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The Open Innovation Barometer

In a volatile era of labor scarcity and accelerating digitalization, companies are increasingly deploying openness to power innovation and achieve strategic goals

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Contents

- 3** About the research and acknowledgments
- 4** A note from our sponsor
- 5** Executive summary
- 6** SECTION A – Introduction: Open innovation in a time of rapid change
 - 6** The mainstreaming of OI
 - 7** Why OI—and why now?
 - 9** A spectrum of approaches
- 10** SECTION B – The Open Innovation Barometer
 - 15** Management challenges thwart OI adoption
- 17** SECTION C – Conclusion: The OI imperative

About the research and acknowledgments

The Open Innovation Barometer is a survey-based research program, conducted by Economist Impact and sponsored by SUSE, studying openness in innovation processes. This briefing paper uses insights obtained through survey analysis, desk research and expert interviews to define openness and explore current open innovation trends across three countries and five industries.

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A note from our sponsor

The notion of “openness” represents our society’s limitless possibilities. It inspires diverse communities to come together and bring ideas to life. It creates new ways to collaborate. It fosters the richness of sharing, learning and solving problems together. It’s why openness, not technology alone, must be at the heart of all digital transformation. At SUSE, we leverage code and software that come from the upstream community, which our engineers further develop and refine to make more efficient and ready for deployment to enterprise customers. This open-source ethos creates a virtuous circle. SUSE leverages valuable contributions from the community, which, in turn, allows it to build better, more stable and more resilient products that benefit both SUSE’s customers and the open-source community. This inspires innovation to happen everywhere—we invite you to find out the impact of open innovation in day-to-day life in this paper.

Executive summary

Innovation has always given companies a competitive advantage. But in today's globalized and increasingly digitalized economy, it has become even more of an imperative. The growing innovation premium, as well as growing talent challenges relative to the mobility and scarcity of skilled knowledge workers, has caused many organizations to rethink old assumptions about how innovation can and should occur. One way this is taking place is with the conventional vertically integrated research and development (R&D) model being challenged by various open innovation (OI) practices. Although this trend is decades in the making, the extent to which OI practices have been or may soon be adopted by organizations across markets and industries is not well understood.

To address this gap in knowledge, Economist Impact conducted an in-depth research program sponsored by SUSE. It comprised a literature review, expert interviews and a bespoke survey of 500 senior executives across three major markets (the US, the UK and Germany). These executives work across five sectors: automotive, financial services, manufacturing, retail and consumer goods, and telecoms. The program's central goal was to develop a metric quantifying the openness of an organization, industry or market. To that end, Economist Impact developed the Open Innovation Barometer, which weighs 65 factors explored through survey questions. Its main factors included the extent of OI practices adopted by the organization, budget and staff allocated for OI, and adoption of open-source technology.

Taken together, barometer scores offer a picture of widespread OI advancement, although the depth and breadth of OI practices vary by industry and company size. The average score across all industries was 62.9 (on a scale of 0 to 100, with 100 being completely open). The retail and consumer goods sector was out front, with a score of 65.4. In terms of market OI levels, US companies had the highest average barometer score—but not by much. Compared with smaller companies, larger organizations posted higher scores on average: they are further along in adopting OI practices.

More broadly, survey results made clear that OI is becoming ubiquitous as OI ecosystems advance. The overwhelming majority (95%) of respondents say their organizations practice OI; 54% of organizations practice OI on most or all projects. About 90% of organizations either have implemented key pillars of OI or are planning to implement them in the next three years. While OI is growing apace, overall internal (closed) innovation still dominates across product, service and process development. OI has plenty of room to grow.

Given the competitive advantages cited by companies with more advanced OI practices, continued growth seems assured. These organizations—defined as the top third of barometer performers—were far more likely than bottom-third performers to report significant advantages in key performance areas such as financial performance and offering innovative products or services. Still, survey results underscored the fact that barriers to adopting OI practices remain common for many organizations. The biggest obstacle? Increased time and managerial costs.

But embracing OI requires more than investing time and resources. Organizational culture needs to shift as well, so that managers can value and support new ways of thinking and working. For those companies able to make sustained changes to processes, practices and culture, the return on investment is clear.

Open innovation in a time of rapid change

In the 21st century, the ability to innovate sets organizations apart from the competition. Across industries, firms derive immense value by conceptualizing and creating new products, services, internal processes and business models. Innovation has always been rewarded. But today's highly globalized economy, increasingly characterized by widespread and rapid technological transformation, has increased the innovation premium. And it is changing how many organizations think about and practice innovation.¹

The paradox is that, despite the growing competitive advantage built through closed innovation, a growing number of firms are embracing open innovation (OI).² The democratized, participatory approach to innovation recognizes that no company, no matter how capable or big, can have all the best knowledge, talent and ideas.³ External collaboration is therefore valuable, even necessary. As Bill Joy, co-founder of pioneering tech company Sun Microsystems, said, "the smartest people in the world don't all work for us. Most of them work for someone else."⁴

OI is where internal and external resources meet to make innovation happen. It is the opposite of the traditional, vertically integrated R&D model, in which companies rely heavily, or even exclusively, on internal knowledge and resources. The effectiveness of this conventional model has been challenged by, among other factors, the rising number and mobility of highly skilled knowledge workers, which makes it difficult for firms to control expertise and proprietary ideas.

To explore the current and future state of OI, Economist Impact (sponsored by SUSE) conducted an in-depth research program including a literature review, expert interviews and a survey of 500 senior executives across three markets (the US, the UK and Germany) and five sectors (automotive, financial services, manufacturing, retail and consumer goods, and telecoms). This study helps fill the gap in knowledge about the scope, nature and trends in OI adoption by companies of varying sizes and industries and in different countries. What emerged is a detailed picture of how business leaders and their organizations think about and practice OI, and the value it delivers.

¹ Bogers, M., Chesbrough, H., Heaton, S., & Teece, D. J. (2019). Strategic Management of Open Innovation: A Dynamic Capabilities Perspective. *California Management Review*, 62(1), 77–94. <https://doi.org/10.1177/0008125619885150>

² Key, S. (2020, January 29). *Why Large And Powerful Companies Embrace Open Innovation*. Forbes. <https://www.forbes.com/sites/stephenkey/2020/01/29/why-large-and-powerful-companies-embrace-open-innovation/>

³ Chesbrough, H. (2021, December 10). *Everything You Need to Know About Open Innovation*. Forbes. <https://www.forbes.com/sites/henrychesbrough/2011/03/21/everything-you-need-to-know-about-open-innovation/?sh=3da64fac75f4>

⁴ Manville, B. (2015, July 26). *How To Get The Smartest People In The World To Work For You*. Forbes. <https://www.forbes.com/sites/brook-manville/2015/07/24/how-to-get-the-smartest-people-in-the-world-to-work-for-you/?sh=788734cf2f21>

The mainstreaming of OI

The term “open innovation” was coined by University of California Berkeley professor Henry Chesbrough in his 2003 book *Open Innovation: The New Imperative for Creating and Profiting from Technology*.⁵ But the practice predates the current century.⁶

In the late 19th century, for example, Thomas Edison’s famous “invention factory” in Menlo Park, New Jersey, displayed open innovation practices, with a team of engineers collaborating with scientists, financiers and others outside the research laboratory.⁷ In the 1950s and 1960s, researchers developing early internet technologies and telecommunication network protocols relied on an open and collaborative research environment. By the time the modern internet emerged in the 1990s, values including collaboration and openness were embedded into its foundations. OI practices also emerged in sectors beyond technology.⁸ Aware that its innovation success rate had stagnated, in 2000 P&G shifted its strategy from a traditional, internal R&D approach to one termed “connect and develop”. The company advertised problems that it needed to solve with the goal of attracting the “world’s most innovative minds”.⁹

Today, it is fair to say that OI has entered the mainstream. This is evident from the survey, which reveals that the vast majority of firms have started moving away from conventional innovation practices: 95% of respondents reported that their organizations practice OI on at least some projects. This shift can also be recognized by who companies are choosing to hire. A growing number of executives at high-profile global companies (eg, Nestlé, Samsung, BMW) have titles such as manager of open innovation.¹⁰

Levels of OI vary by industry, each of which has unique competitive dynamics and innovation needs. But broad economic changes in recent decades have caused companies large and small to rethink old assumptions about how innovation can and should occur.

Why OI—and Why Now?

A host of different economic and technological factors are causing organizations to adopt OI approaches to varying degrees. Digital technologies lower the costs of collaboration and knowledge sharing. But they are also pushing organizations to look beyond their walls for partners and enterprise. As digitalization has impacted more and more sectors, non-tech companies have turned to external collaboration to power new innovations. For example, many automotive companies have forged partnerships with self-driving vehicle start-ups¹¹ and major accounting firms are collaborating with organizations that have deep AI expertise.¹²

5 Chesbrough, H. W. (2006). *Open Innovation: The New Imperative for Creating and Profiting from Technology* (First Trade Paper ed.). Harvard Business Review Press.

6 Jeon, J. (2015, December 22). *Historical review on the patterns of open innovation at the national level: the case of the roman period* - Journal of Open Innovation: Technology, Market, and Complexity. SpringerOpen. jopeninnovation.springeropen.com/articles/10.1186/s40852-015-0026-4

7 How open is innovation? (2010, July 1). ScienceDirect. <https://www.sciencedirect.com/science/article/pii/S0048733310000272>

8 Muilwijk Feed, R. (2019, April 9). *The Internet’s 25 years and future with open source*. Opensource.Com. <https://opensource.com/life/14/4/25-years-world-wide-web>

9 *Connect and Develop: Inside Procter & Gamble’s New Model for Innovation*. (2019, February 7). Harvard Business Review. <https://hbr.org/2006/03/connect-and-develop-inside-procter-gambles-new-model-for-innovation>

10 Dixon, P. (2014, November 23). *Rapid Innovation - How to grow your business*. GlobalChange. <https://m.globalchange.com/rapid-innovation-how-to-make-it-happen.htm>

11 Marshall, A. (2020, July 7). *Self-Driving Tech Is Becoming a Game of Partnerships*. Wired. www.wired.com/story/self-driving-tech-game-partnerships/

12 Faggella, D. (2020, April 3). *AI in the Accounting Big Four – Comparing Deloitte, PwC, KPMG, and EY*. Emerj Artificial Intelligence Research. <https://emerj.com/ai-sector-overviews/ai-in-the-accounting-big-four-comparing-deloitte-pwc-kpmg-and-ey/>

The sheer speed and growing complexity of technological change is a crucial factor driving OI; companies must be agile to remain competitive, and OI can foster agility. In highly dynamic markets with fast-changing customer preferences, OI strengthens the ability to pivot and seize opportunities with new products and services. Box 1 below provides examples of OI among firms in response to the covid-19 pandemic.

Another factor contributing to OI's adoption is the changing nature of capital and labor markets. The growing availability of venture capital has seeded thriving start-up ecosystems, fostering co-evolution among interconnected organizations. Skilled knowledge workers are increasingly available and mobile, spurring knowledge diffusion. Moreover, knowledge itself has become more transparent and accessible via the internet and social networks. Globalization—of economies and the companies that power them—has also been a factor.¹³ Finally, as highly innovative companies have reaped big market rewards, brand reputation contributed to the rise of OI.¹⁴ Some companies have now started exploring the OI space to showcase some of their innovation practices—even if most of their innovation efforts continue to take place within a traditional closed R&D model.

Whatever a company's motivations, our research suggests a strong positive relationship between a company's application of OI practices and its innovation performance. Why? Because OI provides greater access to new creative ideas, skills, technologies and other intangible assets, along with an increased ability to monitor and keep pace with technological change.^{15,16} For this reason, research shows that innovation activities (as measured by patenting) are positively correlated with firm performance.¹⁷

Traditional R&D is structured to mitigate risk—companies have limited R&D funds and grants, says Steven Rader, program manager of NASA's Tournament Lab and Center of Excellence for Collaborative Innovation. "When you go open, you suddenly don't have that constraint and are getting ideas from everywhere," he says. There is a blind spot in deep domain expertise, he notes, which can lead to being blindsided by disruptive technologies and competitors. OI can prevent this. "People don't realize that you can now tap into a diverse crowd that has both breadth and depth, making the likelihood of finding the innovation you want go way up," he says. Right now, the world is undergoing a tech explosion bigger than most people appreciate, signified by far-reaching technologies such as blockchain and machine learning and a rise in patent applications. "If you're in a closed company, you may not realize someone else is working on a technology and maturing it quite successfully until it becomes an important technology," Rader says.

Adopting an OI mindset involves shifting away from the idea of innovation as the development of a proprietary advantage. "It's more consistently successful to think of innovation as the creation of an ecosystem," says Peter Coffee, VP for strategic research at Salesforce. It's about "thinking outside the box, except the edges of the box should not be seen as boundaries, but as interfaces with your customers' needs before, during and after their dealings with you," he says. "Use those interfaces to improve and innovate."

OI will only grow in the coming years, Coffee says. "There is no indication that innovation will become more proprietary, because there is more and more recognition of Bill Joy's law: that no matter who you are, most of the smartest people work for someone else."

13 Sag, S., Sezen, B., & Alpan, L. (2019, November 4). *Free Access Determinants of Open Innovation and their Interrelations*. World Scientific. <https://www.worldscientific.com/doi/abs/10.1142/S0219877019400017>

14 Lee, K., & Yoo, J. (2019, November). *How does open innovation lead to competitive advantage? A dynamic capability view perspective*. ResearchGate. www.researchgate.net/publication/337406917_How_does_open_innovation_lead_competitive_advantage_A_dynamic_capability_view_perspective

15 Tidd, J. (2010, June). *Gaining Momentum: Managing the Diffusion of Innovations*. World Scientific. <https://www.worldscientific.com/worldscibooks/10.1142/p625>

16 Drechsler, W. (2011, November 14). *Understanding a Firm's Openness Decisions in Innovation*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1959316

17 Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2020, November 3). *The influence of open innovation on firm performance*. Sage Journals. <https://journals.sagepub.com/doi/full/10.1177/1847979020969545>

Box 1: Open innovation in action

The covid-19 pandemic has served as a high-profile proving ground

The covid-19 public health crisis demanded innovative solutions. Companies stepped up to the challenge, adopting collaborative OI approaches to rapidly generate results.

Pfizer and BioNtech: in pursuit of a covid-19 vaccine, the two organizations formed a knowledge-sharing agreement, collaborating on research and development governed by a joint steering committee. The result was the first mRNA covid-19 vaccine product to be approved by the US Food and Drug Administration. Pfizer and BioNTech shared commercialization rights.¹⁸

Ford Motor Company: Ford partnered with 3M, GE Healthcare and the United Auto Workers (UAW) to speed up production of urgently needed medical equipment.¹⁹ Ford and 3M collaborated on a new respirator design for healthcare workers, Ford and GE worked together to ramp up production of a simplified ventilator design for covid-19 patients, and Ford and UAW partnered to produce plastic face masks.

Adidas and Carbon: the two companies teamed up to produce 3D printed face shields to support healthcare organizations.²⁰

Nike and Oregon Health & Science University (OHSU): at the outset of the pandemic, the two organizations responded to the urgent need for personal protective equipment. Nike's innovation, manufacturing and product teams partnered with OHSU's health professionals to produce face shields and respirators.²¹

A spectrum of approaches

It is important to emphasize that innovation practices do not exist within a binary system involving open or closed, with the latter being conventional internal R&D. An organization's open innovation practices can take myriad forms, happen only at some stages of innovation and can be adopted to varying degrees.

There are three main types of OI: outbound, inbound and coupled.²¹

Outbound: this involves internal knowledge leaving firm boundaries, either through revealing (no compensation) or selling. Examples include customer co-creation, participating in public standardization (eg, ISO), donating to nonprofits and intellectual property (IP) out-licensing.

Inbound: this involves using external innovation resources, either through sourcing or acquiring. A company might externally source innovation ideas and mechanisms via information networking, university research grants or crowdsourcing, for example. Or a company might acquire input to the innovation process through the marketplace via contracted R&D service providers or IP in-licensing.

Coupled: this OI approach involves co-innovation with complementary partners through structured co-operation such as alliances and joint ventures. Examples include technological collaborative networks and collaborative patents (co-patents).

¹⁸ Druedahla, L. C., Minssena, T., & Price, W. N. (2021, October 8). *Collaboration in times of crisis: A study on COVID-19 vaccine R&D partnerships*. ScienceDirect. <https://www.sciencedirect.com/science/article/pii/S0264410X21011634>

¹⁹ DEARBORN, M. (2020, March 24). *Ford works with 3M, GE, UAW to speed production of respirators for healthcare workers, ventilators for coronavirus patients*. Ford. <https://media.ford.com/content/fordmedia/fna/us/en/news/2020/03/24/ford-3m-ge-uaw-respirators-ventilators.html>

²⁰ *Helping Our Healthcare Workers with 3D Printed Face Shields*. (2020, April 13). Adidas News Site | Press Resources for All Brands, Sports and Innovations. <https://news.adidas.com/athletics/helping-our-healthcare-workers-with-3d-printed-face-shields/s/53fa24e7-36ff-40de-aga8-20956b9dfb87>

²¹ *Nike PPE Face Shields*. (2020, April 7). Nike News. <https://news.nike.com/news/nike-ppe-face-shields-covid-19-support>

²² *How open is innovation?* (2010b, July 1). ScienceDirect. <https://www.sciencedirect.com/science/article/abs/pii/S0048733310000272>

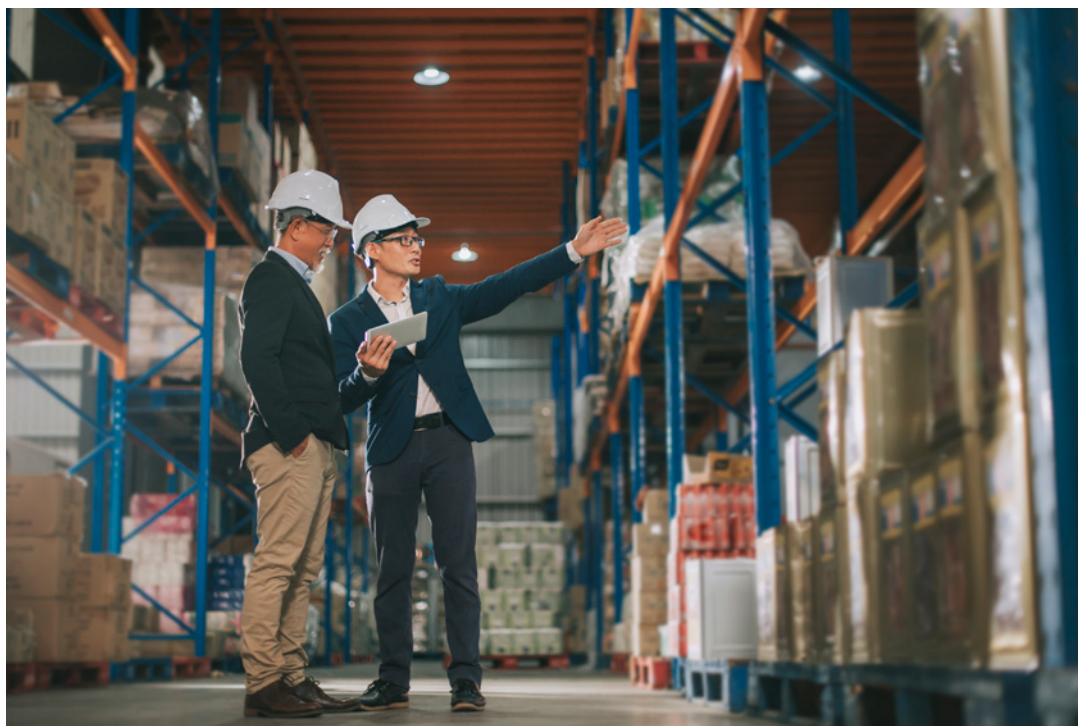
The open innovation barometer

OI practices have gained momentum in recent years, but the level of innovation openness adopted by companies of different sizes across various industries has not been studied and analyzed. To fill this gap in understanding, Economist Impact developed the Open Innovation Barometer after conducting a bespoke survey of 500 business executives in the US, the UK and Germany. These executives work in the automotive, financial services, manufacturing, retail and consumer goods, and telecoms sectors.

The barometer assigns a score between 0 and 100 to an organization's level of openness on the basis of survey questions, with zero being the least open. Sixty-five factors impacted barometer scores, including:

- The extent of OI practices adopted by the organization
- Budget and staff allocated for OI
- Executive team support for OI
- Adoption of open-source software (OSS)
- Standard procedures guiding and evaluating OI activities

What emerges through barometer scores is a clear picture of OI advancement—albeit one varied by industry and company size. While internal (closed) innovation dominates overall, OI leaders—meaning

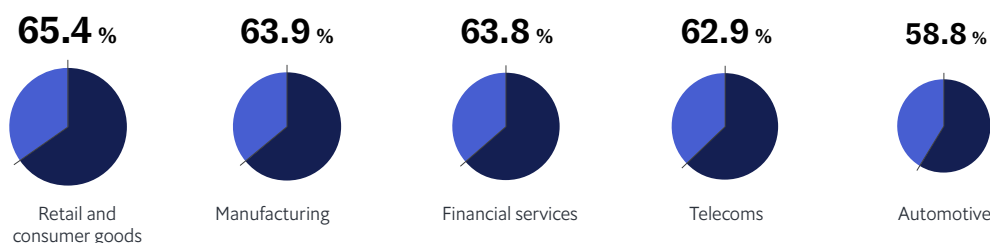


companies with advanced OI practices—say they are ahead of industry peers in key areas, including financial performance.

OI is becoming ubiquitous as OI ecosystems advance. With 95% of survey respondents saying their organizations practice OI, it is clear that the importance—or potential value—of OI is widely understood by executives across different sectors. The vast majority of respondents are investing significant resources to implement OI activities. More than half (54%) of respondent organizations practice OI on most or all projects, while another 41% practice OI on selected projects.

About 90% of organizations either have implemented key pillars of OI or are planning to implement them in the next three years. (Pillars refer to activities that help institutionalize the practice of OI such as having a dedicated team to support innovation initiatives, standard operating procedures guiding OI activities and formal metrics for evaluating these activities.)

While a wide range of Barometer scores (12 to 96) was assigned across all surveyed organizations, variations by industry were far smaller. The average score across all industries was 62.9, with the following breakdown:



High levels of satisfaction. Most survey respondents reported feeling satisfied about the current state of their organization's OI activities. Between 86% and 90% of executives said they were either "somewhat satisfied" or "very satisfied" with the level of resources dedicated to innovation, management's support for these activities and their impact on business performance. Many of these organizations plan to increase the dedicated budget for OI in the coming three years.

Internal innovation teams still dominate across product, service and process development, indicating ample opportunity for OI growth. Although OI practices are widespread, according to survey data, they are not the predominant way companies have developed products, services and processes in recent years. About 58% of respondents said internal innovation teams were the main way products were developed during the past three years. Nearly 46% (a plurality) said the same about process development and 40% about service development.

Survey results highlight contracted relationships as the most prevalent form of OI across product, service and process development adopted in the past three years. A possible explanation is that companies just beginning their OI journey are more comfortable working in contracted partnerships with clear collaboration boundaries and terms. Notably, at least 30% of companies say that either OSS and/or platforms, or an external ecosystem (eg, start-ups, universities), are most typically driving product, service and process development in their OI implementation journey.



Table 1. Channels of OI for developing products, services and processes.

Channels of OI	Product development	Service development	Process development
Contracted third parties	35%	40%	43%
External ecosystem	32%	37%	31%
Open-source software/platforms	32%	31%	35%

Source: Economist Impact survey

Companies with higher revenue are ahead. Historically, smaller companies have been considered readier to see the value of OI and have greater flexibility to implement it, compared with larger companies. Yet our survey findings supported an average barometer score of 65.1 for large firms with annual revenue of US\$500m or higher and 60.9 for smaller firms with revenue of US\$100m-US\$500m. In most cases, larger organizations have implemented OI practices more than smaller competitors.

Organizations advanced in their OI journey say they are also ahead of the competition in key performance areas. A barometer score analysis indicates that organizations that are ahead in their OI adoption (defined as the top third of barometer performers) are far more likely than those still emerging (in the bottom third) to report significant advantages in key performance areas.

Table 2. OI and key performance areas

% of respondents who say their organization is significantly ahead of industry peers	Advanced	Emerging
Well-developed/established R&D practice	45%	20%
Offering innovative products or services	49%	26%
Adopting and contributing to open-source platforms	46%	19%
Financial performance	42%	30%

Source: Economist Impact survey

Similarly, there is a strong correlation between the levels of innovation openness and satisfaction with innovation outcomes and business performance.

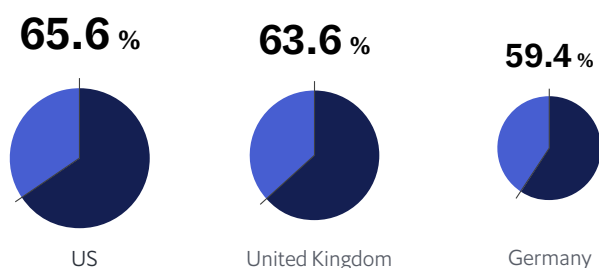
Table 3. OI and satisfaction with innovation outcomes

% of respondents that reported high levels of satisfaction	Advanced	Emerging
Level of innovation within the organization	62%	36%
Extent of OI within the organization	63%	23%
Impact of innovation on business performance	64%	36%
Impact of open innovation on business performance	64%	27%

Source: Economist Impact survey

The retail and consumer goods sector is the most advanced sector in the adoption of OI; the automotive industry has more room to grow. The retail industry scored highest on our Barometer (65.4) whereas the automotive industry trailed other sectors with a score 58.8. Retail's lead position may be surprising—the industry has not generally been regarded as an OI leader. This may be changing, with the covid-19 pandemic shifting consumer behavior and accelerating digital disruption of traditional retail models.²³

The US appears a step ahead in its OI adoption. US firms scored the highest on the barometer, just ahead of their peers in the UK and Germany.



A higher percentage of respondents in the US also reported that their organization has a significant advantage in key performance areas.

²³ UNCTAD. (2021, March 15). *How COVID-19 triggered the digital and e-commerce turning point* | UNCTAD. <https://unctad.org/news/how-covid-19-triggered-digital-and-e-commerce-turning-point>

Table 4. OI and key performance areas across countries

% of respondents that said they are significantly ahead of industry peers:	Germany	U.K.	U.S.
Well-developed/established RD practice	33%	30%	38%
Offering innovative products or services	33%	36%	45%
Adopting and contributing to open-source platforms	28%	28%	41%
Financial performance	29%	32%	40%

Source: Economist Impact survey

Survey data by no means painted uniform levels of OI adoption within the US, the UK and Germany. For example, the degree of OI adopted by German manufacturing firms is significantly higher in companies with larger annual revenue. Companies with annual revenue of US\$500m or higher had an average score of 64, while companies with revenue of US\$100m-\$500m scored 56.

Open-source software and platforms is the most common form of OI. Nearly half (46%) of respondents currently use OSS, which is developed in a decentralized and collaborative way, as an OI channel, while another 38% are planning to adopt open-source platforms to support OI projects. More than four in five (85%) of respondents agreed that open-source platforms are important to the success of their organizations.

The survey also indicates that inbound channels—such as consumer and customer co-creation, R&D consortia and collaborative networks, contracting with external R&D providers, idea and start-up competitions, and IP in-licensing—are more commonly leveraged than outbound channels.

Table 5. OI channels in practice

Open innovation channels	% respondents
OSS	46%
Consumer and customer co-creation	45%
R&D consortia and/or collaborative networks	45%
Contracting with external R&D service providers	43%
Joint venture activities	38%
Idea and start-up competitions	37%
IP in-licensing	28%
University research partnerships	32%
IP out-licensing and patent selling	26%
Other open-source platforms	23%

Source: Economist Impact survey

A range of innovation partners are in the mix. Contracted R&D service providers are the most common type of partner survey respondents work with—but others are not far behind. As noted above, it is possible that organizations are more likely to engage in contractual relationships (whether with R&D providers or vendors/suppliers, the second most common type) when they are first embarking on OI, as these help clearly define the extent of knowledge exchange and partnership. Interestingly, partnering with industry peers is relatively prevalent: 44% of respondents said their organizations do this, indicating that companies see value in co-operating with organizations that are otherwise considered competitors.

Table 6. Innovation partners in practice

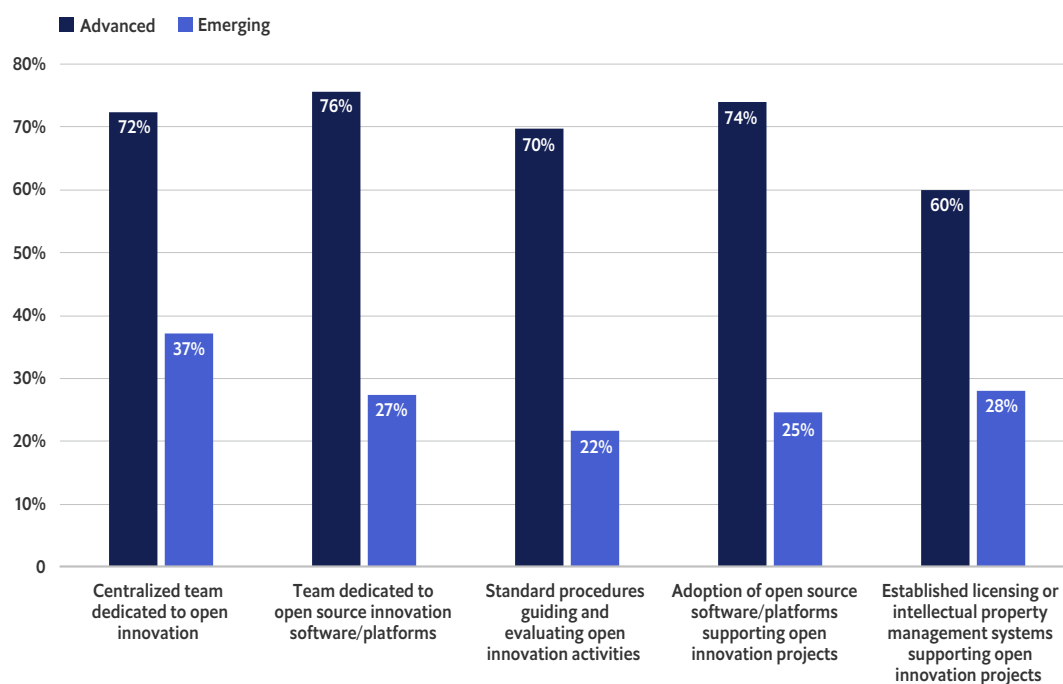
Partner type	% respondents
Contracted R&D service providers	53%
Vendors/suppliers	49%
Customers/clients	45%
Industry peers	44%
Universities & public research organizations	42%
Entrepreneurs & startups	40%
Organizations in other industries	36%
Government organizations	25%

Source: Economist Impact survey

Compared with emerging OI players, advanced organizations are more likely to have implemented key scaffolding supporting OI practices, such as organizational and managerial processes. Many emerging/nascent open innovators report the biggest challenge to adopting OI practices is increased time and managerial costs. However, over 90% of respondent firms either have implemented, or are planning to implement, these key processes, which include a centralized OI team, standard operating procedures and evaluation metrics as well as IP management systems. We expect these organizational practices enabling OI to become widespread in the coming three years—companies understand these investments are worth it in the long run.

Figure 1. Adoption of supportive OI practices in advanced and emerging organizations

Source: Economist Impact survey



In an era of uncertainty and labor scarcity, nearly all organizations plan to increase OI-related spending. Most executives appear to view OI as a tool for navigating a new normal of volatility and scarcity. About 91% of all respondents reported that their organizations will increase the budget allocated for OI projects during the next three years; 85% said this included increased funding for OSS/platforms. Among emerging firms, a clear majority (67%) of respondents indicated an increased budget for OI initiatives. The overall takeaway: OI will continue to gain momentum across markets and industries.

Management challenges thwart OI adoption

Today, most executives view innovation as central to a company's strategy and performance—they understand the competitive stakes are higher than ever. But although organizations understand innovation is important, many people do not realize it poses organizational challenges, says NASA's Rader. "Asking people to do something different requires organizational change," he says. "It is also counter to or perpendicular to production—if you are trying to produce something, innovators slow you down and cost you money." For this reason, it can be hard to carve out funding and employees' time to create a better innovation environment.

Organizations surveyed report increased time and managerial costs as the biggest challenge in adoption of open models of innovation. Increased managerial and organizational complexity and outdated technology are also among the top barriers reported by innovation executives.

Table 7. Barriers to OI adoption

Barriers to OI adoption	% respondents
Increased time and managerial costs	28%
Increased managerial and organizational complexity	27%
Reliance on outdated or insufficient technology	25%
Regulatory risks	25%
Conflicting expectations between organization and partners	23%

Source: Economist Impact survey

Other common obstacles to implementing OI include:

A company's innovation absorptive capacity. A firm's absorptive capacity, or the ability to recognize the value of new external information and assimilate and apply it to internal R&D projects, will affect whether a firm will choose a higher degree of openness in innovation.²⁴

Appropriability regime. This involves the efficiency of intellectual property rights as barriers to imitation in a particular industry. Companies evaluate the relevant IP protection regime before deciding to open up their innovation process, and may not feel major change is worth the risk.²⁵

²⁴ Drechsler, W. (2011b, November 14). *Understanding a Firm's Openness Decisions in Innovation*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1959316

²⁵ Drechsler, W. (2011b, November 14). *Understanding a Firm's Openness Decisions in Innovation*. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1959316

Company culture and lack of managerial support. To the extent that an organization's culture and managers do not value and support open innovation value and practices, OI efforts may fail. "The bottom line comes down to production and what managers care about," Rader says.

Organizational structure. Successfully implementing OI practices involves some degree of reorganization to enable a company to access and integrate externally acquired knowledge. Necessary change often includes establishing new roles supporting implementation (eg, champions who lead the process).²⁶ A status quo structure will not sustain new innovation practices.

Salesforce's Coffee stresses that structural change and cultural change are not the same thing. "Many organizations have a department of innovation," he says. "That is not at all the same thing as achieving a culture of innovation. It's remarkably easy to kill the process of open innovation." A careless remark by a manager dismissing an innovative idea might cause someone to avoid offering input in the future. These kinds of moments can have a huge impact on OI's success, Coffee says.

²⁶ Chiaroni, D., Chiesa, V., & Frattini, F. (2011, January 1). *The Open Innovation Journey: How firms dynamically implement the emerging innovation management paradigm*. ScienceDirect. <https://linkinghub.elsevier.com/retrieve/pii/S0166497209001400>

Conclusion: the OI imperative

The 21st century global economy is increasingly defined by technological dynamism and disruption, digital connectivity, human capital and winner-take-most markets. Amid persistent volatility and uncertainty, today's incumbents will continue to be challenged as the pace of change accelerates and the benefits accruing to highly innovative companies grow.²⁷ The covid-19 pandemic has underscored how companies able to quickly innovate and pivot products and services—even entire business models—can seize big opportunities in a crisis.²⁸ The future will surely present further opportunities.

In this context, the core advantage of open innovation is clear: it provides access to more creative minds and better ideas. Mr Joy's observation that the smartest people in the world work somewhere else has long been true.²⁹ The difference today is that, due to global digital networks, the world's smartest people are just a few clicks away. The normalization of remote workers and rapid



27 Massachusetts Institute of Technology. (2003, April 15). *The Era of Open Innovation*. MIT Sloan Management Review. <https://sloanreview.mit.edu/article/the-era-of-open-innovation/>

28 Dandhler, L. (2021, February 2). *Why Now Is the Time for "Open Innovation."* Harvard Business Review. <https://hbr.org/2020/06/why-now-is-the-time-for-open-innovation>

29 Manville, B. (2015b, July 26). *How To Get The Smartest People In The World To Work For You*. Forbes. <https://www.forbes.com/sites/brookmanville/2015/07/24/how-to-get-the-smartest-people-in-the-world-to-work-for-you/>

implementation of open science and open data initiatives during the pandemic,³⁰ as well as the growing ranks of freelance knowledge workers,³¹ will likely contribute to the steady adoption of OI practices detailed in this report.

“The pandemic has accelerated a lot of trends that were already happening, including increasing rates of collaboration with outside partnerships,” says Chiara Spina, an assistant professor of entrepreneurship at INSEAD. “As we overcome the crisis, some of the good things that it brought will be retained. The decreasing costs of communication and the digitalization process will probably increase the visibility of partners and knowledge in other parts of the world.”

These trends may also serve to make sought-after talent more mobile, helping to sustain labor market scarcities many companies grappled with throughout 2021 and into 2022. In the face of these scarcities, adopting OI practices may prove advantageous.

A broader point is clear today, however. Executives understand the high value of their company’s innovation efforts. More than a third (36%) of Economist Impact survey respondents reported that innovation initiatives have been extremely important to the success of their organization’s overall business strategy in the past three years. This number is expected to rise in the next three years; 65% of respondents expect innovation to play a pivotal role in their organization’s overall business strategy during this period.

In this context, there is huge potential value to be obtained via OI practices—if companies put the proper scaffolding and culture in place. OI success does not happen overnight. It requires investments in people and processes, as well as establishing OI-oriented systems for licensing and managing IP, for example.³² As more companies embrace openness, the value of specific OI strategies and approaches and how they interact with unique industry variables (eg, competitive landscape, regulatory and trade environments) will become clearer.

A decade ago, about 10% of companies were using OI skillfully, says Michael Wynblatt, chief technology officer of Donaldson Company Inc. He estimates that number is up to about one-third today at big companies—and will keep rising as a kind of virtuous OI cycle takes hold. “The more people understand open innovation and do it skillfully and succeed,” Wynblatt says, “the more barriers to further success will fall away.”

³⁰ OECD. (2021, June 23). *How will COVID-19 reshape science, technology and innovation?* <https://www.oecd.org/coronavirus/policy-responses/how-will-covid-19-reshape-science-technology-and-innovation-232334d/#section-d1e298>

³¹ Mullen, C. (2021, August 23). *Seeking flexibility, workers leave full-time job for freelancing*. Bizwomen. <https://www.bizjournals.com/bizwomen/news/latest-news/2021/08/workers-freelance.html?page=all>

³² Deloitte. (2014). *Executing an open innovation model: Cooperation is key to competition for biopharmaceutical companies*. <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-open-innovation.pdf>

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