

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.

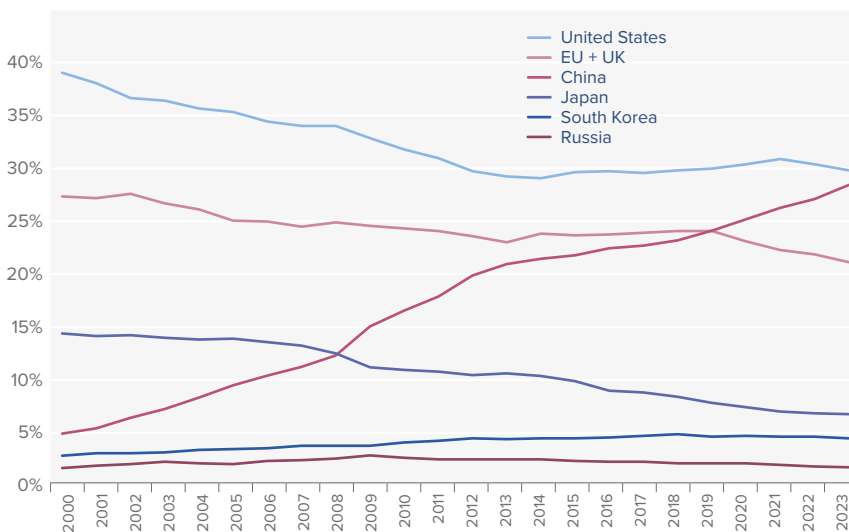
A global race is underway in the key technologies of the future, including artificial intelligence (AI), quantum computing, biotechnology, clean and renewable energy, cybersecurity, and space. The competitive pursuit of each domain has been driven by national security concerns and economic factors that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

The U.S. vs. China narrative 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.

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.

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



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. *2023 authors' estimate for the following countries: Russia, Singapore, South Africa, & UK. Data as of January 2026. Source: OECD.



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 significant contributors. Affiliate R&D continues to grow in importance as 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.



FOREIGN AFFILIATE R&D SPENDING (2023)

U.S. in Europe:

\$43.1 billion

Europe in the U.S.:

\$61.2 billion



R&D EXPENDITURES BY U.S. AFFILIATES IN EUROPE VS. THE WORLD

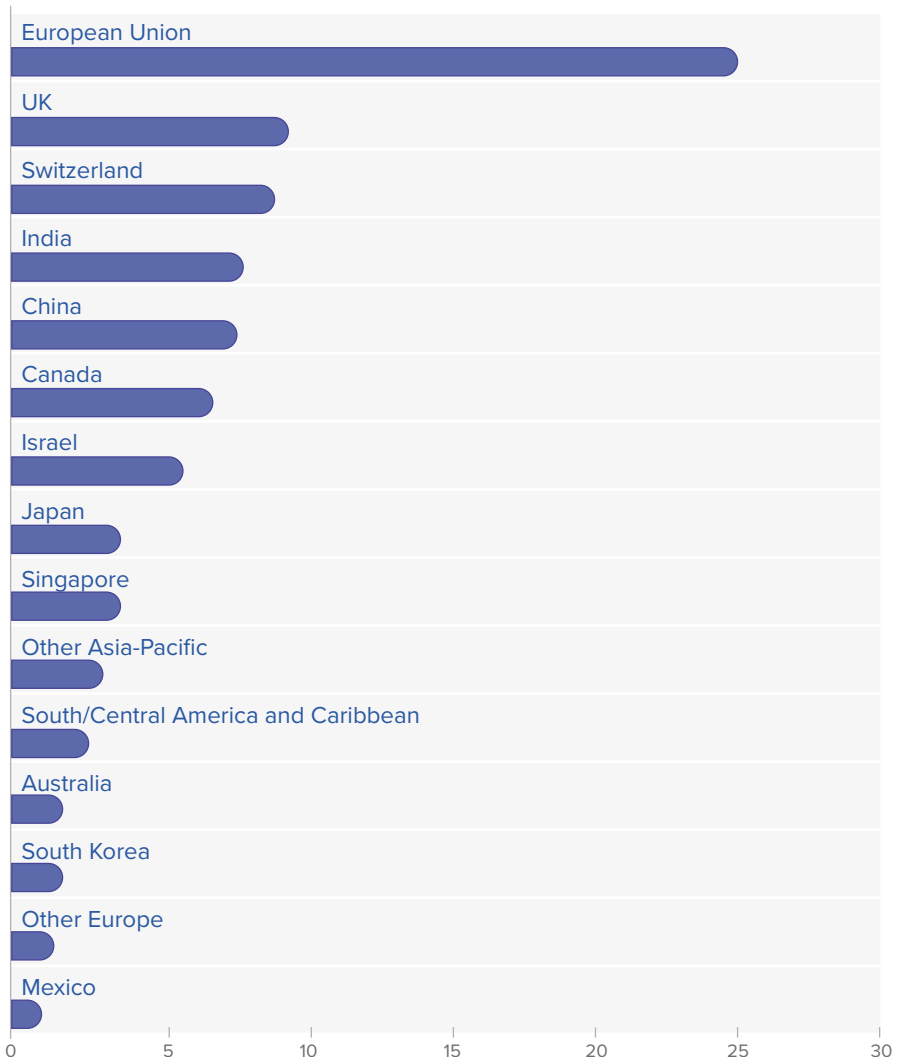
Bilateral U.S.-European flows in R&D are the most intense between any two regions in the world. In 2023, the last year of available data, U.S. affiliates spent \$43.1 billion on R&D in Europe, including \$25 billion in the EU. U.S. R&D outlays were the greatest

in the UK (\$8.7 billion), Switzerland (\$8.5 billion), Germany (\$6.8 billion), Ireland (\$5.6 billion), Belgium (\$2.7 billion), and France (\$2.2 billion). These six countries accounted for 80% of U.S. spending on R&D in Europe in 2023.

Europe accounted for roughly 53% of the \$81.7 billion in global R&D spending made by U.S. affiliates worldwide in 2023. The EU accounted for 31%, the UK for 10.5%, and Switzerland for 10.4% (Table 2).

TABLE 2.

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



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



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.

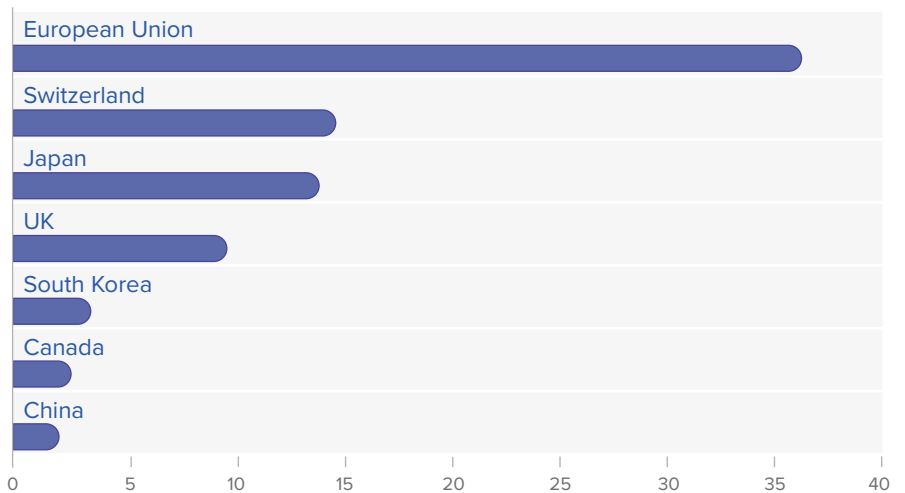
R&D spending by all foreign affiliates in the United States totaled \$87.8 billion in 2023. European affiliates’ spending amounted to \$61.2 billion, or 70% of the total. Firms from the EU spent \$36.5 billion (42%). Swiss firms were the single largest source of foreign affiliate R&D spending in the U.S., accounting for \$14.7 billion (24%) of total European R&D. German firms ranked second, with \$12.3 billion (20%), followed by firms from the UK (\$9.6 billion, 16%) and Ireland (\$5.9 billion, 10%).

R&D performed by affiliates of foreign companies accounts for roughly 15% of total R&D conducted by all businesses in the United States.

This cross-fertilization of intellectual capital is one reason why Europe and the United States remain global innovation leaders. This dynamic transatlantic innovation ecosystem 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 3.
R&D Expenditures of Foreign Affiliates in the United States (\$Billions)



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