

# Building Trust in Innovation by Creating a Culture of Inquiry and Experimentation

**G**ame-changing insights can result from investments in data infrastructure, talent, and technology. But simply generating analytical findings is not the ultimate goal of the analytics leaders we interviewed for this year’s Data & Analytics report. All those investments truly pay off when people throughout an organization accept those insights and put them to work to make decisions, redesign business processes, and re-think strategy. So, what are some tactics used to create a culture in which people ask questions, seek data and analytics that can help answer those questions, and then apply the results?

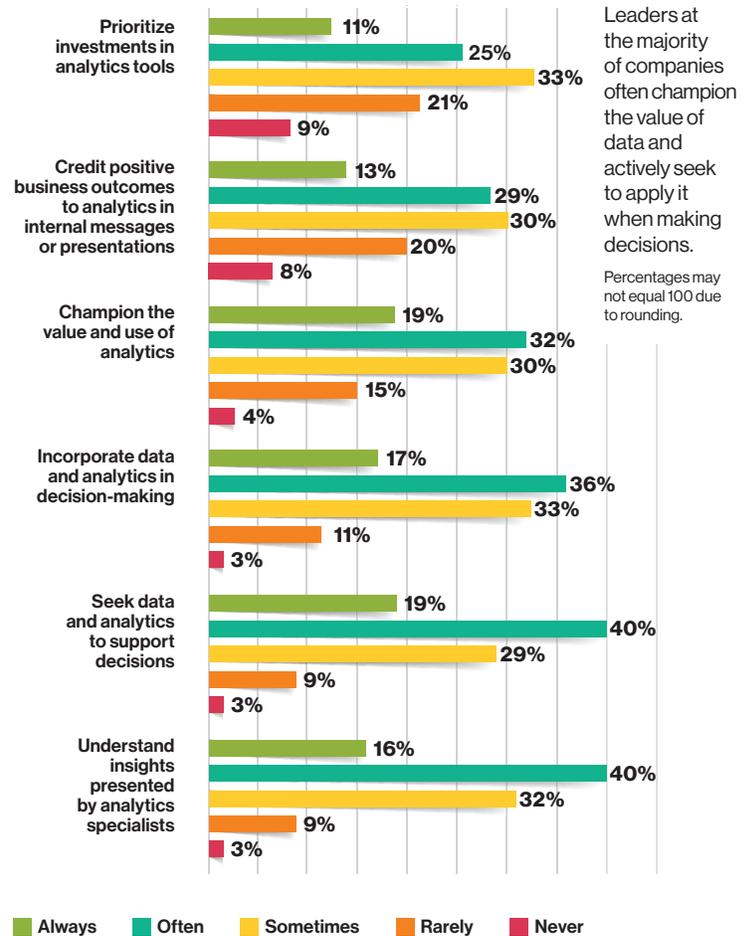
Barclays US appointed an analytics leader for each business unit and installed cross-functional teams made up of analytics and business experts in a data science lab. Caterpillar runs an annual “Analytics Now” conference for stakeholders across the company to learn about capabilities and showcase successful projects, while seeking input and collaboration from an advisory council of engineers, talent managers, and other domain experts. The Cleveland Clinic has set up its own council, with an open door to participate and provide feedback on its analytics program.

Our survey investigated a range of practices associated with building a culture of analytics, such as actions and messaging from leadership, workforce data literacy efforts, and organizational choices. On the whole, those who report the most activity on these fronts are also more likely to exhibit the most trust in data and analytics and be on the winning side of the “utility gap,” meaning they not only have access to data but have the right data to inform their business decisions.

Two organizational factors emerged that may have a bearing on driving analytics maturity:

1. One is having a clear leader for the company’s analytics effort: 33% of those who report that their organization has a chief data officer or a chief analytics officer are more likely to say they frequently or always have the data they need for decisions. The same correlation is present for the 39% of respondents who report that their organizations have centralized data analytics functions. (Despite this finding, one size may not fit all: Some analytics leaders find a distributed approach is right for their enterprise.)
2. The survey also found that in many organizations, leaders are playing an important role in using and championing analytics. However, leaders’ actions may be slightly louder than their words: They appear to be more likely to seek out data and use it in decision-making than to champion analytics or credit it with delivering business results (see Figure 10). Leadership support is also softer when it comes to prioritizing investment in analytics.

**Figure 10: Leaders Set the Tone for Analytics Adoption**  
**How often do leaders:**



**“Encouraging a data-driven culture means encouraging people to use the data the business is collecting instead of siloing it away in the IT department.”**

KIRK BORNE, BOOZ ALLEN HAMILTON

**Driving Data Literacy Through the Workforce**

One area where leadership might do more is analytics skills in the workforce: This was cited as a top challenge to innovating by 39% of respondents, second only to competition from other priorities. We found that while a range of efforts to build data literacy in the workforce is at least in the planning stages at a majority of responding organizations, fewer than one in five are actively engaged in that activity (see Figure 11). Slightly more are helping analytics experts build business domain expertise.

Encouraging a data-driven culture means encouraging people to use the data the business is collecting instead of siloing it away in the IT department, says Kirk Borne, principal data scientist and executive advisor at consultancy Booz Allen Hamilton. “This culture of experimentation supports an innovation culture in a business. It’s where people have the freedom to ask, ‘Given our data, how can we do better?’” he says.

One example of bringing data literacy to the front lines of business comes from Jeanne Ross, a principal research scientist at the MIT Center for Information Systems Research.

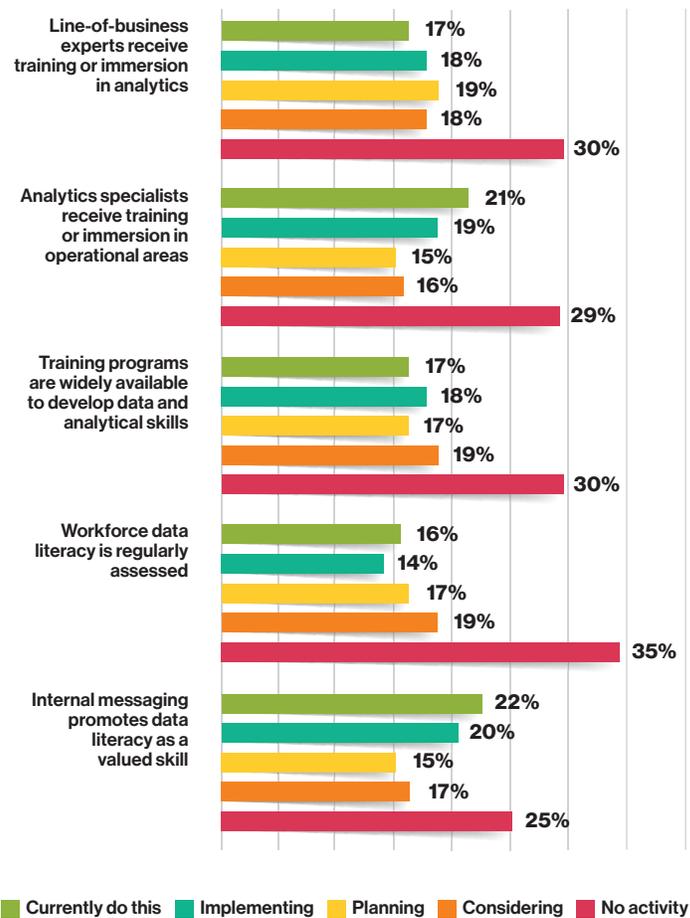
The center studied the 7-Eleven convenience store chain in Japan, which employed counselors to help 200,000 salespeople interpret and learn from the data the company collected about daily sales. Sales staff know a key success factor is their shop’s ability to have rapid inventory turnover, so they monitor sales of different items in their assigned section of the store. Counselors visited the stores to teach the salespeople how to think analytically, using data about sales of different items in recent days compared to the year earlier and compared to days with similar weather patterns.

“The counselors say to them, ‘So, what did you hypothesize about what you’d sell last week?’ They know the answer to the question because it’s what they ordered,” Ross says. “Then they say, ‘How did you do? How did your hypotheses turn out?’ Well, they have the answer to that question sitting in front of them, too. They have the data.” Then the counselors and sales staff discuss strategies for improving sales.

**Fostering Collaboration Drives Culture Change**

It’s when the analytics expert meets the business domain and true collaboration ensues that the culture really begins to transform, according to virtually all the practitioners we interviewed for this report. Interestingly, our survey respondents

**Figure 11: Educate to Innovate**



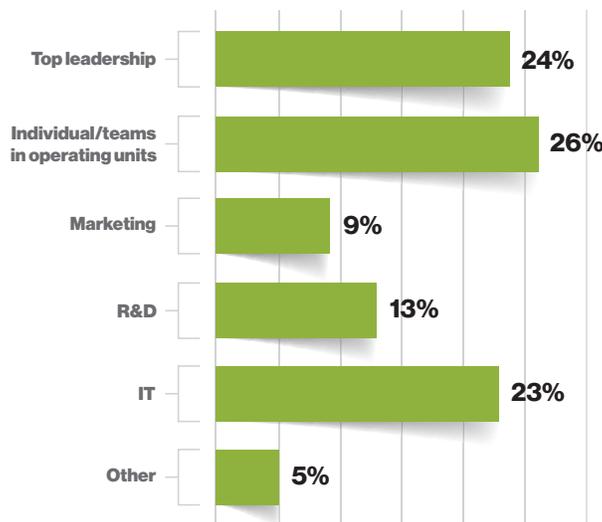
Many organizations have an opportunity to do more to tackle the analytics skills shortage. The good news is that a majority are taking action to build a data-driven workforce, with programs either running or in the planning or implementation stages. Percentages may not equal 100 due to rounding.

by a slight margin point to individuals and teams in operating units as being most likely to drive innovation with emerging technologies, ahead of top leadership and even IT (see Figure 12). That underscores why building ties with the business may be a winning strategy for analytics leaders.

Establishing and maintaining a culture that embraces analytics starts with identifying opportunities and use cases that will make a difference.

**Figure 12:** Innovation Is Often a Grassroots Effort

Who is most likely to champion the use of emerging technologies such as AI/machine learning, internet of things (IoT), and blockchain?



Individuals close to specific business needs are often the drivers of innovation around emerging technologies.

At Airbnb, a platform that has disrupted the hospitality industry, everything begins with analytics and a strong top-down data culture, according to Yash Kandyala, head of global business analytics for community support.

Nonetheless, Kandyala still needs to have the right data and engage the right people in order to find opportunities for analytics to drive strategy. At Airbnb, it's a multidirectional dynamic. Sometimes colleagues come with questions and want answers.

At other times, his team may notice an important insight in the data and seek to gain executives' attention and support.

Kandyala says gaining influence for analytics insights generated by his team can be challenging: "You may have a very cool idea, but if it's not tying back to key stakeholders' goals or strategy, then there's going to be very little attention paid to it." He seeks to identify projects that can help drive important goals for the company. "That can go a long way to create those opportunities and projects which will be based on analytics as the backbone and that are tied to a business outcome."

**Analytics Expertise: Centralize vs. Decentralize**

As noted, centralization isn't for everyone. At Sun Life Financial, embedding analytics capabilities in the business rather than employing a centralized analytics function ensures strategic alignment and transparency.

"The idea of centralizing and creating a big function and putting a lot of money in it centrally is very alluring, because it sounds like you are going to solve all of your data problems," says Eric Monteiro, senior vice president of client solutions. "The benefit of not having done that is that it's pretty visible to us what the impact is when the analytics is with the business and for the business, and linked into the processes that are required."

Sun Life analytics and business leaders have codified their collaboration on a case-by-case basis. Every analytics program requires developing an ROI case and winning budget approval from business decision-makers before it starts. There are also regular progress reports with business owners to check on results.

Despite the decentralized effort, Monteiro says results can grow from one project into a major operational area. That's how the company's digital benefits assistant started. It was originally an analytics experiment to personalize recommendations for customers, such as tips on retirement contributions. It's been so useful that it's become a major undertaking. "We've got dozens of people that work on it, and it's a digital channel and reports like any distribution channel," he says.

There is a challenge associated with the lack of a centralized analytics function, Monteiro adds: what to do when there is a major investment required that goes beyond a typical project. For example, Sun Life is looking to rearchitect some of its data so it can move to the cloud, which requires more investment in architecture and infrastructure. “The incrementalism is a risk that we have to manage,” he says.

**Communication and Education Encourage an Analytics Mindset**

Advancing a culture of innovation requires not just being heard but listening. Joy Bonaguro, who was chief data officer for the city and county of San Francisco at the time she was interviewed for this report, says much of the work of data science is about culture and change management, helping internal clients understand the value of data and how it can lead to new and innovative ways of thinking. A key element of the effort is making sure that data scientists listen.

“The way we’ve approached culture change, driving data use in the city, has been to really spend time to understand the challenges and barriers to using data across the city. Then, let’s shape our services around that so people feel heard,” Bonaguro says. “And when people feel heard, then they start to trust you and they want to work with you on new things, including things that are maybe a little riskier or scarier, like data science projects.”

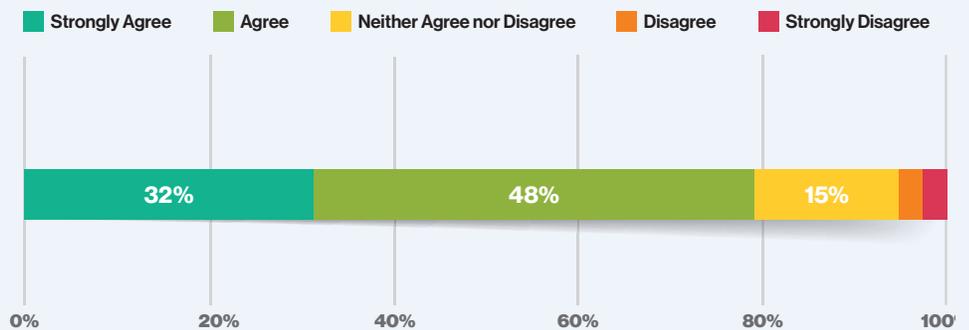
Getting to that point came after a number of efforts, including providing training via the organization’s Data Academy (see Figure 13), demonstration projects like dashboards, and the launch of an open data portal, Bonaguro adds. Over

time, through these educational efforts and by having data experts working side by side with staff, the agency’s internal clients have gained the tools to identify the appropriate data science projects for them and then apply for data science resources. This approach also helps analytics professionals, who serve such a diversity of internal customers that they can’t also be domain experts — Bonaguro points out that San Francisco’s departments run from “A to Z, an airport to a zoo.”

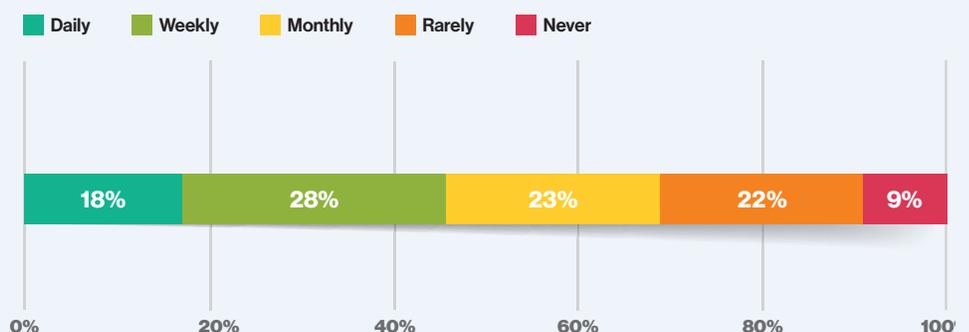
One success was a DataSF project with the county Department of Public Health to investigate why participation rates had fallen by 16% among mothers and babies in the federal Women, Infants, and Children (WIC) nutrition program from 2011 to 2017. After analyzing six years of data about participation, program staff interactions with mothers, payments issued, and

**Figure 13:** DataSF’s Data Academy Assessment

**Do you feel that your skills improved after taking this Data Academy course?**



**How often do you use the information or skills you learned in your own work?**



DataSF, the analytics group for the city and county of San Francisco, is expanding data literacy throughout the agencies it serves via its Data Academy. It shares success metrics — such as attendees’ assessments of skills gained and how frequently those are applied — via a public dashboard.

demographic details, the team developed a model that showed certain families were more likely to drop out. The results prompted San Francisco's WIC program to change its outreach efforts to encourage more participation.

Such collaborations lead to high-quality results and real connections with internal customers because both parties are investing in the outcome. "This is where the model of the data scientist getting the data and disappearing off into a cave and resulting in some magical, perfect model is a terrible mindset," she says. "We set the expectations with our clients that this is going to take time and you're really going to have to engage." And it also serves to educate people who are not data experts about the work of analytics and its potential impact — and builds trust in data scientists' work as they collaborate to find insights.

Bonaguro's data science shop serves San Francisco's range of "airport to zoo" departments with a tight team of just five full-time people, with at most three working on the data science service. But the same collaborative principles apply at larger enterprises like Barclays US, Caterpillar, and the Cleveland Clinic.

Vishal Morde, vice president of data science and advanced analytics at Barclays US, says the company's data science lab includes business experts who work with analytics experts to set up projects to solve business problems. "Both sides need to come together; both sides need to actually make sure that they understand each other's perspective," Morde says. "They understand each of the challenges and come up with a more kind of unified approach, rather than working in silos and saying that, 'Oh, somebody else needs to do this job for me.'"

At Caterpillar, culture-building takes the form of ongoing training sessions like "How to Be an Analytics Champion in the Business" as well as its annual analytics conference, says Morgan Vawter, chief analytics director. "We certainly understand not everybody wants to be an analytics professional, nor do we need them to be. But we do want to help them to understand

the power of the data that they already have access to, and so we provide a lot of training around that," Vawter says.

The Cleveland Clinic takes a similar tack. In addition to making its advisory council open to all, its analytics organization is identifying opportunities to collaborate with different groups throughout the enterprise, says Chris Donovan, executive director of enterprise information management and analytics.

"We're very focused on delivering value and specific projects, and making efforts that we have key sponsors for across the organization. So, as we lay out our road map, we try to make sure that we're working with our cardiovascular institute in this space. We're working with our cancer institute in this space, and our strategy team and our marketing team," Donovan says. Showing each group what his team can do builds support: "That really engages those folks to be champions for the program and creates this virtuous cycle of where they recognize the challenges around data, and understanding the need for governance. And it creates a nice feedback loop for us."

To a veteran of data science discussions like Eric Siegel, the efforts and experiences of companies like these demonstrate how far the field has come. Siegel, author of *Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die*, says technical experts have always faced challenges in communicating the value of their work to executives, winning approval for projects, and convincing their colleagues to trust and actually use the results generated by core analytics. What's changed are the types of champions he sees rising nowadays to speak about their work at industry conferences he organizes, such as Predictive Analytics World and Deep Learning World. Increasingly, C-suite executives, vice presidents, and directors of business functions are contributing their voices and expertise to events in the analytics arena, Siegel says. In other words, leaders whose job titles don't have technology or analytics in them are making the case for analytics — and building support for a data-driven culture. ●

**Download the full 2019 custom research report,**  
**"Data, Analytics, and AI: How Trust Delivers Value," at [www.sas.com/research](http://www.sas.com/research)**

MIT SMR Connections develops content in collaboration with our sponsors. It operates independently of the MIT Sloan Management Review editorial group.  
 Copyright © Massachusetts Institute of Technology, 2019. All rights reserved.

