

How digital business ecosystems drive efficiency and innovation in a new era



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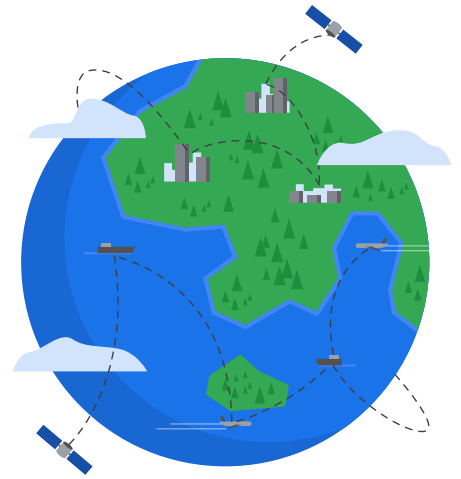
Introduction

Productivity, efficiency, and cost control—always core goals for CIOs—have become even more critical as organizations navigate the current economic uncertainty.

CIOs face unprecedented pressure to meet competing needs, operating under both time and funding constraints. They must lead the IT function to develop and improve products and services even as budgets tighten; shift operations to respond to market demands in real time while minimizing risk; increase industry partnerships without giving competitors an edge; and maintain business as usual despite rapidly evolving threats. How well they rise to this challenge will matter to more than just the next earnings statement—it could determine the company's future in the new era.

Digital business ecosystems will play a major role in helping executives balance these needs while also positioning organizations for future growth. Oxford Economics worked with Google Cloud to survey 1,000 CIOs around the world and in seven industries about the ways they partner with other organizations to meet business goals—and about the technologies they rely on to make those partnerships productive and valuable.

Our survey data was collected in January and February 2020, largely before the uncertainty that has followed. Even then, the CIOs in our survey saw their complex, deepening networks of partners and suppliers as critical to everything from efficiency to customer satisfaction and growth. Now normal operations have been disrupted with astonishing speed, and weathering the storm will require organizations to effectively control, secure, and leverage their partnerships. The results of this research illuminate the tactics CIOs must use to survive and thrive in the new era.



Digital business ecosystems encompass working relationships facilitated by modern, cloud-first digital technologies, such as APIs.

What is a digital business ecosystem?

Digital business ecosystems encompass working relationships facilitated by modern, cloud-first digital technologies. Application programming interfaces (APIs)—the mechanisms that let software talk to other software and enable developers to modularly recompose data and functionality for new uses—are at the center of this process.

- APIs are the means of exchanging data, functionality, and value across the digital ecosystem in the modern economy.
- API management platforms are used to control, secure, analyze, and leverage these API exchanges to achieve growth, accelerate innovation, and develop new business models.

Digital business ecosystems can be made up entirely of internal parties (such as various functions within an organization) or can expand to include external

individuals and organizations (such as suppliers, third-party providers, customers, developers, regulators, or even competitors). These partnerships might include retailers allowing developers to build apps and services that support an omnichannel experience, healthcare organizations sharing research, or logistics companies making location and shipping applications available to others across the supply chain.

Such networks recall the complex interrelationships of natural ecosystems: they are meant to be adaptive, sustainable, and mutually beneficial to all parties involved. However, while species cannot consciously evolve in natural ecosystems, participants in digital business ecosystems have significant agency to manage, compose, and refine their interactions with other parties, allowing them to respond to changing external conditions and support business value.

The survey results tell a clear story: business relationships are growing stronger, more diverse, and increasingly widespread as companies work across internal, partner, industry, and public-sector ecosystems. These business relationships are aimed at both increasing the efficiency of daily operations and pursuing more strategic goals—everything from automating processes and improving employee productivity to providing market intelligence, each of which in turn can support business growth by distributing innovation efforts across a broader network. Yet our research shows that even as business relationships deepen and become more integrated, many CIOs are not yet participating in true digital business ecosystems, which use advanced technologies and processes to share and analyze data, collaborate with developers, measure performance, and support growth.

One group of survey respondents—we call them Digital Business Ecosystem Leaders—is ahead of their peers in creating strong, innovation-focused business partnerships. These organizations are defined by their connected, collaborative relationships with key business partners, and their strategies are paying off. They are more likely to report a flexible and adaptable supply chain (70% of Leaders are highly effective in this area; only 40% of others rate themselves as highly effective), a strong understanding of market conditions (39% vs. 20%), and stronger customer relationships (50% vs. 40%)—traits that should support both the ability to respond to operational disruptions in real time and long-term cost efficiency and growth.

The fast-evolving business landscape presents meaningful and even existential challenges to organizations around the world and across industries. As businesses look for ways to thrive in the new normal, CIOs need to refocus partnerships to ensure business continuity, meet changing customer needs in real time, maximize efficiency, remain competitive, and address big-picture problems. This report considers some ways CIOs are fostering business relationships that support innovation and resilience, today and in the years ahead.

Developing business partnerships to power innovation

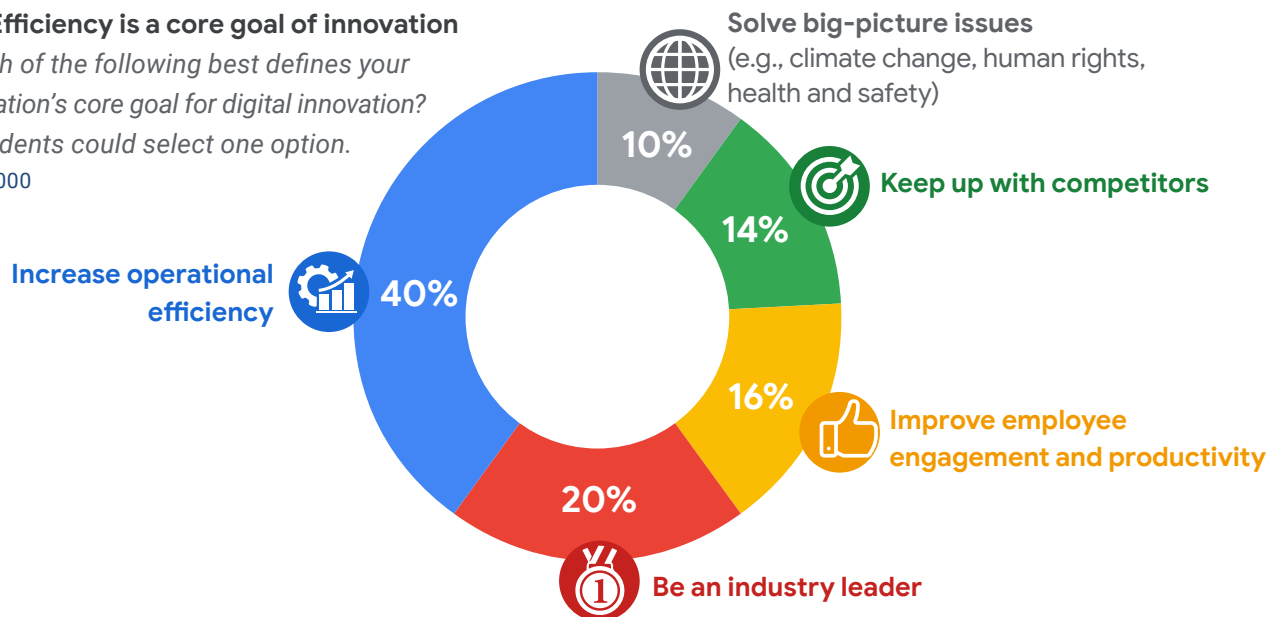
Successful digital business ecosystems support innovation at scale not just by facilitating rapid data-sharing, but by allowing external partners and customers to develop applications and ideas on an enterprise's behalf. Think of manufacturers shifting operations to meet current demands of the healthcare industry, or individual developers building apps and data trackers that allow organizations to adjust their operational strategies in real time. For the one-fifth of survey respondents using APIs at scale, this may be an easier feat: accessing a broader network of partners and developers—each with their own technology infrastructure and resources to leverage—tends to increase the speed, usefulness, and diversity of innovation projects.

Ultimately, the CIOs in our survey expect this innovation to drive more than just the creation of new products and services. It is also meant to support core business needs like efficiency, resilience, and business continuity. In fact, CIOs in our survey are most likely to cite increasing operational efficiency as their primary goal for innovation (40%), well ahead of other ambitions, like becoming an industry leader (20%), improving employee engagement (16%), keeping up with competitors (14%), and solving big-picture issues (10%). (This may be due in part to the fact that there is an order of operations to digital transformation, with efficiency and productivity often the primary goals.)

Fig. 1: Efficiency is a core goal of innovation

Q: Which of the following best defines your organization's core goal for digital innovation?
Respondents could select one option.

Base = 1,000



Partnerships, already critical to driving efficiency, may become even more important as organizations think creatively to navigate an environment marked by supply chain, workforce, and other operational disruptions. Roughly half of CIOs report an uptick in the number of their close working relationships over the past three years, and nearly two-thirds (63%) expect the number to increase over the next three years; relationships with technology providers, partners and suppliers, customers, developers, and industry peers all have seen substantial growth.

The nature of business relationships is changing, too. They are becoming deeper as transactional interactions mature into ongoing, strategic partnerships designed to be mutually beneficial—which should ultimately support the development of true digital business ecosystems. Ticketmaster Entertainment Inc., the California-based ticket sales and distribution giant, provides its wide range of media, entertainment, and retail partners with access to the company’s platform, ultimately generating more demand and boosting sales.¹ Similarly, manufacturers can work with logistics providers or retailers to track shipments in real time, allowing them to mitigate potential disruptions and quickly respond to customer demands; health insurers can use medical data from multiple sources to better understand patient behaviors and risks.

CIOs in our sample expect business relationships to become even closer over the coming years. While 19% of CIOs say their business partnerships three years ago were only transactional (meaning they did not share information or collaborate beyond what was required), just 9% say the same is true today—and almost none expect their business relationships to remain at this surface level in three years’ time.

Fig. 2: Business relationships are on the rise

Q: How has the number of your organization’s close working relationships changed over the past three years? How do you expect this number to change over the next three years?

Base = 1,000



¹ <https://cloud.google.com/blog/products/api-management/understanding-digital-transformation-two-key-principles>

Stronger partnerships lead to enhanced innovation, which may in turn be critical to efficiency and resilience. Over half (52%) of CIOs who describe their relationships as integrated (the highest state on our scale) today say their business relationships greatly enhance innovation, while CIOs with more basic relationships are much less likely to see this boost to innovation (see Fig. 3). And those integrated relationships should, if functioning correctly, be mutually beneficial for all involved.

Fig. 3: Integrated relationships support innovation

Q: In general, to what extent do your external business relationships enhance digital innovation at your organization?

"To a great extent" responses (shown by the reported nature of relationships with key business partners)

Base = 1,000



Companies across industries report increases in the number of close working business relationships, with banking respondents in our sample somewhat more likely than those in other industries to report a slight or substantial increase (58%). This could be due to a need to integrate with other platforms to meet consumer demands for convenience and speed, or to comply with regulations like the EU's Payment Services Directive, which mandates tighter security for transactions and increased partnerships between banks and third-party payment-services providers. The way sectors focus on partnerships does vary, with some further ahead of others in integrating with developers and using APIs. These differences across industries may evolve as their needs change in response to operational disruptions and economic uncertainty.

The technology imperative

The ability to share data and ideas in real time, collaborate virtually, and move quickly to meet changing business goals is more important than ever. The consequences of falling behind or losing out on valuable idea-sharing could be dire for businesses, hindering both short-term problem-solving and long-term growth.

Digital tools and processes are integral to these efforts, with APIs perhaps most critical of all. CIOs in our survey rank APIs as critical to their business ecosystems, with 51% citing them as important or very important to making their partnerships and ecosystems productive and valuable. Over half say APIs are important to their organization's relationships with developers (55%) and customers (51%). When combined with AI or machine learning, API-enabled digital business ecosystems are expected to power data collection (53%), automation (51%), and process efficiency (49%), among other objectives—all of which can support business continuity and adaptability in an uncertain era.

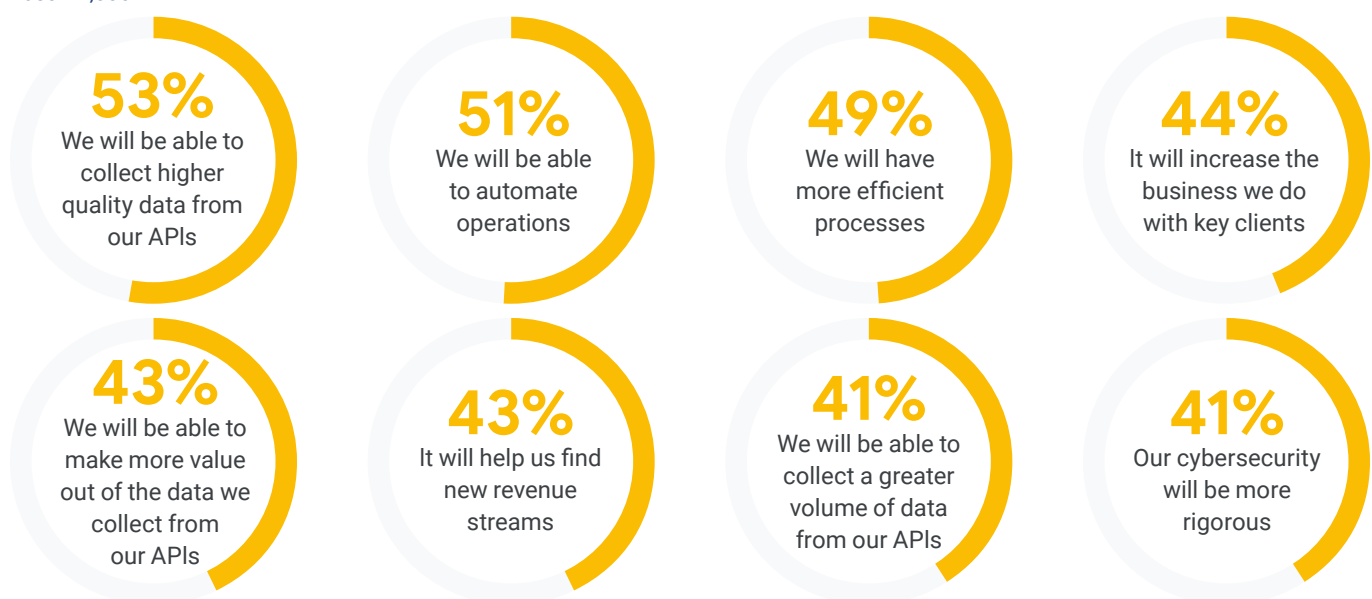
APIs are seen as more critical to successful business partnerships than any other factor we asked about. Over half of CIOs say APIs are important to relationships with developers (55%) and customers (51%).

Fig. 4: AI is expected to boost API ecosystems

Q: How do you expect AI/machine learning to influence the execution of API ecosystem strategies?

"Meaningful influence" and "transformative influence" responses

Base = 1,000



The use of APIs has been linked to stronger revenue growth, higher profitability, and better performance at a lower cost, as they reduce barriers to innovation for a wider network of individuals and organizations. Even in 2016, a study from Boston University researchers suggested that the use of APIs increased annual net income by \$250,000 or more.²

It is perhaps unsurprising, then, that many respondents in our sample who have adopted APIs are ahead of their peers who have not, in several key areas. Nearly one-quarter (22%) say they are well ahead of competitors in terms of digital innovation, compared with 2% of those who have not adopted APIs. CIOs from companies that have adopted APIs also are more likely to describe their relationships with key partners as collaborative or integrated—and to say their relationships drive goals like agility (42% vs. 19%), market intelligence (48% vs. 25%), ability to automate operations (53% vs. 26%), and employee productivity (49% vs. 33%).

Yet API strategies still have some maturing to do. Despite citing APIs as critical to their business partnerships, fewer than one-quarter have a central management platform in place, and a full 28% use APIs but have no system for managing them. This means that many do not have the infrastructure needed to effectively distribute, control, secure, monitor, analyze, or monetize the performance of their APIs. Beyond the potential impact on efficiency and revenue, these weak points in control and security could put ecosystem partners at risk of exposing valuable data or failing to comply with critical regulations.

Digital Business Ecosystem Leaders are more likely than others to have API gateways (63% Leaders vs. 35% others) or centralized platforms (34% Leaders vs. 22% others) in place—and the vast majority expect to have central management platforms in place within three years (82% Leaders vs. 41% others). That may help explain why they are ahead in other areas as well, such as data-sharing (56% of Leaders rate themselves “highly effective” in this area vs. 35% of others).

Some industries are further ahead in adopting APIs and API management platforms. Telecommunications (26%) and Media & Entertainment (29%)—two of the industries in our survey that tend to have the strongest partnerships—are more likely than other sectors to say APIs are in use at scale. The same industries are more likely to say APIs are important to their relationships with developers, which could be a cause or an effect of their higher investment levels. Despite uneven progress in adopting APIs and API management platforms, leaders across industries expect these tools to be a focus in the coming years.

2 <https://www.cio.com/article/3138511/how-api-adoption-can-boosts-annual-profits.html>

Building better digital ecosystems

Turning regular business partnerships into digital business ecosystems takes more than technology. Organizations must adjust processes to fit the new digital business environment, and help employees learn to work in unfamiliar ways or through new budget and time challenges. For example, CIOs may need to promote transparency and collaboration by modeling those behaviors themselves, providing incentives, or adjusting ways of working.

Many of the CIOs we surveyed say their organization has a well-developed approach to business partnerships—44% describe their working relationships as collaborative, regularly sharing data to create products and services and sharing substantial resources and information as needed. However, respondents' reported enterprise-wide behaviors suggest that more could be done to adjust processes. For example, fewer than one-third have increased transparency for partners (31%) or shared data with partners (27%) to support innovation, and just 26% have integrated design thinking to make technology more accessible across the organization.

Fig. 5: Process improvements are needed

Q: Which of the following steps have you taken to update your organization's workflows to support digital innovation?

Respondents could select all that apply.

Base = 1,000



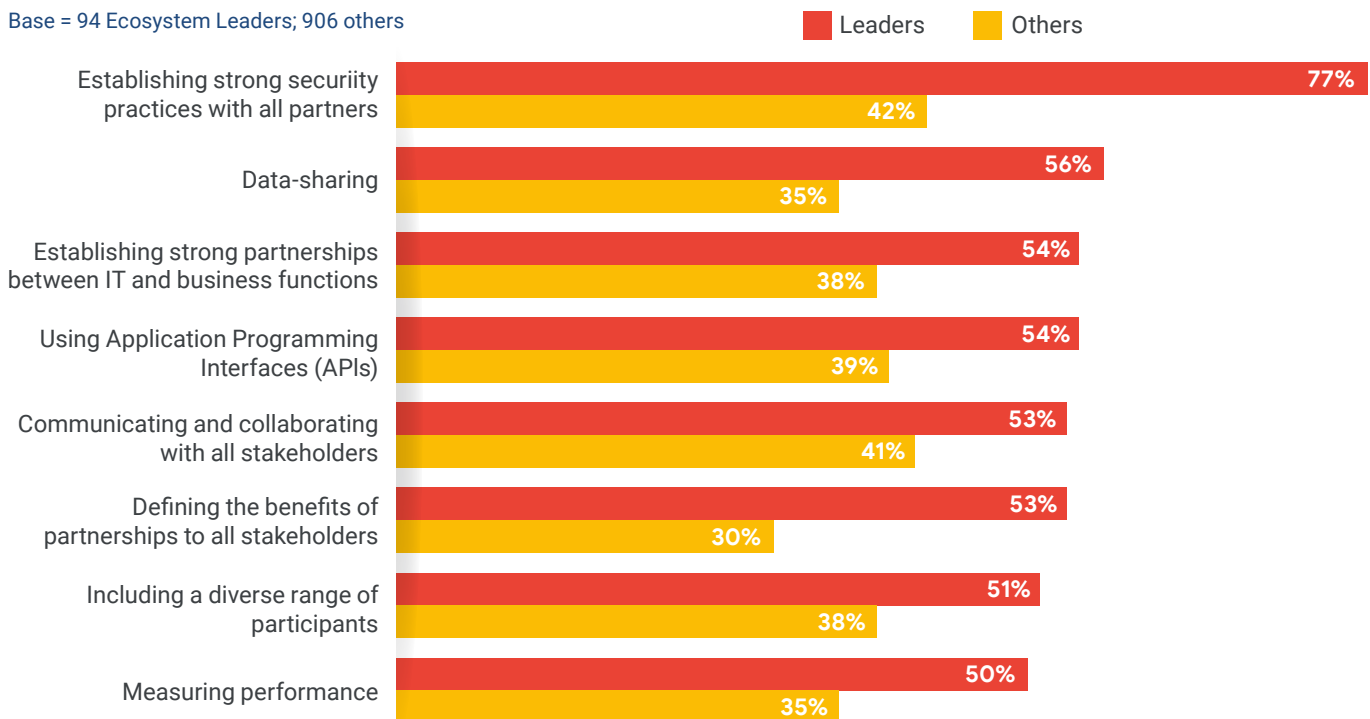
Digital Business Ecosystem Leaders are more effective at sharing data and establishing trust with others in their network, including by increasing transparency into their business for partners (38% vs. 30%).

Among many organizations, customer-facing processes could use improvement. Just 32% of CIOs say they have launched digital experiences for customers—which would make it easier to serve customers during an operational disruption—and only 26% have used design thinking to make technology more accessible across the organization. After years of discussing buzzwordy concepts like co-creation, organizations must start following through and collaborating with partners to develop more advanced digital business ecosystems.

Fig. 6: Digital Business Ecosystem Leaders are more effective in managing business relationships

Q: How effective is your organization in the following areas related to supporting and sustaining business relationships and ecosystems? “Highly effective” responses

Base = 94 Ecosystem Leaders; 906 others



The right technology may positively influence behaviors like data-sharing and transparency, which in turn could lead to innovation and better-functioning technology—creating a virtuous circle that supports growth and resilience across the digital business ecosystem.

API management platforms, for example, could make it easier to provide user-friendly experiences to customers and partners, securely share data and information, and measure the performance of specific applications or processes. They also can increase efficiency and productivity for developers by providing them with portals and other self-service resources that allow API owners to retain control and security while providing maximum visibility into processes and information.

That may be why more than half of the CIOs we surveyed say APIs are critical to partnerships with developers (55%) and customers (51%), relationships that are increasingly seen as important to innovation. Furthermore, companies that have adopted APIs are ahead of the curve in areas related to business processes that support innovation—and report stronger results from their efforts.

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How digital business ecosystems pay off

Strong business partnerships can equip companies with the agility and resilience needed to survive and prosper in an uncertain era. CIOs we surveyed say their relationships already are substantially or highly important to support automated operations (50%), innovation (50%), and agility (39%), with major jumps expected over the next three years.

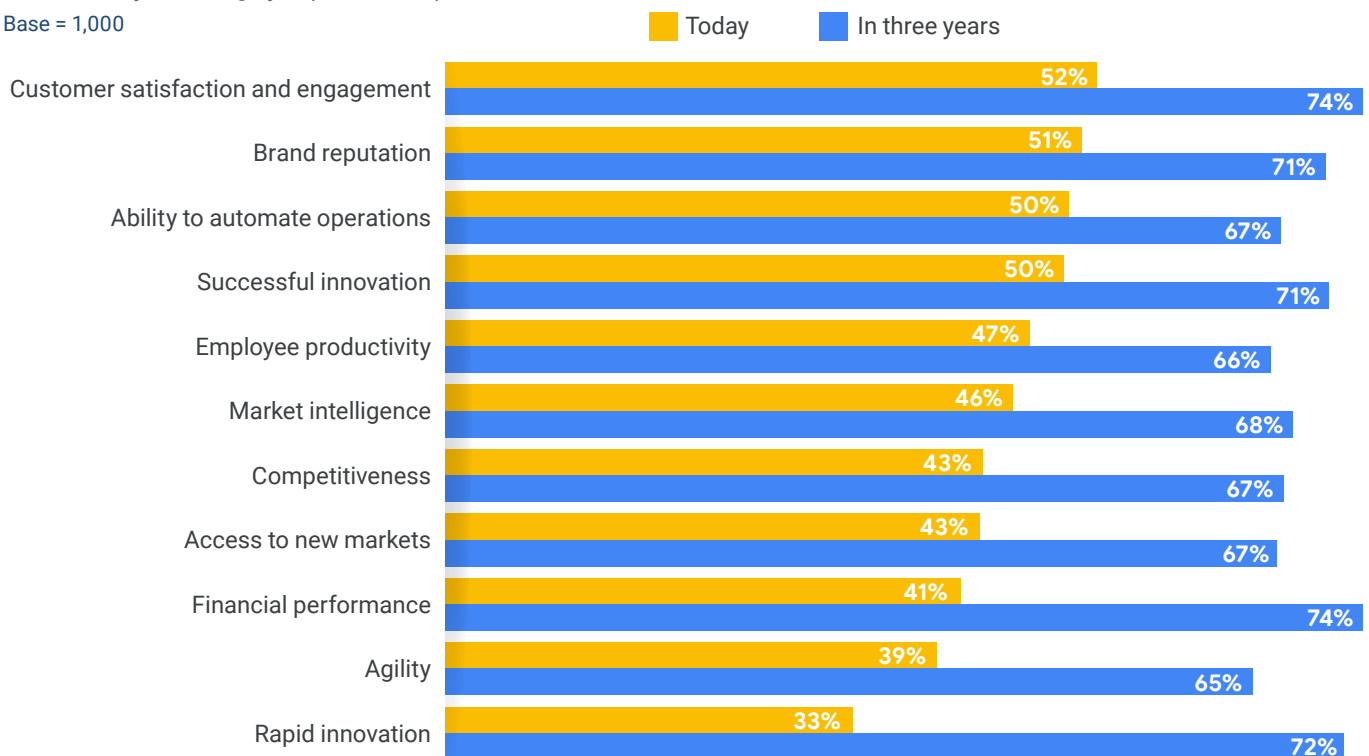
As organizations adjust processes and introduce new technologies to better support business partnerships, digital business ecosystems should become even more valuable. For example, roughly half say AI and machine learning will have a meaningful or transformative influence on their ability to automate operations (51%) or support process efficiency (49%). These benefits should only increase as organizations expand their network of partners to include others with AI and machine learning capabilities, as digital business ecosystem members can build on and profit from each other's innovation and technology platforms.

Fig. 7: Digital business ecosystems support business value

Q: To what extent do your business relationships and ecosystems support the following business goals today? In three years?

"Substantially" and "Highly important" responses

Base = 1,000



The rewards of digital business ecosystems go beyond efficiency—they also are critical to positioning for longer-term growth and expansion. Take Magazine Luiza, the \$4.5 bn Brazilian retailer, which built digital relationships with a wide range of partners and suppliers to quickly scale up its primarily brick-and-mortar operations into a substantial e-commerce business. The digital platform also allows the company to move quickly to meet customer demand and provide in-store employees with tools to speed up the sales process. Since its expansion, it has recorded substantial year-over-year growth in e-commerce sales, an increasingly critical metric in this new era.³

Our most advanced group of respondents, the Digital Business Ecosystem Leaders, report more mature business relationships, and they are getting greater value in return. Digital Business Ecosystem Leaders outperform their competitors and may be better equipped to handle both operational disruptions and economic uncertainty. These leaders:

- **Report stronger customer satisfaction rates.** 96% say their brand is perceived better than others in their industry, vs. 41% of others
- **Experience stronger revenue growth.** Leaders report 6.7% average annual revenue growth over the past three years, vs. 4.9% of others
- **Are more effective in a range of areas related to resilience and risk mitigation.** They report stronger performance in terms of supply chain flexibility, readiness for regulation, and understanding of market conditions, among other areas.

Defining digital business ecosystem leadership

Our survey sample includes a subset of CIOs from companies that are further ahead than their peers in terms of developing partnerships for innovation. Roughly 10% of respondents (n=94) qualify for this elite group—we call them Digital Business Ecosystem Leaders.

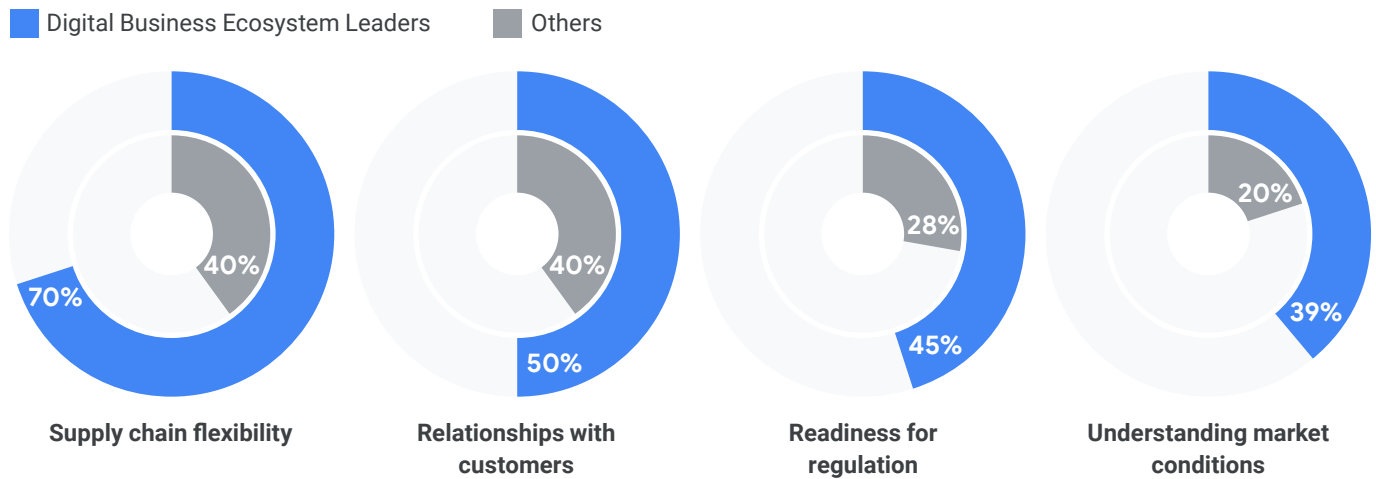
These organizations:

- Say their external business **relationships enhance digital innovation** to a great extent
- Report that **key business partnerships are fully connected and collaborative**, and that they **actively manage relationships** across their business ecosystem
- Describe their **relationships with key business partners as integrated**, meaning they have continual, close collaboration for the mutual benefit of all in the network

³ <https://cloud.google.com/customers/magazine-luiza>

Fig. 8: Digital Business Ecosystem Leaders stand out where it counts

Q: How would you rate your organization's effectiveness in the following areas? "Highly effective" responses shown



Conclusion

The most pressing issues are solved when individuals and groups with different perspectives and capabilities share expertise and ideas. Think of health researchers, physicians, and wearable-tech users combining data and insights to improve health outcomes; of technology and finance companies collaborating to offer new fintech services based on needs made clear by real consumer trends; and of banking and insurance firms adjusting third-party partnerships to meet evolving customer needs in a period of economic uncertainty.

How can CIOs create strong digital business ecosystems powered by APIs to meet the challenges of the moment while supporting efficiency, agility, and sustained growth?

1. **Think beyond traditional partnerships.** Develop relationships with developers, third-party partners, and even industry competitors.
2. **Increase transparency to deepen business relationships.** Promote secure data-sharing and visibility into ways of working within your digital business ecosystem to support greater trust, easier and more reliable information-sharing, faster innovation, and new revenue streams for all involved.
3. **Prioritize customer satisfaction.** Think of your customers as part of your ecosystem and organize relationships with business outcomes in mind.
4. **Have the right technology infrastructure in place.** Introduce tools to streamline and standardize processes—including artificial intelligence and effective API management—within your organization and with external partners.
5. **Upgrade processes to reduce innovation roadblocks.** Reassess the risks and rewards of various partnerships to understand where data-sharing and collaboration across ecosystems will provide you and your partners the most value—and change your restrictions accordingly.

About the research

Oxford Economics was commissioned by Google Cloud to conduct a survey of 1,000 CIOs. The survey was conducted between January 2020 and March 2020 via a CATI (computer-assisted telephone interviewing) methodology.

Respondents come from the US (35%), Canada (5%), France (10%), Germany (10%), Spain (5%), the UK (10%), Australia (15%), and Singapore (10%). They represent seven industries (17% each from Banking and Insurance, Healthcare, Manufacturing, Media

and Entertainment, Telecommunications, and Retail). All respondents come from organizations with over \$2 billion in revenue; roughly one-quarter come from organizations with over \$20 billion in revenue.

In addition to this quantitative survey, Oxford Economics is conducting three in-depth interviews with CIOs within the countries and industries surveyed. These conversations will shed light on the topics covered in this report and will be published in materials to be released later in 2020.

