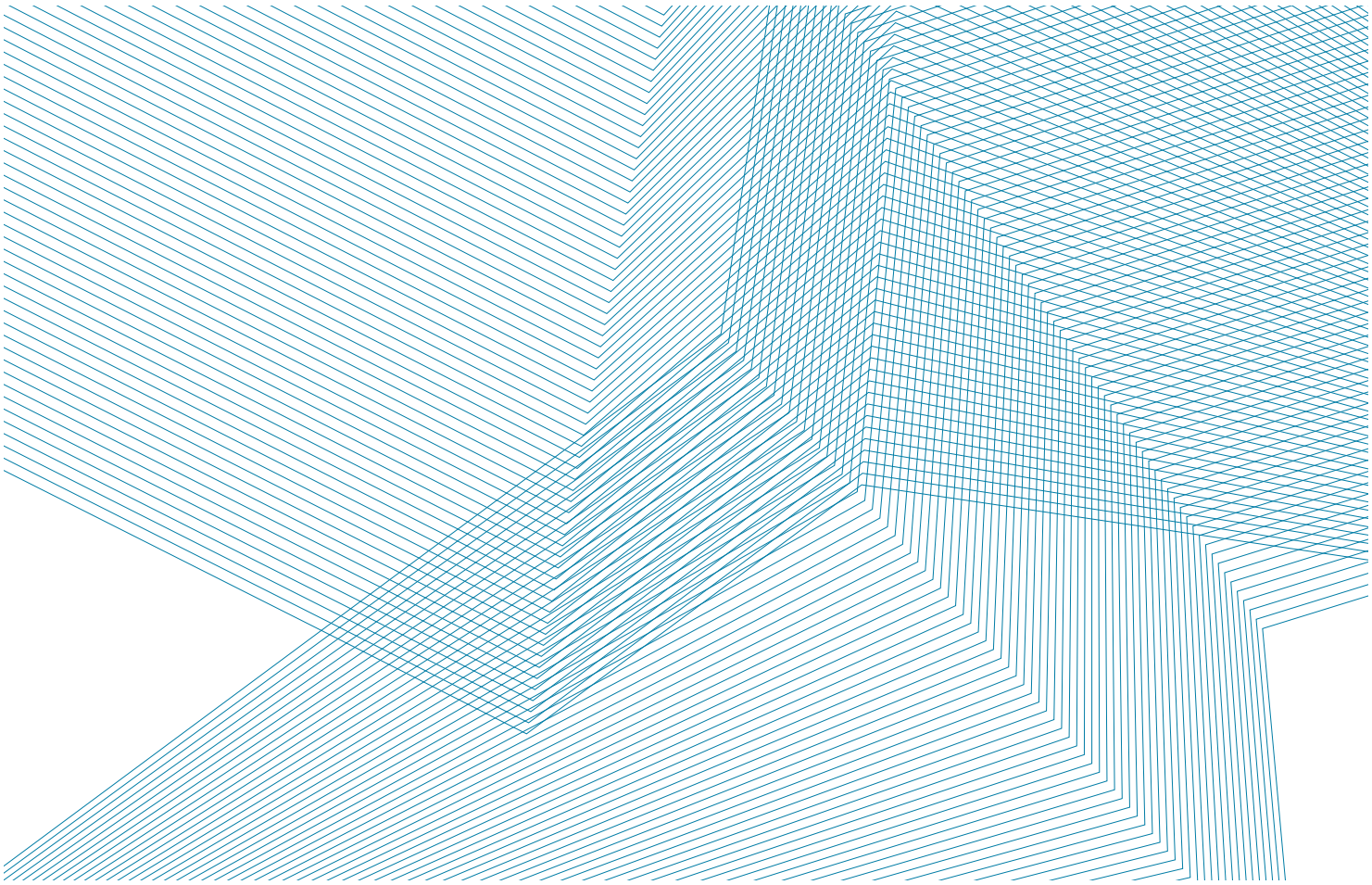
AI Task Force

Operations & Planning Working Group

Report & Recommendations

Delivered June 2025



UNIVERSITY OF TORONTO

DEFY GRAVITY

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Executive summary

The Operations & Planning Working Group explored considerations for the implementation of AI projects within University administration, finance, facilities management, governance, and institutional management.

We identified a range of potential use cases in three areas: 1) forecasting, projections, and tracking; 2) the automation of transactional work; and 3) enhanced service provision. Our work explored the potential contributions of AI in these areas, and what might be needed in order to safely realize this potential in alignment with University priorities and values. In exploring potential benefits, we focused on the ways GenAI has expanded opportunities to leverage existing machine learning, automation, and data analytics tools used in these areas.

For example, GenAI can expand opportunities for data analysis by making more data available to use in forecasting, planning, and tracking. GenAI can also make analytics tools and approaches accessible to more people (through coding assistance, natural language querying, and so on). Likewise, GenAI expands opportunities to automate transactional tasks by supporting process discovery and description using both structured and unstructured data, expanding coding abilities, and, soon, completing complex tasks independently as part of an automated process. Finally, we saw opportunities for GenAI to enhance service provision in a number of ways, but most notably through expanded use of chatbots both internally and in client- (e.g., student-) facing tools.

We explored potential benefits, necessary resources, and potential risks using an applied approach, launching small-scale pilot projects that we hoped could be completed by Working Group members as we met over the fall term. Drawing on experiences with the pilots, we discussed the process of assessing the benefits or value of AI use cases, identifying needed resources and information for implementation, and identifying and assessing risks and limitations.

While this process was very useful in helping us develop our recommendations, our pilot projects demonstrated to us that, despite the many opportunities for GenAI to enhancing University operations, the scope of what we were able to implement was limited. Each group quickly ran into barriers that stalled the project, or caused groups to compromise on or narrow the scope of their project goals.

Barriers and challenges included:

- Tool availability and selection
- Uncertainty over data security
- Identifying and gaining access to appropriate data sets, and understanding how to format or combine data sets so that they could be analyzed using AI
- Setting up multi-step processes that required connecting multiple tools, or connecting an AI tool to a database
- Limited ability to generate output in the format or of the quality we hoped for
- The time needed to explore and implement potential solutions, given other demands and responsibilities

Collectively, the impact of these barriers was that the project scope became defined by the tools, data, and skills that were readily available to the pilot groups, rather than building projects that reflect actual informational and process needs or strategic priorities.

This experience led us to identify several areas where additional information and resources are needed to support the implementation of AI in operations and planning:

- Guidance for identifying and prioritizing potential use cases, to align with University priorities and values
- Approaches to mitigating risk—including through tool selection and guidelines for incorporating AI into a workflow—to help people move forward on AI projects with confidence that they are doing so responsibly and safely
- AI training and professional development that would allow more people within the University to complete approved AI projects with greater independence
- Clear pathways to request support from those with AI, data, and technical expertise so that teams have the ability to move past barriers or questions in their projects
- Updates to University data and technology infrastructure to ensure that useful data and the appropriate tools are available for a given project

Recommendations that reflect this understanding of needed information and resources, drawing on our experience with these pilot projects, our discussions about their implications within our Working Group, and in our consultations, follow below.

Recommendations

Identifying and prioritizing AI use cases

Currently, many AI use cases are identified through experimentation or curiosity by individual users, and the University should continue to allow for this grassroots approach to discovering AI use cases. Additionally, in order to ensure that AI is deployed in ways that align with institutional needs and priorities, we recommend that the University develop a coordinated approach to the identification of potential AI use cases by:

- Establishing a formalized feedback loop where individual discoveries can be shared and evaluated, to ensure that valuable insights are captured and scaled appropriately
- Using UniForum data to identify transactional activities that may be relatively easy to automate and may represent work that is tedious or error prone; we anticipate that automating such transactional activities would allow additional time for strategic work
- Developing a process (e.g., a scoring system or framework) to allow individuals, units, or institutional bodies to evaluate, compare, and prioritize potential AI use cases in the area of operations by assessing the degree to which a potential use case may:
    - Enhance faculty and staff work experience, quality, and effectiveness
    - Enhance efficiency
        - Pose minimal risk (see below) or have the potential to mitigate existing risks (e.g., by reducing errors)
        - Align with institutional values and priorities

Recommendations for resources and support

We recommend that the University ensure that the following resources are available to AI users at U of T to implement AI effectively and mitigate risks:

- Safe AI tools and AI-ready institutional data
- AI literacy programs for students, faculty, librarians, and staff. These programs could include workshops, seminars, and online courses to enhance understanding of AI technologies and their implications.
- Information and support for identifying and selecting AI tools in ways that align with institutional guardrails and priorities, including information that maps available tools to recommended or potential uses and that supports AI users in obtaining high-quality output from a given tool
- Support for training and information-sharing, including opportunities to share effective practices, support for grassroots learning (e.g., through communities of practice), and access to AI expertise

To support training and information-sharing, consider developing an institutional platform or online portal to host training materials and tutorials, case studies, and forums for discussion.

- In addition to information about and support for AI use, users may also require access to relevant subject-matter expertise to assess the quality of the output of AI tools
- Guidance for data management that will mitigate risks related to data sensitivity and ownership, and that recognizes that the sensitivity and ownership of data might shift or evolve as data is used within an AI tool, especially when data sets are combined
- Where additional support is needed to implement an AI project, we recommend that the University make available a trained team to provide technical and administrative support for the development and implementation of AI projects (e.g., UBC's Automation Solution Delivery Centre model)

Recommendations to support risk assessment and mitigation

As individuals and units explore new AI applications and use cases related to University operations, new risks associated with AI use will emerge. Individuals, units, and the institution will need tools to anticipate, assess, and manage these risks. We recommend that the University develop a process to allow individuals, units, or institutional bodies to assess, track, and mitigate potential risks from AI use in the following areas:

- **Risks to U of T employees and community members, including:**
  - The unintentional use or disclosure of personal information, including through unintended AI training or reidentification of anonymized data
  - Harm from biased models or outputs, especially as it might affect fairness, equity, inclusion, and accessibility
- **Risks to quality of work or decisions, including:**
  - Inaccuracies (e.g., hallucinations) in AI output; even small or otherwise inconsequential errors may compound in a work process with a high volume of minor transactions, and may lead to disproportionately wrong or unfair results if used in a decision-making process
  - Incomplete or inadequate testing or quality-assurance protocols
  - The use of inappropriate, low-quality, or inadequate data (recognizing that AI can also offer an opportunity to improve data quality)

- **Risks to the institution, including:**
  - Expenses from unchecked or unanticipated use
  - Reputational risks emerging from the deployment of AI (e.g., inappropriately replacing human interactions or decisions with AI), from lack of deployment (e.g., limited service availability), and from data breaches or information security concerns
  - Risks from unknowing use of AI, either by the University or by third parties providing goods and/or services to the University (e.g., AI capabilities embedded in existing software tools without notice)
- **Enhanced risks related to licensing, contracts, copyright and IP, including:**
  - Liability for misuse of a third party's intellectual property through an AI tool
    - Potential limitations on future intellectual property ownership or commercialization (e.g., from use of AI to generate text or code used for publication or tool development)
  - Unintended disclosure of IP or loss of copyright (e.g., from individual or unit-level software licensing or end user agreements), including unintended permission to use data for AI model training
- **Social and environmental risks, including:**
  - Carbon emissions, water use, and other environmental impacts of AI use (of particular importance to the operations portfolio, where the University's sustainability office is housed)
  - Potential negative changes to individual and unit workloads and workflows (recognizing that such changes may also reflect improvements in work experiences)

As one facet of managing environmental risks, we recommend that the University take the following steps to track and mitigate carbon emissions from AI:

- Emissions from AI which are not already covered under the University's Scope 2 emissions, including the definition of appropriate boundary conditions, should be included in the University's tracking of its Scope 3 emissions. This tracking should be used to assess and inform emission mitigation measures at the University.
- Information about the emissions impact (both positive and negative) of certain AI tools should be collected and considered during AI tool procurement
- The President's Advisory Committee on the Environment, Climate Change, and Sustainability (CECCS) should consider opportunities for enhanced mitigation measures, including relating to sustainable procurement, AI use-type, different user groups, and/or other relevant considerations that emerge through committee discussions

Finally, we recommend that the University identify areas of unacceptable risk from AI use, and establish appropriate guardrails or policies to manage these risks. Unacceptable risks might include those that place the institution at risk of violating regulatory or legal requirements, or other duties to its community members and stakeholders, as well as activities that may place community members in personal (e.g., physical or financial) risk.

Working Group membership and approach

Membership

Ron Saporta (Chair)
Chief Operating Officer, Property Services & Sustainability,
Division of the Vice President Operations & Real Estate Partnerships

Andrew Arifuzzaman
Chief Administrative Officer, University of Toronto Scarborough

Patrick Dyke
Legal Counsel, Office of University Counsel

Joyce Hahn
Chief Administrative Officer, Division of the Vice-President & Provost

Anna Kulikov
Senior Manager, Business Improvement & Strategic Initiatives, Facilities & Services

Jeff Lennon
Assistant Vice-President, Planning & Budget

Sinisa Markovic
Deputy Registrar and Executive Director, Registrarial Systems & Strategic Reporting,
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Lisa Myre
Manager, Procurement Programs & Operations, Procurement Services

Victoria Ostler
Chief Administrative Officer, Rotman School of Management

Anuar Rodrigues
Executive Director, Strategy, Office of the Vice-President and Principal,
University of Toronto Mississauga

Objectives and approach

The Operations & Planning Working Group was established to address the impact of AI on planning, operations, and procurement processes and practices. The Working Group met approximately monthly from June 2024 through January 2025.

"Operations" in particular is broad in scope, and could encompass any of the day-to-day activities of the University. As a group, we therefore discussed where to focus our work. Using the UniForum Activity Framework,[1] we identified: a) areas relevant to Operations & Planning not also being addressed by other Working Groups, b) areas relevant to Operations & Planning also being considered by other Working Groups, and c) areas being considered by other Working Groups with minimal connection to Operations & Planning. Through this exercise, we identified the following primary areas of focus:

- General administration (also addressed by the People Strategy & Administration Working Group)
- Finance
- Facilities management
- Governance and institutional management (also addressed by all other Working Groups)

Areas outside of our primary focus included HR, IT, teaching, student services, and research facilities, among others.

1 NouSCubane. (n.d.). UniForum. https://nouscubane.com/uniforum

Recognizing substantial overlap between our areas of focus and those of the People Strategy & Administration Working Group led us to clarify that we would focus on considerations for the implementation of AI projects, while the People Strategy & Administration Working Group focus would address policy and strategic considerations for the administrative use of AI.

To understand the scope of the potential impact of AI in these focus areas, we began by brainstorming potential use cases in each area. Thinking about use cases in concrete terms allowed us to categorize potential uses, consider what principles (that is, goals for or limits to AI use) might be relevant, and identify high priority or potentially high-risk uses for further discussion. A summary of our findings is in Section 3, but one important outcome of this stage was to cluster potential use cases into three categories that we applied to organize our subsequent work:

- Forecasting, projections, and tracking
- Automating transactional work
- Enhancing service provision

Pilot projects

Since our focus was on the implementation of AI projects, we felt that the best way to gather relevant insight was to work through this process ourselves, essentially asking:

- Given current tools, infrastructure, and skill sets, how might AI contribute to Operations & Planning at the University?
- How do existing norms, guidelines and policies, and our proposed principles, areas of risk, and potential guardrails, hold up to actual AI use?
- What perspectives, expertise, and/or information is needed in order to develop and implement an AI project?
- If there are gaps between what we are able to achieve and our goals or hopes for AI, what would be necessary—in terms of technology, training, or other resources—in order to bridge that gap?

With these questions in mind, we formed three small groups for each of the categories above, and developed a small-scale pilot project with the following parameters:

- The project should be feasible within the 2–3 month timeframe available to the Working Group
- Given time constraints, the project should use information or data that is a) readily available to Working Group members, and b) is not highly sensitive or confidential
- The project should be one that can be accomplished using readily available AI tools that require minimal technical assistance or expertise for use (e.g., Copilot, ChatGPT, etc.)

The pilot projects and findings are described in Section 3.

Generating recommendations

As the pilot groups worked through their projects, we brought a series of reflective questions to each meeting, asking Working Group members to draw on their experience with their pilot projects, their professional context and communities, and consultation with other experts and offices, to address the following issues:

- Assessing the benefits or value of AI use cases
- Identifying needed resources and information for implementation
- Assessing risks and limitations

To support its work, Working Group members were asked to consult on AI-related issues within their units and functional areas, and share back their findings. Additionally, we met with the People Strategy & Administration and Technology & Data Governance Working Group co-chairs, as well as members of the University's Vice-President, Operations & Real Estate Partnerships, legal, and IT teams, to ensure alignment with their work.

We have collected these recommendations in a subsequent section of this report.

AI in university operations and planning

Potential use cases

Given our Working Group's focus areas of general administration, finance, facilities management, and governance and institutional management, we set out to brainstorm potential use cases for AI, given our understanding of existing University processes and needs, and of current and near-future AI capabilities.

These use cases are not ones that we are advocating for, necessarily. Rather, they are a framework we used to explore potential benefits, risks, and impact; to assess how a given use case aligns with University values and priorities; and to explore what information and resources would be needed to implement an AI-based solution safely and effectively. Identifying relevant use cases offered us concrete examples to discuss and probe, and allowed us to categorize potential uses to test recommendations and approaches in different contexts.

In the table below, we list potential use cases, categorized into three areas; this is intended to be illustrative rather than comprehensive, and we note that other University activities outside the primary scope of the Operations & Planning Working Group (e.g., those associated with teaching, research, or student services, HR, etc.), might also be represented in these categories.

Forecasting, projections, and tracking	Automating transactional work	Enhancing service provision
• **Predicting use to support just-in-time services**: catering, residence/housing, scheduling/space management/co-location of services, enrolment planning, reducing waste • **Modeling potential impacts and needs**: continuity/contingency planning, budgeting scenarios, space needs, security risk assessment, supporting f inancial planning and budgeting by non-experts • **Improved analysis of qualitative data**: surveys, contract trend analysis • **Tracking and auditing costs and output**: audit invoices, optimize resource allocation, analyze historical data for predictions	• **Document summaries and analysis**: meeting minutes, contracts • **Records and data management**: record retention and security, system-user access management, transformation of data formats, automated data entry, coding invoices • **Project and process management and tracking/event planning**: track project and process completion against budgets and milestones, prompt for subsequent tasks, identify stakeholders and generate consultation plan, exploring variations across divisions • **External vendors**: assessing costs and benefits, automated vendor suggestions • **Processing expense reimbursements**	• **Service customization** • **Institutional policy and process navigation; knowledge management; on-boarding** • **Access**: route mapping, fob activation • **Enhanced training**: e.g., health & safety • **Chatbots and interactive policy support** • **Scheduling and timing of services**

External guidelines and reports on AI use in operations and planning

As also noted by the People Strategy & Administration Working Group, "while many institutions are exploring guidelines for AI use… most such guidelines focus on AI in the University's academic functions, especially teaching and learning." Their report incorporates an overview of guidelines and recommendations addressing AI use in University administration and operations, many of which focus on the potential impact of AI adoption on employees and other stakeholders (including students, faculty, external partners, etc.) and offer recommendations to mitigate risks to those individuals and groups, as well as to the institution as a whole, while leveraging the potential benefits of AI when it comes to operational efficiency and service provision.

Beyond these guidelines and recommendations, we can draw on the experience and effective practices in implementing AI in the three focus areas of our Working Group, as identified by educational, public sector, and broader organizations. While we explored opportunities related to many types of AI, below we focus on emerging effective practices related to GenAI given the impact of this technology on existing approaches.

Forecasting, projections, and tracking

Machine learning (ML) has been central to university planning and analytics for years. ML approaches can identify correlations, offer predictive models, and provide an early alert to unusual outcomes. Tools, which are not generative, like PowerBI and Tableau, allow for interaction with data, and for the development of visualizations and dashboards for communication and tracking. The introduction of GenAI is influencing this existing landscape in important ways.[2]

GenAI can make data more readily available: GenAI's strengths in textual analysis may allow for more use of unstructured data, and the ability to combine structured and unstructured data. GenAI may also hold potential for data management and data cleaning, labelling, and generating metadata. A project led by the Ontario Council of University Libraries is exploring these opportunities.[3]

GenAI makes all AI activities more visible: The introduction of GenAI, and the subsequent focus on AI as a tool in university activities, means that such existing work may be understood as part of the University's broader AI strategy and ecosystem and might therefore receive more attention, and benefit from broader institutional expertise.[4]

GenAI can also broaden access to other forms of AI and analytics: For example, large-language models (LLMs) make it possible to query data using natural language. As Jiang, Liu, Baig, and Li (2024) describe, "Imagine a higher education leader dynamically discussing data visualizations, asking natural language questions, and receiving comprehensive explanations. This could become a reality through the integration of ChatGPT and Power BI via an API." However, using an LLM to interface with data adds risk that the biases of the LLM will influence how queries are structured and the results that are obtained.[5]

2 IBM Technology Director. (2024, May 9). The Impact of Generative AI on Business Intelligence [Video recording]. https://www.youtube.com/watch?v=io6JqPG80WU

3 OCUL: Ontario Council of University Libraries. (2025, January 28). Ontario University Libraries Explore Collaboration and Capacity Building in AI and Machine Learning. https://ocul.on.ca/ai-machine-learning-program-update-jan-2025

4 For example, a survey from the Association for Institutional Research indicates that a barrier to adoption of AI by its members is a lack of institutional strategy or and institutional expertise in AI. The Use of Generative Artificial Intelligence in Institutional Research/Effectiveness. (2024). Association for Institutional Research. https://www.airweb.org/resources/research-initiatives/air-community-surveys/generative-ai-in-ir-ie

5 Jiang, T., Liu, E., Baig, T., & Li, Q. (2024). Enhancing decision-making in higher education: Exploring the integration of ChatGPT and data visualization tools in data analysis. New Directions for Higher Education. 2024(207), 15-29. https://doi.org/10.1002/he.20510

And as Webber and Zhang (2019) note, a "larger volume of data does not necessarily ensure better decision making." As LLMs broaden access to data analytics, we may need to do more to ensure that the resulting information is interpreted using human judgement, in a manner that aligns with University values and priorities.

Automating transactional work

UniForum is a framework used by U of T to categorize administrative and support work that takes place within the University. Tasks within roles are coded by function, and also whether or not the task is "transactional." Transactional tasks include physical tasks (e.g., maintenance) as well as administrative tasks that may be cyclical and follow a set process. Nearly all administrative roles at the University combine transactional tasks with "strategic" tasks responding to emerging contexts, opportunities, or challenges.

For a number of years, the post-secondary sector has explored Robotic Process Automation (RPA) to automate repetitive or transactional tasks to increase efficiency, reduce errors, and allow staff to focus on more strategic work.[6] UBC has established a framework to implement RPA projects (for example, automating steps in the reimbursement process).[7]

The introduction of GenAI offers new opportunities for task automation.[8] For example:

GenAI can track, discover, or describe processes from structured or unstructured data: To identify steps in a workflow appropriate for automation often requires a detailed description of a given workflow. AI can identify patterns and processes from interviews, documentation, or work artifacts, generating flowcharts or other descriptions of a task or process.[9]

People can use GenAI to support coding or to create automation scripts: If automation requires coding (e.g., a Python script, or a flow in PowerAutomate), GenAI can generate or review code, or otherwise support the coding process (though such code should be carefully tested and reviewed).[10]

Agentic AI will allow GenAI to interact with websites and systems: Agentic AI can take actions online, such as placing orders. As agentic AI develops, it may play a key role in moving from step to step in a process, by, for example, collecting information and deciding how to act on it.[11]

Increased opportunities for automation also raise concerns about the impact of AI on work.[12] As part of U of T's AI Task Force, the People Strategy & Administration Working Group has recommended monitoring of any AI implementation for its impact on employee work. More broadly, organizations like

6 Canadian Association of University Business Officers. (2020, September 2). Leveraging Robotic Process Automation to Optimize Administrative Processes. https://www.caubo.ca/latest-news/leveraging-robotic-process-automation/

7 University of British Columbia Information Technology (2025, February 5). Robotic Process Automation (RPA). https://it.ubc.ca/services/campus-systems/robotic-process-automation-rpa#further

8 See, for example: Askew, T., Mathew, R.,Fishman,T., Kunkel, D., Caron, B. (2024, September 25). How higher education can realize the potential of Generative AI. https://www2.deloitte.com/us/en/insights/industry/public-sector/generative-ai-higher-education.html; Mollick, E. (2024, April 02). "Reinventing the Organization for GenAI and LLMs." MITSloan Management Review. https://sloanreview.mit.edu/article/reinventing-the-organization-for-genai-and-llms/

9 See Robbins, H. (2025, February 13). Opinion | How Colleges Can Kick Their Addiction to Consultants. The Chronicle of Higher Education. https://www.chronicle.com/article/how-colleges-can-kick-their-addiction-to-consultants and Davenport, T., & Redman, T. (2025, February). How to Marry Process Management and AI. Harvard Business Review. https://hbr.org/2025/01/how-to-marry-process-management-and-ai

10 Hampson, M. (2024, July 6). ChatGPT Code: Is the AI Actually Good At Writing Code? IEEE Spectrum. https://spectrum.ieee.org/chatgpt-for-coding (though this technology is evolving quickly)

11 Purdy, M. (2024, December 12). What Is Agentic AI, and How Will It Change Work? Harvard Business Review. https://hbr.org/2024/12/what-is-agentic-ai-and-how-will-it-change-work; Newton, C. (2025, January 23). OpenAI launches its agent. Platformer. https://www.platformer.news/openai-operator-ai-agent-hands-on/

12 Kessler, S. (2023, June 10). The A.I. Revolution Will Change Work. Nobody Agrees How. The New York Times. https://www.nytimes.com/2023/06/10/business/ai-jobs-work.html

the OECD[13] and U of T's Schwartz Reisman Institute,[14] or MIT's Shaping the Future of Work initiative[15] explore the potential impact of AI on work and suggest policy directions to ensure that automation, among other AI capabilities, is deployed in a way that augments human capabilities.

Enhancing service provision

Customized chatbots have been an early use case for GenAI, including in universities.[16] Chatbots allow for natural language questions and responses and can draw on custom knowledge bases to provide highly personalized information that is always available.

Within the university, in cases where people need to retrieve or confirm information to move forward in their work, these capabilities can be combined with information security systems to manage access to data or tools.[17] Universities have also developed student- and public-facing chatbots to answer questions about university resources or processes.[18]

As a result of this technology, some queries or requests can be resolved immediately. However, especially for interactions that are very sensitive (e.g., communicating bad news to an employee or student),[19] or in areas that require high levels of accuracy or precision, the inevitability of LLM hallucinations carries inherent limitations to how such tools can or should be used.[20] Additionally, the benefits of such chatbots may be counterbalanced by the benefits of human review and input on such queries, whether to build relationships with and within the University, or to offer expert judgement and insight into processes and exceptions.[21]

Universities and similar organizations are therefore working to explore the implementation of customized chatbots and other uses of GenAI for enhanced service provision with this balance of priorities in mind. For example, Australia has developed a framework for using AI in public-service delivery that emphasizes integrity, empathy (including by escalating people in vulnerable situations to human support), performance, and competence.[22]

The *Chronicle of Higher Education* has profiled the use of chatbots in student services to, for example,

13 Organisation for Economic Co-operation and Development OECD Artificial Intelligence Papers. (2024). Using AI in the workplace. https://www.oecd.org/en/publications/using-ai-in-the-workplace_73d417f9-en.html

14 Schwartz Reisman Institute for Technology and Society (SRI).(n.d.).https://srinstitute.utoronto.ca/

15 Massachusetts Institute of Technology.(n.d.). Shaping the Future of Work. https://shapingwork.mit.edu/

16 Rigon, G., Ramos, L., Elliot, B., & Mullen, A. (2024). Lessons from Generative AI Early Adopters. Gartner.

17 Long, M. (2024, September 19). Are Your AI Chatbots Giving Away More Information Than They Should? EdTech. https://edtechmagazine.com/higher/article/2024/09/are-your-ai-chatbots-giving-away-more-information-they-should

18 The Student Services Working Group highlights the following examples: Page, L. C., & Gehlbach, H. (2017). How an Artificially Intelligent Virtual Assistant Helps Students Navigate the Road to College. AERA Open, 3(4). https://doi.org/10.1177/2332858417749220 and Varela, K. (2024). Reducing Points of Friction With AI: Making Institutional Processes More Accessible, Equitable and Efficient. Inside Higher Ed. https://www.insidehighered.com/reports/2024/08/19/reducing-points-friction-ai-making-institutional-processes-more-accessible. See also Bryant, R. (2024, December 12). Implementing an AI reference chatbot at the University of Calgary Library. OCLC Research Blog Hanging Together. https://hangingtogether.org/implementing-an-ai-reference-chatbot-at-the-university-of-calgary-library/ and Totimeh, K. (2024, September 3). AI chatbot AcademicGPT generates tailored support for students. McMaster University Faculty of Engineering. https://www.eng.mcmaster.ca/sept/news/ai-chatbot-academicgpt-generates-tailored-support-for-students/.

19 See, for example: Levine, S. (2023, February 22). Vanderbilt apologizes for using ChatGPT in email on Michigan shooting. The Guardian. https://www.theguardian.com/us-news/2023/feb/22/vanderbilt-chatgpt-ai-michigan-shooting-email

20 For example, see Garcia, M. (2024, February 19). What Air Canada Lost In 'Remarkable' Lying AI Chatbot Case. Forbes. https://www.forbes.com/sites/marisagarcia/2024/02/19/what-air-canada-lost-in-remarkable-lying-ai-chatbot-case/

21 "Humans outperform AI at dealing with tasks that have high context variability, especially activities with a strong social aspect (tasks that require emotional intelligence, building relationships, or providing support like coaching and mentoring students), complex decision-making—especially for ambiguous situations (such as identifying a new academic program), strategic planning, and creative problem-solving (like increasing student engagement), among others." Askew, T., Mathew, R.,Fishman,T., Kunkel, D., Caron, B. (2024, September 25). How higher education can realize the potential of Generative AI. Deloitte Insights. https://www2.deloitte.com/us/en/insights/industry/public-sector/generative-ai-higher-education.html

22 Australian Government Department of the Prime Minister and Cabinet Insight 4: Successful service delivery depends on supporting people to engage with AI-enabled services in the long term. (2023). How Might Artificial Intelligence Affect the Trustworthiness of Public Service Delivery? https://www.pmc.gov.au/resources/long-term-insights-briefings/how-might-ai-affect-trust-public-service-delivery/ai-trust/insight4

address students' preliminary transactional admissions questions, or redirecting questions to appropriate services, with the intent that staff time can be spent on more meaningful interactions—recognizing that it is not always obvious where transactional conversations end and substantive discussions begin. Another approach has been to use the natural language capabilities of GenAI to gather queries and questions, but to release only set, pre-approved responses or excerpts from relevant sources (as opposed to having GenAI generate novel responses).[23]

Finally, in implementing AI, we noted the potential for external regulations and legal requirements to shape and inform how AI is used within the institution. This might include, for example:

- Requirements, guidelines, or norms from professional bodies
- Emerging technical standards
- Environmental and social policies and concerns

We address these in our recommendations in the following pages.

23 Swaak, T. (2023, November 1). Admissions Offices Need More Students and Less 'Drudgery.' Is AI the Answer? The Chronicle of Higher Education. https://www.chronicle.com/article/admissions-offices-need-more-students-and-less-drudgery-is-ai-the-answer. See also Viano, A. (2023, February 9). How Universities Can Use AI Chatbots to Connect with Students and Drive Success. EdTech Focus on Higher Education: Technology Solutions That Drive Education. https://edtechmagazine.com/higher/article/2023/02/how-universities-can-use-ai-chatbots-connect-students-and-drive-success.

Pilot projects and findings

Each pilot group sought to identify a project that could feasibly be accomplished within the time frame of the Working Group activity and with readily available data and tools. Essentially, we aimed to assess current opportunities for AI use in operations and planning, in order to identify potential recommendations and future directions. Below, we review the experience with each pilot project.

Project 1: Administrative procedures and/or contracts chatbot (Enhancing service provision)

Description: The project aimed to test Retrieval Augmented Generation for onboarding and training users of the uSOURCE system, specifically focusing on the End-User Information Library and Administrator Manual. We uploaded a variety of documents, including URLs and manuals, into a Google NotebookLM folder to assess the tool's ability to answer real-world queries and provide accurate, accessible information. The data used included 50 URLs covering critical articles and a set of administrative manuals in PDF format.

Anticipated benefits: We expected AI to provide faster, more efficient, and more accurate responses than conventional methods, especially for fact-based queries. The anticipated benefits included increased efficiency in training, improved access to information for users, and the ability to scale support without requiring extensive human intervention. AI could potentially answer routine queries instantly, providing users with consistent, reliable guidance.

Progress and barriers: While the project showed promise, challenges arose with the tool's formatting issues, lack of visuals, and limited contextual retention. The AI struggled to handle nuanced or follow-up questions, which are crucial for training administrators. Additionally, the tool lacked the ability to integrate screenshots or visuals that would be helpful for visual learners, hindering its effectiveness for some users. Time and resource constraints also limited further testing.

Takeaways: Initially, we were optimistic about AI's potential to streamline on-boarding and training, but through this pilot, we gained a clearer understanding of its current limitations. AI tools like Notebook LM are effective for answering straightforward, fact-based questions, but they still struggle with more complex, context-driven tasks, and especially tasks where visual information is critical. Our perspective shifted to a more cautious but hopeful outlook, recognizing that while AI has substantial promise, at the moment it requires significant refinement before it can fully replace traditional methods for nuanced tasks.

This may change in the near future, or through the creation of a more sophisticated, purpose-built solution, but currently, this off-the-shelf tool is not good enough to address the defined use case.

Project 2: Automated project status analysis and updates (Automating transactional work)

Description: Intent of the pilot was to use the AI tools to automate a project tracking process used within a University office. The current process uses MS Forms to collect information and "walk" the project through Power Automate for the validation/workflow. The pilot aimed to allow a user to upload or scan a document, from which information would be extracted by AI and used to update the project tracker.

Benefits: This would save time and reduce human error. We anticipate that most gain productivity would be at the coordinator/EA role to save time to create a portfolio summary for review by leadership and/or governance bodies. To reap additional benefits, we need to be thinking about how to affect work upstream in the process.

Progress and barriers: This pilot was less of a "functioning pilot" and more of an assessment of the potential application; how it would integrate with existing processes and customers, and what tools and capabilities would be required for successful implementation.

Neither of the two Task Force members worked directly in the department. That barrier, along with demanding roles/schedules for each of us limited our ability to move this to a functioning pilot. We were also unable to identify appropriate institutionally-sanctioned tools to complete this work.

Takeaways: This pilot feels like a low-risk opportunity, as it is gathering information from existing internal sources. It is essentially a "compilation" exercise. Therefore, it is likely a good learning opportunity to develop skills within the team that are generalizable to other applications of AI. The complexity and roadmap for implementing a project of this type seem less daunting after participating in the pilot.

Project 3: Using wi-fi data to predict building needs (Forecasting, projections, and tracking)

Description: Our goal was to utilize building wi-fi data to forecast building use and needs. We envisioned combining wi-fi data with additional institutional data such as course timetables, meeting room bookings, and ancillary service activities to gain insights on space usage (such as peak usage times, underutilized spaces) in the Davis Building at UTM.

Benefits: Such insights would allow us to improve utilization of spaces by optimizing the match between capacity needs and available rooms. This information would also be helpful in forecasting building needs, leading to enhanced services and waste reduction by, for example, ensuring that cleaning schedules align with times that the building is most heavily used, or aligning opening hours for food services with the times that most students are in the building.

Progress and barriers: UTM maintains detailed data on wi-fi usage and has built a number of graphical dashboards to help with insights on usage and planning for wi-fi coverage. While this data was made available to the pilot team for the purposes of this project (in consultation with the FIPP office), other data sets such as classroom and meeting room bookings and ancillary service activities were not readily available in formats that could be used by the team.

Additionally, there are limitations to interpretation of the wi-fi data resulting from placement of access points, which are optimized for coverage but not necessarily for measuring activity in individual rooms. For example, an access point located in a hallway may service multiple meeting rooms in that area, so it is not possible, with the current set up, to isolate activity in individual rooms.

Overcoming the data issues is possible with some clear assumptions. However, the project team was unsure of the appropriate GenAI tools to employ in this case to gain insights. It was felt that this analysis may be beyond the capacity of Copilot, but the team was unsure of which other tools were available to the University and could be safely relied upon to work with this type of data.

Takeaways: Availability of data was a limitation for the project; however, there remains significant opportunity to gain insights on usage of space through GenAI by combining complex data sets. All projects that combine multiple anonymized data sets should carefully consider the risk of re-identification and implement necessary protections. The University should consider how it collects and stores key data to improve access and ability to leverage for complex analyses such as what was envisioned for this project. Additionally, data considerations (e.g., locating wi-fi access points to help with planning in addition to optimizing coverage) could inform future building and infrastructure plans.

Pilot project findings

While it was easy to envision how AI might support projects with these characteristics, we found implementation more challenging than we had anticipated. Our main takeaway is that the ability to implement even simple AI projects is dependent on the availability of skilled advice, appropriate support, and enhanced training in the following areas:

Tool selection

Advice would be welcome (whether through consultation or through a self-serve resource) about what tools are available to members of the U of T community, their strengths and limitations, as well as suitability for a given use or need. The availability of this advice would save considerable time, both in the planning stages of a project and, potentially, in avoiding partial implementation with an unsuitable tool.

In some cases, users might identify that a tool outside the U of T ecosystem might be best suited to the task at hand; currently, there is no clear process for requesting and vetting a new AI tool.

Potential impact on AI projects: Given these challenges, we might expect to see:

- People selecting a tool based on familiarity or availability, rather than suitability to the task
- Modifying the task to match the capabilities and limitations of the tool, which could reduce efficiencies or de-emphasize the desired human aspects of a project
- Limited identification or adoption of new tools with needed capabilities

Data access and data preparation

Our groups recognized the importance of strong data security and data governance to protect privacy and intellectual property. While there is much respect for the frameworks and processes the University has implemented, the challenges of data access and sharing at the University persist, and have significant impact on opportunities to use AI for planning and forecasting in particular. Limitations in our data inventory, lack of access to “live” data, and lack of clear processes for requesting access to data all pose challenges to identifying and accessing relevant data sources to address strategic questions.

While many members of our community have strong data skills, this is not universal. Setting aside conceptual planning for data analysis, our pilot projects experienced challenges in identifying what data preparation (e.g., data formatting, cleaning, labelling, etc.) was needed to allow the data to be analyzed accurately and effectively.

Additionally, we recognize that AI poses new challenges to existing frameworks and protections. For example, combining data sets for AI analysis may introduce new privacy concerns or uncertainty about data ownership or management of the AI output. We understand that the Technology, Data Governance & Digital Trust Working Group has focused their attention on these issues, but we have noted them as current challenges and concerns.

Potential impact on AI projects: Given these challenges, we might expect to see:

- People scoping projects or queries based on available data, rather than strategic priorities
- Limits to accuracy or scope of analyses given challenges of determining how to ensure data is appropriately prepared for or shared with an AI tool

Generating high-quality output

Our pilot groups found it challenging to obtain the exact type of output needed for their projects, whether in terms of accuracy or specificity of the information provided, or in the format of the information (e.g., producing structured data that could be used by another tool, providing relevant visualizations, etc.). Pilot projects would have benefitted from support for developing effective prompts or otherwise working with a given tool to generate needed output.

An additional consideration is the ability to assess and test output quality (i.e., "red teaming[24]"). This might be, for example, testing code generated by an LLM, assessing data after AI processing, or ensuring that a chatbot provides accurate information or referrals, especially for sensitive topics. Our groups found it challenging to develop a structured and comprehensive testing protocol for their AI output.

Potential impact on AI projects: Given these challenges, we might expect to see:

- Limiting AI output to "behind the scenes" uses, with intensive human checking and manual revision or reformatting, limiting the contributions of AI to efficiency or service enhancement (or, similarly, deciding not to pursue this approach because output will always require review)
- Higher risks of error or operational disruption from AI projects, if we cannot be assured of the accuracy or quality of AI output

Integration and sharing

Technical skills and system access are needed for more sophisticated automations, for API integration, to connect AI tools to databases, and to manage data access within a tool. Currently, there are not clear pathways to requesting approval for these actions, or to request technical support for these tasks.

Potential impact on AI projects: Given these challenges, we might expect to see:

- Limited scope of projects (projects shaped by what is feasible without additional technical support)
- Manual processes (e.g., for uploading data) with a higher risk for error and security breaches

24 That is, having people pose as users (or sometimes "bad users") who have enough expertise to know what the output should be to test the system. Or even ask them to "push" the system to see if poorly formed prompts result in bad output. See Computer Security Resource Center (n.d.). Red Team https://csrc.nist.gov/glossary/term/red_team.

Capacity for project planning and implementation

In addition to these more technical barriers, a significant operational or process barrier to building and deploying our projects was simply the time needed to assess needs, plan an approach, seek out expertise, and test and adjust approaches.

Implementing even small projects took more time than anticipated and could not be readily accomplished off the side of one's desk. While addressing the issues noted above would expedite many aspects of the implementation process, we also recognized the need to set aside dedicated time to develop and implement AI projects, whether within an existing team or available temporarily to implement a project.

Potential impact on AI projects: Given these challenges, we might expect to see:

- Project selection driven by existing skills or familiarity with and access to specific AI tools or data sets, rather than projects planned to meet business needs or institutional priorities

Pilot projects: Conclusions

While there is much enthusiasm and many ideas for projects that could incorporate AI, we found that the scope of what is currently feasible to implement without additional support is limited. Additionally, the scope of possible projects becomes defined by the tools, data, and skills that are readily available, instead of building projects that reflect actual data, and process needs as well as strategic priorities.

In addition to considering expanded access to tools, data, and AI skills, a key need identified through the pilot process is the establishment of clear pathways to obtain or request resources and support so that teams have the ability to move past barriers or questions in their projects.

The following recommendations address some of the resources or information that would address potential barriers, as well as recommendations addressing processes that would support systematic, strategic, effective, and safe implementation of AI.

Recommendations

Identifying and prioritizing AI use cases

Currently, many AI use cases are identified through experimentation or curiosity by individual users, and the University should continue to allow for this grassroots approach to discovering AI use cases. Additionally, in order to ensure that AI is deployed in ways that align with institutional needs and priorities, we recommend that the University develop a coordinated approach to the identification of potential AI use cases by:

- Establishing a formalized feedback loop where individual discoveries can be shared and evaluated, to ensure that valuable insights are captured and scaled appropriately
- Using UniForum data to identify transactional activities that may be relatively easy to automate and may also represent work that is tedious or error prone; we anticipate that automating such transactional activities would allow additional time for strategic work.
- Developing a process (e.g., a scoring system or framework) to allow individuals, units, or institutional bodies to evaluate, compare, and prioritize potential AI use cases in the area of operations by assessing the degree to which a potential use case may:
    - Enhance faculty and staff work experience, quality, and effectiveness
        - Enhance efficiency
        - Pose minimal risk or have the potential to mitigate existing risks (e.g., by reducing errors)
        - Align with institutional values and priorities

Recommendations for resources and support

We recommend that the University ensure that the following resources are available to AI users at U of T to implement AI effectively and mitigate risks:

- Safe AI tools and AI-ready institutional data
- AI literacy programs for students, faculty, librarians, and staff. These programs could include workshops, seminars, and online courses to enhance understanding of AI technologies and their implications.
- Information and support for identifying and selecting AI tools in ways that align with institutional guardrails and priorities, including information that maps available tools to recommended or potential uses and that supports AI users in obtaining high-quality output from a given tool
- Support for training and information sharing, including opportunities to share effective practices, support for grassroots learning (e.g., through communities of practice), and access to AI expertise

To support training and information sharing, consider developing an institutional platform or online portal to host training materials and tutorials, case studies, and forums for discussion.

- In addition to information about and support for AI use, users may also require access to relevant subject-matter expertise to assess the quality of output of AI tools
- Guidance for data management that will mitigate risks related to data sensitivity and ownership, and that recognizes that the sensitivity and ownership of data might shift or evolve as data is used within an AI tool, especially when data sets are combined
- Where additional support is needed to implement an AI project, we recommend that the University make available a trained team to provide technical and administrative support for the development and implementation of AI projects (e.g., UBC's Automation Solution Delivery Centre model)[25]

Recommendations to support risk assessment and mitigation

As individuals and units explore new AI applications and use cases related to University operations, new risks associated with AI use will emerge. Individuals, units, and the institution will need tools to anticipate, assess, and manage these risks. We recommend that the University develop a process to allow individuals, units, or institutional bodies to assess, track and mitigate potential risks from AI use in the following areas:

- Risks to U of T employees and community members, including:
  - The unintentional use or disclosure of personal information, including through unintended AI training or rei-dentification of anonymized data
  - Harm from biased models or outputs, especially as it might affect fairness, equity, inclusion, and accessibility
- Risks to quality of work or decisions, including:
  - Inaccuracies (e.g., hallucinations) in AI output; even small or otherwise inconsequential errors may compound in a work process with a high volume of minor transactions, and may lead to disproportionately wrong or unfair results if used in a decision-making process
  - Incomplete or inadequate testing or quality-assurance protocols
  - The use of inappropriate, low quality, or inadequate data (recognizing that AI can also offer an opportunity to improve data quality)
  - Low-quality user or client experiences
- Risks to the institution, including:
  - Expenses from unchecked or unanticipated use
  - Reputational risks emerging from the deployment of AI (e.g., inappropriately replacing human interactions or decisions with AI), from lack of deployment (e.g., limited service availability), and from data breaches or information security concerns
  - Risks from unknowing use of AI, either by the University or by third parties providing goods and/or services to the University (e.g, AI capabilities embedded in existing software tools without notice)

25 University of British Columbia Information Technology (2025, February 5). *Robotic Process Automation (RPA)*. https://it.ubc.ca/services/campus-systems/robotic-process-automation-rpa#further

- Enhanced risks related to licensing, contracts, copyright, and IP, including:
  - Liability for misuse of a third party's intellectual property
  - Potential limitations on future intellectual property ownership or commercialization (e.g., from use of AI to generate text or code used for publication or tool development)
  - Unintended disclosure of IP or loss of copyright (e.g., from individual or unit-level software licensing or end user agreements), including unintended permission to use data for AI model training
- Social and environment risks, including:
  - Carbon emissions, water use, and other environmental impacts of AI use
  - Potential negative changes to individual and unit workload and workflow (recognizing that such changes may also reflect improvements in work experiences)

As one facet of managing environmental risks, we recommend that the University take the following steps to track and mitigate carbon emissions from AI:

- Emissions from AI which are not already covered under the University's Scope 2 emissions, including the definition of appropriate boundary conditions, should be included in the University's tracking of its Scope 3 emissions. This tracking should be used to assess and inform emission mitigation measures at the University.
- Information about the emissions impact (both positive and negative) of certain AI tools should be collected and considered during AI tool procurement
- The President's Advisory Committee on the Environment, Climate Change, and Sustainability (CECCS) should consider opportunities for enhanced mitigation measures, including relating to sustainable procurement, AI use-type, different user-groups, and/or other relevant considerations that emerge through committee discussions.

Finally, we recommend that the University identify areas of unacceptable risk from AI use, and establish appropriate guardrails or policies to manage these risks. Unacceptable risks might include those that place the institution at risk of violating regulatory or legal requirements, or other duties to its community members and stakeholders, as well as activities that may place community members in personal (e.g., physical or financial) risk.

Conclusion

Our discussions and experimentation with AI pointed to promising applications in forecasting, projections, and tracking; automating transactional work; and enhancing service provision. Given the potential scope of these opportunities, it will be important for U of T to develop a process for identifying and prioritizing use cases to align investment in AI projects with areas that reflect University priorities and values.

However, our experiences also pointed to roadblocks to implementation of AI in operational projects at U of T at the current time. Our pilot projects encountered barriers in tool selection, data access and data preparation, in generating high-quality output, in integration and sharing, and in our capacity for project planning and troubleshooting. Building skills across the University in the form of training and professional development, and providing resources to support more advanced use cases, could help manage these challenges.

We also identified a range of risks, and began to discuss strategies for reducing or mitigating these risks. Of particular relevance to the Operations & Planning Working Group was the opportunity to begin to address the environmental impact of AI by incorporating AI considerations into our existing approaches to tracking and mitigating carbon emissions. This recommendation reflects our commitment to becoming a climate-positive campus, and our existing leadership in decarbonization.

Each of these recommendation areas offers opportunities for leadership in our approach to AI in University operations and planning. Developing a systematic and value-driven approach to identifying and prioritizing use cases offers opportunities for leadership in shaping AI use within the post-secondary sector. Implementing training and support allows us to develop institutional expertise that, in turn, will allow us to take on complex and innovative projects. Managing risk and impact aligns our AI use with our commitments to our campus and scholarly communities, maintaining our status as a trusted partner.

Taken together, our hope is that these recommendations will support U of T in modeling innovative and responsible AI use, particularly in operations and planning.

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