From Data Confusion to AI Confidence

Data is the foundation of trustworthy AI

AI PULSE SURVEY — VOL 2

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Global Business Consulting

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Executive summary

One truth remains constant in the fast-changing age of AI: data is both the fuel AND the friction.

In this latest edition of our AI Pulse Survey series, we explore the state of data quality and readiness to support AI efforts, uncovering both encouraging advancements and persistent challenges.

For instance, the survey reveals the value of having confidence in data. It shows that:

- Respondents who are "very confident" or "confident" are more likely to report that AI investments have significantly exceeded their return on investment (ROI) expectations.
- Conversely, those respondents who are "not confident" or only "somewhat confident" in the quality of their data are more likely to report that their return on AI investments falls below their expectations.

This highlights the need to strengthen the foundations of data confidence. Issues like bias and misinterpretation can erode trust in AI — making strong data governance essential.[1] Data governance — including data integration, preparation of data for AI models and training people to use data responsibly — is a key lever for advancing AI maturity and maximising ROI.

As organisations advance along the AI maturity continuum (see the following page), the nature of their data challenges shifts — though some issues remain of concern. For those at more advanced stages, issues related to data reliability, completeness and accessibility persist — often stemming from unclear definitions, inconsistent taxonomies and fragmented aggregation (i.e., data that isn't explicitly defined or classified, or is inferred in ways that can lead to confusion or errors). While respondents at the higher end of AI maturity did not rank these issues as their top concerns, challenges like siloed data and integration difficulties — first identified in our inaugural AI Pulse Survey — continue to impact organisations across all levels of maturity.[2]

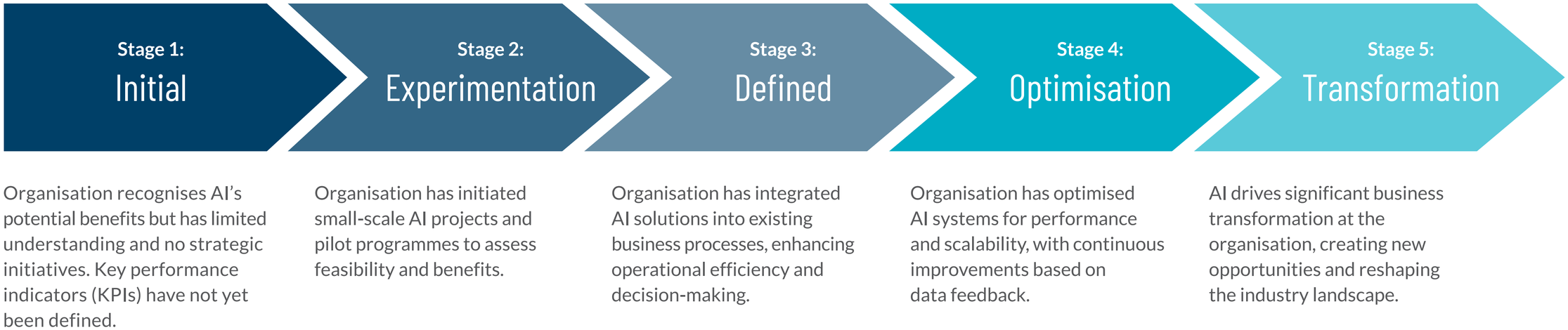
> "AI doesn't exceed expectations by accident — it does so on the foundation of trusted data.
>
> *Peter Mottram*
> *Enterprise Data and Analytics Global Leader*
> *AI Leader*
> *Protiviti*

[1] Data governance is the framework of policies, processes and roles that helps ensure data is accurate, consistent, secure and used responsibly — supporting high data quality and compliance across an organisation.

[2] *From Exploration to Transformation: What AI Success Looks Like,* AI Pulse Survey, Vol. 1, 2025, Protiviti: www.protiviti.com/us-en/survey/ai-pulse.

Respondents indicated that their organisations — particularly those at more advanced stages of AI maturity — are taking proactive steps to address data challenges through training, auditing and transparency-enhancing solutions. These include implementing data standards, data lineage tools, high-quality dashboards and metadata management services. Such measures are foundational to building a robust data governance framework and mitigating risks associated with poor data quality. When left unchecked, low-quality data can introduce or amplify bias in several ways — including inaccurate labelling, outdated information, imbalanced outcomes and ambiguous interpretation of inputs.

Figure 1: Stages of maturity: where companies are in their AI journey



Not all data is trusted equally: why confidence varies by role

Role-based perspectives reveal striking differences in how much people trust the data they work with. IT professionals report the highest levels of confidence — unsurprising, given their proximity to the raw data and their role in curating, cleansing and validating it. C-suite leaders also express strong confidence, likely because they interact with polished, decision-ready insights that have already passed through multiple layers of refinement.

Respondents from business functions like sales and customer service report more varied or lower confidence levels. They often encounter data in its raw or less processed form. These teams are closer to the "data trenches," where inconsistencies, gaps and quality issues are more visible.

This pattern suggests a clear relationship: the more curated and validated the data, the higher the confidence in its reliability. Conversely, roles that interact closely with raw or unrefined data — but aren't directly involved in its validation — tend to express greater scepticism, likely due to their exposure to inconsistencies before the data is fully processed.

Mature AI organisations tend to progress along parallel tracks, making steady — and sometimes simultaneous — gains in both AI adoption and confidence in their data. The journey from data confusion to AI confidence is not linear. However, with the right foundations in place, including robust governance, cross-functional alignment and a culture of data literacy, organisations can unlock the full potential of AI to drive meaningful, measurable outcomes.

> Investments in data quality must reach front-end systems — where trust is often weakest. Strengthening these entry points may be the best opportunity to build lasting confidence from the ground up.

Matt McGivern
Enterprise Data, Analytics and AI
Protiviti

Notable findings

01

Progress with AI closely correlates with the quality and management of data. Early-stage AI adoption often begins with not-fit-for-purpose, incomplete or imperfect datasets, which are refined over time through iterative processes. As organisations mature, their data practices become more structured and intentional.

At stage 5 of AI maturity:

- 74% of organisations conduct regular data audits — more than double the rate at stage 1 (36%).
- 57% have implemented robust data management policies and standards, compared with 24% at the starting point.

02

Organisations with strong data confidence consistently report higher satisfaction with their AI ROI. Confidence in data quality and accessibility is more than a technical metric — it's a powerful indicator of AI ROI. Among organisations in which returns on AI investments have significantly exceeded expectations, nearly all (97%) are confident in their ability to obtain, organise and understand the data required to support their AI goals. Similarly, government-wide efforts on improving data quality play a significant role in advancing trust.

03

Bias is likely there — recognising it is the real challenge. AI bias (specifically, skewed AI outputs — unintended or unfair — caused by flaws in data, model design or training) is probably present because it stems from the inherent imperfections in data, design and human decision-making.

Both early- and advanced-stage organisations report low levels of perceived data bias, but this may be for very different reasons. 30% of stage 1 respondents say they never encounter bias. This may reflect a lack of awareness, tools or expertise to detect bias rather than its actual absence. A similar percentage (28%) of stage 5 organisations also report seeing no bias. Their low-bias perception is more likely the result of proactive mitigation rather than gaps in awareness.

04

Barriers to trust: security restrictions and tech gaps are top data challenges. Security and compliance-related data challenges persist across all stages of AI adoption — and they peak at stage 5, where 59% of organisations cite them as a top concern. Close behind concerns about security and compliance-related data challenges are technology-related issues, with 51% of stage 4 organisations identifying tech limitations as a major barrier.

05

Data governance is the backbone of scalable AI. Strong data governance isn't just a best practice — it's a foundational requirement for scaling AI responsibly. However, even among organisations further along in their AI journey, 57% still identify inadequate data governance as a significant data challenge.

Confidence in data: a maturity marker

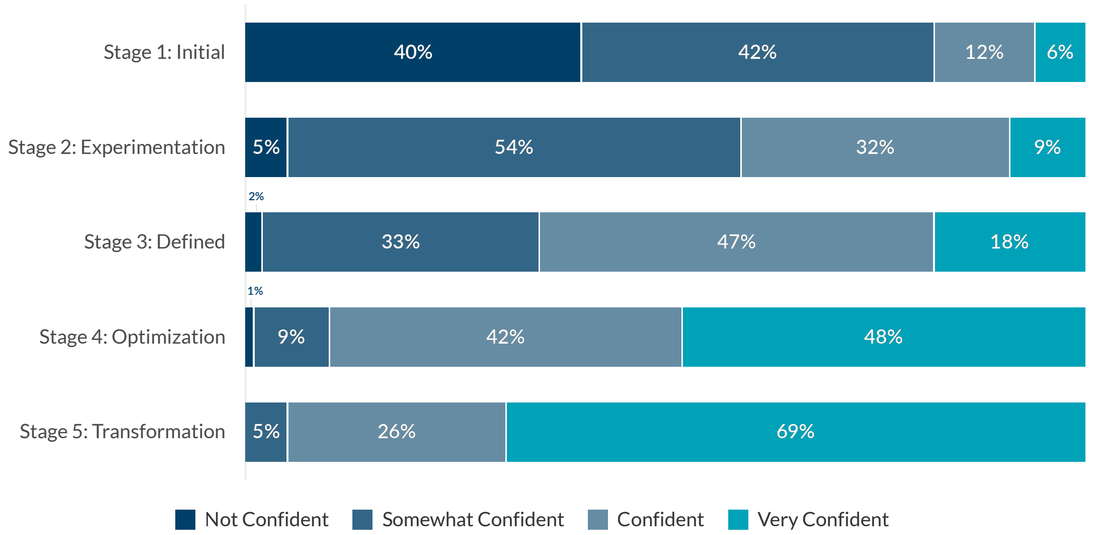
How confident are you in your team's or organisation's ability to obtain, organise and understand the data required to support your AI goals?

Correlation of data confidence to AI maturity stages

As organisations gain confidence in their data, they become better equipped to advance along the AI maturity curve. Simply put, they can't build AI maturity without first achieving data maturity. The ability to trust, access and manage data effectively is what enables organisations to scale AI with confidence. Data maturity isn't just a supporting factor — it's a foundational enabler of AI success.

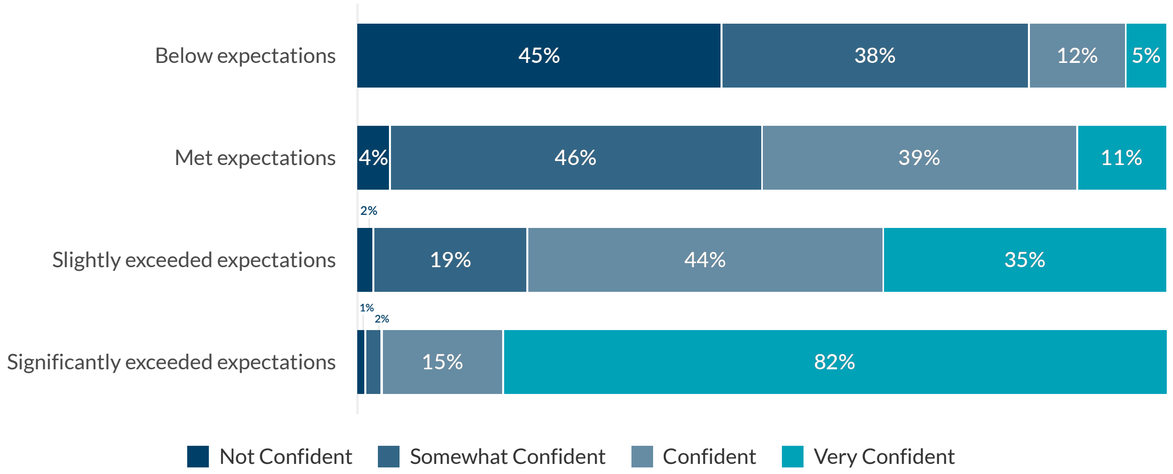
Nearly 70% of stage 5 organisations are very confident in their ability to obtain, organise and understand the data required to support their AI goals, versus less than 10% of organisations in the initial or experimentation stages.

Figure 2: Confidence in data by AI maturity



Data confidence is a key driver of ROI satisfaction

Figure 3: Confidence in data by AI ROI satisfaction



Organisations that report high confidence in their data capabilities are significantly more likely to say their AI investments have exceeded expectations.

Higher confidence, higher ROI

Confidence in data capabilities and ROI satisfaction tend to progress in parallel. Organisations that report high confidence in their data capabilities are significantly more likely to say their AI investments have exceeded expectations. In contrast, those with lower confidence typically report outcomes that merely meet or fall short of expectations.

This underscores the importance of addressing the underlying factors that shape data confidence. Awareness of issues like data bias and misinterpretation can erode trust in AI outputs — and this is where strong data governance becomes essential. Governance, paired with data engineering, analytics and training people to use data responsibly, is a key lever for advancing AI maturity and ROI — especially when analytics focus on data quality, model performance and usage insights. Notably, the more mature an organisation's data capabilities, the better positioned it is to integrate AI-generated outputs into broader data ecosystems — optimising their value by placing them in the right context and translating them into meaningful, actionable insights.

As organisations progress through the AI maturity stages, the impact of data confidence becomes more pronounced and expectations on ROI rise.

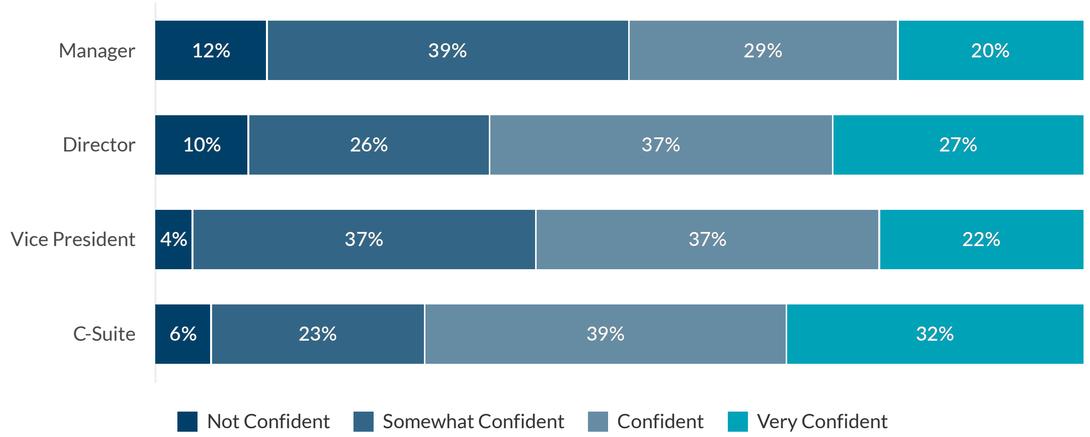
For instance, at stage 2, when organisations begin piloting AI projects, data confidence levels start to improve, and there's a noticeable shift toward slightly exceeded expectations among those who are confident or very confident in their data. As the trust in data artifacts increases, the propensity to leverage it also gathers momentum.

At stage 5, organisations are very confident in their data capabilities and overwhelmingly report "significantly exceeded expectations" regarding returns on their AI investments. This demonstrates that when data is well managed, organisations can unlock transformative value from AI. This is also a direct result of organisations trusting AI to drive higher-impact initiatives.

71% of C-suite executives report confidence in their organisation's data capabilities supporting AI initiatives.

Data confidence varies by organisational role and country

Figure 4: Data confidence by job role



Confidence in data capabilities varies across organisational roles, reflecting differing levels of involvement and perspective:

- **Managers and directors**
  - The findings are mixed, with many respondents expressing moderate to high confidence, but there is also some uncertainty about data — especially among groups likely to deal with semiprocessed or less-validated data.
- **Vice presidents**
  - Respondents are generally leaning toward higher confidence, though not as strongly as those in C-suite roles.
- **C-suite executives (e.g., CEOs, CTOs, CIOs)**
  - Respondents tend to report higher confidence in data capabilities — possibly because data has been through multiple validations prior to consumption at the C-suite level.

Geographic differences in data confidence highlight how local factors — such as governmental focus on data, talent availability and tech adoption — shape organisational perspectives:

- **India**
  - Respondents report the highest confidence in data.
  - For the last decade, India has been focused on shifting from simply scaling data systems to prioritising data quality and precision nationally. This cultural and operational shift is helping organisations treat data as a strategic asset, not just a technical resource.[3]
- **Hong Kong**
  - Data confidence is second only to India for the survey respondents.
  - Hong Kong has emphasised data quality as a linchpin of its fintech strategy and has implemented a comprehensive data quality framework.[4]
- **United States**
  - Data confidence was among the lowest for respondents.
  - There is no national standard apart from the Federal Data Strategy, which applies only to the government itself.[5]

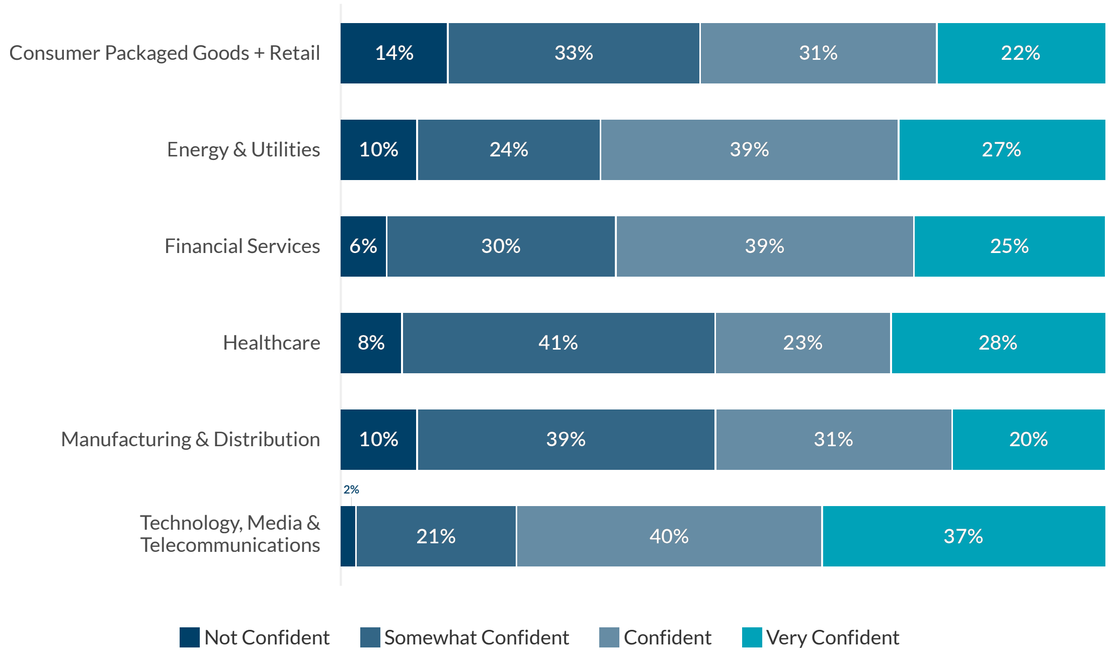
[3] "India's Data Imperative, The Pivot Towards Quality," NITI Aayog, June 2025: www.niti.gov.in/sites/default/files/2025-06/FTH-Quaterly-Insight-june.pdf.

[4] Hong Kong Monetary Authority — Opening Remarks at FiNETech6 on "Data Excellence, Cyber Resilience: The Dual Imperatives Driving Fintech Maturity," Hong Kong Monetary Authority, July 16, 2025: www.hkma.gov.hk/eng/news-and-media/speeches/2025/07/20250716-1.

[5] Federal Data Strategy: Leveraging Data as a Strategic Asset, U.S. Office of Management and Budget: strategy.data.gov.

Comparing industry views on data confidence

Figure 5: Data confidence by industry



77% of organisations in the technology sector report confidence in managing AI data — and with good reason, for a strong culture of innovation, early AI adoption, streamlined digital infrastructure and fewer regulatory hurdles give them a competitive edge.

From an industry perspective, technology companies and financial services organisations report higher confidence levels in data supporting their AI initiatives, compared with those in manufacturing and distribution, and retail and consumer packaged goods (CPG), which show more mixed or lower confidence.

Technology

Organisations in the technology sector report the highest levels of confidence in their ability to manage data for AI — and for good reason. A strong culture of innovation and early AI adoption — along with easy access to digital infrastructure and fewer regulatory barriers — gives this sector a distinct competitive edge over others. Tech companies often benefit from mature data governance frameworks, access to skilled data professionals and fewer legacy systems, the last of which means they face less of the "classical" tech debt that can lead to data quality issues. In short, they not only have the tools — they also have the talent to deliver.

Financial services

The financial services industry shows a wide range of confidence levels when it comes to managing data for AI. While many organisations report being "very confident" or "confident," a notable share fall into the "somewhat confident" or "not confident" categories.

This variability is especially significant in a sector where trust is foundational. Even minor data issues can lead to serious consequences — from reputational damage to regulatory penalties and loss of client confidence — making strong data management a core business priority.

One contributing factor to this uneven confidence is the industry's long history of growth through acquisitions. While mergers and acquisitions (M&A) activity can drive scale and innovation, it often introduces fragmented systems, inconsistent data standards and legacy infrastructure — all of which can undermine data quality and trust.

Moreover, traditional banks and financial institutions often face greater challenges in AI adoption compared with fintech companies. This gap is driven by factors such as stricter regulatory oversight, reliance on legacy systems, more conservative customer bases and risk-averse organisational cultures. These constraints often limit their confidence in leveraging data for advanced AI applications.

Manufacturing and distribution

Respondents from manufacturing and distribution sectors exhibit moderate confidence in their data capabilities. Most responses fall into the "somewhat confident" category, with fewer indicating high confidence. These industries often struggle with fragmented data systems, operational silos and slower digital transformation. While some manufacturers are investing in smart factories and predictive analytics, many are still in the early stages of AI adoption, which affects their overall confidence.[6]

Retail and consumer packaged goods

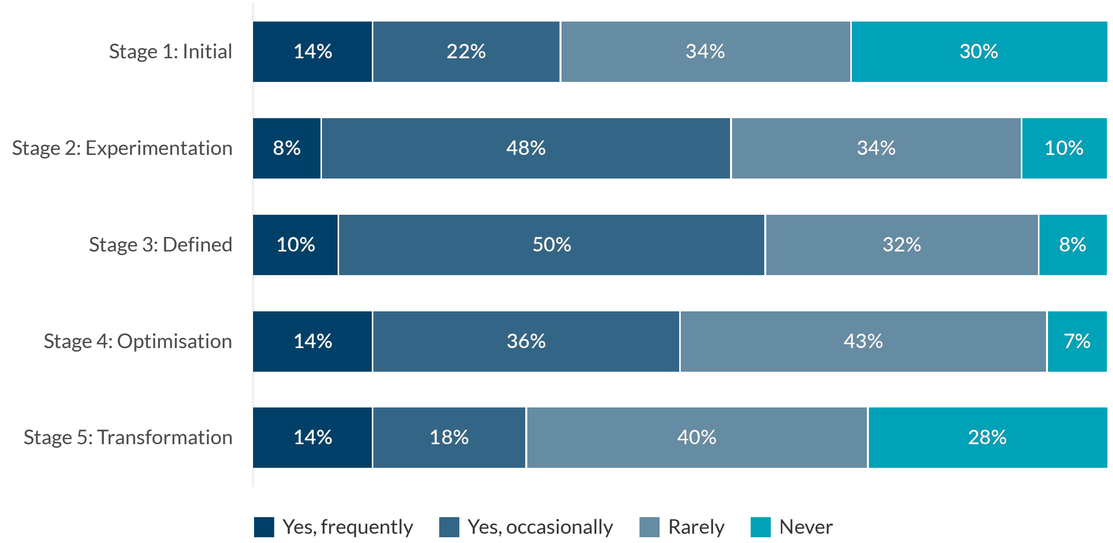
Confidence levels are mixed. A fair number of organisations report being "confident," but a substantial portion also fall into the "somewhat confident" category. This may reflect the challenges of managing large volumes of customer and supply chain data across multiple channels. While leading retailers are leveraging AI for personalisation and demand forecasting, others may be hindered by legacy systems and inconsistent data quality.

[6] "The 'Productivity Paradox' of AI Adoption in Manufacturing Firms," by Kristin Burnham, MIT Sloan School of Management, July 9, 2025: mitsloan.mit.edu/ideas-made-to-matter/productivity-paradox-ai-adoption-manufacturing-firms.

Data bias and unexpected results

Have you encountered unexpected results, such as inaccurate information, bias and misinterpretation, in the output(s) from your AI system?

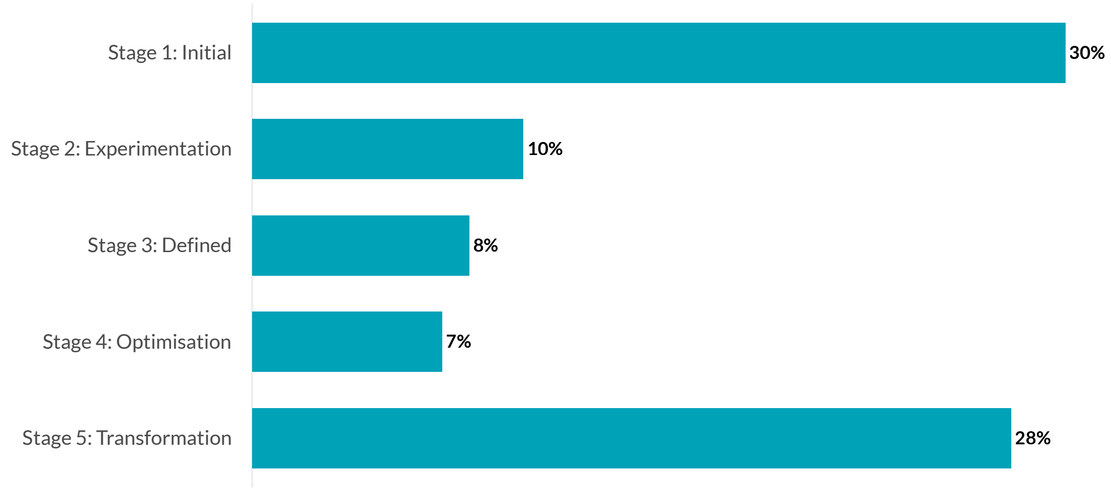
Figure 6: Perceived data bias by AI maturity



Bias is likely present, but its recognition — and mitigation — depends heavily on an organisation's data literacy and maturity. As organisations advance in AI maturity, they develop the tools, frameworks and cultural awareness needed to identify, understand and reduce bias more effectively. This includes not only improving the quality and governance of the data going into models but also better managing the outputs — ensuring that AI-generated insights are monitored, validated and interpreted responsibly.

Notably, less than one in three stage 5 organisations (32%) see inaccurate or biased results in AI outputs at least occasionally, which is less than companies at any other AI maturity stage.

Figure 7: Respondents by AI maturity who report never seeing data bias



View by maturity stages

Both stage 1 and stage 5 organisations report fewer bias issues than other stages (see Figure 7 at left), possibly due to their distinct positions on the opposite ends of the AI maturity continuum.

- **Stage 1:** The 30% who report never seeing bias in their data may not be operating in bias-free environments — rather, they may lack the tools or expertise to detect it. Alternatively, their use cases might be relatively simple, or not relevant to the creation of artifacts that introduce bias, making bias less likely to surface. Notably, by stage 2, only 10% of respondents say that they never see bias.
- **Stage 5:** Similarly, 28% at this advanced stage report never encountering data bias — possibly a reflection of the stronger controls that AI-mature organisations have in place to detect and address bias before it becomes an issue.

Data challenges: hurdles to optimisation

Table 1: *What are the main challenges your team or organisation faces in ensuring data is reliable, complete and/or accessible?*

	Stage 1: Initial	Stage 2: Experimentation	Stage 3: Defined	Stage 4: Optimisation	Stage 5: Transformation
Inadequate resources and lack of training	51%	48%	39%	33%	33%
Technology issues and limitations	43%	49%	50%	51%	47%
Compliance or security restrictions (including IT security)	41%	54%	56%	53%	59%
Knowing what types of data exist and/or interpreting context or meaning	37%	40%	43%	45%	36%
Lack of proper data governance	27%	31%	31%	26%	31%
Data is isolated, hard to find or complicated to connect	24%	27%	32%	33%	29%
Other	5%	2%	2%	2%	2%

1st highest for maturity stage 2nd highest for maturity stage 3rd highest for maturity stage

Technology-related issues and limitations are a key data challenge across all AI maturity stages, with 51% of stage 4 organisations citing this as a major barrier.

Key data-related challenges based on AI maturity stages are:

- **Stage 1:** Inadequate resources and lack of training are the most significant data challenges for organisations at this early stage. This may reflect foundational gaps in data or AI capability literacy and availability of requisite infrastructure.
- **Stages 4–5:** As organisations progress in their data maturity journey, compliance and security restrictions emerge as the primary challenges. This shift reflects a deeper understanding of data — organisations at these stages actually know their data, including its composition, sensitivity and potential risks. They may be engaging in more sophisticated use cases that involve real customer data — far beyond simpler applications like using a RAG (retrieval-augmented generation) model to power a policy chatbot. In contrast, earlier-stage organisations may not yet recognise these risks simply because they lack visibility into their data landscape.

  At the same time, challenges related to resource and training gaps drop from 51% at stage 1 to just 33% by stages 4 and 5.
- **All stages:** Security concerns are a persistent issue across all maturity levels — underscoring the need for robust, scalable data governance and security frameworks.

  Technology-related issues and limitations are another key data challenge across all AI maturity stages, with 51% of stage 4 organisations citing this as a major barrier. These shortcomings show the growing strain on infrastructure to support advanced AI use cases — and highlight a critical gap between ambition and technical readiness. Bridging this gap requires not only stronger systems, but also people with the technical skills to build, scale and sustain AI solutions.

Table 2: *What measures does your team or organisation currently employ to ensure data is reliable and complete?**

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Teams are regularly trained on data management best practices	37%	54%	51%	60%	69%
Data inputs/outputs are regularly audited and monitored to detect anomalies	36%	49%	47%	46%	74%
Users have a method to report data issues	34%	38%	42%	43%	41%
Robust data management policies and standards have been established	24%	35%	44%	48%	57%
We rely on syndicated data purchased from trusted sources and/or third-party data risk management	19%	16%	28%	32%	38%
Automated validation checks to ensure data integrity during collection and entry	18%	33%	44%	56%	69%
Transparency tools provide insights into how AI models process data	14%	32%	43%	45%	67%

1st highest for maturity stage 2nd highest for maturity stage 3rd highest for maturity stage

*Note: "Other" responses are not shown.

Organisations are adopting a range of practices to ensure data reliability and completeness — most notably through training, auditing and data transparency solutions.

- **Training in data management:** Adoption increases significantly from stage 1 to stage 5, reflecting growing organisational investment in data literacy and best practices.
- **Auditing and monitoring:** Regular data audits are a hallmark of mature organisations, with 74% of stage 5 respondents reporting consistent auditing practices.
- **Use of data transparency solutions:** The use of tools that enhance data transparency grows steadily with AI maturity, while stage 1 organisations lag considerably in adoption.

A key differentiator is that regular data audits are a hallmark of stage 5 organisations, with 74% auditing and monitoring data inputs and outputs regularly to detect anomalies, versus less than half of all other organisations.

Avoiding the perfect data trap: five key reminders for AI success

When it comes to launching AI initiatives, waiting for perfect data can be a major roadblock. The truth? Progress starts with imperfection.

Here are five reminders to help your team move forward confidently — even when the data isn't flawless:

1. ***Progress beats perfection:*** Don't let the pursuit of perfect data stall your momentum. Start with what you have — AI can actually help improve data quality over time. Many organisations are seeing success by adopting a medallion architecture (bronze, silver, gold), which allows them to refine data quality incrementally while still delivering value at every stage.
2. ***Imperfect data still holds value:*** Even messy or incomplete data can uncover patterns, inform decisions and support early AI use cases.
3. ***AI can improve data:*** AI can help detect inconsistencies, identify and fill in gaps, and enhance data quality — making AI part of the solution as well as the goal.
4. ***Learning happens in motion:*** Early experimentation builds internal knowledge, reveals hidden data issues and accelerates team maturity.
5. ***Governance grows with use:*** Real-world use cases help shape practical data policies and governance frameworks — not the other way around.

The bottom line? Don't let the pursuit of perfect data delay your AI journey. Embrace imperfection as a starting point — because the real breakthroughs happen when teams take action, learn in real time and let AI evolve alongside their data. Progress isn't about waiting — it's about moving forward, smartly and boldly.

> Don't wait for perfect data — progress begins where perfection ends.

Peter Mottram is the global leader of Protiviti's Enterprise Data and Analytics practice and a leader of its AI practice. Peter is a recognised leader in cognitive decision sciences and data, supporting clients across a wide range of industries.

Data confidence is a capability: a call to action

As organisations strive to become more data-driven, building data confidence is not just a goal — it's a capability that must be developed intentionally. Here's how organisations at different maturity stages can take action:

For early-stage organisations: lay the foundation

- **Address the disconnect:** Many report offering training, yet teams still feel underresourced and underprepared. This signals a gap between training availability and training effectiveness.
- **Move beyond default training:** While training is a common first step, it's often reactive and insufficient without broader governance structures in place.
- **Establish clear guidelines and controls:** Early-stage organisations need well-defined data policies, roles and access controls to build trust from the ground up.
- **Prioritise data literacy:** Foundational data literacy programmes are essential before scaling advanced AI technologies.
- **Establish a data maturity baseline:** A simple framework — such as DAMA-DMBOK® (Data Management Body of Knowledge) or DMMM (Data Management Maturity Model) — can assess current capabilities across data governance, quality and infrastructure — and help prioritise improvements over time.

For mature organisations: shift from reactive to proactive

- **Automate and validate:** As AI maturity increases, organisations evolve from manual issue reporting to automated data quality checks and preventive controls.
- **Invest in data transparency solutions:** Tools that provide data lineage, usage visibility and quality metrics help teams understand and trust the data they use.
- **Strengthen data governance programmes:** Mature organisations embed data governance into daily workflows, ensuring data is managed consistently across the enterprise.

The role of AI in building confidence

- **Use AI as an enabler of data literacy:** AI can help make data more accessible, interpretable and actionable, especially for nontechnical users.
- **Start with trustworthy data:** High-quality data, strong governance and a data-literate workforce are prerequisites for effective and ethical AI deployment.

Survey demographics and methodology

Protiviti launched its AI Pulse Survey programme this year to gather insights from a broad range of leaders and professionals into how their organisations are currently using or preparing to use AI, where they see growth opportunities, and how they are addressing related challenges.

This survey was conducted in May-June 2025. More than 870 participants (n=878) completed our questionnaire, including more than 140 board members and C-suite executives as well as vice presidents and director- and manager-level professionals.

Among the notable highlights in the demographics of the survey:

- Responses were gathered from a diverse range of industries, led by the technology (13%), financial services (9%) and manufacturing (9%) sectors.
- Geographically, respondents were split evenly between North America and other regions. The largest single countries represented include the United States, with 42% of respondents, followed by the United Kingdom and India (11% from each country), Canada (7%), and Australia (7%).
- There is broad representation among organisation functions, led by IT (29%), operations (21%), finance and accounting (10%), and human resources (8%).

About Protiviti

Protiviti (www.protiviti.com) is a global consulting firm that delivers deep expertise, objective insights, a tailored approach and unparalleled collaboration to help leaders confidently face the future. Protiviti and its independent and locally owned member firms provide clients with consulting and managed solutions in finance, technology, operations, data, digital, legal, HR, risk and internal audit through a network of more than 90 offices in over 25 countries.

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AI capabilities: AI stands at the forefront of innovation and is revolutionising the way businesses operate and compete. AI is critical to define the trajectory of future growth and value. The opportunity is vast, and balance is key to the strategic and responsible use of AI.

We deliver cutting-edge AI solutions, helping you leverage existing AI technologies or build custom solutions for your enterprise. We also have our own proprietary AI platform that our teams employ to deliver value faster and that can be used as accelerators and enablers for your organisation. Our unique approach leverages your existing data and technology landscape to help you make the most from your investment.

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