Data Readiness:
The Real Magic Behind AI

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Introduction

2025 will be a pivotal year for AI adoption, with companies everywhere looking to increase deployments and gain competitive advantage. The 2024 - 25 Telarus Tech Trends report revealed that AI adoption is currently the leading driver of large- and mid-enterprise IT buying decisions, ahead of cybersecurity, cost-cutting, and CX/brand experience. [1]

But many businesses are still struggling to scale beyond pilot projects and generate lasting value. The culprit is often a lack of data readiness. A recent report from MIT and Snowflake, a top cloud solutions player, revealed that 78% of businesses lack a “very ready” data foundation to support generative AI.[2] And in a separate study, Capital One discovered that the vast majority (70%) of technical practitioners still spend several hours daily fixing data issues. Meanwhile, only 35% have a strong data culture, due to inconsistent support and education.[3]

The truth is, AI can indeed make magic happen for anyone looking to boost productivity and efficiency. And it’s here to stay.

However, **AI-enabled technologies are only as effective as the data that flows into them.**

In this guide, we will take a closer look at what it means to be AI data ready, and what you can do to ensure the success of your AI investments.

Key Statistics

- 92% of businesses will increase their AI investments over the next three years.[4]
- More than three in five organizations have large gaps in their AI readiness, mainly around data ecosystems and infrastructure.[5]
- 81% of executives and 96% of their teams are now using AI to a moderate or significant extent.[6]
- 95% of organizations have encountered hurdles during AI implementation, due to the quality and organization of their internal data.[7]

Understanding Data Readiness

“The journey ahead is not merely about amassing vast quantities of data; it's about securing the right data at the precise moment in an accessible format …”

- Deloitte[8]

What Is Data Readiness?

Almost all AI systems today require high-quality data in order to function. Without it, AI systems tend to underperform and produce inaccurate, biased, or misleading results.

Data readiness—or the process of transforming raw data into reliable, secure and accessible intelligence—is a foundational component of AI, and something all businesses require. Data readiness applies to all types of AI including traditional applications, generative AI, and machine learning. It will also play a key enabling role in the next wave of agentic AI applications set to reshape the market.

Deloitte further defines AI data readiness as “an organization’s preparedness in implementing strategies to help guide effective AI deployment by reasonably ensuring that its data is available, high quality, properly structured, and aligned with its AI use cases.”[9]

In this section, we’ll take a closer look at what data readiness is all about—including the top benefits, why it’s important, core components, and more.



Top Benefits of Data Readiness

Up until recently, being data-ready was a competitive advantage. In the AI era, it's an absolute necessity.

Businesses across all industries are using data to reshape traditional workflows, while shifting consumer behaviors are forcing companies to adapt. Companies that can successfully combine optimized, real-time insights with emerging AI technologies will have a much easier time making data-driven decisions and seizing new opportunities.

Here are some of the top benefits that come with being data-ready:

- Faster, more reliable analytics and decision-making.
- Reduced time spent on data wrangling.
- Cost savings through greater efficiency, less waste, and more automation.
- Better collaboration and data-sharing across departments.
- Improved customer experience (CX) through accurate, tailored customer interactions.

Did you know?

There are four types of analytics that AI can enhance, including descriptive, diagnostic, predictive, and prescriptive insights. By prioritizing data readiness, organizations can unlock stronger insights and become more data driven.

- **Descriptive** analytics examine datasets to identify patterns and summarize past performance.
- **Diagnostic** analytics look at historical data to determine the cause of past events.
- **Predictive** analytics leverage historical trends to forecast future outcomes.
- **Prescriptive** analytics go beyond prediction and use data-driven insights to recommend the best course of action.

The Impact of Poor Data on AI Initiatives



When it comes to AI, data quality matters above all else. Using low-quality data can lead to a range of issues, including:

- **Inaccurate insights:** Training models with weak data can lead to unreliable outputs. This can lead to poor decision-making, and erode end-user trust in AI systems.
- **Bias issues:** Low-quality or unvetted data can create biases – from algorithmic to historical to prejudice – leading to unwanted outcomes.
- **Degraded performance:** Poor data degrades AI model performance over time, and drives up maintenance costs.
- **Compliance risks**: Using non-compliant data can lead to data privacy violations and legal penalties.

Most IT buyers now understand they need access to high-quality data for AI. Salesforce's State of Data and Analytics Report revealed that 92% of IT and analytics leaders feel that the demand for trustworthy data has never been higher, and 86% agree that AI's outputs are only as good as its data inputs.[10]

Yet, data quality issues are still widespread. Oftentimes, companies lack the resources to implement and maintain strong data policies.

How Data Readiness Helps CIOs

CIOs and other key IT decision-makers are facing rising pressure to integrate AI and drive organizational transformation. However, they face numerous barriers like budget constraints, a widespread AI skills shortage, and competing organizational priorities—all of which threaten to slow innovation and delay ROI. Compounding these challenges, many CIOs are struggling with inefficient and unoptimized data environments. In a recent Salesforce study, 52% of CIOs cited untrustworthy data (poor accuracy, recency) among their top AI fears, along with security and privacy threats (57%).[11]

Data readiness is critical for overcoming these challenges and gaining a competitive advantage. By focusing on improving and aligning enterprise data, CIOs can unlock the full potential of AI systems and drive greater business value across different departments.



Core Components of Data Readiness

1. Data Governance

Data governance refers to the underlying policies and procedures that determine overall data readiness. Governance policies span a range of critical areas including identity access management, maintenance, and compliance protocols.

While most of executives claim to have clear AI governance frameworks in place, the majority still lack operational oversight. According to IBM's Institute for Business Value study, less than 25% have fully implemented and continuously review tools to manage risks like bias, transparency, and security.[12]

Core components of data governance:

- Policies
- Standards
- Regulatory & ethical considerations
- Confidentiality (encryption)
- Authentication
- Authorization



Regulatory Considerations

Unlike many countries, the U.S. lacks a single overarching data privacy law. However, several states have data privacy protections including California, Colorado, Texas, Utah, and others. In addition, there are various sector specific data privacy laws such as the Health Insurance Portability and Accountability Act (HIPAA), the Gramm-Leach-Bliley Act (GLBA), and the Family Educational Rights and Privacy Act (FERPA).

The European Union's General Data Protection Act (GDPR) safeguards the privacy and security of EU citizens and applies to all global organizations that do business with EU member states. And in 2024, the EU introduced the AI Act specifically to regulate how businesses use AI. The AI Act is currently rolling out in phases.

Altogether, more than 144 countries now have national data privacy laws which protect more than 6.5 billion people, or 82% of the world's population according to the International Association of Privacy Professionals.[13]

Ethical Considerations

Many businesses today are adopting AI at breakneck speed, without taking the time to consider ethical ramifications.

- **Fairness:** AI models must be trained and developed to avoid bias. This can be achieved by using fairness metrics and diverse datasets.
- **Accountability:** Audit trails and logs should be used to track AI decision making. In addition, AI systems should have built-in processes for human oversight and procedures for addressing errors.
- **Transparency:** A growing number of companies are using explainable AI (XAI) processes to understand the reasoning that goes into AI outputs and actions.
- **Privacy and consent management:** Companies must ensure that AI systems respect individual privacy rights. This includes limiting data collection and providing mechanisms for controlling data, as well as taking advanced measures to limit data leaks.

2. Data Quality

Enterprise data is often messy, and full of mistakes, duplicates, and inconsistencies. To ensure AI systems perform effectively, businesses must thoroughly clean and transform their data before putting it into production.

In a study from dbt Labs, a leading data integration software company, 57% of respondents rated data quality as one of the three most challenging aspects of data preparation. Data quality is now also the leading concern among data professionals.[14]

Core components of data quality:

- Cleaning
- De-duplication
- Accuracy
- Completeness
- Consistency
- Timeliness
- Validity



3. Data Accessibility

Employees must be able to easily discover and access data when working with AI. However, data is often heavily siloed and spread across multiple systems like customer relationship management (CRM) databases, enterprise resource planning (ERP) systems, and marketing automation platforms, making it difficult to discover and utilize.

For two-thirds of organizations, at least half of their data is “dark” or unused, resulting in untapped insights and wasted resources.[15]

Core components of data accessibility:

- Discoverability
- Availability
- Usability
- Interoperability



4. Scalability and Flexibility

Companies also need the right tools and architecture to handle increasing data velocity (the speed at which data is created and distributed) and volume, without sacrificing performance.

According to Boston Consulting Group, 74% of companies struggle to achieve and scale value from AI.[16] And it's worth noting that highly regulated industries like government and finance face greater challenges in scaling AI due to compliance, governance, and transparency standards. According to GDIT, a government IT solutions provider, 58% of government organizations identify scalability issues as the main barrier to moving small-scale AI pilots into full production.[17]



Core components for scalability and flexibility:

- Cloud computing
- AI Operations (AIOps) / ML Operations (MLOps)
- Data pipelines
- Containerization
- Serverless computing

Building AI Workflows and Data Pipelines

Before data flows into an AI model, it must first go through various stages of transformation. This process, called data pipelining, involves moving data from its source location to a destination such as a data warehouse or lake.

- **Data ingestion** involves collecting raw data from different sources.
- **Data cleansing** entails cleaning and preparing data for use.
- **Feature engineering** involves selecting and transforming features for machine learning models.

One reason why businesses often struggle with AI is because they lack a robust or unified system for moving data across the enterprise. As a result, valuable data often winds up going unused.

Data pipelining strategies to know about:

With data pipelining, companies have two main options:

- **Batch processing** is a technique for processing large volumes of data in scheduled batches.
- **Streaming processing** is a method for processing data where data is continuously collected from sources, processed, and analyzed in real-time or near real-time.

Companies can also define where and when data transformation happens within their pipelines through ETL, ELT, and ETLT strategies.

- **ETL (extract, transform, load)** involves extracting raw data from various sources, cleaning and enriching it in a staging area, and storing it in a target system like a data warehouse.
- **ELT (extract, load, transform)** entails pulling data from sources, loading it into a cloud-based storage environment or data lake, and transforming it later using cloud resources.
- ETLT (extract, transform, load, transform) uses a combination of ETL and ELT, by conducting light data transformation like masking or cleansing, loading data into a warehouse or lake, and then conducting complex transformations within a target system.

Infrastructure’s Role in Data Readiness

The Restaurant Analogy

Infrastructure plays a massive role in data readiness. In order to accommodate AI, businesses must have all of the necessary resources for processing, storing, and transmitting information.

To visualize the role of infrastructure with AI, think of a high-end restaurant.

Servers

Back-end systems (kitchen equipment & chefs) are responsible for preparing meals—just like AI workloads need powerful servers to process and analyze data efficiently. If the kitchen doesn't have enough power, orders take too long, and the restaurant can't keep up with demand.

Servers provide processing power for AI workloads, including data analysis, model training, and inference (or combining live data with trained AI models). When selecting servers to process data for AI, consider data volume, processing power, and memory needs.

Questions to consider:

- *What types of servers are you currently using?*
- *Are your current servers capable of handling AI workloads? How are they performing?*
- *How do you plan to scale your servers as your AI usage increases?*



The Restaurant Analogy (cont’d)

Storage

The **storage environment (pantry and refrigeration system)** ensures that ingredients (data) are kept fresh, organized, and easily accessible. Just as a restaurant must manage inventory for different types of food, businesses must choose the right mix of direct access storage, network storage, and cloud storage to ensure AI models have access to the right data when needed.

The amount of storage that a bausiness requires for AI depends on overall data volume, data types, and retention policies.

Questions to consider:

- *What types of AI workloads are you currently running?*
- *What types of storage systems are you currently using?*
- *Will you need to add more storage capacity soon?*

Networking

Networking (waitstaff & ordering system) is what connects everything together, making sure orders move seamlessly from the kitchen to the tables. Just like a restaurant needs a smooth, efficient waitstaff to avoid bottlenecks in food delivery, AI workloads require high-speed, low-latency networking to ensure real-time processing and seamless cloud integration.

AI workloads typically require a heavy amount of bandwidth, with minimal latency. For example, training a large deep learning model on a sizable dataset may require hundreds of GBs to several TBs.

Questions to consider:

- *Are your AI workloads at risk from bottlenecks or latency issues?*
- *Do your AI workloads connect to external cloud services?*
- *Is your network ready to accommodate future AI growth?*

The Restaurant Analogy (cont’d)

Location

Choosing **where to host AI workloads** is like deciding on the best location for a restaurant. Some prefer hosting AI workloads on-premises, which is similar to owning and running a private restaurant with full control. Others opt for colocation, which is like renting kitchen space in a shared facility. There is also managed hosting or outsourcing to a company that handles everything from ingredients to service.

On-premises: The customer fully owns and operates their own servers, storage and networking hardware within their own data center.

On-premises data centers are best for AI workloads that require heightened security and low-latency.

- Pros: Full control over hardware, security, uptime, and configurations.
- Cons: High capital expenditures (CAPEX) and ongoing operating expenditures (OPEX), and limited scalability. Also requires dedicated IT staff with AI expertise.

Colocation: The business rents space for computing hardware in a third-party facility. In this type of setup, the customer owns the hardware while the colocation provider manages power, cooling, bandwidth, and security needs.

- Pros: Potentially less OPEX, with easier scalability.
- Cons: Higher CAPEX, with less control over operational management.

Managed hosting: The business rents dedicated servers, storage space, and network hardware from providers.

- Pros: Fast, scalable, and compliant hardware with less IT overhead.
- Cons: Vendor lock-in, hidden fees, and less control over security.

Evolving Demands on Data Centers



In addition to hosting options, here are some other important elements to consider that influence AI infrastructure decisions:

- **Capacity and scalability:** Companies need to plan for rapidly growing data volumes, and high-performance computing requirements to ensure their infrastructure can scale effectively and meet evolving demands.
- **Networking and connectivity**: AI and real-time analytics require low-latency, high bandwidth connectivity.
- **Resilience and redundancy:** As AI becomes more integrated into operational workflows, businesses will require resilient and redundant infrastructure with full business continuity and disaster recovery.
- **Security by design:** Businesses need strong physical access controls, firewalls, and real-time intrusion detection to keep data safe from cyberthreats.
- **Power usage:** AI workloads consume a hefty amount of power. According to the latest data from Goldman Sachs, global power demand alone from data centers will increase 50% by 2027, and 165% by 2030.[18]

There is no one-size-fits-all approach to building the right AI infrastructure. Every business has unique needs based on data volume, processing power, security requirements, and scalability goals.

Cloud Readiness + Data Readiness: The Dynamic Duo

Cloud Readiness + Data Readiness: The Dynamic Duo

Data readiness is only part of the equation for AI success. Organizations must also be cloud-ready, with data, infrastructure, and applications that are optimized for use in a cloud environment.

By combining optimized, high-quality data pipelines with secure and scalable cloud environments, businesses can establish a strong foundation for sustainable, efficient AI deployments that scale and evolve over time.

Let’s take a closer look at the top cloud adoption drivers, the benefits of a cloud-ready data strategy, and how data readiness supports hybrid and multi-cloud environments.

Cloud Adoption Drivers for AI

- Scalability and flexibility to increase or decrease computing resources when training and deploying AI models.
- Cost-efficiency through pay-as-you-go pricing models.
- Easy access to specialized hardware and managed services.
- Security infrastructure and services like real-time monitoring, threat detection, encryption, and access control.

Benefits of a cloud-ready data strategy

Ultimately, businesses should strive to establish a cloud-ready data strategy where all data is organized, optimized, accessible, and ready for AI use. A cloud-ready data strategy provides the data foundation, infrastructure, and tools to build, train, deploy and manage AI models.

Having a cloud-ready data strategy puts businesses in a position to leverage the following cloud benefits:

- On-demand resources for data storage and processing.
- Built-in analytics, AI, and machine learning services.
- Simplified integration with third-party tools such as data pipelines and business intelligence (BI) dashboards.

Supporting Hybrid and Multi-Cloud Environments

A growing number of companies are using hybrid and multi-cloud strategies to enhance resilience and flexibility. According to the infrastructure delivery platform Spacelift, nearly 80% of companies now use multiple public clouds, while 60% use more than one private cloud. Meanwhile, 56% of companies with more than $500 million in revenue use a hybrid cloud strategy.[19]

Data readiness can open the door for safe and effective hybrid and multi-cloud environments, through the following ways:

- **Balancing on-prem and cloud:** Having a data ready environment can help reduce security, compliance, or performance concerns. Organizations can keep sensitive data on-prem, and use the cloud for advanced processing and analysis.
- **Avoiding vendor lock-in:** Data readiness ensures that data is usable, accessible and interoperable across different systems. Having a cloud-ready data environment enables companies to strategically move and integrate data across different cloud providers for specific tasks to optimize cost and performance.
- Orchestrating data across multiple clouds: By making data secure and accessible, companies can seamlessly leverage cloud services from different providers like Azure, AWS, and Google Cloud.



Conclusion

Achieving data readiness will lead to faster and stronger AI returns. Any organization can become data ready, regardless of where you are in your AI journey. But it can be overwhelming to navigate a dizzying array of decisions related to data, ranging from security and privacy to data storage to cloud infrastructure. Where to start? **Quantitel** can help.

Book a meeting with Quantitel to map out your data readiness roadmap.

Book a Meeting

About Quantitel

Quantitel is a vendor-agnostic technology services broker for contact centres, AI virtual agents, business phone systems (UCaaS), cybersecurity and managed IT across Canada.

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