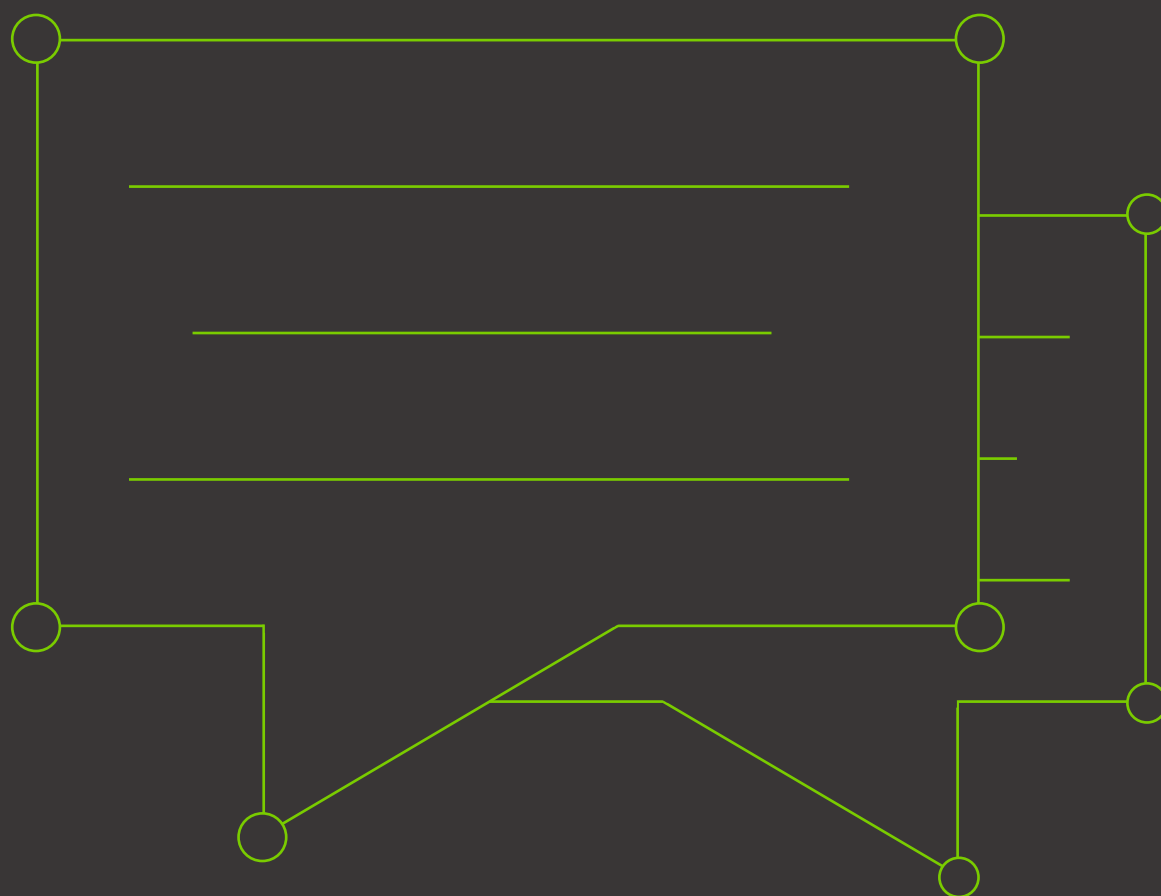


AI in Business Education

MIT Sloan School of Management



GMAC's AI in Business Education case study series spotlights the integration of artificial intelligence in graduate management education, focusing on curriculum development, administrative processes, and strategic applications.

MIT Sloan prides itself as a different kind of management school, positioned at the intersection of business and technology, and part of the world's leading research institution. They aim to bring together the world's brightest minds to tackle global challenges. MIT and MIT Sloan are expected to be at the forefront of embracing and innovating with the new wave of generative AI technology.

As part of this vision, the school began an innovative and collaborative project led by Professor Eric So representing faculty, and facilitated and supported by the Office of Teaching and Learning under Professor Rodrigo Verdi. The Teaching and Learning team was originally set up during the COVID-19 pandemic in early 2020 with the rapid demand for digital learning and teaching support. The investment in technology for hybrid and fully online teaching followed a user-led strategy of helping faculty to continue delivering a high quality learning experience despite the need to move online. In order to ensure a broad acceptance and capability with the new tools, a community-based learning and communication approach was developed. With the arrival of generative AI (GenAI) tools, the faculty community and necessary infrastructure were already in place to investigate new technologies and tools and to adapt the learning environment with the broad buy-in and engagement of faculty.

A summary of success

The Context:

A collaborative, grassroots, and crowdsourced approach to exploring multiple generative AI use cases in teaching and learning, engaging faculty across different academic disciplines.

The Innovation:

MIT Sloan brought together a pilot group of faculty members and provided training, a collaborative discussion environment, and technical and financial support in order to experiment simultaneously with a wide range of generative AI use cases. Successfully deployed tools—such as classroom chatbots, student engagement monitors, and institution-wide tools for administrative questions—were demonstrated and further developed, then the discovery project was repeated.

"We believe the integration of generative AI into teaching and learning can be a great differentiator for MIT Sloan. AI is a great enabler and opportunity for levelling up. Given that MIT itself is at the frontier of the development of artificial intelligence, we intend to double down. Our strategy, though, is bottom up, to encourage people to get involved and experiment with new technologies."

Rodrigo Verdi
Deputy Dean for Degree Programs, Teaching and Learning



Strategy and planning

MIT Sloan has begun a broad effort to embrace generative AI in teaching and learning around the business school. Rather than identifying a single use case to invest time and resources in, the Teaching and Learning team focused on a grassroots, crowdsourced approach to institutionalizing the use of GenAI. The approach takes a three-pronged strategy by providing resources and knowledge through an AI Hub; by setting up a peer-to-peer program to focus support resources and spur experimentation with GenAI; and by running regular town halls to disseminate experience and ideas.

AI Hub for Teaching and Learning

The goal of the AI Hub was to be a definitive resource for teaching and learning with generative AI at MIT Sloan. The hub is freely available at mitsloan.mit.edu/ai and provides a comprehensive set of training resources for faculty. It covers the basics of using GenAI tools, recommends tools to use, and addresses the policy and ethics of using AI within an academic setting. The hub will be regularly updated with research and trends on the broader use of AI within the academic community. The AI Hub also acts as a gateway for sharing experience within the MIT Sloan faculty Slack channel and as an access point for support from the Learning and Teaching team on GenAI.

GenAI Faculty Peer Learning Program

The central effort for encouraging the use of AI is the faculty community of practice. The initiative, titled the “Generative AI Faculty Peer Learning Program,” is designed as a hands-on, faculty-focused support project that allows for the experimentation and application of generative AI in an academic setting. The primary goal is to empower faculty members with the knowledge and tools necessary to effectively integrate AI technologies into their teaching methodologies, enhancing the overall educational experience.

A critical part of the project design was to have a member of faculty Eric So in the lead because he was already engaged with the use of GenAI in teaching. The project began with a series of seminars and in-person sessions, which provided the opportunity for group discussion on current and emerging AI tools and, importantly, hands-on projects and instruction specifically focused on AI tools applied to aspects of teaching.

As part of the project, faculty participants were offered several resources in order to support them in piloting suitable AI use cases. In addition to the in-person instruction and support framework, research assistants were brought in from across the institution to help with the implementation of projects within the faculty courses. A small budget was also provided to explore and implement new AI innovations, as well as the possibility of discretionary funds for ideas with the potential for larger scale application.

The initial pilot group of the project involved 20 faculty volunteers from across MIT Sloan and generated many use cases within a roughly six-month time frame. The program will run for a second time in the fall.

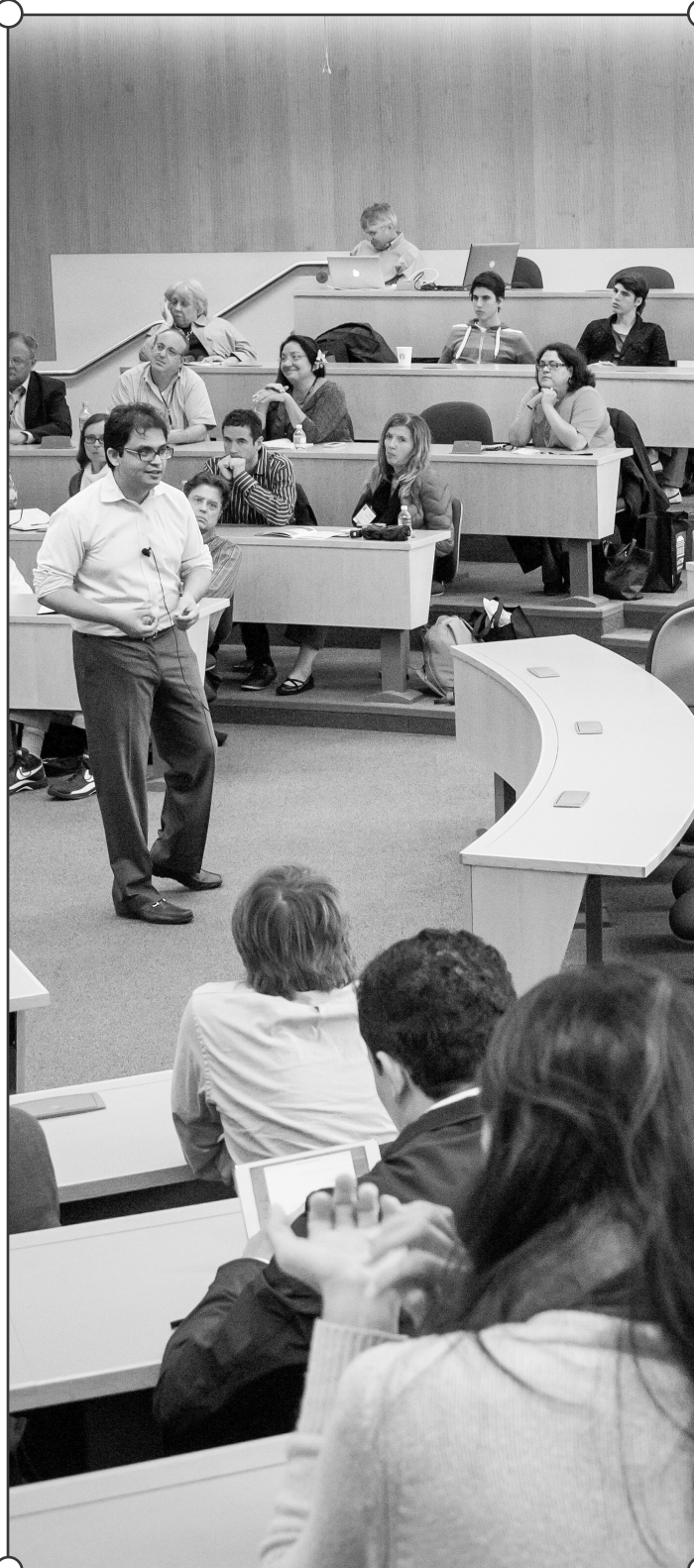


Town Hall Demos

The third part of the strategy involves a series of regular Town Hall Demos, which have the role of advocacy and maintaining momentum and support. The demos are an opportunity for stakeholders across the institution to come together for a project update, to hear about the latest innovative use cases, and to hear directly from participants in the P2P program regarding their actual experiences—both challenges and successes.

“Here at MIT Sloan, we are particularly excited about embracing generative AI. We think we have the opportunity to make MIT Sloan the leading place to study GenAI, and as part of this we aimed to encourage faculty to bring this new technology into the classroom.”

Prof. Eric So – Faculty Project Lead
Sloan Distinguished Professor of Global Economics and Management



Framing the project

"We try to follow our office's mission to enable MIT Sloan teaching teams to provide innovative, world-class instruction to our students. We embrace innovation in a constantly changing world, and this project speaks to the way that MIT and MIT Sloan operate. Everything in this field is changing and evolving rapidly, so we didn't try to dictate how the Peer Learning Group developed. We planted seeds and waited to see what grew so that we could support those efforts, and continually adapt and learn from the experience."

Dylan Girard
Associate Director of Teaching Services

Faculty members at any institution have a difficult balancing act between research and teaching. At a business school like MIT Sloan, with a reputation as one of the world's leading research institutions bringing together some of the brightest academic minds to tackle global challenges, faculty time and attention is at a premium. Allocating enough time and attention to the integration of AI into the classroom, having the space and support to experiment and to try new ideas is a luxury. However, rather than a top-down allocation of a specific AI tool that faculty may or may not need, imagine a scenario where dozens or hundreds of practical uses for AI are generated by the same teachers and students who would benefit most from them. The potential for a single successful, groundbreaking innovation applicable across the institution to come to fruition is far greater.

By allowing faculty the time and space to discuss, learn, and experiment with the latest tools—supported by a team of experts and with enough assistance to rewrite the teaching materials—the potential for success and community buy-in is significant.



AI implementation

The nature of the project has generated many use cases, both small, single function solutions that are quick to implement and more complex ideas still in development and testing. Some of the solutions are course specific and have limited scalability. Some require no specialist knowledge to implement, while others require a significant resource investment. The examples below represent a mixture of the results so far in the pilot project—and many of these can be scaled as a next step.

Teaching Assistant Bot (TA Bot)

The TA Bot was an early successful application of GenAI and demonstrates the feasibility and effectiveness of simple solutions that provide support. The TA Bot was designed to provide students with assignment feedback based upon a pre-defined grading rubric. A secondary function of the bot was to answer administrative questions about the course.

The bot was built using Stack AI—a coding-free workflow builder developed by three MIT Ph.D. students. Stack AI allows for the development of simple custom AI assistants with a choice of different large language models (LLMs), including OpenAI. The user-friendly nature of the system allowed for faculty in the pilot group to implement the solution independently after training within the project.

Assessing student engagement

A second use case involved assessing student engagement prior to class using a tool called Breakout Learning. As part of the course, students were required to prepare and discuss a case study and participate in online discussions in small groups. The AI tool monitored conversations among participants, analyzing each student's contribution, and provided a summary both to the student and the lecturer prior to class. The summary detailed each student's level of understanding and contribution, allowing the lecturer to tailor class discussion to best suit the students.

Processing video lectures

A more pragmatic use case involves uploading lecture videos to Google's AI Studio for processing. The AI Studio was able to then generate class summaries, pre-reading materials for future students, and quizzes from lecture content to assess student engagement and understanding.

Custom Canvas GPT

A final example demonstrates a larger investment of development resources that will be rolled out for all faculty. Due to the complexity of the solution, this tool is still being developed; however, the planned custom generative pre-trained transformer (GPT) will be accessed directly through the Canvas Learning Management System (LMS) and will be able to answer administrative questions relating to students' study, such as course schedules, points of contact, professor information, grading rubrics, etc.



Challenges and solutions

1. Data protection and copyright

The team at MIT Sloan were very aware of faculty concerns regarding copyright as well as institutional guidelines and policy on data protection, so they were careful to ensure that any solutions developed could still be used safely. In certain instances, this involved compromises such as moving from ChatGPT to a Microsoft 365 Copilot enterprise account, which provided many, but not all, of the same capabilities but within a more protected environment.

2. Changing technology

Rapidly changing technology and available solutions means that even after a single run of the peer-to-peer project, the training and onboarding materials need to be rewritten. In addition, some of the initial use cases have either changed or the technology involved discontinued. This is where the community approach has a significant advantage of many people watching the market and identifying changing and newly developed tools and opportunities.

3. Ongoing support and engagement

As the first pilot project comes to an end, the Teaching and Learning Technology team are focused on developing the small number of more complex innovations while the project leads are focused on enlisting a new set of volunteers for the second project run. However, additional resources are necessary to monitor, record, and scale the many smaller AI applications used by the volunteers and to ensure that peer-to-peer learning continues beyond the life of the project.

4. Identifying the right projects

Not all ideas generated within the early sessions were practical or necessary. By supporting the faculty with a “backward design” process, which focuses on identifying the desired results and students’ learning processes first, faculty were able to self-select which projects and use cases were worth pursuing.

5. User-led sessions

The team minimized the amount of prepared elements in the initial P2P sessions, which allowed the pilot group of faculty time to discuss and dictate the future direction of the group and significantly aided in identifying suitable projects. However, it also showed that more time is necessary for each session for ideas to be fully discussed.



The future of AI at MIT Sloan

MIT Sloan continues to look ahead as they strive to bring Generative AI into the classroom. The aim is not just to embrace GenAI, but to become a leading institution in the teaching and application of GenAI in the classroom. MIT Sloan's philosophy to engage the community first and develop a community and student-centric approach is central to the success of the pilot P2P program.

To ensure that the learnings and use cases are retained, shared, and scaled will require a continued investment in training and support for both faculty and students to secure equal access and understanding of the technology. For example, the team at MIT Sloan introduced a well-received AI Foundations seminar for incoming students. This seminar consisted of a three-hour workshop where students received expert advice on selecting from the latest AI tools, learned practical ways to integrate AI into their daily tasks, and gained insights into AI ethics. This interactive experience ensured students were able to apply their knowledge and enhance their classroom experience ahead of the fall term.

The future will require continued development of the institution's policies and access to tools. And importantly, there must be ongoing analysis and re-thinking of assignments, especially knowing that students are already using and relying on AI tools.

"This project was truly transformational. I went from minimal AI experience to confidently using various platforms like ChatGPT and Stack AI. The hands-on practice and peer collaboration were invaluable, allowing me to learn how students use these tools daily and how to incorporate them effectively into my teaching. The insights I gained from this program have been incredibly beneficial. I'm just at the beginning with GenAI, but so many thanks to the folks who made this happen, because I feel like I'm ready to be thinking in more depth about the many, many different ways that AI can be used in fun and experimental ways."

Deborah Ancona – Pilot P2P participant
Seley Distinguished Professor of Management and Founder of the MIT Leadership Center



Authored by Oliver Matthews
Editors – Nalisha Patel and Andrew Walker

© 2018–2024 Graduate Management Admission Council (GMAC™).
All rights reserved.

The trademarks referenced herein are owned by the Graduate Management Admission Council or its subsidiaries in the United States and other countries. Notwithstanding the foregoing, any third-party trademarks referenced remain the property of their respective holders, and their use does not imply any affiliation, sponsorship, or endorsement unless otherwise stated. Please reach out to legal@gmac.com for written permission to reproduce, store, distribute, transmit, or otherwise use this publication.