Speaker 1: Welcome to the MIT CISR Research Briefing series. The Center for Information Systems Research is based at the Sloan School of Management at MIT. We study digital transformation.

Hi, I’m Stephanie Woerner, principal research scientist and director of MIT CISR. Today I’m excited to share with you the December 2024 research briefing that I co-authored with Peter Weill and Ina Sebastian—

Building Enterprise AI Maturity

Artificial intelligence, or AI, has been described as everything from just another technology to the beginning of the end of civilization. With so much excitement and hype around AI, we pursued research that would help leaders make sense of the chaos and understand how enterprises create value with AI. We identified four stages of enterprise AI maturity, based on our October 2022 survey of 721 companies. We found that financial performance improved with each stage, and pinpointed capabilities an enterprise needs as it progresses through the stages. The bottom line was that enterprises in the first two stages of AI maturity had financial performance below industry average, while enterprises in stages 3 and 4 had financial performance well above industry average. These findings provided the basis for our MIT CISR Enterprise AI Maturity Model. Given when we conducted the survey, the results primarily describe the relationship between use of analytical (also known as traditional) AI and financial performance. To supplement the survey findings, in 2024 we interviewed sixteen executives at nine enterprises about both traditional and generative AI and their early thoughts on agentic and robotic AI.

Four Stages of Enterprise AI Maturity

Enterprises need to cumulatively build capabilities and learnings from AI as they move toward a future-ready state of AI use. Each of the four stages of the enterprise AI maturity model describes what enterprises focus on in that stage.

Stage 1: Experiment and Prepare

The first stage of developing enterprise AI maturity is about preparing and experimenting to use AI effectively. In our survey analysis, 28 percent of enterprises were in this stage. Stage 1 enterprises focus on educating their workforce, formulating AI policies, becoming more evidence-based, and experimenting with AI technologies to get more comfortable with automated decision-making. They discuss where humans need to be in the loop for oversight and what is acceptable and ethical use of AI technology. Funding targets AI literacy for the board and top management team and skill building on AI technologies integrated into enterprise software for the rest of the enterprise. During stage 1, the enterprise begins to identify both value creation opportunities from AI and the enterprise capabilities and competencies required to realize them.

For example, Kaiser Permanente, a US West Coast not-for-profit healthcare enterprise with 12.5 million members, defined seven principles for assessing its responsible use of AI: privacy, reliability, high-quality and affordable outcomes, transparency, equity, customer prioritization, and trust. These principles help Kaiser Permanente ensure that AI tools meet its standards.

Stage 2: Build Pilots and Capabilities

The second stage, representing 34 percent of enterprises in our research, is about setting up AI pilots to demonstrate AI’s ability to create value for both the enterprise and its people. In this stage, enterprises define important metrics, begin to simplify and automate business processes, and develop the enterprise capabilities they learned they need during the last stage. Stage 2 enterprises focus on moving from experiments to systematic innovation by piloting use cases, tracking value created in the pilots, and storytelling both internally and externally about learnings from the pilots. Fundamental to stage 2, the enterprise determines how to consolidate organizational data silos and safely and securely serve the data for use with AI; this typically requires a significant investment in, or refinement of, APIs that link the data and the technologies.

In an AI pilot, the disability underwriting team at Guardian Life, a US mutual insurance enterprise, is working with a partner to develop a generative AI tool that summarizes documentation and augments decision-making. Participating underwriters are saving on average five hours per day, building on Guardian’s rich internal data and automated processes. This pilot is helping Guardian to achieve its goal of reimagining end-to-end process transformation.

Stage 3: Develop AI Ways of Working

Moving to stage 3 is a big step in the AI journey, both in terms of potential impact on enterprise growth and profitability and the platform capabilities needed to achieve the scale required. Stage 3, which represented 31 percent of enterprises in our research, is focused on industrializing AI throughout the enterprise. This includes building a scalable enterprise architecture (a platform for AI that allows for scaling and reusing models), making data and outcomes transparent via business dashboards, developing a pervasive test-and-learn culture, and expanding business process automation efforts.

Ally, the largest all-digital bank in the US, is scaling AI via its Ally.ai platform, which the enterprise launched in July 2023. The platform houses Ally AI tools that leverage technologies including natural language processing, machine learning, predictive analytics, and computer vision, and integrates several commercially available large language models with the enterprise’s data in a safe environment. Early value from generative AI use cases includes saving an average three minutes per customer call on more than four million customer calls in 2023 using call summarization, and developing creative campaigns 34 percent faster using a marketing generative AI chat feature.

In stage 3 we see enterprises making significant use of foundation models—adaptable models trained on vast amounts of data—and small language models (or SLMs) that are trained on an industry, a function, or to perform specific tasks (such as onboarding a customer), to advance their journeys. They take these foundation models and SLMs and, on secure enterprise platforms, apply them to their own data to create and capture new value.

Stage 4: Become AI Future Ready

In the fourth stage enterprises are what we call AI future ready, which represented 7 percent of enterprises in our research. AI is embedded in all decision-making in these enterprises. They leverage proprietary AI internally, and many sell new business services based on that capability, the AI capability as a service, or both to other enterprises.

Ping An Insurance, one of the largest financial services enterprises in China, debuted an AI banking platform in 2019 and is now leveraging it. By the end of 2022, 49 percent of the enterprise’s product sales were made by AI service representatives, and 82 percent of service interactions were handled by AI representatives (that is, AI software agents). Also by the end of 2022, AI representatives had saved 600 million renminbi in labor costs for the enterprise, which additionally provided AI banking as a service to thirty other Chinese banks. In 2023, Ping An Group reported increased sales, reduced costs, improved efficiency, and reduced risks from using generative AI applications.

In our 2024 interviews as part of this research, an emerging theme was that interviewees expected the most value from AI will be created from combining people and platforms with a combination of four types of AI: analytical, generative, agentic, and robotic.

Your AI Maturity Stage Today

We recommend that you bring a team together to talk about which of the four stages your enterprise is in today, and your aspirations and time frames regarding your enterprise’s use of AI. Then, discuss which enterprise capabilities and skill sets need more work.

No matter where you are in the MIT CISR Enterprise AI Maturity Model, be bold. For example, Piyush Gupta, the CEO of DBS Bank, set a KPI of conducting one thousand experiments per year. DBS is building on that experimental mindset, coupled with a years-long investment in a data foundation, to become an AI-fueled bank, with AI pervasive across the enterprise. From 2022 to 2024, the bank doubled the economic impact achieved from AI from one-hundred-fifty million to three-hundred-seventy million Singapore dollars. DBS has delivered over three hundred fifty AI use cases to date, and expects the economic impact of these to exceed one billion Singapore dollars in 2025. What are your tangible goals for AI, and how will you get there?

Speaker 1: Thanks for listening to this reading of MIT CISR research, and thanks to the sponsors and patrons who support our work. Get free access to more research on our website at cisr.mit.edu.