# Getting Started With Data Literacy and Information as a Second Language: A Gartner Trend Insight Report

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The increasingly pervasive nature of data makes it crucial for all employees to learn to "speak data." This follow-up to our first Data Literacy Special Report outlines practical advice for data and analytics leaders to start data literacy programs as a key to a broader digital dexterity campaign.

## Opportunities and Challenges

- Poor data literacy is one of four key barriers to increasing the value of data and analytics, alongside trust, diversity and complexity.
- Awareness of the need for data literacy as an organizational competency (and core element of digital dexterity) is on the rise, and pioneers of data literacy are emerging globally across all industry sectors.
- Determining how to get started with a data literacy campaign is a new challenge for chief data officers (CDOs) and other senior data and analytics leaders committed to creating a data-driven culture.
- The move to SaaS applications will broadly expose most employees to both personal and business analytics via an embedded analytics capacity — misuse can occur without proper data literacy education.

## What You Need to Know

To foster data literacy across the enterprise, leaders of data and analytics programs should:

- Champion data literacy awareness and craft a clear case for change before pursuing the tactical implementations.
- Conduct pilots within targeted roles and functions across both creator and consumer communities to test the value proposition.

- Partner with a variety of business executives to align the data literacy program with digital workforce programs and enterprise data and analytics initiatives to maximize synergies that collectively create a data-driven culture.
- Enlist the HR team to emphasize data literacy explicitly in hiring, onboarding and employee development activities.

## Insight From the Analyst

### Data Literacy: A Foundation of Equality and Opportunity in Digital Society

Valerie A. Logan, Research Director

> "If we don't give everyone the ability to simply read and write, we aren't giving everyone a chance to succeed." — Barbara Bush (1925-2018), former First Lady of the United States and founder of the Family Literacy Foundation.

In 1978, Barbara Bush, in preparation for her potential role as First Lady, pondered what societal causes she could support in the role: homelessness, crime, hunger, drugs? She then realized that they would all improve if more people could read, write and comprehend. She used her platform to focus on improving literacy for children, and families, which she saw as the key to equality and opportunity in society.

Fast-forward 40 years. Our society is now digital with mobile phones, the internet and sensors in our homes and cars. Regardless of one's political leanings, the value of literacy still matters critically, but now, so too does data literacy. And it is data literacy that is the new key to equality and opportunity in society, as those who "speak data" will have more opportunities to succeed.

In the first wave of this Special Report, published earlier in 2018, we introduced the importance of data literacy and treating information as a new second language. In this second report, we explore practical advice for growing data literacy as a core element of digital dexterity, organized by the top five questions that we receive in client inquiries on the topic:

1. **Building the case for data literacy —** What are the best approaches to building the case for data literacy, and where do I get started?
2. **Organization design, roles and competencies —** How does a data literacy program fit with overall data and analytics organizational design, roles and competencies?
3. **Building an effective learning and development program —** How do I design and build an effective learning and development program to support data literacy?

4. **Data literacy resources —** What resources are available to build into a data literacy program?
5. **Good (and poor) data literacy —** What are examples of good (and poor) data literacy?

Sincerely,

Val Logan

## Executive Overview

### Definition

> Gartner defines data literacy as the ability to read, write and communicate data in context. This includes an understanding of data sources and constructs, analytical methods and techniques applied, and the ability to describe the use case, the application and resulting value.

With the steady rise of digital transformation and the need for businesses to create a digital workforce, we now see recognition of the role that employee data literacy plays within overall digital dexterity. Digital skills are critical, including an understanding of sensors, robots, digital twins, mobile, cloud and seamless collaboration. However, there is a fundamental element that flows through all of these — data. The need to understand how insight can be derived from data through analytics and artificial intelligence (AI) is foundational to how every employee engages with it and, in so doing, adds value.

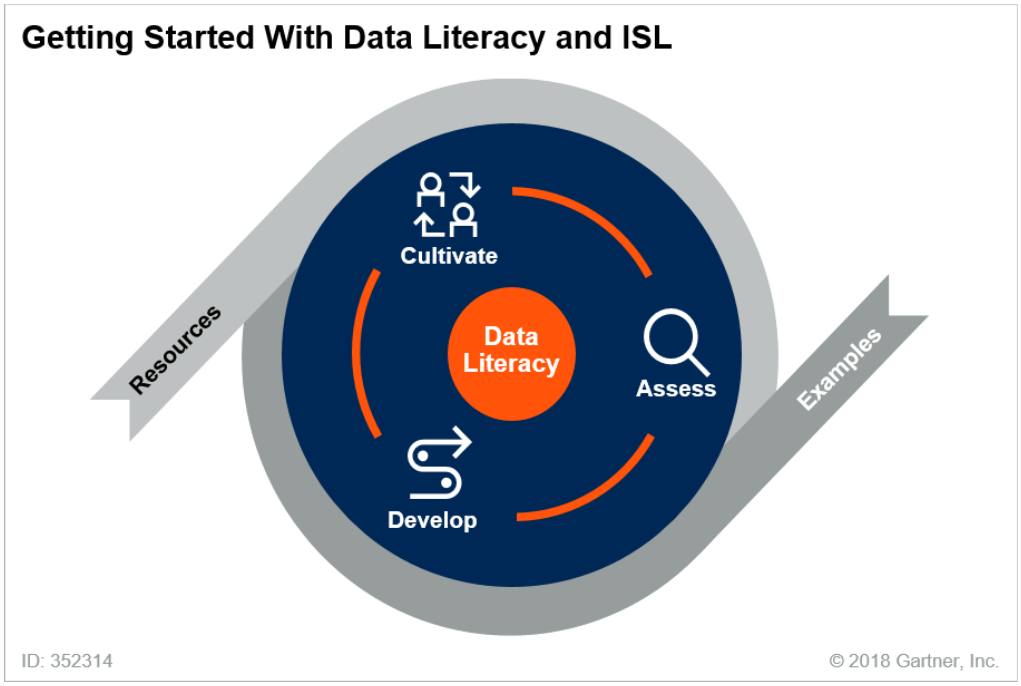
As outlined in the opening keynote of Gartner's Data and Analytics 2018 Summit, creating digital value at scale requires breaking through four key barriers to **establish trust**, **promote diversity**, **master complexity** and **develop data literacy**. (See "Break Through the Four Barriers Blocking Your Full Data and Analytics Potential — Keynote Insights.")

It has never been more important for leaders, creators and consumers of digital solutions to speak data in a common way. Doing so leads to:

- Business leaders internalizing the importance of creating a culture of sharing data and resources
- Frontline associates understanding the fundamental value of entering quality data
- Effective ideation and efficient collaboration to create and develop data-intense solutions
- All employees engaging in self-service conversations with data to inform new insights and options

This shared language and enhanced employee data literacy is the new differentiator and specialty of digital workforce programs.

Figure 1. Getting Started With Data Literacy and Information as a Second Language




Source: Gartner (November 2018)

**Data and analytics leaders seeking to grow data literacy must address:**

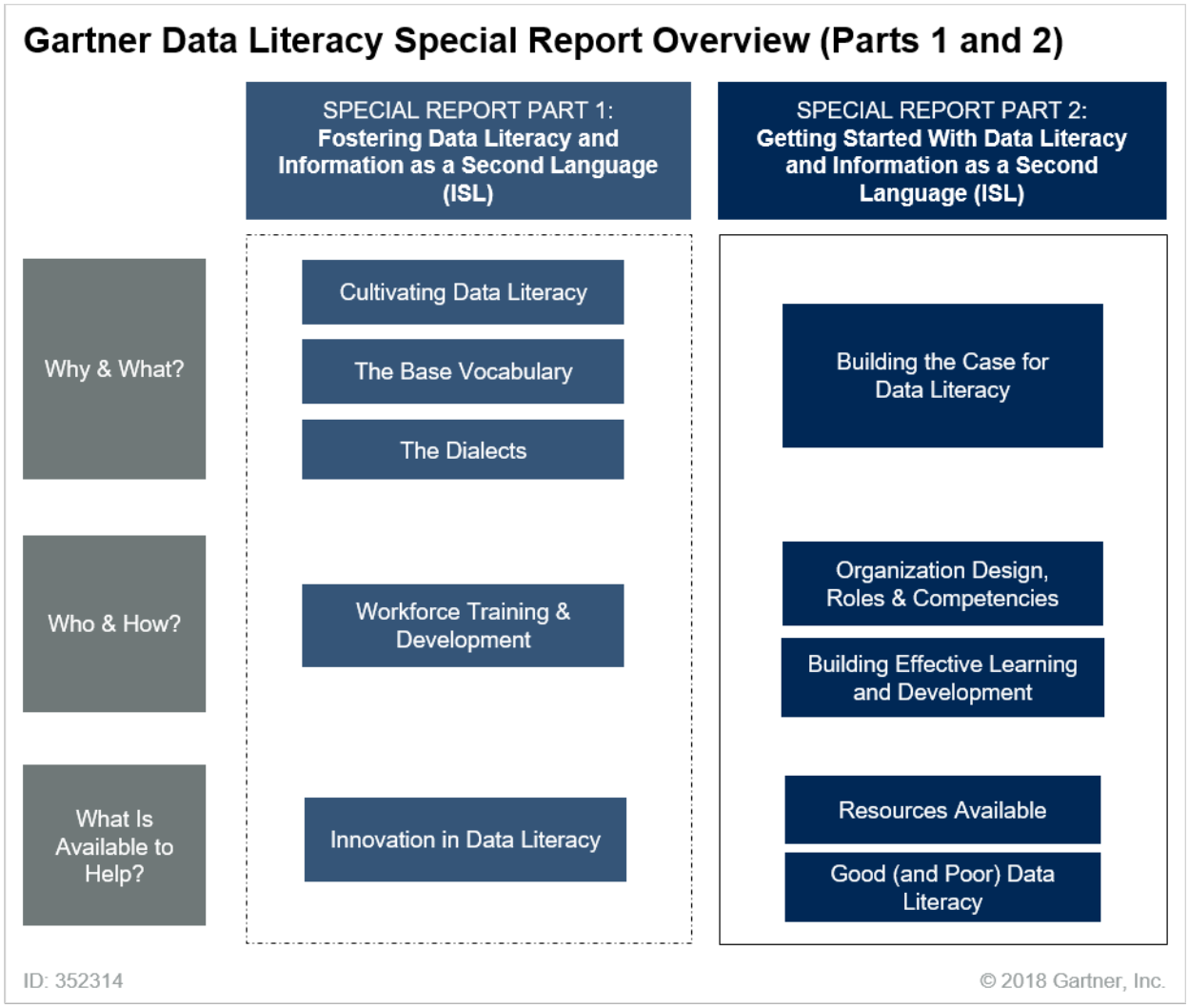
1. **The why and the what:**
   - Begin by creating the narrative for data literacy, or the case for change related to growing this critical workforce competence across creators and consumers of data.
   - Identify measurable benefits and potential for business value from adopting a more data-driven approach to business.
   - Share examples and start a conversation about how we speak data in our business roles and in our personal lives, creating a basic frame for the importance of growing data literacy as a business skill, and a life skill.
2. **The who and the how:**
   - In developing this narrative, identification of the “who and the how” becomes a cornerstone for ensuring that all stakeholders and participants make data literacy personal.
   - Be explicit about the roles that participants play in decision making, and the data that is used within those decisions. All leaders, including HR executives, must see data literacy as a core workforce training and development priority.

3. **The resources available to get started:**

   - A variety of resources exist, including some initial assessment and training sites with relevant free courses; yet the landscape of resources, help and guidance is fragmented. Data literacy pioneers will need to be opportunistic and collaborative in these early stages to creatively build their program foundations.
   - Developments in data literacy are rapidly emerging. These include new services, software-enabled assessments, expansions to university curricula, and public and private sector pioneers on the frontline of designing and implementing data literacy programs.

This "Getting Started With…" Special Report follows on from "Fostering Data Literacy and Information as a Second Language: A Gartner Trend Insight Report," published earlier this year. Collectively, the reports address the key areas outlined in Figure 2.

Figure 2. Gartner Data Literacy Special Report Overview (Parts 1 and 2)



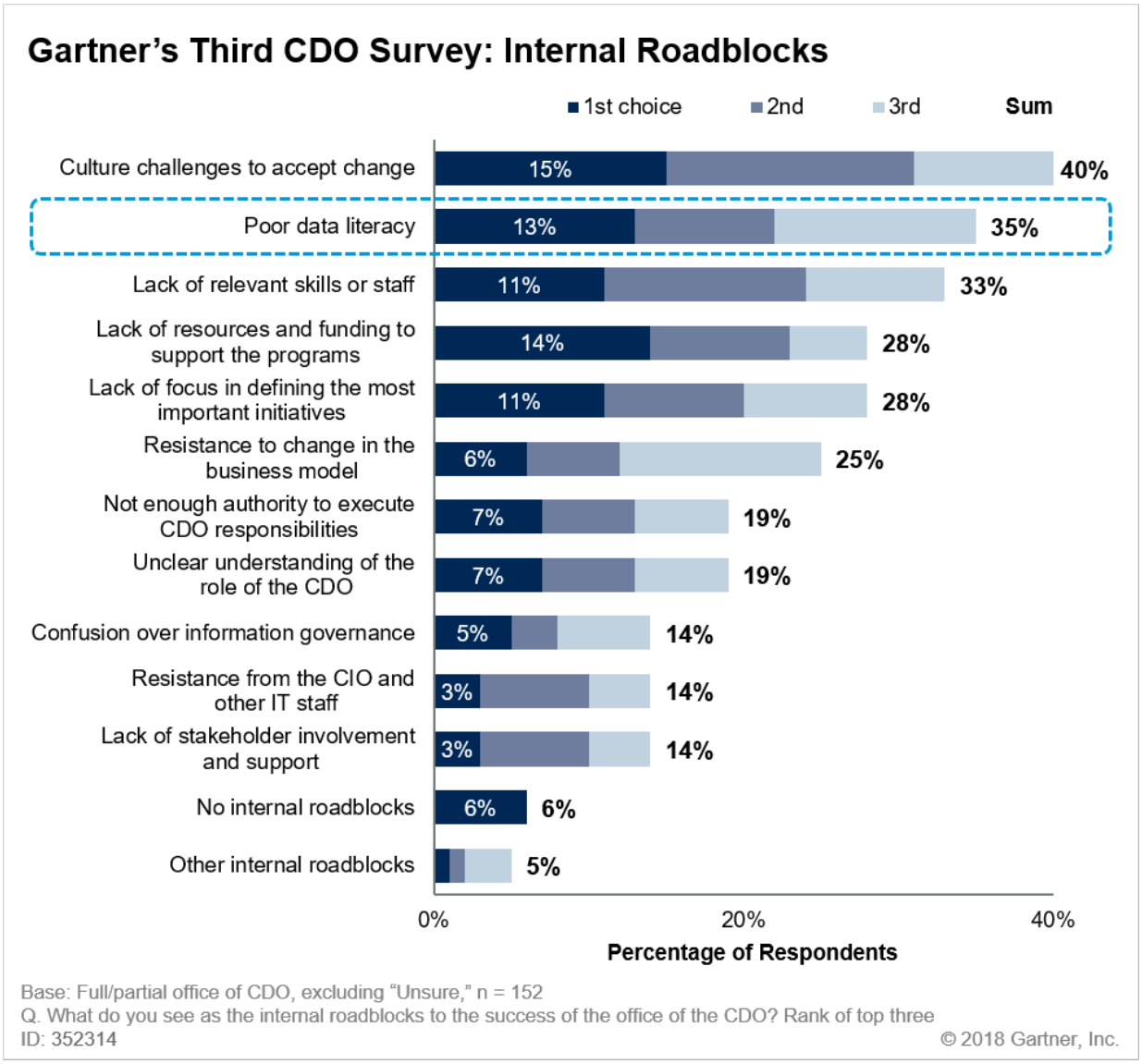

Source: Gartner (November 2018)

# Research Highlights

## Building the Case for Data Literacy

Data literacy has officially arrived. Respondents to Gartner's 2017 Third Chief Data Officer Survey[1] listed "poor data literacy" as the second highest internal roadblock to success, behind "culture challenges to accept change" and just ahead of "lack of relevant skills or staff" (see Figure 3). A sustained data literacy program addresses all three roadblocks.

Figure 3. Internal Roadblocks to Success of the Office of the Chief Data Officer




Source: Gartner (November 2018)

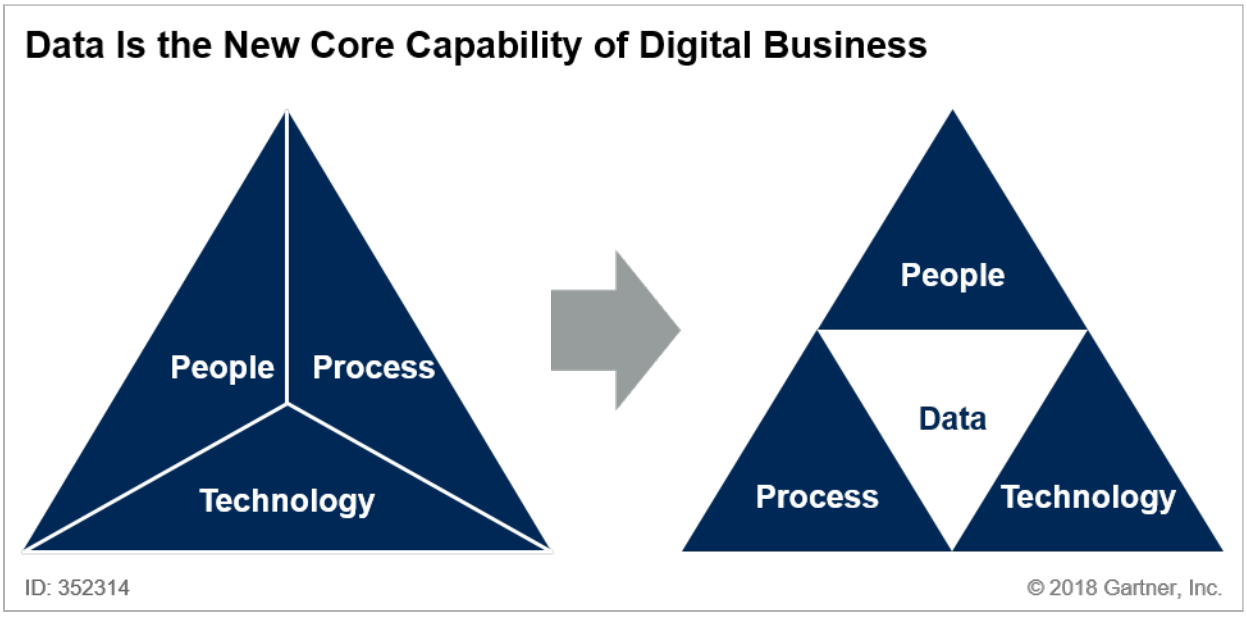
Pockets of data literacy capability have been developing over the past several years. Now, in 2018, data literacy makes its formal debut within three of Gartner's Hype Cycles, recognized as an Innovation Trigger within the market.

The idea of data literacy often resonates with those who have grown up working with data, and who natively speak it. Yet, CDOs and other data and analytics leaders are now faced with articulating a clear business case for data literacy to a wide range of stakeholders, many of whom do not speak information as a second language.

Each enterprise and government contains its own set of barriers to improving data literacy — from lack of awareness of what "data literacy" means to the question of how one measures the value of its impacts. The key for data and analytics leaders is to recognize these barriers and employ strategies to overcome them.

Many of the barriers are cultural. Breaking down traditional thinking about how to succeed in business with data-driven decision making is key. That means getting buy-in from executives about the importance of data literacy for a number of purposes. First, executives must realize that speaking data is a missing link that will uncover unrealized value from years of data and analytics initiatives. They also must view data as the new core capability (Figure 4) driving how the business should compete, innovate and be efficient in a digital context.

Figure 4. Data Is the New Core Capability of Digital Business Transformation




Source: Gartner (November 2018)

As a CDO (or equivalent senior executive responsible for enterprise data and analytics), key questions must be asked when building the narrative and business case for data literacy:

- Who is the executive team, or set of champions and change agents across business units, functions, HR and IT, advocating for data literacy?
- How does data literacy fit contextually within the overall digital dexterity or digital workforce transformation programs of the organization?
- How does data literacy fit as an integral component within the data and analytics strategy and operating model?
- What adjacent programs share critical interdependencies with data literacy?

Based on hundreds of inquiries on these topics, Gartner has developed the following research to support creation of the data literacy narrative and business case.

## Related Research

"Hype Cycle for Enterprise Information Management, 2018"

*By Andrew White, Saul Judah*

Data and analytics leaders can find it challenging to consistently deliver business value through their data and analytics investments. Enterprise information management can help to align, link and make the most of people, processes, data and technologies.

"Hype Cycle for Information Governance and Master Data Management, 2018"

*By Saul Judah, Andrew White*

Information governance and MDM are technology-enabled business disciplines. They enable data and analytics leaders to apply decision frameworks and establish trust over business-critical assets — such as key data, analytic models, decision models and AI algorithms — to achieve greater business value.

"Hype Cycle for the Digital Workplace, 2018"

*By Matthew Cain, Michael Woodbridge*

Workforce digital dexterity is the ultimate goal of a digital workplace program. Application leaders pursuing this strategy have many options to help employees drive better business outcomes through the use of emerging technologies and new ways of working, represented in this Hype Cycle.

"Fostering Data Literacy and Information as a Second Language: A Gartner Trend Insight Report"

*By Valerie A. Logan*

The prevalence of data and analytics capabilities, including AI, requires creators and consumers to speak data as a common language. Data and analytics leaders must champion workforce data literacy as an enabler of digital business and treat information as a second language.

"Information as a Second Language: Enabling Data Literacy for Digital Society"

*By Valerie A. Logan*

Unless data and analytics leaders treat information as the new second language of business, government and communities, they will be at a disadvantage. They will not be able to deliver the competitive advantage and agility demanded by their enterprises.

“Break Through the Four Barriers Blocking Your Full Data and Analytics Potential — Keynote Insights”

*By Kurt Schlegel, Gareth Herschel, Debra Logan, Douglas Laney, Saul Judah, Valerie Logan*

The emerging digital business platform requires a robust data and analytics capacity beyond what data and analytics leaders have attempted so far. These leaders should act to overcome four key barriers that block efforts to scale data and analytics and realize its full potential.

“How Chief Data Officers Show Leadership in Improving Data Literacy and Fostering a Data-Driven Culture”

*By Alan D. Duncan, Frank Buytendijk, Valerie Logan*

To deliver better business outcomes, we need an organizational culture that is data-literate and values information as an asset. Data and analytics leaders must show leadership in three key areas: data’s business value, data-related cultural change, and the ethics of data management and its uses.

“Leadership Vision for 2019: Data and Analytics Leader”

*By Ted Friedman, Joao Tapadinhas, Saul Judah, Nick Heudecker, Gareth Herschel, Andrew White*

Data and analytics leaders must drive transformation and innovation in their enterprises. This slide deck will help in planning for 2019 and in presentations to leadership, peers and teams.

“100 Data and Analytics Predictions Through 2022”

*By Douglas Laney, Guido De Simoni, Rick Greenwald, Cindi Howson, Ankush Jain, Valerie Logan, Alan D. Duncan*

Gartner’s annual predictions disclose the varied importance of data an analytics across an ever-widening range of business and IT initiatives. CIOs, CDOs and other data and analytics leaders should use these strategic planning assumptions for enhancing their vision and plans.

“How CIOs and CDOs Can Use Infonomics to Identify, Justify and Fund Initiatives”

*By Douglas Laney and Michael Smith*

Information has replaced technology as the central and most critical asset to be managed by organizations. As a result, CDOs and CIOs must shift to using the value of information as a basis for new planning and funding models.

“How We Will Work in 2028”

*By De’Onn Griffin, Mark Coleman*

Intelligent software and AI-powered robots will join humans at work by 2028. CIOs must anticipate how trends in business, society, technology and information will converge to change where, when, why and with whom we will work in a digital business.

“Closing the Digital Dexterity Gap in Digital Business Strategies”

*By Matthew Cain, Graham Waller*

Despite the intense focus on externally facing digital business, our survey highlights that the workforce is a critical element in digital business strategies. Application leaders need to deliver programs to boost the digital dexterity of the workforce as a business imperative.

“Survey Reveals Dangerous Gap in Digital Business Transformation Progress”

*By Ian Cox, Kristen Moyer*

The 2018 Gartner Digital Business Survey reveals that organizations struggle to turn their digital ambitions into reality. CIOs can help by clarifying digital ambition and focusing on business models, ecosystems and digital dexterity.

## Organization Design, Roles and Competencies

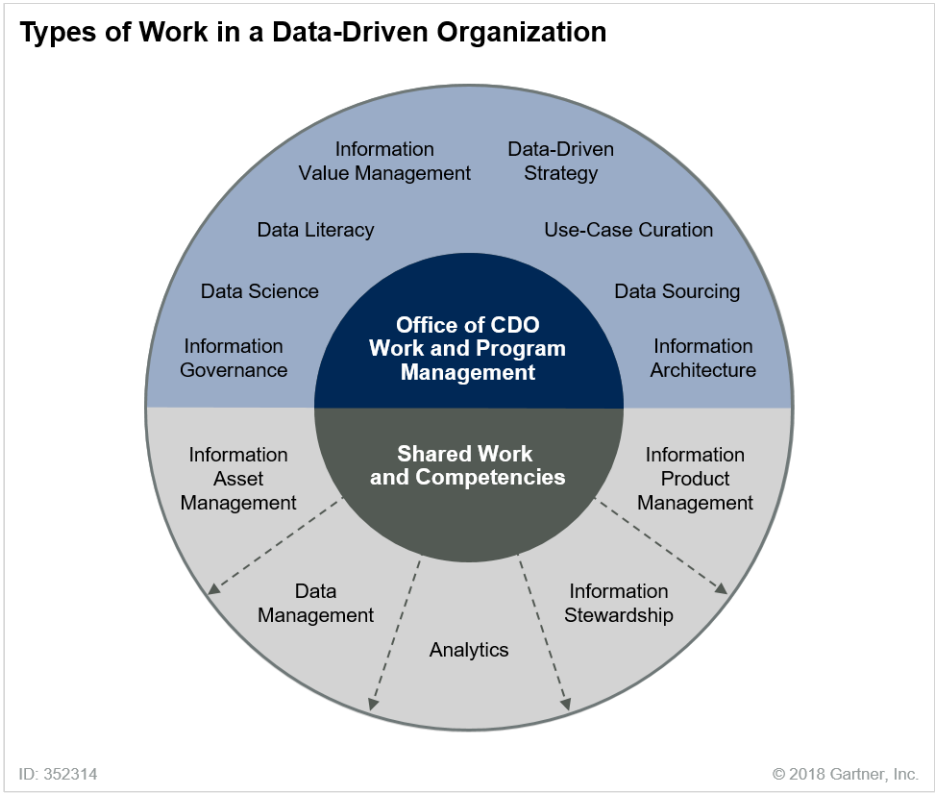
As the age of data gains momentum, traditional organizational structures are becoming inadequate for changing business needs. Speaking data is no longer just the language of data modelers, BI report developers and applied mathematicians. New skills and roles demand data fluency, so that those who acquire them can help others discern data-intensive problems. Introducing and developing these skills and roles is essential for companies to remain competitive in every industry and business domain.

Transforming a workforce to take advantage of data and analytics requires implementing enhanced structures (e.g., analytics centers or communities of excellence) with new roles (e.g., data engineers, citizen data scientists, translators and coaches) and upskilling current employees (e.g., both creators and consumers of analytical solutions).

In conjunction with HR, hiring and professional development practices must also be enhanced to attract and retain employees who speak data, and to further nurture a seamless employee culture and shared language. This becomes particularly evident when we consider the constantly evolving relationship between humans and machines. Machines speak data as their first language. Understanding how a robot, application or agent is responding to one’s request, analyzing information from it, and then either providing a response or prescribing an action, are all relevant to having an intelligent human-to-machine conversation.

Determining what is centralized, decentralized or organized within a hybrid community structure can be challenging for even the most mature organizations. Thus, a variety of types of work, roles and skills are required to nurture a data-driven organization (see Figure 5).

Figure 5. Types of Work to Build a Data-Driven Organization




Source: Gartner (November 2018)

## Related Research

"Build a Data-Driven Enterprise"

*By Mike Rollings, Andrew White*

Building a data-driven enterprise is not just about encouraging the use of data in decision making. Data and analytics leaders must lead development of the correct competencies and rebalance work to be consistent with their enterprise's ambitions for generating information value.

"Where to Organize the Work of Data and Analytics"

*By Andrew White, Jergen Heizenberg, Mike Rollings*

Data and analytics leaders expecting to meet tomorrow's business challenges with yesterday's disconnected organization models are bound to fail. Digital business success requires a new structured approach to determine where the work of data and analytics takes place.

“Organizing Your Teams for Modern Data and Analytics Deployment”

*By Mark Beyer*

Data and analytics leaders must support a matrix of users and use cases that access multiple data management components transparently. Digital business requires more effective organization and coordination of infrastructure, architecture, workflow and skills across data and analytics initiatives.

“5 Pitfalls to Avoid When Designing an Effective Data and Analytics Organization”

*By Jorgen Heizenberg, Alan D. Duncan*

To deliver real business outcomes from data-driven programs, an effective data and analytics organization is required. But what are the main design challenges of the data and analytics organizational model and what do data and analytics leaders need to do to overcome them?

“The 30 Capabilities That Your Analytics Center of Excellence May Be Lacking”

*By Douglas Laney, Jamie Popkin, Alan D. Duncan, Cindi Howson*

The analytics center of excellence (ACE) has a new mandate for making the entire organization proficient in generating and leveraging automated insights. Data and analytics leaders should include a broad spectrum of organizational, project, data, educational and technological capabilities in their ACE.

“The Future of Work and Talent: Culture, Diversity, Technology”

*By Helen Poitevin*

The future of work is about forging a new relationship between technology and talent that transforms existing ways of working and doing business. This Special Report helps CIOs to shape this digital future with advice on long-term scenarios to inform strategy and near-term actions to implement it.

“Toolkit: Job Description for the Role of a Data Engineer”

*By Ehtisham Zaidi, Roxane Edjlali, Nick Heudecker, Mark Beyer*

Data engineers play a key role in building and managing data pipelines, and promoting data and analytics use cases to production (in line with business processes). Gartner offers data and analytics leaders a sample job description for this emerging role, as part of their data management strategy.

“Staffing Data Science Teams: Map Capabilities to Key Roles”

*By Alexander Linden, Carlie Idoine, Jim Hare, Erick Brethenoux*

The relative immaturity of data science and mismatches in data science skills are major obstructions to many business transformation efforts. Data and analytics leaders should cultivate a full spectrum of skills beyond data scientists to sustain a scalable data science capability.

“How Citizen Data Science Can Maximize Self-Service Analytics and Extend Data Science”

*By Joao Tapadinhas, Carlie Idoine, Austin Kronz*

Citizen data science (CDS) fills the gap between mainstream self-service analytics by business users and the advanced analytics techniques of data scientists. Data and analytics leaders should use CDS to explore new data sources, apply new analytics capabilities, and access a larger user audience.

“A 3-Step Interview Guide for Hiring Strategically Important Marketing Talent”

*By Lizzy Foo Kune*

Understanding the capabilities and skills critical for creating a high-performing marketing organization is essential in making the best hiring decisions. Marketing leaders should identify competencies specific to the roles for which they are hiring and standardize their assessment approaches.

## Building an Effective Learning and Development Program

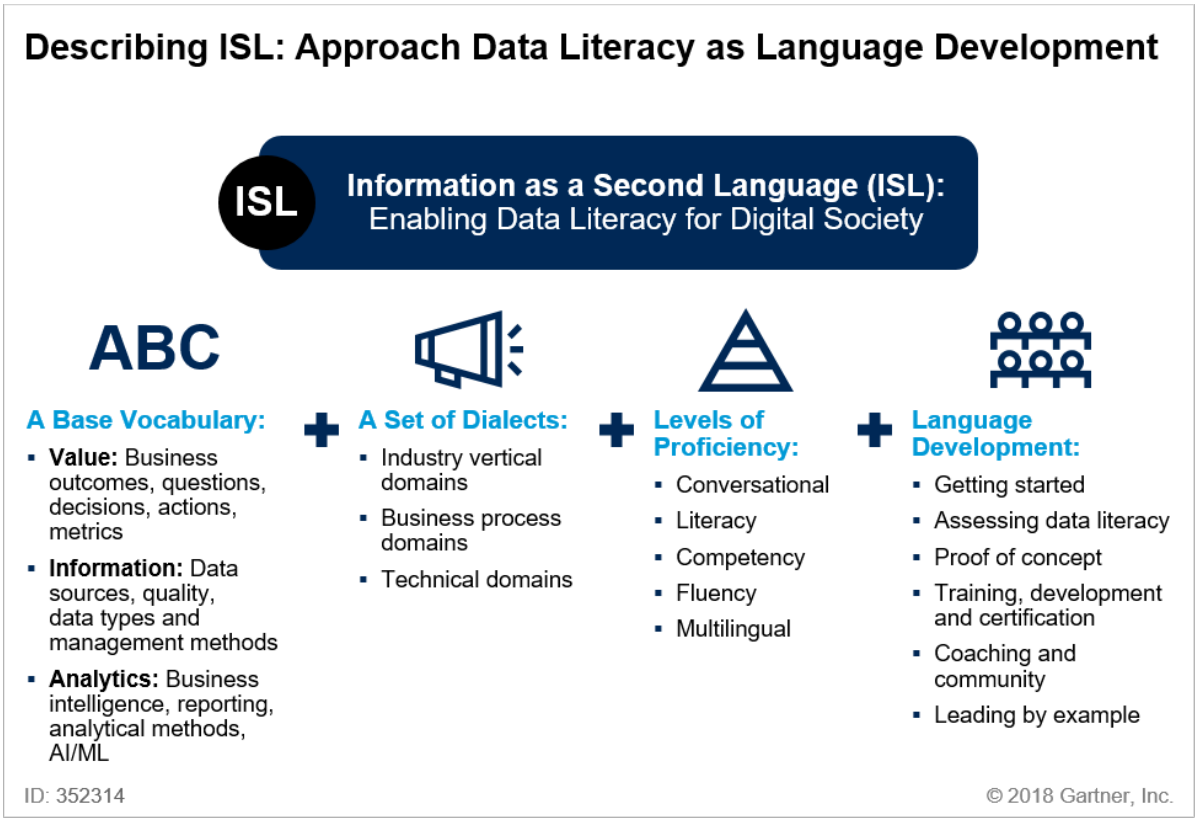
Teaching data literacy is not just about tools, training or making people learn mathematics and statistics. By approaching data literacy as language development (Figure 6), data and analytics leaders can create innovative, fun and personally resonant training programs. These can address the development needs of both data and analytics professionals and the general workforce to speak data and apply insights. Many of these training programs can also be part of day-to-day work, so they don’t overburden employees.

Here lies an opportunity to connect with participants in a visceral way that is relevant to not only their work lives, but also their personal lives. It does not presuppose a wholly new way of speaking, either. For some employees, it will be a small hurdle; for others, a large one. Some can translate languages and context faster than their peers. Winning over the hearts and minds of employees will not happen by announcing a new corporate mandate to be data literate.

Exploring how employees speak data naturally in their personal lives — using examples like online shopping, home finance management, use of a GPS, and personal health monitoring — helps them understand this new language. It creates a unifying experience across the enterprise, from executives to field workers, from data scientists to those who struggle with Excel.

Once the language is explored with these common life scenarios, we create a shared resonance and are able to transition to business use cases and scenarios.

Figure 6. ISL: Enabling Data Literacy for Digital Society




Source: Gartner (November 2018)

In some cases, data literacy is initially perceived naively and narrowly as “just tools training.” Use of tools is a central and critical element, whether the tools are self-service BI tools, data visualization tools, or simply interpreting the elements of a graph. Equally important is using and teaching storytelling techniques, because new concepts are more understandable when taught this way.

Storytelling is one of the easiest ways to get started with data literacy. It is an engaging, memorable and interactive approach. Drawing attention to actions derived from dashboards also helps employees see the value of using data. This cements the lessons learned in training, as employees are able to apply the learning immediately as part of their day-to-day responsibilities.

Data literacy pioneers who are focused on learning and development pilots tend to select one of the following areas to start:

- Data literacy as a core element of workforce digital dexterity initiatives
- Data science training in support of a new analytics center of excellence (ACE).
- BI self-service enablement training.
- Initiation of a corporate data academy.

- Initial data literacy awareness across the entire employee population, including topics like data storytelling.
- Information stewardship to drive the value of a data and analytics governance effort.

Gartner has developed the following research, which can steer and accelerate these efforts.

## Related Research

"Benchmark Worker Readiness for Digital Transformation Using the Digital Dexterity Index"

*By Craig Roth*

Digital transformation requires worker transformation. Application leaders can improve transformation initiative delivery by using Gartner's Digital Dexterity Index to focus on behaviors that will yield the greatest increase in workers' digital dexterity.

"How to Design an Effective Training Program for Analytics Skills"

*By Melody Chien, Alan D. Duncan*

A well-designed and adaptive training program for analytics professionals is critical for enabling data literacy. Data and analytics leaders can modernize their training programs to include a mixed portfolio of training models and adopt a forward-leaning design for adjacent competencies.

"Toolkit: Track How Well Your Analytics and BI Program Serves Its Users"

*By James Richardson, Austin Kronz*

This Toolkit contains a simple five-question survey that data and analytics leaders can administer to analysts and decision makers. It helps them determine how well their analytics and BI strategies meet their needs, and to track the progress of these strategies over time.

"Apply Data and Analytics Skills to Make the Best Product Management Decisions"

*By Deacon D.K Wan, Gareth Herschel, Melody Chien*

Application leaders can improve product management decisions and results with data and analytics. By learning how to speak data and apply essential data and analytics skills to product performance data, they gain important insights for making key product choices to drive digital business growth.

"Enrich Professional Development Through a Continuous-Learning Culture"

*By Diane Berry, Lily Mok*

Scaling for digital business places greater demand on IT workforce capabilities. Building a digital-ready IT workforce will require CIOs to revamp their professional development programs and to groom managers to be coaches who can build and sustain a continuous-learning culture.

“Beyond BI Reporting: Engaging Decision Makers Through Data Storytelling”

*By James Richardson*

The data story — a hybrid form of insight delivery — is gaining traction, offering a more engaging means of communicating findings than traditional reporting or data visualization alone. However, data and analytics leaders should watch for subjectivity when narrative combines with data.

“Toolkit: Forty Examples of Analytic Dashboards”

*By James Richardson*

Good design of analytic dashboards can help drive adoption of analytics and BI in organizations that are trying to use data to impact decision making. This Toolkit includes 40 examples for IT leaders to use when considering dashboard design.

“A Day in the Life of an Information Steward”

*By Andrew White*

Many organizations do not understand the work and role of an information steward, leading to missed business opportunities for better exploiting information as an asset.

## Data Literacy Resources

While data literacy is still an emerging area, there are resources available to data and analytics leaders as they get started with their data literacy programs. Key to this is scoping. It is important to understand the many naturally adjacent programs that you will need to interlock as you develop your data literacy strategy and program. Given the change management and cultural nature of data literacy, it should not be a surprise that data literacy will touch and involve many related areas.

When launching a data literacy program, you will likely encounter questions of how it relates to other projects. Examples may include: digital workforce transformation, job design/role descriptions, data stewardship, centers of excellence, communications planning, data science boot camps, and data dictionary development.

Therefore, consider these topics and related resources as a collective body of work aligned with shifting the culture to a data- and insight-driven mindset. Equally important is providing clarity on the data literacy intention, objectives, scoping and interdependencies.

As the data literacy landscape emerges, several providers are already exhibiting and collaborating on strong thought leadership, market commitment and dedication to client success. As a noteworthy example of recent collaboration, the Data Literacy Project was launched as a global community for discussion and developing tools to shape a data literate society. The Data Literacy Index, a new study commissioned by Qlik, on behalf of the Data Literacy Project, reveals a correlation between company performance and workforce data literacy.[2]

This represents how software providers, service providers, universities and governments will need to collaborate, share ideas and resources to bridge the global data literacy gap, and address the significant war for talent for data and analytics professionals.

In support of your data literacy program, Gartner has identified a set of specific research and resources available, related to each of the following key program areas:

- Stakeholder engagement and explaining data literacy with specific outcomes and actions.
- Data and analytics portfolio mapping across domains (for use case organization and prioritization).
- Augmented analytics as a means to assist, accelerate and guide analysis and discovery.
- Infonomics and valuing information as an asset.
- Data and analytics governance (to nurture a culture of trust and responsible usage).
- Data quality programs (including the data literacy of those entering data, and the need to understand the importance of how that data is used downstream).
- Enterprise metadata management to support the explicit communication of the meaning and interpretation of data.
- Business glossaries and data catalogs (as critical resources to a data literate organization).
- Master data management to administer shared data resources in an efficient and effective manner.
- Software and service providers with data literacy focus (including assessments, training and case studies).
- Learning and development programs for both creators and consumers (as outlined in the previous section).

## Related Research

"How CDOs Engage With Their Stakeholders to Foster Data Literacy and Deliver Measurable Business Value"

*By Alan D. Duncan, Valerie Logan*

To deliver measurable business value, data and analytics leaders such as CDOs must engage a diverse set of stakeholders. The top priorities are to foster data literacy, nurture a data-driven culture and ensure that data and analytics initiatives lead to deliberate and measurable action.

"Harnessing the Pervasive Nature of Domain Data and Analytics"

*By Valerie Logan, Gareth Herschel, Kurt Schlegel, Svetlana Sicular, Adam Ronthal, Jim Hare, Melissa Davis, Jorgen Heizenberg*

“Domain data and analytics” refers to the collective set of analytics applied across and within industry verticals and business processes and functions. Data and analytics leaders must increase their domain-specific data and analytics competencies to succeed in the digital economy.

“Augmented Analytics Is the Future of Data and Analytics”

*By Rita Sallam, Cindi Howson, Carlie Idoine*

Augmented analytics is the next wave of disruption in the data and analytics market. It leverages machine learning/artificial intelligence techniques to transform how analytics content is developed, consumed and shared. Data and analytics leaders should plan to adopt augmented analytics as platform capabilities mature.

“Don’t Just Talk About Information as a Strategic Asset, Manage It Like One!”

*By Douglas Laney, Kristian Steenstrup, Stewart Buchanan*

The need to treat information as a true enterprise asset to improve business performance and competitiveness can take data and analytics leaders into uncharted territory. Fortunately, they can adapt existing asset management approaches from physical, financial and other asset domains to do so.

“Applied Infonomics: Use a Modern Data Catalog to Measure, Manage and Monetize Information Supply Chains”

*By Alan D. Duncan, Ehtisham Zaidi, Guido De Simoni, Douglas Laney*

Monetizing information assets is critical for data and analytics leaders. The route to delivering this lies in applying lessons from traditional asset management disciplines to data, using a modern data catalog to manage information supply chains, and fostering a more data-driven culture.

“7 Steps to Create Persistent Data Value”

*By Lydia Clougherty Jones*

The value of data is dynamic, which can lead to suboptimal use cases and loss of opportunity. To create persistent data value, data and analytics leaders must learn to combine data collection, use and sharing with data value and business value.

“Adopt SMART Information Principles for Effective Data and Analytics Governance”

*By Saul Judah, Ted Friedman*

Digital business initiatives need SMART information principles to drive rightsized governance for achieving business objectives. Data and analytics leaders must use these principles as their anchor for agile data and analytics governance.

“How a Chief Data Officer Should Drive a Data Quality Program”

*By Alan D. Duncan, Mei Selvage, Saul Judah*

Data and analytics leaders, including chief data officers, must show leadership in treating information as an asset. This includes managing data quality as a key aspect of any data and analytics program. We provide CDOs with relevant guidance.

“Five Ways to Use Metadata Management to Deliver Business Value for Data”

*By Guido De Simoni*

If enterprise data — with its large volumes, varied formats and types — is to be managed strategically, its metadata must be suitably defined and used. Data and analytics leaders must consider five ways to use metadata management scale initiatives to deliver business value.

“Toolkit: How to Use the Gartner Data and Analytics Glossary to Boost Your Data Literacy”

*By Guido De Simoni, Ankush Jain, Valerie Logan*

Data and analytics leaders managing complex programs need to master an evolving industry glossary. They should use this Toolkit to improve data literacy in the context of market opportunities and targeted business benefits.

“Top 10 Legal Concepts That Data and Analytics Leaders Must Know to Drive Business Value”

*By Lydia Clougherty Jones, Joe Bugajski*

Legal discussions about data-driven initiatives are often constrained by risk-avoidance mindsets, limiting business impact and value. To refocus on business outcomes, data and analytics leaders must leverage legal concepts foundational to driving revenue, cost savings and balanced risk mitigation.

“Use the 7 Building Blocks of MDM to Achieve Success in the Digital Age”

*By Michael Patrick Moran, Bill O’Kane, Simon James Walker*

Master data management (MDM) programs are vital to digital business success, but can easily derail without a clear strategy linked to business or mission priorities. Gartner’s seven building blocks enable data and analytics leaders to focus MDM on maximizing business benefits.

## Good (and Poor) Data Literacy

Learning from the best and worst examples of data literacy is a great way to internalize what to aim for at your organization. There’s no reason to assume you have to go it alone. Although formal data literacy programs are new for most organizations, pioneers are out there that can help steer your organization down the right path.

There are also many nodes of data literacy that have been developed, great examples of foundation blocks upon which to build a culture of data literacy. While most data literacy program examples are not publicly discussed as of yet, we do see an emergence of some stories being shared.

## What Does Good Data Literacy Look Like?

In general, data literacy is acknowledged and called out explicitly as a priority for enablement of a data-driven culture. It has a brand, an identity (e.g., Six Sigma) and is aligned with an overall digital dexterity or digital workplace program. It is a formal part of the data and analytics strategy as an aspect of change management, culture development, and learning and development.

It is crucial that an executive champion, often a CDO, advocates for data literacy and models the proper behavior. The proper foundation for speaking data must be laid across the enterprise to ensure literacy is a cornerstone of decisions, from hiring to the board room.

For consumers of data and analytics — those who enter and/or use data and analytics via reports, dashboards, models and applications — a number of concepts are important:

- Being able to ask the right questions to foster critical thinking.
- Learning to clearly articulate business scenarios, decisions and outcomes, and understanding how to use data and analytics to enable them.
- Knowing the difference between correlation and causality.
- Internalizing the value of information as a company asset, and treating it as such.
- Understanding the nature of data privacy, security, ethics, bias and risk.

For creators — the data and analytics professionals who create solutions for others to use — a number of concepts are also important:

- Communicating productively as an enterprise network of data scientists, data engineers, managers and analysts.
- Understanding the diversity of data sources and range of data discovery and data management approaches.
- Automating analytics and embedding them within the business workflow as a complement to human decision making.
- Using the full range of BI, analytics, machine learning and artificial intelligence methods.
- Telling impactful stories using data visualization and storytelling techniques.
- Ensuring training and certification programs are in place to attract, develop, manage and retain top talent in data engineering, data science, and AI disciplines.

### An Example of Data Literacy in Practice

A North American hospital has taken data literacy seriously, from top executives through to its doctors and nurses, and has witnessed its real impact over the course of 24 months.[3] Its program, led by a dedicated and innovative data and analytics executive with a clear vision, consists of:

- Initial and ongoing literacy assessments
- Role-specific training and coaching programs
- An active analytics community
- A blog for regular communications, stories and tips/techniques
- A dedicated trainer and translator on staff

## What Poor Data Literacy Might Look Like

Avoid falling into behavior that leads to poor use of data. It's all too easy to continue to do things the way they have been done in the past, rather than taking advantage of the new digital environment.

Too often, data and the conclusions drawn from it are represented in a way that does not provide adequate context, clarification of assumptions, and/or discerning interrogation by the consumer. A common sphere in which this can be seen is mass media and the rise of "fake news."

Failing to speak a common data language leads to executives thinking they have an agreement when, all the while, they were really speaking about different things. It also leads to using the wrong chart to present a dataset and confusing common terms like "median" and "average."

In short, data must be treated as a true asset of the company. Its value will be wasted if data literacy is not a company priority. Some common mistakes include:

- Saying "Give me all the data and I will figure out what to do with it later"
- Cherry-picking data to justify a decision that's already been taken, rather than examining the data to inform what decision should be taken
- Not clarifying or challenging assumptions
- Increasing budgets annually for report and dashboard development, given that requests for them always increase (without vetting the usage and value of them)
- Never hearing or using the phrase "What does the data tell us?"

- Failing to consider the data/analytics competencies of new hires in any position

## Related Research

Examples of speaking data and storytelling in action can be found in the following research notes. The first note outlines examples of businesses, government agencies and not-for-profit "data for good" organizations collaborating to solve societal problems, using a wide array of datasets plus crowdsourced data scientist talent. These problems would never be solved if the participants did not work together to share a common language.

"How to Use Data for Good to Impact Society"

*By Cindi Howson, Lydia Clougherty Jones, Carlie Idoine, Mark Beyer*

Data can be used for the good of society, but private- and public-sector firms, nonprofits and NGOs still lack analytics resources and expertise. Data and analytics leaders must cross traditional boundaries to use data for good, to better compete for limited talent, and to foster an ethical culture.

"Use Three Elements of Data Storytelling for Maximum Impact"

*By James Richardson*

Storytelling is an ancient human skill, but using data to tell stories is relatively new. Data and analytics leaders need to know how data storytelling works to ensure that their organization is using this form of insight delivery to engage business decision makers with data to its best effect.

"The Future of Data and Analytics: Tales and Trends From the Center to the Edge"

*By Frank Buytendijk, Svetlana Sicular, Gareth Herschel, Rita Sallam, Debra Logan*

The story of data and analytics keeps evolving, from supporting internal decision making to continuous intelligence, information products and appointing CDOs. Data and analytics leaders should address these trends in their strategy, as portfolios of experiments, options, choices and best practices.

## Related Priorities

Table 1. Related Priorities

| Priority | Focus |
|---|---|
| Customer Experience Design and Execution | Customer experience management is the practice of designing and reacting to customer interactions to meet or exceed their expectations, leading to greater customer satisfaction, loyalty and advocacy. |
| Analytics and BI Strategies | The analytics and BI strategies initiative focuses on the strategies, practices, technologies and products needed to support a variety of users across different types of business problems. |
| Data Management Strategies | This initiative tracks, explains and advises on organizational roles, architectures, practices, technology trends and vendor offerings for data management. |
| Digital Workplace Program | A digital workplace program is a business strategy to boost workforce digital dexterity through an engaging and intuitive work environment. |

Source: Gartner

## Gartner Analysts Supporting This Trend


Valerie A. Logan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## Related Resources

### Webinars

Data Literacy: Foster Information as a Second Language

Data, analytics and AI are becoming increasingly pervasive in how we work, interact and live, enabling a whole new way of thinking and experiencing the world. Yet not everyone knows how to engage in our new data-driven atmosphere. This has created a data literacy gap, and it is widening. Data literacy has become a new core competency, as fundamental as the language we speak. In this webinar, we explore the emergence of the data literacy gap and help you treat information as your new second language.

Information as a Second Language: Enabling Data Literacy for Digital Society

Digital society demands data literacy, developed for competitive advantage and agility. Data and analytics leaders must follow the example of English as a second language (ESL) and treat information as the new second language of business, government, communities and our lives.

Monetize Your Data With a Data-Driven Culture

Traditional business models and process improvement methods are siloed. The business culture is focused on executing process ("do") rather than analyzing, understanding and changing ("think"). To overcome this, improved data literacy is crucial. In this webinar, data and analytics leaders will learn data-centric facilitation practices to unlock the value of their enterprise information assets and achieve digital business success.

### Articles

"Analyst Answers: How IT Leaders Should Invest in Data and Analytics"

"Build a Data-Driven Organization"

"CDOs Must Take the Lead to Improve Data Literacy"

### Acronym Key and Glossary Terms

| | |
|---|---|
| **ACE** | analytics center of excellence |
| **AI** | artificial intelligence |
| **BI** | business intelligence |
| **CDO** | chief data officer |
| **ISL** | information as a second language |
| **MDM** | master data management |

## Gartner Recommended Reading

*Some documents may not be available as part of your current Gartner subscription.*

"Leadership Vision for 2019: Data and Analytics Leader"

"100 Data and Analytics Predictions Through 2022"

### Evidence

**Analyst Inquiries**

Based on hundreds of client inquiries and interactions with many analysts across all aspects of data and analytics, across industries and business domains.

[1] **Gartner's Third Annual Chief Data Officer Survey**

The data for this report comes from Gartner's third annual CDO survey, conducted during July and August 2017 by phone and online. The survey included 287 CDOs, chief analytics officers, and other high-level data and analytics leaders from across the world. The purpose of the survey was to test a set of five hypotheses about the CDO role and the office of the CDO, in order to understand how this rapidly growing business function is maturing, and the resulting business impact.

[2] "New Research Uncovers $500 Million Enterprise Value Opportunity With Data Literacy." BusinessWire. October 2018.

[3] "How to Build End-User Data Literacy Skills, Step by Step." TechTarget. March 2018.

The Why Axis: A Helpful Guide Through the World of Analytics and Data. Ann & Robert H. Lurie Children's Hospital of Chicago. October 2018.

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