



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

## Focus on the manufacturing sector

Oxford Economics worked with Google Cloud to survey 1,000 CIOs in seven sectors, including 167 CIOs in the manufacturing industry, about how digital business ecosystems can support goals like efficiency, agility, innovation, and growth.

The survey data was collected in January and February 2020, largely before the period of economic uncertainty that has followed. The results remain relevant in this new landscape, helping us understand how CIOs have been building digital business ecosystems to achieve their strategic goals—and what tactics they should use to prepare their organizations for prosperity in the new business era. This report details the results of our research for manufacturing industry respondents.

# Developing business partnerships to power innovation

CIOs in the manufacturing sector, like their peers in other industries, are focused on building digital business ecosystems—collaborative relationships with partners, third-party providers, developers, and customers that are powered by APIs—to drive business goals like efficiency, resilience, and innovation.

## 01 Business networks are expanding to include a diverse mix of participants.

Manufacturing CIOs are building close business relationships (50% report a slight or substantial increase in the number of partnerships over the past three years, vs. 51% of others). They are working closely with groups including partners and suppliers (85% vs. 75% of others), technology providers (77% vs. 82%), customers (56% vs. 58%), and developers (56% vs. 54%).

## 02 Business relationships are becoming more collaborative and integrated.

84% of CIOs in the manufacturing industry expect business relationships to deepen over the next three years (vs. 87% of others). But there is room for growth in terms of managing and getting full value from these partnerships: just 26% describe their current business partnerships as fully connected and collaborative (vs. 38% of others).

## 03 Strong business relationships support business goals.

Top business benefits supported by digital business ecosystems include customer satisfaction and engagement (42% from manufacturing say ecosystems are substantially or highly important to this outcome, vs. 55% of others) and employee productivity (42% vs. 48%).

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*?

- Slight/substantial increase
- No change
- Slight/substantial decrease



# Building better digital ecosystems

Getting full value from digital business ecosystems requires companies to change their approaches to secure data-sharing, communication, and talent.

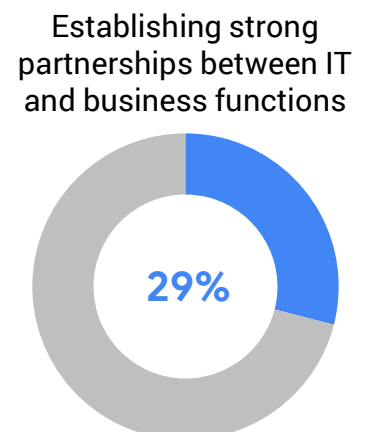
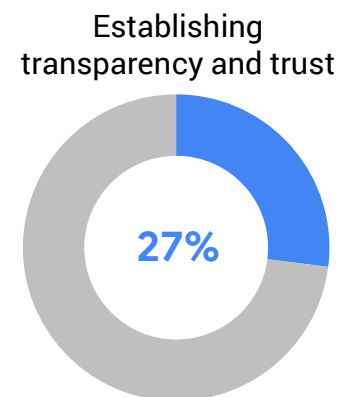
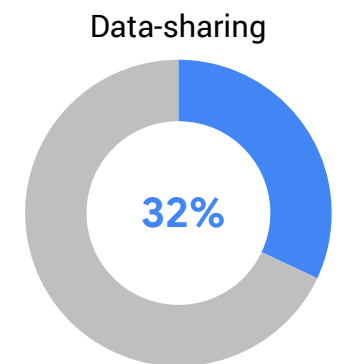
**01 Data-sharing could use improvement.** Only 27% of CIOs from manufacturing (vs. 45% of others) cite it as critical to making their partnerships and ecosystems productive and valuable. Furthermore, just 32% rate themselves as highly effective in data-sharing, and only 35% have increased the application of data to business strategy (vs. 33% of others). A subset of leading organizations—we call them Digital Business Ecosystem Leaders—are more effective at sharing data and establishing trust with partners, and report a wide range of benefits from their partnerships.

**02 The ecosystem mindset is still emerging.** Many have work to do in terms of changing their cultures and communication strategies to support effective partnerships. For example, just 24% of CIOs in the manufacturing sector (vs. 33% of others) have increased the level of collaboration with business partners, and only 32% (vs. 30%) have increased transparency into their business for developers, partners, employees, and customers.

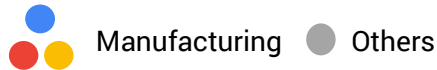
**03 Lack of talent hinders digital business ecosystem development.** Roughly one-fourth of manufacturing CIOs cite a major shortage of data analytics skills (25% vs. 20% others) or cross-industry knowledge (23% vs. 15%), and 18% cite a major shortage of API developer management skills (vs. 19%). Focusing hiring or training efforts in these areas may support process and culture changes around digital business ecosystem development.

How effective is your organization in the following areas related to supporting and sustaining business relationships and ecosystems?

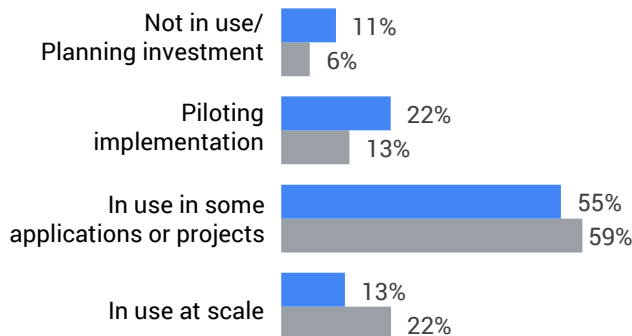
● Highly effective



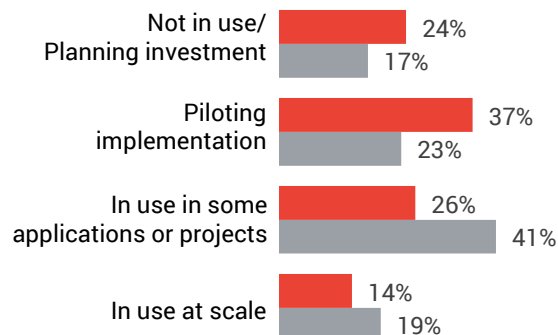
Which best describes your organization's use of the following technologies?



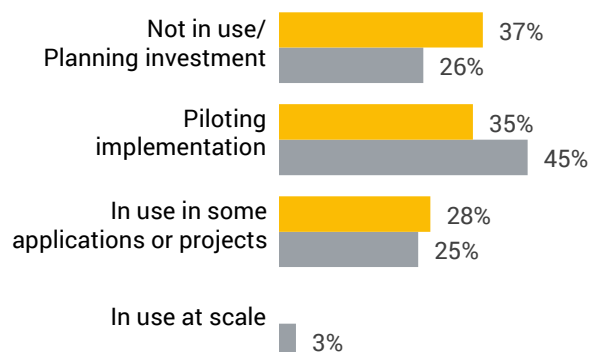
## APIs



## API Management Platforms



## Artificial Intelligence/Machine Learning



# The technology imperative

Effectively managing digital business ecosystems requires a solid technology infrastructure that allows rapid and efficient communication, secure data-sharing, and innovation.

- 01 Technology is critical to supporting digital business ecosystems.** According to CIOs from the manufacturing sector, the factors most critical to making business relationships valuable are establishing strong partnerships between IT and business functions (43% say this is important or very important, vs. 49% of others), using APIs (37% vs. 54%), and establishing strong security practices with all partners (35% vs. 47%).
- 02 CIOs in the manufacturing industry see APIs as core to digital business ecosystems, but have work to do in integrating them into operations.** APIs are seen as important to interactions and data-sharing with customers (49% of manufacturing CIOs say so, vs. 51% of others), developers (46% vs. 57%), and other organizations in their industry (42% vs. 50%). However, less than 15% say APIs or API management platforms are in use at scale. Furthermore, artificial intelligence and machine learning—tools that will be critical to scaling innovation across digital business ecosystems—are not in wide use.
- 03 CIOs who have adopted APIs lead their peers in a range of areas.** Companies from around the world that use APIs are more likely to say their business relationships and ecosystems support business goals like brand reputation (54% vs. 31% of those that do not use APIs), automating operations (53% vs. 26%), innovation (53% vs. 26%), and employee productivity (49% vs. 33%).

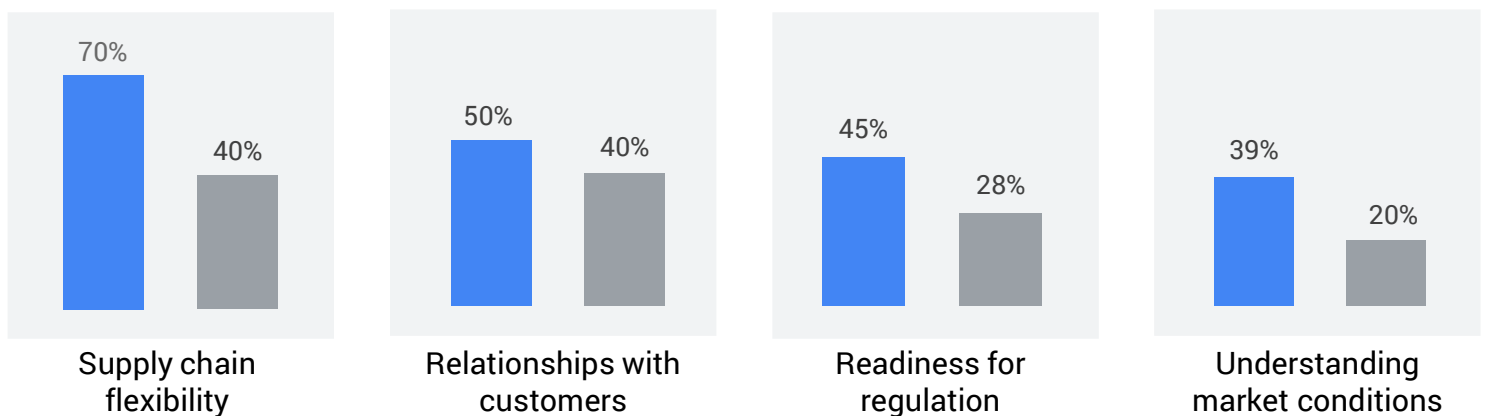
# How digital business ecosystems pay off

Organizations in our survey that report strong, innovation-focused partnerships tend to be better equipped to manage efficiency, support growth, and meet a range of other business goals.

- 01 Manufacturing CIOs are beginning to realize value from digital ecosystems.** CIOs in our survey say their business relationships and ecosystems support employee productivity (42% in manufacturing say so, vs. 48% of others), market intelligence (35% vs. 48%), and agility (30% vs. 41%)—areas that can support resilience in uncertain times. They also are most likely to get value in terms of customer satisfaction and engagement (42%).
- 02 Digital business ecosystem benefits are growing.** Within three years, over three-quarters of manufacturing CIOs expect their business partnerships to pay off in terms of successful innovation (71% for manufacturing CIOs and for others). They also expect increased value in terms of financial performance (67% vs. 75%), market intelligence (67% vs. 68%), and customer satisfaction and engagement (67% vs. 75%).
- 03 Companies with stronger digital business ecosystem strategies are better positioned to manage in an uncertain era.** Our study identified a group of respondents who are ahead of their peers in terms of using their business relationships to support digital innovation, and ensuring partnerships are fully integrated and collaborative. Digital Business Ecosystem Leaders from across the global sample are more effective in a range of areas, including supply chain flexibility, relationships with customers, readiness for regulation, and understanding market conditions.

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

● Digital Business Ecosystem Leaders  
● Others



# About the research

## Methodology

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 computer-assisted telephone interviewing. Respondents come from the US, Canada, France, Germany, Spain, the UK, Australia, and Singapore.

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; one-quarter come from organizations with over \$20 billion in revenue.

