



Research Insights

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Expanding innovation

It takes an ecosystem

IBM Institute for
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By Anthony Lipp,
Anthony Marshall, and
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Key takeaways

Benefits of engagement

High engagement in ecosystems facilitates innovation, lower costs, and higher revenue.

Despite ecosystem benefits, innovation has remained largely internal

Ecosystem advantages have not resulted in organizations pursuing more externally focused innovation in collaboration with partners or customers.

Top organizations see ecosystem innovation as the path to competitiveness

Ecosystems are vital for organizations to broaden their market approach and shift their focus away from simply selling products to selling outcomes and tailored experiences.

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During the COVID-19 pandemic, some businesses have been disrupted more than others. For companies severely hampered, or even crippled, by the pandemic, innovation may have been an early victim as they necessarily focused on the immediate needs of customers and employees. But immediate constraints on innovation need not become permanent. In fact, innovation in its myriad forms has never been more important. Innovation can be an essential vehicle through which organizations can survive immediate setbacks, and a mechanism for recovery and ultimate success.

Innovation: pervasive, distinct, evolving

Innovation has become omnipresent. Individuals, organizations—and even countries—either claim to be innovating already, or are seeking ways to innovate better. There are numerous examples. The 2018 Annual Reports of the top 20 businesses in the Fortune 500 mention the word innovation 165 times.¹ And the 2018 budget papers of the European Union and the United States mention innovation more than 1,100 times.²

Innovation is measured by multiple media organizations and other institutions each year. Yearly surveys of most innovative businesses are produced by *Forbes*, the Boston Consulting Group, the Economist Intelligence Unit, *Fast Company* magazine, to name only a few.³

With such wide exposure and emphasis, it would seem that innovation is well understood. Unfortunately, research by the IBM Institute for Business Value (IBV) over the past 15 years suggests that this is anything but the case. Not only do individuals, organizations, and nations have wildly differing perspectives of what innovation is, they struggle to keep track of how innovation is changing as economies, industries, and business models evolve.

Among the ways that innovation is changing is how and where business is conducted. Competitors are now collaborating in ways unthinkable in the past. For example, Apple and Samsung have entered into a partnership where Apple will offer iTunes movies and TV shows on Samsung's smart TVs.⁴

To innovate at scale and speed, organizations also create new and, at times, unexpected ecosystems. For example, Jaguar is collaborating with Waymo (a self-driving technology development company and a subsidiary of Alphabet Inc.) to create premium self-driving cars.⁵ And Amazon, Berkshire Hathaway, and JP Morgan are partnering to create a healthcare company to offer cost-effective healthcare services to their collective employees.⁶



46%

of executives in the recent IBM Institute for Business Value Innovation in Ecosystem survey said their organizations derive more than 10% of revenue from innovation activities. That 46% is expected to grow to 75% by 2021.



Businesses with high engagement in ecosystems report

15% greater

contribution to revenue from innovation than businesses with low-to-moderate ecosystem engagement.



However,

only 24%

of executives across all organizations said they use partners outside the organization as an innovation channel.

Overall, as many as 90 percent of C-suite executives tell us that ecosystems are impacting their organizations' focus or key activities—and half say that the resulting impact on their organizations will be high.⁷ Almost 60 percent of chief executives surveyed say that industry changes are necessitating major shifts in strategies.⁸

Innovation all around

IBV data shows that business and government leaders consistently remain committed to investing in, and driving revenue from, innovation—whatever its source.

In our most recent survey of 1,000 global C-suite executives, almost half of them—46 percent—say their organizations derive more than 10 percent of revenue from innovation. That is more than double the number from 2015. The 46 percent is expected to climb to almost three quarters by 2021.⁹ Further, in terms of investments, the proportion of organizations investing more than 10 percent of capital expenditure in innovation-related activities is expected to grow from 26 percent in 2015 to more than 60 percent by 2021. Similar growth is also predicted for share of innovation in operating expenditure.¹⁰

Clearly, innovation is becoming more important to business. But despite a clear common commitment to innovation in principle, the ways that businesses approach innovation continues to diverge.

This dichotomy was brought out clearly in the 2014 IBV study, “More than magic: How the most successful organizations innovate.”¹¹ In that study, which was also based on a survey of 1,000 C-suite executives, the structures and behaviors that executives embraced in pursuit of innovation were divergent. To distinguish those innovation characteristics most strongly related to business value, the 2014 study identified a group of organizations that were especially high performing in revenue growth and profitability. The report examined how that select group, which comprised only 6 percent of the overall sample, conducted innovation differently.

Leaders of the most successful businesses were much more likely than others to provide clear direction about the objectives and expected outcomes of innovation.

Reflections of “More than Magic”

Nine innovation characteristics were identified across three distinct areas: innovation organization, innovation process, and innovation culture.

Organizing attributes that distinguished high-performing organizations from others included a commitment to align objectives of innovation programs directly to strategic objectives of the business. High performers also embraced open—as opposed to inward-looking—innovation, and they established dedicated innovation teams within their organizations.

High-performing organizations encouraged new ideas about processes from a wide variety of sources, ranging from channel partners, to employees, to exploratory analysis of structured and unstructured data. The outperforming group also adopted a disciplined approach to funding innovation. They created separate and distinct funding allocations, clear rules about go/no-go project decisions, and explicit process review and gating procedures. Clear innovation performance metrics focused on objective measures such as expected return on investment (ROI) and time to break even.

Regarding culture, leaders of the most successful businesses were much more likely than others to provide clear direction about the objectives and expected outcomes of innovation. They provided specific incentives for employees to engage in innovative activities and did not penalize individuals who might be associated with a project failure. And they sought to orient their businesses around innovation by embracing organizational agility and promoting transparency and trust.

Trading places

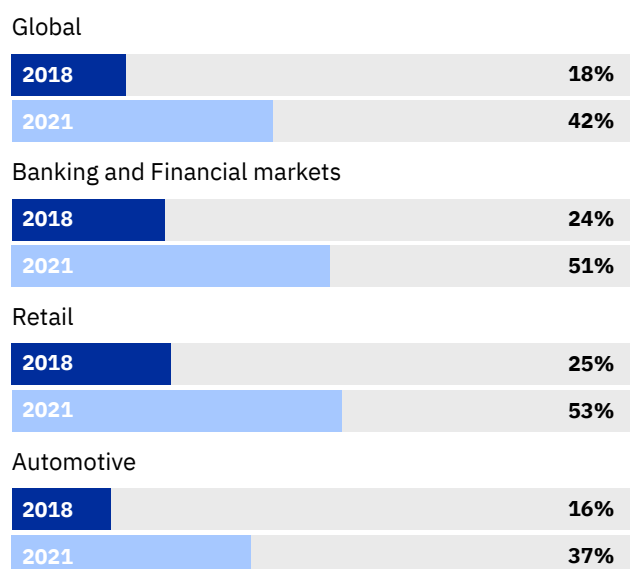
The nature of business has changed dramatically over the past five years. Industries such as banking, automotive, and retail are converging in unprecedented ways and rates. Customers who accessed different product or service categories through distinct channels are now being engaged in new, more holistic ways. Customers are engaging in healthcare discussions through telephony businesses, technology companies, or even banks.

Retailers are orchestrating payment systems. Social media businesses are establishing new forms of currency. Who knows what changes we will see from innovation in the post-pandemic world?

Traditional enterprise constructs are breaking down as businesses increasingly develop porous and dynamic economic ecosystems through which they connect with customers. As many as half of the executives we surveyed indicate their organizations are orchestrating or participating in platform business models, which create value by enabling on-demand exchange between those who have a resource and those who need it. Organizations across virtually every industry are competing to have a primary relationship with customers, positioning themselves to not only provide their own products, but as curators of customer experience, which can also be an entry point for other businesses seeking access to customers (see Figure 1).

Figure 1

Percentage of CEOs who say most competition in the future will come from outside their traditional industries



Source: 2020 IBM—IBV CEO Study

Our analysis revealed that organizations with high engagement in these ecosystems generate greater revenues from innovation initiatives. Specifically, revenues tied to innovation were more than 14 percent higher for ecosystem-engaged businesses than their less ecosystem-oriented peers.¹²

At the same time, organizations innovating in ecosystems seem to innovate more efficiently and have comparatively lower operational expenditures.¹³ For every percentage point increase in operating expense allocated to innovation, ecosystem-oriented organizations realize a 1.4 percentage point increase in revenues.¹⁴

Platforms for value capture

Over the past several years, platform-centric businesses have become more valuable, and often more innovative, than others. Four of the five largest companies globally are now platform-centric companies, as are seven of the ten most innovative companies (see Figure 2).¹⁵

Figure 2

The top five companies by market capitalization and the top ten companies from BCG’s most innovative companies list primarily pursuing a platform business model

Five largest global companies by market capitalization (January 2020)

Saudi Aramco	\$6,920 billion
★ Apple	\$1,397 billion
★ Microsoft	\$1,275 billion
★ Alphabet	\$1,021 billion
★ Amazon	\$924 billion

Ten most innovative companies (BCG, 2019)

★ 1. Alphabet	★ 6. Netflix
★ 2. Amazon	★ 7. IBM
★ 3. Apple	★ 8. Facebook
★ 4. Microsoft	9. Tesla
5. Samsung	10. Adidas

★ Platform business

Source: Boston Consulting Group.

Platforms typically involve ecosystems and are rapidly expanding beyond the digital industries highlighted in Figure 2. This expansion now includes even traditionally analog or paper-based industries, such as land or sea transportation, or even industrial and building products.¹⁶ Implications of these changes are huge, and are already being borne out by recent changes in composition of the Fortune top 20, where 25 percent of companies listed in 2019 were not present in 2015.¹⁷

Uncertainty + complexity = innovation necessity

As highlighted in the IBV’s recent global competitiveness study, “Agility, skills and cybersecurity: Three keys to competitiveness in an era of economic uncertainty,” dramatic advances in technology and disruption of industries has coincided with growing and systemic global uncertainty. With COVID-19, uncertainty has skyrocketed. The World Uncertainty Index, conducted by the Economic Policy Uncertainty Group, has a new subset—The World Pandemic Uncertainty Index. As of the end of March 2020, the uncertainty created by COVID-19 “is three times the size of the uncertainty during the 2002–03 severe acute respiratory syndrome (SARS) epidemic and about 20 times the size during the Ebola outbreak.”¹⁸

The result has been that executives are finding themselves navigating their organizations through ever-more-complex business environments. Indeed, we find that more than 60 percent of the executives we surveyed expect their organizations to become extremely complex within three years. Examples around the world and across industry abound.¹⁹

Organizations need to tap into the collective ingenuity of ecosystems for entering new markets and offering new experiences.

In the case of self-driving cars, fewer organizations are finding it possible to successfully pursue innovation on their own. Partnering among traditional car manufacturers, auto parts manufacturers, electronics manufacturers, and software technology firms has proved essential. Chipmaker Nvidia is working with eight automakers, along with Bosch (an auto parts manufacturer) and Baidu (a technology company), to build embeddable computers for self-driving cars.²⁰

Organizations increasingly need to tap into the collective ingenuity for entering new markets and offering new experiences. For example, Starbucks partnered with Alibaba to boost its digital and physical presence in China. Starbucks leverages Alibaba's ecosystem, including delivery platform Ele.me and supermarket chain Hema, to expand delivery services throughout China.²¹

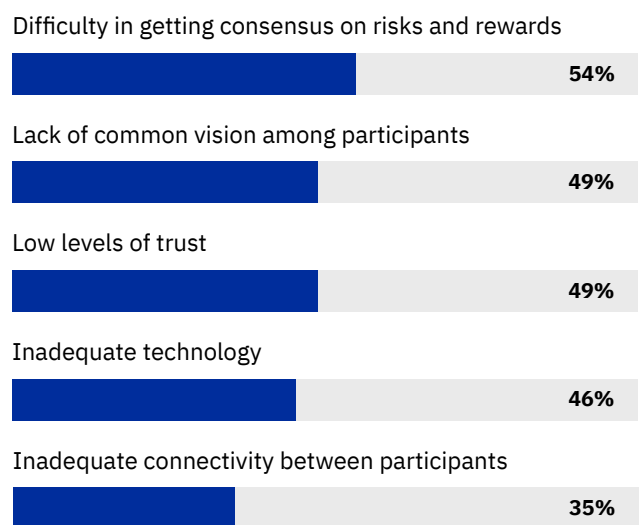
On top of that, companies often must compete with the very partners that they need to collaborate with for innovation. Competing rival automotive manufacturers BMW and Mercedes are joining forces on key components, including vehicle platforms and electric-car batteries, to fight rising costs and counter the technology giants that promote alternatives to vehicle ownership.²²

Operating and innovating in ecosystem environments across multiple partners and environments is inevitably more difficult than traditional business environments in which organizations were largely able to go it alone. Business challenges associated with ecosystems reflect the dichotomous objectives and priorities of a multi-party environment. Strategy divergence tops the list, higher than both technological challenges and issues with ecosystem connectivity (see Figure 3).

Despite the fact that ecosystem-based innovation leads to better performance, it can be difficult. That may lead some executives to guide their organizations away from the ecosystems evolving around them, so that they can keep doing the same things in the same ways—including their more traditional approaches to innovation.

Figure 3

Top challenges business leaders identify from operating in ecosystems



Source: 2019 IBM-IBV Innovation in Ecosystem Survey.

When executives were asked to identify how their organizations source new ideas, almost 70 percent told us that ideas principally come from internal innovation teams. And 63 percent said ideas are principally generated by internal line-of-business leaders. It is little wonder that much of what many organizations try to pass off as innovation is actually business as usual. Only a third say they source new ideas from partner organizations. And as few as 13 percent say they obtain new ideas from their customers—even lower than the 16 percent who give the generic answer of “employees.”²³

Only 10 percent of organizations indicate customers are part of their innovation channels. And only 7 percent of executives say they believe their organizations have built and maintain a corporate culture that supports collaboration with partners or customers.²⁴ In an environment of rapidly evolving ecosystems and platforms, those numbers are truly startling.

Learning from the best

Several analytical approaches were used to gain a deeper sense of which specific drivers motivate innovation success across ecosystems, and what the impact is on financial return. Careful analysis revealed that, among executives surveyed, there was no single practice, process, or activity able to independently predict overall business success. Rather, we found that groups of several practices around areas—including motivations or goals of innovation, types of partnering, and the specific ways innovation is executed—were correlated. Only together (not separately) do these groups explain both success in innovation and success in business.

Starting with four groups, which were regressed against business performance, we found that two groups of factors significantly improved business success independent of any other variables.

Cluster analysis was undertaken using the two significant factors, with four clusters revealed.

1. Ecosystem observers comprised 23 percent of the total sample. Ecosystem observers are typically inward looking with a low level of partnering. Their business focus is primarily on improving internal efficiency. They tend to be effective in measuring returns from internal innovation.

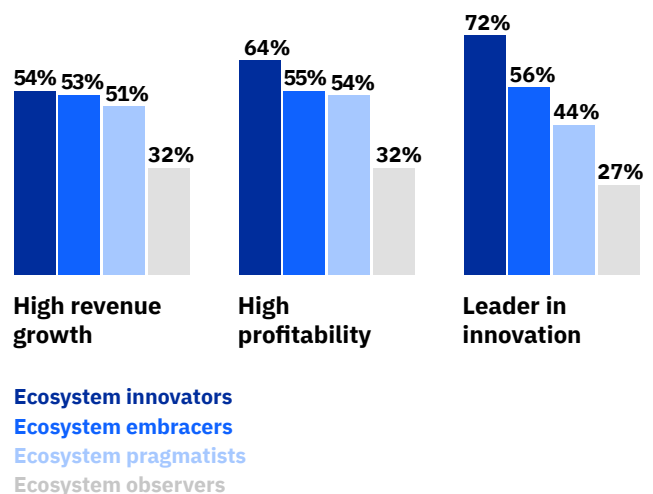
2. Ecosystem pragmatists made up 24 percent of the sample. Like ecosystem observers, ecosystem pragmatists are also inwardly focused with a low level of partnering. Ecosystem pragmatists tend to differentiate themselves by building innovative products and services. And they experiment with new technologies.

3. Ecosystem embracers accounted for 27 percent of the sample. Ecosystem embracers tend to develop ecosystem strategies. They are more likely to engage in partnering, but only within their industry boundaries. And they already possess the required capability to effectively conduct and measure innovation internally.

4. Ecosystem innovators comprised 27 percent of the total sample. Ecosystem innovators have well-developed ecosystem strategies. They partner within and outside their own industries. And they possess the required capabilities to conduct and measure innovation in ecosystems. Ecosystem innovators outperform the other three groups financially and lead in innovation (see Figure 4).

Exhibit 4

Innovators outperform financially and lead in innovation



Source: 2019 IBM-IBV Innovation in Ecosystem Survey.

Ecosystem innovators strategically embrace platforms and platform ownership at a much higher level than others.

Ecosystem innovators do things differently

Ecosystem innovators differ from the other three clusters across four innovation dimensions. They build platforms and employ ecosystems to better orchestrate customer experiences. They establish processes to effectively measure innovation within the ecosystems in which they operate. They form organizational structures that institutionalize innovation. And they create and promote environments of openness and collaboration (see Figure 5).

Platform innovation

Platforms are an integral part of business ecosystems and enable frictionless interactions between economic agents. Ecosystem innovators strategically embrace platforms and platform ownership at a much higher level than others. An overwhelming majority—79 percent of ecosystem innovators—engage in innovation within platforms, while 56 percent of ecosystem innovators are platform providers, placing themselves at the epicenter of business ecosystems.

Figure 5

Specific attributes underpin each innovation enabling dimension

	Ecosystem innovators	Ecosystem embracers	Ecosystem pragmatists	Ecosystem observers
Build innovation platforms				
Extent organization engages in innovation within platforms	79%	66%	49%	41%
Invite customers and partners to operate on the created platform	59%	45%	36%	35%
Play the role of a platform provider in the ecosystem	56%	48%	43%	42%
Orchestrate experiences through the ecosystem	69%	51%	10%	10%
Create innovation structures				
Leverage ecosystem to source new ideas	60%	50%	9%	8%
Leverage ecosystem for specialized experiences	61%	55%	7%	2%
Employ R&D labs for innovation	72%	46%	17%	48%
Innovation happens in designated teams	42%	25%	38%	28%
Innovation happens in specialized teams	38%	23%	8%	32%
Define innovation processes				
Measure number of people involved in innovation activities	43%	25%	8%	10%
Measure velocity of innovation	54%	27%	7%	25%
Number of successful projects in a year	57%	44%	23%	50%
Open innovation cultures				
Engage in open innovation	28%	15%	2%	2%
Collaborate with customers	30%	9%	3%	9%
Encourage all employees to innovate	43%	36%	22%	19%
Equitably share rewards with partners	60%	35%	40%	42%
Equitably share risks with partners	57%	34%	41%	38%

Source: 2019 IBM-IBV Innovation in Ecosystem Survey.

TradeLens: Innovation at sea

TradeLens is a global container logistics digitization platform, originally developed by A.P. Moller-Maersk, which is now being used by five major ocean carriers. It is a blockchain solution for the shipping ecosystem, empowering multiple trading partners to collaborate and establish a single, shared view of a transaction without compromising privacy or confidentiality.

TradeLens traces 12 million documents annually, accounting for data on more than 60 percent of the world's ocean container cargo. The platform promotes more efficient and secure global trade and spurs industry-wide innovation.²⁵

Galleries Lafayette: Transforming the inside from the outside

Galleries Lafayette, an upscale French department store chain, created a start-up accelerator with an aim to disrupt its traditional brick-and-mortar business. In the accelerator, several start-ups have begun working together to create digital solutions that enhance the retail experience.²⁶

Platforms promote a deeper sense of shared vision and innovation by creating a common environment for collaboration. Thus, 59 percent of ecosystem innovators invite customers and partners to innovate on the platforms created by them, which is at least 30 percent more than any of the other groups.

Sixty-nine percent of ecosystem innovators orchestrate experiences through the ecosystem. As experience orchestrators, they are able to execute a variety of differentiated and unique functions enabled by their ability to combine innovative characteristics across multiple partner organizations. In fact, ecosystem innovators are 35 percent more likely to orchestrate experiences in ecosystems compared to ecosystem embracers and almost seven times more likely than ecosystem pragmatists and ecosystem observers.

Structure innovation

Ecosystems are vital for organizations to broaden their market approach and shift their focus away from simply selling products to selling outcomes and tailored experiences. Ecosystem innovators excel in establishing mechanisms to source new ideas from ecosystem partners and executing on them to creating specialized experiences.

When asked if they leverage their ecosystem to source new ideas, 60 percent of ecosystem innovators said they do. That is 20 percent more than ecosystem embracers and at least six times more than the other two clusters. And, on average, the gap between ecosystem innovators and others in leveraging ecosystems to gain specialized experiences is even greater.

In addition, ecosystem innovators support their innovation activities with ecosystem partners that have made solid internal investments and organization structures. They are at least 47 percent more likely than any other group to employ R&D labs for innovation, at least 11 percent more likely to create designated innovation teams, and 18 percent more likely to create specialized innovation teams compared to any of the other groups.

By promoting accountability and transparency through effectively measuring innovation, ecosystem innovators are better able to justify the continued funding of innovation across the ecosystem.

Process innovation

Ecosystem innovators hold innovation initiatives accountable to clear financial and operational objectives. They set up processes and mechanisms around the right metrics to track effectiveness of innovation activities conducted both internally and in collaboration with ecosystem partners.

They also develop a clearer understanding of the number of their employees undertaking innovation activities. To evaluate the success of their innovation activities, they are more likely to measure the velocity of innovation—the time between idea generation to end-consumer product and the number of successful innovation projects executed in a year.

By promoting accountability and transparency through effectively measuring innovation, ecosystem innovators are better able to justify the continued funding of innovation across the ecosystem. As such, they would be well-positioned to secure stable investment, both internally and from their partners, thereby reducing the vagaries of quarterly or annual budgeting volatility.

Culture innovation

More than any other group, ecosystem innovators foster a culture of openness, collaboration, and participation. They are most likely to engage in open innovation compared to any other group, and they engage in customer collaboration for innovation at least three times as often as the others. Also, compared to others, ecosystem innovators are at least 19 percent more likely to actively encourage innovation by all employees through specific incentives and rewards.

Ecosystem innovators are also much more likely to reinforce the culture of a single team having a single focus across the ecosystem. While less than half of all the other groups say they equitably share risks and rewards with their partners for successful collaboration on innovation, 60 percent of ecosystem innovators commit to equitably sharing rewards with their partners and an almost the same number—57 percent—share the risks for such a collaboration.

3M: Outcome-driven innovation

3M is recognized to be one of the world's most innovative companies. Every year, it churns out approximately 400 new products and more than 500 new US patents. It achieves this diversity by promoting outcome-driven innovation that is not too specific. For example, one of its goals is to generate 35 percent of sales from products that are less than four years old, as well as 10 percent of sales from products that have been around for only a year. This sets a high target for the pace of innovation.²⁷

Haier: Innovating with customers and employees

At Haier, an appliance company, the CEO's ambition was to be so responsive to customers that the company would be more than just a leading innovator—it would be an industry disruptor and not be disrupted itself. The business designed fully independent, cross-functional teams that work directly with customers, generating ideas with them, and being accountable to them. The autonomous teams have profit and loss responsibility. Line management's sole responsibility is to get them the resources they need to be successful. Employees compete to join or form teams by submitting innovative ideas.²⁸

Summary of key findings

This IBV Research Insights report concludes that some organizations are more successful than others in ecosystem innovation. They are differentiated on four innovation-enabling dimensions:

- They lead with platforms for innovating in ecosystems
- They create the structures that enable the transformation of ideas into desired customer experiences in ecosystems
- They establish effective, meaningful measurements for successful innovation in ecosystems
- They approach innovation with a collaborative mindset and create an environment that shapes innovative behavior.

Action guide

Ecosystem innovation

Pick a platform.

Or create one. Going it alone may have been the secret of your success, but those days likely are over. Even before the pandemic, empowering a broad ecosystem to develop and launch solutions was the way to stay ahead of the competition and avoid being outflanked or outnumbered. Now it is even more essential.

Find a void in the marketplace. Then define the exact value proposition of the platform and ecosystem to fill that void. Be clear to yourself and your customers about your role in the ecosystem. Are you a platform provider or a platform participant? Build a specific strategy to address the role you choose.

In designing the platform and ecosystem for innovation, stay laser-focused on the needs of customers. Invite customers to be part of the innovation ecosystem as early in the process as reasonable.

Connect with multiple and unfamiliar partners and encourage them to work directly with one another to help reinforce the strength of the ecosystem. Build trust—perhaps by asking a regulator to join. That reinforces the image of a trustworthy ecosystem. Continue building scale by attracting or joining with additional partners.

Structure matters.

Structure plays an important role as you design, implement, and manage innovation networks. To create an innovation network, start by combining internal and ecosystem resources with different approaches to innovation. Make sure there is an appropriate mix of skills, performance, and experiences. Define the structure of the innovation network by including sub-networks devoted to specific objectives.

Define the role of innovation networks in meeting both organization-level and ecosystem-level goals. Set clear expectations, define targets for success, and establish timeframe requirements.

Select sponsorship and leadership for the innovation network. Determine the technology support and other additional support required. Also, define the key knowledge, information, and data required by internal and external participants.

Almost everyone hates processes and governance.

At least they try to resist them. It doesn't matter, deploy them anyway. Processes and governance are the link between the output and actual innovative efforts.

Innovation projects should be aligned with corporate financial objectives. Create a portfolio approach for innovation projects. Make sure high-risk, high-return initiatives are managed and evaluated differently than incremental, low-risk projects.

Outcomes of innovation projects need to be measured at both the ecosystem and the organization level. Measurements around speed and scale are more relevant at ecosystem level. Financial metrics are critical at the organization level.

Depending upon the maturity of the organization and the ecosystem, agree on key performance indicators. Undertake frequent reviews and continuously share feedback with ecosystem partners to maintain trust and communication.

Grow an ecosystem culture. Prioritize and promote corporate cultures that value openness, flexibility, and trust. Foster a learning organization where people are encouraged to share ideas and knowledge freely.

Employees can be the best culture ambassadors.

Help them develop digital skills and literacy so they can confidently network externally. Build or buy a portfolio of digital tools and frameworks to help employees absorb and share learning within the organization.

Agile and flexible partnering arrangements will help the ecosystem respond quickly to changing market conditions. Establish agile, cross-functional teams within the organization to complement the flexible partnering arrangements. Resist the urge to overemphasize internal organization structures and processes to manage the ecosystem.

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Methodology

The IBM Institute for Business Value in collaboration with Oxford Economics surveyed 1,000 executives in 19 industries and 29 countries between 2018 and 2019. We surveyed 250 Chief Executive Officers, 150 Chief Financial Officers, 150 Chief Innovation Officers, 150 Chief Marketing Officers, 150 Chief Operations Officer, 150 Chief Alliance/Partnership Officers. To understand the different ways in which the most successful organizations approach innovation in ecosystems, we built a cluster analysis that revealed four distinct archetypes and how the most successful innovators in ecosystems differ from others.

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