# The Business Value of Trusted Data Quality

## How to solve the top three data challenges facing business leaders

### You Can't Fuel a High-performance Business with Poor Data Quality

Organizations are embarking on digital transformation initiatives to increase their relevance and competitiveness in the digital economy. Nowadays, data is frequently touted as the "new oil" that powers technologies like automation, advanced analytics, and artificial intelligence (AI).

Just as oil needs to be refined, data needs to be processed to unlock its true value. But if you've ever unknowingly filled up your car with the wrong fuel, you'll know how the engine suddenly runs rough, lacks power, or starts to misfire. If you carry on driving, the car will eventually break down, and the repair bills can quickly escalate. Likewise, bad data impedes business performance, can damage your operations, and cause a breakdown in customer trust.

Data integrity isn't simply IT's problem. Data tells the story of your business, which makes it everybody's problem. So in this whitepaper, for all data leaders who oversee the use of data as an asset, we'll focus on the business value of trusted data, the business impact of bad data, and explore how you can lay the foundations for a robust, organization-wide data governance strategy.

## Building the Business Case for Trusted Data

"Trusted data" is the notion that everyone in an organization—from the CEO to a customer service agent—can feel confident in the data that is used to run both business operations and analytics.

As businesses in every sector are caught up in the promise of digital innovation, data science is becoming one of the hottest skill sets in today's IT market. All organizations have a growing appetite for the use of advanced analytics to uncover patterns and indicators or to make predictions that can drive better decisions and outcomes. But if the data isn't accurate, complete, and trustworthy, any insights gained from it are, at best, meaningless, and at worst, misleading.

Nevertheless, data governance still doesn't seem to attract anywhere near the same cachet or strategic focus as the pursuit of data-driven insight. Compared to the glittering promise of algorithms, it's harder to enthuse and engage business users and executives in the plumbing of policies, procedures, roles, and responsibilities relating to good data hygiene. It's arguably tougher to present the business case for a data governance program that could prevent innumerable wasted hours and bad decisions than for, say, a high-profile transformation initiative with specific ROI goals. Yet customer trust is the battleground for digital success, and you can't build a joined-up, personalized customer experience on a foundation of incomplete or incorrect data.

## "If data isn't trustworthy, any insights gained from it are at best, meaningless or at worst, misleading."

## The True Cost of Bad Data

Bad news sells. So your business colleagues may sit up and take notice of these damning statistics on the price organizations pay for poor quality data:

87% of employees peg data quality issues as the reason their organizations failed to successfully implement AI and machine learning.[1]

---

1    Employees attribute AI project failure to poor data quality. VentureBeat, March 24, 2021. https://venturebeat.com/2021/03/24/employees-attribute-ai-project-failure-to-poor-data-quality/

48% of data migrated into businesses' data warehouses (or other storage solutions) required cleaning before it could be useful, a process contributing to more than four hours of time lost per employee each week.[2]

69% of companies believe inaccurate data undermines their ability to deliver an excellent customer experience.[3]

$15 million/year in losses is the average cost organizations believe to be due to poor quality data.[4]

Direct costs also extend to the time wasted validating or cleaning data—and the financial penalties incurred for failure to maintain regulatory compliance. Don't overlook indirect costs, either, such as incomplete data obscuring meaningful customer insights, or invalid contact information leading to low campaign response rates.

But by far, the biggest financial impact to any business is the opportunity cost of pursuing ineffective strategies based on bad information, which can have a lasting (and sometimes terminal) impact. Lastly, your executives may wish to consider that if bad data is the norm, maintaining a foundation of trusted data for all stakeholders is surely one of the most compelling competitive differentiators your business can strive for.

### "Maintaining a foundation of trusted data is a compelling competitive differentiator."

## The Three Most Pressing Challenges for CDOs

The abundance of structured and unstructured data generated and amassed by organizations can yield potentially valuable insights, which can be used to inform business decisions to increase productivity and performance, improve efficiencies, and reduce costs.

While businesses broadly recognize the prevalence of bad data, this knowledge is not necessarily translating into a positive impact on data quality. Data scientists are still spending an inordinate amount of their (very expensive) time collecting and preparing unruly digital data. And it's not just their elite community that's affected.

2    Stewart, Craig. Why a Majority of Data Warehouse Projects Fail—and What Businesses Can Do. Database Trends and Applications, April 7, 2021. https://www.dbta.com/Editorial/Think-About-It/Why-a-Majority-of-Data-Warehouse-Projects-Fail-and-What-Businesses-Can-Do-145910.aspx

3    Experian. Global Data Management, 2018.

4    Gartner. How to Create a Business Case for Data Quality Improvement, Susan Moore, June 19, 2018.https://www.gartner.com/smarterwithgartner/how-to-create-a-business-case-for-data-quality-improvement

With the advent of pervasive new tools and services, analytics are no longer the sole preserve of the statistician. They are relied upon by a growing number of non-technical users across an ever-expanding range of job functions, from sales, marketing, and customer service, to HR, finance, and operations. Business users see the symptoms of bad data on a day-to-day basis, but either believe errors and omissions are IT's job to fix, or lack the collective authority, understanding, wherewithal, or will, to tackle it. A top-down approach (whether from IT, compliance, or the office of the CDO) can only go so far: data cleanliness is an exercise in citizenship, which requires collaboration to affect positive change locally, within a department or business unit, as well as globally at the corporate level.

Actionable insights are the stepping stone between data and business value. To drive effective outcomes, the underlying data must be accurate, accessible, and complete, and enable the intelligent linkage of entities and concepts. But data leaders are still commonly thwarted in three key areas. Which of these challenges resonate with you?

## "Actionable insights are the stepping stone between data and business value."

### Challenge #1: Breaking Down the Silos

You can't assume responsibility for data within your business if you don't know where it is or how best to integrate it. But in many organizations, data is still trapped in multiple technical and business silos. This fragmentation limits the value of information. Only by bringing datasets together from their various repositories and combining all their varying natures (internal and external, structured and unstructured, spatial and non-spatial) can brand new, potentially lucrative insights be developed.

### The Need for Speed

Data needs to be integrated across the business to make it accessible to the right people at the right time. A lot of useful data has a relatively short shelf life, so users, business processes, and initiatives need to be able to tap into it while it's still relevant.

The successful exploitation of analytics is as much about speed as it is accuracy. Business users increasingly rely on new findings to provide contextual decision support and trigger next best actions. They'll struggle to reach timely, confident conclusions if they don't have the data they need right in front of them, which could easily translate into a missed opportunity to identify a problem or salvage a damaged customer relationship.

The demand for immediate access to data is only intensifying, as analytics are increasingly being embedded in everyday applications and workflows to help bring insights at the moments that matter.

### Consolidating Data in a Central Repository

These imperatives mean that data must be gathered, combined, structured, and organized, and any variations in format reconciled, to ensure that it's fit for purpose and ready to be consumed. Data integration is effectively about managing complexity, streamlining connections, and ensuring that functions across the organization can access the same data to get reliable results. Centralization makes it easier for anyone within the business to retrieve, inspect, manipulate, and transform data, and supports greater collaboration internally, or with customers and business partners.

Crucially, centralization also eliminates the time and resources required for different areas within the same company to individually govern and analyze data.

However, information environments are becoming increasingly complex, thanks to new sources of data such as the Internet of Things (IoT), social media, and mobile applications. The process of unifying all of these sources is often too convoluted to address using traditional integration methods. Extract, transform, and load (ETL) tools still have their place for bulk data movement, or in scenarios with complex rules and transformations. But as organizations increasingly need on-demand access to data, many IT teams are now struggling with their legacy ETL data integration environment, and under pressure from the business to move closer to real time.

> "IT teams are under pressure from the business to move closer to real-time access to data."

### Challenge #2: Getting Down to the Details

To build trust in data, it needs to meet multiple quality criteria: completeness, consistency, conformity, accuracy, integrity, and timeliness. Decisions made with bad data are bad decisions that you may not know about yet. The danger is that data is no longer just used to observe trends—it's being put to work running operations, forming predictions, creating new business models, and even attempting to disrupt entire industries.

As AI and machine learning (ML) become more pervasive, they can only benefit businesses if their algorithms are fed with and taught by accurate data. Misinformed machines simply make skewed decisions or erroneous forecasts faster and at scale.

As organizations look to monetize data by sharing it with customers or business partners through digital services, the potential risks of misinformation escalate. Failure to verify data exposes businesses to new kinds of vulnerabilities, from misinterpretation to manipulation and misuse. And if you can't trust your own insights, how can you maintain the trust of your customers?

## "Misinformed machines simply make skewed decisions or erroneous forecasts faster and at scale."

### Regulatory Pressure Will Only Intensify

Data quality also matters for regulatory compliance, particularly the General Data Protection Regulation (GDPR), which takes a progressive stance on protecting consumers' interests through greater transparency. GDPR makes it easier for consumers to have their data amended or deleted, and ensure it isn't being collected or shared without their consent. Organizations will struggle to achieve technology's full potential without the faith and confidence of the people who use it. So, in the wake of high-profile scandals involving digital privacy, we can expect more (and more stringent) data management legislation to emerge.

### Data Quality Is Everybody's Business

Fragmented data ownership poses challenges to data quality, and as data grows in size and changes in nature, ownership is becoming an even thornier problem. While IT is still typically a company's biggest data owner, there are multiple business processes, people, and technologies that need to interact with that data, so confusion and conflict persist about responsibility and accountability. Data quality therefore has to be a collaborative function between IT and the business, with a central owner and federated responsibility; After all, IT understands the structure of the underlying information systems, but only the business stakeholders can tell whether the data is fit for its intended purpose.

### Getting in Front of Data Quality Issues

The cost of bad data escalates over time, so it's much more cost-effective to manage data quality early on than to fix problems after the data has been delivered to analysts, applications, and end users. The rate at which data is generated today doesn't allow for humans to manually check and ensure the validity of data flowing around the organization, so many companies are taking a reactive approach to tackling data quality—locating and

cleansing dirty data after it has already been in place for some time. Businesses need to employ proactive monitoring to get out in front of data quality issues before they can impact downstream processes or the entire business.

## "Data quality has to be a collaboration between IT and the business, with a central owner and federated responsibility."

### Challenge #3: Attaining a Single Version of the Truth

As organizations shift towards a culture of data-driven decision-making, today's executives are looking for a 360° view of the business to help influence all aspects of profitability, revenue generation, and strategic development.

CEOs typically want to track generalized indicators of corporate performance and identify growth opportunities. CFOs need visibility into profitability, commercial performance, and increasingly, risk oversight. CMOs seek audience insights, competitive analyses, and an understanding of which channels and media are having the biggest impact on conversions. CHROs are charged with monitoring the lifeblood of the company, from payroll to performance measurements to goal alignment. What all these time-pressed executives have in common is the need to see the big picture at a glance.

### Duplicates and Discrepancies Cause Conflict

However, today's fragmented IT landscapes are creating significant data problems, and duplicates and discrepancies are breaking business processes. The kinds of datasets companies store and make use of vary by function, but in many cases the same critical data is required for several tasks.

As different business units within a company pull, curate, and analyze datasets individually, their analyses yield conflicting and uncertain outcomes. In addition to making it time-consuming for users to locate data, data sprawl multiplies the time and resources required for different areas in a company to individually govern data.

### In Pursuit of the Golden Record

The ultimate prize in the world of data management is the "Golden Record"—a single, unique dataset that captures all the information needed to "know" a customer, supplier, product, or employee. Subsequently, if a dataset is altered at its source, the change is reflected in all related items from other sources, with continuous synchronization to ensure the data is always up to date. By giving functions across the enterprise access to a single source of truth, goals such as the "single customer view" are brought within easier reach.

**Master Data Management Is a Discipline, Not a Project**

Master data management (MDM) is an established method of linking all the critical data across a business to a common point of reference; It builds on the work done in data quality and data integration initiatives.

As a technology-enabled discipline, it helps IT and the business work together to ensure the uniformity, accuracy, consistency, and accountability of the company's shared master data assets.

However, too many businesses have approached MDM as a technology project, with business stakeholders providing only minimal participation and sponsorship. Such implementations don't deliver the anticipated results because the organization typically failed to either build the business case for change, prioritize the initiative, or invest sufficiently in people and processes.

MDM programs must be driven by business leaders in conjunction with IT—after all, business users are the ones who suffer the pain of bad data firsthand, and therefore stand to gain the most from a solid MDM strategy. MDM is not a one-and-done exercise, but an ongoing process; The program must evolve in line with business change if it's to create continuous value.

**"Too many businesses have approached MDM as a technology project, with business stakeholders providing only minimal participation."**

## What's Keeping CDOs Up at Night?

Data quality, data integration, and MDM each represent a leg of the data management stool. If any of these legs are defective, a business can be destabilized by multiple concurrent challenges.

**Typical Challenges Facing Data Leaders**

- Lack of clarity in data ownership
- Difficulty producing an accurate customer count
- Different answers to the same question
- Business users "manage" their own data in spreadsheets
- Duplicate data across systems
- Resources tied up in discovering and fixing data issues
- Processing errors due to incomplete data
- No single version of the truth
- Not knowing where data came from
- Not knowing what data is being used for

If any of these scenarios sound familiar, your business may need a shift in its data governance collective mindset. You may find yourself needing to reshape your colleagues' current perceptions of data management from a cost center to a profit center or value creator. And if your organization has a record of serial, one-off remedial projects, now is the time to spearhead a holistic, ongoing data governance strategy, supported by modern tools and proven methodologies.

## Trusted Data: From a Cost Center to a Business Enabler

Data is a fundamental resource. Just as you can't run a blast furnace without oxygen, you can't run a modern business without data. Data has a value attached to it in terms of opportunities, top-line growth, improvements to the bottom line, and risks. That value depends on the nature of the data and what you do with it.

### Direct Value

Data has intrinsic value. When it can be monetized by selling it (data-as-a-service), or by selling analytical insights derived from it to various audiences through different business models, it creates a supplemental revenue stream. For example, many companies allow third-party software to access their consumer data using some form of licensing agreement.

### Indirect Value

Once your colleagues start to treat data as a strategic asset, it can have a beneficial impact on the bottom line. By using data to better understand customers, suppliers, business partners, products, and processes, business users can identify unmet needs and uncover inefficiencies. This intelligence can be applied to create new revenue opportunities, reduce costs, or boost productivity.

### Recombinant Value

Many businesses are creating opportunities, or entirely new business models, by blending enterprise with third-party data to create new value or use cases. For example, by combining supplier data with geopolitical insights, an organization could anticipate and potentially avoid disruption to its global supply chain. Many agricultural businesses now combine data on soil, weather patterns, and seed attributes to generate fertilizer and pesticide recommendations that help farmers optimize crop yields.

### Automation Value

Organizations are increasingly taking advantage of robotic process automation and chatbots to relieve employees of repetitive tasks. The automation value of data is not chiefly in using machines to eliminate jobs, but in freeing up staff for higher-value activities that require more nuanced human judgment.

### Algorithmic Value

To continually learn and improve, machine learning algorithms rely on high-quality data specific to the business problem. One of the most exciting ways to extract value from data is in using it to make predictions or recommendations. Netflix exemplifies the algorithmic value of data in the way it matches content to viewers' tastes. The more they watch, the smarter its recommendations become, deepening subscriber loyalty.

### Losses

If you're trying to attach a value to data, it can also be helpful to consider the economic impact on your business if you were to suddenly lose access to it (a drop in productivity, reputational damage, regulatory fines, etc.), whether through cyber theft, physical damage, or corruption. But the single most compelling indicator of data's worth is the opportunity cost of neglecting to extract any business value from it at all.

## The Art of Persuasion: Data as a Strategic Asset

Bad data is not an IT problem – it's everybody's problem. But it can be a challenge to get business engagement with, and funding for, a sustainable data governance program if:

- Executives don't understand the link between improvements in data quality and business outcomes
- Business users don't understand the importance of their role in improving data quality
- IT doesn't understand the business role of the processes they're tasked to support

As analytics starts to become recognized as an offensive backbone for competitive advantage, your organizational culture must recognize data quality as a top priority and start treating data as it would any other asset. Those who consume and use it, as well as those who oversee it, need to viscerally understand the importance of consistent, accurate, timely information.

## Flying the Flag for the Value of Data

A data leader's job is as tough as they come. As the steward and ultimate owner of data within your business, your role is to lead the collective shift towards a truly data-driven culture and marry your company's data strategy with its business strategy. You have to be an evangelist for the economic value of data and its criticality as the foundation of decision-making and business model transformation. Translating the potential of data into relatable business value requires strategic, tactical, and operational know-how, plus the negotiating and influencing skills to harness the required cross-functional cooperation.

## Getting Executive Focus and Sponsorship

When engaging executive support, it's not enough to simply talk about the cost of bad data. To demonstrate the impact of data quality initiatives, you need to develop "business value measures," ways to directly attribute some form of business value to your data management and governance initiatives. Obviously, these will be specific to your organization, but your financial, customer-focused, and operational impacts might be inspired by some of the following:

- Increased revenues due to improved customer experience and deeper customer trust
- Lower overhead through users no longer having to question the definition of data or spend time locating where data resides
- Shorter time to market for new applications as a result of consistent data governance
- A boost to productivity by increasing the reliability of mission-critical data in everyday workflows
- Improved margins thanks to faster, more accurate decisions and increased usability of data
- Reduced risk of hefty regulatory fines and reputational damage

## Start Small, Build Momentum

Not all data is created equal, so it's vital to understand the business value of specific sources of data to prioritize efforts to clean it. It can be helpful to identify one or two critical functional areas where bad data is clearly causing headaches and quantify the business impact to show where significant near-term results could be achieved.

Calculate the costs and benefits and assess the ROI and payback on these specific areas. Successful outcomes can then be held up as exemplars to build momentum and support further data quality initiatives.

# The Business Value of a Data Lifecycle Approach

We work with thousands of customers to help them shape the future of their data-driven business. In our experience, successful data management projects have one thing in common: their data leaders have fully engaged with the business community—especially the people who generate, acquire, and use the data. So we recommend a cyclical, five-step approach to providing a trusted, valuable foundation of data for your internal customers.

## Step 1: Focus on the data consumers.

Think of all the constituents who need insights—not just the obvious beneficiaries, like business intelligence analysts and data scientists, but everyone who depends on information, including business users, partners, customers, and suppliers. It may help to consider operational use cases and map out how data impacts specific systems, applications, and workflows in these scenarios.

## Step 2: Identify what data they need.

Again, look at this from a business rather than an IT perspective. Consider how business users ask questions, view information from different angles, spot trends, and bring different types of information together. To jump-start your master data management program, ask these user communities what their golden records should look like.

## Step 3: Determine where the data resides.

The process of discovery is mostly an IT consideration because business users will not necessarily be aware of which information systems contain the data they use. However, with the rise of "shadow IT," company data may be dispersed across a wide range of services that you're not aware of. By talking to appropriate data owners, you may be able to find the relevant locations.

## Step 4: Bring the data together.

This step involves IT in integrating, standardizing, cleansing, and mastering the data. You will need to implement the rules that the business has defined to load and cleanse the data, and remediate any problematic elements.

## Step 5: Remediate the data.

Remediation entails cleansing, matching, merging, and unmerging to deal with errors and exceptions, and make sure the data is suited to its ultimate business purpose. This stage should be a joint effort between business and IT. IT understands the structure of information systems, but only business stakeholders understand the value and accuracy of specific pieces of data.

## Advancing Data Maturity – From Reactive to Proactive

To plan, prioritize, and improve data quality and integrity, a helpful starting point is determining the maturity of your data quality strategy today. The goals of advancing your data maturity should be: (1) To create a trusted data foundation for your increasingly digital business and, in light of growing privacy concerns and the emergence of tighter regulatory measures, (2) To establish your company's guiding principles for the ethical use of data. Consider where your organization currently sits on this continuum:

### Reactive

Any actions related to data quality are without a process. Action starts when individual problems arise.

### Siloed

Your business acknowledges the existence of data quality issues, but actions are still taken tactically or programmatically.

### Coordinated

There is a common understanding that problems exist across the organization and steps are being taken to address them.

### Governed

The organization has made good progress in establishing data governance policies, procedures, and stewardship across the organization.

### Proactive

A smart, automated approach is taken. AI-powered analytics are used to detect anomalies in data quality and address data integrity issues at the earliest point of processing—before they impact the business.

TIBCO DQ software enables both business and technical users to be active participants in data improvement across the enterprise. It consistently improves the quality of data anywhere it enters your landscape, via online apps, data streams, message queues, and batch interfaces.

With the TIBCO DQ solution, the time needed for typical projects can be reduced significantly by cleansing your data in the initial stage and throughout the development cycle.

## Let's Keep the Trusted Data Conversation Going

We hope this whitepaper will prove useful in helping you articulate the business value of trusted data to your stakeholders. To find out how we can help you address your specific data management challenges, build a foundation for trusted insight, and accelerate your progress along the data maturity curve, contact us.

TIBCO Software Inc. unlocks the potential of real-time data for making faster, smarter decisions. Our Connected Intelligence platform seamlessly connects any application or data source; intelligently unifies data for greater access, trust, and control; and confidently predicts outcomes in real time and at scale. Learn how solutions to our customers' most critical business challenges are made possible by TIBCO at www.tibco.com.

28Apr2022