should not be viewed independently – they are interrelated and can be synergistic. Companies deliver goods and services across the Atlantic both via trade and through the sales of their foreign subsidiaries, and their foreign subsidiaries are themselves major exporters and importers. These avenues are more complements than substitutes. Foreign direct investments that generate foreign affiliate sales also increasingly drive transatlantic trade.

As shown in Table 1, a great deal of transatlantic trade is considered intra-firm or related-party trade, which is cross-border trade that stays within the ambit of the company. Most global supply chains are constructed around this model.

Table 1. **Related-Party Trade, 2023**

Country	U.S. Imports: "Related Party Trade" (% of total)	U.S. Exports: "Related Party Trade" (% of total)
EU+UK	64	41
Germany	68	40
France	51	31
Ireland	90	33
Netherlands	68	56
UK	54	32

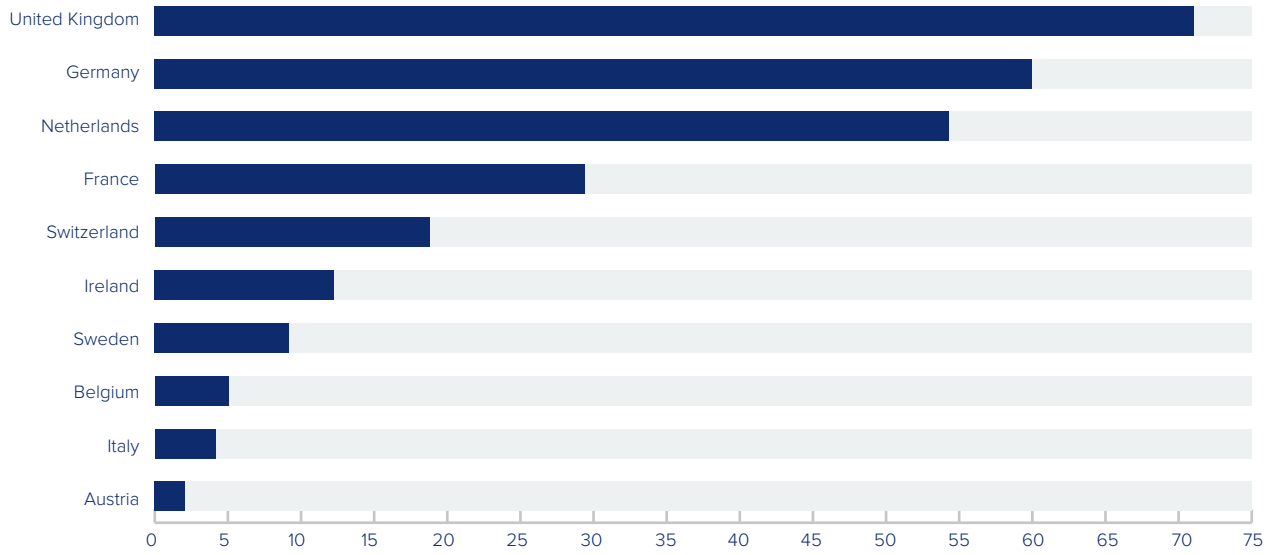
Source: U.S. Census Bureau.
Data as of July 2024.

BMW of Germany, for instance, sends engines and front bumper assemblies from its plant in Munich to its factory in Spartanburg, South Carolina, which is bigger than its plant in Munich. U.S. workers then install those components into a shiny new BMW Made in the U.S.A, which is exported to 120 markets in the world – making BMW America's largest car exporter by value, a position it has held for a decade. Many European and U.S. parent companies exchange parts, components and services in similar ways with their in-company subsidiaries across the Atlantic.

The tight linkages between European parent companies and their U.S. affiliates are reflected in the fact that nearly two-thirds (64%) of U.S. imports from the EU+UK consisted of intra-firm trade in 2023, the last year of available data. That is much higher than intra-firm imports from Asia (estimated 40%) and the well above the global average (48%). The percentage was even higher in the case of Ireland (90%), as well as Germany and the Netherlands (68% each). Meanwhile, 41% of U.S. exports to the EU+UK in 2023 represented intra-firm trade; the level for U.S. exports to the Netherlands was much higher (56%).

BMW is a good example of how a European company uses its investment in the United States to export its products around the world. Billions of dollars in U.S. exports to the world are generated by European companies based in the United States (Table 2). UK enterprises operating in the United States accounted for over $70 billion in U.S. exports in 2022, the last year of available data. German firms generated $60 billion in U.S. exports and Dutch companies another $55 billion. In other words, U.S. exports to the world are not just generated by U.S.-owned companies; European firms are major exporters of goods and services made in the U.S.A. In any given year, foreign affiliates based in the U.S. typically account for around one-quarter of total U.S. merchandise trade exports.

Table 2. U.S. Exports of Goods Shipped by European Companies Operating in the United States ($Billions)



Source: U.S. Bureau of Economic Analysis.
Data for 2022.

U.S. companies based in Europe operate in much the same way. Table 3 depicts U.S. affiliate sales from a given country to other destinations, or how much U.S. affiliates based in other countries export from those countries to other markets around the world. Ten of the top twenty global export platforms for U.S. firms in the world are in Europe, a dynamic that reflects Europe's intense cross-border trade and investment linkages and the strategic way U.S. firms leverage their European supply chains. Ireland is the second largest export platform for U.S. companies in the world, trailing only Singapore. Following Ireland are Switzerland, the UK, Belgium, the Netherlands and Germany.

In short, deep U.S. and European investment ties in each other's market are another conduit for trade. The synergistic relationship between trade and investment is another way in which the two sides of the North Atlantic remain deeply intertwined and embedded in each other's markets. This is not likely to change any time soon, given that shareholders and stakeholders on both sides of the pond directly benefit from deep transatlantic integration.

A great deal of transatlantic trade is considered intra-firm or related-party trade, which is cross-border trade that stays within the ambit of the company.

Table 3. **Global Export Platforms for U.S. Multinationals** (U.S. Affiliate Sales From Abroad to Other Destinations*) ($Millions)

Rank	1982		1990		2000		2022	
	Country	Value	Country	Value	Country	Value	Country	Value
1	United Kingdom	33,500	United Kingdom	51,350	United Kingdom	94,712	Singapore	503,917
2	Switzerland	27,712	Canada	46,933	Canada	94,296	Ireland	442,793
3	Canada	25,169	Germany	41,853	Germany	69,522	Switzerland	311,928
4	Germany	19,117	Switzerland	38,937	Netherlands	67,852	United Kingdom	276,864
5	Netherlands	15,224	Netherlands	33,285	Singapore	56,961	Belgium	187,125
6	Belgium	11,924	France	24,782	Switzerland	56,562	Netherlands	162,494
7	Singapore	11,579	Belgium	21,359	Ireland	51,139	Germany	131,643
8	France	11,255	Singapore	15,074	Mexico	37,407	Mexico	121,131
9	Indonesia	8,289	Hong Kong	9,951	France	35,797	Hong Kong	113,860
10	Hong Kong	4,474	Italy	9,562	Belgium	32,010	China	96,220
11	Italy	3,993	Ireland	9,469	Hong Kong	22,470	France	56,937
12	Australia	3,710	Spain	7,179	Malaysia	16,013	India	49,670
13	Ireland	2,842	Japan	7,066	Sweden	15,736	Brazil	47,054
14	United Arab Emirates	2,610	Australia	6,336	Italy	14,370	Australia	46,363
15	Brazil	2,325	Mexico	5,869	Spain	12,928	Malaysia	43,475
16	Japan	2,248	Indonesia	5,431	Japan	11,845	Thailand	27,041
17	Malaysia	2,046	Brazil	3,803	Australia	9,370	Italy	25,921
18	Panama	1,662	Norway	3,565	Brazil	8,987	Spain	24,994
19	Spain	1,635	Malaysia	3,559	China	7,831	Luxembourg	23,536
20	Mexico	1,158	Nigeria	2,641	Norway	6,238	South Korea	22,945
	All Country Total	252,274	All Country Total	398,873	All Country Total	857,907	All Country Total	3,370,804

Source: U.S. Bureau of Economic Analysis.
Data as of January 2025.
**Destination = affiliate sales to third markets and sales to U.S. for majority-owned foreign affiliates.*

5 Foreign Affiliates: Gross Product and Assets

Because U.S.-European commerce rests on the foundation of foreign direct investment, the European-based subsidiaries of U.S. companies and the U.S.-based subsidiaries of European firms play an outsized role in the transatlantic economy. They are among the largest and most advanced economic forces in the world. We can get a sense of their importance by looking at their gross product and their assets.

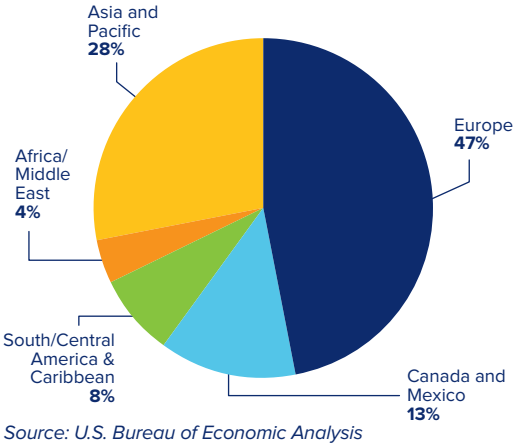
Gross Product of U.S. Affiliates in Europe and European Affiliates in the United States

The total output of U.S. company affiliates in Europe (estimated $825 billion) and of European company affiliates in the United States (estimated $850 billion) in 2023 was greater than the total gross domestic product of most countries. Combined transatlantic affiliate output totaled an estimated $1.68 trillion in 2023 – larger than the GDP of Spain, Indonesia, or Türkiye.

Owing to solid economic growth in the U.S., European affiliate output has continued to expand from the depressed levels of 2020-21, when Covid-19 brought the global economy to a standstill. Confronting stagnant growth at home, many European firms have reaped the rewards of being inside the U.S. economy, the most dynamic and resilient in the world. As such, many of Europe's main stock indices like the German DAX, French CAC and the Netherlands AEX have climbed to all-time highs in the past year because the bulk of these public-traded firms earn more in the U.S. than they do at home. Conversely, Europe has been more a drag on the earnings of corporate America of late; economic growth across Europe has slowed over the past few years, although, in general, U.S. firms have continued to expand their presence.

On a global basis, the aggregate output of U.S. foreign affiliates was around $1.8 billion in 2023, with Europe (broadly defined) accounting for 47% of the global total. According to the latest figures from the BEA, U.S. affiliate output in the Asia-Pacific region of $471 billion in 2022 was slightly less than U.S. affiliate output in the EU of $475 billion (29% of the global total), and 63% less than U.S. affiliate output of $770 billion in Europe broadly defined (Table 1). U.S. affiliate output in the UK was $191 billion, 12% of the global total.

Table 1. **Gross Product of U.S. Foreign Affiliates, by Region**

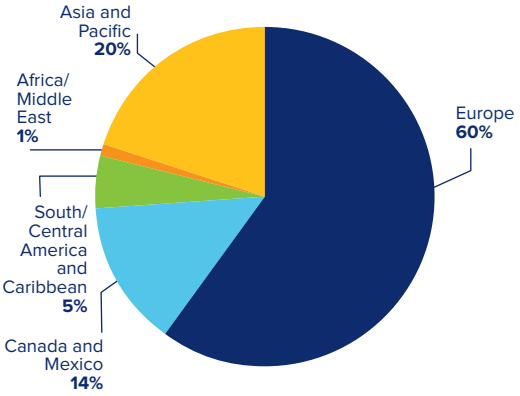


Source: U.S. Bureau of Economic Analysis Data as of 2022.

British and German firms are the largest foreign affiliate producers in the United States. In 2022, the last year of available data, British firms' output in the U.S. topped $208 billion. That equates to roughly 26% of the European total. For the same year, German affiliate output totaled $148 billion, roughly 20% of the European total. Owing to solid economic growth in the U.S., we estimate that output from both British and German affiliates rose by 6% in 2023, with the former totaling an estimated $220 billion and the latter $156 billion.

Total output of foreign affiliates
(2023 estimate)
$825 billion
U.S. in Europe
$850 billion
Europe in the U.S.

Table 2. **Gross Product of Foreign Affiliates in the United States, by Region**



Source: U.S. Bureau of Economic Analysis. Data as of 2022.

According to the latest available data (2022), European affiliates accounted for 60% of the $1.35 billion that foreign affiliates of foreign multinationals contributed to total U.S. GDP, 3 times more than the output of Asia-Pacific firms in the United States (Table 2).

Outside of Europe, only Japan and Canada have a significant FDI presence in the U.S. Japanese affiliate output totaled nearly $174 billion in 2022, while Canadian affiliate output totaled $170 billion. FDI from China has dropped sharply over the past few years due to rising U.S.-Sino trade tensions. Chinese affiliate output in the U.S. totaled just $16 billion in 2022, less than that of Sweden ($26 billion) and Spain ($18 billion).

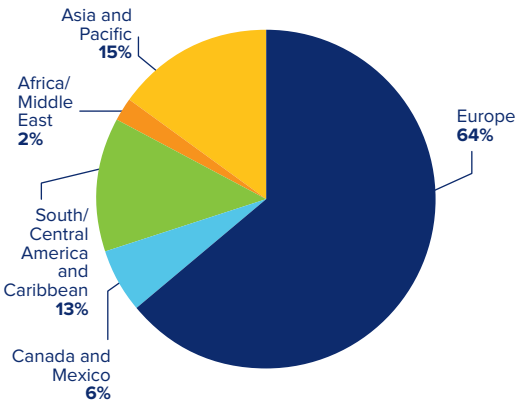
Assets of U.S. Affiliates in Europe and European Affiliates in the United States

The global footprint of transatlantic affiliates is best viewed by looking at their foreign assets.

U.S. foreign assets in Europe totaled a staggering $18.3 trillion in 2022, according to the latest figures from the BEA. That represents roughly 64% of corporate America's global footprint based on foreign assets (Table 3). The EU accounted for 37%, the UK for 22%, and Switzerland for 4%. For 2023, we estimate that U.S. foreign assets in Europe rose 5% to over $19.2 trillion as the continent rebounded from the effects of the pandemic.

The UK accounted for one-third ($6.3 billion) of U.S. assets in Europe in 2022. U.S. assets in the UK were more than U.S. assets in the entire Asia-Pacific region. U.S. assets in the Netherlands ($3.3 trillion) were the second largest in Europe, reflecting the strategic role the country plays for U.S. firms looking to export to the rest of Europe. More than half of U.S. affiliate sales in the Netherlands are for export, notably within the EU. U.S. assets in the Netherlands were more than U.S. assets throughout South/Central America and the Caribbean.

Table 3. **The Global Footprint of Corporate America, by Region** (Foreign Assets)

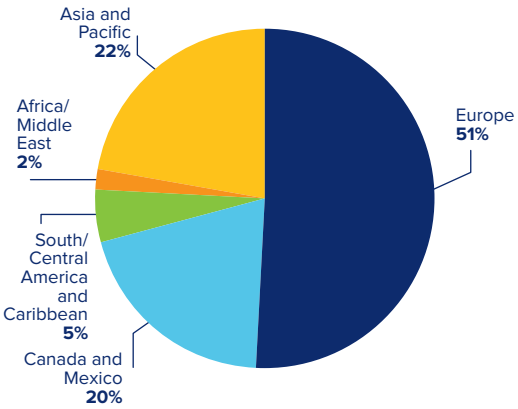


Source: U.S. Bureau of Economic Analysis. Data as of 2022.

America's asset footprint in Germany topped $1.2 trillion in 2022, more than a third larger than its asset base in all of South America. U.S. assets in Poland, the Czech Republic, and Hungary (roughly $225 billion) were greater than corporate America's asset base in South Korea ($153 billion). America's assets in Ireland of $1.9 trillion in 2022 was significantly higher than those in China of $516 billion.

Europe's asset base in the United States, by far its largest anywhere, continues to expand. Total assets of European affiliates in the United States were valued at $9.3 trillion in 2023, by our estimation. UK firms ranked first, followed by German, Swiss, and French companies. In 2022, the last year of available data, European assets in the U.S. accounted for 50% of all foreign owned assets in the United States (Table 4). EU assets accounted for 31% and those from non-EU European countries, notably the UK and Switzerland, represented 19% of the total. In contrast, companies from the Asia-Pacific region accounted for 22%, and firms from Canada and Mexico another 20%, of the corporate world's footprint in the United States.

Table 4. The World's Footprint in the United States, by Region (Assets in the U.S.)



Source: U.S. Bureau of Economic Analysis. Data as of 2022.

Outside of Europe, only Canada and Japan have a significant presence in the U.S.

6 Foreign Affiliates: Sales and Income

Absent from most economic reporting and analysis is this key fact: foreign affiliate sales, not exports or imports, are the primary means by which U.S. firms deliver goods and services to foreign markets, including to Europe. Likewise, the sales of European companies based in the United States is the principal channel through which European firms deliver their goods and services to American customers, not through exports and imports – even though those are also sizable.

U.S. and European sell more via their affiliates based in each other's market than they do anywhere else in the world. These sales generate significant income. U.S. and European companies each make more money in each other's markets than they do in the rest of the world.

Foreign Affiliate Sales

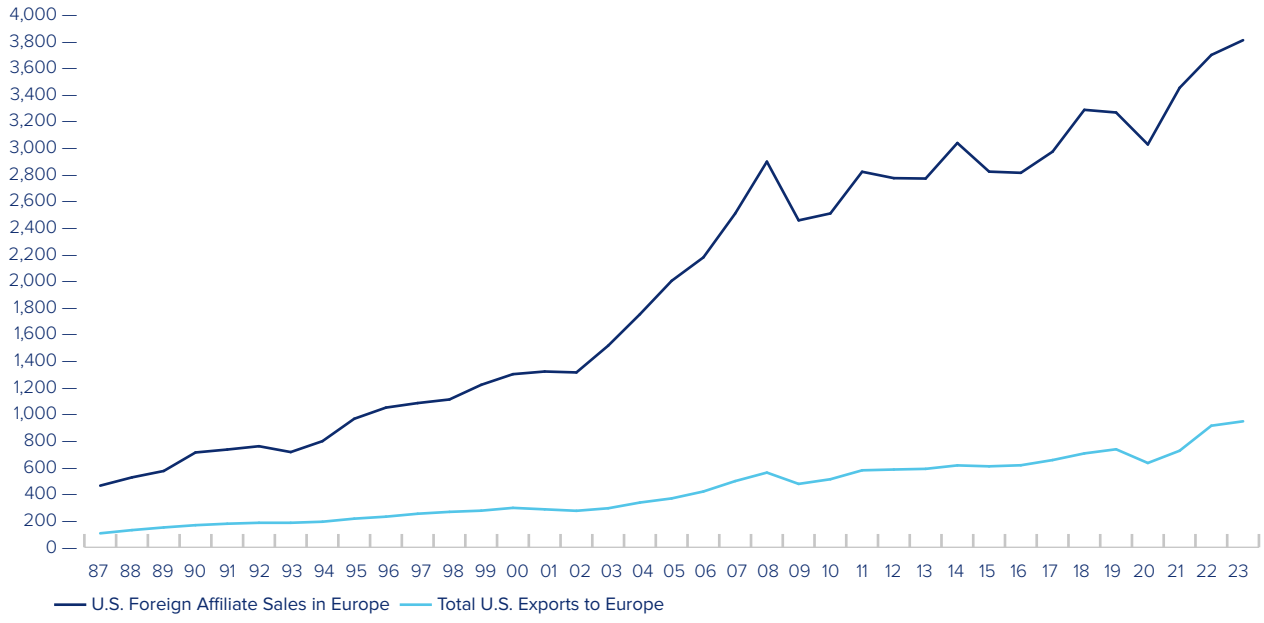
U.S. firms prefer to sell their goods and services close to their customers in foreign markets, rather than to export them overseas. U.S. majority-owned foreign affiliate sales of goods and services globally of $8.1 billion dwarfed total U.S. exports of goods and services of $3 billion in 2022, the last year of available data. The gap underscores how corporate America does business globally. It is a further example of why trade is a misleading benchmark of international commerce and why a focus on trade deficits misses the full picture.

Europe accounted for the bulk of U.S. foreign sales in 2022 because Europe is where U.S. investment roots are the deepest. Of the $8.1 trillion in U.S. global affiliate sales that year, roughly 46%, or $3.7 trillion in sales, was posted in Europe, almost all in the EU+UK+Switzerland ($3.6 trillion). The comparable figure for Asia was $2.5 trillion and for USMCA partners Canada and Mexico $1.7 trillion, each well below total sales across the Atlantic.

We estimate that U.S. affiliate sales in Europe for 2023 totaled $3.9 trillion, and mostly likely topped $4 trillion in 2024.

Sales of U.S. affiliates in Europe totaling $3.9 trillion in 2023 were 4 times more than U.S. exports of goods and services to Europe of $946 billion.

Table 1. **Sales of U.S. Affiliates in Europe vs. U.S. Exports to Europe** ($Billions)



Source: U.S. Bureau of Economic Analysis.
Majority-owned non-bank affiliates data: 1987 - 2008. Majority-owned bank and non-bank affiliates: 2009 - 2023.
Foreign Affiliate Sales: Estimates for 2023.

Meanwhile, affiliate sales of European affiliates in the U.S. have continued to rise over the past few years. Sales totaled $3.2 trillion in 2022, more than triple U.S. imports of goods and services from Europe. Affiliate sales of EU companies in the U.S. of $2.2 trillion were also triple U.S. imports of goods and services from the EU of $729 billion.

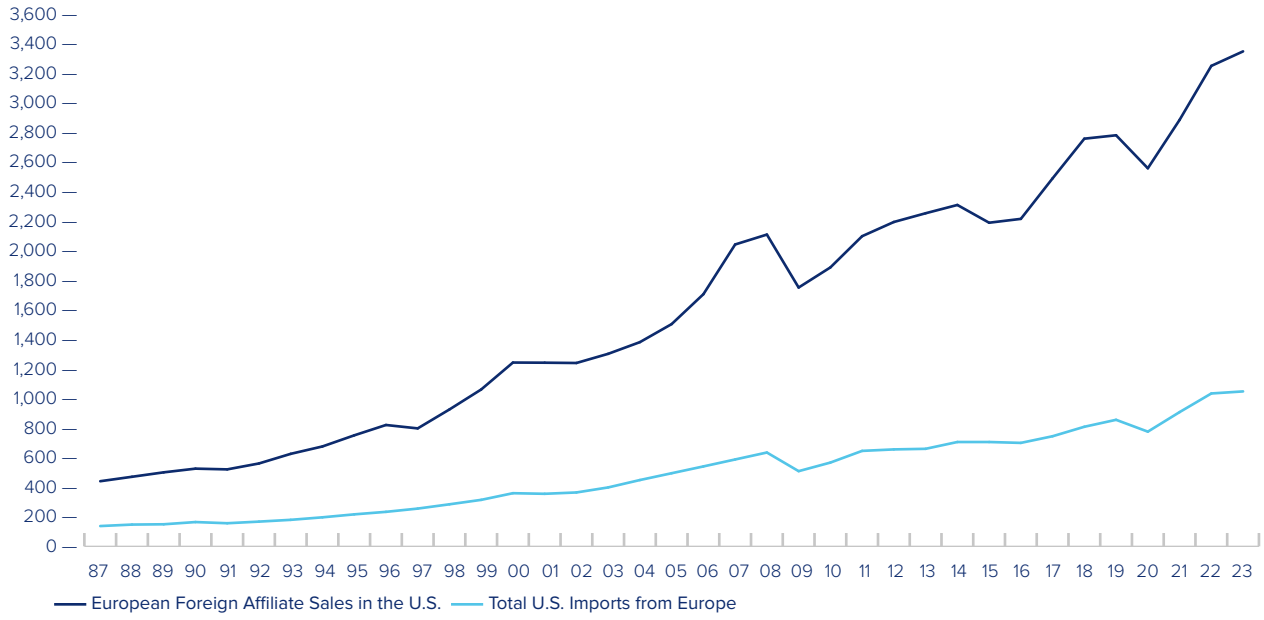
By country, sales of British ($684 billion) and German firms ($675 billion) were the largest among European affiliates. Sales by UK companies based in the United States were almost 5 times more than UK goods and services exports to the U.S. of $140 billion. Sales by U.S.-based affiliates of German companies were 3.5 times more than German goods and services exports to the United States. For virtually all countries in Europe, foreign affiliate sales in the United States are easily more valuable than their exports to the United States.

We estimate that European affiliate sales in the United States in 2023 totaled $3.3 trillion, 3.3 times more than European exports of goods and services to the United States of $1.0 trillion (Table 2). European affiliate sales in the U.S. mostly likely topped $3.5 trillion in 2024.

The importance of affiliate sales over trade flows is particularly apparent if one looks at services. Transatlantic sales of services via foreign affiliates are much larger than transatlantic trade in services. In 2022, the last year of full data, U.S. services to foreigners via trade totaled $1.0 trillion, whereas total services sales provided by U.S. affiliates abroad amounted to $2.1 trillion. Similarly, services supplied to U.S. persons by foreign-based companies via trade ($748 billion) were well below those of affiliates ($1.5 trillion). Key services provided by affiliates range from wholesale trade, finance and insurance to retail trade and real estate.

The United Kingdom was the top country through which U.S. affiliates supplied services in 2022, according to the U.S. Bureau of Economic Analysis. The UK was followed by Ireland, Canada, Singapore and Germany. Germany, the United Kingdom and France were the top European countries whose affiliates supplied services in the United States.

Table 2. Sales of European Affiliates in the U.S. vs. U.S. Imports from Europe ($Billions)



Source: U.S. Bureau of Economic Analysis.
Majority-owned non-bank affiliates: 1987 - 2006. Majority-owned bank and non-bank affiliates: 2007 - 2023.
Foreign Affiliate Sales: Estimates for 2023.

Earnings of foreign affiliates

$318 billion

U.S. in Europe (2023)

$173 billion

Europe in the U.S. (2023)

Foreign Affiliate Income

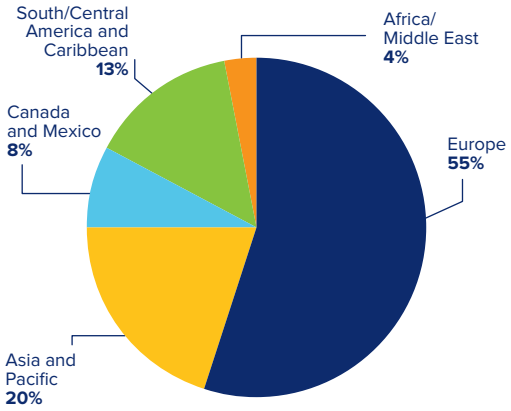
The global profits of U.S. and European firms are generated largely from the places where their investment roots are the deepest – each other's markets.

When it comes to the bottom line – the earnings of U.S. multinationals – Europe remains by far the most important region in the world. U.S. companies relied on Europe for roughly 54% of their total annual foreign income in 2024.

U.S. affiliate income in Europe in 2024 declined by 5.7% to roughly $300 billion, according to our estimates. Nonetheless, U.S. affiliate income earned in Europe was still the third-highest on record, less than the record-breaking achievement of $318 billion in 2023, but on par with earnings in 2022 (Table 3). We expect U.S. foreign affiliate income to rise only moderately in Europe in 2025, given the tepid EU economic outlook.

In 2023, the last year of available data, U.S. foreign affiliate earnings in Europe of $318 billion accounted for 55% of the global total. Earnings in the EU of $229 billion accounted for 40%, and those in the UK of $67 billion for another 12% of the global total. The Asia-Pacific region accounted for only 20%. U.S. affiliate income of $47 billion in USMCA partners Canada and Mexico accounted for 8% of the total. U.S. affiliate income of $33 billion in the 10 members of the BRICS+ grouping was less than 6% of the global total in 2023, the last year of available data (Table 4).

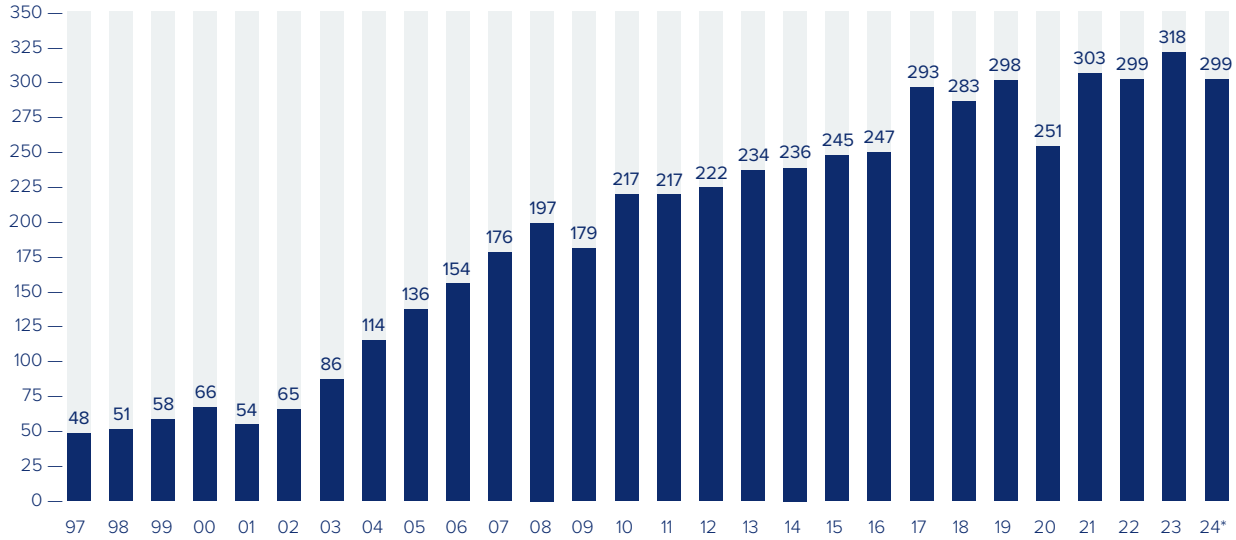
Table 4. U.S. Earnings Around the World, by Region (Foreign Affiliate Income, $Billions)



Source: U.S. Bureau of Economic Analysis
Data as of 2023.

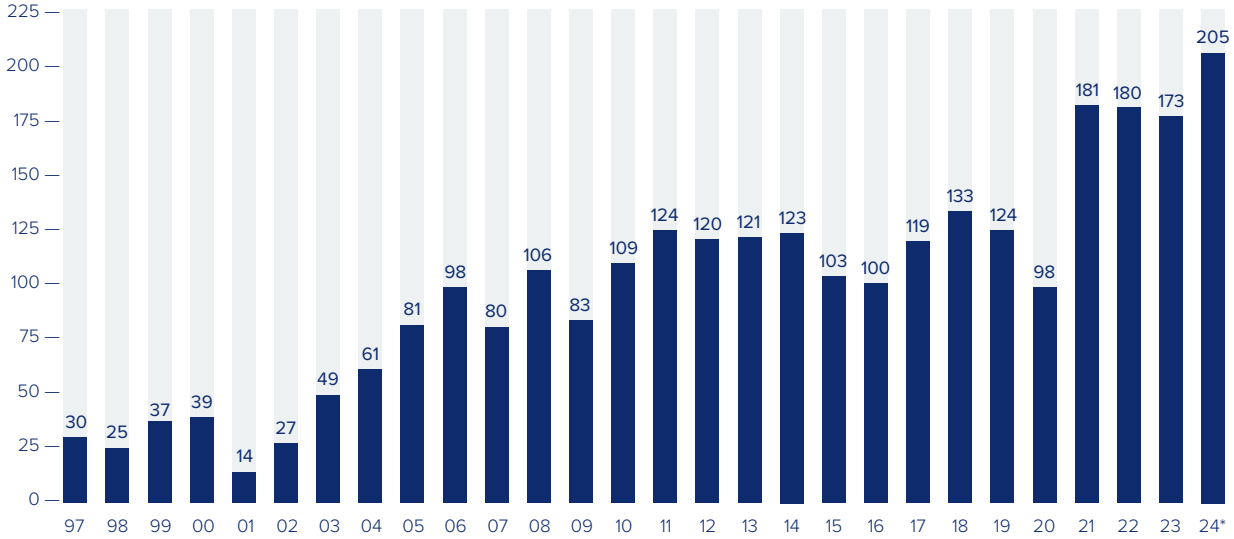
The United States remains the most important market in the world in terms of earnings for many European firms. Whether Swiss pharmaceutical corporations, German auto manufacturers, or British services providers, European affiliate earnings are significantly higher today than they were at the start of the century. European affiliate income in the United States soared 18% in 2024, to a record $205 billion, according to our estimates (Table 5). And solid demand in the U.S. should underpin another annual rise in European affiliate earnings in the U.S. in 2025.

Table 3. U.S. Foreign Affiliate Income Earned in Europe ($Billions)



Source: U.S. Bureau of Economic Analysis.
**Data for 2024 is annualized using 3 quarters of 2024 data.*

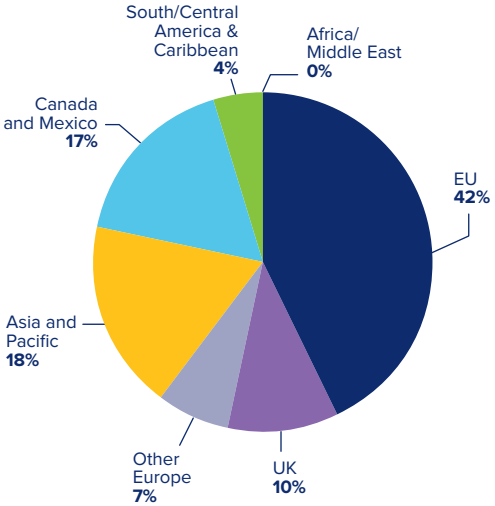
Table 5. European Affiliate Earnings in the U.S. Hits a New High (Foreign Affiliate Income Earned in the U.S., $Billions)



Source: U.S. Bureau of Economic Analysis.
**Data for 2024 is annualized using 3 quarters of 2024 data.*

European firms profit the most from their engagement in the United States. European companies accounted for 59% of the $269 billion earned by global companies operating in the United States in 2023. 42% of total global earnings went to EU companies, another 10% to UK firms, and an additional 7% to enterprises from the rest of Europe. 18% of the earnings went to Asian-Pacific firms and 17% to those from Canada and Mexico (Table 6).

Table 6. Global Earnings in the United States, by Region (Foreign Affiliate Income in the U.S., $Billions)

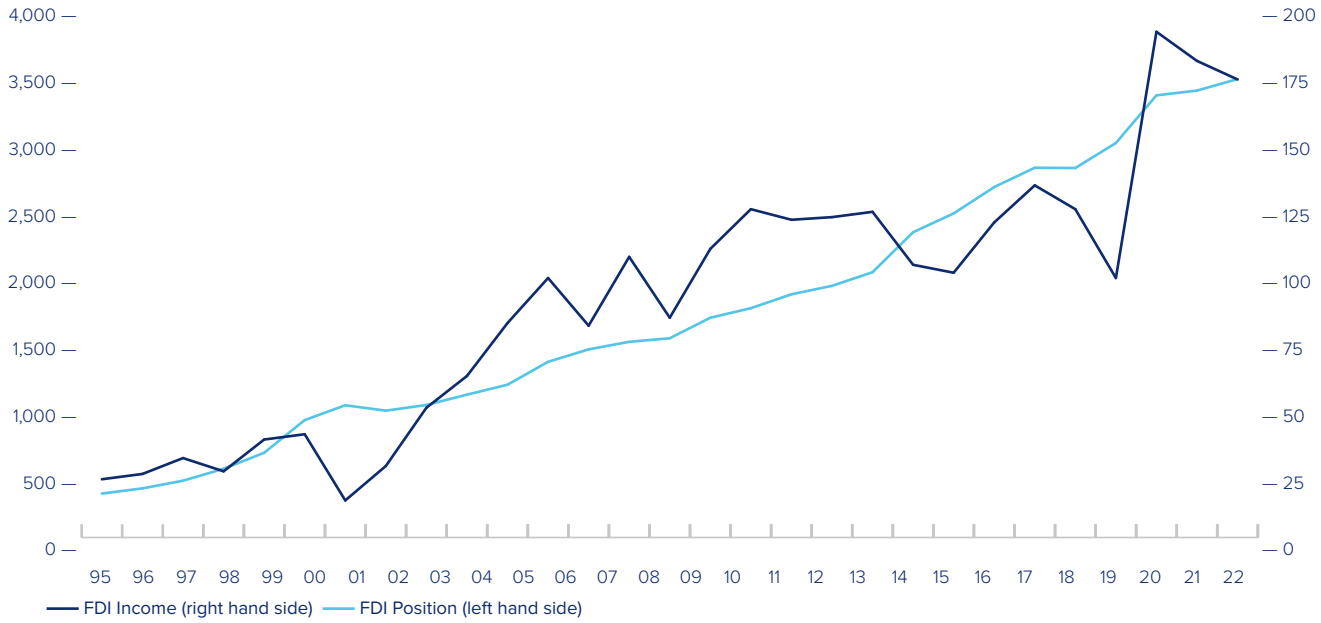


Source: U.S. Bureau of Economic Analysis.
Data as of 2023.

Foreign affiliate income is a further example of why investment flows drive the transatlantic economy. Table 7 highlights this connection. The two metrics are highly correlated: the greater the earnings, the greater the likelihood of more capital investment, and the more investment, the greater the upside for potential earnings and affiliate income. What's more, higher earnings in the United States have allowed European companies to be more successful back home in Europe – including by expanding their operations and hiring more workers. That's our next tale – transatlantic jobs.

U.S. and European companies each make more money in each other's markets than they do in the rest of the world.

Table 7. European Foreign Direct Investment and Income in the United States ($Billions)



Sources: U.S. Bureau of Economic Analysis.
Data as of January 2025.

7 Jobs

We estimate that more than 16 million European and American workers owe their livelihoods to a healthy transatlantic economy. These numbers include both direct and indirect employment related to investment and trade.[1] European firms are by far the most important source of "onshored" jobs in the United States, and the U.S. companies are by far the most important source of "onshored" jobs in Europe.

U.S. and European foreign affiliates are a major source of employment for all 50 U.S. states and for countries all across Europe. The transatlantic workforce directly employed by U.S. and European affiliates totaled 9.6 million workers in 2022, the last year of available data. We estimate that this figure rose to roughly 9.9 million in 2023 (Table 1). These numbers do not include jobs supported by transatlantic trade flows, nor do they account for indirect employment effects for distributors, suppliers, and nonequity arrangements such as strategic alliances, joint ventures, and other arrangements. We estimate that those additional commercial activities supported at least another 6 million jobs, bringing the total transatlantic workforce to more than 16 million people.

U.S. foreign affiliate employment in Europe
(2023 estimates)
4.6 million workers

European foreign affiliate employment in the U.S.
(2023 estimates)
5.3 million workers

Table 1. **Transatlantic Jobs** (Thousands of employees, 2023*)

Country	U.S. Companies in Europe	European Companies in the U.S.	Total
Austria	31.4	44.2	75.6
Belgium	118.6	82.4	201.0
Czech Republic	70.5	3.2	73.7
Denmark	29.4	54.9	84.3
Finland	20.1	38.6	58.7
France	496.5	790.8	1,287.3
Germany	656.6	897.5	1,554.1
Greece	21.3	3.8	25.1
Hungary	62.9	0.5	70.4
Ireland	170.5	387.1	557.6
Italy	251.0	104.9	355.9
Luxembourg	28.6	135.7	164.3
Netherlands	230.0	636.8	866.8
Norway	37.0	9.0	48.0
Poland	239.6	1.5	241.1
Portugal	36.5	1.6	38.1
Spain	183.5	89.7	273.2
Sweden	64.5	289.1	353.6
Switzerland	98.4	411.1	509.5
United Kingdom	1,391.1	1,259.7	2,650.8
Europe	**4,613.7**	**5,266.9**	**9,880.6**

*Source: U.S. Bureau of Economic Analysis. *2023 estimates. Majority-owned bank and non-bank affiliates.*

U.S. Affiliate Employment in Europe

Since the start of this century, U.S. affiliates have added roughly 1 million more European workers to their payrolls, bringing the total to 4.5 million in 2022, the last year of complete data. That's a 22% increase. We estimate that U.S. foreign affiliates in Europe employed roughly 4.6 million workers in 2023. 62% of those workers – 2.8 million – were in the European Union.

As U.S. companies expand their worldwide operations, they are hiring workers outside of Europe at a faster pace than within Europe. This means that although absolute European employment numbers are up, Europe's share of U.S. affiliate employment globally is down. U.S. majority-owned affiliates employed 14 million workers in 2022. 32% toiled in Europe, compared to 41% at the start of the century. That said, with U.S. unemployment currently hovering around 4%, U.S. firms remain dependent on European workers to drive and grow their businesses.

U.S. affiliates employ hundreds of thousands of manufacturing workers in Europe. Roughly one-third of all manufacturing workers on the payrolls of U.S. affiliates abroad were based in Europe in 2022. U.S. affiliate employment in manufacturing in Europe totaled 1.7 million in 2022, a modest decline from 1.9 million in 2000. The key U.S. employers are transportation equipment and chemicals companies. However, the overall balance between manufacturing and services jobs is shifting toward services. Services activities accounted for roughly 60% of total U.S. foreign affiliate employment in Europe in 2022. Wholesale employment was among the largest sources of services-related employment, which includes jobs in logistics, trade, insurance and other related functions.

Most employees of U.S. operations in Europe are based in the United Kingdom, Germany and France. U.S. affiliates in Europe directly employed 1.35 million people in the UK, 638,000 in Germany, and 482,000 in France in 2022. Eight of every ten U.S. affiliate employees in the UK work in services (1.07 million). The U.S. affiliate manufacturing workforce in the UK fell from 431,000 in 2000 to 278,000 in 2022. U.S. affiliate jobs in Germany skew the other direction: 56% (355,000) of German employees of U.S. companies work in manufacturing, 44% (238,000) in services. Two-thirds of French employees working for U.S. companies are in services (322,000). One-third, or 160,000, are in manufacturing – a decline from 249,000 in 2000.

The country composition of U.S. affiliate employment continues to evolve, as firms adjust their supply chains to take advantage of the enlarged European Single Market and respond to external shocks, such as Brexit. Poland has been a significant winner: 233,000 Poles worked for U.S. affiliates in Poland in 2022. That was more than U.S. affiliate employment in Spain of 178,000. Because U.S. affiliate employment in manufacturing in Poland has tripled in the past two decades, the manufacturing-services employment balance in Poland resembles that of Germany: 58% (136,000) of Polish employees of U.S. companies work in manufacturing, 42% (97,000) work in services.

European Affiliate Employment in the United States

European majority-owned affiliates directly employed 5.1 million U.S. workers in 2022, the last year of available data. We estimate that this number rose to 5.3 million in 2023. The top five European employers in the U.S. were firms from the UK (1.2 million), Germany (871,000), France (769,000), the Netherlands (618,000) and Switzerland (399,000). European firms employed roughly two-thirds of all U.S. workers on the payrolls of majority-owned foreign affiliates in 2022. In that year, European affiliates employed nearly 500,000 workers in California alone, another 400,000 in Texas, 390,000 in New York, and a quarter million workers in Pennsylvania.

UK firms were the largest sources of onshored jobs in 19 U.S. states in 2022. Japanese companies led in 11 states, Canadian enterprises in 9 states, Dutch firms in 7 states, and German companies in 3 states. French firms led in 2 states.

The presence of European affiliates in many states and communities across the United States has helped to improve America's jobs picture. The more European firms embed in local communities around the nation, the more they tend to generate jobs and income for U.S. workers, increase sales for local suppliers and businesses, expand revenues for local communities, and encourage capital investment and R&D expenditures for the United States.

Table 2. Ranking of U.S. States and Territories by Jobs Supported Directly by European Investment (Thousands of Employees)

		2020	2021	2022
	Total	4,792.80	4,869.50	5,113.50
1	California	459.7	461.3	492.7
2	Texas	389.7	388.8	399.2
3	New York	359	358.5	390.3
4	Pennsylvania	241.9	242.8	253.1
5	Illinois	222.7	223.2	238.4
6	Florida	208.7	215.4	236.2
7	North Carolina	202.4	207.8	220.8
8	New Jersey	192.5	198.4	207.9
9	Michigan	200.1	200.2	204.5
10	Massachusetts	159.3	163.8	170.7
11	Ohio	160.4	159.9	167.4
12	Georgia	151.9	156.9	161.7
13	Virginia	148.1	152.3	160.6
14	Indiana	114.8	119.2	126.5
15	South Carolina	110.7	115	124.3
16	Tennessee	115.1	112.7	121.8
17	Maryland	87.9	93.5	97.1
18	Minnesota	93.3	91	94.7
19	Missouri	93.2	87.8	93.4
20	Connecticut	84.7	87	88.1
21	Wisconsin	80.9	81.8	85.9
22	Washington	79.3	80.3	84.9
23	Arizona	73.1	80.5	83
24	Colorado	69	72.9	75
25	Kentucky	60.1	60.9	63.9
26	Alabama	54.2	53.1	58.8

		2020	2021	2022
27	Louisiana	47.5	45.1	47.4
28	Oregon	46.9	44.4	44.3
29	Kansas	41.4	42.2	43.2
30	Oklahoma	38.7	38.4	40
31	New Hampshire	34.9	37.6	37.3
32	Iowa	34.1	35.7	37.2
33	Utah	33.5	41.4	37
34	Nevada	32.5	33.3	36.3
35	Arkansas	28.3	31.3	30.4
36	Rhode Island	24.6	24.6	26.3
37	Delaware	21.4	22	25.6
38	Maine	24.2	23.2	24.2
39	Mississippi	22.1	22.5	23
40	Nebraska	17.5	17.5	18
41	District of Columbia	15.7	15.6	15.9
42	West Virginia	13.9	15.1	15.9
43	Idaho	13.2	13.4	14.3
44	Puerto Rico	14.5	15	14.1
45	Other U.S. areas	13.7	19.6	12.2
46	New Mexico	11.3	11.2	11.9
47	Hawaii	12.7	11.6	11.2
48	Vermont	9.6	8.7	9.5
49	Wyoming	5.2	5.1	6.5
50	South Dakota	5.6	5.6	6
51	Montana	5.7	4.8	5.2
52	Alaska	4.4	5.1	5
53	North Dakota	5.3	5	4.8

Source: U.S. Bureau of Economic Analysis. Data as of January 2025.

U.S. and European foreign affiliates are a major source of employment for all 50 U.S. states and for countries all across Europe.

Note

1 Jobs related to foreign investment is based on data from the U.S. Bureau of Economic Analysis. For methodology related to jobs from trade, please see the Appendix.

8 Innovation

International flows of research and development (R&D) and of human talent have become critical to knowledge economies like the United States and Europe. Many firms now invest as much in intangible assets related to knowledge flows as they invest in traditional capital like machinery, equipment, and buildings. Keeping these flows in mind can help us make sense of the numbers and narratives that are thrown at us every day, and to identify our most important commercial partners.

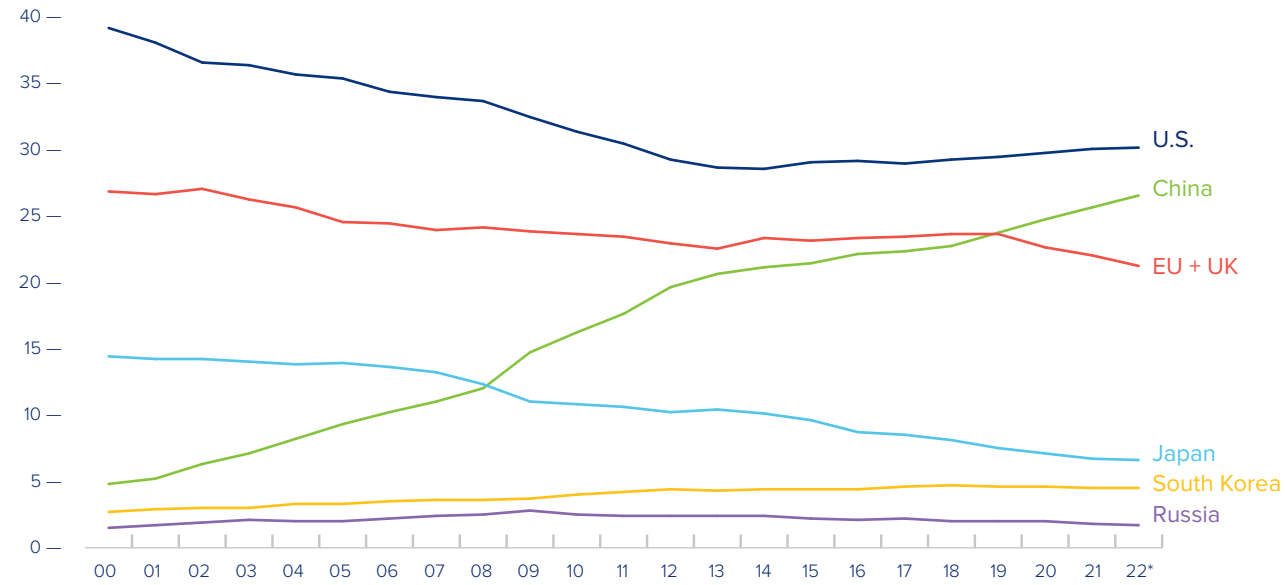
A global race is underway in the key technologies of the future, including artificial intelligence (AI), quantum computing, biotechnology, clean and renewable energy, cybersecurity, and space. The competitive pursuit of each domain has been driven by national security concerns and economic factors that help drive growth and innovation. Over the past two decades, China has steadily advanced its R&D capabilities (Table 1).

Although the race is often characterized as one largely between the United States and China, Europe is a key player in many of these technologies. EU+UK-based organizations accounted for more than one-fifth of total global R&D in 2022 in purchasing-power parity terms. That lagged the share of the United States and China but exceeded the share of Japan and South Korea. Moreover, the U.S. vs. China narrative implies that each country is a self-contained juggernaut. It tells us nothing about the degree to which each country's innovative power may derive in part from the flows of intellectual capital it sustains with other countries. A closer look not only underscores the importance of those flows, it reveals that the tightest innovation links are between the United States and its European partners.

Research and Development (R&D) of Foreign Affiliates

R&D has never been more important to security, to growth, and to the transatlantic economy. Although governments and corporations are the main drivers of R&D spending, foreign affiliates of multinationals are also in the thick of things. Affiliate R&D continues to grow in importance as

Table 1. Global R&D Expenditures and the Rise of China (% of Total)



Source: OECD.
R&D share calculated in terms of current purchasing-power parity dollars. Global R&D is a sum of the OECD countries plus Argentina, China, Russia, Singapore, South Africa, Chinese Taipei and Romania.
**2022 authors' estimate for the following countries: Russia, Singapore, South Africa, & UK.*
Data as of January 2025.

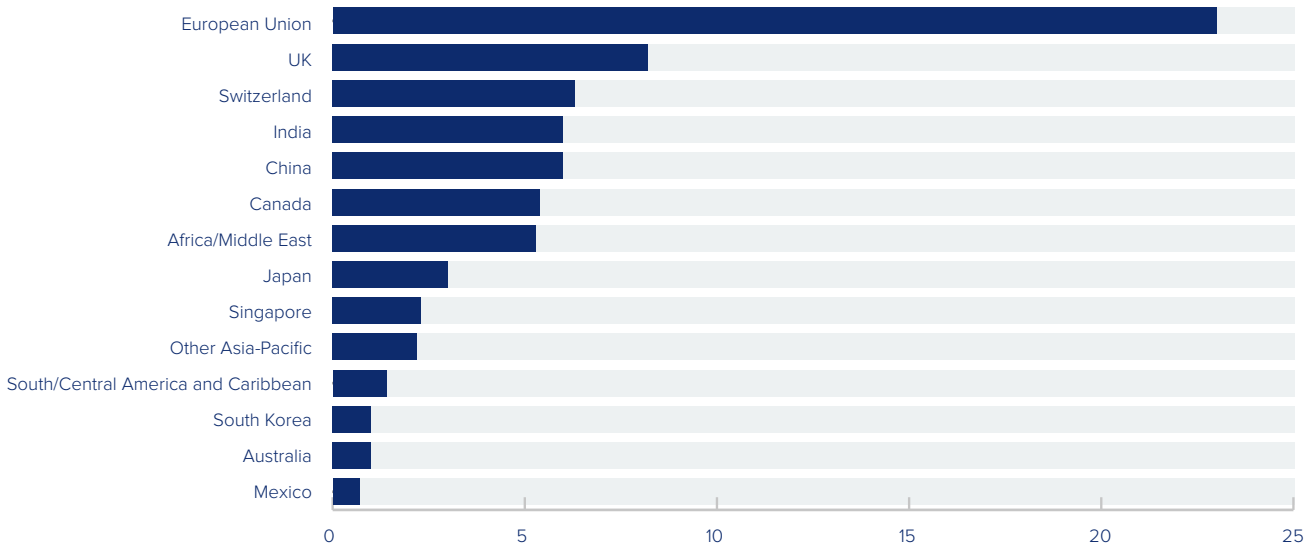
firms seek to share development costs, spread risks, and tap into the intellectual capital of other countries, notably those across the North Atlantic. Alliances, cross-licensing of intellectual property, mergers and acquisitions, and other forms of cooperation have become the transatlantic norm. The digital economy has become a powerful engine of greater technological innovation and collaboration across the pond – more on that in the next section. Developing new products and services, creating new processes, and driving more innovation – all these activities result from more collaboration between U.S. and European scientists, entrepreneurs and larger enterprises.

R&D Expenditures by U.S. Affiliates in Europe vs. the World

Bilateral U.S.-European flows in R&D are the most intense between any two regions in the world. In 2022, the last year of available data, U.S. affiliates spent $38.2 billion on R&D in Europe, including $22.8 billion in the EU. U.S. R&D outlays were the greatest in the UK ($8.2 billion), Germany ($6.4 billion), Switzerland ($6.3 billion), Ireland ($4.6 billion), Belgium ($2.7 billion), and France ($2.1 billion). These six countries accounted for roughly 83% of U.S. spending on R&D in Europe in 2022.

Europe accounted for roughly 53% of global R&D spending by U.S. affiliates worldwide. The EU accounted for 32%, the UK for 11%, and Switzerland for another 9% (Table 2).

Table 2. **R&D Expenditures of U.S. Foreign Affiliates in Europe vs. the World** ($Billions)



Source: U.S. Bureau of Economic Analysis.
Data as of 2022.

Bilateral U.S.-European flows in R&D are the most intense between any two regions in the world.

R&D spending of foreign affiliates
(2022)
$38.2 billion
U.S. in Europe
$56.2 billion
Europe in the U.S.

R&D Expenditures by European Affiliates in the United States

The ability to attract R&D from companies abroad is important to the innovative culture of the United States. R&D performed by affiliates of foreign companies accounts for roughly 15% of total R&D conducted by all businesses in the United States.

As in previous years, a large share of this R&D spending came from world-class leaders in Europe, given their interest in America's highly trained and skilled labor force and world-class university system. The rapid adoption of AI has also fueled more R&D in the U.S. by European firms. Most of this investment has taken place in such sectors as autos, energy, chemicals, and telecommunications.

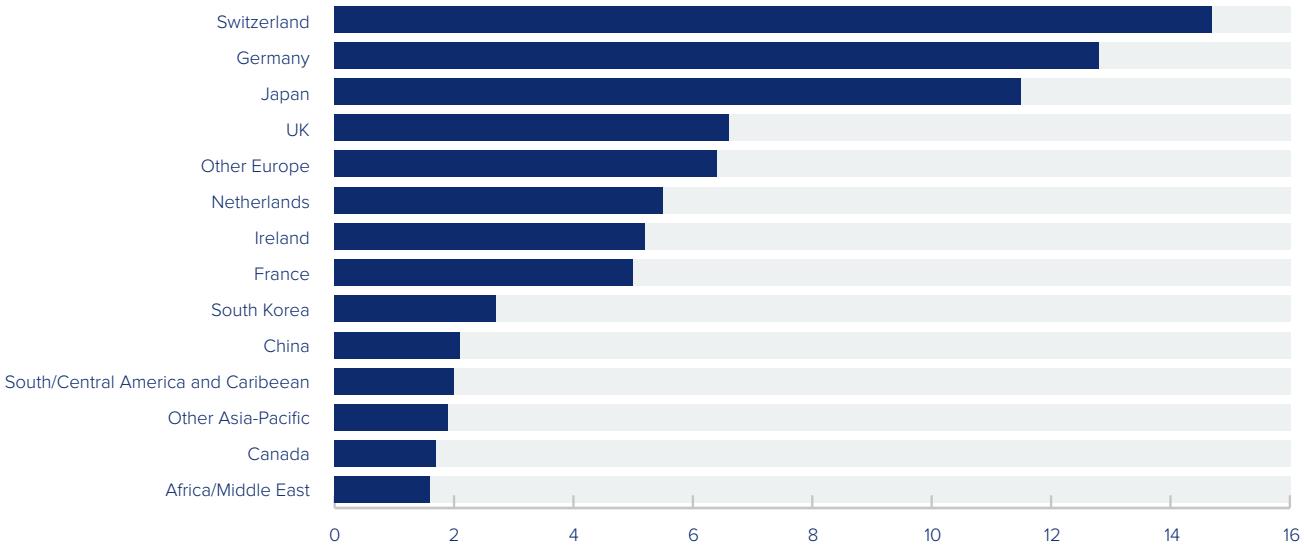
R&D spending by all foreign affiliates in the United States totaled $80.3 billion in 2022. European affiliates spending amounted to $56.2 billion, or 70% of the total. Firms from the EU spent $34.5 billion (34%). Swiss firms were the single largest source of foreign affiliate R&D spending in the U.S., accounting for $14.7 billion (26%) of total European R&D. German firms ranked second, with $12.8 billion (22%), followed by firms from the UK ($6.6 billion, 12%) and the Netherlands ($5.5 billion, 10%).

The Transatlantic Innovation Ecosystem

This cross-fertilization of intellectual capital is one reason why Europe and the United States remain global innovation leaders. Despite China's innovative advances, 17 of the world's top 20 firms in terms of R&D spending are domiciled in either the United States or Europe (Table 4). According to the 2024 Global Innovation Index, Europe hosts 7 of the ten most innovative countries in the world and 15 of the top 25. The United States ranks 3rd globally, behind Switzerland and Sweden (Table 5). The index considers a wide range of factors such as institutions, education quality, research and development, information and communications technologies infrastructure, and more.

A related measure of knowledge-based capabilities is science and technology (S&T) intensity – the sum of the patent and scientific publication shares divided by the population. By this measure, European and U.S. regions have more scientific output per capita than their Asian counterparts. In fact, of the world's top 20 science and technology clusters, ranked by S&T intensity, 11 are in Europe, 6 in the United States, and 3 are in Asia (Table 5).

Table 3. **R&D Expenditures of Foreign Affiliates in the United States** ($Billions)



Source: U.S. Bureau of Economic Analysis.
Data as of 2022.

Table 4. Top 20 R&D Spenders

		R&D Spending			
Rank	Company	2023 (€Billions)	Change from 2022 (%)	Country	Industry
1	Alphabet	39.8	10.7	US	Software & Computer Services
2	Meta	33.2	8.5	US	Software & Computer Services
3	Apple	27.2	14.0	US	Technology Hardware & Equipment
4	Microsoft	26.9	8.5	US	Software & Computer Services
5	Volkswagen	21.8	15.2	Germany	Automobiles & Parts
6	Huawei Investment & Holding	19.9	2.2	China	Technology Hardware & Equipment
7	Samsung Electronics	19.9	14.4	South Korea	Electronic & Electrical Equipment
8	Intel	14.6	-8.5	US	Technology Hardware & Equipment
9	Roche	14.2	-6.0	Switzerland	Pharmaceuticals & Biotechnology
10	Johnson & Johnson	14.0	5.1	US	Pharmaceuticals & Biotechnology
11	Merck Us	11.7	8.7	US	Pharmaceuticals & Biotechnology
12	Mercedes-Benz	10.0	17.3	Germany	Automobiles & Parts
13	Pfizer	9.6	-7.4	US	Pharmaceuticals & Biotechnology
14	Astrazeneca	9.5	9.4	UK	Pharmaceuticals & Biotechnology
15	General Motors	9.0	1.0	US	Automobiles & Parts
16	Eli Lilly	8.5	29.5	US	Pharmaceuticals & Biotechnology
17	Bristol-Myers Squibb	8.4	-2.2	US	Pharmaceuticals & Biotechnology
18	Oracle	8.1	3.4	US	Software & Computer Services
19	Tencent	8.1	5.7	China	Software & Computer Services
20	Novartis	8.1	-2.5	Switzerland	Pharmaceuticals & Biotechnology
		322.6	**6.4**		

Source: The 2024 EU Industrial R&D Investment Scoreboard. Data as of December 2024.
Note: Only companies that disclose their R&D figures according to the Scoreboard methodology can be included in the ranking. Excluded from the ranking is Amazon which, according to the Scoreboard, would be positioned at #1 in the world R&D ranking if it had separated its R&D and content investments in its annual report.

Table 5. Global Innovation Index (2024)

Overall Global Innovation Index	
Rank	Country
1	Switzerland
2	Sweden
3	United States
4	Singapore
5	United Kingdom
6	Korea
7	Finland
8	Netherlands
9	Germany
10	Denmark
11	China
12	France
13	Japan
14	Canada
15	Israel

Science and Technology (S&T) Intensity		
Rank	S&T Cluster	Country
1	Cambridge	UK
2	San Jose-San Francisco, CA	U.S.
3	Eindhoven	Netherlands
4	Oxford	UK
5	Boston-Cambridge, MA	U.S.
6	San Diego, CA	U.S.
7	Daejeon	Korea
8	Ann Arbor, MI	U.S.
9	Seattle, WA	U.S.
10	Munich	Germany
11	Beijing	China
12	Göteborg	Sweden
13	Raleigh, NC	U.S.
14	Stockholm	Sweden
15	Tokyo-Yokohama	Japan

Source: Cornell University, INSEAD, and the World Intellectual Property Organization, Global Innovation Index 2024. Data as of January 2025.

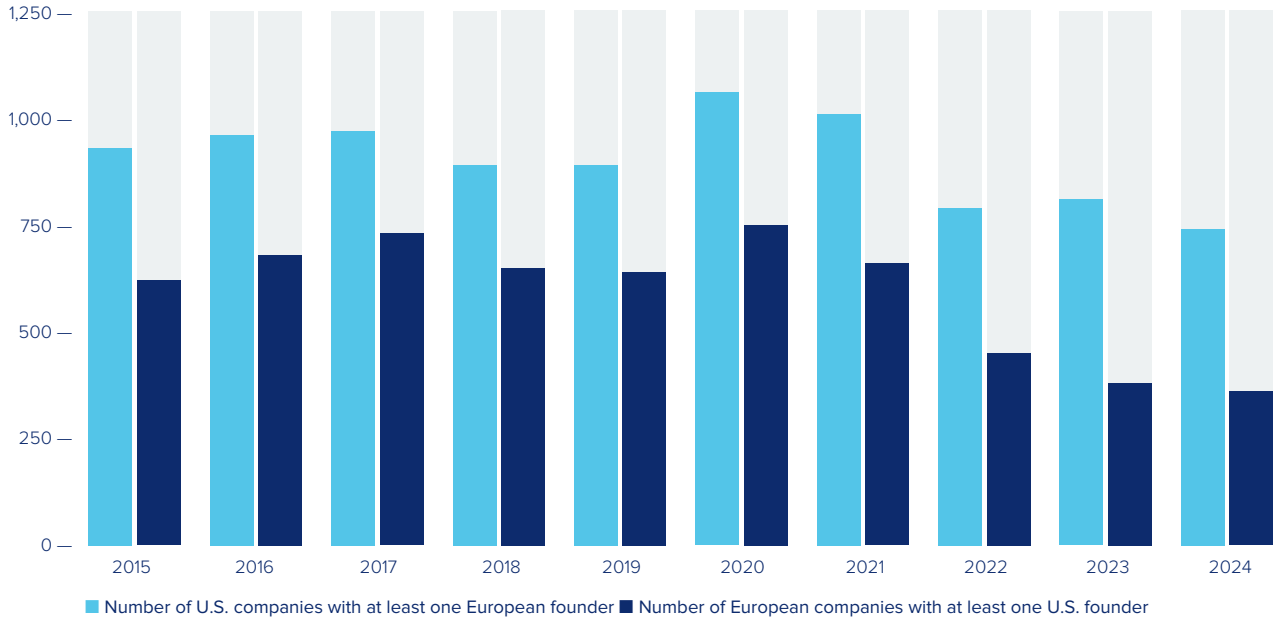
Cross-Fertilization of Tech Talent, Funding and Ideas

Transatlantic cross-fertilization of talent, ideas, and funding is critical to the U.S. and European innovation economies. According to Atomico, Europe and the United States each attract a diverse international community of investors. In 2024, more than 8,000 unique investors from Europe, North America and Asia invested capital in North American tech start-ups, and more than 6,000 in European start-ups. These investors play an important role connecting European and U.S. tech start-ups to global capital, expertise and new market opportunities.[1]

Over the past decade over 6,700 U.S. tech start-ups have had at least one European founder, and over 5,000 European start-ups have had at least one U.S. founder (Table 6). European founders are behind about 11% of U.S. tech start-ups. U.S. founders have helped to set up roughly 6% of European tech start-ups over the past decade (Table 7). U.S. investors are also ranging beyond western Europe when they look for opportunities: four times as many North American investors backed startups in central and eastern Europe in 2024 compared to 2015 (Table 8).

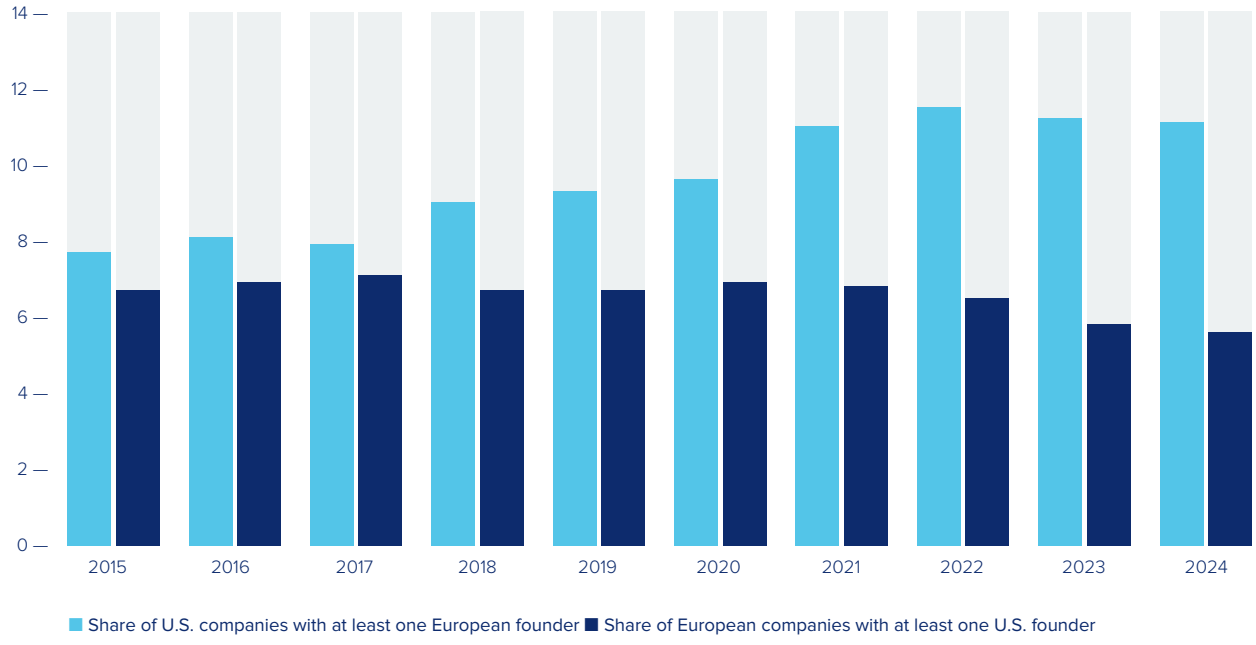
Europe's innovation landscape is thriving. The total value of Europe's tech ecosystem is five times larger today than it was a decade ago, rising from $560 billion in 2014 to more than $3 trillion today. The volume of capital invested in European early-stage startups has more doubled since 2015. Capital invested in growth-stage startups has tripled. More founders start companies in Europe than in the United States, according to Atomico (Table 9). European and U.S. founders get to funding rounds in about the same amount of time. One big difference across the Atlantic is that U.S. funding rounds tend to be bigger than those in Europe. This can enable U.S. founders to get their ideas to market more quickly.

Table 6. Number of U.S. Tech Companies with European Founders and European Tech Companies with U.S. Founders
(Number of Companies Founded, 2015 to 2024)



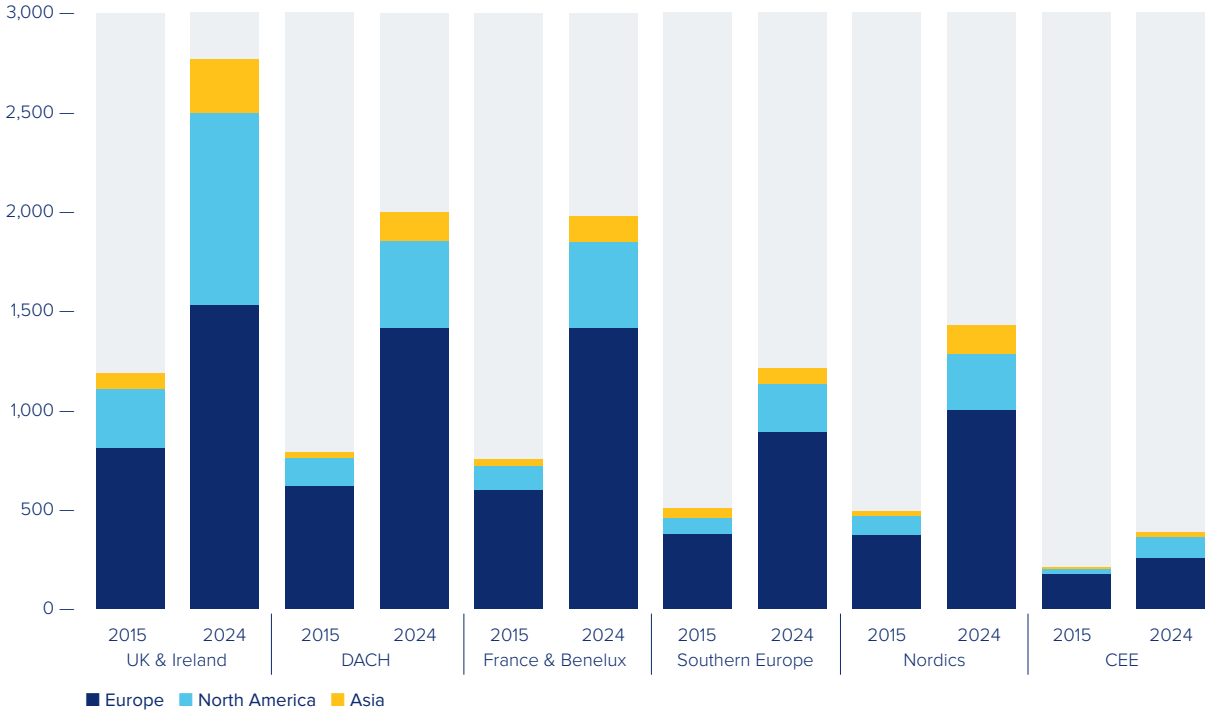
Source: Atomico, State of European Tech 2024.

Table 7. Share of U.S. Companies with European Founders and European Companies with U.S. Founders
(Share of All Companies Founded, 2015-2024)



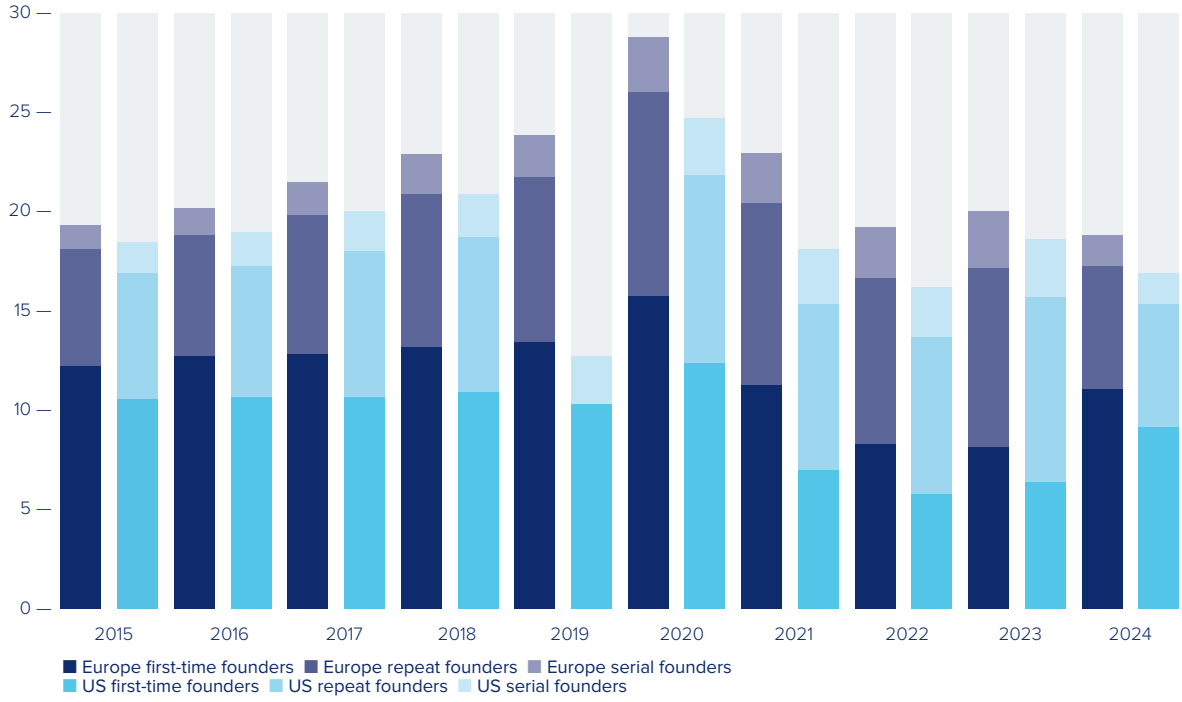
Source: Atomico, State of European Tech 2024.

Table 8. All Active Investors in European Tech (by Region of Investor and European Destination Region)



Source: Atomico, State of European Tech 2024. DACH: Germany, Austria, Switzerland. CEE: Central/Eastern Europe.

Table 9. Number of Founders Starting Tech Companies Per Year in Europe and the U.S. (by Previous Founding Experience, 2015 to 2024) (Thousands)

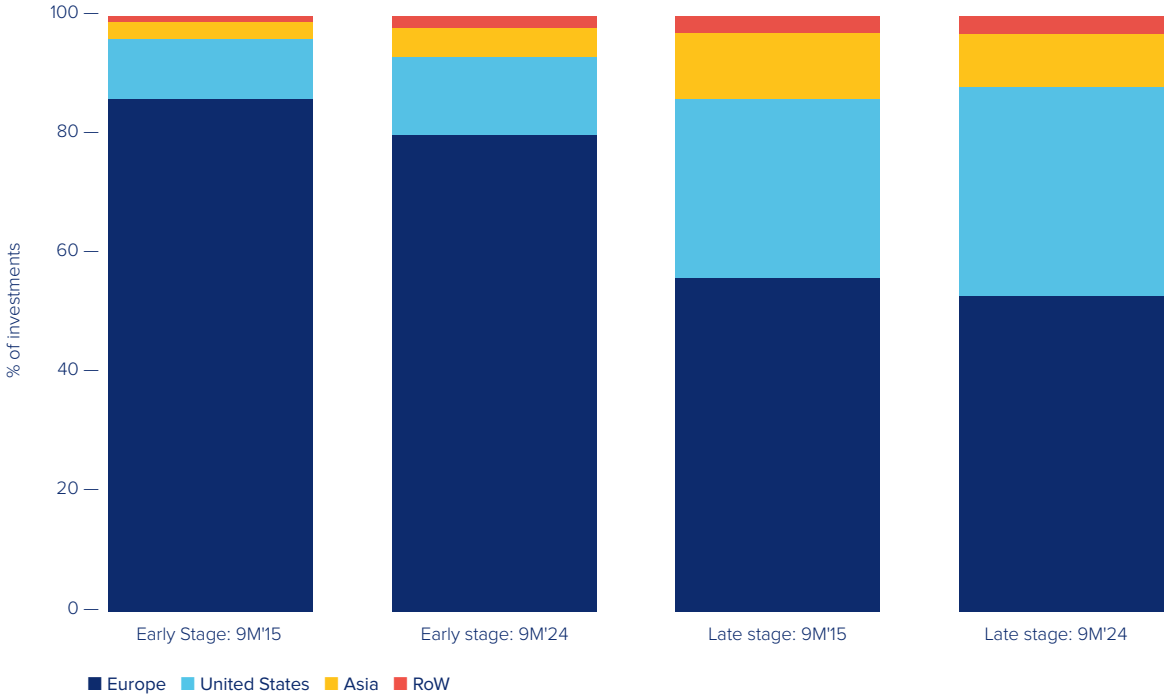


Source: Atomico, State of European Tech 2024.

While European investors account for most of the capital powering European innovation, international investors, primarily from the United States, have become increasingly critical for late-stage growth funding. Over the past decade U.S. investors contributed $75 billion to get European start-ups to growth stage. U.S. investors now account for 35% of the European growth funding pool, up from 30% a decade ago, according to Atomico (Table 10).

All of this underscores that the United States and Europe are constituent parts of a dynamic transatlantic innovation eco-system that is growing in importance as the race for future technologies accelerates. Innovation, in turn, is being powered by the digital revolution – our next topic.

Table 10. U.S. Investments Increasingly Critical for European Late-Stage Growth Funding (Capital invested in Europe by geographic source region, first nine months of 2015 vs. first nine months of 2024) ($Billions)



Source: Atomico, State of European Tech 2024.

Note
1 Atomico, State of European Tech 2024, https://www.stateofeuropeantech.com/. The figures and data presented in this section draw on this study.

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.

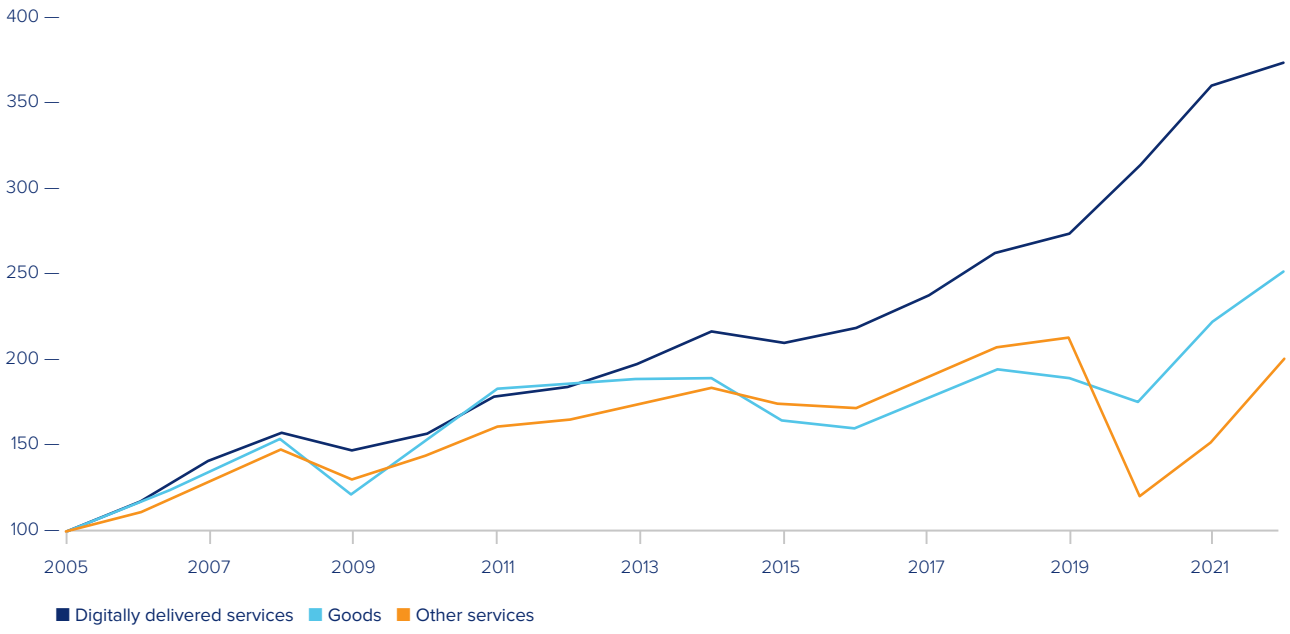
Transatlantic Trade and Investment in Digital Services and Digitally-Deliverable Services

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]

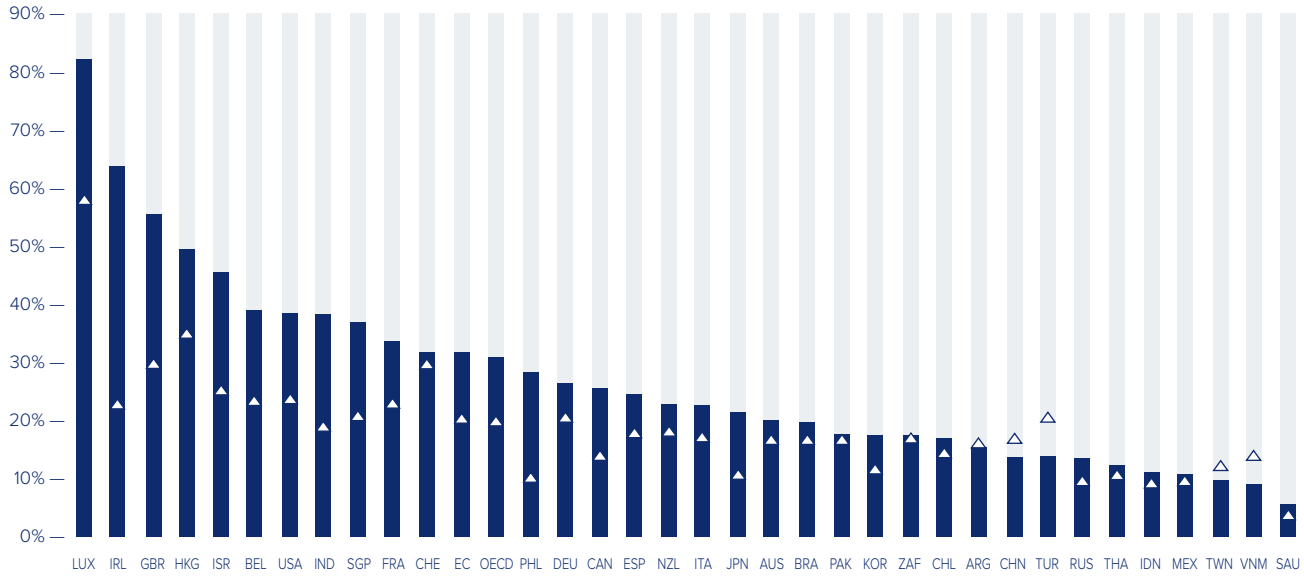
Europe and the United States accounted for two-thirds of global exports of digitally delivered services in 2023, the last year of available information. European exports (much of which were within Europe) accounted for 52% of the global total, followed by the U.S. (15%).[5]

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]

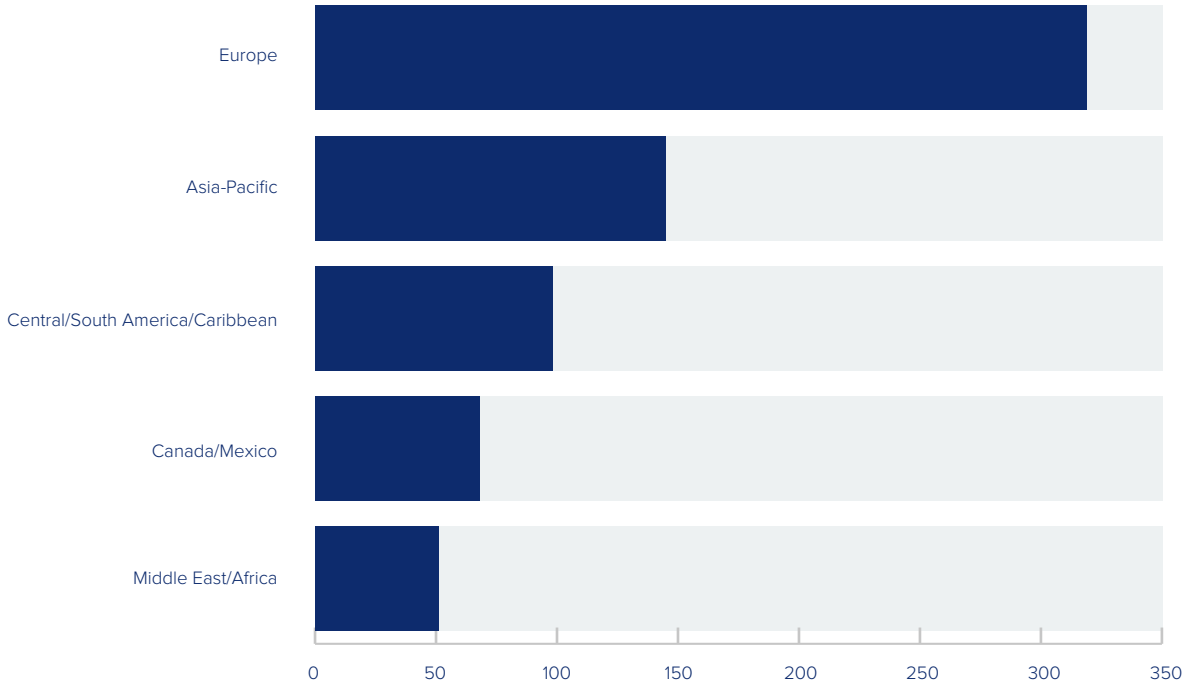
In 2023, the U.S. exported $655.5 billion in digitally-deliverable services to the world, and imported $388.8 billion. The result: a digitally-deliverable trade surplus of $266.7 billion.[8] The UK was the U.S.' top overall trading partner in digitally-deliverable services, and its largest source of 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]

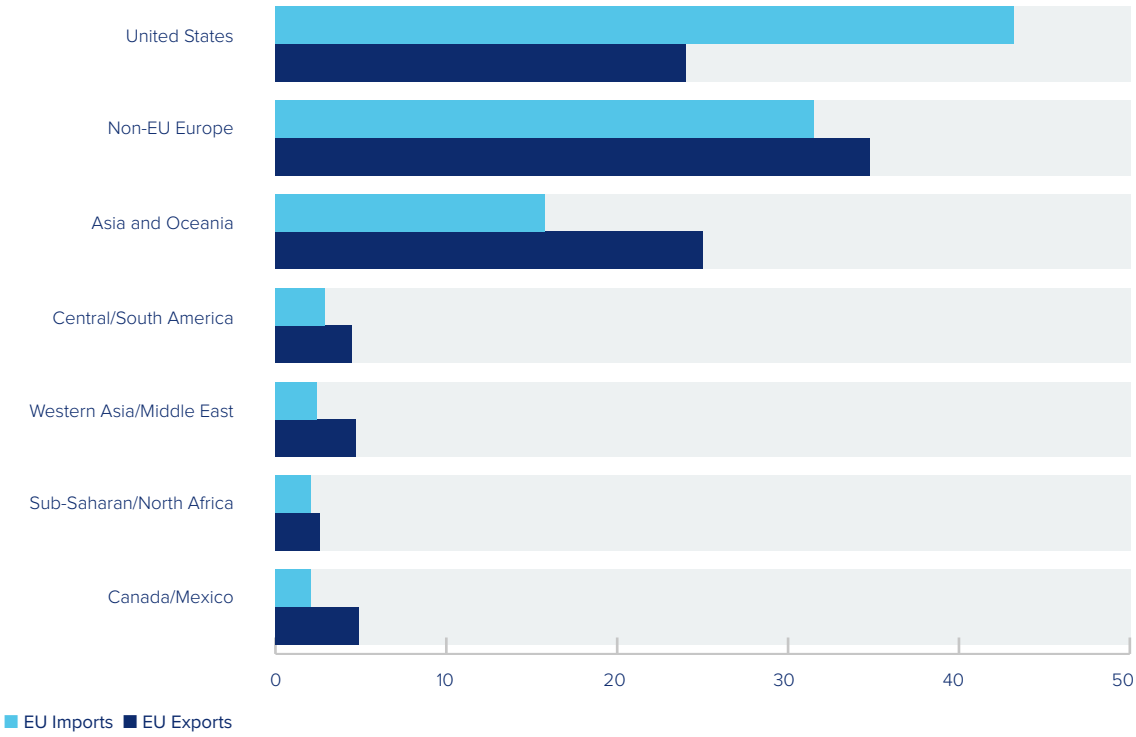
Most of the EU's trade in digitally-deliverable services takes place within the EU itself: over $1.5 trillion in 2023. Outside the EU, the United States is the bloc's leading trade partner, by a wide margin. U.S.-EU trade in digitally-deliverable services in 2023 of $575 billion was 10 times larger than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

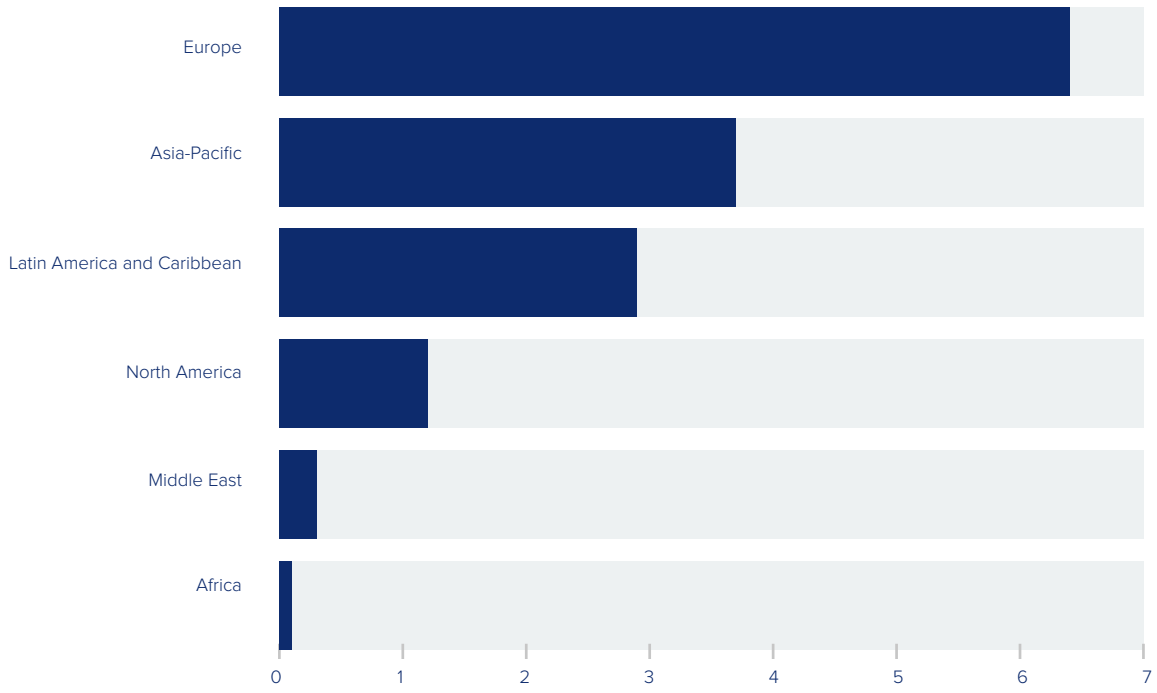
The United States is home to half of the world's 24 million e-commerce stores. Experts predict U.S. B2C e-commerce sales to reach $1.26 trillion in 2025, $1.72 trillion by 2027, and will surpass $2 trillion in 2028. By then, online sales could make up about a quarter of total U.S. retail sales, 10% more 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).

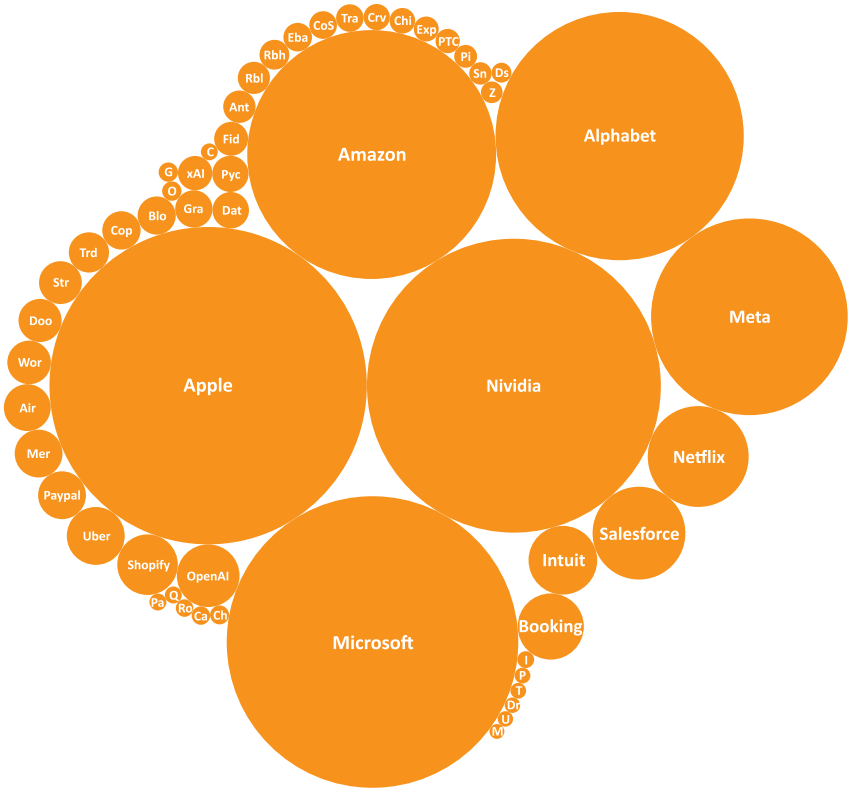
AI is also reshaping the competitive landscape: the share of U.S.-based platforms in the global market has risen to a new record of 86%, up from 64% in 2017. The five largest platforms – Apple, Nvidia, Microsoft, Amazon and Alphabet – increased their stock market values by $3.3 trillion in the 16 months 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

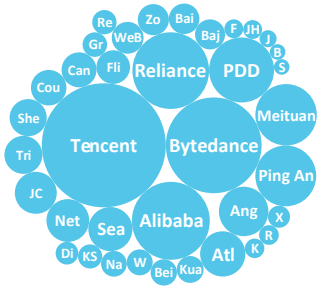


Airbnb (83.9)
Alphabet (2353)
Amazon (2365)
Anthropic (40)
Apple (3846)
Block (55.6)
Booking (167.1)
Carmax (13)
Carvana (26.2)
Ceridian (10.9)
Chewy (13.7)
Chime (25)
Copart (56.1)
CoStar (29.3)
Detadog (50.8)
Discord (15.0)
Doordash (71.0)
Dropbox (9.1
eBay (31.1)
Expedia (23.7)
Fidelity (43.9)
Goodleap (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)

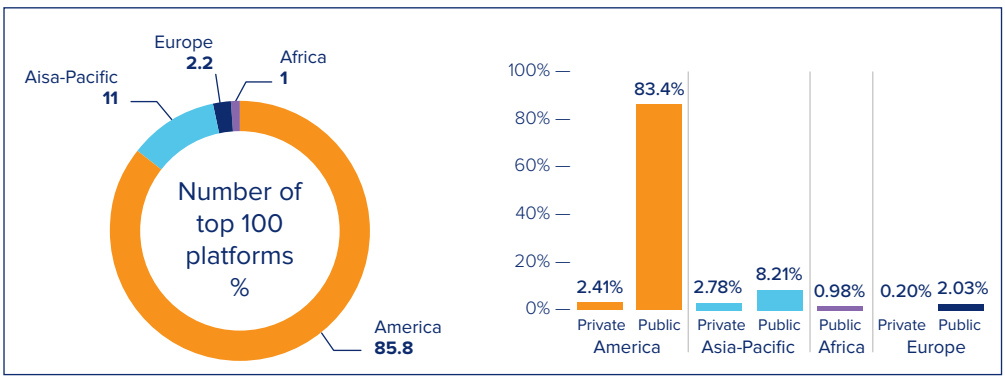
Asia-Pacific



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]

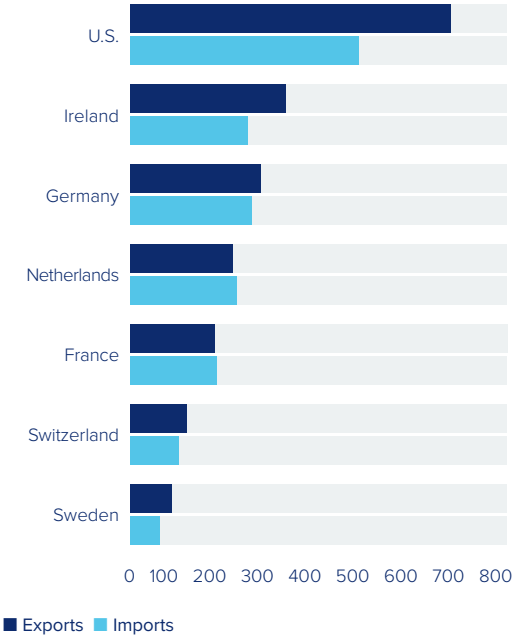
In addition, commercial transactions do not always accompany data, and data do not always accompany commercial transactions. For instance, multinational companies often send valuable, but non-monetized, data to their affiliates.[37] User-generated content on blogs and on YouTube drives very high volumes 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]

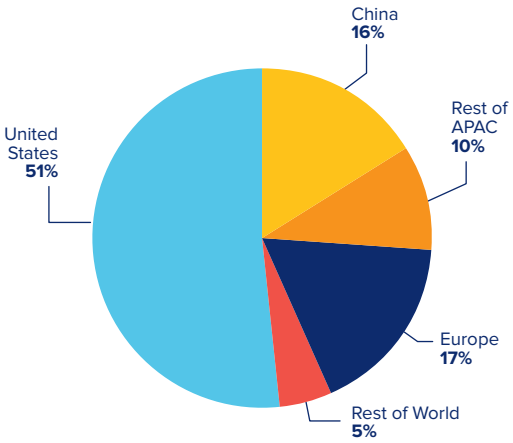
Table 10. Most Connected Cities in the World, 2025

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

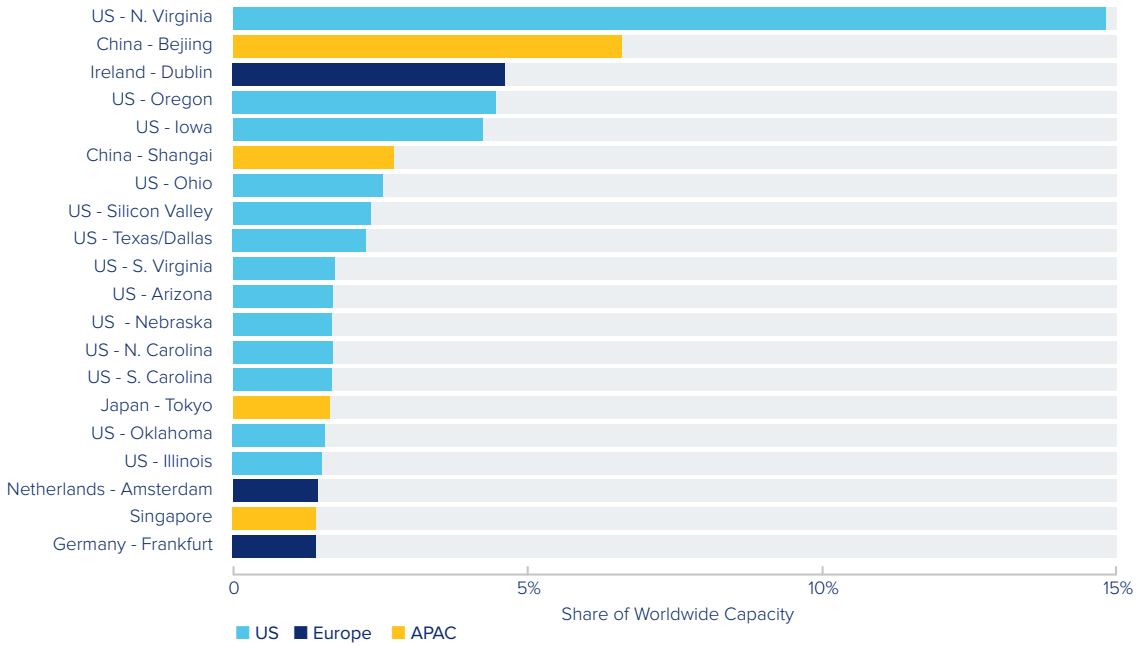


Source: Synergy Research Corporation. APAC: Asia-Pacific As of Oct-Dec 2023.

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]

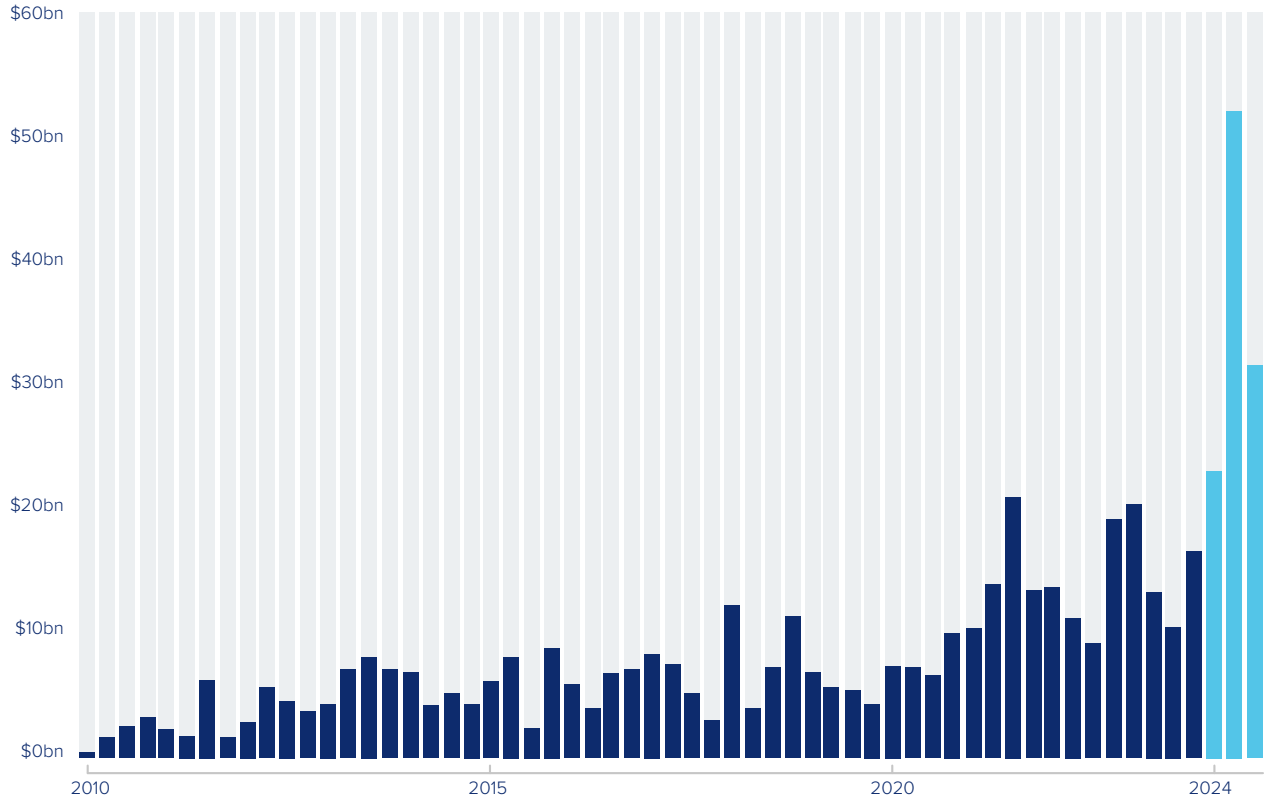
Table 12. Hyperscale Data Center Capacity by Country/Region



Source: Synergy Research Corporation.

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

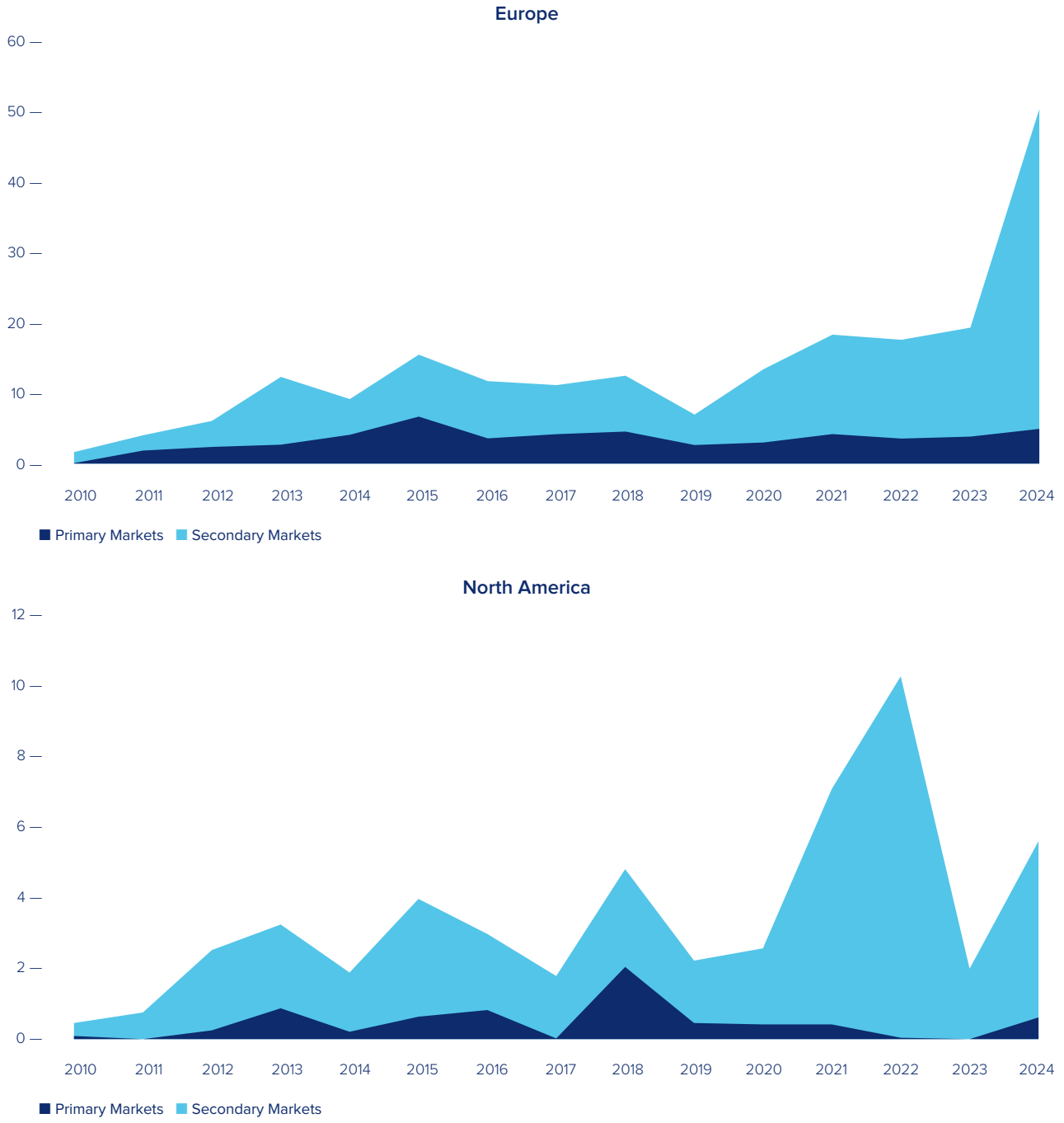
Quarterly greenfield foreign direct investment announcements, 1Q 2010 – 3Q 2024



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.

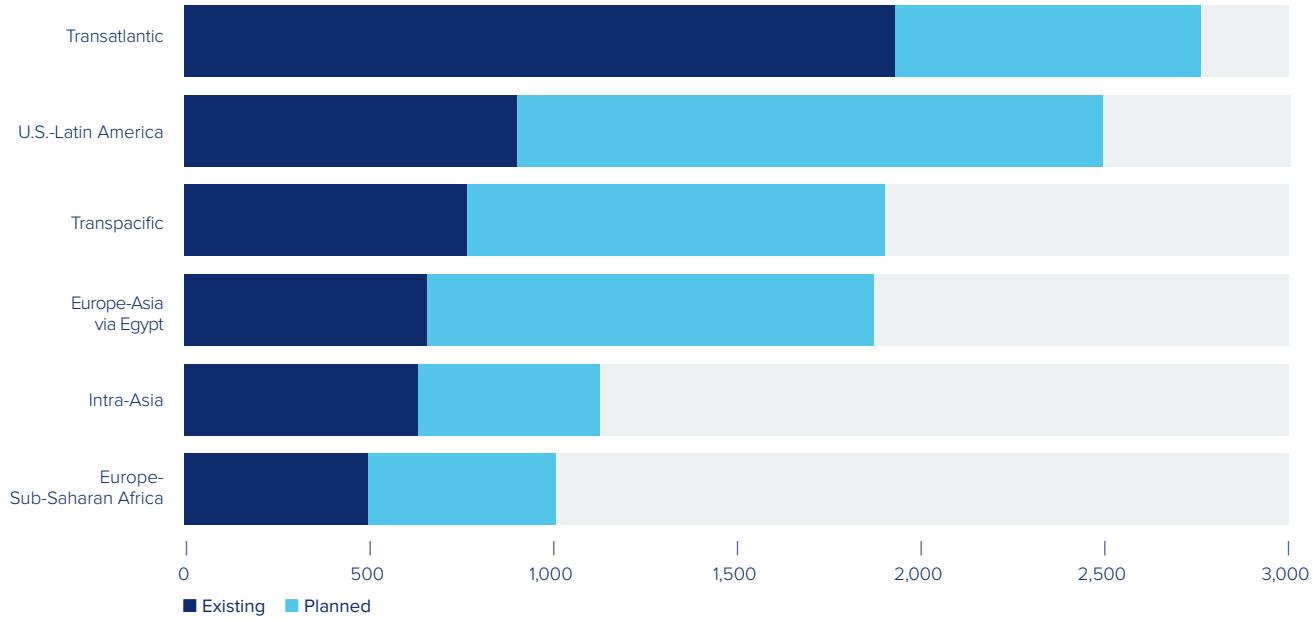
The Digital Atlantic Seascape

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)



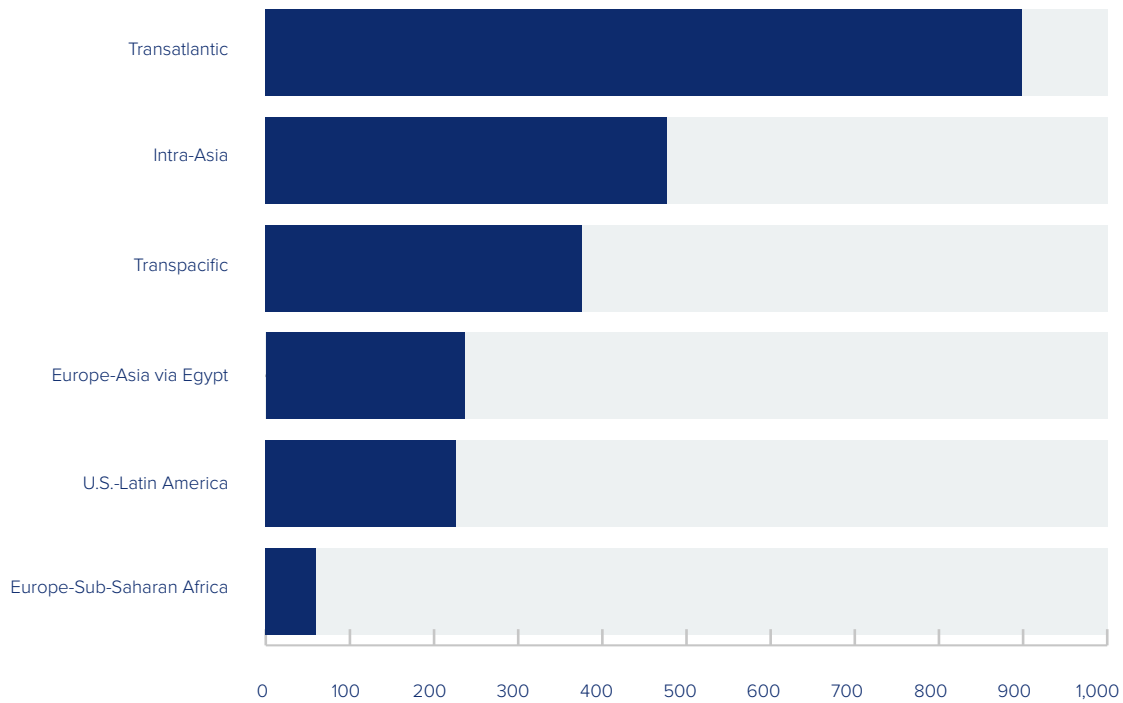
Source: Telegeography.

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)

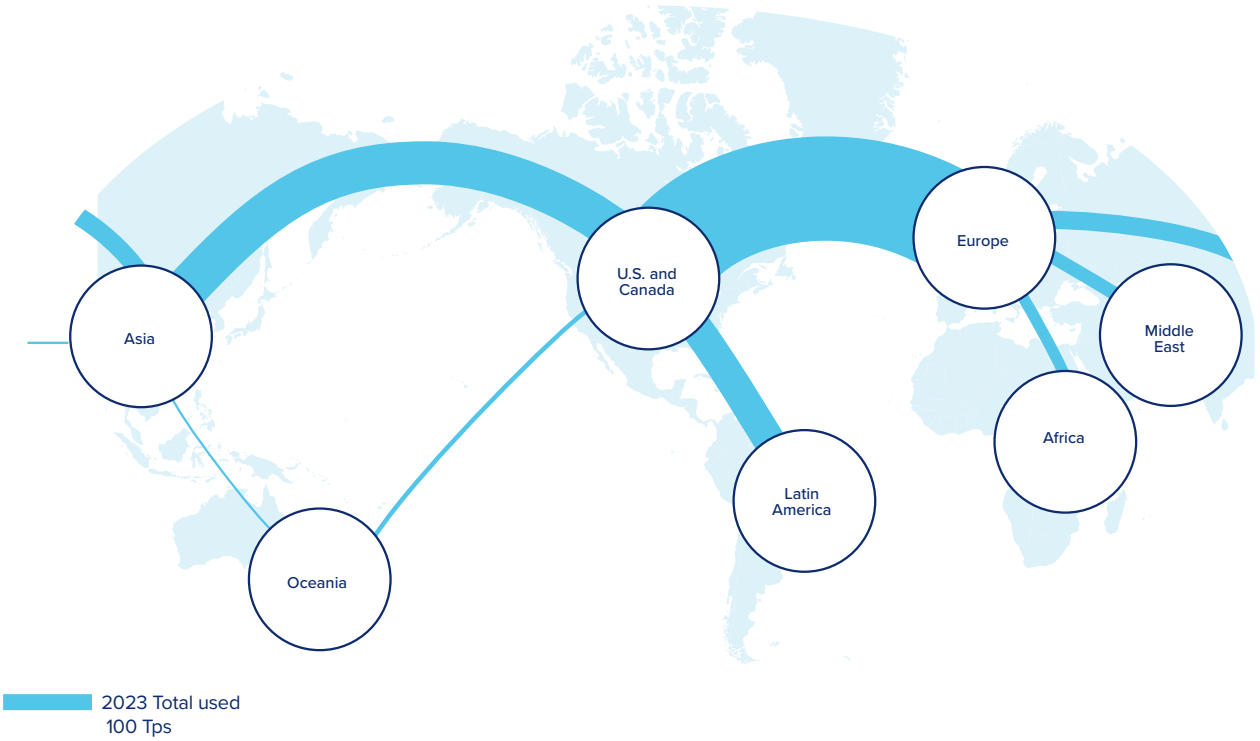


Source: Telegeography, "Submarine Cable Map 2025."
Tbps: terabits per second. "Lit" means how much cable capacity is actually being used. Trans-Atlantic refers to the North Atlantic. Trans-Pacific refers to the North Pacific.

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.

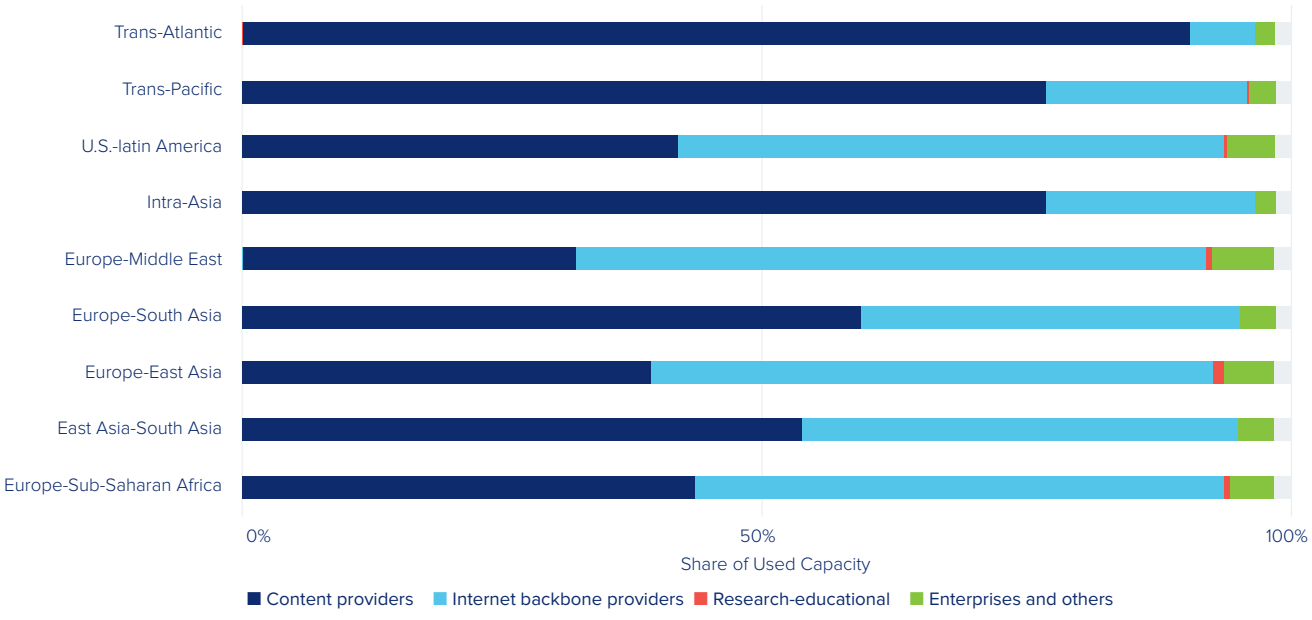


Source: Lane Burdette, "Submarine Cable Connectivity in the Atlantic," Presentation to the Transatlantic Leadership Network Digital Atlantic Working Group, March 1, 2024, https://www.transatlantic.org/wp-content/uploads/2024/04/Digital-Atlantic-TeleGeography-presentation-March-14-2024.pdf.

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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10 The Transatlantic Energy Economy

The transatlantic energy economy continues to be robust. The United States is Europe's most important supplier of crude oil and liquefied natural gas (LNG), and its 2nd largest supplier of coal. Europe has become America's most important export market for each of these three commodities. U.S. and European companies are the largest foreign investors and foreign suppliers of jobs in each other's energy economy. The transatlantic energy innovation economy is thriving.

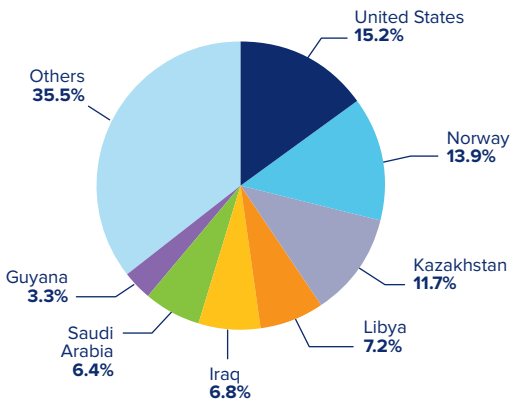
The Energy Ties That Bind

Since Moscow's full-scale invasion of Ukraine in February 2022, Norway and the U.S. have replaced Russia as Europe's biggest gas suppliers. In 2024 Norway provided 30.3%, and the U.S. an additional 19.4%, of Europe's total gas imports (Table 1). Of that total, LNG's share was 29%, up from 18% in 2019. The U.S. is the biggest LNG supplier to Europe, and the U.S. share of Europe's total LNG imports is growing – from 27% in 2021 to 44% in 2022 and 48% in 2024.[1]

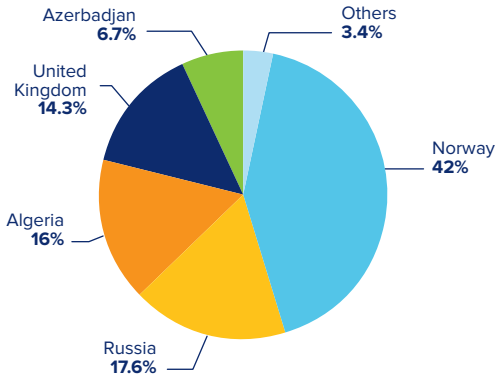
Europe, in turn, has become America's most important LNG export market, accounting for 55% of total U.S. LNG exports in 2024, ahead of Asia (34%) and Latin America (11%) (Table 2).[2] This is a big change. During the five years before Russia's 2022 full-scale invasion of Ukraine, the top three importers of U.S. LNG were South Korea, Japan, and China, which collectively imported 34% of U.S. exports, in comparison to 28% imported by Europe.[3]

Table 1. **EU Imports of Energy Products by Partner** (% of Trade in Value)

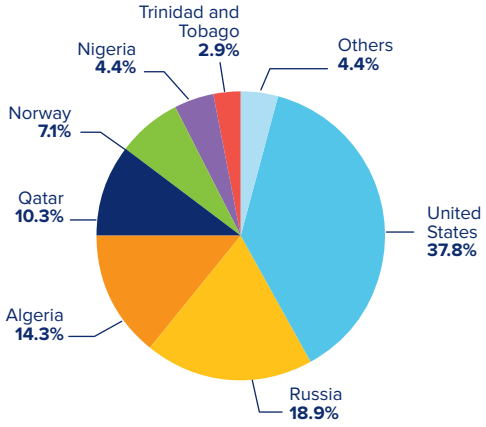
Petroleum Oil



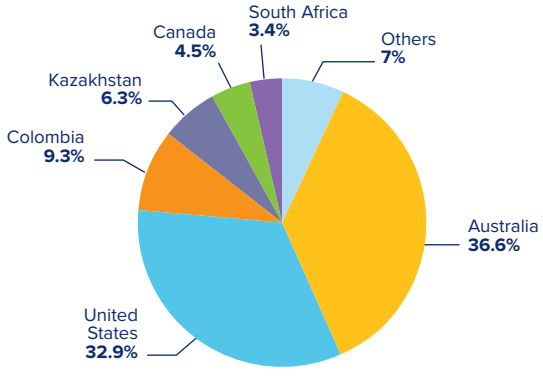
Natural Gas in Gaseous State



Liquefied Natural Gas

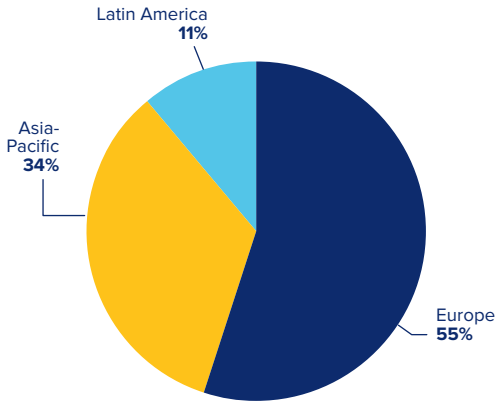


Coal



As of 3Q 2024. Source: Eurostat.

Table 2. U.S. LNG Exports by Destination, 2024



Source: LSEG; Euractiv, "US LNG exports soar, Europe remaining the main destination," January 3, 2025, https://www.euractiv.com/section/eet/news/us-lng-exports-soar-europe-remaining-the-main-destination/.

Europe's global LNG imports fell 18% in 2024, as demand declined, lower storage injections were needed, and pipeline gas deliveries strengthened. For some months, this meant that European hub prices fell below Asian spot LNG prices, which motivated LNG cargoes to flow to Asia. This changed later in the year, as Europe's winter turned colder and customers anticipated a cut-off of Russian pipeline flows as Ukraine's transit agreement with Russia lapsed on December 31 (Box 1).[4] Although the U.S. kept its position as Europe's largest LNG supplier, U.S. exports fell by 18%.

Pipeline gas from Russia now accounts for only 5% of the EU's total supply.

Europe's LNG imports are expected to surge again in 2025, perhaps by as much as by 25%, as the continent copes with a colder winter, replenishes its vast storage facilities, and compensates for lower Russian pipeline gas deliveries. In January European LNG imports surged to their highest level since April 2023. European demand has been so high that LNG cargoes on their way from the United States to Asia have turned abruptly around in the Atlantic and headed toward Europe, where gas prices are higher.[5] Chinese tariffs on U.S. LNG, imposed in February, are likely to drive more U.S. shipments to Europe.

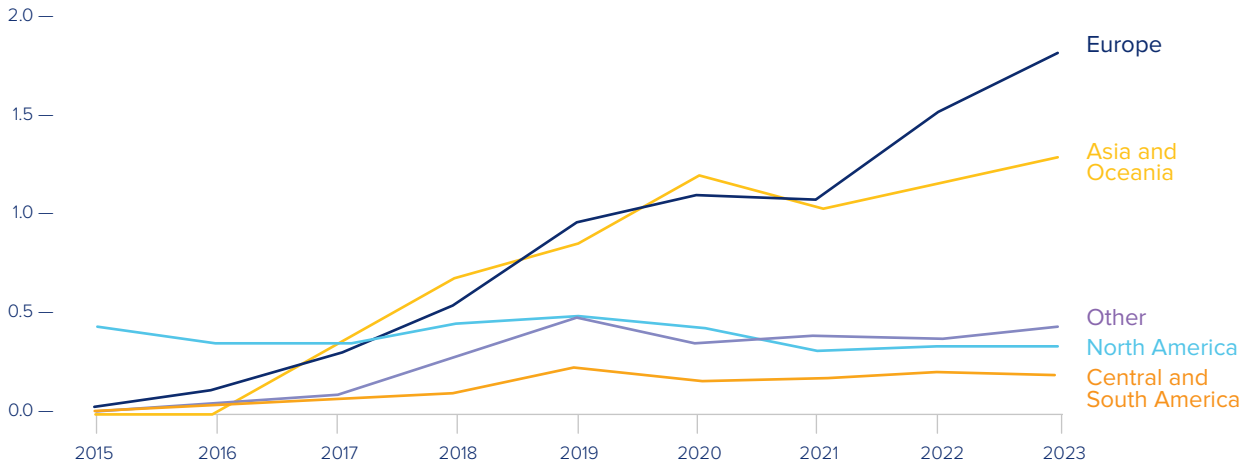
Europe's other energy markets have also been transformed. U.S. oil shipments to Europe have jumped 82% since Russia's 2022 invasion of Ukraine, according to Kpler. The United States is the EU's largest supplier of crude oil and related products, accounting for about 15% of EU imports, followed by Norway (14%) and Kazakhstan (12%) in the third quarter of 2024 (Table 1). Three years earlier, Russia had been the EU's top supplier, accounting for 18% of EU imports. Its share now hovers at about 2%.[6]

Europe, in turn, is the largest destination for U.S. crude oil exports, ahead of Asia-Pacific and other world regions (Table 3). The Netherlands receives more U.S. crude oil exports than any other country.

U.S. share of Europe's total LNG imports

27%
2021
48%
2024

Table 3. Annual U.S. Crude Oil Exports, by Destination Region (Million Barrels per Day)



Sources: U.S. Energy Information Administration, Petroleum Supply Monthly and Petroleum Supply Annual.

The United States is also the EU's 2nd largest source of imported coal, with a 33% share, trailing Australia's share of 37% (Table 1). Meanwhile, Norway has displaced Russia as the EU's largest supplier of natural gas in a gaseous state. Norway accounted for 42% of the EU's natural gas imports for the first nine months of 2024, followed by Russia (17.6%), Algeria (16%), the UK (14.3%), and Azerbaijan (6.7%).

By 2032, EU imports of U.S. energy are predicted to almost double in value, to around $114 billion.[7]

The Russian Connection

The EU has committed to fully eliminating its dependency on Russian fossil fuels by 2027. It has banned most imports of Russian coal and oil. It has diversified its supplies, chiefly through LNG imports. It has accelerated renewables deployments, built new gas import terminals, boosted its storage reserves, improved its energy efficiency, and simply used less gas. Pipeline gas from Russia now accounts for only 5% of the EU's total supply, although it remains important for several European countries.[8]

Despite these measures, Russian LNG continues to flow. In fact, Russian LNG exports to the EU reached an all-time high in 2024.[9] Russia shipped 18.47 million tons of LNG to EU ports last year. 2.55 million tons of that total were transshipped/re-exported to non-EU ports elsewhere in the world. The EU thus imported 15.92 million tons of Russian LNG in 2024, a 19.3% increase over 2023. Russia displaced Qatar, whose LNG exports fell by 30%, to become Europe's second-largest LNG supplier after the United States. The main EU countries importing Russian LNG are Belgium, France, Spain and the Netherlands. Other EU countries rely on indirect purchases.[10] Further Russian LNG transshipments via EU ports are banned as of March 2025. But EU member states have proven unable to agree on how to halt Russian LNG flows. The EU's 16th sanctions package, passed in February, only stops Russian LNG from going to EU terminals not connected to the EU's gas system - a restriction that would not affect most LNG imports.[11]

Box 1. Russian Pipeline Gas to Europe Throttled but Continues to Flow

On January 1, 2025, Russian gas accounting for 5% of the EU's gas supply stopped flowing to Europe through Ukrainian pipelines after Kyiv decided not to renew a five-year transit agreement between Russia's Gazprom and Ukraine's Naftogaz.[12] EU members Austria, Hungary, and Slovakia had developed significant dependencies on Russian gas via this transit route. EU neighbor Moldova has been hit hard, and its pro-Russian separatist region of Transnistria, which was 100% dependent on free Russian gas, has suffered the most. Stop-gap help has been provided by neighboring Romania and the EU, but more sustainable energy solutions will be needed. Moldova has a contract with Gazprom that expires in September 2026; if pro-European parties remain in power, they will probably terminate the deal.[13]

Russia's last pipeline gas routes to Europe are now TurkStream and Blue Stream, which run under the Black Sea to Türkiye and on to supply Bulgaria, Hungary, Romania, Serbia, Türkiye, Greece, North Macedonia, and Bosnia and Herzegovina.[14] Ukraine is prepared to transit gas from Azerbaijan to Europe. Yet parts of the critical infrastructure needed to transport this gas to the EU is owned by Lukoil, a sanctioned Russian energy company. In addition, Azerbaijan has limited capacity to pump additional gas to the EU. In fact, in 2024 Baku agreed with Russia's Gazprom to supply Russian gas to Azerbaijan. This means that so-called "Azeri gas" flowing to the EU could be re-branded Russian gas.[15]

Energy Innovation in the Transatlantic Economy

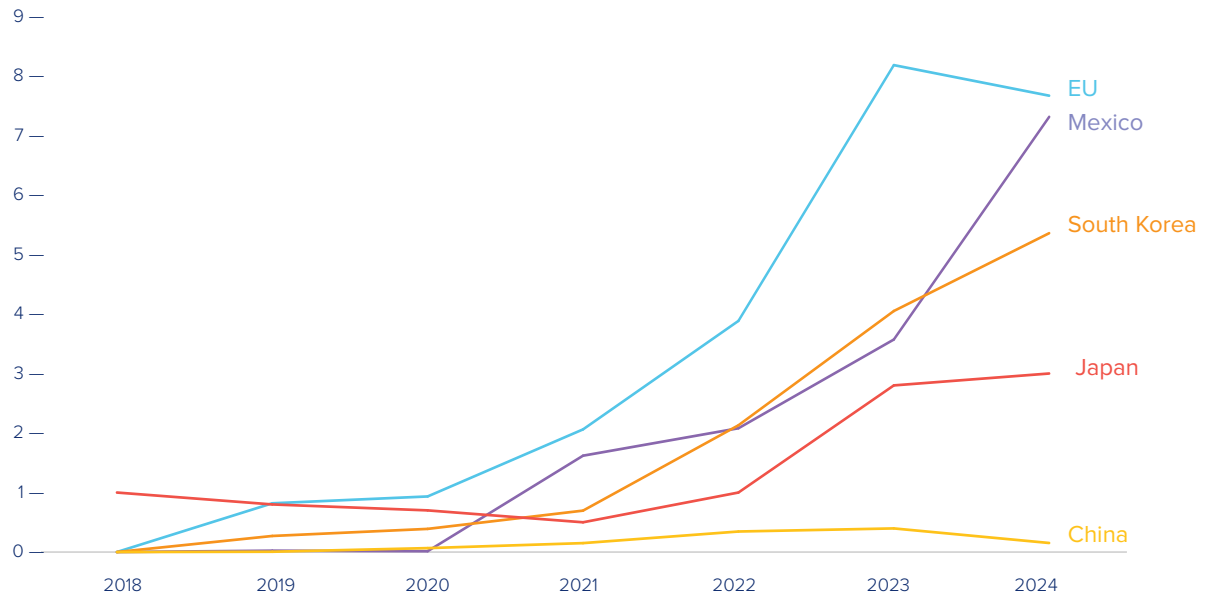
Transatlantic energy ties are not limited to fossil fuels. Energy innovation is robust on each side of the Atlantic, powered in part by dense transatlantic commercial and R&D linkages. Payoffs are evident: both the U.S. and the EU have cut emissions from energy production while growing their economies.

In recent years European politicians and pundits have expressed three concerns about how the U.S. energy innovation economy might affect Europe. First there was concern that the United States was not doing its part to address the energy transition. Next came worries that the Inflation Reduction Act would penalize European companies. Now there is concern that U.S. energy innovation could stall, with negative repercussions for European investors. Few of these concerns hold up under closer scrutiny.

First, emissions are on a downward trajectory despite a growing economy. Emissions in 2023 were 18% lower than they were in 2005, and 2024 emissions were stagnant while the economy grew by 2.7%. U.S. business and consumer investment in clean technologies and infrastructure has been robust, totaling $493 billion from the second half of 2022, when the Inflation Reduction Act (IRA) was enacted, through the first half of 2024. That's a 71% increase from the two-year period preceding the legislation. Investment in manufacturing clean energy and transportation technology of $89 billion was more than quadruple the $22 billion invested in the two years prior to the IRA's enactment. Investment in clean energy production and industrial decarbonization reached $161 billion – a 43% increase relative to the preceding two years. American businesses and households invested over $242 billion in the purchase and installation of zero-emission vehicles, heat pumps, and distributed renewable generation, fuel cells, and storage systems. That's a 58% increase relative to the previous two-year period.[16]

Second, when the IRA was passed, European electric vehicle manufacturers complained that their exports would be hit by its provisions limiting tax credits to EV makers that complete "final vehicle assembly" in North America. This argument ignores the dense transatlantic linkages that underpin the auto industry. The main European automakers already conduct "final vehicle assembly" at their plants in the United States. BMW, for instance, has been the largest U.S.-based auto exporter by value for a decade. Nearly 60% of its vehicles made in America are shipped to about 120 markets around the world, including Europe. Two of BMW's electric vehicle brands are produced at its plant in Spartanburg, South Carolina, which is bigger than its home plant

Table 4. **EU Largest Exporter of Electric Vehicles to the U.S., Despite the IRA** (Value of U.S. Electric Vehicle Imports, by Source, $Billions, 12-month Trailing Sums)



Source: U.S. International Trade Commission Dataweb. Note: Harmonized Tariff Schedule Code: 8073.80. Annual Nov-Nov.

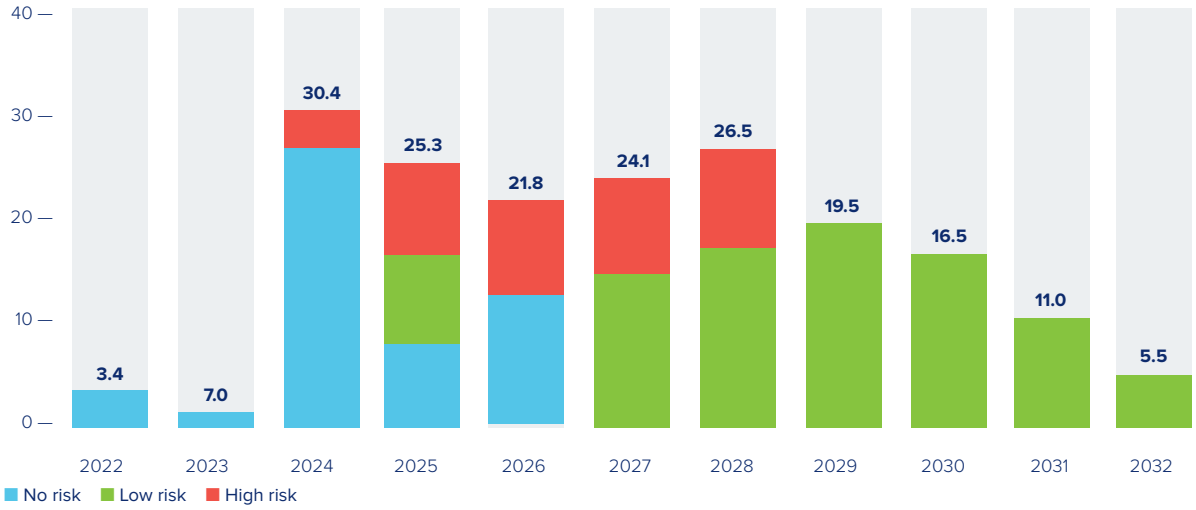
in Munich. Volkswagen is the largest European seller of electric vehicles in the U.S. and was the first foreign carmaker to qualify for the IRA's full EV tax credit of $7,500 because its best-selling model, the ID.4, is produced in Chattanooga, Tennessee. Mercedes produces its electric EQS and EQE in Tuscaloosa, Alabama.

Moreover, there is no evidence that the IRA suppressed EU exports of electric vehicles to the United States. In fact, they have grown. U.S. imports of EVs from EU rose dramatically between the announcement of the IRA in late summer 2022 and the end of 2024, and were substantially greater than those from other world regions (Table 4). EU automakers remain the top electric vehicle exporters to the United States. Only EV imports from Mexico are in the same league, and since Mexican automakers do not export to the U.S., almost all these cars are actually from U.S., Asian and European producers.

Considerable uncertainty surrounds the U.S. energy innovation economy following the November 2024 elections. Several European investors have paused their cleantech projects in the United States.[17] President Trump has frozen clean energy-focused grant and loan disbursements for 90 days until the budget office confirms they align with the administration's priorities. Nonetheless, these steps do not herald an end to the U.S. energy innovation economy or the opportunities it brings for U.S. and European investors. A closer examination of the $146 billion worth of solar, battery and EV subsidies paused by the U.S. administration reveals that only $40 billion is at high risk of being cancelled in 2025, according to BloombergNEF (Table 5). The IRA's EV production tax credit, for instance, is likely to remain available, even if eligibility requirements might be tightened.

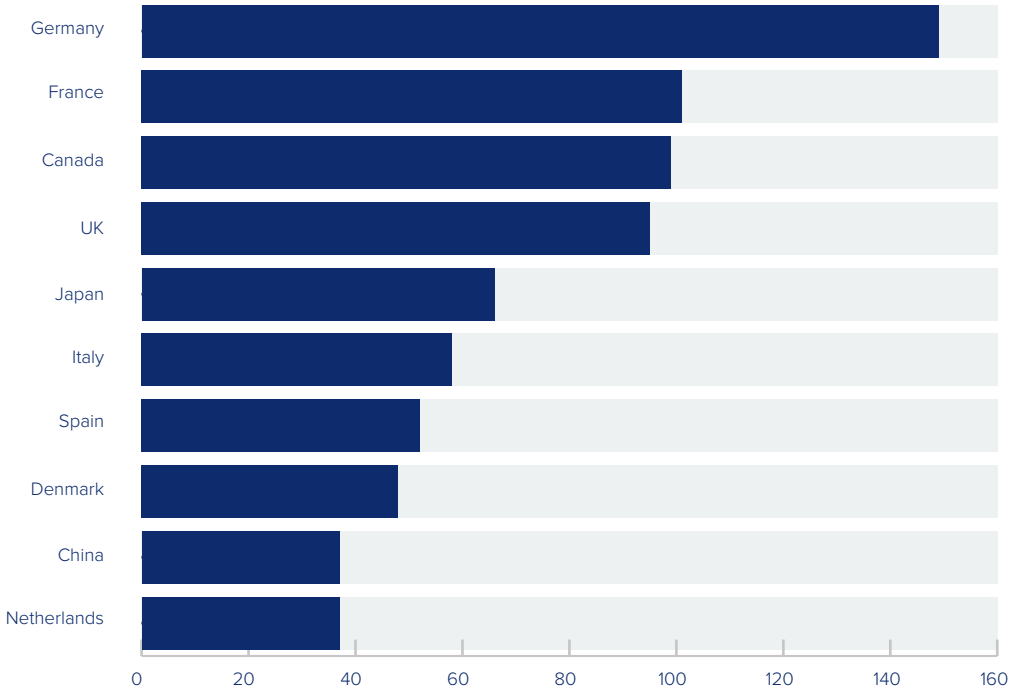
European and other investors appear to be retaining their commitment to the U.S. energy innovation economy, even as some readjust to align their investments with what they perceive to be the administration's priorities.[18] These developments are significant for the transatlantic energy economy, since the United States has become the leading destination for foreign clean energy investments, and European companies are by far the leading source of FDI in the U.S. energy sector, accounting for almost three-quarters of FDI greenfield investments over the past decade.[19] German investors lead with 20% of the total, followed by French investors at 14% (Table 6).

Table 5. Estimated Annual Subsidies Available for U.S. Solar, Battery and EV Factories, by Risk of Removal ($Billions)



Source: Matthew Hales, Antoine Vagneur-Jones and Derrick Flakoll, BloombergNEF.
Note: No risk: funding already committed or disbursed. Low risk: subsidies expected to remain available, even if harder to access. High risk: subsidies expected to be removed.

Table 6. Top Sources of FDI in U.S. Energy (994 Total Announced Greenfield Projects, July 2014-June 2024)



Sources: U.S. Bureau of Economic Analysis; SelectUSA, U.S. Department of Commerce.

Powering the Transatlantic Energy Innovation Economy

Transatlantic investment is not a zero-sum game, as we demonstrate throughout this book. That is particularly true regarding the transatlantic energy economy. U.S. and European firms are deeply embedded in each other's fossil-fuel and renewable energy markets – through trade, foreign investment, cross-border financing, and collaboration in research and development (R&D).[20]

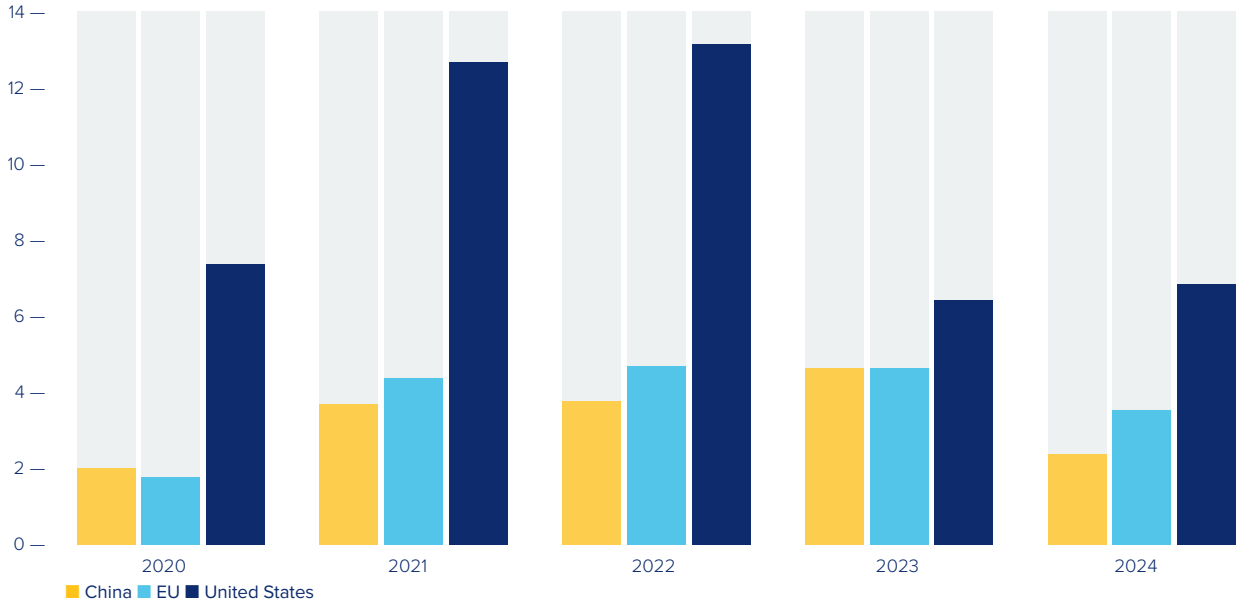
The U.S. and the EU share both interest and capacity to accelerate innovative frontier energy technologies. The potential is significant. Global investment in the energy transition surpassed $2 trillion for the first time in 2024, more than double the level of 2020.[21]

Transatlantic flows of risk capital are critical to energy innovation. EU investors are tapping into U.S. innovation and U.S. venture investors are providing scale-up capital for EU startups, as we have documented in previous surveys. U.S. and EU companies that receive transatlantic investments tend to reach growth stage, and receive growth funding, faster than those that do not. Deal sizes for EU innovator investment rounds that included risk capital were significantly larger than those that do not involve a U.S. investor. U.S. innovator investment deals are typically larger if they involve a European investor.[22]

China is a major competitor for U.S. and EU energy innovators. Yet venture capital cleantech investment is larger in both the U.S. and the EU than it is in China (Table 7.) The U.S. accounts for 42% and the EU for an additional 22% of global cleantech venture capital, each ahead of China's 14% share. Four EU countries – Estonia, Sweden, Finland, and Belgium – exceed the U.S. level of per capita cleantech investment. Moreover, U.S. and European cleantech venture capital flows easily across the Atlantic.[23]

The U.S. accounts for 42%, and the EU for an additional 22%, of global cleantech venture capital, each ahead of China's 14% share.

Table 7. **Cleantech Venture Capital by Region** ($Billions)



Source: Clean Tech for Europe.

Notes

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