

A HARVARD BUSINESS REVIEW ANALYTIC SERVICES REPORT



**Harvard
Business
Review**

**FROM DATA TO
DISRUPTION:
INNOVATION
THROUGH DIGITAL
INTELLIGENCE**

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Disruption from digital businesses has arrived in virtually every industry. The ability to build immediacy and responsiveness into business models in new, unconventional ways is helping organizations reimagine customer experiences—perhaps forever. As a CIO, you're witnessing a continuous evolution as existing marketplace categories fuse, new ones emerge, and the competitive landscape for entire industries shifts overnight as the move to becoming digital takes hold.

Yet digitization alone isn't the key to sustainable competitive advantage. We see the application of digital intelligence, fueled by the monetization of data and insight, as the way to manage one's way through this time of disruption and opportunity. Today, organizations are leveraging more data and applying analytics to give them agile business models and processes to stay ahead of the competition. The addition of digital intelligence provides clarity about customers and the operations needed to support these new, ever-evolving digital business models. CIO's and IT organizations in general are uniquely positioned to lead the organization during this time of evolution and opportunity.

Within this paper, we have affirmed that few organizations are immune to digital disruption. Everyone needs to exploit data and insight at faster rates than ever before in order to deal with dynamic market and competitive threats. In the paper we've identified a group called Digital Innovators who are sensing and responding to change quickly and are prepared for the challenges and opportunities ahead.

With input from more than 600 business executives worldwide, we provide a lens into the value digital intelligence brings to your organization and help you understand what Digital Innovators are doing differently. As a CIO, you not only must think differently about the role data plays in your business strategy, but also must communicate the strategic priorities for the technology platforms and skills needed to enable the delivery of digital intelligence. To that end, this report showcases the key characteristics and approaches these Digital Innovators use to be successful.

For more information about how we can help you become a digital innovator and leader, please visit ibm.com/cio.

Rick Perret
Program Director, Cloud and Analytics Marketing
IBM

FROM DATA TO DISRUPTION: INNOVATION THROUGH DIGITAL INTELLIGENCE

EXECUTIVE SUMMARY

A wave of disruption is threatening businesses around the world, as new entrants with structural cost advantages and a “digital first” culture spring up in a wide range of industries. The new competitors offer solutions that are often simpler, cheaper, or more convenient for customers (e.g., Uber, Airbnb, Alibaba, Netflix). Or they may provide services that address a market that previously couldn’t be served (e.g., mobile banking in developing markets). As different as these new disruptors are from one another, they all display the ability to leverage digital technologies to understand the customer, sense market shifts, and innovate faster than the competition.

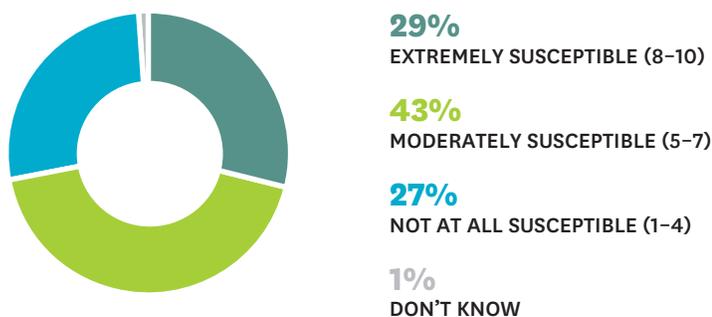
Nearly three quarters (72 percent) of the more than 600 respondents to a recent survey from Harvard Business Review Analytic Services say that their operations will be susceptible to this threat over the coming three years. [figure 1](#) These respondents—business leaders from a variety of industries around the world—express an overwhelming desire to increase the pace at which they are able to exploit information in order to respond to this threat—and get ahead of it. They understand that their ability to sense and respond to changing conditions—both internal operational issues and external market conditions—is a matter of survival, and that those who are

FIGURE 1

MOST FACE DIGITAL MARKET DISRUPTIONS

Percentage rating how susceptible their organization is to market disruption in the next three years from a new competitor based on their use of insight, data, or analytics.

(SCALE OF 1-10)



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able to use data, analytics, and automation to anticipate and make the first move will command a competitive advantage. Yet many are failing to keep up. Only 14 percent rate themselves highly on their ability to act quickly on insight. And just a third say they are able to deploy new digital intelligence capabilities at the pace they need.

Gaining digital intelligence capabilities is not just a matter of procuring solutions and deploying them. The challenges to becoming a data-driven organization are broad-based and require a multifaceted approach involving technology, new sources of data, new skills, and above all, leadership that not only supports but drives the entire organization to adopt a dynamic data-driven culture.

The payoff is tangible. Organizations that are effective at innovating new digital business models [figure 2](#) are seeing stronger revenue growth than those that are failing to transform. These Digital Innovators are putting their digital intelligence to good use. They are much better able to anticipate and adapt to changing market conditions and to quickly operationalize the insights they develop.

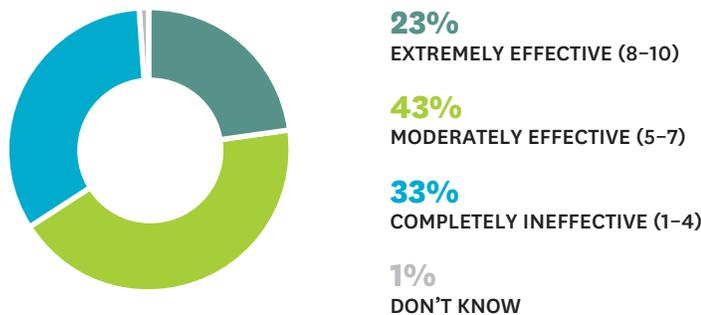
Despite being well ahead of the majority, Digital Innovators face similar challenges to everyone else. Fragmented data is preventing half of all organizations from achieving business objectives in a timely manner. Tools and resources that do not work well together compound the problem. These constraints will be amplified as companies' ability to deliver what customers want becomes increasingly dependent on their participation in extended business ecosystems. Purely Analog companies—those that are completely ineffective at innovating new digital business models—are especially at risk.

One key to Digital Innovators' success in confronting these challenges is their greater use of cloud-based analytics platforms. The cloud enables flexibility—not only faster capability deployment, but also innovation and easier access to a variety of external data. As a result, employees within Digital Innovator organizations have the necessary insight from external data to make decisions faster and with greater confidence. This all adds up to the fact that Digital Innovators are far more likely to have claimed double-digit revenue growth over the past two years and to say that the use of digital intelligence has been a major driver of this growth.

FIGURE 2

EFFECTIVENESS IN NEW DIGITAL BUSINESS MODEL INNOVATION

Percentage rating how effective their organization is at innovating new digital business models—either to respond to new threats or to capitalize on new opportunities. (SCALE OF 1-10)



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To prosper in the world of digital business and move toward being disruptors themselves, business leaders must:

- Create a transformational strategy that embraces risk-taking
- Adopt an agile, iterative approach to innovation
- Promote a data-driven culture, with open access throughout the organization—not just specialized groups

Those that do will find themselves well positioned to thrive in the digital environment.

THE LINK BETWEEN DIGITAL INTELLIGENCE AND DISRUPTION

No industry is immune to the threat of digital disruption. However, some feel the threat more immediately than others. Recognizing the threat is a powerful motivator to focus on developing new business models built on digital intelligence. Innovators have become innovators by necessity.

The financial services industry is a great case in point. Just a few years ago, banks, investment businesses, and insurance companies didn't worry too much about a digital threat. Today new "fintech" competitors are offering a host of novel services—things like peer-to-peer lending and robo advisors. "We're on the cusp of disruption," said a strategy engagement leader at a large diversified financial services company. "As a large incumbent, we're trying to figure out how to stave off the new entrants and transform into something where we can create more value using data."

Some companies aren't waiting until their industry is under threat. A \$33 billion global building materials company (it sells cement) is using cognitive computing to completely change the terms of its engagements and develop new business models. For example, in the past, this company sold the materials used to repair roads to the companies that were contracted to make the repairs. By thinking about the challenges of the end customer (the city that needed the repairs) and applying analytics, however, the company's leaders developed a new value proposition: the elimination of traffic jams—a huge problem in Indonesia, where this was developed—during road repairs. They offered a guarantee based on a quick-setting product: They would repair the road overnight, and if it wasn't ready in seven hours, the cost would be discounted. This changed the nature of the company's relationships with the contractor and the municipality into more of a consortium model, according to the company's head of innovation.

Today, no organization is immune to the threat of digital disruption, even if it may seem that way. Leaders find a way to make the threat tangible in order to galvanize their organizations to action.

Market Insight: Driving the Top Line

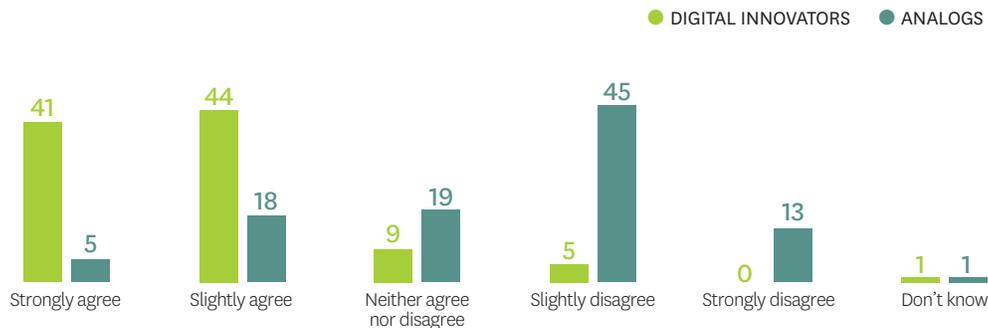
Essential to making the right moves as businesses transform is the ability to detect and respond quickly to (or even anticipate) market change. Digital Innovators are well ahead of the Analogs in this. [figure 3](#) The insight required is multi-dimensional and can be expansive, based on a variety of external data sources. It includes competitive intelligence (e.g., financial services staying on top of new trends in fintech) and a deep understanding of existing and potential customers.

A large hospitality company seeking to both increase its direct connection with customers and improve its standing with the online booking sites has been investing heavily in analytics and hiring people with experience analyzing digital trends. "We're constantly looking at what customers want and how to incorporate that into hotel operations," said the director of worldwide sales. This includes what their own customers say and do, and what competitors and partners

FIGURE 3

DIGITAL INNOVATORS DETECT AND RESPOND MORE QUICKLY TO MARKET CHANGE

Percentage indicating how much they agree/disagree with the following statement: “We are able to detect and respond quickly to changing conditions in our markets.”



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are doing, as well as trends gleaned from social media. In the coming months, these insights will result in “a lot of little innovations” to improve the customer experience and increase loyalty. This is an ongoing process, requiring constant vigilance. “New data pops up” to provide new insight, he said. “The data we used last month is not what we’re going to use next month.”

Some industries, such as healthcare and pharma, face unique challenges when it comes to customer insight. Regulations limit the data they collect and how they can use it. But that needn’t stop them from using data to improve both patient outcomes and business results. For example, a biotech company in Latin America was losing revenue from its hospital customers, which pay based on outcomes, when patients weren’t using their product as recommended. When they analyzed the data, they found that the product was being used as prescribed at the beginning of the month but was falling off as the month progressed. Further analysis revealed that for many patients, this was a cost issue. So the company created a risk-sharing arrangement with payers and got them to monitor patient compliance. The monitoring and reminders to patients resulted in more steady usage throughout the month, which led to better patient outcomes and a more reliable flow of income.

Companies that are fully digital don’t just ask customers what they want; they get a lot of their insight by analyzing customers’ behavior. “We look at what they’re doing with the product,” said a business development leader at a leading cloud company. “With their permission, we look at how they’re leveraging the tools, how they’re using the service we offer in ways that may not have been intended.” This leads to new services and enhancements.

Operational Insight: Improving the Bottom Line

In addition to using their digital intelligence to gain market and customer awareness, Digital Innovators use these capabilities to become more operationally agile and efficient. In fact, they are nearly three times as likely as Analogs (80 percent versus 27 percent) to say they can detect and respond quickly to changing conditions in their operations. This is a significant disadvantage

for Analog organizations when their markets change. For example, a petrochemical refinery in Canada didn't really have to worry about efficiency during boom times, so a lack of visibility into its supply chain and inefficiencies in its manufacturing facility were tolerated, according to a production manager there. But that's changed.

"Until recently, oil and gas prices were so good, we didn't feel we needed the competitive advantage [of investing in analytics capabilities]," he said. "Now that prices have declined, we're trying to adopt more technology to become more efficient, but the business is extremely cost sensitive, so making those investments is tough." Most important for this business is real-time tracking of operational conditions—things like pressure and temperature in the manufacturing facility—as well as managing inventory effectively. Their lack of insight impedes decision making. "Our decisions are slow and poor," he said. "We can't forecast on a daily basis." Forecasting once a week creates "a lot of whiplash," he added. "There's a lot of remorse [about the fact that] we didn't take advantage of the digital wave of the past 10 years."

In a time of accelerating change, such failure to invest in digital intelligence can be fatal. Being able to adapt to new realities, opportunities, and challenges is critical, and Digital Innovators see their advanced DI capabilities as the means to gain that advantage. Fifty-six percent of Digital Innovators say they are extremely well positioned to use their DI capabilities as a differentiator, while 77 percent of Analogs say they are poorly positioned to do so. [figure 4](#)

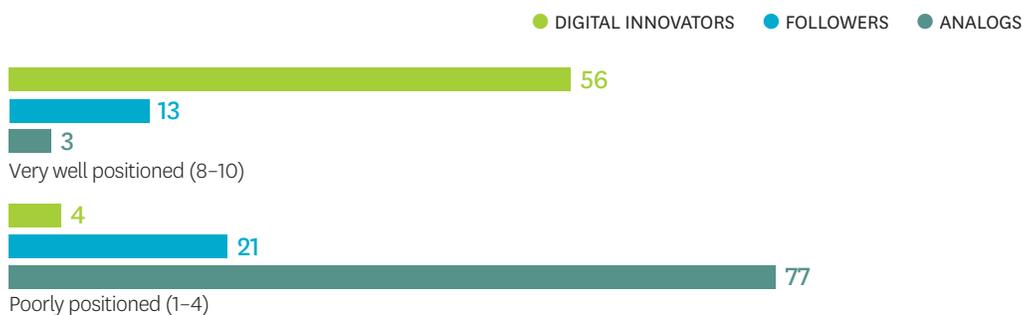
DEVELOPING THE CAPABILITY FOR INSIGHT AND ACTION

Analogs that want to close this gap must do three things: invest in the data and analytics tools that will make a difference to their business; make data accessible to and improve the analytic skills of all their employees; and most important, create a culture that embraces intelligent risk-taking—only possible when decisions and actions are based on data. In fact, asked in an open-ended question to name the single most important thing their organization can do to close the gap between where they are today and where they want to be to make better use of data and analytics, more respondents named making a culture shift over any other factor.

FIGURE 4

DIGITAL INTELLIGENCE IS A COMPETITIVE ADVANTAGE

Percentage indicating how well positioned their organization is to use digital intelligence capabilities as a competitive advantage.



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Culture Change: Hard but Essential

Unlike digital natives, incumbents often struggle to shift their culture to one based on data-driven decision making and action. “Our data culture is a competitive advantage,” said a strategy leader at a major internet company that was born digital. “Incumbents have experience of the market, resources, and money. But they don’t have the right culture. It’s not easy to create that, but if you don’t get people to understand the value of it and organically use it, you’re not going to see transformation. How the company operates has to change.”

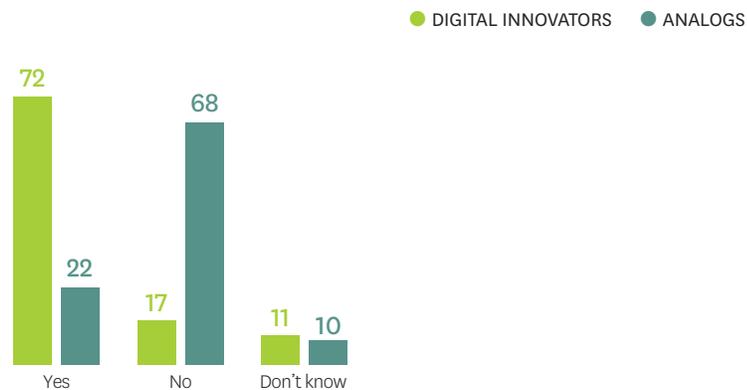
Sometimes, even if the CEO gets it, an entrenched, conservative board can get in the way. That is the case at a conformity assessment company (similar to Underwriters’ Laboratory) in Latin America. After more than 20 years of operating as an exclusive, government-appointed entity, two years ago it found itself in an open market with a variety of competitors. Previously, “we didn’t have to know the market or be better at anything,” said the business development manager who is overseeing the organization’s analytics efforts. “Suddenly, if we don’t want to die, we need to move.” The CEO himself is behind these efforts, but it’s a struggle to get funding. “The CEO knows we need more resources—both people and tools—but he needs to convince the board. They’re very conservative; it’s a challenge to get them to accept the new tools.... They don’t even want to hear about cloud.”

The characteristics that define a digital intelligence culture start with being inquisitive and seeking out data that will provide new insight. They include basing decisions on evidence over leaders’ experience-based wisdom or “gut feel.” A digital intelligence culture has a bias for action, favoring experimentation that itself is tracked, analyzed, and then iterated upon. “We try things out,” said the business development leader at the cloud company. “It’s better to move than to stand still.” Digital Innovators are more than three times as likely as Analogs to take such an iterative approach to innovation [figure 5](#); they use their digital intelligence to test new business models and concepts quickly (53 percent versus only 17 percent of Analogs); and they identify their organization’s willingness to embrace risk and change as one of the most important factors in their ability to innovate new business models.

FIGURE 5

DIGITAL INNOVATORS ITERATE FOR INNOVATION

Percentage indicating whether their organization employs an iterative approach to developing new products and business models.



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More and Better Data and the Tools to Exploit It

Overall, the need for speed was a strong theme in the research, with almost all of the respondents—92 percent—saying that to compete in the future, their organization must be able to exploit information much more quickly than it can today. “Some of the insights we’re deriving would have been really helpful a year ago,” said the strategy engagement leader at the diversified financial services company. “We have to make decisions faster than our decision support systems can handle.” Digital Innovators have a huge edge in their ability to gain new digital intelligence capabilities, with 70 percent saying they are able to deploy these capabilities at the pace their company needs compared with only 14 percent of Analogs.

But being able to deploy solutions quickly is not enough. The sheer volume of data today is overwhelming. Close to half of respondents said they find new forms of data to be too “raw,” requiring lots of rework to make them useful. At the same time, it is often hard for businesspeople to determine what data will be most relevant in advance. “Our teams are overwhelmed,” said a senior vice president at a large staffing company. “They can get lost in the data and get analysis paralysis.” To manage that, this company is careful about introducing new tools and making sure they demonstrate there is a tangible return to this new way of working. “We have to show them it’s more valuable than what they’ve been doing.”

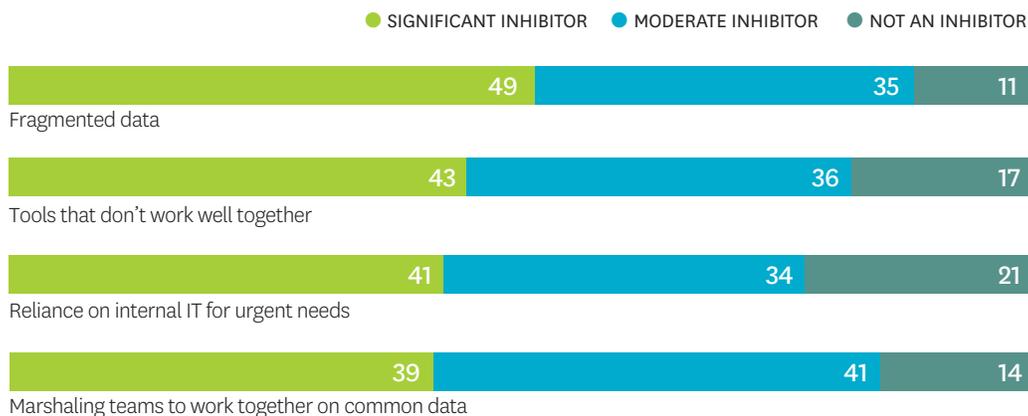
Organizations are being hampered by fragmented data: 49 percent of all respondents, and 39 percent of Digital Innovators, said this was a significant inhibitor to achieving business objectives on a timely basis. [figure 6](#) This was followed by the use of tools that don’t work well together.

Indeed, the inability to deal with this fragmentation and to reconcile disparate sources of information is seen by more than half of respondents (58 percent) as a threat to their ability to make progress. The problem is compounded by a lack of good tools, named by 56 percent. While everyone’s facing the same threats, only the Digital Innovators are dealing with them effectively. [figures 7 and 8](#)

FIGURE 6

FRAGMENTED DATA AND RESOURCES SLOW THINGS DOWN

Percentage indicating the extent to which the following inhibit your organization’s ability to achieve business objectives on a timely basis.

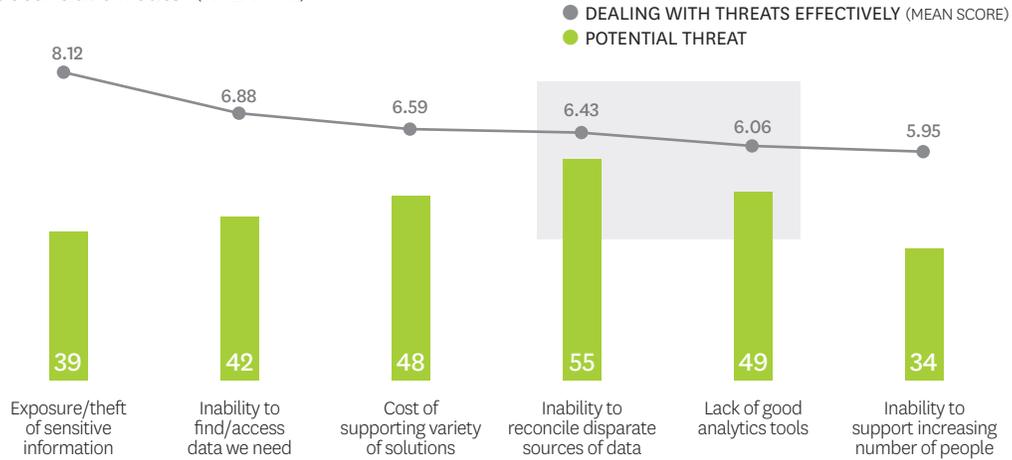


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FIGURE 7

DIGITAL INNOVATORS MANAGING KEY THREATS ADEQUATELY

Percentage indicating which of the following are potential threats to their organization's ability to make progress and how effectively their organization is addressing the following potential threats. (SCALE OF 1-10)



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FIGURE 8

FOLLOWERS/ANALOGS EXPOSED TO KEY THREATS

Percentage indicating which of the following are potential threats to their organization's ability to make progress and how effectively their organization is addressing the following potential threats. (SCALE OF 1-10)



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“The ability to draw upon the power of the collective—that’s what data analytics is all about.”

Director of Insights and Intelligence, Global Media Company

“The holy grail is being able to connect those dots,” said the director of insights and intelligence at a global media company that has thousands of reporters generating content around the world and has spent millions of dollars on customer information. The company had no way to pull together the rich content and assets it had spread across various geographies and business silos, and it had little experience working in the digital world from a marketing perspective. On the drawing board is a project to bring together all its assets—articles, pitches, photos, and video—and convert and tag them. A cognitive platform will make it possible to search and find relevant content across data types. “Imagine the time you would save and the knowledge that would be available to look across the collective,” said the director of insights. “The ability to draw upon the power of the collective—that’s what data analytics is all about.”

With the rise of online banking and robo advisors, the strategy engagement leader at the diversified financial services company sees a “democratization of services that are delivered through cognitive computing and data analytics—giving people access to services they didn’t have access to before.” The first step, however, is to “integrate a lot of data assets,” he said. “We have thousands of systems, many acquired through M&A. We’re going to aggregate that for a single view of the customer—that’s step one. The customer can then look at us as a single company and get one bill from us. Going forward, we need to interact holistically, not segmented.” The company’s business model in the future will be based on “understanding customers’ life needs versus specific policies.”

To make sure the company ends up in the right place, it is using analytics to understand future customers’ needs. “People will still need to prepare for and live in retirement and protect what matters to them,” said the strategy engagement leader. “How will those needs change over time?” These are big questions. To address them, a cross-functional team of EVPs and SVPs from marketing, finance, innovation, and product development works on how the company can use data in new ways. These leaders are tasked with solving big problems (e.g., creating a single customer view within a defined time frame; entering into new strategic partnerships), and they’re measured on their ability to deliver on initiatives. “This is vital to the future of the company,” he said.

New Skills, Broader Access, and Empowerment

The shift to digital intelligence requires new roles and skills, as well as new mental models and ways of operating. Half of respondents say it is extremely important for them to establish (or enhance) a data science practice over the next three years. But having a team of data scientists in and of itself does not create an intelligent organization. At a digital marketing company, “everyone’s job is to work with data and understand how the systems work,” said the CEO. The company’s dedicated group of data scientists “allows us to go into more depth, ask more complex questions.”

The director of insights and intelligence at the media company sees the need to balance data science with some art. “To data scientists, everything’s an algorithm,” she said. “On the other side, you have traditional customer research. We need the combination. Most people are trained in one

but not the other.” Rather than hire specialized analytics people, she looks for “renaissance marketers,” saying, “We need to prepare people coming into this career to work with data—not just understanding the math and data structure, but the big picture, how all the pieces fit together.” In the meantime, scientists and artists have to learn to collaborate and iterate to create insights that will have an impact.

A critical skill is the ability to create good hypotheses based on insights gleaned from the data. “Then find information to validate or invalidate that,” said a business leader at a medical device company. “When it’s invalidated, that’s an opportunity to pivot or stop.” The company uses a feedback loop to constantly assess decisions. “The whole thing is to keep things moving and stay as agile as possible. It takes a stream of information to do that effectively.”

Another stark contrast between Digital Innovators and Analogs is the degree to which all employees are empowered with access to data and analytics. [figure 9](#) Innovators’ employees are more than twice as likely to have access to the data and analytics tools they need to make the organization successful. A full quarter of Analogs strongly disagreed. In an era where real-time insight and action can make or break companies, those that keep their analytics capabilities behind a wall are bound for failure.

“You have to be able to give people access while doing the heavy lifting for them,” said the strategy leader at the internet company. “We use design intelligence to provide a simple canvas for end users, so they’re not dependent on the data science team and the analytics team. Everyone needs to be able to use the data themselves.”

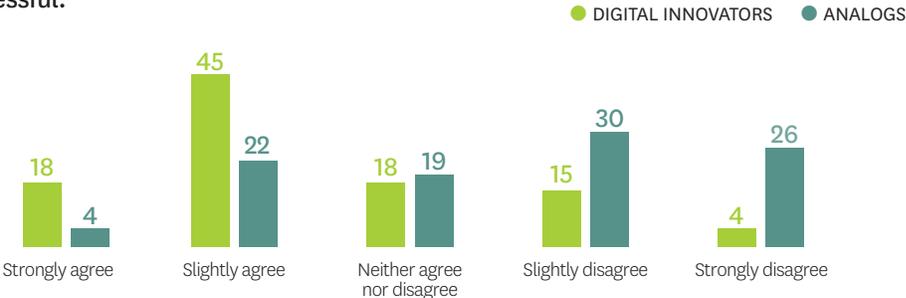
In order to facilitate this broader adoption and data culture, the company encourages everyone to play with data by making it more fun. The company has created a touch-screen-based tool with which users can drag and drop real data in different permutations in order to reach insights that previously were not possible.

This is in stark contrast to a global telecom company, where outdated tools are holding things back, according to an executive director. “We can’t do a natural language type of query,” he said. “A lot of tools require expertise. The end user has to describe what they’re looking for to someone who then has to translate that for the person who does the coding. This doesn’t scale, and we’re losing time.”

FIGURE 9

DIGITAL INNOVATORS’ STAFF HAVE ACCESS TO DATA AND TOOLS

Percentage indicating how much they agree/disagree with the following statement: “Our employees are able to access the data and analytics tools they need to make us successful.”



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At the hospitality company every department has its own analytics team and capabilities. These teams are well integrated into their own groups, and they work easily across functions to share insights and information. This has evolved somewhat organically at this highly matrixed organization.

DESIGNING AND LEADING IN A COMPLEX FUTURE

It's clear that incumbents face a lot of challenges in making the transition to becoming more data-driven. But incumbents also enjoy advantages that new entrants lack, such as capital, physical resources, and relationships (e.g., auto dealer and supplier networks in the automotive industry). It may be advantageous for both to join forces—and we see that starting to happen. Incumbents in the financial services industry, in particular, seem to view new fintech entrants not just as competitors, but as potential partners or acquisitions.

“We won't be able to do this alone,” said the strategy engagement leader at the diversified financial services company. “We don't have all the tools. We're really good at what we do, but we need help.” The company is in the process of developing a clear venture and partnership strategy, including with companies that are “emerging into the white space of next-generation financial services.” Given its indirect relationship with end customers in the past, the company is also looking at “partnering with companies that organize around the consumer,” he said.

The medical device company sees part of its future in creating smarter solutions based on the internet of things. “We have an opportunity to use data from implants to improve treatment,” said the business leader. The company has 40 million implants around the world, and that number grows by a million every year. But “we're experts in materials, not necessarily data,” he said. Meanwhile, data companies are getting into the healthcare market. “This forces different partnerships. We've traditionally owned most of the value stream. There are trade-offs when we pivot to share with another player; the challenge is, how do we produce viable revenue streams for all involved, and how will this impact the viability of our business model in the long term?” These are questions many companies will have to resolve over the next few years.

Speed is of the essence. Close to three quarters (70 percent) of all respondents said the ability to operationalize insight faster is extremely important to their organization's growth over the next three years, scoring it an 8–10 on a 10-point scale. However, only 14 percent said their organization is extremely good at this today (36 percent of Digital Innovators, 10 percent of Followers, and only 5 percent of Analogs). Followers, in particular, face a huge gap between the importance they place on this need for speed and their organization's performance in this area.

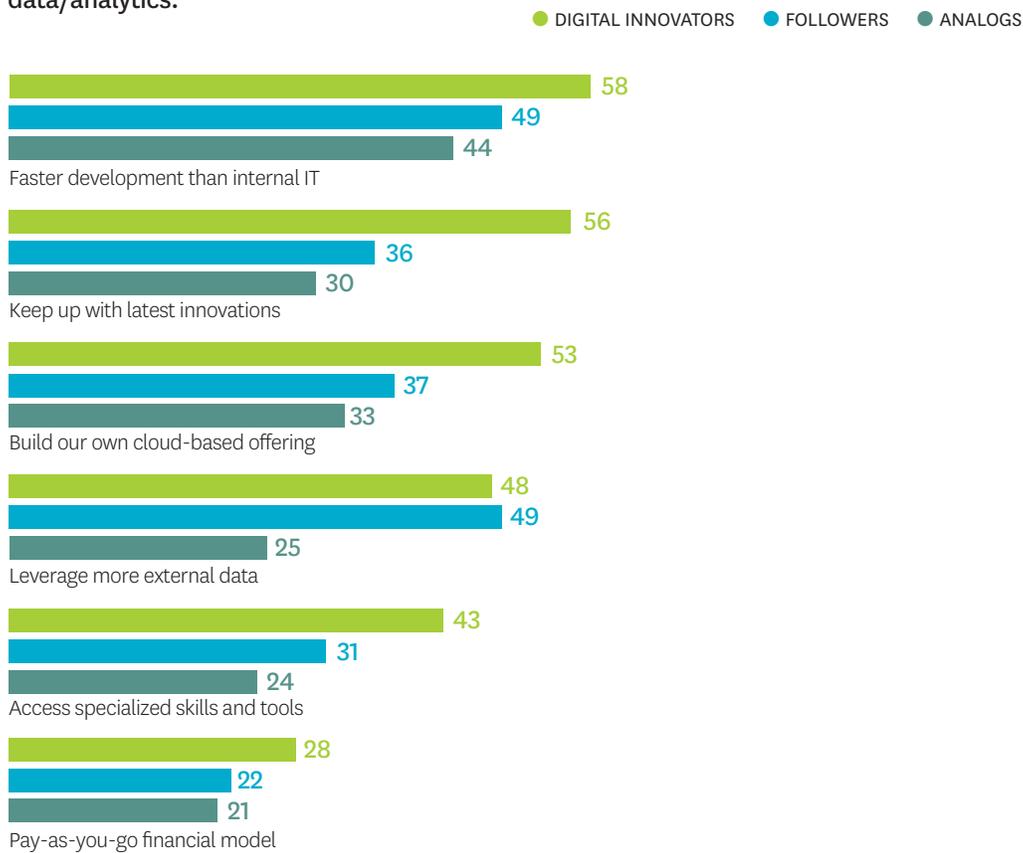
Digital Innovators attribute much of their success to their ability to scale new business opportunities faster than the competition (52 percent said this). And many claim that the speed they need simply isn't possible without the use of cloud. As a group, they are almost twice as likely as Analogs to use cloud-based platforms for data/analytics (63 percent versus 36 percent). And they're primarily using it for speed, for innovation, and to spin out their own cloud-based offerings. [figure 10](#)

The CEO at the digital marketing company values cloud for its “cost, ability to scale, security, and features,” he said. “We have very little on our own servers. Most is cloud-based, and when we implement for our clients, it's all cloud-based.” Even incumbents recognize cloud's value. The financial service company is building all of its new products and solutions in the cloud in order to gain “real-time information about transactions and customers.”

FIGURE 10

DIGITAL INNOVATORS USE CLOUD ANALYTICS FOR SPEED, INNOVATION

Percentage indicating why their organization is using cloud-based platforms for data/analytics.



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Digital disruption is a real and imminent threat in most industries today. The good news is that incumbents are figuring this out. They know that the future, while unpredictable, will be based on the ability to create and exploit insight much more quickly than they are doing today. They know that because the future is unpredictable, their ability to experiment, evaluate, and pivot rapidly is key. Digital Innovators are taking a multi-faceted approach to creating their digital intelligence capability and, in the process, providing a framework for others to follow. It starts with having simple, effective tools and rich data, and the skills to make good use of them. But they know that won't get them far without a culture that values data-driven decision making, allows for risk taking, and provides open access and empowerment for all employees, not just a select few. For many incumbents, the digital future will require partnerships to forge new business models. As a result, we're seeing the emergence of intriguing new business ecosystems that include not only existing partners and suppliers, but new digital platform and data players as well. There is opportunity for incumbents and emerging companies in all this, along with the challenge of how to ensure viable revenue streams going forward.

METHODOLOGY AND PARTICIPANT PROFILE

A total of 714 respondents completed the survey, including 458 who are members of the Harvard Business Review Advisory Council. Analysis of the results was conducted on the 601 respondents who indicated they were very or somewhat involved in their organization's use of data and analytics or in helping shape their organization's use of data and analytics.

SIZE OF ORGANIZATION

Only organizations with 100 or more employees took part in the survey. Forty-one percent were in organizations with more than 10,000 employees, 27 percent were in organizations with 1,000 to 10,000 employees, and 32 percent were in organizations with 100 to 999 employees.

SENIORITY

Nineteen percent were executive management or board members, 32 percent were senior management, 30 percent came from middle management, and 19 percent came from other levels.

KEY INDUSTRY SECTORS

Technology, manufacturing, and financial services topped the list, at 16 percent, 11 percent, and 11 percent, respectively. Eight percent of respondents worked in education, 8 percent in government/not-for-profit, and 7 percent each in healthcare and utilities. Other industries were represented by 5 percent or less of the total respondent base.

JOB FUNCTION

Twelve percent of respondents worked in operations/product management, 10 percent were from sales/business development, 9 percent each were from HR/training and general management, and 8 percent each were from marketing/communications and IT. Six percent were from finance/risk, and all other functions represented 5 percent or less of the total respondent base.

REGIONS

Thirty-two percent of respondents were from North America, 31 percent were from Europe/MEA, 30 percent were from Asia/Pacific, and 7 percent were from South/Central America.

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