The Culture of Data Leaders

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Executive summary

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Relevance of the research

- **Digital transformations are occurring much more rapidly than ever before**

  The move to remote work and transition of customers online as a result of the COVID-19 pandemic is one driver which forced companies to adapt quickly and accelerate improvements to their digital infrastructure. More companies are facing similar challenges in their journey to becoming digitally mature than ever before.

- **Companies need "tech intensity" to improve business performance**

  Past Keystone research has linked greater "tech intensity," i.e., digital maturity, with better revenue and growth performance.[1] When a company deploys fundamental technologies for use across the organization and encourages collaboration and data-driven decision-making, they achieve better business performance, regardless of industry and company size.

- **Developing a "data culture" enables successful digital transformation**

  Introducing technology and data tools to a company is not enough to digitally transform an organization. Employees must be motivated and incentivized to adopt new ways of working and making decisions. Digital leaders share common elements of data culture, indicating that adoption of key cultural characteristics is an essential component of transformation.

Research in brief

We interviewed technology leaders at companies of various tech intensity from digital natives, i.e., companies founded with data and technology at their core, to companies that have successfully undergone digital transformation, to more traditional companies that are just beginning their digital transformation efforts.

We found that digital leaders tend to do the following:

Prioritize learning and experimentation, rather than optimizing existing initiatives and performance.

Focus on making data widely available and establishing a shared organizational context for data, rather than hoarding data.

Encourage employees to continuously track progress toward measurable goals, rather than focusing on adherence to process.

Use common targets and measurements to bring everyone together around organizational strategy, rather than working towards high-level hard-to-measure outcomes.

[1] Reference Democratizing Transformation in Harvard Business Review

Introduction

Digital transformation has taken the spotlight in recent years and has come into sharper focus as organizations transition to virtual ways of working. Companies are eager to adopt the latest technologies, apply advanced analytics, and leverage data to enhance performance and drive business success. While the technological elements necessary for successful digital transformation have been explored deeply, less attention has been paid to the cultural changes required to drive this evolution. In practice, many organizations find that the cultural elements of digital transformation are the most difficult to introduce and enforce.

Our research has shown a powerful correlation between a company's technological maturity, or tech intensity, and its business performance.[2] Our previous work surveyed over ~150 firms across major verticals, including manufacturing, financial services, healthcare, retail, and software. We categorized these firms on a spectrum ranging from digital "leaders" to "laggards" by evaluating them on 100+ characteristics of their technology adoption (e.g., data platform architecture) and capabilities (e.g., support of citizen developers). We found that tech intensity impacts both 3-year revenue CAGR and 3-year total enterprise value CAGR, with digital leaders outperforming digital laggards on these measures and others.

As might be expected, many leading firms are digital natives who started from a clean technology slate. We found, however, that leaders were also often large traditional enterprises that had successfully digitally transformed. Laggard firms, in contrast, are characterized by legacy infrastructure and practices, and face a variety of challenges as they adapt to compete.

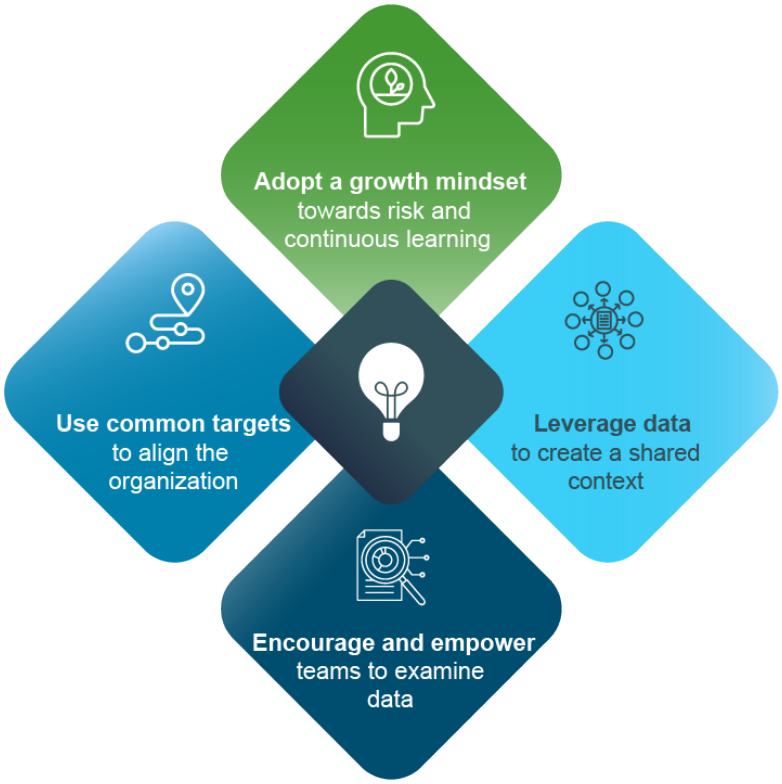
This paper aims to understand the cultural elements of digitally mature organizations

We present insights based on conversations with a subset of digital leaders and laggards, exploring the relationship between these firms' data cultures and their technological maturity. Our research finds that certain behaviors, values, and beliefs play a significant role in enabling where a business is today on the digital transformation spectrum.

Specifically, we identify four key cultural themes differentiating companies with data cultures.

1. **They adopt a growth mindset** towards risk and continuous learning; they believe people and the organization itself can (and must) evolve over time and see data as critical in enabling this evolution.
2. **They leverage data to create a shared context** that facilitates collaboration and decision-making and promotes transparency across the organization.
3. **They encourage and empower teams to examine data**; there is a focus on setting realistic goals and using data to measure performance against metrics.
4. **They use common targets and objective measurements to align their organization**, allowing increased autonomy for teams to pursue goals in creative ways.

[2] Reference Democratizing Transformation in Harvard Business Review for research discussion



Digital leader companies adopt a growth mindset, leverage data to create shared context, encourage and empower teams to examine data, and use common targets to align the organization.

Broadly speaking, we also find that digital leaders go beyond the specific individual practices enumerated above. These firms recognize how critically important these cultural elements are and take active steps to drive these cultural tenets into the organization's daily operations.

Adopt a learning mindset

Digital leaders encourage risk-taking, experimentation, and long-term development

Digital leaders are finely attuned to the speed with which their competitive landscapes are changing. In this context, a "risk averse" strategy is a non-starter; for these firms, sensible risks and deliberate experimentation are often fundamental strategies to effectively compete. Most of the digital leaders we spoke to consider themselves "learning organizations" and believe they must constantly adapt to avoid obsolescence. This mindset requires firms to place a high value on data: learning, improvement, and sensible risks can only come through continuous feedback (and measurement).

Digital leaders often emphasize the importance of the learning value of experimentation. Leaders believe that even if a goal is not met after the completion of an experiment, the organization has gained knowledge about the market, product, or process that it can use to improve. They're not foolhardy – leaders recognize that some risks are too costly. As such, they encourage thoughtful design, planning, and opportunity assessment to maximize both their odds of success and their learning opportunities.

Additionally, leaders typically recognize that the development of individuals is essential to long-term success. Investments in training may not always result in immediate (e.g., same quarter) payoffs but can lead to profound longer term impact. This approach to training is particularly true when teaching critical thinking skills such as problem solving, statistics, and design thinking. Digital leaders prioritize these skills in their training programs rather than focusing narrowly on skills directly related to project work.

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We try to develop every employee – we have a day maybe once a quarter which is focused on development. We set it up so there's a 90-95% chance no one will disturb you and you can focus on solving a customer problem or just focus on learning general skills.

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- *Digital Leader*

Digital laggards tend to optimize their comfort zone

Companies we characterize as digital laggards, in contrast, prioritize short-term efforts to address immediate imperatives, often showing a focus on optimizing existing initiatives. On-the-job training emphasizes a narrow range of topic areas designed for "as-is" job requirements and near-term payoff. These organizations tend to perpetuate a culture where risks are discouraged and training is transactional. In our conversations, we noted this risk aversion was often accompanied by a lack of trust in the organization: both in the skills of its employees and in leadership to successfully drive and maintain an authentic learning environment.

This is not to imply that developing a learning mindset is smooth sailing, even for digital leaders. Respondents at leading firms sometimes acknowledged a struggle to balance risk-taking with the failures that can follow. In other cases, we heard that while organizational leadership wholly bought into driving a learning mindset, practical realities kept forcing them to prioritize a more short-term approach to meet deadlines and customer expectations. Instilling a learning mindset is a cultural shift that requires deliberate effort and practice over time, and for none of the digital leaders we spoke to was it a "light switch" change.

Some industries have significant regulatory constraints which discourage risk-taking for health, safety, and privacy reasons. As the case study below demonstrates, companies that are able to create pockets of safe and responsible experimentation and risk-taking within the larger company can foster targeted innovation.

Case study: a pharmaceutical company encourages a learning mindset within a regulated industry through creating a localized experimentation environment

Context

- The pharmaceutical industry is highly regulated, which can cultivate a fear-based culture and avoidant attitude towards risk-taking. Often, tech innovation is not prioritized.
- As a result, this company is extremely process-oriented and focuses on internal compliance.
- Employees spend a lot of time doing manual compliance checks but **a changemaker wanted to automate the compliance checking process** to facilitate exploratory clinical trial data analysis capabilities.

Approach

- To do so, she fostered a localized team culture where experimentation and risk-taking were encouraged within a controlled environment which did not impact the rest of the business.
- She spoke openly about the **discomfort that comes with new technology and tailored her communication style to individual team members' personalities**. For example, she made sure an introverted member of her team had adequate time and space to make their concerns heard.

Outcome

- The tool automates compliance checks in a quarter of the time than the previous process required.
- The group acted as a leader for implementing the same tool in multiple other groups following its successful initial launch.
- **The experimentation process boosted her team's morale and feelings of autonomy** over their work.

Create shared context through data

Digital leaders strongly believe in transparency when it comes to data and decision-making within the organization

At leading organizations, relevant and clearly understood data enable smart and innovative decisions, placing the focus on making data widely available and establishing a shared organizational context. This environment is accomplished via not only infrastructure but also cultural norms: in our conversations with leaders, there was an underlying assumption that sharing data between teams and departments is necessary for collaboration and problem solving. Therefore, data privileges are not inherently restricted by role or responsibility, and data-hoarding behaviors are strongly discouraged.

We also observe a belief among digital leaders that data enable good ideas to come from anywhere in the organization. For more digitally mature enterprises we spoke to, developing this mindset required active sponsorship from leadership (and at several companies, respondents reported significant change occurred only after turnover at the executive level).

At the same time, digital leader firms recognize that data need to be handled with care; appropriate controls are put in place to ensure data are properly governed and protected (e.g., for customer privacy or ethical reasons). These controls establish trust, increasing rather than hindering use and sharing of data. Employees feel empowered to access data knowing that restrictions will prevent any accidental misuse.

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Decisions are often not made by one person, rather, they're made by the whole group. For example, the finance team would run scenarios and the CEO would provide feedback. Each of these parties brings some data to the table in the decision-making process. So, all these data are looked at by everyone. Everyone has a chance to voice concerns, or to show if there are any negatives.

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- *Digital Leader*

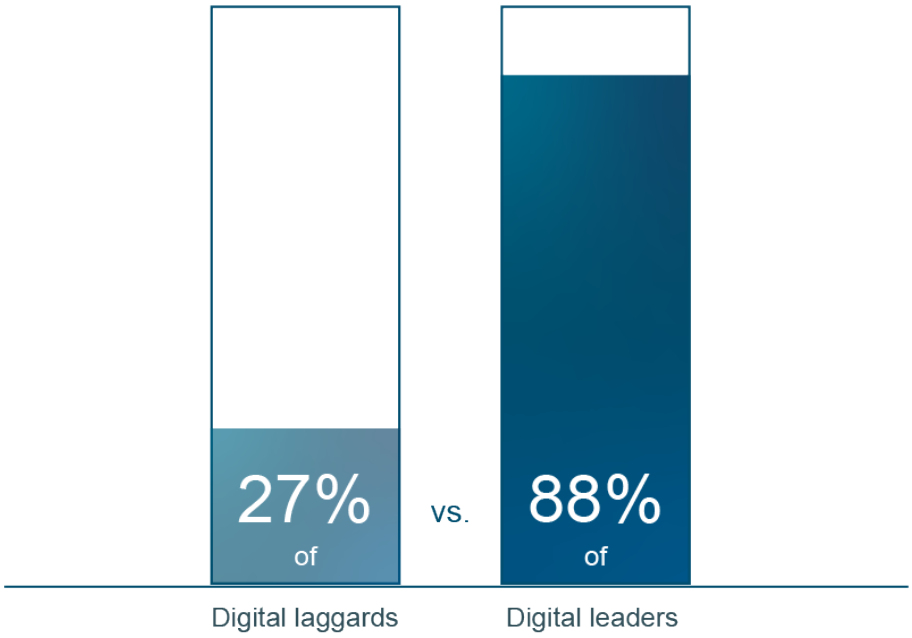
Digital laggards tend to tightly control data access

Employees at digital laggard organizations, in contrast, typically tend to keep data close to the vest, with data and rationale for decision-making shared only on a "need-to-know" basis. In these organizations, data are often hoarded as a source of power: if no one can dispute the numbers, no one can argue with the decisions. In many cases data are stored in departmental silos rather than a centralized data store and require burdensome request processes to access any amount of data.

Digital laggards often favor business judgment and a "culture of genius" over data-driven decisions, where decisions are accepted based on the expertise and tenure of individuals. Data, when used, often justify decisions

already made by leadership, and are not interrogated more deeply. Some respondents referenced entrenched leadership accustomed to making decisions based on business judgement as a cause. Other organizations recognized the importance of data in decision-making but were limited by a lack of resources to enable such decision-making. These tendencies perpetuated cultures where power dynamics, rather than a common understanding of information, are central to the decision-making process.

Even at digital leaders, we did find evidence of inconsistent cultural attitudes towards data within organizations. Some respondents suggested that certain functions didn't require the same level of data literacy nor access to data, indicating that a shared vision of the importance of data may still be imperfect, even at leading organizations.



have standardized APIs that enable easy data flow between departments

Our tech intensity research finds that 88% of digital leaders have standardized APIs that enable easy data flow between departments, compared to 27% of digital laggards.

Measure everything

Digital leaders embrace measurement to learn

Digital leaders encourage employees to collect and examine as much relevant data as possible, both to inform objectives and to measure progress. They do not shy away from using detailed metrics to define success and believe that realistic but ambitious goals must be grounded in meaningful and measurable data.

Employees at most leading organizations are expected to continuously track progress toward project goals as well as individual performance goals. Formal evaluation processes are typically based on data-driven metrics and complemented with 360-degree reviews. The result is a culture that encourages individuals to evolve and adapt efforts based on as much objective input as is relevant, rather than one focused narrowly on evaluations from "above".

This focus on measurement might conjure an image of a rigid workplace, where employees are constrained to "follow the data". However, for the most part, we observe the opposite: the focus on measurement gives teams flexibility and autonomy in achieving their goals. The increased structure through clear data-driven goals creates an environment where innovation, experimentation, and risk-taking are encouraged; employees can progress towards goals in creative ways. Interestingly, digital natives we spoke to treated this flexible, risk-taking approach as a given. It was in our conversations with more traditional organizations that transformed into digital leaders where respondents actively highlighted this as a notable change from before.

Case study: a digitally transforming retail company operationalizes profit maximization goal through real-time sales reporting

Context

- As a result of acquisition, a retail company upgraded its data architecture and technology systems to adapt to the parent company's standards.
- Empowered by the parent company's encouragement of data-driven decision-making, **sales leaders requested real-time sales reporting so they could be more nimble**.

Approach

- To migrate the finance-driven audited quarterly report to a real-time dashboard, **the team needed to overhaul the data recording, internal checks and balances, and reporting processes and systems**.
- Because the parent company and senior leadership valued data-driven decision making, the flash sales reporting capability was prioritized and implemented quickly.

Outcome

- The company now automatically pushes retailers' sales data to the report three times daily.
- As a result, **leaders across business units (and even the CEO) are able to make more real-time data-driven decisions** regarding inventory, marketing, supply chain, and more.

Digital laggards struggle to ground objectives in data

Both leaders and laggards expressed an interest in measurement; the challenge for digital laggards is in setting objectives that are realistic and well understood. In our conversations, we found that digital laggards set aspirational goals that are insufficiently grounded in data and that employees believe are impossible to achieve. Faced with such objectives, employees tend to shy away from measurement, anticipating that it will show them falling short of expectations. This leads to a "best effort" approach, unguided by real-time feedback from data.

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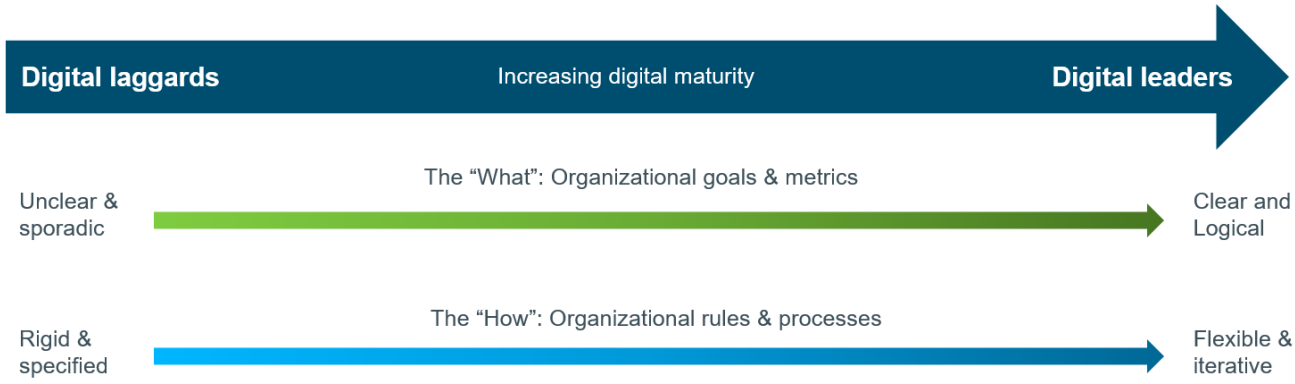
End goals are all aspirational. It's part of an implicit understanding that you won't get to achieve part of your goals – or even 20%. We know you won't achieve it. It's really hard for us to create measured goals so we default to qualitative measurement and look at the short-term effort and things that the team actually got done.

"

- *Digital Laggard*

The failure to employ data and quantitative metrics causes digital laggards to instead focus primarily on adherence to process. These firms often develop complex, yet qualitative, practices that they use to prove effort in place of objective measurements of success. Deviation from these practices is discouraged, as benefits from doing so are difficult to measure or justify. Respondents at some laggard organizations reflected how this approach stifles innovation, as it disempowers employees to adapt their approaches to the problems at hand.



Digital leaders create structured goals and metrics yet build flexibility in process; there exists a tradeoff between "the what" and "the how".

Connect data and metrics to align the organization

Digital leaders bring the team together around shared goals

Finally, many digital leaders use data-driven objectives as coordinating functions across different levels of their organization. These objectives are developed via a methodology transparent to all, and they clearly align to the organization's strategy. Teams and employees can articulate how their specific objectives contribute to their company's overall objectives, empowering teams to operate with a common purpose, or "North Star" vision. For digital leaders, a well-aligned set of goals creates a shared vision for the entire organization, channeling innovation and creativity at the individual level towards ultimate firm success.

Implementing objectives across the organization does not mean simply mandating OKRs (Objectives and Key Results) from leadership, as this approach can quickly become an organizational burden. Teams and employees need to buy in to targets and understand how those targets build toward the company's goals, which is often done through a combined top-down, bottom-up process, creating a sense of unity and alignment.

Even at digital leaders, however, we heard examples of companies struggling to balance between leveraging data to set goals and bogging down decisions in exhaustive analysis. Respondents at times were frustrated that simple decisions (e.g., fixing a poorly placed button on the mobile app) required significant overhead and data instrumentation. When the bar for quantitative analysis to move any decisions forward is set too high, the organization risks losing the human intuition and logical elements of decision-making.

"

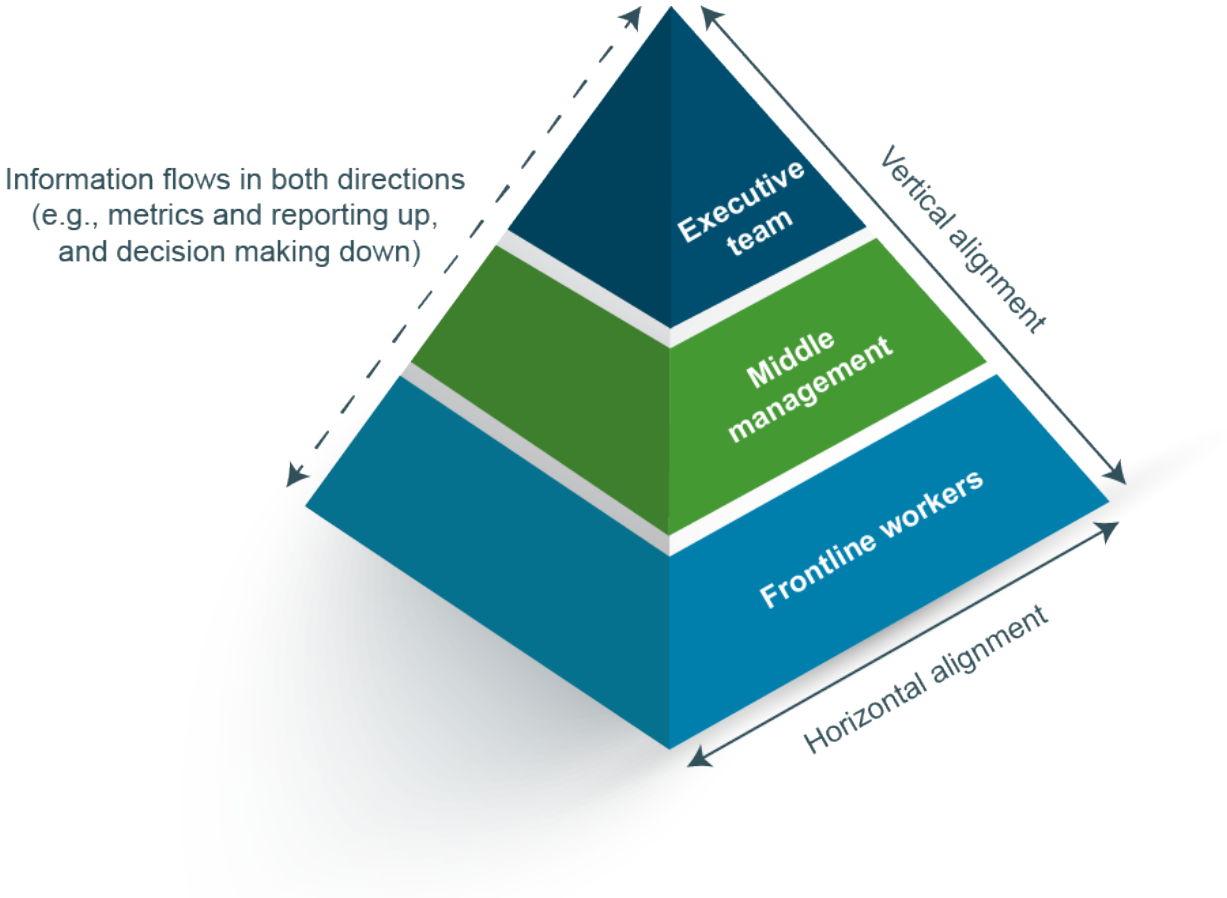
The company will set out its plan for the year, then that trickles down through the organization. It all clearly stacks up to each other – everyone can view everyone else's goals. It creates an open line of communication across teams.

"

- *Digital Leader*

Digital laggards fail to clearly connect goals with strategy

Digital laggards, in contrast, often struggle with the basic elements of goal-setting: company priorities typically reflect only high-level outcomes, with often tenuous connection to an overall strategy or explanation of how teams contribute to these outcomes. Consequently, employees at these firms deprioritize poorly-understood objectives, causing company wide misalignment in driving toward strategic goals. As described earlier, the tendency toward a "culture of genius" at these organizations exacerbates this problem; individuals believe they know what is best for the organization and focus their efforts there, even if this does not fit into the broader strategy.



Data culture can align an organization both horizontally and vertically.

The impact of data culture on a firm's organizational alignment can be visualized as a pyramid, where the top of the pyramid consists of a company's leadership and the bottom comprises its front-line workers (see above). Adopting a data-driven culture aligns a company both vertically and horizontally. The use of data-driven metrics and objectives enables better understanding of how individuals and groups align with overall company goals (vertical alignment). Common data models and transparent access enable teams to collaborate efficiently and reduce the tax that often thwarts inter-functional teaming in larger organizations (horizontal alignment).

Culture as digital transformation agent

Digital leaders emphasize the data culture as central

Our conversations with digital leaders reveal common practices highlighted above: adopting a learning mindset, providing transparent access to data, relying on clear metrics to track progress, and using these metrics to align the organization. Spanning all these, most digital leaders emphasize the data culture itself as a centerpiece of their business.

This emphasis enables culture to play a key coordinating function for employee efforts. For digital leader firms, culture is the mechanism used to align beliefs, espoused values, and day-to-day actions. To be successful, these elements of the culture need to be consistent and reinforcing.

At most digital leaders, the behaviors of employees reflect and reinforce the stated company values, and these in turn are driven by the core beliefs of leadership. We observed this behavior at both digital natives and successfully transformed enterprises with decades of operating experience. Employees at these organizations understand how an organization expects them to act, and why. Digital laggards, on the other hand, tend to show misalignment between what is formally espoused and on-the-ground behavior. Despite a clear and consistent recognition in conversations with digital laggards that a data-driven culture is important, entrenched habits, lack of individual skills, and insufficient top-down focus thwart efforts to align behavior with ambitions.

We heard frequently in conversations with technology leaders of organizations in the midst of digital transformations that changing engrained mindsets and behaviors is the most challenging part of transformation. The reasons for changing must be compelling and well-understood to executives and their employees so that adopting a new culture is prioritized above any hurdles they may encounter.

This is not to say that digital laggards are doomed to stall in their digital transformation journey

As discussed previously, we found multiple examples of current digital leaders who had transformed (or were in the process of transforming) their cultures. Digital leaders themselves also referenced areas of tension or areas of potential improvement in their own internal cultures, demonstrating the need to continue growing culturally for mature organizations.

Throughout our work, we found that technologically mature firms—whether digital natives or successfully transformed traditional firms—not only enjoy an advantage in tangible business outcomes, but also show distinct differences in their approach to their data culture. Establishing beliefs around the value of learning, risk-taking, transparency, and measurement; reflecting them in company values; and incorporating them in day-to-day practices are all key to a strong data culture and successful digital transformation. Our findings indicate that organizations who are eager to evolve must find a way to not only articulate and implement these principles, but also transform their core beliefs about who their people are and what they are capable of.

How is your organization doing?

In our conversations with organizations of various tech intensity, we found that many organizations are better at employing one or a few of the strategies discussed in this paper, but not all. Based on the company's original culture and technical sophistication, organizations tend to fit into one of four patterns: data novice, insight ready, tech enabled, and data reliant.

"Data novices" tend to recognize the need for data-driven decision-making but have not yet been able to change their culture nor their systems to enable a data culture. ***"Insight ready"*** organizations have a culture which is accepting or even encouraging of risks and mistakes, but their architecture and capabilities do not yet allow for advanced analysis. ***"Tech enabled"*** organizations have the data and technology they need but do not encourage a culture of experimentation and risk-taking to innovate beyond their daily operations. Finally, we noticed that a few organizations with high digital maturity and learning mindset may now over-rely on data for decisions, so much so that it discourages critical thinking. These organizations fit into the ***"Data reliant"*** category. Organizations in each of these categories can build on their current strengths and focus on targeted actions to reach a strong data culture.

	Current state	***Focus areas to unlock data culture***
Data novice	• Employees are set in their ways and focused on established processes for decision-making • The company struggles with limited data literacy as well as data quality issues	☐ Encourage people to experiment and surface challenges, rather than perform flawlessly ☐ Establish systems that enable transparent and safe data sharing
Insight ready	• Risks and mistakes are accepted • Technology does not support development of data-driven insights (e.g., lacks experimentation platform or data quality)	☐ Encourage teams to experiment with data within their teams ☐ Promote tracking relevant metrics over adherence to process
Tech enabled	• The company has employed quantitative metrics and data analysis techniques in everyday work • People are uncomfortable with risk taking and experimentation	☐ Embrace sensible risk taking and deliberate experimentation ☐ Invest in broad reaching training (e.g., problem solving) and soft skills training
Data reliant	• Data skills and technology empowerment exist at scale alongside learning mindset • The company may over-rely on data and undervalue critical thinking	☐ Align analyses to the level of risk and value creation potential ☐ Invest in broad reaching training (e.g., problem solving) and soft skills training

Companies tend to begin their data transformation journeys in one of these four patterns, and therefore, can continue to target their focus areas accordingly.

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