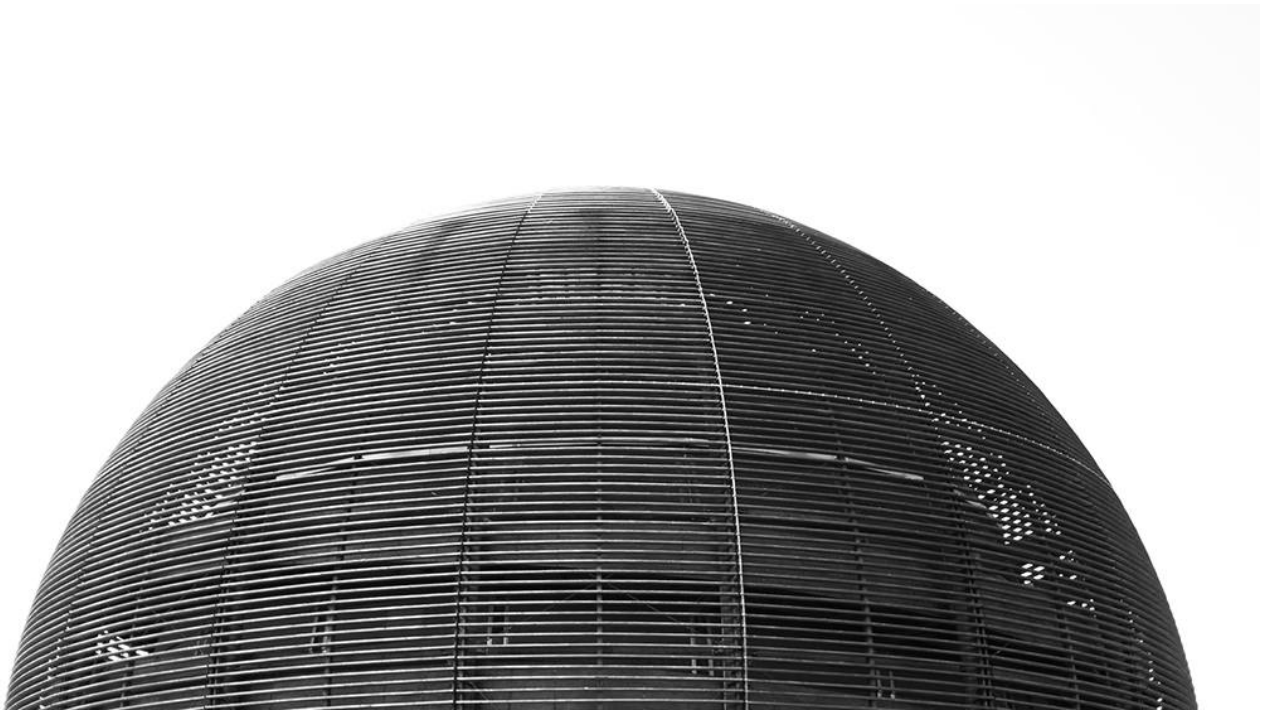
How to leverage scientific advances in your company

Publicly funded research laboratories are where innovations as disruptive as the World Wide Web continue to be born. But the process of getting scientific discoveries out of the lab and into the market hasn't been smooth. How might it be systematized?



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- **Big science research institutions have brought us such advances as the World Wide Web, touchscreens and radiotherapy.**
- **Big science institutions are the likely source for the next revolutionary technology, but getting it out of the lab and into the market may be far**

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from straightforward.

- **Managers should take advantage of public initiatives and "systematized serendipity" to speed up innovation uptake in their own companies.**

The World Wide Web, touchscreens and radiotherapy are just three of the revolutionary technologies that were discovered in research labs, without clear commercial applications at first.

With their deep pockets and long-term views, big science research labs continue to be fertile grounds for breakthroughs. But how to develop their findings' commercial applications is far from clear. One approach in the innovation literature is known as "serendipity," which might be loosely defined as "looking for lucky breaks or happy accidents." But can serendipity be systematized for better results? "Yes," is the short answer. With help.

To better understand how purely scientific inventions can get to the market, IESE's Laia Pujol and co-authors analyze the operations of ATTRACT, an EU-funded initiative that aims to "systematize the discovery of breakthrough applications" for new technologies from six leading European science research institutions. The results of their study are published in "Systematizing serendipity for big science infrastructures: The ATTRACT project" forthcoming in the journal *Technovation*.

In Europe alone, there are at least 55 "big science research infrastructures" (known in research as BSRIs) and more than 130 in the United States. All require significant public investments and, as such, policymakers typically seek to optimize their potential socioeconomic returns.

What are the main obstacles to the transfer of their technologies to alternative commercial applications? Researchers note that public institutions may have very different processes compared with most commercial innovation contexts and may even be antagonistic to commercialization. Project timeframes may span decades, making them difficult to sync with the shorter horizons of venture capital. In addition, the focus is usually on "deep tech" advances, which may require much more extensive development than consumer-oriented products.

To address such challenges in the European Union, ATTRACT is a promising initiative that has already provided 170 projects with 100,000 euros each for the development of a proof-of-concept or prototype for a commercial application over just one year. The main novelty is that ATTRACT's funding goes directly to the research institutions; they are in charge of

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selecting which technologies to promote and then creating a plan to make the commercial leap, forging negotiations with industrial partners.

Pujol and her co-authors identified three ways that researchers from those 170 projects came up with alternative commercial applications to launch: 41% combined different technologies, 27% chose to apply the technology in a different field, and 14% used artificial intelligence or machine learning.

According to their analyses, there are several reasons why instruments such as ATTRACT fulfill their purpose: they generate networking opportunities between different stakeholders inside and outside the research institution, they provide support at the right time, and they help systematically to meet milestones in order to refine technologies or find suitable markets.

Practical implications

The research makes a case for continuing to fund pure or big science, with resources designated to encourage the transfer of technology to a larger ecosystem for commercialization. In addition, the paper's authors say, the public sector should assume a leading role in promoting innovation, mitigating risk in strategically important sectors until emerging technologies acquire sufficient maturity to make them attractive to private capital.

At the same time, corporate managers should appreciate the benefits of collaborating with scientific labs. Even when their discoveries appear distant from your company's operations, keep in mind their potential to be your market's next disruption. Understand that initiatives like ATTRACT are working to make collaboration easier and speed up the pace of innovation.

Methodology, very briefly

The researchers interviewed managers at leading big science research infrastructures (BSRIs) and conducted a qualitative analysis of the 170 proposals submitted to the EU initiative ATTRACT. They also designed a survey that was distributed to members of the 170 projects funded by the ATTRACT initiative between August and September 2020. They received 152 completed questionnaires, representing 116 unique projects.

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