TDWI Snapshot Series

2024 State of AI Readiness

By Fern Halper, Ph.D.

TDWI's research examines the current state of AI, how ready organizations are to implement it, and key areas critical for success

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Research Methodology

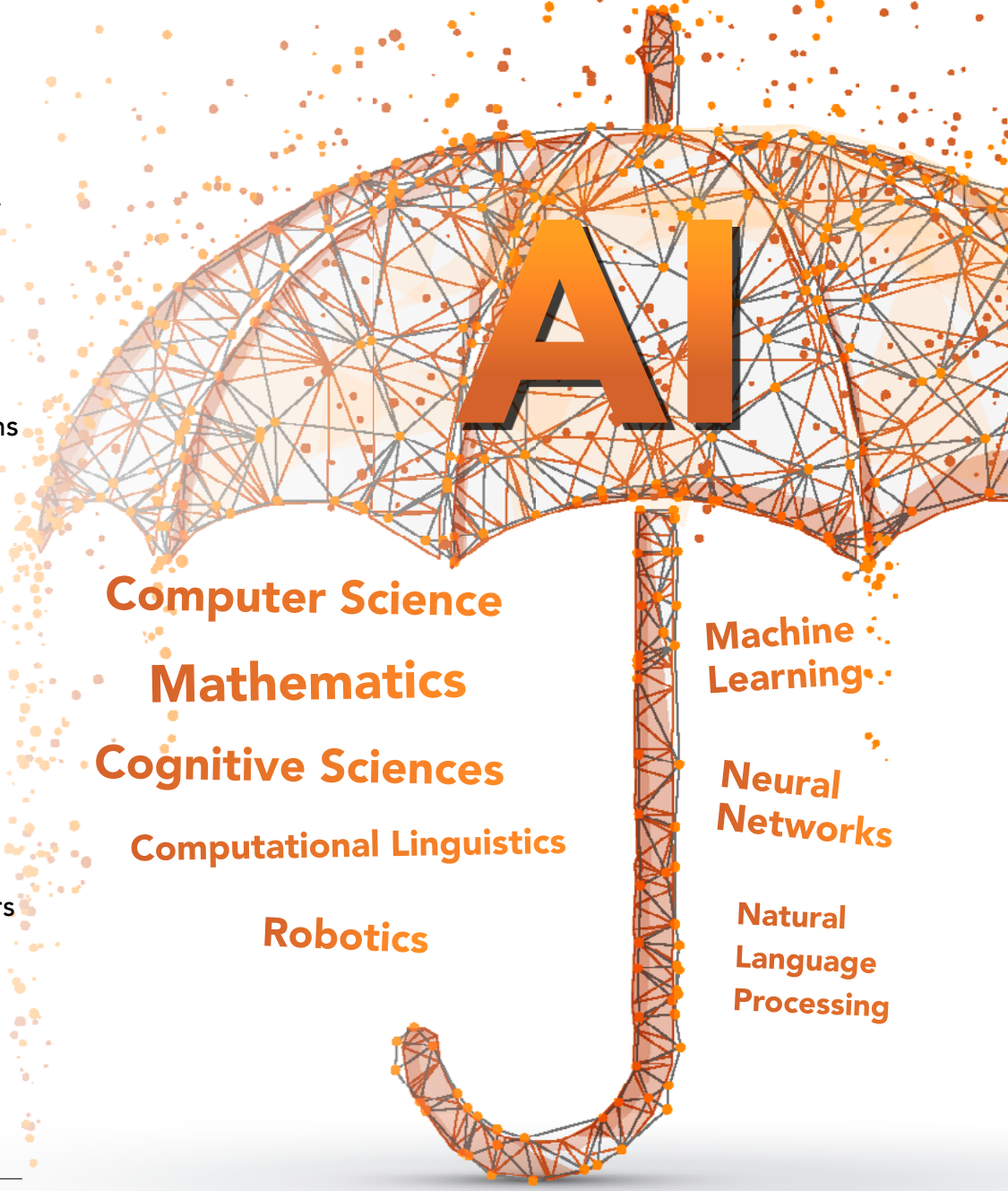
This State of AI Readiness Report examines the current state of AI and how ready organizations are to implement it. It highlights key areas critical for AI success: organizational readiness, data readiness, skills and tools readiness, operational readiness, and governance readiness. It examines challenges organizations are facing in getting ready for AI. Additionally, it provides considerations and best practices for moving forward with AI.

For this study, TDWI examined several surveys and assessments that we run throughout the year. Data from this report comes primarily from the 2024 TDWI AI Readiness Assessment. Over 100 respondents from various industries and company sizes have participated in the assessment to date, and 113 completed responses are reflected in the figures in this report. Additionally, data from over 250 respondents to the 2024 TDWI Data and Analytics Survey is used in this report.

The Scope and Importance of AI

From a technological standpoint, AI is an umbrella term encompassing a myriad of methodologies and techniques. It leverages advances in mathematics, computer science, computational linguistics, cognitive sciences, and robotics, among others. Popular AI technologies include machine learning, natural language processing, and neural networks, which collectively drive the intelligent capabilities of modern AI systems. TDWI sees organizations building AI models to predict churn and other customer behavior, identify fraud, determine when maintenance will be needed, recommend products, and predict disease, among other use cases. From a societal perspective, AI—particularly generative AI—has the potential to transform industries, enhance decision-making, and solve complex problems, making it an important force in the ongoing digital revolution.

Practically speaking, AI can provide tangible benefits such as deeper insights, increased productivity, improved customer service, and greater operational efficiencies that drive cost savings and stronger top-line growth that delivers larger profits. In TDWI research, for instance, we see that organizations implementing more sophisticated analytics such as AI are more likely to derive top- or bottom-line benefits from their analytics efforts than others.[1] In other words, there is real, tangible value from AI.



[1] See 2023 *TDWI Best Practices Report: Achieving Success with Modern Analytics*, online at tdwi.org/bpreports.

To achieve the benefits from AI, organizations need to understand the problems they want to solve and have a solid data foundation that supports high volumes of diverse data. They will need to have organizational support and a culture that champions AI. This includes the skills and training to make AI a reality. Enterprises will need operational models and teams in place to deploy AI into production and ensure that those models stay current. They will need to govern AI to ensure it meets compliance, quality, and ethical concerns.

With the advent of generative AI, more organizations are feeling the pressure to put an AI program to work in their company. Without the necessary foundations, success will be difficult. Executive backing for the move is necessary but it's not enough; organizations must be ready for AI with the considerations already mentioned. For these reasons, TDWI developed the AI Readiness Assessment so organizations could see just how prepared they are to start an AI journey.

The Overall State of AI Readiness

There are numerous interrelated factors that form the current state of AI readiness. Readiness is not simply a matter of trying out AI solutions or building a predictive analytics model. AI readiness involves people, processes, and technologies. In the 2024 TDWI AI Readiness Assessment we measured five key dimensions of enterprise fitness and readiness to use AI operationally: organizational readiness, data readiness, skills readiness, operational readiness, and governance readiness.

The overall median score for all enterprises responding to the 2024 assessment was 62 out of 100, which puts respondents at the Standardizing stage of readiness. (Figure 1). Likewise, for all respondents, each dimension scored an average that put it in the Standardizing stage.

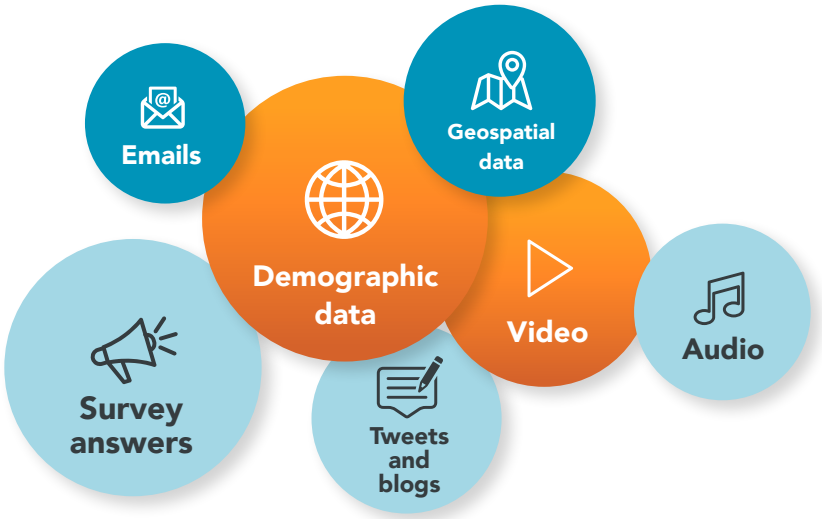
Figure 1. *The stages of AI readiness and participants' average scores for each dimension.*

During the Standardizing stage, the company is in the process of putting a strategy in place for AI. This may include some preliminary use cases an organization is looking to put in place. They may already be building proofs of concept. Leadership is typically on board with AI and understands the impact it can have on the business, although it may not understand what it takes to implement AI. That also means that leadership may not yet be committed to investing the necessary resources for AI development, including technology, talent, and training.

In this stage, an organization is typically collecting more than just structured data, although it may not be analyzing it yet. This may include emails, call interaction notes, freeform text in survey answers, social media data (blogs, tweets), machine-generated data, geospatial data, real-time event data, audio, video, weblogs, clickstreams, scientific data, and demographic data. They are working to make this data easily accessible. They typically utilize a range of data platforms including a data warehouse or data lake, both on premises and in the cloud, to manage this diverse data. These platforms can support building predictive analytics and machine learning models against structured data. Enterprises are trying to implement an architecture to support data growth.

An organization at this stage is typically starting to build predictive models and may have a few data scientists in place. They realize that there are other skills that are needed too, such as data engineers and operations to build pipelines and put models into production. They

In this stage, an organization is typically collecting more than just structured data, which can include:



may or may not be beginning to hire this kind of talent. Typically, an organization is only starting to think about AI governance or operationalizing AI.

TDWI has seen similar results in other surveys. For instance, in our yearly data and analytics survey we see that organizations are moving towards predictive analytics and machine learning. Their top priorities are to put a data infrastructure in place to support these modern analytics and to govern this environment effectively.[2]

The following sections drill into each of the AI Readiness dimensions in more detail.

[2] Unpublished 2024 TDWI survey.

The State of Organizational Readiness for AI

Organizational commitment is critical for moving forward with AI. Organizational readiness scored the highest marks in the assessment. This includes leadership commitment. At TDWI we see that although executives and others may appreciate the value of AI, that doesn't necessarily mean they will provide the help needed to build a data strategy, work on a culture to support it, fund it, or communicate the effort. For instance, in the AI Readiness Assessment, although many organizations are working on an AI strategy, only about 30% have one in place and are executing on it or are currently in the process of building it out now (Figure 2). Over 35% are in the process of *thinking* about the strategy. Other TDWI research found similar results.

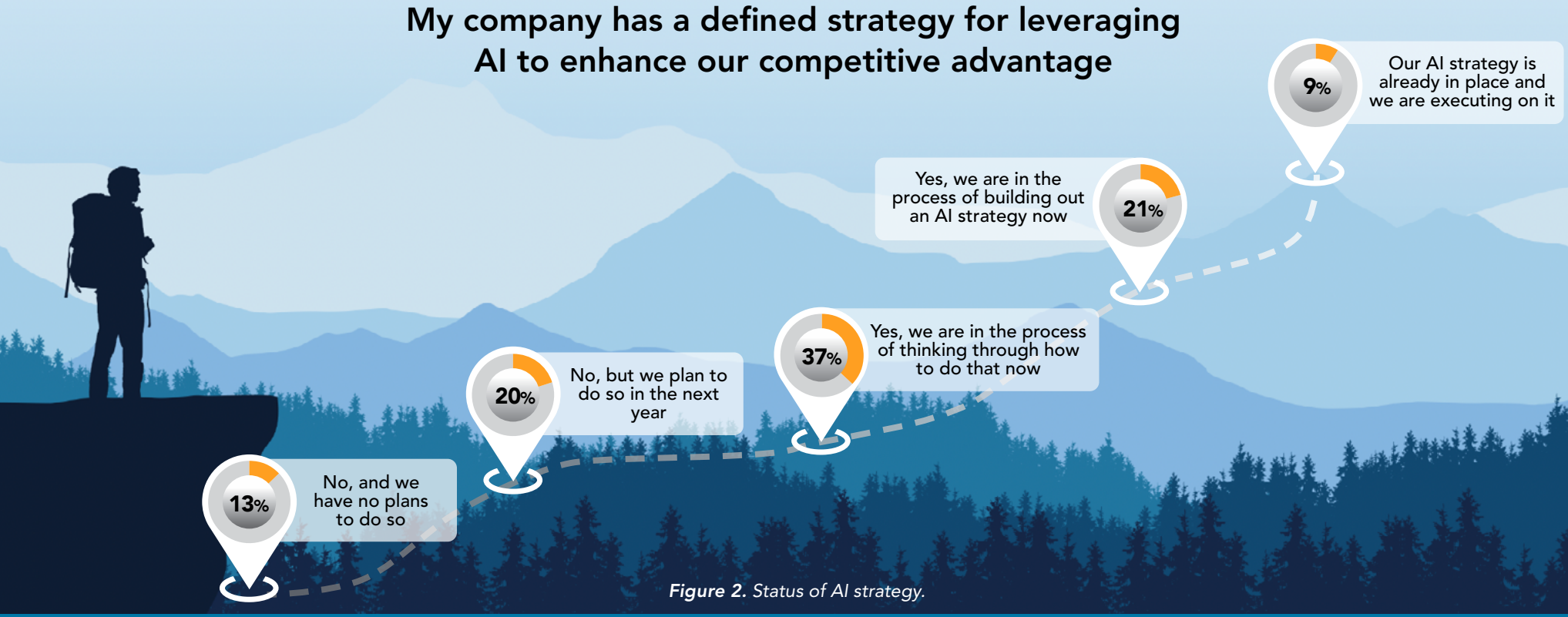


Figure 2. *Status of AI strategy.*

Likewise, many organizations are on the fence when it comes to whether their organization's leadership is committed to investing the necessary resources for AI development (including technology, talent, and training) and recognizing the long-term value of these investments (Figure 3). Less than half of the assessment respondents say their leadership has committed funding.

Respondents are also still working on other organizational readiness factors for AI such as a cultural shift towards innovation, continuous learning, and adaptability required for successful AI implementation as well as a culture of trust toward AI. For instance, in the readiness assessment, only 28% of respondents stated there was a culture of trust for AI in their organization (not shown). About a third said they had a collaborative culture to support AI (not shown).

Figure 3. *Leadership commitment to AI, including investments in technology, talent, and training.*

The State of Data Readiness for AI

Organizational commitment can make or break an enterprise's readiness for AI, but success with AI requires more. Organizations must also have the data platforms in place to support AI. AI often deals with large volumes of diverse data. AI models can be computationally expensive to build and operate, and this is especially the case with generative AI. It is critical for an organization to have a solid data foundation to support its AI efforts.

The overall data readiness score was 12.2, second only to organizational readiness. This middle-of-the-road score is in line with what we see in other TDWI research. Many organizations have made the move to cloud data warehouses and cloud data lakes to support diverse data types. In many cases, these organizations have hybrid environments that are often multiplatform. AI Readiness Assessment responses indicate that many companies have not yet achieved the maturity in their platforms to be completely ready for AI.

For instance, an important part of being ready for AI is the ability to integrate data from multiple sources to build an enriched and robust data set for training a model. Although organizations are making progress on this front—slightly more than 40% of respondents can do this today (Figure 4)—the rest are on the fence or don't have the systems in place to make data easily accessible for AI.

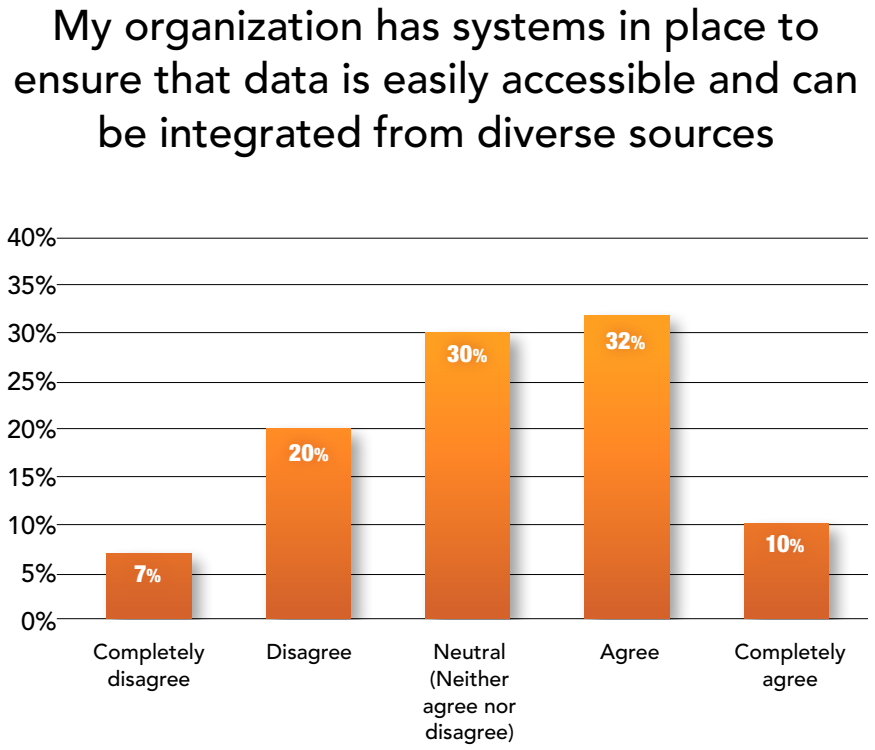


Figure 4. *The accessibility of data from diverse sources, including internal and external data sets.*

In other TDWI research, we've seen that making data accessible for models is a top analytics priority for organizations.[3] More enterprises are establishing that data foundation. However, the majority of assessment respondents (59%) either disagree or are uncertain about having a trusted data foundation in place for analytics (not shown).

Part of the challenge can be attributed to respondents still dealing with siloed data infrastructures. For instance, in the assessment we asked, "Which of the following statements *best* describes the data platform technologies your company utilizes today?" (Figure 5). Twenty-four percent are using a data warehouse or a data mart. Another 22% are utilizing a data warehouse and a data lake but say they are siloed.

Although the majority have some type of platform, there are areas for improvement. For instance, where data from different platforms is integrated, it is typically *structured* data. More than half of the respondents do not believe their organization has the advanced analytics capabilities and computational resources necessary to develop, train, and deploy AI models efficiently (not shown).

Tools on the market can automatically build machine learning models, but they need the data to be at least BI ready (in some sort of data warehouse). These tools can be a good starting point for AI programs, but they still require more (such as operational readiness and governance readiness, discussed in the next sections) to become truly ready.

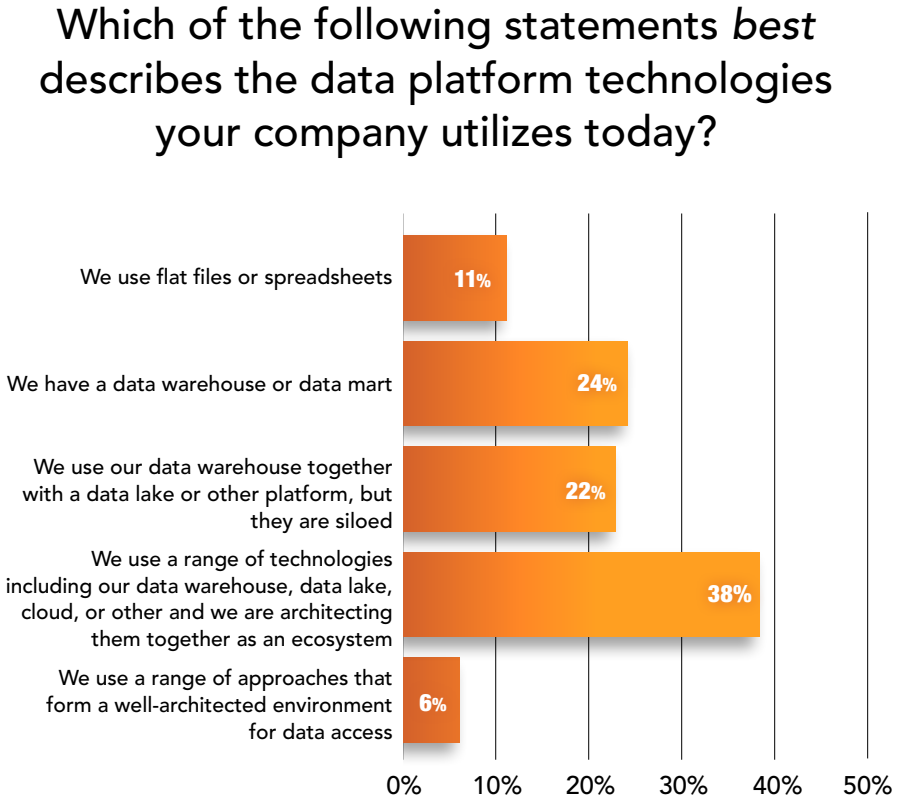


Figure 5. *Current data platform technologies in use.*

[3] Unpublished 2024 TDWI data and analytics survey.

In other words, organizations are making progress with their data infrastructures to support AI, but some still have work to do. This explains why less than 30% of respondents agreed with the statement, "My organization has a companywide data architecture in place for AI that can handle user growth" (not shown).

Organizations will need to focus on their data infrastructure, especially if they plan to build generative AI applications utilizing company data. This appears to be a priority for organizations; generative AI ranked in the top four priorities for analytics in 2024, ahead of machine learning.[4] Yet, AI or generative AI success will require a solid data foundation, capable of scaling and supporting high performance.

[4] Unpublished 2024 TDWI data and analytics survey.

The State of Skills and Operational Readiness for AI

To make AI successful, an organization needs the right skills—more than just data science skills, though they are clearly important. Enterprises will need data engineering skills (for building and deploying data pipelines), operational skills (for versioning models, putting them into production, and monitoring them for drift once in production), and development skills (for building apps utilizing AI and generative AI). Knowledge of the business will also be important.

As mentioned, many organizations are hiring data scientists to help build the skill set needed for AI. In the AI Readiness Assessment, about one-third of respondents don't have any data scientists on their team, another one-third have started to hire them, and the rest already have them in place (not shown).

These data scientists will help an organization get started with building AI models, but others, such as data engineers, are also critical to the process. In fact, when we ask organizations what skills they need, they often cite data engineers.

In the AI Readiness Assessment, we asked whether respondents employ data engineers to build data pipelines for AI. These engineers are responsible for managing and preparing large data sets for AI, ensuring data quality and accessibility.

Figure 6 shows that about half of the respondents have this role; the rest do not. It will be important for organizations to plan for this role because building and orchestrating pipelines is often challenging.

A recent trend in predictive analytics and AI is to democratize it, in other words to open up AI to a wider audience. In some cases, this audience can include business analysts (those who build dashboards and reports). These organizations typically have a data warehouse or data lake and analysts are running BI reports from this infrastructure.

Many of these analysts are ready for AI; they are interested in growing their skill set. They may be bored with simply producing dashboards. They also understand the move to AI and want to go to the next step. They understand their data and the business.

One of the issues when moving into an AI project is how you will build your organizational culture so it can adopt AI models. Often data scientists aren't connected with the business and that can be an issue. Business analysts *do* understand the business. In the assessment, 21% of respondents felt that business analysts have the skills they need for AI today; another 43% felt that business analysts could perform data science with help from others (not shown). This can require the right tools that are easy enough to use. For instance, some of the tools on the market provide natural language interfaces (often via generative AI) to help employees without data science skills build models.

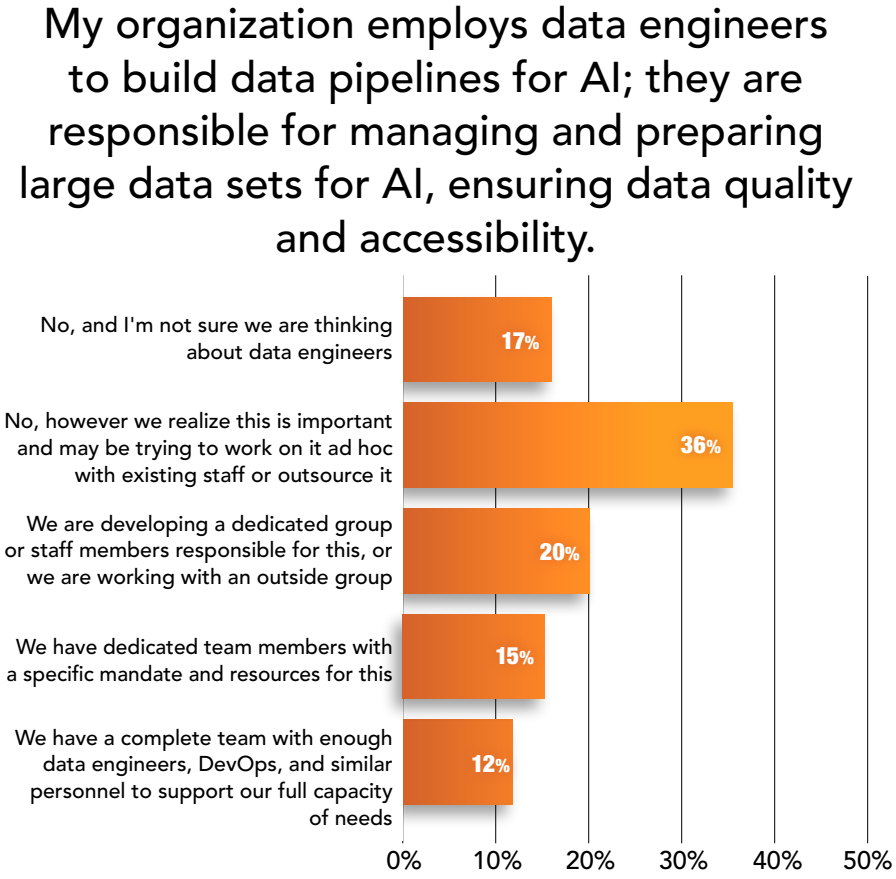


Figure 6. *Status of data engineering teams for building data pipelines.*

It will also be important not to simply focus on the front end of model building but to consider who is going to put models into production and then manage them. This is where the Ops team comes into play. If you can't put the model into production, your organization won't get the full value from it.

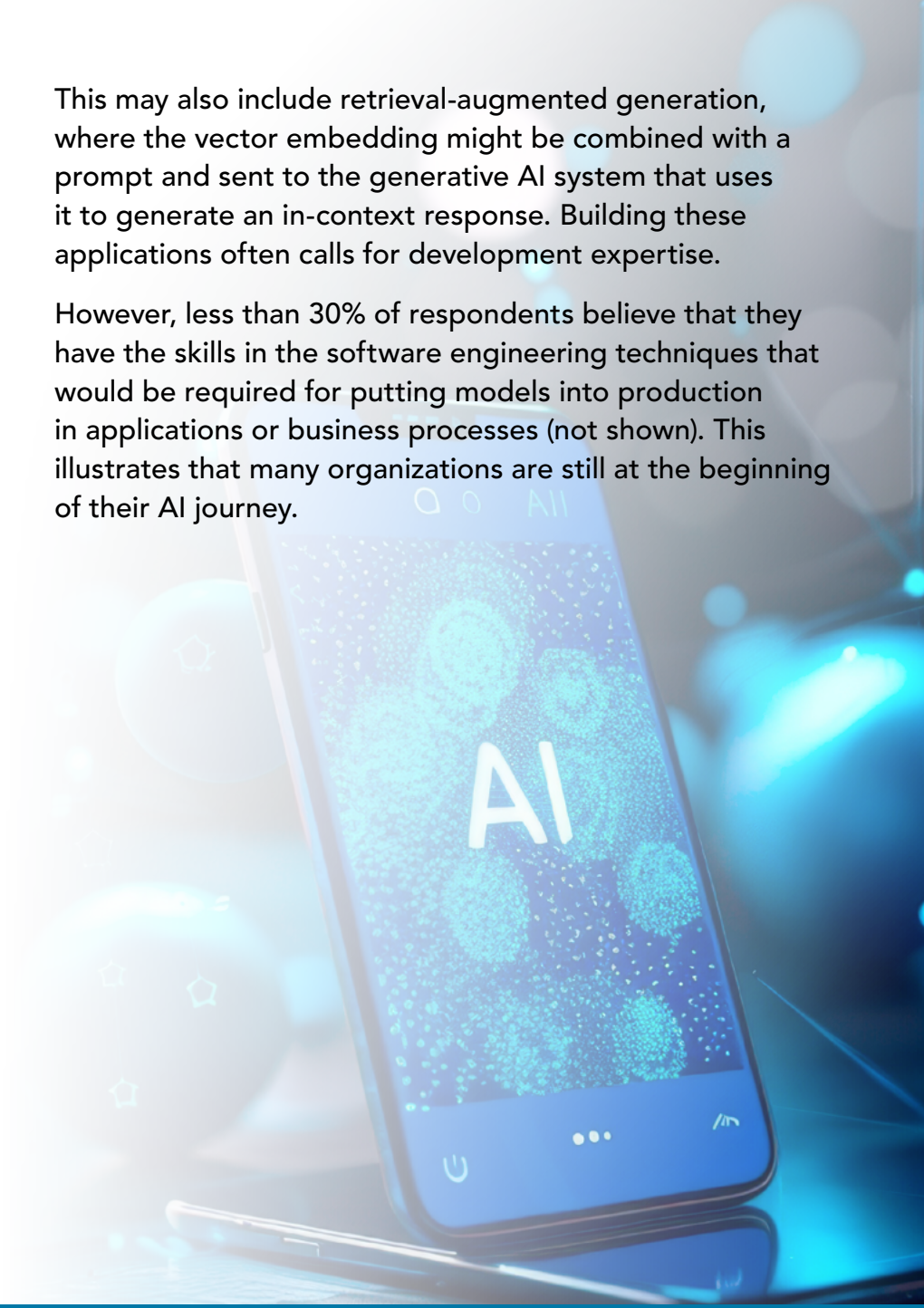
Yet, only about one-third of respondents agreed with the statement, "My organization has or plans to soon have the tools and skills for effective deployment, monitoring, and management of AI models in production, ensuring they perform as expected over time and can be updated or retrained as necessary" (not shown). Using data scientists to fill these roles simply won't scale.

Additionally, AI often requires developers to build applications that utilize AI; this is especially the case for generative AI applications such as chatbots or those that use company data. This may be as simple as using generative AI to summarize call center notes or it may be more complex, such as using generative AI to generate personalized marketing messages by using traditional machine learning models in conjunction with generative AI output.

Often, this involves using newer technology such as converting each word in a sentence into a vector using a pre-trained word embedding model and storing them in a vector database for use by the generative AI model.

This may also include retrieval-augmented generation, where the vector embedding might be combined with a prompt and sent to the generative AI system that uses it to generate an in-context response. Building these applications often calls for development expertise.

However, less than 30% of respondents believe that they have the skills in the software engineering techniques that would be required for putting models into production in applications or business processes (not shown). This illustrates that many organizations are still at the beginning of their AI journey.



Building Data and AI Literacy

Another aspect of readiness skills for AI includes data literacy. As mentioned, in some cases, organizations are looking to democratize their analytics and make use of automated and augmented tools on the market that can help business analysts and others build AI models. Although these tools can be easy to use and business analysts have the critical thinking skills and knowledge of the business to execute, they will still ultimately need to be trained in AI techniques.

In addition to business analysts, other in the business may need to understand the foundational concepts of AI if they are using the outputs of models for their job or if they are utilizing tools such as generative AI for creating marketing content (or other use cases). In the AI Readiness Assessment, about half of the respondents stated they regularly schedule training and encourage—if not mandate—employees to attend to ensure employees are well equipped with the latest in AI and analytics knowledge and skills, or they fund internal and external training for employees who need to build skills or grow professionally (not shown). This is definitely a step in the right direction.

The State of Governance Readiness for AI

In TDWI surveys, we routinely see that data governance is a top priority for organizations, especially as they try to modernize their environments. TDWI defines data governance as the practice of ensuring that business data remains fit for use. It focuses on the people, processes, policies, rules, and regulations for achieving specific goals for a managed data resource and building trust in the data.

As organizations move to AI, they must ensure that their data remains fit for use and that it is accurate, complete, and timely. The adage "garbage in garbage out" definitely applies here. This data quality will need to be in place for structured as well as unstructured data types. Previous TDWI research indicates that organizations are only starting to think about how to ensure data quality for new kinds of data.

Additionally, organizations will need to evolve their data governance to include AI governance, which involves the responsible use of the technology. It is a proactive approach to identifying and mitigating business, legal, and ethical risks to create trust and deliver tangible business value. For organizations, this means not only adhering to existing legal and compliance frameworks but taking a holistic approach to foster trust and confidence among users and stakeholders. This is a big step forward and one some organizations may not be ready for.

For instance, in the AI Readiness Assessment, many respondents are still struggling with ensuring trusted data across their platforms. In the assessment, less than 20% of respondents said they have a solid data governance program that outlines key policies and processes (Figure 7). This is, in part, because the scope of data organizations are trying to govern has broadened to include diverse data types. Less than 40% of respondents stated that their organization understands its data sources and has the right policies in place to deal with different kinds of data (not shown). Data governance is a journey where the bar continues to shift higher.

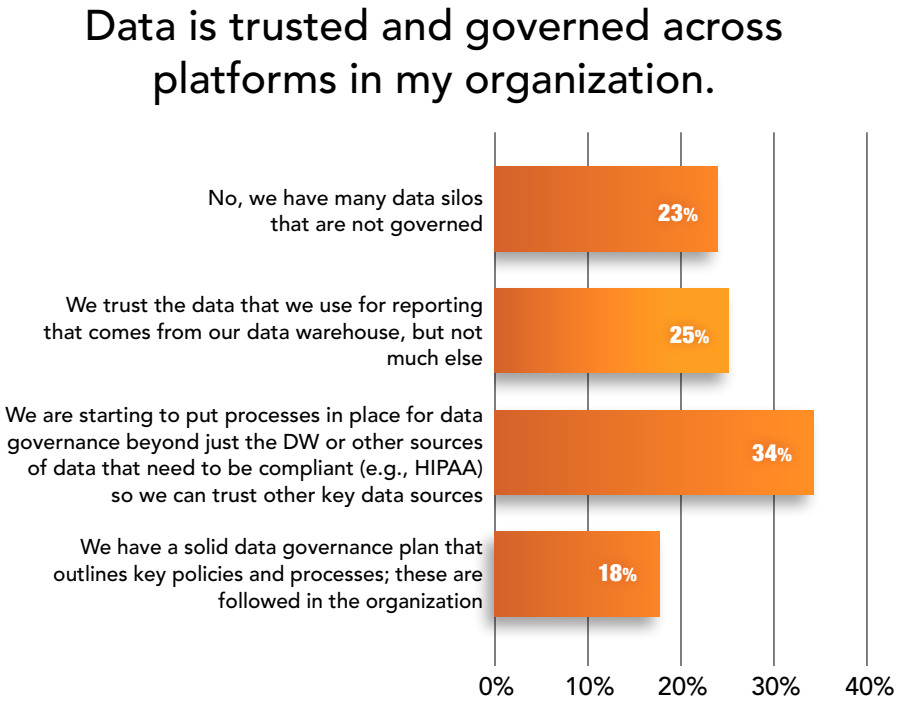
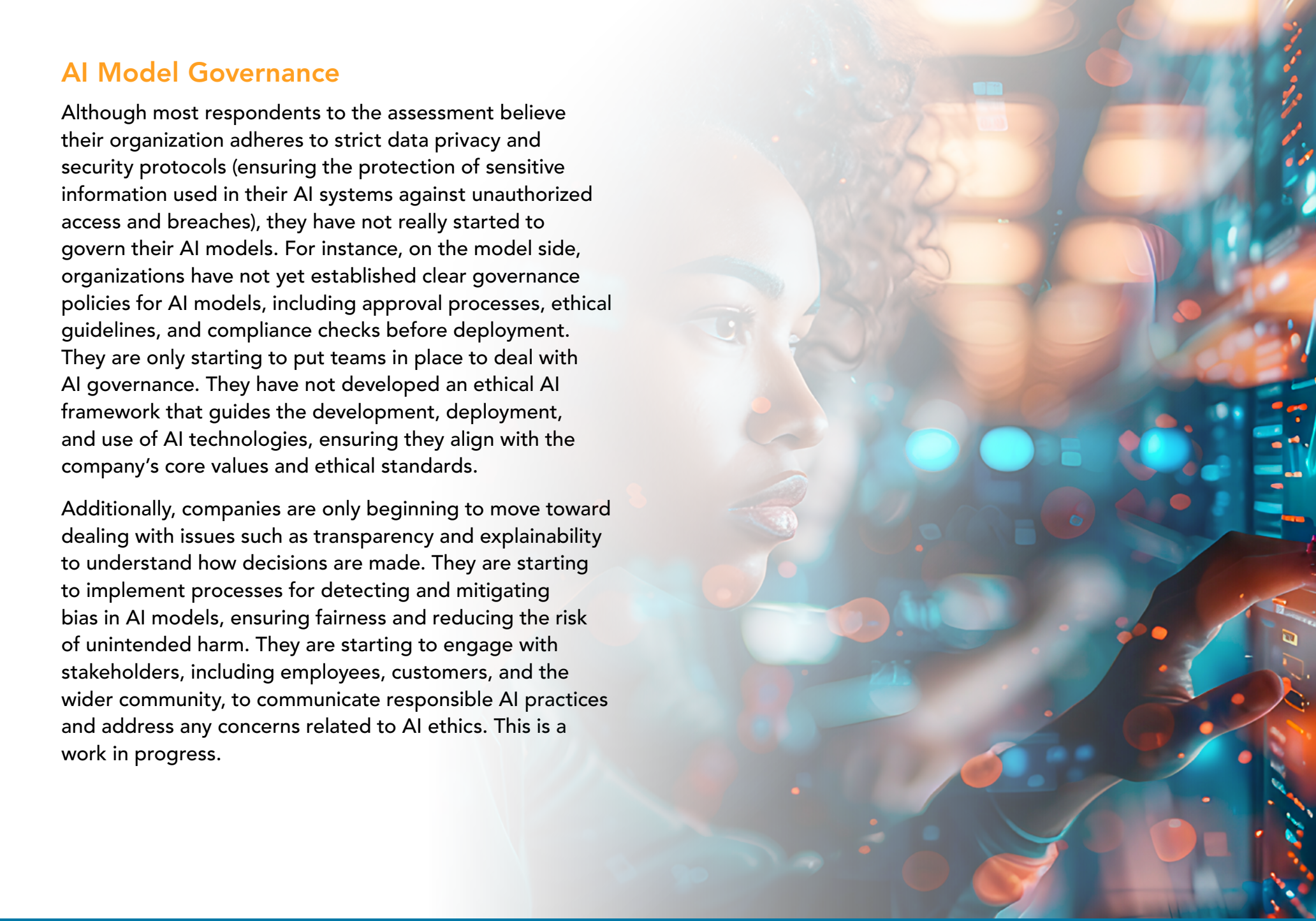


Figure 7. *Status of data governance for assessment respondents.*

AI Model Governance

Although most respondents to the assessment believe their organization adheres to strict data privacy and security protocols (ensuring the protection of sensitive information used in their AI systems against unauthorized access and breaches), they have not really started to govern their AI models. For instance, on the model side, organizations have not yet established clear governance policies for AI models, including approval processes, ethical guidelines, and compliance checks before deployment. They are only starting to put teams in place to deal with AI governance. They have not developed an ethical AI framework that guides the development, deployment, and use of AI technologies, ensuring they align with the company's core values and ethical standards.

Additionally, companies are only beginning to move toward dealing with issues such as transparency and explainability to understand how decisions are made. They are starting to implement processes for detecting and mitigating bias in AI models, ensuring fairness and reducing the risk of unintended harm. They are starting to engage with stakeholders, including employees, customers, and the wider community, to communicate responsible AI practices and address any concerns related to AI ethics. This is a work in progress.



Considerations and Best Practices for AI Readiness

Organizations are putting the infrastructure, governance, and skills in place for AI readiness, but they still have some work to do. The bottom line is that while some respondents are AI ready, others are still midway or in the beginning stages of AI readiness. If they try to implement AI now, they are setting themselves up for failure. Considering the challenges and opportunities at stake, here are several key best practices to consider.

Gain top-down executive support for AI. Enterprises succeed with analytics and AI when their executives support and evangelize it across the company. It will be important for you to have leaders who can do this as well as provide the funding necessary to help AI succeed. Previous TDWI research indicates that an analytics leader who is part of the C-suite can have more influence on issues such as funding and training.[5] To speed these transformations, it's helpful for AI leaders to come from a technical background, or, at the very least, to be highly data-literate so they can hit the ground running and garner respect.

Identify the business problems to solve with AI. AI should not be done simply for AI's sake. The right value proposition is key at the enterprise level. It is important to know why and how to leverage AI in your business. That will involve understanding your business as well as some understanding of the technology.

[5] See 2022 *TDWI Best Practices Report: Modernizing the Organization to Support Data and Analytics*, online at tdwi.org/bpreports.

Establish a solid data foundation. The importance of the right data foundation and architecture for AI cannot be overstated. As your organization makes the journey to AI, it must build enriched data sets with diverse data for model training. You will need to provide data to models and output data as part of an operational process. To scale and expand your AI applications, you will need a data foundation. This is the case for building AI models from scratch or using automated tools. At TDWI, we see that organizations that succeed with analytics often make use of a data foundation that is in the cloud and populated with clean and trusted data.

Build applications that matter to the business. Once your organization can start to build AI applications, it will be important to build applications that improve your business's bottom line. Get business stakeholders involved. Measure the impact of the application in business terms. Success builds on success in a virtuous cycle.

Invest in training. Skills across the data and analytics life cycle will be important for AI success. This will include hiring and building skills in data science, data engineering, development, and operations. It will also include building AI literacy in your organization, so business analysts and others understand what is involved and can think critically about AI applications.

Prepare to address some new issues. Moving to AI often entails dealing with new kinds of data. How you manage, govern, and analyze it will require careful thought. For instance, your organization may have only dealt with structured data in tables. How will it manage new data types, such as PDF files or audio files? How will these new data types be governed and analyzed?

Make governance a top priority. Before any new AI use case is implemented, you must understand your data, ensure access controls, and implement other governance policies. Data governance shouldn't be an afterthought. Plan for this as you're building out your AI strategy and building your data platforms.

Don't forget about the back end of AI. Although the readiness assessment examines your preparedness for AI, do not forget about the back end of the AI process. This includes monitoring models in production because models get stale. Just as important as monitoring model outputs, you will need to examine inputs to ensure they have the same distribution the model was trained on. Be sure upstream systems feeding data to models for scoring do not break. Think about this early for models that you plan for production use.

Embed AI in processes. AI is being embedded everywhere. It is in software solutions as co-pilots and automated agents. In fact, using embedded AI solutions can be a good starting point for AI projects. Additionally, as your organization matures, plan to embed and integrate AI into processes. This brings AI results and benefits to the point of consumption.

Start to consider responsible AI. Responsible AI takes into account the ethical, societal, compliance, legal, and environmental ramifications of using data in a wide variety of applications and processes. It examines the business, legal, and societal risks associated with AI. Start to understand that responsible AI will become very important to your business and start building out a framework for responsible AI. You can use one of the existing frameworks (such as NIST) and modify it for your own needs. Additionally, many vendors are starting to develop ethical AI frameworks around their own solutions which are worth your consideration.

Partner for success. It may make sense to partner with either a professional services organization or a vendor to get started with AI. However, ensure that you have a plan to transition AI to your team.

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About TDWI Research

TDWI Research provides industry-leading research and advice for data and analytics professionals worldwide. TDWI Research focuses on modern data management, analytics, and data science approaches and teams up with industry thought leaders and practitioners to deliver both broad and deep understanding of business and technical challenges surrounding the deployment and use of data and analytics. TDWI Research offers in-depth research reports, commentary, assessments, inquiry services, and topical conferences as well as strategic planning services to user and vendor organizations.

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