



Trend topic: Innovation gap

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Innovation asymmetry: a fine balance

In an era in which access to knowledge has been democratized, relying solely on external technologies and expertise may seem like a rational strategy. Yet that alone cannot generate innovation that leads to competitive advantage.

This article reexamines R&D through the lens of societal systems and explores why placing the source of business opportunities inside the organization is essential, both for continuing innovation and in order to make the right decision when it comes to bringing in external expertise.

Relying on external knowledge alone does not create innovation

The source of business opportunities lies in **information asymmetry** – in other words, possessing access to novel information that others do not yet have. If a company can identify such asymmetry early and turn it into a business opportunity, it gains a competitive edge. However, in today's world where AI has democratized access to knowledge, these asymmetries disappear quickly. This is precisely why organizations must generate information asymmetry from within through R&D.

Over the past two decades, open innovation has become a global trend. As new knowledge emerges worldwide, combining external knowledge with internal capabilities is logical.

However, companies with strong in-house R&D are the ones that win. This is because they can discern which external knowledge truly fits their business. By integrating internal and external knowledge, they create forms of information asymmetry that their competitors cannot replicate.

Being at the frontier allows the company to detect new trends and signs of business attrition earlier, enhancing innovation sensitivity.

CTOs are translators between technology and strategy

For this reason, the role of the CTO is critical.

First, CTOs must fully grasp technological trends. This requires securing PhD-level talent. Once a discovery appears in patents or academic papers, it is often already too late; the true value lies in accessing the communities where knowledge is about to be created. Researchers connected to top global academic communities function as a company's external "sensors".

Second, CTOs must understand the company's technological strengths and translate them into strategic direction and investment decisions. They are, essentially, translators between technology

and management. This requires more than technical literacy: CTOs must be able to articulate why a given technology matters for the company's identity, where it fits within – or reshapes – the value chain, and why it deserves sustained investment. Without this translation, even strong technologies risk being dismissed as irrelevant to the core business. When a CTO can clearly frame a technology as a strategic extension of what the company already does well, it becomes possible for top management to commit resources and build new capabilities around it.

Consider Ajinomoto. Known worldwide for inventing umami seasoning, the company has recently redefined itself as an "Amino Science" company. This is a strong example of becoming more technology oriented. Most companies prioritize catching up through optimization rather than pursuing innovation. But by redefining itself in a narrower, more specialized domain, Ajinomoto positioned itself at the frontier of that field. Being at the frontier allows the company to detect new trends and signs of business attrition earlier, enhancing innovation sensitivity. Ajinomoto's near-monopoly in ABF (Ajinomoto Build-up Film), an insulation material used in advanced semiconductor packages illustrates this well.¹ Engineers recognized that amino acid chemistry could be applied to semiconductor materials, and the company valued this insight and aligned its value chain to support commercialization. This is a case in which R&D directly guided business strategy – something that would have been impossible had the company retained a conventional "food company" identity. A similar pattern can be seen in the film industry. Kodak collapsed when it failed to adapt to market changes, while Fujifilm successfully repurposed its core technologies for cosmetics and other fields.

Innovation depends on societal systems

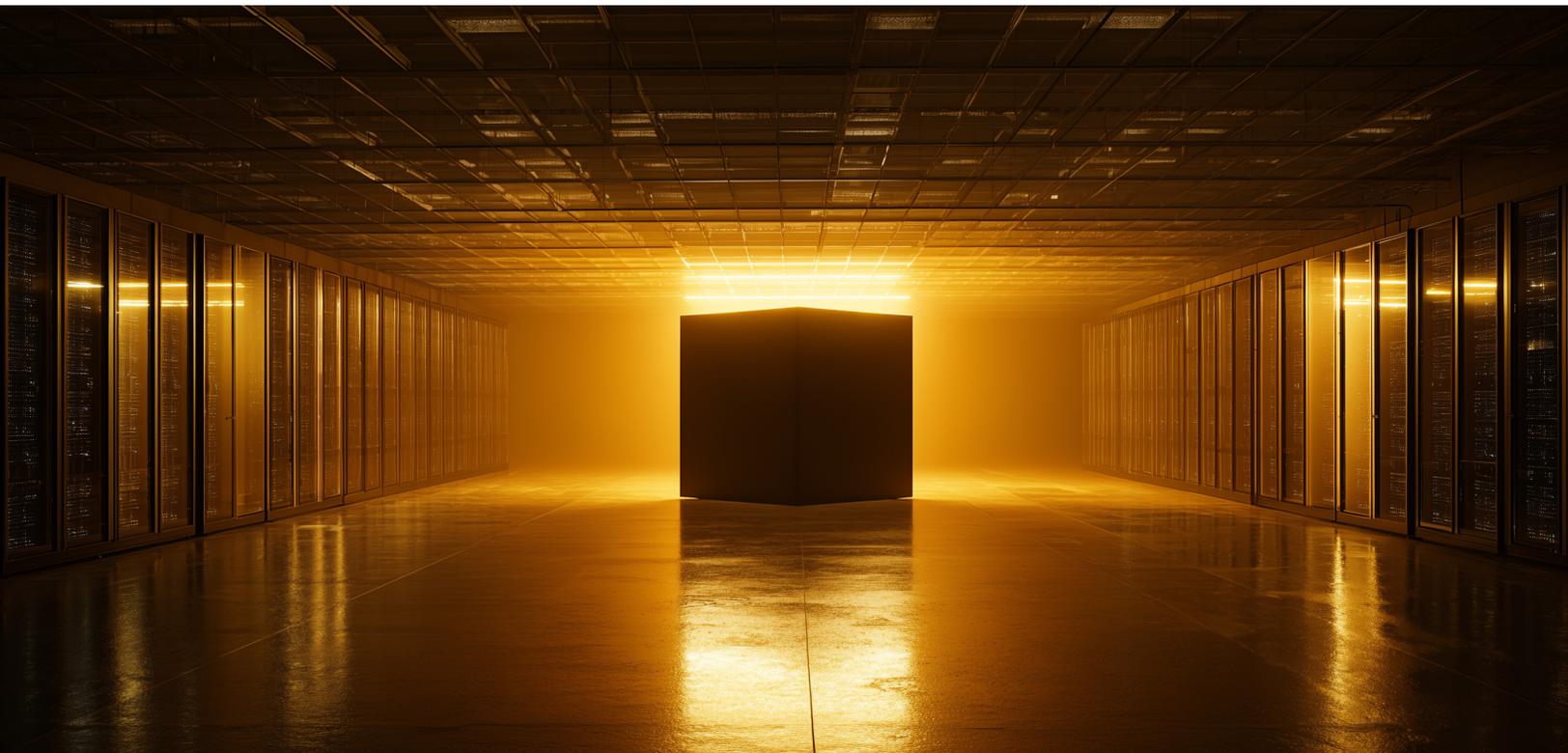
From an innovation standpoint, however, Fujifilm-style diversification is not always the optimal path. Many Japanese companies operate multiple businesses to distribute risk, while US firms tend to focus on a single domain, which disappears when that

business becomes obsolete. This is high risk, but during periods of success, they generate extremely high returns. These differences stem not from corporate choices but from the societal systems surrounding them. Let me explain: Innovation is reflected in financial statements as excess profit margins – the degree to which a company’s profitability exceeds its industry average. Drawing on my recent analysis, comparing the top 20 companies in excess profit margins over the past 40 years shows that in the US, R&D-intensive firms in pharmaceuticals, software, and biotech dominate. Meanwhile in Japan, companies like Hirose Electric (a semiconductor manufacturer) and Toyota appear alongside convenience stores like Seven-Eleven and traditional brewers and retailers – firms that are not necessarily R&D-intensive.

In the US, companies cannot achieve high excess profits without investing in innovation. In Japan, efficiency improvements – such as supply-chain optimization or branding – can still increase profitability. This makes it possible for firms to succeed without innovation-led growth, however, there is also a growing concern that, without stronger incentives for innovation, Japanese firms risk being pushed into increasingly subordinate roles within global value chains. At the same time, it is not right to say that societies should be organized solely around innovation

or economic growth, nor that rigidly following the US model is the right answer.

Another reason US pharmaceutical firms show high excess profit margins is the large number of unprofitable companies. Many US listed firms are startups, and losses reflect investment. Some succeed dramatically; others are acquired. Moderna is a prime example: before its COVID-19 mRNA vaccine breakthrough, it spent nearly 20 years in the red, sustained by investors’ diversified ecosystem-wide portfolios. This also leads to an innovation ecosystem. If we return to the film industry as an example: once the decline of film became clear, Kodak and Polaroid researchers left immediately for startups and universities, spreading their expertise into new industries such as medical imaging, digital imaging, and AI image processing. Innovation did not remain confined within companies – it flowed into the broader society. In contrast, Fujifilm survived the crisis using internal resources alone. While successful in Japan, this approach is slower compared to the rapid industry-wide transitions seen in the US. At the societal level, this risk-sharing model slows the reallocation of talent and knowledge that fuels faster waves of innovation elsewhere. This outcome is rooted in a broader structural difference: unlike the US, where innovation is treated as a public good that can be redeployed across the economy, Japan



has developed systems that prioritize the health of individual businesses by focusing on safeguarding internal innovation and employment. This makes corporate survival possible but at the cost of slower, economy-wide reallocation.

Combining approaches is key to innovation

The US has long invested heavily in R&D as a public good. Organizations like the Department of Defense have supported basic research, enabling circulation of talent and technology between universities and startups. In Japan, companies have historically borne the burden of basic research, making it difficult to replicate US-style systems and contributing to slower innovation cycles.²

Should Japan aim to become like the US? Not necessarily. In the US, high labor mobility forces companies to collaborate closely with universities and national research institutions. Yet academic resources cannot be monopolized by any single company. Elite researchers are highly competitive to secure, and deciding which labs to engage with requires a solid internal R&D foundation.

Japan's long-term employment practices have allowed researchers to pursue basic research with stability – staying at the same company for decades remains relatively common. Given these differences, one system cannot simply replace the other. A more realistic approach is complementarity. Western companies can benefit from establishing research bases in Japan, where basic research is strong. Japanese companies can build a presence in the US to tap into its startup ecosystem. Strategically combining each country's strengths may be key to future innovation.

Innovation needs cultivating from within

In innovation workshops, I often begin by asking participants: "Where is the bottleneck in your company?" Most can answer quickly. But when I ask: "What do you want to achieve in this company?" many fall silent.

Companies should not try to make everyone innovative. Instead, they must identify intrinsically motivated individuals, place them at the center, and build support structures around them.



Articulating motivation is difficult, yet research consistently shows that people with strong intrinsic motivation are more creative. Innovation comes from exploration – breadth and depth of trial. External motivation (praise, promotion) drives only minimal exploration. Intrinsically motivated individuals test ideas, think, and learn on their own. These are the people who generate innovation.

Therefore, companies should not try to make everyone innovative. Instead, they must identify intrinsically motivated individuals, place them at the center, and build support structures around them.

For this to work, leadership must communicate the company's strengths in concrete – not abstract – terms. Creating a clear culture, even if it increases turnover slightly, helps ensure employees who stay are aligned with the mission. Strong cultures create strong value for those who fit.

Regarding R&D, companies must openly share which areas they are pursuing and what success looks like. Researchers often have deep technical expertise but may struggle to connect their work to business outcomes. The CTO serves as the bridge, but it is unreasonable to expect them to shoulder this responsibility alone. They too need support from the organization. In practice, this support can be as simple as establishing a lightweight “translation” function – regular portfolio reviews that map R&D work to business outcomes, and a clear roadmap narrative explaining what success would enable.

Innovation is not driven by a lone genius; it is the result of structures, culture, and motivation coming together. How companies integrate external knowledge, cultivate internal expertise, empower motivated individuals, support CTOs and learn from different societal structures. That collective design is what will define the next era of innovation. —

References

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