



How to Create a Data Culture

Here are six steps chief data officers can take to build a culture around the information that's at the heart of today's business.

Executive Summary

Young companies often have an inherent advantage over their longer standing competitors: They were born from data. Their businesses are based on metrics and interrelated facts. Sharing data is part of their DNA.

Traditional companies view data differently. Born offline, they see data as a tool to run their businesses, not drive their strategy. They prize experience and intuition over data-based decision-making.

The differences are stark, and so are the results. Companies that rate themselves ahead of their peers in their use of data are three times more likely to rate their financial performance as more advanced, according to research by the Economist Intelligence Unit.¹

Chief data officers (CDOs) can close the gap. Charged with developing a strategy for data and managing their organization's data ecosystem, CDOs are responsible for educating employees on the power and possibilities of data. By instilling values around data, they can reshape their organization's use of it.

Data cultures are becoming pivotal as organizations develop more progressive digital business strategies and apply meaning to big data. As

companies become more adept at managing the trail of clicks, swipes and comments that create the unique virtual identities we call Code Halos,² a data culture helps put digital code to smart use in building more clairvoyant and frictionless user experiences.

The following steps will help guide CDOs to create successful, thriving data cultures:

1. Map your organization's data supply chain.
2. Focus on the "art of the possible."
3. Be transparent about data.
4. Develop reward-sharing mechanisms.
5. Identify areas of friction within the organization.
6. Elevate the conversation to focus on strategy and innovation.

The stakes are high. Without a shift in culture and attitude toward data, traditional organizations are at risk of failing to realize a return on their investments in sound data architecture and infrastructure.

This white paper details how CDOs can help their organizations maximize their use of data and put their companies on the road to continued prosperity.



Data Culture: The Missing Link in Your Data Strategy?

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A data-driven culture is a workplace environment that employs a consistent, repeatable approach to tactical and strategic decision-making through emphatic and empirical data proof. Put simply, it's an organization that bases decisions on data, not gut instinct.

While intuition has its place, the wide availability of analytics has elevated objective decision-making to the new standard, and it's the CDO's responsibility to help the organizations embrace it.

The shift can be complex, requiring departments and functions to replace longstanding processes with new ways of working. The first step involves priming the organization for change. We recommend a three-pronged approach to guide objective decision-making: Encourage employee use of data; engage with employees on the possibilities of data; and educate them on how to manipulate and use data (see sidebar, below).

Take a Cue from Employees

Technology executives spend most of their waking hours considering data in all its forms; to them, it's the language of business. But to many employees, data remains in the purview of those who understand coding and APIs. To them, data is strictly for geek nation.

Quick Take

Encourage, Engage and Educate

Integrating data into your organization's daily operations is no easy task. We recommend setting the stage for data's expanded role with a three-pronged approach that encourages, engages and educates. Before meaningful outcomes can be produced, the benefits of a data culture need to be communicated, as well as the downside of not changing.

- **Encourage:** Encouraging a data culture is akin to developing a business case. Like all effective businesses cases, this one is part value proposition, part salesmanship. The CDO's job is to convince the organization of data's importance in workplace decisions. Pointing out data's omnipresence can help connect the dots.

For example, most employees are already adept at making data-driven decisions outside the office. Before making important financial decisions such as buying a home, most will evaluate their income, expenses and other factors. Supportive data can similarly help with making smarter workplace decisions, and it's the CDO's job to show them how.

- **Engage:** An atmosphere of experimentation is important, as some data initiatives will succeed, while others will fail. The message should be that all ideas are welcome.

Once constituents begin to link data to decision-making, the CDO will need to engage them by demonstrating how new combinations of data can uncover new insights. The idea is to get organizations excited about data and what it can achieve. Explore new combinations of data and tap into new data sources, both internal and external.

- **Educate:** Training needs to occur across areas such as data management and integration, business intelligence, dashboards and visualization. Without such training in relevant tools, techniques and technologies, exploration and inquisitiveness will grind to a halt. Enlist IT's support to train internal and external constituents – team members, peers, consumers of data – in how to use, manipulate, play with and interpret data to make decisions and derive insights.

Bridging this gap is necessary for establishing a data culture, as CDOs need all hands on deck. By reframing data as information, and the data culture as one in which all employees can – and should – participate, CDOs can begin to demystify data and build a more inclusive foundation that resonates with employees at all levels.

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Many employees are already familiar with the collaborative consumption that makes data cultures tick. As consumers, they are part of the welcoming customer base that has greeted

the sharing economy and propelled businesses such as Airbnb and Uber to multibillion-dollar valuations.^{3, 4} They understand the benefits of sharing both data and underutilized capacity – literally and figuratively – and they are likely ready to step into their workplace roles as data allies.

Much of the effort involved in getting them there begins in the CDO's office. While the role of the CDO still varies widely (see sidebar below), the development of a data culture always starts here.

Establishing a more fluid role for data within traditional organizations is indeed possible. Sectors such as government and education, which are striving to become more data-driven as part of the open-data movement, have notched some early wins (see sidebar, next page).

Quick Take

CDOs: An Emerging Force in the C-Suite

Chief data officers remain a bit of a mystery on the corporate roster. Their specific job responsibilities vary among companies, but given the right circumstances, CDOs have the potential to dramatically affect their organizations.

CDOs' numbers are on the rise. In 2014, Gartner said there are more than 100 CDOs serving in large organizations, which is more than double the number in 2012.⁵ Gartner added that 65% of CDOs are in the U.S., while 20% are in the UK.

The most enthusiastic hirers are regulated industries such as government, healthcare and financial services. A 2014 survey by New Vantage Partners found 43% of executives reported their organizations had established a CDO function.⁶

In early 2015, CDOs welcomed their highest profile colleague yet when President Barack Obama hired DJ Patil as the U.S.'s first-ever chief data scientist and deputy chief technology officer for data policy. (Media references regularly shorten Patil's longwinded title to more colorful appellations such as "top data nerd"⁷ and "Big Data dude"⁸). Patil's task: Serving as an advocate for

new applications of big data across all areas of government, especially healthcare.

The post continues to evolve. On some fronts, it is expanding into new industries. For example, Baltimore-based online delivery service OrderUp recently hired its first CDO.⁹ On other fronts, it remains in flux; in 2013, Bank of America eliminated its CDO position in a corporate reshuffling.¹⁰

Gartner also noted that over 25% of CDOs are women, almost twice as high as for CIOs (13%).¹¹ The collaboration and communications that are essential to the CDO post may explain why more women are being chosen for it.

The CDO role varies depending on organizational goals and the executive officers with whom CDOs are charged with collaborating most closely, says Yang Lee, a professor at Northeastern University in Boston.¹² Some CDOs are focused internally, while others emphasize work with supply chain partners. Given the new frontier of the data culture and the absence of hard and fast rules, perhaps the most important quality for CDOs is the ability to reflect, adds Lee.

Quick Take

Getting a Jump on Business: Where Data Cultures Are Already Succeeding

Corporations aren't alone in their efforts to establish a data culture. Municipalities and educational institutions are also striving to develop transparency, collaboration and innovation around their data – and gaining some surprising results.

Spurred by the open-data movement, cities around the globe have thrown open their data stores to citizens and businesses. Singapore, Copenhagen and London are among the municipalities sharing data, with the goal of improving public policy and services.^{13, 14} In the U.S., Philadelphia recently took the wraps off a portal that brims with access to more than 250 local data sets, applications and APIs.¹⁵

The results are leading to a raft of new services. Helsinki, Finland, for instance, developed a mobile app that blends GPS capabilities with city data to guide blind individuals through the city using voice commands.^{16, 17}

States are also getting in on the action. A coding contest hosted by Colorado inspired the development of Beagle Score, a widget that integrates with online commercial real estate listings and rates business locations by variables such as taxes and zoning.¹⁸ To create Beagle Score, its creators mashed up information from 30 state-offered data sets.

The education sector is also looking to establish a more fluid role for data within its traditional boundaries. St. Petersburg College in Florida credits its improved student experience with a flourishing data culture.¹⁹ Kentucky's department of education opened a dialog to make information more usable when it found that its massive data warehouse was too unwieldy for teachers and administrators to use. The state points to the collaborative effort as the source of its increased high school graduation and postsecondary enrollment rates.^{20, 21}

Six Steps to Better Manage Data as an Asset

With the following steps, your organization can begin to reshape its attitude toward data and manage data as a strategic asset.



Departmental silos of information are the nemesis of thriving data cultures. To promote the view of data as a flexible asset that's usable by multiple departments, organizations need to educate employees on how the data they use daily ripples through other parts of the organization. Employees need to see the big picture.

Mapping your organization's data supply chain is a useful tool for gaining that 30,000-foot view. For CDOs, it's an essential step. The map tracks each data set's path through the organization. Who creates the data? Who consumes it? What

decisions do they make with it? Who stores it? Who might be abusing it? Maps can be drawn for data sets that are used by individuals or groups, and then linked back to business processes.

The data supply chain map becomes a framework to which everyone within the organization can refer. It provides context for how data is used and how employees' own data usage fits into the broader enterprise.

Data maps can also uncover "dark data," or pockets of information that go largely unstudied, such as machine data and customer service call logs. Dark data is typically difficult to integrate and analyze due to technical issues such as formatting, variety and velocity.

Dark data can benefit organizations in several ways. For example, reviewing machine logs from dispensing units with geolocation data can help predict inventory patterns and improve ordering processing to avoid loss of revenue. One insurance provider improved its fraud detection by 30% and reduced claims expenses approximately 3% by combining its historical claims data with syndicated data – from credit bureaus, hospitals, auto OEMs and police records – to reveal patterns of fraud and fraud indicators.²²



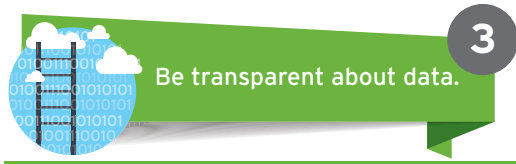
Awareness of data's flexibility is the hallmark of any data culture. It leads to what we call the "art of the possible" – that is, a knack for spotting alternative uses for data.

For employees, understanding data's versatility means acquiring new habits. For instance, departments and functions regularly encounter data for which they may have no use when looked at through the lens of their own line of business. In most companies, the data is then forgotten or discarded. By viewing the same information within the context of a data map, however, other uses for the data emerge, such as links to upstream and downstream consumers. The data's potential to create new insights, and in some cases alternate paradigms for business strategies, becomes apparent.

Consider ways your organization can find alternative or unusual uses for the data it creates. By encouraging employees to identify other departments or teams that can benefit from data, your organization promotes and invests in its data culture.

Focusing on the art of the possible can lead to the corporate nirvana of data monetization. Netflix, for example, devised its Emmy-winning hit show *House of Cards* by gathering routine viewer data and carefully correlating it in new ways. The streaming service discovered that subscribers who watched the original BBC series of the same name were also avid consumers of movies starring actor Kevin Spacey or directed by David Fincher. When Netflix licensed the BBC series for a remake, it signed Spacey to star and Fincher

to direct.²³ It's a perfect example of what we call Code Halo thinking – and the rest, as they say, is viewing history.



Data becomes an asset only if its accuracy is trusted, its provenance is well established, and its security is safeguarded. But data also requires openness, even as it is protected from fraudsters and kept private for regulatory reasons.

The CDO organization can build trust in data by tracking its quality and lineage, and providing multiple use cases – including examples in which a data set should not be used.

Transparency extends even to data with accuracy issues. When confidence in data quality is low, or the data's lineage cannot be established, the CDO organization can enhance the data's value with suggestions for specific uses.

Consider a data set on customer spend, for example. High data sparsity regarding attributes such as date of birth or address may render the data unusable for personalized offers, where laser-like precision is required. But the data set is still relevant for insights that can be drawn with broader strokes, such as understanding segment-based spending habits.



Sharing data successes and celebrating the individuals and teams behind them is essential to promoting a healthy data culture. To help spread the word, organizations need a communications strategy for recognizing such success.

Recognition can occur in many forms, including videos, blogs and special occasion gatherings, such as luncheons. Setting up a company portal to highlight data successes is another option. Rewards and recognition for data initiatives should also be included in formal corporate excellence programs.

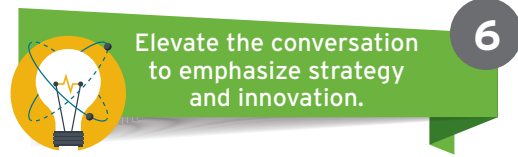
Celebrated data initiatives should be aligned with the organization's innovation objectives. Does your organization want to differentiate itself by understanding its customers in new ways? By penetrating new markets? The data initiatives should support those efforts and reward the ones that advance them. For example, a telecom carrier whose goals include reducing customer churn might reward a team that identifies data that leads to insights into how to predict customers' potential to defect.



Creating a data culture hinges on a thorough understanding of how the departments within your company function – and where there is disconnect and contradiction.

A thriving data culture depends on an environment in which everyone can share information without being perceived as negative. For example, tension often exists between product engineering and sales. Engineering's objective is to freeze requirements so it can get products to market on time and within budget; for sales to meet its goal of boosting revenues, however, it prefers a more fluid approach to requirements in which it can funnel requests for additional features to engineering as it learns about them through customer discussions.

Data gives the two departments common ground. By using data to prioritize features, teams can objectively choose between time to market and cost. For example, what does customer feedback reveal about feature preferences and customer satisfaction levels? Data improves collaboration by keeping the departmental focus on facts, not emotions.



A data culture offers many positive benefits, such as greater employee engagement and higher productivity. But its real purpose is to sharpen corporate strategy and drive innovation. Openly discussing strategies and innovation goals provides employees with a clear view of data's role in the company's overall mission and reinforces their connection to the larger organization.

Traditional business models often fail to make that link. Employees can be reluctant to share data because they don't perceive the value of data they create or are unable to connect it to organizational objectives. Self-preservation can also fuel a reluctance to share, as employees are often defined by the expertise they bring to the table.

Promoting a deeper understanding of the organization's big picture can inspire more prolific sharing by employees and foster a sense of belonging. Bringing employees together for events such as enterprise-level ideation sessions and hackathons can help accelerate strategy and innovation efforts. Appliance-maker Whirlpool attributes most of its innovations to structured ideation sessions,²⁴ and Facebook has famously hosted monthly hackathons during which employees could work on projects unrelated to work.²⁵ In January 2015, British Airways gathered writers, designers, entrepreneurs and programmers to find ways to enhance flight arrivals.²⁶

Greater transparency regarding strategy and innovation also prepares your organization for the data culture – and workforce – of the future. By 2025, millennials will account for as much as 75% of the workforce, and their values are expected to create profound shifts in corporate goals.²⁷ For example, two-thirds of millennials would prefer to earn \$40,000 a year at a job they love rather

than \$100,000 a year at a job they think is boring, according to a 2014 survey.²⁸ Retaining their loyalty within the data culture is key.

Looking Ahead

Transitioning to a data culture is a challenge that requires dramatic change for traditional organizations, but the first steps toward that end can be simple ones. Even if your organization isn't yet ready to launch a full data-culture program, it can begin to lay the foundation. Start by identifying employees who can serve as data ambassadors

within your organization's data-driven culture. Employees who believe in the power of data are key allies for successful CDOs. In the words of Facebook's Mark Zuckerberg, "A trusted referral influences people more than the best broadcast message."²⁹

With your data allies identified, consider executing the first of our six steps as a pilot project. Mapping your organization's data supply chain will potentially launch your organization toward managing data as a strategic asset.

Footnotes

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