
Most tech-centric organizations are gearing up for a revitalized year, with ambitious new projects planned or underway.

2021 PLANNING | TECHNOLOGY/MANUFACTURING

New business models, big opportunity





Key takeaways

- 1 Technology and manufacturing organizations that have already made significant investments in technology are looking beyond pandemic recovery to business growth in 2021.
- 2 Organizations in these two industries have different motivations, but both see the need for big moves such as technology overhauls, new business models, and mergers and acquisitions – and face specific challenges in making them.
- 3 To be successful in their 2021 endeavors, technology companies and manufacturers are looking to an assortment of factors, including cross-team collaboration and data management, while keeping a focus on immediate business needs and strategic planning.

The 2020 coronavirus pandemic upended the way companies do business. Some are coping better than others – but largely, businesses are optimistic about 2021.

That's especially so for tech-forward organizations in two different industries – technology and manufacturing – that are planning major business initiatives to move beyond crisis response and thrive in a transformed corporate landscape. The pandemic accelerated trends that already were underway – and while 2020 might have been spent coping with the crisis, many business leaders are thinking about the next steps.

“We are in the middle of probably one of the biggest strategic moves the company has made in its history,” says Ritu Raj, director for enterprise engineering at John Deere. “That’s a big statement for a company that’s over 180 years old.”

The iconic manufacturer of agricultural and construction equipment is building a new operating model for the

company with technology as the centerpiece, Raj says. For example, the tractors it’s selling today collect data about their operations and help farmers complete jobs like planting with precision. It’s one of the big moves – new business models, mergers and acquisitions, and big technology changes such as widespread automation – that organizations are making or planning in a landscape transformed by the pandemic.

About this report

This MIT Technology Review Insights report is part of a series that explores how organizations are rebuilding business in the wake of the 2020 coronavirus pandemic. Based on a combination of survey-based market research and in-depth executive interviews, it focuses on four industries: technology, manufacturing, finance, and retail. The report is sponsored by Oracle, and the views expressed within are those of MIT Technology Review Insights, which is editorially independent.

- In November 2020, MIT Technology Review Insights surveyed 297 executives – primarily financial officers, C-suite executives, and information technology leaders.
- Respondents work in more than a dozen industries. Technology, at 20%, represented the largest response group; followed by financial services, at 15%; professional services, at 13%; and retail and manufacturing, each at 8%. This report focuses on the technology and manufacturing sectors.
- The survey was global, with 60% of respondents from the Americas, 27% from Europe, the Middle East, and Africa; and 13% from the Asia-Pacific region, which comprises Asia plus Australia and New Zealand.
- Respondents were asked about strategic business moves that their organizations made in 2020 or are planning in the next 36 months, challenges they face in implementing such initiatives, and cloud-based technologies they use to support their finance organizations.

According to a worldwide survey of 297 executives, conducted by MIT Technology Review Insights, in association with Oracle, 80% feel upbeat about their organizations' ultimate goals for 2021, expecting to thrive – for example, sell more products and services – or transform – change business models, sales methodology, or otherwise do things differently.

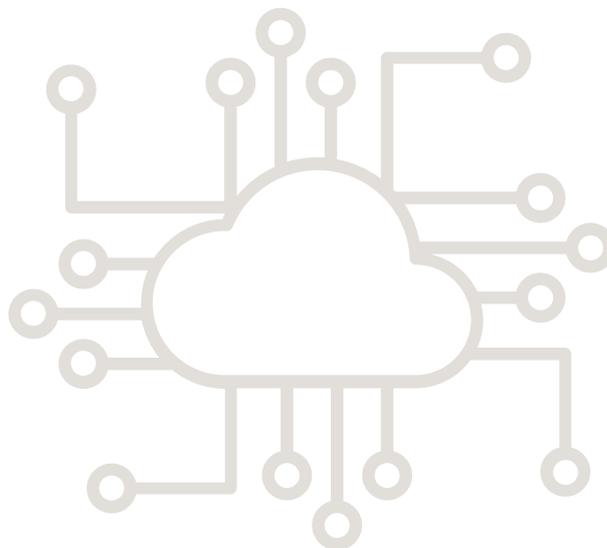
A tale of two industries

Every industry has unique characteristics. Certainly that's true of technology companies, which by their nature undergo rapid transformation. The industry tends to be early adopters of new technology, says Mike Saslavsky, senior director of high-tech industry strategy at Oracle. Most tech products have rapid, short lifecycles: "You have to stay up with the next generation of technology," he adds. "If you're not transforming and evolving your business, then you're probably going to be out of the market." That premise applies across the range of businesses categorized as "tech," from chip manufacturers to consumer devices to office equipment such as copiers.

Manufacturing has traditionally maintained a more complicated relationship with technology. On the one hand, the industry is trying to be resilient and flexible in a volatile present, says John Barcus, group vice president of Oracle's industry strategy group. Geopolitical issues like protectionism make it harder to get the right materials delivered for products, and the lockdowns imposed during the pandemic have caused further supply chain issues. That has led manufacturers to greater adoption of cloud technologies to connect partners, track goods, and streamline processes.

On the other hand, the industry has a reputation for short-term thinking – "If it works OK today, I can wait until tomorrow to fix it," says Barcus. That shortsightedness is caused, often understandably, by cash-flow problems and risk associated with tech investment. "And then, all of a sudden something new hits that they weren't prepared for and they have to react."

There are shining examples of what manufacturers could be doing. For instance, global auto parts maker Aptiv spun off its powertrain business in 2017 to focus on high-growth areas such as advanced safety technology, connected services, and autonomous driving, says David Liu, who was until January 2020 director of corporate strategy. (He's now director of corporate development at



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Ritu Raj, Director, Enterprise Engineering, John Deere

General Motors.) In 2019, Aptiv formed Motional, a \$4 billion autonomous driving joint venture with Hyundai to accelerate the development and commercialization of autonomous vehicles. The pandemic forced the company to have both the financial discipline to withstand an unpredictable “black swan” event and the imagination and drive to do big things, Liu says. In June 2020, for example, the company made a \$4 billion equity issuance to shore up its future growth through investments and possible acquisitions. “The key for us is to balance operational focus and long-term strategic thinking.”

The drive behind the plans

Among all survey respondents, the most common planned big moves are substantially increased technology investments (60%) and cloud migrations (46%), with more than a third acting on business-merger plans (see Figure 1).

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prepared to cope. For instance, they had the technology in place to allow their workforces to work from home, Barcus points out. In fact, the crisis accelerated those efforts. Whatever their progress, he says, “Many of them, if not most of them, are now looking at, ‘How do I prepare and thrive in this new environment?’”

Figure 1

New business priorities

Technology projects are the biggest business initiatives corporate leaders started or have planned for the coming year.

INCREASE TECH INVESTMENTS	60%
MOVE IT FUNCTIONS TO CLOUD	46%
ACT ON A MERGER/ACQUISITION	39%
ADD A SUBSIDIARY	24%
SPIN OFF A DIVISION	16%
DIVEST REAL ESTATE	13%
DIVEST A SUBSIDIARY	9%

Source: MIT Technology Review Insights survey of 297 executives, November 2020. Respondents were asked to choose all that apply.

Most manufacturers are interested in a return to business as usual. A separate MIT Technology Review Insights report, published in January 2021, shows 53% of manufacturing businesses had drafted detailed plans to get business back to scale quickly.¹

Often the organizations aiming to transform are learning to adopt a new service business model – enabling “something as a service” – and taking better advantage of connectivity.

Barcus uses his own employer, Oracle, as an example. Years ago, the company sold traditional software to customers, who would then put it on their servers and maintain it. “And now with ‘as a service,’ the fundamental way you work with a customer is different because we now need to manage that entire relationship life cycle,” Barcus says. “And we need to keep the customers happy so they keep using and get the most out of the software versus us continually trying to sell them the next round of software.”

Overall, the survey respondents planning big moves in 2021 are looking primarily at business models that drive cost-reduction projects (54%) such as optimizing processes and automation. In manufacturing, automation is getting attention, Saslavsky says, for its potential to build a supply chain that can respond much quicker to unplanned events. For the tech industry, the attention is more on pivoting to new markets, products, or services (64%) and changing how products and services are sold and delivered (61%).

Different companies, shared challenges

Established organizations today are prepared for these changes because they're used to shifting and reinventing their businesses. They've done it before – though perhaps not at this velocity. “We have core processes that allow us to manage product development and scale it for

different product lines and different types of solutions,” says Raj. “From acquisition of customer requirements to incorporating those requirements in the design of products to production and then delivering to customers.”

That’s not to say these things are easy. Among the hurdles, says Liu, are risk aversion, execution speed, and a lack of plans to mitigate risks. “New technology areas and business models require upfront investments that don’t generate immediate and sometimes guaranteed returns,” he explains, pointing to autonomous vehicles as an example. “If we can’t be adaptive, nimble, and tolerant of risks, we will not pull it off.”

For some organizations, it’s hard to adjust because of the speed of change. “Right at the moment we are at the forefront helping to solve the covid pandemic,” says Marc Horn, head of life science controlling at MilliporeSigma. The company supplies the products used by drug makers to develop and make vaccine candidates, a typically 10-to-12 year process that’s been turbocharged because of the severity of the crisis. “It’s all about preparing as much as possible for this massive number of manufactured doses and how to accelerate the whole process.”

The pandemic is influencing business strategy – and limited budgets and mismatched skills and technologies are top obstacles for all survey respondents (see Figure 2) – but other factors are having an impact on the tech and manufacturing industries. Among them are more trade regulations and climate change awareness affecting the supply chain and resource management.

Few tech companies have their own manufacturing facilities, Saslavsky points out. The supply chain is more fragile these days, both in regard to the manufacturing process and the component suppliers – that is, the manufacturing company assembling a smartphone and the parts that comprise the smartphone. Across the industry, technology leaders are rethinking their processes: “Where am I manufacturing something? Should it be geographically closer to my customers? How do I take out some of that risk?” Saslavsky says.

64%

OF TECH COMPANIES ARE PIVOTING TO NEW MARKETS, PRODUCTS, OR SERVICES.

61%

ARE CHANGING HOW PRODUCTS ARE DELIVERED.

Those challenges are far-reaching. At Aptiv, the list is long: labor, raw materials, supply chain, and operational risks that could have a negative impact on the company’s production and workforce, says Liu. “We address these risks by practicing discipline across businesses and functions, taking proactive and preventive actions, having contingency plans in place, and being accountable to all stakeholders.”

For financial officers and other business leaders, the appropriate response is to collaborate with other stakeholders. For example, Horn has his eyes on the process by which things – in this case, pharmaceuticals – get from one place to another. That includes the humans who run things: which skill sets are needed, how they’re acquired, and how to ensure they’re at the right place at the right time.

Figure 2

What’s holding back big moves

Tight budgets are the biggest obstacle facing business projects in 2021, with weak risk management and misaligned skills also ranking high.

BUDGET IS LIMITED	39%
FRAGMENTED SECURITY, RISK, AND COMPLIANCE	18%
DON’T HAVE THE RIGHT SKILL SETS	17%
DON’T HAVE THE RIGHT TECHNOLOGY	12%
INCORRECT DATA MODEL OR STRUCTURE	10%
LACK OF EXECUTIVE BUY-IN	5%

Source: MIT Technology Review Insights survey of 297 executives, November 2020

Factors for success in 2021

While some organizations swiftly embraced new ways to do business, many still struggled with the unexpected events of 2020. But with covid-19 vaccination rollouts happening worldwide, predictions for 2021 are far more upbeat, for the world broadly and for the tech and manufacturing industries specifically. In fact, nearly half of survey respondents expect their businesses to thrive this year, and more than a third expect to reinvent themselves (see Figure 3).

Making major changes requires a lot of cross-team collaboration – much of which is led by the corporate finance professionals. For instance, when Aptiv considers a merger, acquisition, or divestment deal, says Liu, financial executives and corporate development leaders collaborate with human resources (HR) and supply chain managers during the evaluation, due diligence, and integration phases. When it works well, the process fosters strategic partnerships and a culture of continual improvement. When it doesn't work well, he adds, it's often because "finance treats other functions such as HR and supply chain as mere input providers instead of strategic partners or stakeholders, or is too reactive to take on strategic actions that are not in the typical 'finance' arenas."

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Another success factor is organizational effort to get control of data. "If the data quality is not there, it could lead to a situation in which everyone uses their own set of data, which would decrease efficiency," says Horn. The data challenge also requires complying with regional controls and the regulatory environment. Managing data requires a lot of coordination, especially in multinational corporations. Otherwise, Horn says, "A lot of things go wrong."



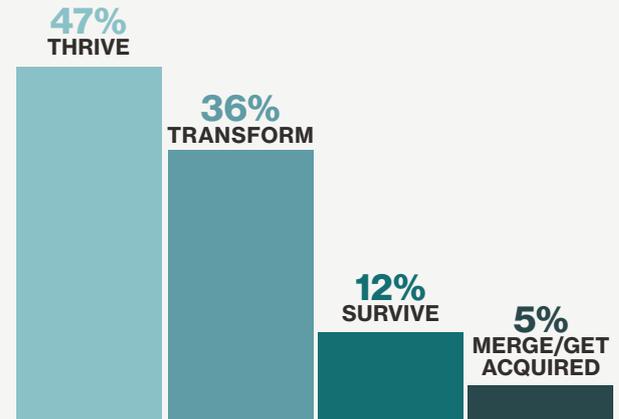
"If the data quality is not there, it could lead to a situation in which everyone uses their own set of data, which would decrease efficiency."

Marc Horn, Head, Life Science Controlling, MilliporeSigma

Figure 3

Ultimate goals for 2021

Most organizations are optimistic about the future, with just 12% striving to keep the lights on.



Source: MIT Technology Review Insights survey of 297 executives, November 2020

At John Deere, which has multiple product lines and businesses in several countries, "what's important is to have commonalities of systems, processes, and tools," says Raj. Technology can help – automation, for example, is key to assessing the quality of a machine part from a supplier that will be used in different places throughout the globe – and doing it quickly. If processes aren't automated, it will take longer to make a decision on that part, and the likelihood of making mistakes is high. "I think the answer will be more towards technology playing an increasingly important role, whether it's integration of functions like supply management or order fulfillment or availability of real-time data for faster decisions."



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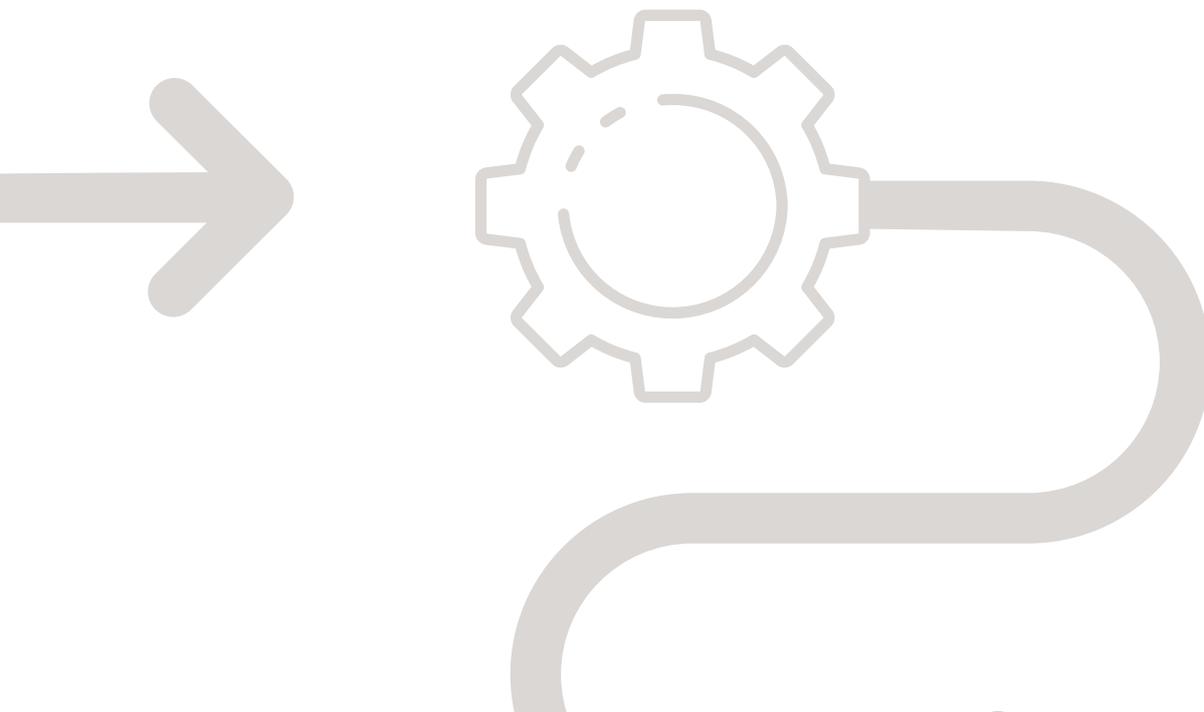
Mike Saslavsky, Senior Director,
High-Tech Industry Strategy, Oracle

The most successful companies use unexpected changes as a catalyst to transform their businesses. “And you have to identify those technologies that are necessary in order to prepare for the future,” says Barcus. “Manufacturers are asking, ‘How do I get away from the legacy systems that were once very enabling, yet may now be holding me back from adjusting and making the rapid changes necessary to take advantage of new opportunities?’”

There are no fixed answers. For Liu, the trick is walking the line between immediate needs and longer-term business outlook. “We need to ensure we continue to focus on the secular trends – safe, green, connected themes in automotive – and the big picture despite near-term market uncertainties and hiccups.”

2020 is proof that uncertainties and hiccups happen certainly. Optimism surrounding the new year and beyond aside, organizations in technology and manufacturing or any industry should instill new authority in old advice – and be prepared.

Learn more about the [strategic moves](#) that tech and manufacturing companies are making to capture growth.



“2021 planning: New business models, big opportunity” is an executive briefing paper series by MIT Technology Review Insights. We would like to thank all participants as well as the sponsor, Oracle. Jason Sparapani and Laurel Ruma were the editors of this report, and Nicola Crepaldi was the publisher.

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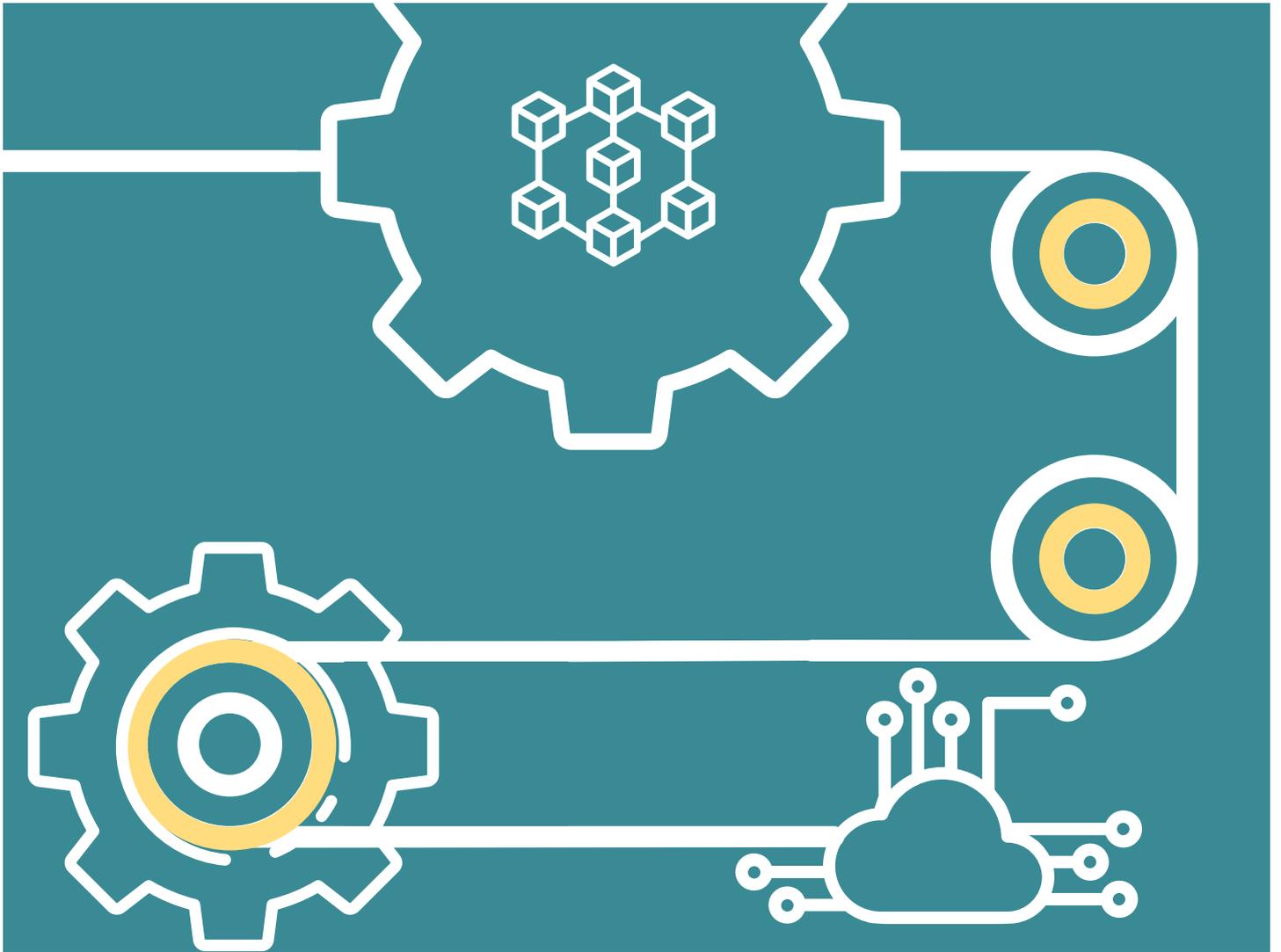
1 “Collaborative planning in an uncertain world,” MIT Technology Review Insights, in partnership with Oracle, 2021.

Illustrations

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