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New MIT CISR Research Finds Companies with Advanced Enterprise AI Outpace Industry Peers in Financial Performance

Research scientists identify four stages of enterprise AI maturity and pinpoint capabilities an enterprise needs as it progresses through the stages

CAMBRIDGE, Mass., December 19, 2024 — A new research briefing "Building Enterprise AI Maturity" from the MIT Center for Information Systems Research (CISR) at MIT Sloan School of Management identifies four stages of enterprise AI maturity and finds that financial performance improves with each stage and explains how enterprises can cumulatively build capabilities and learnings from AI as they move toward a future-ready state of AI use.

The authors are Peter Weill, MIT Sloan senior research scientist and MIT CISR chairman; Stephanie Woerner, MIT Sloan principal research scientist and MIT CISR director; and MIT CISR research scientist Ina Sebastian. The researchers have created an MIT CISR Enterprise AI Maturity Model, which describes what enterprises should focus on in each of the four stages and pinpoints capabilities an enterprise needs as it progresses through the stages.

"Enterprises can use the MIT CISR Enterprise AI Maturity Model to assess their current capabilities, identify gaps, and create a roadmap for improvement across various dimensions such as processes, technology, and organizational culture," said Woerner. "It's a valuable tool for guiding business growth, improving operational efficiency, and achieving strategic objectives through a clear, step-by-step approach."

The findings are based on a MIT CISR survey of 721 companies, and 16 interviews with executives at nine enterprises about traditional and generative AI and their early thoughts on agentic and robotic AI. Most enterprises researched were in the first two stages of AI maturity and had financial performance below industry average, while enterprises in stages three and four had financial performance well above industry average.

The **Four Stages of Enterprise AI Maturity**

Stage 1: Experiment and Prepare (28% of enterprises in the research)
In this stage enterprises focus on educating their workforce, formulating AI policies, becoming more evidence-based, and experimenting with AI technologies to grow more comfortable with automated decision-making. They decide on acceptable and ethical use of AI technology and where in the process humans need to provide oversight. 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. Enterprises also begin to identify both value creation opportunities from AI and the enterprise capabilities and competencies required to realize them.

Stage 2: Build Pilots and Capabilities (34% of enterprises in the research)
Enterprises define important metrics, begin to simplify and automate business processes, and develop the enterprise capabilities they've learned they will need during stage 1. They now 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 is determining 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.

Stage 3: Develop AI Ways of Working (31% of enterprises in the research)
Enterprises focus on industrializing AI throughout the organization. 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.

Enterprises make significant use of foundation models and small language models (SLMs) that are trained on an industry or 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](#) (7% of enterprises in the research)
AI is embedded in all decision-making throughout the enterprise. They leverage proprietary AI internally, and many sell new business services based on this capability, the AI capability as a service, or both to other enterprises.

"For companies to start benefiting from our Enterprise AI Maturity Model, we recommend bringing a team of senior technical and data leaders together to assess which of the four stages your enterprise is in today, and your aspirations and time frames regarding your enterprise's use of AI," said Woerner. "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."

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