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DATA TRENDS

2022

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ARTIFICIAL INTELLIGENCE

AI augments and empowers human expertise.

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Vidya Setlur

TABLEAU RESEARCH DIRECTOR, TABLEAU

Vidya Setlur is the Tableau Research Director, leading a team of research scientists in areas including data visualization, multimodal interaction, statistics, applied ML, and NLP. She earned her doctorate in Computer Graphics in 2005 at Northwestern University. Vidya previously worked as a principal research scientist at the Nokia Research Center. Her research combines concepts from information retrieval, human perception, and cognitive science to help users effectively interact with systems in their environment.

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1 **ARTIFICIAL INTELLIGENCE**

AI solutions will see greater success by reducing friction and helping solve defined business problems.

How we got here

We're experiencing a golden age of data and technology—and there is no sign of it slowing. Artificial intelligence (AI) technology continues to improve: machine learning (ML) models are processing trillions of lines of data, natural language processing (NLP) advancements are moving towards understanding human intent, and algorithms are getting faster. We're seeing more simple, repetitive tasks be automated, giving rise to new opportunities to enable humans to do what they do best: reasoning critically and understanding data in context.

As innovation accelerates, so do AI investments and adoption, with 99% of Fortune 1000 companies planning to invest in data and AI in the next 5 years. Business and IT leaders believe it's critical to the future survival of their business. But many considerations factor into the long-term success and sustainability of AI solutions: increasing amounts of data, costs of maintaining this technology, difficulty in staffing highly-specialized roles, and scaling AI pilots to widespread adoption.

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84% of C-suite executives believe they must leverage artificial intelligence to achieve their growth objectives, yet 76% report they struggle with how to scale.

— ACCENTURE

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Businesses recognize that they need to do more to innovate and better serve their customers. While AI opens up opportunities, most investments have yet to deliver on their potential value. In 2022, AI technologies will reach new levels of success through human augmentation: assisting and enhancing people to think critically and make data-driven decisions. Think of analytics and AI as being supporting members of the team.

Data Culture and data literacy—the ability to explore, understand, and communicate with data—also help organizations figure out their AI and ML strategy and perspective. These change management and workforce development efforts affect how they'll stay competitive and manage the spectrum of human augmentation, beginning with questions like:

What tasks will be completely automated with AI technology?
Examples of automation that free up people to focus on more sophisticated tasks: Basic language translation and image editing. Rather than spending hours manually editing a photo to change the background, editing can be done with default image editing technology that incorporates AI to handle lighting and blending techniques. These automated tools facilitate new levels of creativity.

Which tasks will be semi-automated and require human involvement and interpretation?
Examples of AI that distills useful patterns and insights to empower people to make data-driven decisions in context:

+ To more accurately weight climate and pandemic models, ML techniques are applied to help researchers understand trends, impacts, and patterns to help with policy decisions.

+ Machines can inspect unlabeled voice data (e.g. customer calls) using NLP and ML algorithms to better understand user intent, adding relevant categories and labels. These signifiers and semantics inform people of what action to take next.

Having common behaviors, beliefs, and data skills also facilitate the ability to scale AI solutions, supporting sustainable implementation and innovation. In a recent report, Gartner found that the "lack of skills was cited as the No. 1 challenge to the adoption of artificial intelligence and machine learning." Because investing in the development of your people and AI techniques is an ongoing process, constantly evolving alongside the technology. Having your entire workforce in agreement and appropriately skilled may mean the difference between seeing AI proofs of concept become scalable, practical applications or fail entirely.

"

Organizations that invest in change management were 60% more likely to report that AI initiatives exceeded expectations and 40% more likely to achieve outcomes than those that don't.

— DELOITTE

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Companies in our study that are strategically scaling AI, report nearly 3x the return from AI investments compared to companies pursuing siloed proof of concepts.

— ACCENTURE

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Where we're going

In collaboration with IT leadership, business leaders have an opportunity to drive data and AI strategies grounded in business context. For AI technology to be relevant, maintainable, and explainable, it needs to empower people and be tied to business strategy and goals. We'll see AI solutions move from a proof of concept model to widespread implementation for business- and industry-specific use cases.

Various industries are developing and using AI in innovative ways. A recent study by KPMG examined AI deployment across five industries (retail, transportation, healthcare, finance, and technology), finding that for "91% of healthcare industry respondents, AI is increasing access to care for patients." And although most businesses manage their supply chains manually, "those that adopt AI in the coming months and years will achieve significant competitive differentiation," according to the Harvard Business Review.

Thanks to cloud computing, AI has become more affordable and accessible, leading to greater innovation across experiences and industries. And with an additional focus on business success, we'll see solutions which combine different AI techniques to achieve better results (also known as composite AI) added to support people, specifically "tuning" this intelligence to specific workflows.

Workflows will be brought to life and made more efficient with shared skills, mindset, and values—Data Culture and data literacy—which facilitate the ability for people to complete new, more sophisticated data science and analytics tasks required for AI success.

You must deliver creative new uses of technology to enable your organization to scale digitalization rapidly. You must collaborate with business and other IT leaders and create teams that fuse business and IT skills from various disciplines.

— GARTNER

Accelerating AI value at McDonald's

McDonald's has transformed their enterprise ML strategy and operations to accelerate value by leveraging Tableau on the Databricks Lakehouse platform in more than 20 markets globally. They have enabled faster delivery of production-ready models that support use cases from menu personalization to customer lifetime value.

Avaya simplifies sales reporting with Tableau CRM

The Avaya sales organization relies on vast amounts of CRM data, and the more quickly and intelligently this data is analyzed, the better positioned sellers are. For years, producing meaningful forecasting was time-intensive, yielding reports in various locations that account teams had to manually aggregate and interpret. And it still wasn't clear what immediate actions the seller should take. Using Tableau CRM, Avaya has simplified and accelerated its reporting processes—reducing more than 12,000 global reports to 15 dashboards—and made self-serve analytics available to all.

Vicinity Centres forecasts energy usage with ML

Vicinity Centres, one of Australia's leading retail property groups, wanted to reduce peak energy consumption on which tariffs are based. Their Data Science & Insights team built an ML algorithm to analyze factors like footfall, weather, day, and time to forecast energy demand 24 hours in advance. The forecasts are used by center-based operations teams to enact agile strategies to reduce peak consumption. This initiative has resulted in significant cost avoidance and additional analysis to optimize solar energy use, helping Vicinity in its pursuit to achieve net-zero carbon emissions.

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Recommendations

1. Treat AI as a team sport.

Identify what tasks and functions would best support human augmentation by saving people time or elevating their skills or expertise. Begin by looking at your customers' needs and pain points to understand where your AI solution can add value for them. Ask yourself these questions to see if a proof of concept or pilot is worth developing:

+ How many customers have similar needs or experience these same issues?

+ How often are these issues happening?

+ Are these issues solvable with AI technology?

2. Focus on business use cases and success factors to leave the AI proof-of-concept stage and successfully scale.

+ Drive intentional and contextual AI by connecting solutions to real business problems with defined goals to realize their value.

+ Identify where AI can enable and reduce friction. Avoid trying to enable AI in all aspects of your product suite—you'll struggle to scale by spreading your resources too thin.

+ Be wary of "shiny," pipe-dream projects. While attractive, they rarely move beyond the proof-of-concept stage. And tune out the noise by setting realistic time and scope expectations for AI projects, balancing all resources like budget, time, highly-technical staff, and infrastructure.

3. Invest in data literacy to upskill and develop your workforce.

+ Poor data quality results in inaccurate and ineffective AI solutions. And a data-literate workforce can improve issues with data quality, building and/or training AI, ML, NLP, etc. algorithms and models with accurate, timely, and relevant data.

+ Even a basic, "Data 101" training, whether developed internally or offered through a third-party, can give business users what they need to answer their questions. This will reduce the number of simple or lower-stakes analytics requests that go to advanced analytics and data science teams—freeing them up to work on high-value, large-scale projects.

Examples of useful AI automation

+ ML-based AI can collect and use data from Internet of Things sensors and smart appliances. Think: Embedded intelligence that adjusts thermostats based on human movement or turns on sprinklers if no rain is forecasted.

+ In visual analytics, AI algorithms can provide visualization recommendations based on data properties to find useful patterns and insights and learn from users' past interactions with visual analysis tools.

Starbucks provides an innovative experience with existing AI

Starbucks recently opened a location in New York City that uses Amazon Go's cashierless technology. Customers scan a QR code when they enter the store. When they grab pre-made items, a combination of cameras, scales, and sensors determine which items and charge customers accordingly.

Databricks shares suggestions for scaling AI

To help scale performance and costs, Databricks advises upgrading your architecture with a data lakehouse, which customers like Comcast, Atlassian, H&M Group, TD Bank, Walgreens, Conde Nast use. A lakehouse also supports better collaboration between data scientists and engineers. And to prepare your workforce for AI experiences, invest in a culture of data and analytics to help people ask the right questions and educate them on how to work with data.

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2

ETHICS

Formalizing ethical data and AI use becomes imperative to organizations.

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2 ETHICS

Responsible organizations will proactively create ethical use policies, review panels, and more to improve experiences and business outcomes.

Mark Nelson
PRESIDENT & CEO, TABLEAU

As President and CEO at Tableau, Mark Nelson sets the vision and direction for Tableau, overseeing strategy, product development, business activities and operations. Prior to becoming President and CEO, Mark was the Executive Vice President of Product Development for Tableau, helping broaden and deepen the company's industry-leading analytics platform to support customers globally.

How we got here

Due to the rapid acceleration of artificial intelligence (AI) adoption and confluence of global issues, there is no longer a one-size-fits-all approach to ethical data and AI use. Organizations have an opportunity to proactively define how they develop and use data and AI responsibly in this rapidly-evolving digital world. Building fair and accurate AI solutions is a civic responsibility of every business that is now being embodied in the focus of global lawmakers.

Now, more than ever, trust and transparency must serve as the foundation to innovation, growth, and customer relationships. Recent data crises gave us a glimpse into technology's potential for harming people—including biased facial recognition and discriminatory lending. These crises can lead to public expectations that companies develop and use data securely and responsibly. A 2021 survey by Cisco found that "72% of respondents believe organizations have a responsibility to only use AI responsibly and ethically."

To lead with ethics and integrity, we'll see greater corporate and government commitment and accountability for transparent, responsible data and AI use.

What is an ethical use policy?

Policies that outline a code of conduct and create safeguards to ensure an organization's data use, technology (including AI projects), and services are ethical, responsible, and don't harm people and society.

View the Salesforce Ethical Use Policy →

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> # By 2025, regulations will necessitate focus on AI ethics, transparency and privacy, which will stimulate—instead of stifle—trust, growth and better functioning of AI around the world.
>
> — GARTNER

Where we're going

Responsible organizations will step up and proactively design innovative ways to verify and validate responsible use with formal ethical use policies, audits by third-party experts, creating internal review panels, and more. These ethical innovations will improve experiences—and drive stronger outcomes for managing risk and delivering value.

As organizations navigate their ethical use responsibilities, we expect to see more transparent AI and ML solutions and experiences that elevate human judgment and expertise. They'll also tie directly to business goals and workflows, and mitigate related risks with explainability—including bias. Organizations will start addressing biased algorithms and data sets that can harm real people and create errors with negative, downstream risks like "ethical debt" as technical debt.

To ensure innovation advances without causing harm, public and private organizations will collaborate to reform ethics policies. Technology partners will advise governments under pressure to use data for

decision making. In turn, tech companies will take a stand to ensure their technology is used responsibly by everyone, including government institutions. (For example, we prohibit facial recognition at Salesforce as part of our commitment to equality.)

In every use case—whether automating a task with AI or collaborating using AI to make better decisions—we must understand what machines are doing to avoid mistakes, make ethical decisions, and understand the data. This will remain critical for organizations in 2022.

But understanding data—and using it responsibly— requires basic data literacy, or data skills. And we're now reaching a point where the lack of data literacy creates unnecessary risks. While much needs to be done to make ethical data and technology a part of our daily lives and decisions, the investments are worth it: the end result will be a more ethical, equitable future for everyone, everywhere.

> # Without ethical and responsible use, data strategies and AI solutions might work technically, but may not deliver the expected outcome.
>
> — ACCENTURE

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Recommendations

1. **Design data and risk management policies with ethical data and AI guidelines.**
   Existing and draft regulations and data strategies in the US, UK, EU, and beyond protect people against biased and illegitimate use of their private data. To lead with ethics, set ethical codes of conduct, proactively manage legislation, stay compliant, and mitigate risk.

2. **Create internal ethics committees or hire third-party specialists to help review and audit.**
   AI ethics panels will help organizations comply with evolving regulations, and create and vet innovative solutions to further address bias and accuracy in your data.

3. **Build intentionally transparent technology or explainable AI, inserting human touchpoints and reviews throughout the process.**
   Align data and technology with human values and ethics to build transparency or explainability, and ensure trustworthy experiences. Proactively consider ethics during development cycles to avoid an endless loop of technological catch-up.

4. **Build a healthy Data Culture that includes data skills training.**
   Improving data literacy helps manage poor data quality and the risks associated with collecting the wrong data and asking the wrong questions—which hinder successful AI development and the ability to scale. A data-literate workforce is critical to building a Data Culture that enables and sustains ethical data use and AI.

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Companies that are developing AI will increasingly spin up their own Ethics as a Service (EaaS) offerings within their professional service organizations. We will see a race to hire AI ethicists to become compliant with the new regulations, making AI ethicists in even greater demand than AI developers.

— KATHY BAXTER, PRINCIPAL ARCHITECT, SALESFORCE ETHICAL AI PRACTICE

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Data literacy isn't only understanding charts but being able to navigate the entire ecosystem that creates and leverages data. Informed consent relies on the ability to parse complex details and make a choice in line with our value set. How can people make an informed choice if we can't navigate the data and nuance around it?

— BRIDGET COGLEY, CO-FOUNDER & CVO, VERSALYTIX

Resources

Get the Salesforce Build with Intention toolkit to help you understand your work through a lens of ethics, accessibility, and inclusion.

Dig into the Salesforce AI Ethics Maturity Model to safely start, mature, and expand ethical AI practices that reduce bias and avoid harm, including step-by-step guidance with the Responsible AI Development Lifecycle.

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3

WORKFORCE DEVELOPMENT

Competitive organizations recognize that future-proofing the workforce is more than just data skills and tools training.

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Wendy Turner-Williams

CHIEF DATA OFFICER, TABLEAU

Wendy Turner-Williams manages Tableau's Enterprise Data Strategy, Data Platforms and Services, Data Governance and Management Maturity, Data Risk, and Data Literacy. She and her team are fueling data-driven business innovation, transformation, and operational excellence at Tableau. Wendy has 20+ years of management experience across sectors, most recently leading the Information Management & Strategy Enterprise program at Salesforce.

3 WORKFORCE DEVELOPMENT

For success in the future of work, organizations expand their definition of data literacy, invest in their people, and double-down on Data Culture.

How we got here

In a market where data is the ultimate differentiator, data literacy is the key to unlocking the value of your data and technology investments. And the key to data literacy is Data Culture. In the year ahead, competitive organizations will recognize the need to foster a shared culture and mindset that values and practices using data. They'll broaden the scope of data literacy beyond skills training to include a fundamental understanding of how data works and how it can be applied to the business. As organizations invest in people development to future-proof the workforce, they'll partner with third-party organizations to train and upskill.

Before we look at where we're going, let's explore why data—and data skills—is so critical.

> **Data and analytics leaders must empower citizens across the organization to scale decision automation, accelerate time to market, and deliver sustainable business outcomes.**
>
> — GARTNER[1]

1 Gartner®, Maximize the Value of Your Data Science Efforts by Empowering Citizen Data Scientists, Pidsley, David and Idoine, Carlie, 7 December 2021

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> The development of statistical thinking is an imperative today. Every individual must be able to synthesize data to support decision making, make sense of our world, and prepare for the future.

— PRESIDENT'S MESSAGE, NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

Technology and AI investments are on the rise, and workforce development is essential for realizing the value of these data-intensive investments.
PwC expects AI to grow the world economy by $15.7 trillion by 2030. And the workforce is automating faster than expected, according to the World Economic Forum's Future of Jobs Report. Automation will displace 85 million jobs by 2025, while creating 97 million new roles. Half of those who stay in their current roles will need reskilling in the next five years.

There's a growing demand for data skills in the workplace and in our society.
HR leaders report that data skills—analytical abilities and data science—topped the list of the most in-demand skills for 2021. As public conversations grow increasingly data heavy, not everyone will need to be a data scientist, but everyone will need basic data fluency and analytical skills.

To realize the value of a data-literate workforce, however, we have some work to do. Not only is there a gap in data skills, there's also a lack of data literacy programs, from the classroom to the workplace. Despite 83% of CEOs wanting more data-driven organizations, only 43% of digital natives consider themselves data literate.[2] According to Forrester, less than half of academic institutions have data skills initiatives.[3] And many corporations take a near-term approach by recruiting to fill immediate skills gaps rather than investing in data literacy and Data Culture.

The programs that do exist focus too heavily on tools and technology, failing to build a foundational understanding of how data is produced, used, and managed through the business.

> We expect AI to grow the world economy by $15.7 trillion over the next decade. Ensuring you have the right talent, culture, and technology are critical to capitalizing on this opportunity. Data and how it's used are set to become a key differentiator.

— ANAND RAO, GLOBAL AI LEAD; US INNOVATION LEAD, EMERGING TECHNOLOGY GROUP, PWC US

2 IDC Whitepaper, Sponsored by Tableau, How Data Culture Fuels Business Value in Data-Driven Organizations, Doc. #US47605621, May 2021

3 Forrester Consulting, Thought Leadership Paper Commissioned By Tableau, The Great Data Literacy Gap: Demand For Data Skills Exceeds Supply, June 2021

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Where we're going

Competitive organizations see the value in data skills and recognize that future-proofing the workforce is about more than just data skills and tools training. They will act to instill essential data literacy in their people.

Academia will infuse data literacy into curricula across disciplines.

The benefits are clear: Educational institutions with data skills initiatives report 11.5% higher six-month job-placement rates for students than universities without them.[3] In a 2021 presentation to the US Department of Education, the National Council of Teachers of Mathematics called data skills an "imperative for our future," advocating for reimagining a meaningful, inclusive, and interdisciplinary approach to data literacy education from pre-K to grade 12.

Employers will increase their data literacy investments.

A growing number of employers will recognize that teaching people how to use the tools and understand how the technology benefits the business is a critical piece of their technology investments. As the US Department of State noted in its enterprise data strategy, "this is not only an opportunity, but a requirement for the United States to maintain its diplomatic edge on the global stage."

Organizations will expand their definition of data skills to include business and technology processes, inputs, and outputs and focus on Data Culture.

They'll look beyond tools and platform proficiency to focus on critical thinking and applying domain expertise to solving business problems. Culture is key to this mindset shift. Data literacy—the ability to explore, understand, and communicate with data—is a critical pillar of a Data Culture. Fostering literacy and culture in tandem pays off. A TDWI report found that in data-literate organizations compared to somewhat-literate or not-literate organizations, "the culture is collaborative and results-driven (92% versus 46%) [and analytics] goals are tied to management goals (73% versus 40%)." Organizations with a strong Data Culture experience greater collaboration, competitive advantages, and more.

They'll also accept that they can't go it alone.

Without the resources, internal expertise, and capabilities to run their own education programs—or keep up with the rate of change—organizations will view data literacy as a community effort. They'll embrace agile, non-traditional approaches and partner with third-party training programs.

Workforce development in action

Get the full story of how Booz Allen Hamilton is building a Data Culture to drive data literacy for its nearly 3,000 Tableau users and enable self-service analytics at scale.

Learn how the University of Kentucky is upskilling and certifying students for career success in the future of work.

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By 2025, organizations that create a formal program for citizen development, analytics and automation will be far more agile than those that do not.

— GARTNER[1]

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Recommendations

1. **Foster Data Culture and data literacy in tandem.**

   Their success is interdependent, so don't overlook the value of investing in a combination of literacy training and a cultural shift. And remember—change won't happen overnight. Be patient, keep at it, and recognize that it's an ongoing commitment.

   + Design a framework to set common goals and structure initiatives for sustainable success.

   + Standardize terms, skill levels, success metrics, and processes across the business.

   + Incentivize people. Get them excited about what they can do with data.

   + Model and encourage data-driven decision making and demonstrate the value of data.

   + Make space for discussion, learning, and development.

2. **Hire and train for the future.**

   Take a note from the US Department of State: "[It] will evolve its hiring practices to include requisite data skills. Data skill sets must be an integral component for a wider range of key positions. If data skills gaps are left unaddressed, the Department's hiring will be unable to keep pace with evolving data needs." To meet this goal it will, "recruit, train, and incentivize a workforce and workplace where data is routinely sought, valued, and fluently utilized for decision-making at all levels and geographies." Here's what that could mean for your organization:

   + Evolve hiring practices and role expectations to require basic data skills.

   + Partner with educational institutions with data skills initiatives and recruit data-literate students.

   + Encourage and facilitate data upskilling in your existing workforce.

   + Build data communities to encourage ongoing growth, development, and collaboration.

   + Identify and recruit experts, or data champions, to inform corporate training programs. Build a culture of data-driven decision making to help you retain those experts.

3. **Shift left: Invest in and facilitate data skills curricula—across academic disciplines and proficiency levels.**

   For those in academia, it's never too early—or too late!—to teach data skills and critical thinking. Infuse fundamental data skills into all stages of education, and prepare more students to work with and understand data in their professional roles.

   + Build analytics skill development and critical thinking skills into all courses. Reinforce that every future career can and will use data.

   + Encourage students to bring data into their research and work.

   + Make data fun! Explore how data shows up in the real world and bring data concepts to life for students.

   + Communicate the value of data skills—from boosting career potential to using data to change the world.

   + Get free software, curricula, and resources for instructors and students through the Tableau Academic Program.

4. **Invest in programs to develop data literacy and analytics tool and platform proficiency across your workforce.**

   Play the long game: Don't just focus on your short-term needs by training for the tools and technology you currently have. Educate your people on tech-agnostic fundamentals, like how data adds value to the business. And don't reinvent the wheel! Teach the basics (think: Data 101) in-house if you can and outsource the rest.

   Help employees develop more advanced skills by partnering with third-party organizations to adopt what's already out there. Check out programs like MIT's Applied Data Science professional course, DataCamp for Business, Avado's Data Academy, the World Economic Forum's Reskilling Revolution, Coursera's Data & Analytics Academy, free training from Test Automation University, and data courses from Khan Academy.

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4

FLEXIBLE GOVERNANCE

Organizations adopt more inclusive data governance approaches to stay competitive and compliant.

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4 **FLEXIBLE GOVERNANCE**

Kate Wright

SVP OF PRODUCT DEVELOPMENT, TABLEAU

Kate Wright is an analytics leader with 17+ years of development, product management, and leadership experience. She's responsible for Analytics Engineering, Product Management, and overall User Experience for Tableau and Tableau CRM.

Growing recognition of data's strategic value drives flexible, federated data governance techniques that empower everyone across the organization.

How we got here

The value—and sheer volume—of data has never been greater. Data isn't just table stakes for business success in 2022: data is the business[6]. As organizations invest in innovative AI solutions and cloud-based everything, demand for self-service and data-sharing capabilities has grown alongside data privacy and usage regulations. Digital-savvy organizations embrace this paradox: A single-source of truth is essential, yet it won't live in a single location, nor can it be managed and secured by a handful of people.

Organizations must take a new approach to data governance and management that pairs flexibility and empowerment with coordinated control. To innovate, compete, and keep ahead of governance and security requirements, successful organizations will adopt federated data governance techniques. Such an approach—that pairs centrally-defined governance

standards with local domain authority—will enable organizations to tap into diverse areas of expertise by including more diverse users across the business.

After all, relevance in our digital world hinges on getting value from data. But how? The latest Gartner CDO survey found that "72% of data and analytics leaders [who] are heavily involved or leading digital business initiatives" are unsure how to build the "trusted data foundation" needed to accelerate their efforts and achieve business goals.[7]

Without repeatable, scalable processes to ensure data is discoverable, secure, understood, and trusted, flexibility and innovation are mired in risk. Unless organizations rethink data governance, the dream of trusted, real-time self-service analytics will be just that—a dream.

6 Forrester Consulting, Break Through Data Governance Fatigue: A Framework For Effectiveness And Sustainability, Goetz, Michelle, February 2021

7 Gartner®, Predicts 2022: Data and Analytics Strategies Build Trust and Accelerate Decision Making, Jorgen Heizenberg, et.al, 2 December 2021

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Data quality and data-driven decision-making go hand in hand. An organization-wide commitment to data governance mitigates risk and drives future success for everyone in the business.

— SCOTT TEAL, PRODUCT MARKETING MANAGER, SNOWFLAKE

Governance defined

Data governance: The policies for managing data

Data management: Data governance in action: The execution of governance policies, from data strategy and quality to platform, architecture, and operations[8]

Where we're going

Successful data governance strategies have always been rooted in trust. In 2022 we'll see organizations embrace a mindset shift to take a more inclusive approach to data governance and management.

By inclusive, we mean systems and processes designed for the many, not just the few. We mean recognizing that IT and the business aren't at odds when it comes to data governance and management. When the traditional holders of the data—we're looking at you, IT!—invite the business to be part of the solution, everyone can rally behind shared goals and pave the road for innovation.

What does that look like? Develop and extend. Give people the tools to do it themselves, but manage risk with centrally controlled guardrails. For example, IT sets a governance foundation for things that impact the entire organization (such as lineage, data catalogs, standards, validation rules, metadata management,

and architecture) while extending control to the business in ways appropriate for their needs. This right-sized approach allows domain experts to solve business problems in context, while enabling trust, discovery, and innovation.

To infuse data governance throughout the business, data literacy is essential. Everyone must speak a common language and participate in shared governance, but—more foundationally—they must also understand data fundamentals. Focusing on transparency and discoverability will make it easier to find and discover data as organizations continue to standardize on a single place to find information so everyone can agree on what is being measured, how it's defined, where it lives, and who owns it. Those that do this well will enable a big-picture understanding of how data flows to all corners of the business and how to maintain trust and security.

Governance in action

See how Red Hat's governance approach enables speed and collaboration across its nearly 5,000 enterprise users.

Learn how Duke University is building a foundation of information accessibility to maximize the use—and impact—of its data tools.

Discover how DB Systel is empowering employees to explore their data securely, gain crucial insights, and make agile, informed decisions that drive change with a single source of truth.

8 Gartner®, Modern Data and Analytics Requirements Demand a Convergence of Data Management Capabilities, Guido de Simoni, et.al, 20 January 2021

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Recommendations

1. **Take inventory of where you're at— and where you want to go.**

   You must understand what data you're using to understand where you're at. Ask questions and engage with people across the organization to understand what data you have, how people are using it, and how relevant it is or isn't. We can't say it enough: Trust is critical. Ask stakeholders what they need to be successful. Lean on third-party frameworks, such as the Data Management Maturity (DMM) Program, to benchmark your capabilities and identify strengths and gaps.

2. **Take a partnership approach. (Hint: It starts with trust.)**

   Yes, IT needs to keep tight control of some levers, but they can't control everything, nor should they. Partner with the business. Start building trust in people and processes by upskilling business users to help them use data responsibly. Transparent processes and secure, current data go a long way, too. Build upon quick wins to demonstrate the value of partnership to the broader organization.

3. **Think federated.**

   Recognize that your data strategy can't be colocated, and you're never going to get complete and centralized control. Then take a more federated approach. Work toward a balance where you govern the amount that is required, while building partnership with the business. Don't reinvent the wheel. Use industry-recognized frameworks (think: the DMM Program or EDM Council's Cloud Data Management Capabilities framework) to reduce friction and better understand what good looks like.

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5

EQUITY

Data Equity will emerge as a framework for improving dialogue between people and institutions.

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Neal Myrick

GLOBAL HEAD OF TABLEAU FOUNDATION, TABLEAU

Neal Myrick is VP of Social Impact for Tableau and the Global Head of the Tableau Foundation. He leads the company's philanthropic investments to advance the use of data for a more just and equitable world. Neal is an active angel investor and sits on several global health and development advisory boards.

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5 EQUITY

Data becomes the language for people and organizations to be seen, have their issues understood, and engage with institutions intended to serve them.

How we got here

Data is a powerful agent for change. After years of working with our nonprofit partners at the Tableau Foundation, we've observed that not all members of society benefit equally from that power. Very little data is perfectly representative, often lacking context and nuance from lived experiences. This affects data's potential: it can create distrust in the data, especially from the individuals and groups who don't see themselves represented. This lack of trust can prohibit groups that aren't represented from using data to build power and influence.

This is not to say we have all the answers yet, but as we talk to partners we see a trend on the horizon that has been informed by real world experiences and has the potential to shape community advocacy and engagement.

For data solutions to be relevant, effective, and sustainable, they must be designed in collaboration with the communities they are intended to represent

and support. By changing the dynamic, data helps empower people and organizations to address the complex, nuanced problems most important to them. As a framework, Data Equity can become an approach that ensures data is more inclusive, representative, and effective as an advocacy tool because of the shared sense of ownership it creates with all the stakeholders around the table.

At its best, this approach should invite as many questions as it answers in a process of constant improvement—does this data capture the experiences it is supposed to represent? Is there more we can do in the way we collect and analyze the data to make sure it is representative? Are we telling the story through data in a way that meets our audience where they are, and brings them along on the journey toward change as partners instead of adversaries?

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> To really make sense of data and derive value from it, we need to make sure that we're equipping communities with technologies, data capacity training, and technical support, so that they can actually use the data that's shared back with them.

— ASHLEY MONSON, SOCIAL IMPACT PROGRAM MANAGER, TABLEAU FOUNDATION

Where we're going

Viewing data as a strategic asset and committing to an organizational data culture can open up powerful new conversations about policies and how our public institutions invest in communities. Democratizing data–not just making it available, but approachable by unlocking it from behind the barrier of data science expertise–organizations that may have been reluctant to add data and analytics to their advocacy efforts. And as some nonprofits and community organizers are seeing their data advocacy efforts turn into real positive impact in the lives of the people they're fighting for, we are starting to feel a groundswell of others who are asking: "What can we be doing here, in our community and with our data, to make a difference?"

We are seeing organizations be intentional about their data cultures and investing in data skills inside the organization and across the community. From that effort, some best practices are emerging and those who are finding success are doing so through some mix of the following:

+   Democratize relevant data and resources by making them public

+   Disaggregate data to be more representative

+   Use people-first language alongside their data

+   Reorder how data is traditionally presented

+   Use models centered on human experiences

PolicyLink tracks equity indicators with the National Equity Atlas

> It's about both democratizing the access to data as much as possible, as well as providing the data itself, and providing specific campaign support to advocates on the ground. The National Equity Atlas is currently the US's most detailed report card on racial and economic equity. We cover over 730 geographies and metros in the country, including about 430 counties in all 50 states. We track indicators around demographics, economic vitality, readiness, connectedness, and the economic benefits of equity.

— SELENA TAN, SENIOR ASSOCIATE, POLICYLINK

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Tableau Social Impact Program Manager Channing Nesbitt shared the importance of disaggregating your data by breaking it down and looking at diverse fields, units, or measures instead of exclusively using averaged or summarized data: "It gives voice to community members whose experiences are often overlooked and unseen in more generalized and aggregated data, and for whom that erasure can perpetuate, or even increase, the challenges that they face." It also offers more clarifying potential than gender, race, and income alone—creating more detail about an individual's unique experience—like that of a Black woman with a graduate degree seeking a mortgage loan, for example. Disaggregated data allows us to more clearly see people in the data, which helps better meet people's needs and refine the solutions delivered by governments, institutions and community-based organizations.

All of these changes improve the accuracy and inclusivity of data and paint a contextual picture of the people behind data points—better representing and serving all members of a community.

More accurate, representative data can validate lived experiences and help community groups build more power and influence to achieve their goals.

Better data and using data equity as a framework helps people start or reframe conversations, creating beneficial downstream effects on funding requests and policy changes. This framework helps governments and institutions measure and track progress on their goals—the spectrum runs from United Nations's Sustainable Development Goals to local District Attorney's offices sharing data on criminal prosecution and processes. And it allows community stakeholders to directly engage with their governments and other institutions of power on a more level footing.

Equal Measures 2030 drives accountability with the SDG index

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We're measuring over 100 countries on over 50 key gender equality issues. And we're tracking how governments are progressing towards the goals. [...] We're always thinking about our audience—women's organizations and movements around the world—and how we can create a tracker index that's helpful as a framing device to try to hold their governments accountable for their promises.

— ALISON HOLDER, DIRECTOR, EQUAL MEASURES 2030

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What we hear from [partners], is that having data— having the skills and language and resources to use data in their advocacy, helps them be more credible. It helps them to open the door with policymakers. [...Data] is a different tool in their toolbox.

— ALISON HOLDER, DIRECTOR, EQUAL MEASURES 2030

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Recommendations

We've noticed that some of our most successful nonprofit partners are incorporating one or more methods for improving Data Equity. While there is still work to be done to refine the list, here are a few of the common Data Equity practices we've seen be successful among our partners.

1. Consult with communities closest to the problems you're trying to solve.

Get their input on what questions to ask to collect the right data, and in what context the data should be understood and analyzed. Collaborating with communities helps to:

+ Build accuracy, trust, and confidence in the data, making it more likely that the data will be used and referenced.

+ Ensure the data will be useful to the community and relevant to the issues they hope to address.

+ Produce action-oriented data that will drive impact—and can reveal what works, what doesn't, and help set collective priorities.

2. Make data relevant and representative of the people and communities it serves.

We need to more clearly see the people in the data to better understand and address the needs of the people it's meant to serve.

+ Disaggregate data as much as you can—while maintaining privacy.

+ Seek relevant data points that depict a more nuanced, personal experience. Data on a race, ethnicity, gender, or income-level alone will not give the same context and insight as the ability to see essential identity aspects together.

3. Share data back with communities— and scale impact through feedback cycles.

+ Communities need access to data to fully benefit from it. Sharing data reinforces the virtuous cycle of data use: The more data is used, and the more communities come to reply upon data, the more likely the data will continue to be collected and analyzed.

+ Be responsible in how you share data and scale your efforts. Maintain data privacy to build and maintain trust.

4. Equip communities with the tools and knowledge needed to effectively use data.

+ As data sets grow in size and complexity, data-literacy and data-skills-building initiatives become more important in ensuring people know how to make sense of the information they have access to.

+ Technology solutions need to be made more accessible for community-based organizations.

+ Organizations also need access to more unrestricted funding that can be used to fund technology-associated costs and overhead.

Feeding America and Slalom partner to empower food banks with data

Feeding America and Slalom are partnering on a multiyear effort that will transform how Feeding America uses data and technology in its national office and across their network of food banks, with Tableau being a critical tool in their fight to end hunger. Hear Slalom and Feeding America leaders discuss how they're serving neighbors in need and empowering food banks with data.

Watch now →

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Define 'community.' Consultations will rarely, if ever, be completely representative. It's important to reflect on how we define 'communities of interest' for projects, ensuring we consider who may be inadvertently excluded. Sometimes, due to contexts, resources, or limitations, it may be necessary in the short run to prioritize certain groups.

— DATA VALUES PROJECT TEAM, THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT DATA

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About Tableau

Tableau helps people see and understand data. As the world's leading end-to-end data and analytics platform, Tableau offers visual analytics with powerful AI, data management and collaboration. From individuals to organizations of all sizes, customers around the world love using Tableau's advanced analytics to fuel impactful, data-driven decisions.

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