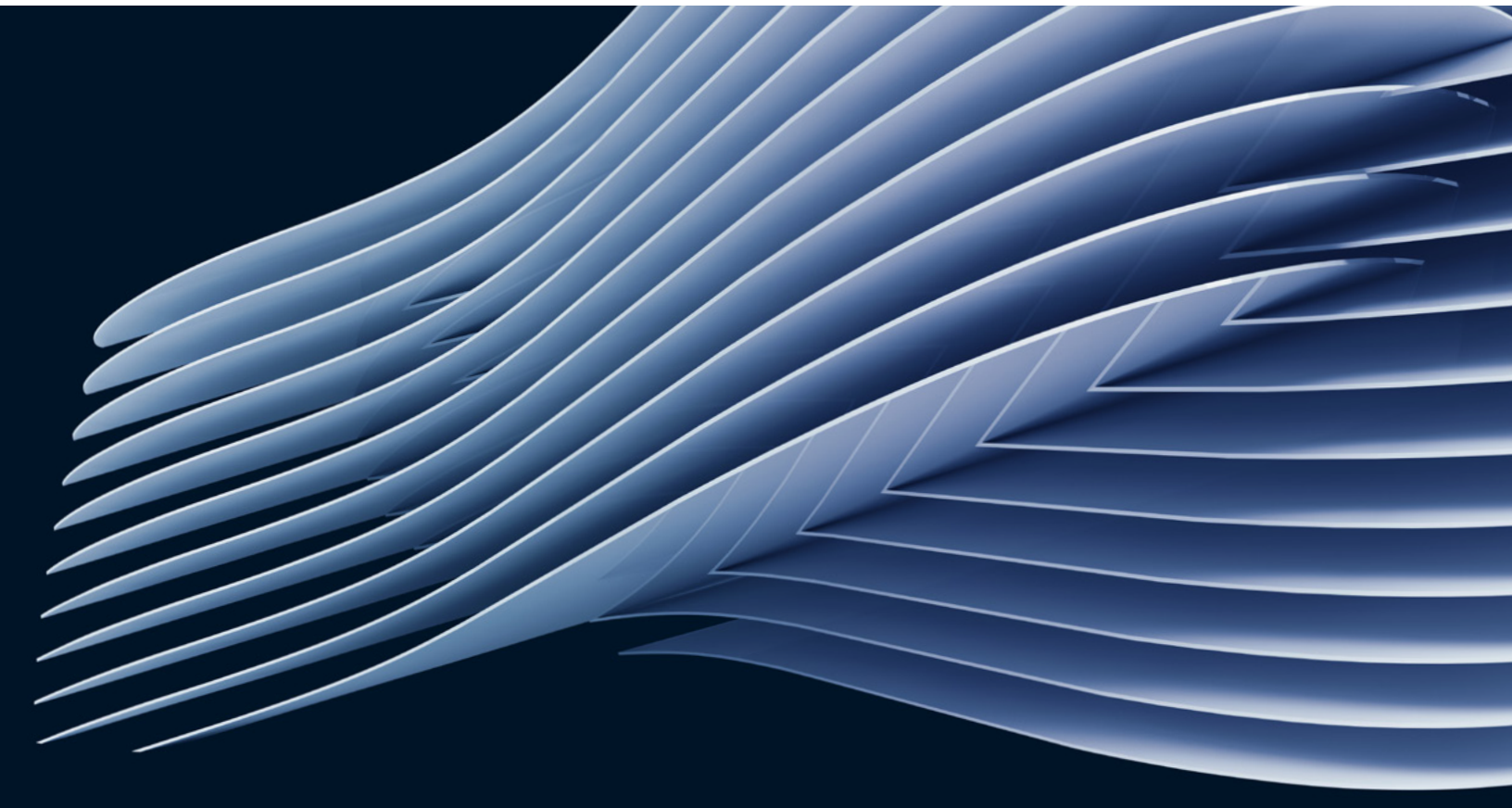# McKinsey Analytics

Accelerating analytics to navigate COVID-19 and the next normal

Organizations are standing up analytics capabilities in a matter of weeks to inform business responses to COVID-19 challenges and prepare for the future. Here's how.

by Nicolaus Henke, Ankur Puri, and Tamim Saleh

Prior to the COVID-19 pandemic's stranglehold on the world, leaders increasingly embraced advanced analytics and artificial intelligence (AI), for good reason. These capabilities are expected to offer between $9.5 trillion and $15.4 trillion in annual economic value.

Along the way, many executives found they had to overcome hefty cultural and organizational hurdles. Most have yet to apply the core practices, such as agile delivery methods and strong data practices, necessary to scale the technology successfully.

Simply put, while analytics and AI adoption were progressing, it took time.

Today, time is a luxury that leaders don't have. COVID-19 has upended business as usual for communities and corporations, which must now strive first and foremost to save lives and livelihoods. Communities, specifically governments and healthcare workers, are leading efforts to support victims and their families and contain a virus that already has infected millions of people globally and claimed hundreds of thousands of lives. At the same time, business leaders must protect their employees and customers while managing the economic repercussions in the wake of community lockdowns, consumer fear, and continual uncertainty. The decisions they make today may alter their company's trajectory for years to come.

In these uncharted waters, where the tides continue to shift, it's not surprising that analytics, widely recognized for its problem-solving and predictive prowess, has become an essential navigational tool. Analytics supports numerous urgent tasks facing businesses today: forecasting demand, identifying potential supply-chain disruptions, targeting support services to at-risk workers, and determining the effectiveness of crisis intervention strategies, to name a few.

What *is* surprising is how quickly organizations— even those with limited analytics experience—have stood up analytics solutions for these purposes. Analytics capabilities that once might have taken these organizations months or years to build

came to life in a matter of weeks. This despite organizations simultaneously grappling with the challenge that pandemic-induced behavioral and economic shifts have rendered some historical data useless.

Leaders who apply the learnings from these rapid analytics builds in order to embed AI and analytics enterprise-wide will be in a stronger position to tap deeper into the value waiting to be unlocked. They'll also be ahead of others in addressing the near-term challenges that the pandemic has raised in analytics itself—for instance, by rethinking modeling approaches to reflect the uncertainties and building novel data pipelines to account for new data.

To that end, we share six key lessons that have emerged from crisis-response efforts. While we've exposed some of these practices in earlier articles, we now view them through the lens of having seen companies launch often-heroic efforts to protect lives and livelihoods. At the end of the article, we provide insight into how leaders can keep the momentum going.

Lesson 1: Analytics must be aligned with business priorities

Our research finds that only 30 percent of organizations align their analytics strategy with their broader corporate strategy. Companies that have scaled AI effectively are nearly four times more likely than others to align these strategies (Exhibit 1). The rapid response organizations have waged to address COVID-19 challenges shows that this step is arguably the most critical in achieving impact with analytics.
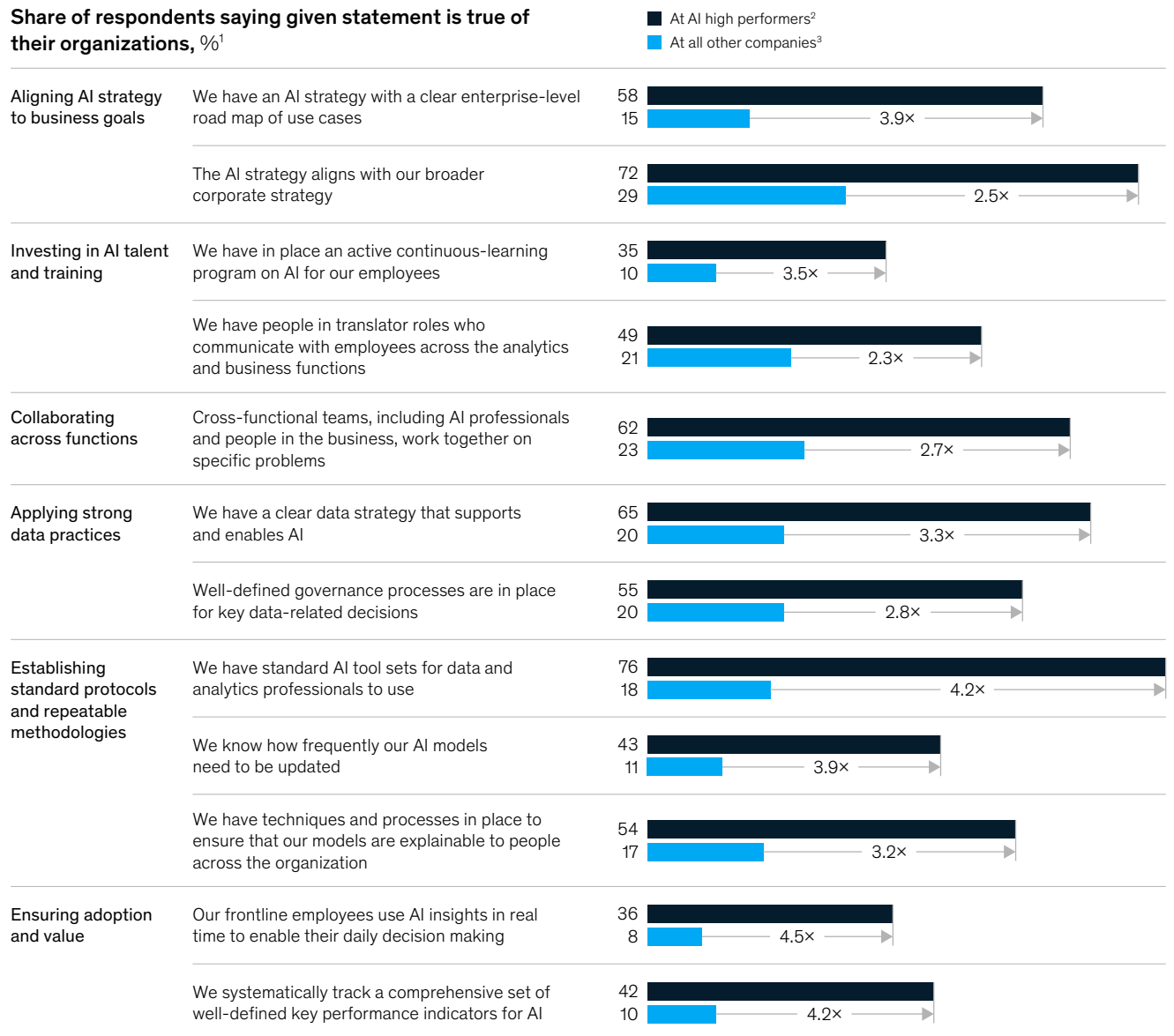
In the COVID-19 response, the first task for organizations was, of course, identifying the new business challenges that emerged overnight. To that end, many organizations stood up central nerve centers, mobilizing business and analytics resources to inform and address these challenges by building new data streams, reporting on business-critical issues to guide near-term decisions, and developing longer-term views of data to understand what the future may hold for their company, customers, and suppliers.

With a fully aligned agenda and a clear view of the crucial missions, organizations were primed to stand up analytics-driven solutions that enabled leaders to adjust course amid the daily whiplash of COVID-19 challenges and to prepare more effectively for the future.

Exhibit 1

Organizations achieving greater scale and impact from AI are much more likely than others to report that their organizations apply core practices for scaling AI.

Share of respondents saying given statement is true of their organizations, %[1]

■ At AI high performers[2]
■ At all other companies[3]

		High performers	All others	Multiple
Aligning AI strategy to business goals	We have an AI strategy with a clear enterprise-level road map of use cases	58	15	3.9×
	The AI strategy aligns with our broader corporate strategy	72	29	2.5×
Investing in AI talent and training	We have in place an active continuous-learning program on AI for our employees	35	10	3.5×
	We have people in translator roles who communicate with employees across the analytics and business functions	49	21	2.3×
Collaborating across functions	Cross-functional teams, including AI professionals and people in the business, work together on specific problems	62	23	2.7×
Applying strong data practices	We have a clear data strategy that supports and enables AI	65	20	3.3×
	Well-defined governance processes are in place for key data-related decisions	55	20	2.8×
Establishing standard protocols and repeatable methodologies	We have standard AI tool sets for data and analytics professionals to use	76	18	4.2×
	We know how frequently our AI models need to be updated	43	11	3.9×
	We have techniques and processes in place to ensure that our models are explainable to people across the organization	54	17	3.2×
Ensuring adoption and value	Our frontline employees use AI insights in real time to enable their daily decision making	36	8	4.5×
	We systematically track a comprehensive set of well-defined key performance indicators for AI	42	10	4.2×

[1]Question asked only of respondents who said their companies had embedded or piloted ≥1 AI capability.
[2]Respondents who said companies have adopted AI in ≥5 business activities (ie, top quartile for the number of activities using AI), seen an average revenue increase of ≥5% from AI adoption in the business units where AI is used, and seen an average cost decrease of ≥5% from AI adoption in the business units where AI is used, n = 54.
[3]n = 1,818.
Source: McKinsey Global AI Survey, March–April 2019, n = 2,360

Today, we find many business and analytics leaders rallying around new analytics solutions or redesigning existing ones to support four critical business priorities arising from the pandemic: protecting and supporting employees; informing strategic and financial decisions; managing supply-chain safety, risks, and costs; and engaging customers in new—and increasingly digital—ways (Exhibit 2).

Exhibit 2

Organizations have been using analytics to respond to challenges arising from the pandemic in four critical areas.

	Sample use cases	Examples
Protecting and supporting employees	• Workforce-sentiment analytics and tailored employee engagement • Workforce-protections management • Remote-workforce optimization • Dynamic workforce-availability planning	**Large retail company** • Analytics solution: Dynamic workforce-management tool • Result: More accurate prediction of workforce availability and institution of contingency measures • Time to minimum viable product: ~3 weeks
Informing strategic and financial decisions	• COVID-19 scenario modeling • Operational transparency • Scenario planning for cash flow and market demand • Real-estate footprint optimization	**Global mining company** • Analytics solution: Global finance tool for end-to-end cash-flow forecasting and analysis • Result: Insight into potential impact of rapidly shifting commodity prices and inflation rates on collective cash flow in minutes (formerly in weeks) • Time to minimum viable product: ~3 weeks
Managing supply chains	• Scenario planning and forecasting to minimize supply-chain risks • Modeling cost drivers to control supply-chain costs • Optimization of delivery routes	**Retailer with grocery stores across 15 countries** • Analytics solution: Digital tool providing end-to-end visibility of inventory levels and supplier deliveries and forecasting capabilities • Result: Increased stock targets in first 3 weeks for about 80% of critical products • Time to minimum viable product: ~3 weeks
Engaging customers	• Proactive customer contact with personalized messaging • Capacity planning and call-center optimization • Sales optimization	**Energy-utility retailer** • Analytics solution: Customer-centric analytics framework that granularly segments customers based on value, identifies root cause of potential churn, and enables staff to modify offers across products and functional areas weekly • Result: 60% reduction in campaign-management time (from months to days) with early test showing 12% increase in profit per customer and 20% higher retention • Time to minimum viable product: ~2 weeks

Lesson 2: Functional silos aren't as rigid as they appear

We have written extensively about the cultural and organizational changes necessary to scale analytics and AI, including the move from siloed work to interdisciplinary collaboration. Prior to the crisis, our research showed that those realizing higher returns from AI and scaling it more broadly were much more likely than others to assemble cross-functional teams to solve business problems (62 percent, compared with 23 percent). However, during the crisis, we observed many organizations, regardless of analytics maturity, automatically assembling cross-functional crisis-response teams with all relevant stakeholders to develop analytics solutions for faster response.

At one automotive-parts supplier, leaders could rapidly adjust production capacity after supply-chain, manufacturing, marketing, and analytics staff collaborated on a forecasting tool that anticipates sales by market and vehicle type across several dimensions, including the macroeconomic impact of COVID-19, consumer acceptance of new automotive technology and trends, and regulatory policies. Before COVID-19, these business units worked independently and had little interaction with each other. In fact, supply-chain experts mapping out data requirements quickly identified the importance of procuring automotive sales and production data from a leading automotive-data vendor, only to learn that marketing had already acquired and regularly used this data. Had these teams not collaborated during the crisis, such disconnects would likely have slowed their response, potentially causing supply-chain bottlenecks.

Lesson 3: Your organization is more agile than you think

Agile delivery methods can enable the creation of a minimum viable product in weeks. Iterative development sprints, for example, free teams to test ideas rapidly, gain user feedback early in the process, and adjust.

During the COVID-19 response, we've seen even organizations that hadn't adopted or trained employees on agile practices apply agile concepts to get the quick answers they needed. For instance, the finance team at a mining company where each mine had tracked cash flow individually began working iteratively and collaboratively in sprints to gain an aggregated, more accurate view of cash flow across all its mines. The team first developed basic capabilities: digitizing disparate cash-flow models across the company's top 20 mines (which collectively deliver 80 percent of the organization's revenue) in a single platform and centralizing assumptions across mines so leaders could quickly assess the effect of market changes on the organization's solvency. Subsequent sprints will significantly improve forecasting accuracy and expand insights as the team reassesses every value driver in the business and incorporates real-time data and additional financial levers, such as debt structure and dividends.
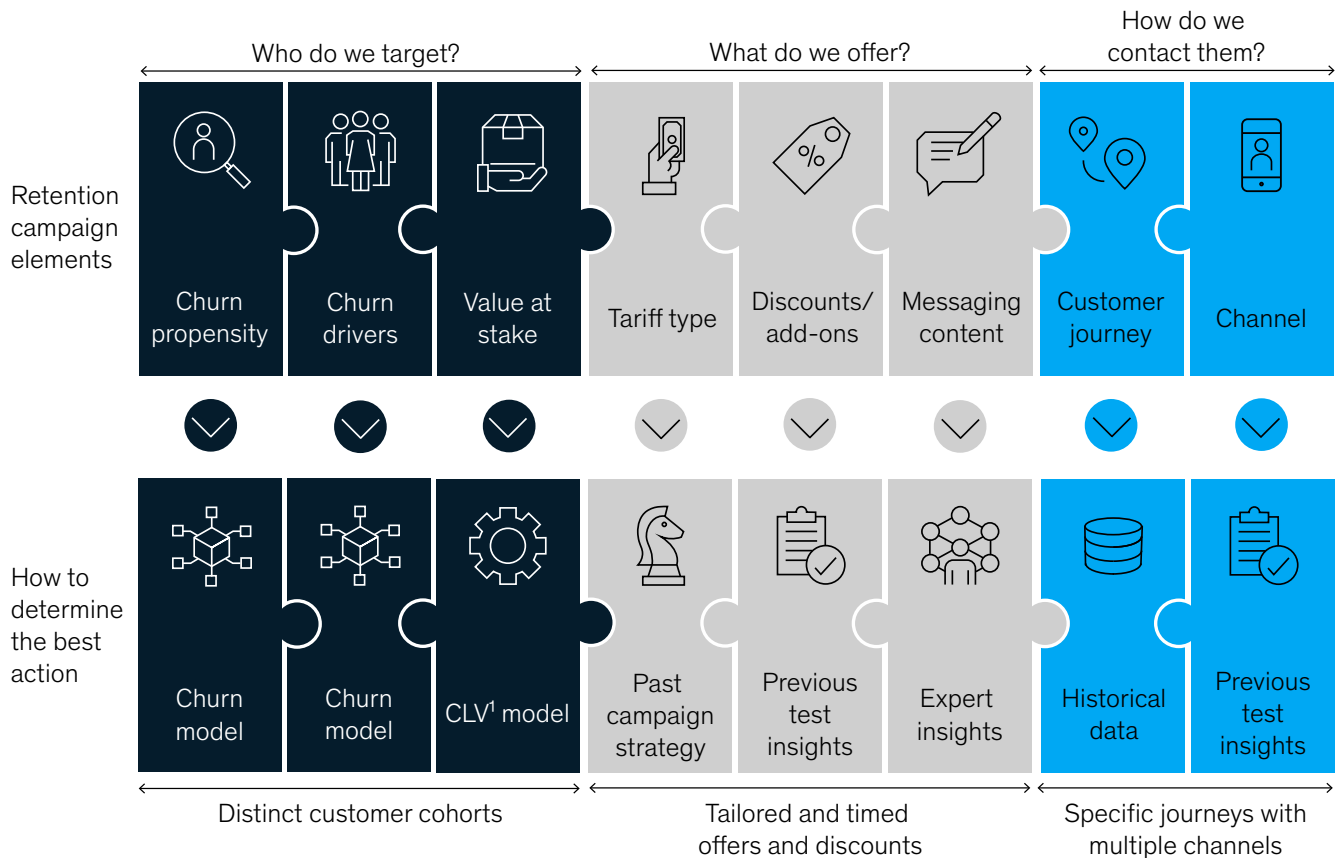
Lesson 4: Frontline teams need full decision-making rights

We find another essential cultural change for analytics-enabled organizations is the shift from top-down decision making to data-driven decision making by those on the front line. For many organizations, such change can appear formidable, as it runs counter to deeply ingrained processes and business beliefs. However, during crisis-response efforts, organizations have readily empowered frontline employees with decision-making authority.

One energy-utility retailer mobilized employees from across the campaign-management journey, from data owners to campaign and channel managers (another example of interdisciplinary teamwork). These employees were granted decision rights to address the full customer journey, including who they would target, what to offer, and when and how to contact these target customers (Exhibit 3). With all relevant roles brought together, authorized to act, and empowered with customer-centric analytics, the team could test new ideas and fine-tune offers within a matter of two weeks, improving their engagement with customers in a turbulent environment.

Exhibit 3

An energy-utility retailer empowered a cross-functional squad to address the entire campaign-management journey.

	Who do we target?			What do we offer?			How do we contact them?	
Retention campaign elements	Churn propensity	Churn drivers	Value at stake	Tariff type	Discounts/ add-ons	Messaging content	Customer journey	Channel
How to determine the best action	Churn model	Churn model	CLV[1] model	Past campaign strategy	Previous test insights	Expert insights	Historical data	Previous test insights
	Distinct customer cohorts			Tailored and timed offers and discounts			Specific journeys with multiple channels	

[1] Customer lifetime value.

Lesson 5: Get comfortable with data imperfections and ahead of model drift

The crisis also forced leaders to grapple with new data challenges arising from the sweeping shifts in economics and consumer behaviors playing out in the data that feed analytical models. One was sizable model drift as pandemic-related data issues tested the robustness of even well-honed and calibrated models. For example, as the crisis unfurled, one large industrial firm found that its model for forecasting global demand churned out error statements because the output no longer fit within the boundaries of the existing model. To get its forecasting engine back to work, the organization had to reset model boundaries, apply new modeling techniques, and incorporate new data sources.

Leaders also had to acknowledge that, while existing data weren't ideally robust, they still could generate useful insights, if used with a healthy dose of human judgment. One large European private-equity firm took this approach when it set out to understand the relationship between disease development, government responses, and economic repercussions for each sector in which the firm invests. Firm leaders recognized that analytics predictions could vary widely depending on data sources and assumptions. They decided there was value in continuing to see the different predictions and, over time, refining their models as they observed which were most accurate.

The modeling tool, which was deployed in just three weeks, now assists firm leaders in managing risks, such as understanding which assets might face severe financial distress or bankruptcy if closures persist. It is also helping the firm identify investment opportunities, such as mergers and acquisitions, in this volatile market.

In other cases, a more expansive view of data led to active sourcing of public and third-party data sets. For example, a retail organization augmented its workforce-availability analysis and contingency planning with third-party data sources, including epidemiological model predictions and location-specific information, such as whether employees would likely commute to work via city buses, passenger trains, or subways for each zip code where it operates. By analyzing these data sets in conjunction with its internal workforce data on employee segments, regional managers could more accurately anticipate when and where they'd need to adjust their workforce plans (for example, hire or move associates) and institute contingency measures, such as shortening store hours.

Lesson 6: Standard tooling and technology improves reaction time

Past research highlights the importance of providing common tooling and technologies for data and analytics professionals. In our most recent AI survey, organizations reporting widespread use of AI were 4.2 times more likely than others to have standard tool sets (76 percent, versus 18 percent of others).

During the crisis, we saw organizations put this principle into action to accelerate data ingestion, standardize data, and ensure consistency during model development. The previously described mining company, for instance, is using standard tooling to enable different teams across supply chain, finance, and human resources to integrate their data and leverage common data sets for multiple use cases. And at a retailer with grocery stores across 15 countries, supply-chain leaders leveraged the retailer's central nerve center to build and deploy a digital tool that enabled end-to-end visibility of stock levels and supplier

deliveries at a country, regional, and store level. Development of this tool—deployed after just three weeks—required standardizing massive amounts of data generated by localities that often differed in how they captured and defined their data. Without centralized tooling and efforts, such standardization could drag on for months.

Keeping the momentum: How to make the progress stick

The organizations described here illustrate that it is possible to accelerate some of the core changes necessary to scale analytics and AI. However, leaders must continue to invest in key areas, or such gains will likely be fleeting. To keep the momentum, we recommend leaders focus on the following actions first:

— *Identify and clearly articulate the reasons to sustain new ways of working.* COVID-19 responses demonstrated that when the imperative is clear, employees will quickly push aside any roadblocks and rally to respond. Across sectors, as companies begin to rebuild, leaders will need to rethink their business models, given that some of the profound shifts we've seen will likely stick, and clearly articulate to employees the raison d'être for the new model along with the role of AI and analytics. For instance, retail leaders will need to share with employees that digital is here to stay; in the United States, for example, 75 percent of people using digital channels for the first time indicate that they will continue to use them post-crisis. Leaders also should express their vision for expanding or enhancing their company's digital channels, as well as the ways that the growing volumes of data from these channels can help employees better understand and engage with customers.

— *If you haven't already, move AI resources to your priority domains.* Leaders will need to shore up AI and analytics resources in priority domains—for example, personalization, procurement, or supply-chain optimization. (A domain is essentially a set of functions, product or service lines, or workflows that share a

common element, such as a deployment mechanism, data sources, or business users). We generally find that using a domain-based approach is more effective in extracting value from AI and analytics than simply executing on single use cases across the value chain.

Which priority domains should leaders focus on first? Every sector and every company will need to define its own priority domains based on what's most relevant to its value chains in the current environment and beyond. In some cases, this will mean accelerating existing investments in the areas that traditionally drive value. For example, in our most recent global AI survey, telecom respondents reported that their companies were using virtual agents more than other capabilities. In the next normal, we expect these virtual agents to become even more critical as customers increasingly migrate online. In other cases, organizations will need to invest in emerging value drivers. The pharmaceutical sector, for instance, will likely migrate to new ways of working, including adoption of omnichannel and remote sales teams for more flexible and efficient outreach.

— *Hire when others aren't.* In the current environment, many tech start-ups are struggling. For established companies, this presents an opportunity to acquire hard-to-get technical skills while contributing to the greater good of keeping citizens employed. Organizations should focus not only on deep data-science skills but also on data engineering, user-experience design, architecture, and visualization skills.

— *Reskill workers already primed for change.* Leaders have the opportunity to accelerate employee upskilling and build on the cultural shifts, such as the move to more agile ways of working, currently taking place. Analytics training can help employees to cement their understanding of what analytics and AI can do and how to implement these technologies, as well as to build critical skills, such as how to structure and run agile squads or continuous-improvement methodologies. Such training should include virtual learning opportunities

(which enable employees to learn at their own pace from home), as well as on-site courses and on-the-job training once employees return to the office. One financial-services company is using a virtual analytics boot camp, conducted via Zoom with nearly 30 participants per session, to upskill senior leaders, including C-suite executives and other decision makers. The boot camp teaches core concepts in AI and use of the technology to solve immediate crisis challenges and address new business priorities in the next normal.

— *Validate data and models—and more aggressively build out your data strategy.* In the near term, organizations should conduct a data-and-model audit to identify the risk of model drift and errors in existing models in critical operational, financial, and risk areas. These audits can be patterned after traditional model-validation efforts typically conducted for regulatory purposes. Analytics teams will also need to be prepared to initiate the necessary fixes, which can include debugging models, applying new modeling techniques, and incorporating new data sources, as the industrial firm previously mentioned did. Over the long term, organizations have an opportunity to use this work to better document the models, especially those written several years ago, and instrument them with automated model-surveillance and model-management processes.

In the longer term, organizations should build out their data strategy to accommodate both internal and external data. For internal data, this includes targeting data-cleansing efforts on the data necessary for the most valuable use cases, rather than wholesale cleansing of all data, and standardizing data for use across business domains. We typically advise organizations to direct at least 80 percent of data-cleansing efforts to the top 20 percent of high-value data. For external data, this includes identifying and participating in data partnerships with other businesses or industry coalitions to collect or share data, as well as putting in place the capabilities and tools to identify and extract external data, including web and social-media data. The external data should be tagged to the relevant internal data, such as customer profiles,

so the analysis can connect the dots and build a more comprehensive picture.

— *Establish common protocols, repeatable methodologies, and enabling technologies to scale analytics and AI.* Establishing clear protocols and repeatable methodologies for analytics and AI institutionalizes knowledge to ensure consistency and greater efficiency in evaluating and developing new tools. On the technology side, organizations are best served by using an incremental approach that incorporates open architectures, cloud-based capabilities, and open-source tooling in lockstep with use-case road-map requirements. Data-integration and -sharing tools, such as capabilities for data extraction, ingestion, tagging, and discovery, are important at the outset to bring together siloed data sources and external data, helping business and analytics users find the data they need. Horizontal tools, such as Kedro (McKinsey's open-source software tool), help analytics teams create reusable blocks of code for faster scaling and productionizing of models.

––––––––––

The pandemic has shown that rapid change is both possible and pivotal for business survival. Certainly some more complex challenges won't be solved overnight. But we believe that leaders who pay heed to the lessons from COVID-19 responses, acknowledge that the future will be quite different from the past, and build on the new—and pragmatic—ways of working have the potential not only to survive but to also thrive.

Nicolaus Henke and **Tamim Saleh** are senior partners in McKinsey's London office, and **Ankur Puri** is a partner in the Delhi office.