EUROPE'S INNOVATORS ARE WAKING UP

Alessandro Merli

The continent's innovation success stories and renewed sense of purpose defy criticism of overregulation

"The US innovates, China replicates, Europe regulates" is how critics summarize the continent's approach to innovation. Exhibit A of the European Union's regulatory overreach is the now infamous Artificial Intelligence Act, which governs AI—even though the region has not yet produced a single major player.

Productivity in US technology firms has surged nearly 40 percent since 2005 while stagnating among European companies, according to IMF research. US research and development spending as a share of sales is more than double what it is in Europe. No European company ranks among the 10 largest tech companies by market share. The first European on the list, SAP (14th), a German software company, is worth only 10 percent of number 1 Apple. Dutch semiconductor supplier ASML (15th) has about 10 percent of the market value of Nvidia (2nd), as ranked by CompaniesMarketCap.

Illustration by John Hersey

Yet reality, as usual, is more nuanced. Europe's innovation scene holds life in various shapes and sizes. Many European tech companies are now global household names: Spotify and the buy now, pay later fintech Klarna, from Sweden, and the British digital bank Revolut. Skype, which owner Microsoft recently retired, was founded in London by four Estonians, a Dane, and a Swede. One of its first employees, Estonian Taavet Hinrikus, cofounded Wise, a money transfer company.

Health prowess

There's some truth to Europe's reputation for overregulation, says Francesca Pasinelli, the former managing director of Italy's Fondazione Telethon, which raises money for health research. "But it is not the whole story." European companies are more prominent in the pharmaceutical sector. Denmark's Novo Nordisk, maker of the popular weight-loss drugs Ozempic and Wegovy, is the fourth largest by market capitalization in the pharma ranking, which also features the UK's AstraZeneca and Switzerland's Roche and Novartis. The small German company BioNTech, founded in 2008 by two immunologists of Turkish descent, shot to planetary fame when the COVID-19 vaccine they developed with US pharma giant Pfizer came first to fruition, in record time.

Fondazione Telethon was started in the 1990s by families of patients with rare genetic conditions to raise funds and promote research "in areas where neither the public nor the private sector would step in, because of the small number of people involved," says Pasinelli, who became managing director in 2009 and is now a board member.

Since its inception, Fondazione Telethon has invested almost €700 million in over 3,000 projects. Famous in Italy for its annual TV fundraising marathon (hence the name), which features showbiz and sports personalities, the foundation does its own evaluation, allocation, and monitoring of funds. "We copied the rigor of the NIH model," says Pasinelli, referring to the US National Institutes of Health.

Venture capital gap

Even so, the gap between the US and Europe remains enormous. The most cited cause is a lack of financing for innovation because of the absence of a capital market union and insufficient venture capital. In 2024, US venture capitalists invested €210 billion in over 15,000 deals, versus €57 billion and fewer than 10,000 deals in Europe, according to Italian Tech Alliance. Europe, which trails Asia as well, risks falling farther behind. Its two largest markets, the UK and France, shrank last year—the value of investment dropped from €19 billion to €16.8 billion and from €9 billion to €7.7 billion, respectively. The number of deals also decreased. The third-largest market, Germany, rebounded slightly to €7.4 billion from €7.1 billion.

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Lack of capital doesn't explain everything. "Capital is mobile and therefore available where there are good opportunities," says Maurizio Sobrero, professor of innovation management at the University of Bologna. "In many cases, the real obstacle is the fragmentation of the European market because of different national rules and authorization regimes. This is quite evident in some sectors, for instance biomedical equipment." IMF research also points to market fragmentation. Many nontrade barriers remain within the single market, which prevents innovative companies from scaling up and undertaking investment that will pay off only if there is a larger customer base.

Sobrero and his coauthors looked into research financed by European Research Council grants. Of the top 20 firms by number of patent applications that cited Council funding, more than half were US firms, indicating that they are more adept at turning research into technology with economic impact.

Some see value in smaller-scale venture capital. "The big US firms will not get involved in small deals," says Elizabeth Robinson. She holds a PhD in biotechnology from the Massachusetts Institute of Technology (MIT) and cofounded Nicox in the 1990s, with research originally done in Italy and funded by French and Swedish venture capital firms. The company started with gastric therapy and moved to ophthalmology. "It was a real European endeavor," she told F&D.

Robinson is now vice-chair of Indaco Venture Partners, which counts the European Investment Fund among its investors and focuses on five areas of innovation, including medical technology and biotech. She thinks that Europe has a chance to take advantage of the announced funding cuts to NIH.

Mentality change

Once, when asked about Europe's approach to start-ups, Spotify founder Daniel Ek responded with a playlist that started with "Wake up," from the US band Rage Against the Machine: "Who I got to do to wake you up? To shake you up, to break the structure up."

There are encouraging signs that Europe is finally waking up. A report on the future of European competitiveness by Mario Draghi, a former Italian prime minister, mentions accelerating innovation as the first transformation needed to launch the European economy into the future. He called for additional €800 billion spending yearly on green, digital, and defense investments.

Europe is showing the will to invest more in AI as well. An AI action summit convened by French President Emmanuel Macron in February 2025 brought a promise of €109 billion from France itself and a commitment from the European Commission president, Ursula von der Leyen, to mobilize EU and private funds to reach a total of €200 billion. But this is far short, for instance, of the US commitment of $500 billion for the Stargate Project, led by OpenAI and others.

The growing involvement of the European Investment Bank (EIB) and the European Investment Fund (EIF) is a sign that things are moving in the right direction. In 2024, the EIB invested a record €19.8 billion in high-risk digital and innovation companies, according to its annual report. Of that sum, €14.4 billion came from the EIF, half of it in the form of equity. The EIB has also doubled its capital investment in security and defense tech companies. This, together with a massive increase in defense spending announced by Germany and other countries, should be a boon for European defense tech companies and boost research and development spending.

Among countries, Spain is one of the most active, helped by public institutions. It approved a start-up law at the end of 2023, and investment leapt 16 percent to €2 billion. The law gives tax incentives to companies, investors, and employees; claims to be the most favorable in Europe on stock options; reduces red tape; and introduces new public funding streams, one to support women entrepreneurs. Spain's private sector followed up with about €3 billion of its own funds.

AI and shoes

Universities are a natural breeding ground for innovation. Although Europe lacks behemoths like MIT and Stanford, many universities now have flourishing ecosystems and have spawned several unicorns, start-ups valued at more than $1 billion. The University of Cambridge tops a ranking for the number of "spinouts" and plans to accelerate development in tech and life sciences in the next 10 years. One of its oldest and most successful examples is ARM, which produces semiconductors and software used in smartphones, founded in 1990.

Next in the ranking is ETH Zurich, birthplace of the trademarked hollow pods that grace the soles of the Swiss footwear brand "On." Other academic institutions prominent in innovation are the Technical University of Munich in Germany, the Delft University of Technology in The Netherlands, and Aalto University in Finland.

The relationship between European universities and innovators is still evolving. Like their American counterparts, many often take an equity stake in the early stages of innovative companies. According to Robinson, of Indaco, however, some universities later resist dilution of their stake and don't join subsequent financing rounds, which can delay companies' scale-up.

And there is more good news. Three graduates of the University of Coimbra, in Portugal, who met while working at the European Space Agency, created Feedzai, a platform to fight financial fraud through the use of AI and biometrics. It is now used by several global financial institutions to monitor $6 trillion in payments every year.

Although financed by US venture capitalists and now with offices in Silicon Valley, the company maintains its headquarters in Coimbra, whose university dates to the 13th century. "There is value in staying here because we want to continue contributing to the development of the ecosystem," Nuno Sebastião, one of the founders, told Portuguese newspaper *Público*. One initiative spearheaded by Feedzai has already led to the launch of 12 start-ups and raised $412 million in funding.

Innovators, venture capitalists, and academics agree that things in Europe are moving. "For the first time, the EU Commission has a commissioner dedicated only to start-ups, research, and innovation," notes Francesco Cerruti, director general of Italian Tech Alliance. "But there is a need for translating words into action. And fast." F&D

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