Winning with AI

Research insights from MIT's Center for Information Systems Research

Do what matters

AI Readiness: It's not just about the technology

The imperative for organizations to embrace artificial intelligence (AI) is urgent. The recently released Avanade AI Readiness Report shows that 92% of organizations will need to shift to an AI-first operating model by the end of 2024 to keep pace with competitors. We're at the very beginning of an era where AI will unlock the potential for every individual to imagine and create new possibilities.

However, the democratization of AI with tools such as ChatGPT and Microsoft Copilot brings unprecedented challenges for leaders to navigate. They need to ensure their organizations responsibly innovate and work with AI through continual change. While there will always be a temptation to rush to production, the path to value from AI is not about technology alone. As the enclosed insights report from MIT's Center for Information Systems Research (MIT CISR) highlights:

"Succeeding with AI requires developing organizational capabilities in the form of new or improved resources, processes, technologies, and talent. These capabilities require not only technological proficiency but also strategic foresight in aligning AI with business goals."

Avanade's global research indicates that organizations have a lot to do to ready their people, processes and platforms for AI. To help your organization accelerate business outcomes, we asked our friends at MIT CISR to share some learnings on AI readiness based on their rigorous field-based research.

We hope this report drawn from MIT CISR's research studies – and prepared by their researchers for Avanade's most valued clients – will help you to prioritize and take practical actions to ready your organization and people for AI in 2024, and beyond.

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Introduction

At the end of 2022, the global energy company Repsol succeeded in realizing €800M in cash flow from operations (an important type of profit in the energy sector) within five years. Repsol did this by investing in a portfolio of 505 digital innovation initiatives and scaling over 75% of them. Over 60% of the initiatives that scaled relied heavily on data and artificial intelligence (AI).

It is remarkable for any large, global, well-established company to realize so much bottom-line value so quickly from data and AI. Succeeding with AI requires developing organizational capabilities in the form of new or improved resources, processes, technologies, and talent. These capabilities require not only technological proficiency but also strategic foresight in aligning AI with business goals. Fostering a work environment that encourages innovation and empowered decision-making in this context is crucial. This shift requires both top-down leadership support and bottom-up employee engagement, emphasizing the importance of adaptability and continuous learning in the face of AI-driven disruption.

With regards to talent, organizations that realize value with AI focus on helping their people develop the skills they need to take advantage of AI while preparing them to thrive in an environment of continuous technological change. A recent MIT CISR survey found that leaders at large established companies estimate that on average 38% of their workforces will need to be replaced or fundamentally retrained to address skills gaps – with just 32% of leaders indicating that decision skills were (somewhat) well-developed in their companies. But a company's workforce will require more than just technological skills to succeed with AI: skills related to areas such as data monetization, critical thinking, and problem-solving are equally important to ensure that employees can effectively interact with AI systems and contribute to AI-based initiatives.

MIT CENTER FOR INFORMATION SYSTEMS RESEARCH

This paper draws on and synthesizes recent research findings from multiple research streams at **MIT's Center for Information Systems Research (CISR)** to address the question:

What are the critical success factors to realize significant value from AI?[1]

We define AI as applied analytics models that have some level of autonomy. AI includes techniques such as machine learning, natural language processing, and generative AI.

Looking across our research findings, we have identified four critical success factors (CSFs) for digital leaders to systematically realize value from AI-based innovations:

1. Develop a digital-first workforce
2. Decide what kind of value you want from your AI initiatives
3. Measure the outcomes of AI initiatives, both in creating and realizing value
4. Build advanced data capabilities and AI explanation capability

This paper describes why each CSF matters and how firms have put them into practice.

1 Avanade is a research patron of MIT CISR and worked with MIT CISR to synthesize this research to help organizations globally to drive more value from AI. MIT CISR is grateful for Avanade's support.

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Develop a digital-first workforce

People in large organizations need to be ready for AI, and amply trained and equipped to create and realize value from AI initiatives. As part of this readiness, it's crucial to develop an AI-ready workforce by empowering the teams working on AI initiatives with operational decision rights, and by providing a portfolio of educational offerings for people. This approach not only enhances their understanding of AI but also prepares them for practical application.

Implementing AI successfully and upskilling and reskilling a workforce also means navigating challenges in organizational change. Leaders must adopt a proactive stance in managing this transformation, clearly communicating the objectives of AI-based initiatives and addressing any apprehensions. This involves creating an environment where AI is seen as a complementary tool to human skills, fostering a collaborative atmosphere for innovation and growth.

Allstate Insurance's digital leaders recognized the importance of simplifying processes before applying AI, a critical step towards effective automation. As part of providing a more frictionless experience for its customers, one Allstate executive noted that "The worst thing we can do is have an engineer automate something that shouldn't exist... Instead, our goal is to challenge the existence of certain processes, to push for their elimination, to reengineer, and only then apply automation." This principle of simplification should be a guiding approach in AI adoption.

Mars Inc's development of an Enterprise Automation Hub underscores the necessity of understanding AI's potential. By the end of 2020, despite having at least two hundred AI projects successfully running at scale, there was limited company-wide awareness of these initiatives. To demystify, celebrate, and educate their Associates on AI, the company organized the 2020 Mars AI Festival: a week-long event combining education and celebration of AI. This festival, attended by over than 1,500 non-technical Associates, featured training sessions, external thought leaders, and case studies from all across Mars to help people learn in different ways.[2] The festival was an embodiment of Mars' approach to digital – one by which the company formed and federated capabilities that would help every Associate become one hundred times faster.[3]

Toyota Motor North America's approach to managing AI initiatives is another exemplary model. By launching Toyota Connected and the Connected Technologies division, they created new digital offerings while ensuring integration with broader company objectives. Key executives served in leadership roles across these multiple companies (referred to internally as multi-capping), ensuring that AI initiatives drove cross-company learning. Moreover, by multi-capping digital talent, AI solutions developed in the different parts of the company were informed by Toyota customer needs. Without such integration across the company, AI initiatives can become isolated from customer needs and even from the strategic objectives identified by top management, developing only for their own sake.

2 All MIT CISR case studies and briefings are listed under References and Further Reading.
3 In large organizations, people learn in different ways, including on the job, or through coaching and mentoring, online learning, classroom sharing, social sharing and more.

To develop a digital-first workforce for AI, consider these questions for your organization:

- Are you simplifying your processes, not just automating them?
- Are you offering a variety of learning modalities for employees to obtain a baseline understanding of AI?
- Do your teams have a baseline understanding of AI, so that they can engage with the right people when the situation calls for it?
- Are you enabling your AI initiative teams with operational decision rights?

Decide what kind of value you want from your AI initiatives

Successful investments in AI initiatives rest on getting value from your data. There are three viable ways to realize value from your data (and your AI initiatives) – **improving** work, **wrapping** products, and **selling** information offerings.

To create value from data requires that a person or a system take some action involving data. For example, rather than waiting until weather conditions cause delays that adversely impact flight operations, airlines create value from data by checking weather forecasts, using them to predict flight delays, and then automatically adjusting passengers' travel itineraries as necessary.

To realize value from data requires that created value contributes to the organization's bottom line. Airlines manage the impact of weather on flight operations to minimize the overtime pay and customer refunds that are a consequence of delays and cancellations. The data monetization returns in these cases are the reduction in the overtime pay and customer refunds the airline owes thanks to data-powered rebooking processes. The returns also include increased sales from delighted passengers who spend more with the airline because of delay-free experiences.

There are three viable ways to monetize data – **improving** work, **wrapping** products, and **selling** information offerings.

Value realization from **improving** is a two-step process – it entails first making work better, cheaper, and/or faster in a way that creates benefits for the organization, and then turning those benefits into financial value. The airline example above was monetizing data by improving. With improving initiatives, the first step of creating value (e.g., proactively changing customers' reservations based on weather data) is separate from the second step, realizing value (e.g., reducing overtime pay). It takes organizational attention, resources, and discipline to squeeze financial value from improvement initiatives.

Microsoft's 190,000 people operated out of more than 600 office buildings worldwide. Microsoft's Real Estate and Facilities (RE&F) group was responsible for managing this extensive network of facilities. RE&F approached Enterprise Data Science, Microsoft's internal-facing data science unit, to inquire if AI could be used to reduce the cost of managing these facilities.

To address the unproven nature of AI, Microsoft's AI teams tracked AI value consistent with the goals of each case's distinct stakeholders. For example, for early projects championed by facilities leaders who managed space optimization, the AI project team monitored building occupancy, which surfaced opportunities for cost reductions. The AI model was later recontextualized to generate a dynamic HVAC schedule that automatically adjusted heating and cooling patterns of Microsoft building HVAC systems and produced significant cost savings.

A **wrapping** data monetization initiative delivers a product enhancement that customers value. To realize some of that value, the owner of the product must increase the product's price to reflect its higher value, sell more of the product, sell more related offerings, or pursue a combination of these. In the case of non-commercial organizations, the owner of the product might ask citizens or funders to pay fees or give more. Any of those outcomes will allow additional revenues to flow to the income statement (or to the budget, in the case of non-commercial scenarios). But too often, organizations assume that they are realizing value – without verifying whether and how much money hits their books.

The CochlearTM Nucleus® 7 Sound Processor, a behind-the-ear sound processor, was launched by Cochlear, an Australia-based company that designs, manufactures, and provides implantable hearing solutions to customers globally. The sound processor's SCAN Scene Classifier feature anticipates that an end-user's hearing needs will require adjustments as the person changes environments through the day, and adapts to contexts, such as to a crowded street corner or quiet room. The feature advises the end-user of optimal settings through an app and acts by automatically adjusting the sound processor's settings to deliver the best hearing for the conditions.

With **selling**, data in some form is exchanged for money. Retailers have sold their point-of-sale transaction data to companies such as IRI since the late 1970s.4 IRI, in turn, sold aggregated data and analytics to manufacturers (and back to the retailers) that wanted to better understand their product sales compared to those of their competitors. Now non-data companies are disrupting the information business industry by selling solutions based on their vast data assets. For example, Walmart now sells an information solution called Walmart Luminate, which offers data free of charge to suppliers to help them work with merchants to grow their business. The solution offers insights regarding channel performance, shopper behavior, and customer perception for a fee.

Global financial services organization BBVA has explored how to exploit financial big data and cocreated a variety of promising use cases through social good partnerships. Using over four million anonymized BBVA credit card transactions, one use case helped city planners create strategies to stimulate economic growth, and another use case helped governments decide how and where to deploy aid response after natural disasters. In February 2014, BBVA established a wholly owned subsidiary called BBVA Data & Analytics (D&A) to deliver for-fee data services; the subsidiary was purposefully separated from the incumbent bank for reasons such as the need to shield the new entity from unnecessary regulation and to attract data scientists.

The organizational separation was also intended to incubate new, unique practices and build data monetization capabilities that were required for D&A to succeed in selling. This included developing machine learning algorithms and other advanced data science techniques for activities such as classifying transactions, recommending products, and comparing transactional behaviors.

Decide what kind of value you want from your AI initiatives, consider these questions for your organization:

- How much value is your organization's top management team committed to realizing from AI?
- How much is it willing to invest to realize that value?
- How much should the organization focus on using data and AI to improve work, wrap products, and sell information offerings?

Measure the outcomes of AI initiatives

AI-ready firms – firms that have realized significant value from data and AI – distinguish "**creating** value from data" from "**realizing** value from data" and track outcomes accordingly. To realize value from data requires measuring how much the value you create contributes to one or more of the organization's goals.

Measuring outcomes is essential not only to track progress against goals, but to determine which initiatives to continue scaling, when to invest and how much to invest. Our research shows that this happens most effectively when AI initiatives:

- Are led by someone from a customer-facing business and by someone from a central digital unit, combining these two vital perspectives and not placing either above the other by default
- Take an iterative test-and-learn approach
- Receive resources incrementally, in stages, based on measuring outcomes.

As part of its innovation portfolio approach mentioned above, Repsol developed a sophisticated procedure for scaling initiatives that used these principles to set the scene for measuring outcomes. Repsol then used dashboarding to track value realization for its initiatives.

In another example, Schneider Electric iteratively developed a Digital Flywheel that tracks how and how much value is created and realized. The Digital Flywheel became a team tool that every group could use to understand its performance and compare its performance to those of other groups. Schneider Electric also automated dashboards with drill-down capabilities. Much of the data is real time, and the dashboard filter panel displays the source of the data being examined and options to drill down by geography, business scope, and more.

To develop measures of AI value, consider these questions for your organization:

- Does your organization's top management team know the impact of initiatives?
- Does your organization re-allocate its scarcest resources to those initiatives most likely to have the greatest impact on strategic objectives?
  - If so, how? (Incrementally, based on insights generated by the initiatives?)
  - How often? (Quarterly?)

Build advanced data capabilities and AI explanation capability

Organizations must strengthen and draw on five advanced data monetization capabilities – data management, data platform, data science, customer understanding, and acceptable data use – to deploy AI solutions that are operationally, economically, and ethically sound. Yet these five capabilities alone are insufficient for building stakeholders' confidence in an AI solution. AI teams must also regularly engage with a variety of stakeholder groups to explain how the organization is managing characteristics of AI that impede trust. We call this AI Explanation capability: an emerging enterprise capability that arises from practices AI teams use to build stakeholder confidence in AI solutions.

The five data monetization capabilities include:

- A **data asset** capability that generates data people can find, use, and trust
- A **data platform** capability that serves up data reliably and quickly inside and outside of the company
- A **data science** capability that uses mathematical and statistical talent and tools to detect what humans can't
- A **customer understanding** capability that identifies important core and latent needs
- An **acceptable data use** capability that governs data with regard to regulation, law, and ethics

MIT CISR research has validated that these five enterprise capabilities are important for any kind of organization, not just information businesses, in generating returns from data – and the better the capabilities are, the higher the returns. Over time, organizations build deeper enterprise data capabilities by engaging in more and more advanced practices. For example, an organization can strengthen an enterprise capability such as data science by moving from mastering reporting to statistics to machine learning. Organizations also build out their enterprise data capabilities broadly by incorporating increasingly more customer segments, product lines, and subject areas into the scope of the capabilities.

Four characteristics of AI make it difficult for AI project teams to build stakeholder trust in AI solutions:

1. **Unproven value:** Because the market still lacks a broad selection of proven AI use cases, leaders are uncertain if and how their company could create meaningful returns from AI project investments.
2. **Model opacity:** AI draws upon computational mathematics and statistics that, due to their sophistication, make it very hard for even some data scientists (let alone laypeople) to readily understand if a model is producing accurate results in ways that are compliant and ethical.
3. **Model drift:** An AI model will produce results that are biased in the same way as the data used to train it. Over time, as the real-world changes, or if error is introduced into data sources, the accuracy of the predictions an AI model produces from new data will deviate from the model's performance during the training period – a phenomenon known as "drift."
4. **Mindless application:** AI models evaluate a new case and draw conclusions about it with some degree (or lack) of confidence. Because there is some level of error in transferring learning from historic case evaluations used for model training to new cases, AI model results are not definitive; applying the results as if they were definitive to new cases or in new contexts can be risky.

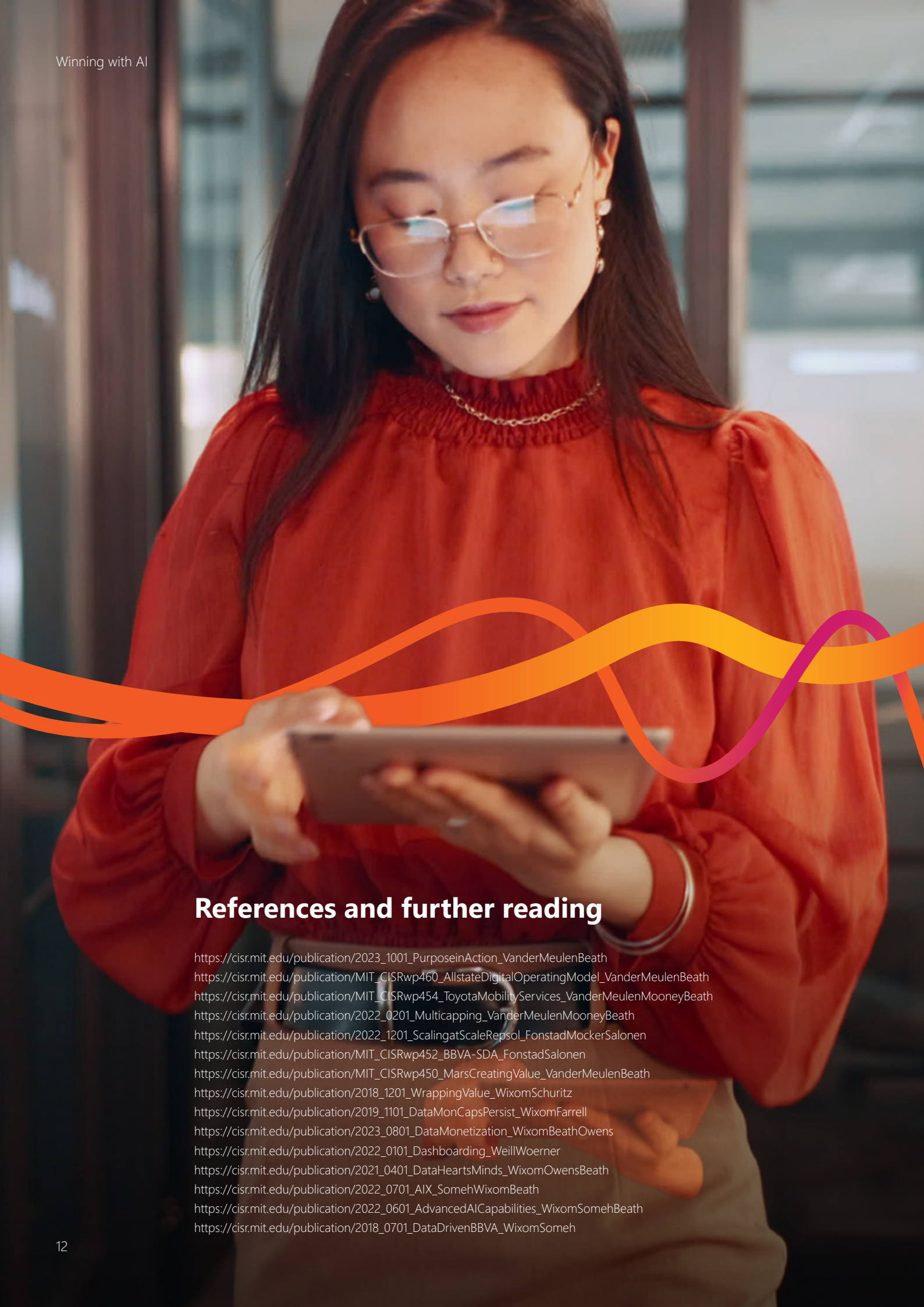
Our research found that organizations that adopt practices that resolve problems arising from these challenging AI characteristics successfully build stakeholder confidence.

- **Value formulation practices** tackle the problem of unproven value by helping AI teams substantiate, in terms that appeal to both direct and indirect stakeholders, exactly how AI can be an attractive investment.
- **Decision tracing practices** contend with model opacity by helping AI teams unravel model computations and mathematics, to convey the how behind model results to those who consume and make use of the output.
- **Bias remediation practices** enable AI teams to redirect model drift by exposing model decisions, helping the teams to reduce bias in a model's training activities throughout its life.
- **Boundary setting practices** address mindless application by guiding AI teams in applying AI model output mindfully to avoid unexpected outcomes and unintended consequences.

Collectively, these four sets of practices build an organization's AI Explanation (AIX) capability, which we define as the ability to manage AI initiatives in ways that ensure models are value-generating, compliant, representative, and reliable.

To develop data capabilities and AIX capability, consider these questions for your organization:

- How advanced on each of the five data monetization capabilities and AIX capability is your organization?
- Are those responsible for building shared resources ensuring that those resources help overcome common challenges and meet objectives better and faster?



References and further reading

https://cisr.mit.edu/publication/2023_1001_PurposeinAction_VanderMeulenBeath
https://cisr.mit.edu/publication/MIT_CISRwp460_AllstateDigitalOperatingModel_VanderMeulenBeath
https://cisr.mit.edu/publication/MIT_CISRwp454_ToyotaMobilityServices_VanderMeulenMooneyBeath
https://cisr.mit.edu/publication/2022_0201_Multicapping_VanderMeulenMooneyBeath
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