

Collaborative planning in an uncertain world





Preface

“Collaborative planning in an uncertain world” is an MIT Technology Review Insights report sponsored by Oracle. Based on survey research and in-depth executive interviews, the report seeks to understand how organizations worldwide conduct strategic planning, particularly in troubled times. Jason Sparapani and Laurel Ruma edited the report, and Nicola Crepaldi published it. The research is editorially independent, and the views expressed within are those of MIT Technology Review Insights.

The survey

- In the second half of 2020, MIT Technology Review Insights, in association with Oracle, surveyed 860 senior executives and directors, split evenly from finance, human resources, information technology, supply chain and logistics, and the C-suite.
- Executives who responded to this survey are from three regions – the Americas (43%); Europe, the Middle East, and Africa (38%); and Asia-Pacific (19%).
- Respondents work in more than half-a-dozen industries; manufacturing, at 14%, represents the largest response group, followed by retail (13%), finance (12%), health care (12%), and pharmaceuticals (11%).
- Each organization surveyed has at least \$250 million in annual revenue.

We would like to thank the following individuals for their time and insights:

Lara Ariell, Chief Financial Officer, Inland Revenue, New Zealand Government

John Barcus, Group Vice President, Industry Strategy Group, Oracle

Brett Dalton, Vice President and Chief Business Officer, Baylor University

Khaled Elhusseiny, Group Chief Financial Officer, Almuftah Group

Guadalupe Huerta, Chief Financial Officer, Seguros Monterrey New York Life

Belinda O’Neil, Finance Executive and Program Director, Project Boost, MTN

Jason Ringgenberg, Chief Information Officer, YRC Worldwide

Marc Seewald, Vice President, EPM Product Management, Oracle

Nancy Estell Zoder, Vice President, Product Strategy, Oracle



Foreword

In this time of uncertainty, we can't rely on historical trends to predict the future. At Oracle, we've been working hard, using our own cloud technology, to successfully transform our planning processes to continue to drive growth and support our customers. We've also been meeting constantly with customers to share best practices on how to leverage cloud technologies to not only manage today's disruption but also capitalize on the opportunities brought about by the acceleration of the digital economy.

As part of this customer focus, Oracle partnered with MIT Technology Review Insights on the report "Collaborative planning in an uncertain world" to showcase the importance of cross-enterprise connected planning and the opportunity to drive better business outcomes through collaborative planning across finance, human resources, and other lines of business.

Here at Oracle, we took a digital and cloud-first approach, moved away from manual spreadsheets, and automated the data collection process by directly connecting our planning system to our source systems such as enterprise resource planning, human capital management, sales, and supply chain. We found that disconnected data in departmental silos gives you limited visibility across the business, and you spend more time collecting data than analyzing it. Connected data leads to deeper, faster, more actionable insights, operationally connected plans, and better risk and opportunity management.

Our access to real-time enterprisewide datasets allows us to understand patterns and develop multiple scenarios using our predictive models. We can now run continuous forecasting with clear action identification and have confidence in the outcomes through consistent forecast accuracy.

This transformational approach to planning is just one of the valuable insights you'll find in this report on how to make better data-driven decisions to navigate these uncertain times. We hope you find it of value.

Oracle is here to help.

Matt Stirrup

Senior Vice President and Head of Corporate Financial Planning and Analysis, Oracle

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01 Executive summary

Corporate planning is difficult in the best of times, let alone in the middle of a global health crisis. The 2020 coronavirus pandemic has made strategic planning harder because of economic upheaval, personal stress, work and lifestyle changes, and the unpredictability of everything.

This report explores how companies worldwide conduct strategic enterprise planning – particularly in uncertain times. MIT Technology Review Insights, in association with Oracle, surveyed 860 executives in various departments including finance, supply chain and logistics, human resources (HR), and information technology (IT).

We also spoke in depth with leaders at several companies to learn how they plan and collaborate, from general business processes to their investment in artificial intelligence (AI) and cloud-based applications, and how finance, HR, and operations are evolving to support those efforts. The executives share their own processes and help readers identify techniques to adopt. Here are the key findings from our research:

Months after the outbreak, most organizations are still coping with the initial challenges. Half of surveyed organizations are still in the process of dealing with the current emergency, responding to short-term issues and addressing financial resilience, such as staff availability and income disruption. At the same time, some businesses, such as cleaning supplies manufacturers, have seen sales spike precipitously and are struggling to meet demand. Organizations experiencing both sides of the challenge may have ideas about how to move forward, but they have yet to materialize.

Organizations are working on formulating plans to move forward. Nearly a quarter are making the necessary adjustments with a future plan in mind, and another quarter are actively working toward a new plan: 16% have reached a “reimagine the future” stage, and 6% are looking at how their new direction might affect practical matters such as standards and compliance.

Technology is seen as a useful aid in planning endeavors. As a result of the pandemic, more than half of organizations accelerated cloud adoption. This segment is 50% more likely to have addressed pandemic challenges to business, the workforce, and customers. The survey also shows that AI and machine learning have gained the trust of large companies worldwide. And three quarters of respondents expect connected enterprise planning – which combines financial, operational, and workforce planning with cloud-based internet-of-things, AI, and prescriptive analytics – to improve collaboration and decision-making.

Planning is an all-hands-on-deck effort. All business departments have a part to play in planning for future success, including HR and supply chain – and finance is the glue that bonds them. But for collaboration to work, data can’t exist in silos spread across the business – consistent, accessible, and accurate data drives business planning and execution.

Some organizations are more welcoming to technology than others. A minority, 10%, are reducing their use of cloud technologies as a result of the pandemic. They’re technology laggards in several ways, from keeping HR and finance data in separate silos to eschewing connected enterprise systems in favor of spreadsheets. Such old-school ways may have made the companies weaker; for example, if they have not digitized their businesses, they may lack the insights that would give them more justification to invest at this critical time.

02

The road to recovery

It's a huge understatement to say the pandemic upended everything. The worldwide economy has been affected, every industry was blindsided, and most organizations needed to make painful decisions. Others benefited, such as detergent manufacturers, workout equipment companies, and recreational vehicle sellers, but even those faced supply chain challenges.

Yet, organizations must move on. "In this unprecedented new reality, we will witness a dramatic restructuring of the economic and social order in which business and society have traditionally operated," write McKinsey & Company's Kevin Sneader and Shubham Singhal in "[Beyond coronavirus: The path to the next normal.](#)"

After the initial survival-response questions, businesses and individuals are puzzling over a long list of additional concerns: How can we continue to thrive? How will we handle new employee onboarding as we scale? What's the next market we want to enter? What changes do we need to make to cope with the long-lasting social effects of the virus?

A survey of 860 business professionals conducted by MIT Technology Review Insights, in association with Oracle, shows that after the initial shock, most organizations are hard at work planning, looking for – and sometimes finding – a road to recovery and a return to growth. It also suggests the ones that are the most enthusiastic about cloud and advanced technologies such as AI and machine learning are not only more likely to get past the roadblocks the pandemic threw up but to course-correct toward success.

Author Maya Angelou might have been speaking of individuals when she said, "You may not control all the events that happen to you, but you can decide not to be reduced by them" – but the sentiment applies equally well to communities and organizations during this unprecedented time.

A responsiveness scale

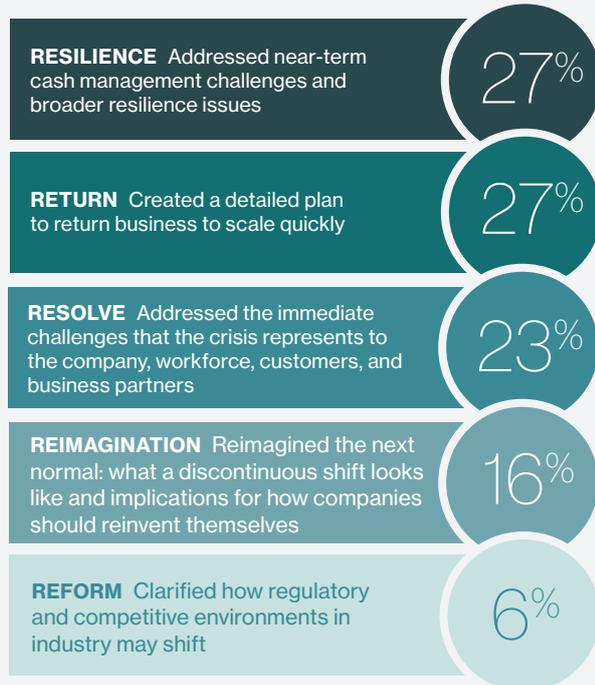
Individuals and organizations each respond to crisis situations in different ways, and in different phases. McKinsey's analysts summarize the recovery process in five stages: resolve, resilience, return, reimagination, and reform. "Collectively, these five stages represent the imperative of our time: the battle against covid-19 is one that leaders today must win if we are to find an economically and socially viable path to the next normal," they write.

54%

of organizations are still coping with immediate pandemic challenges.

Figure 1: Stages of recovery

Most organizations have swiftly dealt with the fallout of the pandemic on business but haven't yet formulated how to operate in a new corporate reality.



	RESILIENCE	RETURN	RESOLVE	REIMAGINATION	REFORM
Business services	28	34	14	20	5
Communications	30	17	42	8	3
Education	25	25	21	17	12
Entertainment	19	28	23	29	1
Financial services	54	13	15	7	12
Health care	29	13	42	6	10
Manufacturing	9	53	7	29	2
Pharma	38	17	35	8	2
Retail	16	44	17	21	3

Sources: MIT Technology Review Insights survey of 860 senior executives, September 2020/McKinsey & Company, "Beyond coronavirus: The path to the next normal"

To judge how organizations are responding to the pandemic, we asked business executives about the state of their companies' responses. Are they still dealing with the initial problems that the pandemic presented – putting out the fire? Coping with what's next? Or working toward building that new normal?

SURVEY RESEARCH
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planning:
New business models, big opportunity

Few organizations were in a position to make dramatic shifts in only a few months. At the time of the survey, just 6% had fully identified how the new circumstances might affect their business (to the point where they can consider downstream effects such as impact on regulatory requirements), and 16% were doing their best to imagine and implement the next steps. Accomplishing that requires gaining clarity about shifting competitive environments, regulatory requirements, and whatever else their particular "what comes next" implies.

Overall, organizations are still dealing with the pandemic's short-term fallout. As of our survey completion in September, more than half (54%) were still in the process of coping, by addressing financial resilience and making plans to return business to scale quickly (see Figure 1). Twenty-three percent were addressing their immediate challenges while making necessary adjustments across the board with their workforces, customers, and business partners.

The pandemic affected different industries in different ways. Retail and manufacturing suffered an immediate impact from worldwide lockdowns, shortages, and [stressed supply chains](#). They had little time to indulge in a quiet contemplation; survival required immediate action to serve their communities and their own companies' needs. For example, a retailer in the United Kingdom needed to add support for [food vouchers via gift cards](#) – it did so in just 11 days.

As a result, these industries are more apt to focus on “return” as a response. A retailer might have found ways to cope in the short term – strengthening e-commerce systems or implementing delivery services – causing 44% to say they’re in “return.” But some initiatives take time, such as designing stores to support physical distancing, leading 21% to say they’re busy reimagining their future.

In contrast, financial companies still in the crossfire of consumers’ late mortgage payments and uncertain economic outlooks remain in “resilience” mode – 54% of them say their current status is resilience. Health care is a bit farther along, tilting toward “resolve” at 42%, perhaps because its professions are trained to triage problems and make quick decisions.

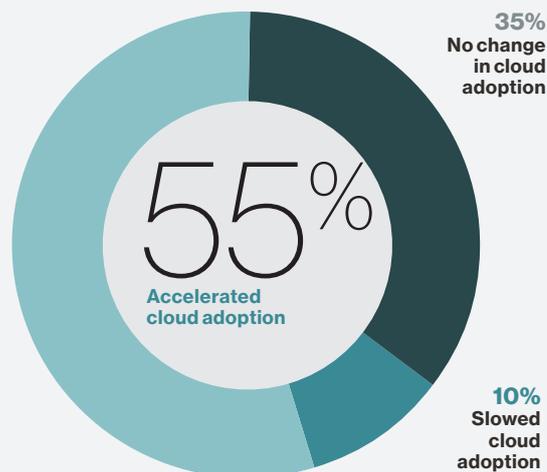
Most large organizations have the resources to respond to the changes that 2020 flung their way – once they decide which direction to go. That may explain why companies with annual revenue exceeding \$1 billion are more apt to show “resolve.” Manufacturers, for example, can shift their resources from one division to another, such as retooling a factory to respond to increased demand for toilet paper and disinfectant, say, and slow down cosmetics production.

For example, in May and June, the Almuftah Group in Doha, Qatar, conducted monthly and quarterly division performance reviews, says Khaled Elhusseiny, the group chief financial officer (CFO). That helped a diversified business like Almuftah – the conglomerate sells everything from tires to furniture to business electronics – anticipate which of its divisions were performing well and which were underperforming. “Swift interventions were then made regarding the struggling parts of the

When the pandemic hit, many employees were suddenly working at home. That required everybody to access applications and data that may have been housed in corporate data centers.

Figure 2: Cloud adoption during covid-19

At a time of increased remote working, organizations rolled out more cloud-based applications and technologies.



Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

organization,” Elhusseiny says. “By using this modeling approach, we were able to formulate Plan B across the organization. The triggering factors that could bring Plan B into play have also been clearly identified.”

Accelerating cloud adoption

Most organizations had already begun a transition to cloud computing for technological reasons, such as cost efficiencies, freeing up IT resources, and simplified application deployment. Some may have completed such a transition.

But when the pandemic hit, that cloud adoption moved into high gear. Suddenly, many employees were working at home. That required everybody to access applications and data that previously may have been housed in corporate data centers that required on-site IT personnel to run. Because meetings moved onto video-conferencing services like Zoom, fast internet connectivity and trustworthy security practices became a requirement.

So it’s no surprise that 55% of respondents say the pandemic accelerated their adoption of cloud-based applications and technologies, or that 35% see no change in cloud use: a company that was already committed to the cloud wouldn’t need to make changes (see Figure 2).



10%

of organizations are reducing their use of cloud technologies as a result of the pandemic.

At Mexico City-based Seguros Monterrey New York Life (SMNYL), the cloud was seen as a major disruption a few years ago, particularly in the context of its potential risks, says CFO Guadalupe Huerta. But today most people in the organization appreciate it, given their need to operate remotely. Many of the services used by customers and agents are cloud-based.

Larger organizations and ones that are pursuing “resilience” and “resolve” strategies see more opportunities to accelerate cloud adoption – the survey suggests they’re 50% more likely to pursue such strategies. That implies that the cloud will be part of their plans going forward. “Covid-19 made us even more appreciative of what we can do,” says Lara Ariell, CFO at Inland Revenue, the New Zealand government’s public service department, after seeing other organizations that have yet to adopt cloud technology struggle.

The only surprise is the 10% of respondents for whom the pandemic slowed down cloud adoption. There can be many reasons for this, such as their industries going into a freeze – that’s the case for entertainment businesses, for instance, in which 14% slowed cloud migration. The cloud won’t help movie theaters stay open, even if the theaters’ competitors in streaming media benefited. And 22% of manufacturing companies

slowed their cloud plans. “With all of the ongoing challenges, in many instances, manufacturing companies in particular are not just looking at how to survive, but how to excel,” says John Barcus, group vice president for the industry strategy group at Oracle. “The real driving issue for them right now is a lot more around resilience and flexibility: ‘How do I adapt and take advantage of changing conditions? How do I rapidly execute based upon particular requirements? And how do I do it cost-effectively?’”

Overall, the cloud is enabling resilience and agility in the manufacturing industry, helping partners connect and track goods. But as manufacturing and supply shortages continue, companies are looking for those pivots that will ensure continuity. And those that have recently moved to the cloud are seeing payoffs. For example, Western Digital, a digital storage company, [was able to spin up eight manufacturing facilities](#) in Southeast Asia during the pandemic. Former chief information officer (CIO) Steve Phillpott explains that because of travel restrictions, flying the necessary people to the new sites to do training and setup meant the massive undertaking had to happen remotely – and the cloud made it possible. Not only was it successful, but it showed the ability of the company to roll out a remote implementation strategy.

“Covid-19 made us even more appreciative of what we can do.”

Lara Ariell, CFO at Inland Revenue, New Zealand Government

03 Deciding how to make decisions

Everyone has ideas about what could be done to improve their business. But whether it's a small store or a name-brand global organization, some initiatives get funded and others are rejected or postponed. Someone has to rework the criteria that establish which projects get executive buy-in – and in large organizations, every strategic decision involves a lot of stakeholders. Who runs the show? Who is in the meeting where it happens?

A seat at the table

Project planning entails a huge amount of data analysis (often provided by myriad departments) such as budget numbers for new hardware or projected hiring costs for specialized staff. Ultimately, in the biggest organizations, it's the financial executives who collect this information and make sense of it. Typically, they use established, structured systems with the finance department as the center.

Most large companies have a regular way in which they manage the planning process, with some fluctuation. They can use more than one way to plan; the average respondent uses more than one methodology.

There are three common ways for the planning process to be managed, with roughly equal instances of use in the survey: each department uses one common connected platform (39%); finance does the overall planning, asking each department to submit fixed planning templates (37%); and finance owns the planning process, requiring departments to input their own plans into the system (32%) (see Figure 3). Geography has an influence in this regard – organizations in the Americas more frequently use departmental applications (42%, compared with only 34% in the Asia-Pacific region) – but not in an exceptional way.

Planning by spreadsheet is also a factor; 9% of respondents report that departments in their organizations submit their Excel spreadsheet files to finance. (A larger percentage, 20%, say spreadsheets are used in overall planning and budgeting to some degree – see “Challenges to connected planning,” page 20). It's more prevalent among midmarket companies – 19% of those with under \$1 billion in revenue do planning this way – but the practice is becoming less prevalent. That's fortunate, because research suggests more than 90% of spreadsheets have errors, and half of spreadsheet models used in large businesses have material defects that cause [significant business problems](#).

Figure 3: How planning happens

Planning is done differently at different organizations, but finance is the central repository of plans and planning data. Business departments do the following:

USE SPECIFIC APPLICATIONS CONNECTED TO FINANCE	39%
SUBMIT PLANNING TEMPLATES TO FINANCE	37%
INPUT PLANS INTO FINANCE'S SYSTEM	32%
PLAN IN EXCEL AND SUBMIT TO FINANCE	9%
USE SPECIFIC PLANNING APPLICATIONS NOT CONNECTED TO FINANCE	5%

Source: MIT Technology Review Insights survey of 860 senior executives, September 2020



Most large companies have a regular way in which they manage the planning process, with some fluctuation.

Spreadsheets also add uncertainty to the planning process. “In the past we used Excel spreadsheets,” says Ariell. “That meant that we spent precious time with our board building confidence that ‘the numbers were right.’”

Huerta’s role as CFO is pivotal in leading strategic planning across the organization. SMNYL’s process begins with insights from the finance department, and resulting strategies include input primarily from technology, operations, distribution, marketing, and HR. Depending on the company’s objective, she says, “The senior leadership team defines goals for the market, drafts a game plan to tackle them, and projects the potential impact on the distribution channel or the operation.” Then executives from various departments work on an implementation

plan that might include dedicated internal teams or hiring specialized consultants.

Similarly, the projects that are approved are the ones that deliver strategic objectives, explains Belinda O’Neil, finance executive at South African telecom operator MTN and director of Project Boost, its cloud enterprise resource planning program. “That doesn’t mean you get what you want,” or that the plan is affordable. O’Neil offers an analogy: “You might have your house plans approved by the city council, but that doesn’t mean you can afford the house.” Her organization works with 36-month rolling forecasts ordinarily, but the pandemic has moved some plans out by 18 months. “Affordability drives the postponement,” she says.



BUSINESS FOCUS:

Human resources and finance

Strategic initiatives ultimately are decided at the executive level, but it's clear that these choices are informed by guidance from finance executives, who in turn are guided by information from the HR department. It's critical for HR to be involved early in project planning beyond estimating headcount and identifying talent needs, says Nancy Estell Zoder, vice president for product strategy at Oracle.

"HR is the function that has the ability to make recommendations for what's needed to maximize workforce productivity and engagement while staying compliant with employment contractual terms and conditions," Estell Zoder says. "What does HR need to put in place in order to support workforce productivity in a very disruptive time?"

Managing the workforce

Any proposal for a new business plan has to take into account the staffing to support it. Whether the bright idea is a shift in market direction, adoption of a new technology, or a commitment to sustainable manufacturing, a strategic initiative has to factor in workforce planning, or how organizations determine future staffing needs. There are many questions to answer: Does the company need to hire or retrain staff with specialized skills? Are those roles better suited to full-time employment or outsourcing? What will that cost? What are the compensation trends for those new hires?

The MIT Technology Review Insights survey shows that organizations use multiple types of workforce planning: many adopt an approach of strategic workforce planning,

"Coordinating shifting priorities across the organization can be challenging. That's why working closely with HR is key."

Guadalupe Huerta, Chief Financial Officer,
Seguros Monterrey New York Life

examining required skills, competencies, and costs (51%) – or they put their attention on financial planning such as headcount costs (45%) (see Figure 4). Workforce shift scheduling (31%) is a niche need, dependent on business workflows that rely on shift work – for example, retail, health care, and manufacturing.

Sometimes big structural changes require new approaches to workforce planning. When transportation company YRC Worldwide moved to the cloud, for example, it streamlined information systems and enhanced what the company could achieve, says CIO Jason Ringgenberg. But that meant change – and new required skill sets. Previously, the IT department might have had to maintain and create custom systems or support several competing technologies, such as six separate database systems. "We recognize changing

Figure 4: Workforce planning today

Organizations take several factors into account when determining staffing needs, including business plan implications and current and projected headcount costs.



Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

skills as we buy more cloud solutions. That means we have to forecast what we'll need and manage any imbalances in skills." As a result, Ringgenberg involves HR early in the planning process for a new initiative, initially to confirm the cost of proposed new hires, then for talent acquisition and staffing partners.

The covid-19 crisis has made it even more difficult. "Organizational agility is crucial for strategic planning in times like these," Huerta says. "Especially because coordinating shifting priorities across the organization can be challenging. That's why working closely with HR is key."

The uncertainty about the business landscape caused a lot of organizations to lay off staff. As a business reorganizes and reimagines its future self, it has to take into account when those people can return to work and in which roles.

"This is where the alignment of HR and finance is critical. And as we have seen with this disruption, timely execution of these plans is also critical," Estell Zoder says. "We realized that taking into consideration not just what the workforce looks like, but what the workforce needs to look like and when – that has a direct impact on the bottom line."

Integration of HR and finance

Separate financial and HR management systems are a solid example of unnecessary business silos. But the intersection points are important, because each HR objective is tied to finance – for example, revenue targets, budgets, employee costs, and employee performance. Data needs to be consistent, accessible, and accurate.

That same data drives business planning and aligned execution of those plans.

In 2017 MIT Technology Review and Oracle partnered to ask finance and HR professionals how collaboration had improved across the functions with cloud applications on the same platform.¹ Even then, when cloud adoption was lower, the benefits were clear. Respondents (44%) in HR and finance reported several improvements – they were better able to meet senior management's information requirements, for example, and were more responsive to market opportunities and challenges.

There is no value to the business in maintaining interfaces between the two when they could share data on the same platform, according to Ringgenberg. "I can't think of a rationale why you would go with separate vendors for HCM and ERP," he says, referring to human capital management, or personnel software, and enterprise resource planning, often used in finance. In the 2020 survey, about half (52%) of organizations' financial and HR systems use a common integrated application platform from a single provider.

A lack of integration is a matter that Elhusseiny set out to address. "One of the challenges we faced with HR was to link payroll with time and attendance," which was a centralized process at Almuftah Group, he says. "We were able to change the process and adopt the best practice and decentralized time and attendance to put the responsibility with the division manager. Therefore, HR can focus on the information from the division manager, then run the payroll process, saving time and managing processes effectively and more efficiently."

05 Setting the scenario

Every proposed plan has possibilities – both good and poor. The process of deciding which investment is worthwhile involves a huge number of what-if questions, and one could drown in the answers.

Use of scenario modeling

Given the number of variables that can affect an organization's project planning, and the number of competing strategic projects, it's no surprise that most big companies conduct some form of scenario modeling as part of the planning process to identify, counter, or respond to future uncertainties. In the survey, nearly two thirds (62%) of them do, overall. The process, which can be aided by software, considers alternative scenarios for future events. The models let decision-makers recognize possible outcomes before committing to specific courses of action.

It's not an academic exercise – even for academics. “We are in the midst of a major disruption in higher education, and it's only begun,” says Brett Dalton, chief business officer at Baylor University. “The risk side of this equation is that if we do not make these changes, many of our institutions will cease to exist.” As he sees it, transforming how the university does business – especially in improving its technology-based systems – is an essential component of achieving its full potential. “We have an opportunity and an obligation to use these transformational opportunities to reduce our cost growth, to alleviate pressure on tuition and fees, to help students graduate on time, if not early,” he adds.

Figure 5: Scenario modeling use worldwide
Nearly two thirds of organizations use scenario modeling to do corporate planning, and it's popular in a handful of industries, led by finance.



REGION		
64%	65%	53%
AMERICAS	EUROPE, THE MIDDLE EAST, AND AFRICA	ASIA-PACIFIC

INDUSTRY	
FINANCIAL SERVICES	90%
COMMUNICATIONS	85%
HEALTH CARE	81%
PHARMACEUTICALS	81%
BUSINESS SERVICES	71%
RETAIL	48%
EDUCATION	37%
MANUFACTURING	34%
ENTERTAINMENT	33%

Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

The bigger the organization, the more valuable the practice is. In larger companies, three quarters use scenario modeling tools, compared with less than half among smaller ones.

Usage also varies by geography and industry (see Figure 5). Scenario modeling is used less often in the Asia-Pacific region, where a little more than half employ it. It's common in the financial, health-care, communications, and pharmaceutical industries, in which at least eight out of 10 organizations use it. But only a third of entertainment, education, and manufacturing organizations use scenario modeling tools.

In addition, companies that are reducing their cloud adoption because of covid-19 are less likely to employ scenario modeling; only a quarter of these organizations use it.

Huerta's team developed about 60 alternatives for scenarios, to prioritize what must be done under all circumstances. "This might seem like a gigantic effort, but keeping the organization focused only on what's most important has proved invaluable in this difficult year," Huerta says.

Why scenario modeling isn't more broadly used

Those that haven't adopted scenario modeling have two primary reasons: They see their business model as simple enough that the technology is unnecessary (39%), and their existing annual budgeting and forecasting meet their needs for identifying trouble spots (33%).

In other cases, they just haven't gotten it to work right. Two out of 10 organizations that used scenario modeling found the process cumbersome, and 14% haven't had the right tools to reap the benefits. Though large companies are bigger users of scenario modeling, they're twice as likely to depict it as cumbersome, compared with smaller companies. This could be because of the complexity of their operations. Despite these less-than-ideal experiences, it doesn't have to be



62%

OF ORGANIZATIONS USE SCENARIO MODELING TO IDENTIFY, COUNTER, OR RESPOND TO FUTURE UNCERTAINTIES.

this way: organizations can retool with modern, cloud-based tools with standard templates that are on the same platform as their finance and operational systems.

Success with scenario modeling is tied to corporate attitudes, particularly in response to a crisis, such as the pandemic. Some companies must make especially difficult decisions about their workforces and their product lines or services. They need to examine their products and services and figure out where they should be investing and de-investing. "Even if you're in an industry that wasn't negatively impacted, you still operate in a very competitive environment," says Marc Seewald, vice president of product management for Oracle's enterprise performance management software. "So you still need to take advantage of this moment to get ahead of your competitors. This is just driving the need to change more than ever."

Alternatively, the organizations that are actively reimagining their corporate future – on a healthy path toward new strategies – are stymied by a lack of tools. One fifth of those that haven't used scenario modeling say it's because they lack the necessary modeling tools. Seewald explains that one of those new strategies is not new at all: enabling agility. "When you have tools that help you better collaborate, are more automated, and have more transparency, then everyone is looking at the same consistent numbers." That means "there's confidence in those numbers."

"Even if you're in an industry that wasn't negatively impacted, you still operate in a very competitive environment."

Marc Seewald, Vice President,
EPM Product Management, Oracle

AI and the planning process

It's easier to make decisions when the risks, rewards, and obstacles are clear. Savvy decision-making depends on accurately analyzing all relevant information. When we know what was attempted previously, we can make better judgements about the likely outcome for a similar situation. That is a domain in which AI and machine learning are poised to add value. Thus, predictive intelligence and planning can add to any endeavor in which organizations need to make strategic decisions. AI and machine-learning technologies can examine historical data, compile insights from relevant business and economic trends, and create predictive models for the best, worst, and most-likely outcomes.

The MIT Technology Review Insights survey shows that 58% of organizations' planning systems and processes employ AI and machine-learning capabilities.

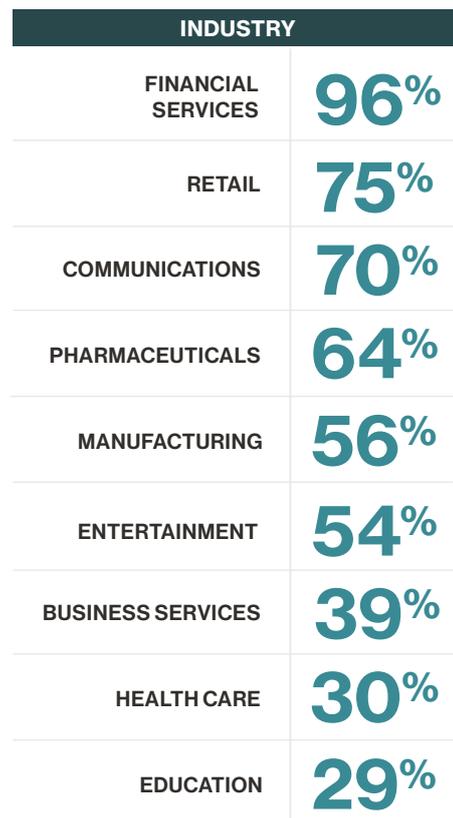
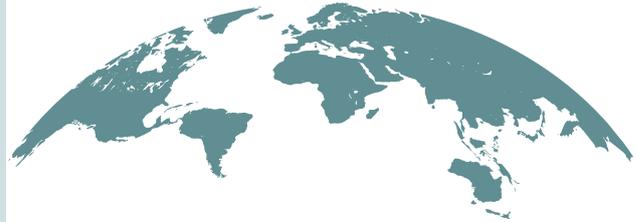
AI and machine-learning usage is higher in the Americas (where 63% employ it) than in EMEA (56%) or Asia-Pacific (49%) (see figure). It's more common in large companies (85% of those with more than \$1 billion revenue use AI and machine learning, compared with 30% of the relatively smaller organizations). It's also used more in financial services (where 96% use AI and machine-learning features), retail (75%), and communications services firms (70%), as compared with health care (30%), business services (39%), and higher education (29%).

The highlight here is the near-universal AI adoption among financial institutions. This might be because financial institutions tend to use systems that are more tightly controlled and connected, so their numbers tend to be more accurate; AI works best with a large pool of accurate data. Compare that with health-care providers and higher-education institutions, which tend to use more isolated systems and even paper-based processes – almost insurmountable barriers to AI adoption.

There's also some correlation between the other technologies upon which organizations rely and their adoption of AI and machine learning. Among those organizations that use supply chain planning systems,

AI and machine-learning use worldwide

More than half of organizations include AI and machine-learning capabilities into their planning systems and processes.



Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

for instance, 65% also use AI and machine-learning technologies for their business planning. Only 18% of companies whose cloud adoption is slowing deploy this advanced technology.

Scenario modeling timeframe

Strategic initiatives – the ones that define an organization’s future – get corporate executives’ attention. Almost by definition, these important decisions point the organization in a new direction, and the projects usually have longer lead times to develop and deploy.

As a result, three quarters of organizations worldwide use a timeframe of three years or more when they engage in long-range planning. SMNYL used to project cash flows for at least three years, but some elements today include 10-year forecasts. With these figures, Huerta says, the senior executive team defines opportunities and risks for the company, as well as their effects on agents and customers, answering the question, “What are the most important strategic projects that we want to implement over the next year?”

For example, some years ago the insurance company decided to launch a new customer relationship management system to support its distribution channel. The business case for the initiative included detailed plans for 10 years, covering information about resources, advisors, technology and maintenance costs, projected cash flows, and return on investment.

“All of these processes are integrated into the overall financial plan to project total company results, including

58%
of organizations
employ AI and machine-
learning capabilities in
their planning systems
and processes.



regular operation plus investments for the following 10 years,” Huerta says. The process involves distribution, technology, customer service, finance, and HR. “It also helps us define a plan for hiring consultants.”

How often are scenarios revisited?

A company may start out with a grand plan, but idealistic ideas don’t always pan out. Most innovative projects need to be recalibrated along the way, based on real-world experiences. When organizations use scenario modeling, they sometimes rerun the models regularly – 35% do so monthly, for instance – using new data or information to adjust their plans (see Figure 6). But it’s done most often on an ad hoc basis (46%).

Unsurprisingly, the pandemic is a significant “ad hoc” event. For instance, telecom MTN usually does eight-month forecasts for its projects. But, says O’Neil, “When the pandemic hit, we re-baselined.” Instead of an updated forecast, the organization revisited its 2020 projections. Doing so took more than the virus into account; variables also considered exchange rates and other items of global instability. The project outcomes influenced the company’s decisions to defer or renegotiate contracts, and whether it should slow down or speed up deployment.

The right tools make it easier to revisit assumptions. “We run predictive insight and scenario models at the moment to test our thinking,” says the New Zealand government’s Ariell. “We are also using these models to build confidence of our people in them. I think building confidence that AI generates ‘sensible’ and logical results will help us be more comfortable using them.”

Figure 6: Time for scenario modeling

Nearly half of organizations use the planning tool on an ad hoc basis, while more than a third run it every month.

CONTINUOUSLY	4%
DAILY	5%
WEEKLY	11%
MONTHLY	35%
AD HOC	46%

Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

BUSINESS FOCUS:

Managing the supply chain

Businesses rely on their supply chains to design, source, make, and deliver their products and services. The supply chain includes producers, vendors, warehouses, transportation companies, distribution centers, and retailers. The supply chain is all the things that an organization needs to survive and thrive, and the activities that support those things: forecasting customer demand; planning the requirements for materials, resources, and inventory; and tracking workflows for product sourcing, manufacture, and distribution.

Supply chains can be complex, fragmented processes that require a constant flow of product, orders, information, and fund transfers at different stages. Because it is often managed in a just-in-time way, supply chain management was one of the first business processes affected by the pandemic, and disruption to the flow of goods and services from the manufacturer to the end user initially affected some parts of daily life with far-reaching consequences.

Connected supply chain planning

Demand for product or services drives the supply chain planning cycle, which generally begins with demand forecasting. A key performance indicator for demand planners is forecast accuracy – overestimating demand can lead to excess inventory, and underestimating can result in stockouts, or empty store shelves. A more accurate forecast leads to more efficient operations and happier customers.

Most large organizations engage in sales and operations planning, a process used to balance demand and supply and give executives the information they need so they can approve and execute the overall plan. But supply chain planners struggle with disconnected systems that slow down decision-making and introduce errors in the planning process. Leading organizations are addressing the systems issue with integrated cloud-based platforms and cross-enterprise planning approaches such as integrated business planning, which pulls cross-departmental data from internal and external operations and finance data sources to build the strategic plan, forecast demand and supply, and drive execution. Techniques such as integrated business planning require a commitment to cross-departmental collaboration and data sources.

The business impact is big, according to Mitch Haynes, vice president for supply chain planning at Juniper Networks. The company, which sells networking and cybersecurity technology, moved its supply chain operations to the cloud in 2016 and now taps [integrated business planning for its supply chain operations](#). With it, Juniper can go through a challenge and not spend too much time focusing on why we made decisions,” he says. “It’s impossible to know the unknown. But it is possible to make decisions in a connected way.”



55%

OF ORGANIZATIONS
HAVE SYSTEMS IN
PLACE TO MANAGE
SUPPLY CHAIN
PLANNING.

Two-thirds of the biggest organizations rank supply chain planning as “important” and “strategic,” with teams and systems deployed to manage planning activities. That’s significantly different from midmarket organizations – a third still rely on spreadsheets to conduct their supply chain planning.

While most organizations believe in the importance of supply chain planning – 55% have dedicated systems – it’s often implemented in piecemeal fashion, with responsibility spread across multiple departments (41%). In 16% of companies, at least some of the supply chain management is managed using spreadsheets.

The short-term impact on business processes may be “emergency,” but there is hope – and technology is playing a part. Many companies are successfully recovering from their initial disruptions and working toward a brighter future by actively planning their next steps. Most depend on existing relationships across their organizations, with leaders in each line of business actively working together.

07 The collaboration mandate

None of us works alone. The larger the organization, the more people are involved, the more stakeholders need to be consulted, the more departments are affected. The only way to get anything done is to find ways to collaborate – and that goes beyond meetings to incorporate budget information, databases of past performance, timeline predictions, and supporting documentation. Without people doing their agreed-upon parts, the system breaks down – timelines are left out-of-date, and that could throw off a key project upon which the organization's future depends.

Cross-departmental collaborative planning is an essential part of connected enterprise planning. It's based on common processes and technologies, incorporating financial, operational, and workforce data to provide visibility and guide decision-making and execution. Disconnected finance and operational systems have led to disconnected business processes. That has made business processes rigid and difficult to change, says Seewald. "To make a single decision or to run through a simple financial scenario shouldn't take 20, 30, 40, 50 people running around and collecting data from lots of different systems and hoping and praying that it all reconciles and ties together." That creates an us-versus-them culture, instead of a collaborative enterprise in which everybody's pulling in the same direction.

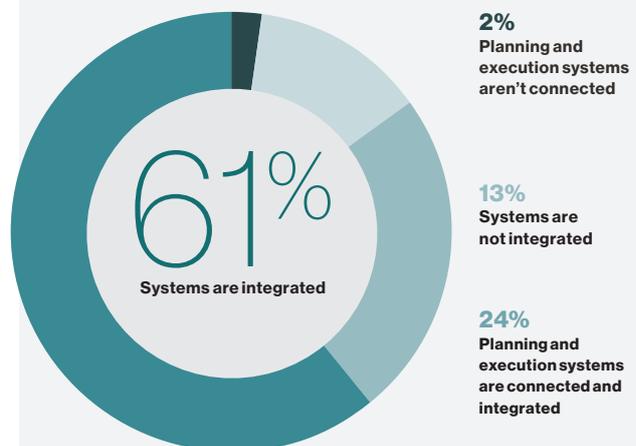
Ultimately, the goal is increased agility. "Whole industries are being disrupted," says Seewald. "Companies need to be able to move much more quickly."

Expectations of connected enterprise planning

Connected enterprise planning is among the initiatives that nearly everyone welcomes. Three quarters of corporate leaders surveyed expect it to improve their collaboration and decision-making; in the worst case, they see it as having no change in operations (26%). In other words: it can't hurt, and it could make things a lot better.

Figure 7: Planning moves toward automation

More organizations are integrating their planning processes with ERP, supply chain, and HR systems.



Source: MIT Technology Review Insights survey of 860 senior executives, September 2020

The enthusiasm is greatest in organizations with more than \$1 billion in revenue, where 39% expect connected enterprise planning to “greatly improve” business processes. That’s in comparison to 26% with a similar sentiment in the under-\$1 billion organizations. That makes sense: The bigger you are, the more moving parts are involved in the decision-making process, and the more cumbersome it becomes.

Connected enterprise planning is also particularly welcomed among financial services organizations – where 51% expect it to “greatly improve” decision-making – health care (46%), and pharma (41%). While these respondents represent big organizations, their positive feelings may also be influenced by the life-and-death nature of some of their decisions.

With so many elements required for strategic decision-making, it’s important for all the relevant data to be organized and analyzed – which means the data has to be updated and synchronized regularly, ideally automatically. Nobody wants to make decisions on out-of-date numbers.

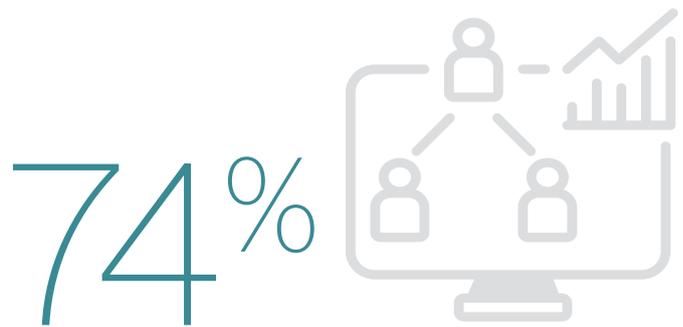
Largely, organizations eager to use connected enterprise planning already have connected their planning systems and processes to their execution systems and transaction systems, such as enterprise resource planning, HR management, customer relationship management, and supply chain applications (see Figure 7). For a quarter of these organizations, everything is automated.

Only 13% of respondents work in environments without connected systems or where information updates require manual intervention. Manufacturing, business services, and higher-education organizations are more likely to require manual intervention to share data between systems.

Challenges to connected planning

The companies that are dialing back their cloud adoption aren’t busy integrating their organizational planning systems. For 39% of these organizations, the systems require manual intervention.

One arduous challenge is data silos – wherein only one group can access a data source. Separate stores of data arise naturally as organizations grow. Company culture, technology, organizational processes, and privacy concerns may limit or discourage data sharing, which can cause duplicative efforts and insulation of data flow.



of corporate leaders expect connected enterprise planning to improve collaboration and decision-making.

That slows down data-driven decision-making, creates boundaries between teams, and costs more.

It’s not a surprise. Organizations are aware of the benefits of sharing data across the business. But busting the silos is easier said than done. Large organizations have huge data repositories and a high awareness of their need to manage them. Only a quarter report that the data needed for enterprise planning is still locked in silos and stored in different formats; for 33%, it’s not a pressing concern. Silos are particularly prevalent among organizations that are decreasing their cloud adoption as a result of the pandemic; more than a third say their company data is organized thus.

IT is more acutely aware of siloed data than other departments are, in part because the computing department is the central organization that supports data collections of all sorts.

Another big challenge is spreadsheet use. When spreadsheets are used for their original intention – crunching numbers and exploring variances in numerical models – they are marvelous tools. But too often, spreadsheets are pushed beyond their limits. Real-time updates are difficult, and they’re vulnerable to errors, which can be devastating (not the least of which is a [now-well-known failure](#) to accurately report covid-19 cases because of a spreadsheet limitation).

But it's awfully hard to quit. One fifth of all survey respondents report that their organizations still use manual spreadsheets for general planning and modeling activities. While 42% have banished spreadsheets for planning, it's impossible to count them out: 40% of midmarket companies still rely on spreadsheets to some degree.

Spreadsheets are a symbol of the technology laggards. Among organizations that are decreasing their cloud adoption as a result of the pandemic, 33% still use manual spreadsheets for planning.

Sometimes, spreadsheets are a holdover from a legacy system or business process. "We will still prepare the spreadsheets before we use budgeting and planning tools because we are migrating from a 20-year-old platform," says O'Neil. That will stop once the migration is complete. "We are transitioning to [business intelligence] analytics."

Power duo: Human and machine

The planning systems may be ready to interoperate, but humans may be less prepared. Effective collaboration is a combination of soft skills – such as becoming a better listener – and technical proficiency. Even if you're already

an expert at time management and meeting etiquette, most workers need to understand how to use all those software systems.

For people to engage with each other productively and efficiently, everyone needs to level up. In most organizations the skills perceived as most-in-demand are data visualization (56%), AI and machine learning (49%), and interpersonal skills (45%) (see Figure 8). None of these is low in priority or exclusive, however; it's merely a question of which is most urgent.

To some degree, the perceived skill weaknesses reflect the personal worldviews that the survey respondents hold and the technology that reaches their desks. C-level execs are more likely to realize a need for data scientists, while IT management is hungrier for staff who understand AI and machine learning.

AI and machine learning are making significant progress in technical spheres. Products that use these advanced algorithms offer jaw-dropping capabilities across a vast set of knowledge domains, from medical advances to fraud recognition to data-based planning systems. Even more impressive is that these technologies are gaining the trust of businesses that want to gain their benefits. More than half the executives trust planning outputs from tools that use AI and machine-learning capabilities. Only 14% are leery of AI and machine-learning recommendations – though that percentage is higher among C-level and finance execs.

Financial institutions, communications companies, and corporations with more than \$1 billion in revenue are most willing to trust planning outputs from software tools that use AI and machine learning. "I am a true believer that AI can help us," SMNYL's Huerta. "We need to find new ways to integrate the knowledge from experts within the organization – that is, people who have deep knowledge of our business. AI can definitely help us achieve that."

Collaboration has become a bit of a buzzword, but it doesn't deserve that fate. Humans accomplish so much more when they work together, and it's easier to do that when they depend upon reliable data sources. According to an Oracle survey, three quarters of respondents say AI has helped their mental health at work.²

Enterprise collaboration is about the way a large organization communicates. Team members need to

Figure 8: Skills needed for cross-enterprise planning Organizations that want to collaborate need to develop skills together: visualizing data and understanding AI are the most important.

DATA VISUALIZATION	56%
UNDERSTANDING AI/MACHINE LEARNING	49%
NETWORKING AND INTERPERSONAL SKILLS	45%
BUSINESS ACUMEN	44%
COMMERCIAL AWARENESS	43%
DATA SCIENCE	38%

Source: MIT Technology Review Insights survey of 860 senior executives, September 2020



“The objective is to achieve cost optimization, improve planning and increase flexibility. Now we have the backbone of the organization – finance, HR, and supply chain – working in harmony and efficiency.”

Khaled Elhusseiny, Group Chief Financial Officer, Almuftah Group

work together as humans – to discuss their work, deliver feedback, and cross-pollinate ideas – and in technical terms, such as ensuring that data reaches the right department in a timely manner. All those efforts benefit from platforms and technologies that automate and monitor business systems.

At a high level: 57% of systems rely on a common platform and data model, and 55% trust planning outputs that use AI and machine learning. Those connections can happen in many ways. The survey asked executives to identify their agreement with various business practices and tech tools, in order to ascertain what has the greatest impact. It starts with an organized process that manages collaboration and tools that ease communication.

- **Cross-enterprise planning.** Interdepartmental friction is a known issue for large companies. But the upshot nowadays is, despite grouching about working with people in other silos, it is reasonably common for people to work together – at least sometimes. In some circumstances, after all, departments can work alone; for example, a design department doesn’t necessarily need to consult with other parts of the organization about its choice of stock photo provider to standardize on.
- **Common platforms and data models.** Large organizations used to be hindered by a lack of standardization, which caused interoperability headaches. Every department felt that it was its right to use the tool best suited for its own needs, even if that meant it was difficult to share data outside its realm. The platforms have changed, but the issues remain the same. While IT attempts to create standard tools across an organization, that goal is not always met.

But the survey shows most organizations have moderate success. Nearly three-in-five agree strongly (16%) or somewhat (41%) that their systems rely on a common platform or data model. For example, when Elhusseiny was appointed CFO at Almuftah Group in 2016, there was no strategic plan in place, and the planning cycle was not unified across the corporation. There was a simple budget preparation process that included the finance team and each division manager from Almuftah’s 35 companies, with no specific and unified processes or guidelines for budget preparation for each division. “Once the budgets were discussed with finance, they were individually forwarded to and approved by the owners,” Elhusseiny says.

Everything gets more predictable and organized when it’s managed together. “We transitioned the group to one planning cycle that included all 35 companies,” Elhusseiny says. The company also implemented a unified, organization-wide review process. Its budget was developed in three phases – development, review, and approval, with two committees managing the process: an executive committee comprising business owners and division managers, and a finance committee headed by the group’s managing director and CFO.

“The objective is to achieve cost optimization, improve planning and increase flexibility,” says Elhusseiny. “Now, and after one year, we have the backbone of the organization – finance, HR, and supply chain – working in harmony and efficiency.”





Conclusion: Plan together, succeed together

When the 2020 coronavirus pandemic swept the globe, organizations worldwide scrambled to address a litany of emergency situations – and some are still doing so, many months afterward. But there is hope – and technology is playing a part. The MIT Technology Review Insights survey shows many organizations are successfully recovering from their initial disruptions and working toward a brighter future by planning their next steps. Most depend on existing relationships across their organizations, with leaders in each department or division actively working together. By planning collaboratively, using cloud-based systems and tools, organizations are poised to return to growth, improve operations, and find new ways to innovate. In conclusion:

Tech-forward organizations are handling the crisis aftermath with confidence. The survey shows that bigger companies committed to addressing immediate challenges to the company, workforce, and customers were more likely to increase their investments in cloud. And these cloud accelerators are more likely to take head-on approaches to challenges.

Planning happens in different ways at different organizations. Companies as a whole are becoming more-connected organisms, and most see broad value in integrating systems so that data can easily move from one planning stage to another. A large majority of the corporate leaders surveyed agree that connected enterprise planning, incorporating data sources across the business, will improve decision-making. But such planning approaches are still largely aspirational.

Collaboration is key to successful planning. Organizations need to take on enterprise planning as one. But to do that, finance needs to move in lockstep with human resources and the supply chain – they need to access the same systems and data. Obstacles remain – including knocking down the data silos that have cordoned parts of the business from one another, and spreadsheet use in planning, which has a tendency to perpetuate inaccuracy. With better collaboration and communication, organizations can pave a way to a thriving future.



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Footnotes

- 1 "[Finance and HR: The Cloud's New Power Partnership](#)," MIT Technology Review Custom, in partnership with Oracle, 2017.
- 2 "[As Uncertainty Remains, Anxiety and Stress Reach a Tipping Point at Work](#)," Oracle Workplace Intelligence, 2020.

Illustrations

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