Decoding the Range of **AI Technologies** in Higher Education

Understanding the Relationship Between Impact and Implementation Effort Across Types of AI

This infographic helps higher education leaders distinguish between four types of AI applications—from GenAI-powered chatbots to agentic AI systems—and understand how their capabilities progress. It compares each type across potential impact, prevalence, and implementation effort to help leaders make more informed decisions about where and how to invest in AI.

TECHNICAL ADVANCEMENT

As you move to the right, capabilities and risks are cumulative. →

1 GenAI-Powered Chatbots

Chatbots answer user inquiries and are grounded in institutional data to provide more accurate, institution-specific responses.

EXAMPLE CASE

Payroll website chatbot answers frequently asked staff questions

2 Subject Matter-Tailored AI Applications

Applications answer questions based on institutional data and perform a limited number of related tasks.

EXAMPLE CASE

IT help desk assistant responds to user inquiries and triages tickets

3 User-Personalized AI Applications

Applications are not only tailored for certain data/tasks, but are personalized to users, learning through experience.

EXAMPLE CASE

AI tutor provides personalized guidance based on student profile data (e.g., SIS[1], LMS[2]) and course content

4 AI Agents/ Agentic AI Systems

AI agents reason and autonomously execute multistep workflows.

EXAMPLE CASE

Research admin agent surfaces funding requirements, manages expenses, and populates reports for grant reporting and compliance

PREVALENCE IN HIGHER ED[3]

DEVELOPED IN-HOUSE

18% Institutions are increasingly opting to develop in-house because doing so is cheaper.

7% Sector leaders are piloting assistants that execute limited tasks.

6% Few institutions have personalized their AI applications due to data and development demands.

4% Despite lots of exploration, only a minority of sector leaders are developing AI agents in-house. Even fewer are developing orchestration layers for homegrown and vendor agents.

VENDOR OFFERING

40% Vendor chatbot offerings are ubiquitous.

22% Vendors are widely offering AI applications across platforms.

13% Vendors are increasingly personalizing AI applications.

8% Some institutions are beginning to employ vendor agents within existing platforms; others are implementing agents with vendor partners.

POTENTIAL IMPACT AND RISK

MEDIUM IMPACT

Chatbots can handle routine inquiries and connect staff to information faster, freeing staff to focus on more complex needs.

LOW RISK

Risk of providing users inaccurate or improper information if chatbots data sources are not kept current.

MEDIUM IMPACT

AI applications can provide domain specific assistance (e.g., Finance, Enrollment), streamlining access to information and executing some tasks, freeing up time at the team and department levels.

LOW-MEDIUM RISK

Risk of inaccurate recommendations and improper data use increase as AI gains broader access to institutional data and the ability to perform limited tasks.

HIGH IMPACT

Personalization improves accuracy and helpfulness of AI applications by optimizing content and tailoring to the user.

MEDIUM RISK

Privacy and liability risks increase as AI employs user profile and interaction data for personalization and its outputs have a more direct impact on individual users.

VERY HIGH IMPACT

Agentic AI can automate complex, multistep workflows because agents' ability to reason yields greater accuracy in responses and task execution.

MEDIUM-HIGH RISK

Risk of operational disruption increases as agents make decisions and execute tasks independently. Errors can cascade across workflows when oversight, permissions, and decision-making authority are not properly defined.

IMPLEMENTATION EFFORT[4]

DEVELOPED IN-HOUSE

LOW-MEDIUM

Institutions can spin up a chatbot, managing development and testing with minimal developer and data scientist capacity.

MEDIUM

Institutions need more development and testing capacity to ensure reliable execution of related tasks.

MEDIUM-HIGH

Institutions must invest in development, testing, and monitoring to responsibly personalize AI's use of user data.

HIGH

Institutions must maintain continuous levels of high technical support and monitoring of data, systems, and processes as agents interact and execute changes within them all.

VENDOR OFFERING

LOW-MEDIUM

Vendors handle technical development, while institutions must ensure that source data (e.g., webpages, policies) is up to date.

LOW-MEDIUM

Vendors build chatbot function and capability to execute certain tasks, while institutions must ensure that the source data is highly accurate and optimized for AI.

MEDIUM

Vendors handle personalization using institutional (e.g., CRM data[5]) and interaction data (i.e., interactions with the AI application).

MEDIUM-HIGH

Vendors streamline technical implementation, but doing so may be costly and data and governance risks persist. Whether building or buying, institutions must reskill staff to orchestrate agents and realize ROI.

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1 SIS: student information system.
2 LMS: learning management system.
3 Percentages reflect observed prevalence and are not mutually exclusive; therefore, they do not sum to 100%.
4 Implementation effort includes financial and personnel resources for development, process reengineering, data governance, and workforce reskilling needed to deploy and sustain AI in production.
5 CRM: customer relationship management system.

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