



ГПНТБ
СО РАН

"Upskilling the Next Generation of Research Support: The Role of AI, Robotics, and Digital Transformation – A Case Study of the University of Pretoria Library."

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University of Pretoria Library

**LIBWAY
2025**

Новосибирск



IFLA Special Interest Group
Artificial Intelligence



INTRODUCTION

- ✓ The presentation will focus on the current use case and the link within the institutional perspective.
- ✓ The advances made by the library.
- ✓ The position within the academic library community.
- ✓ The Library's future outlook.

AI Implementation in the Library

Background:

- ✓ South African AI policy in place [according to global AI tracker](#)
- ✓ Adoption of AI and [digital transformation](#) by the Institution according to the new UP digital strategy website
- ✓ Institutional guidelines for Generative AI usage for [tutoring](#) lectures, [students](#), [teaching and learning](#), [design assistant](#)
- ✓ Institutional guideline on Ethical governance of [digital technology](#)

Initiatives:

- ✓ Introduced [robotics for customer service](#).
- ✓ Launched a [digital literacy tool](#) to enhance the staff upskilling programs.
- ✓ Implementation of AI-driven research discovery tools and [responsible use](#), and ethical considerations.

Outcomes:

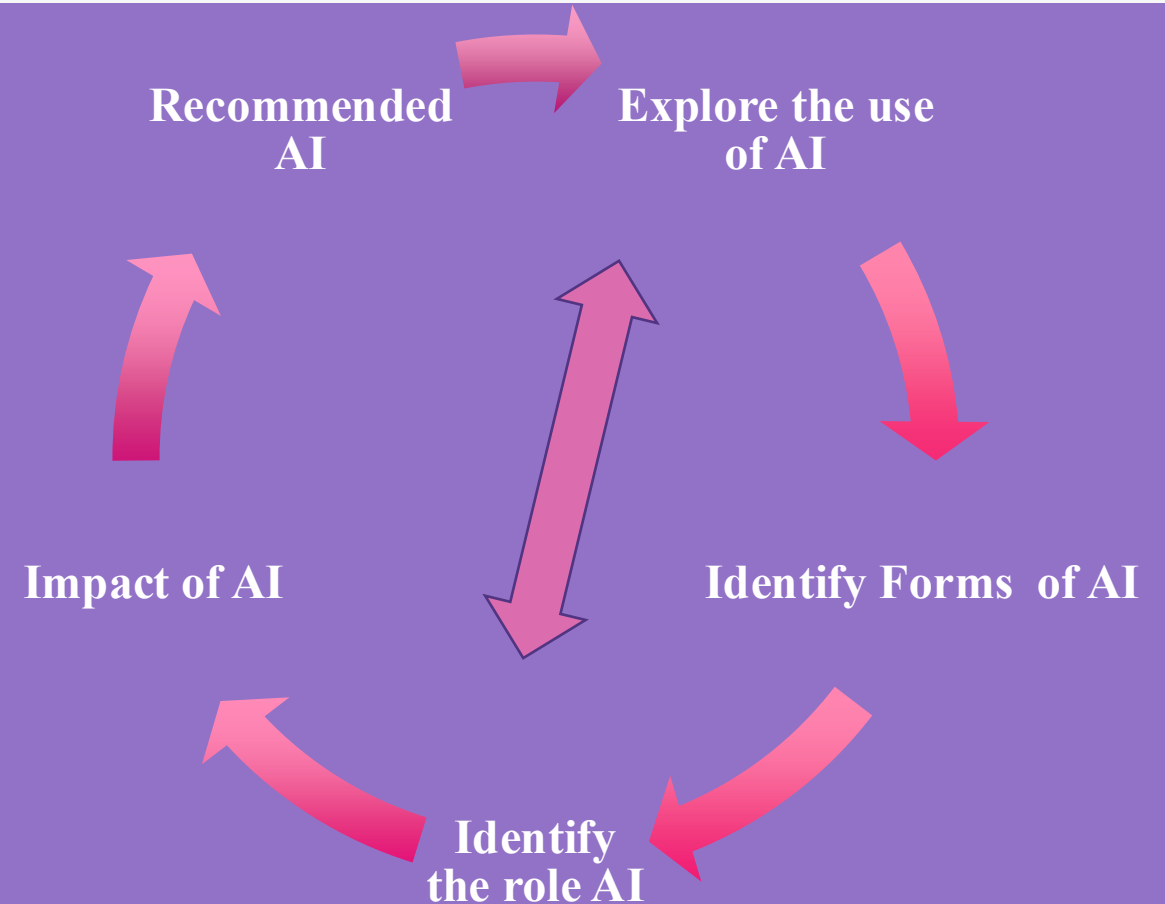
- ✓ Institutional-aligned Library guideline
- ✓ AI Enhanced user satisfaction.
- ✓ Improved efficiency in research support services.
- ✓ Increased staff and student confidence in using AI.

KEY POINTS

- 1 AI
- 2 Robotics
- 3 Digital Transformation
- 4 Research Writing AI
Enhancement Tools and ethics



FRAMEWORK USED



AI in Research Support



AI in Research writing is used for a wide range of applications, from idea generation and literature review to data analysis, writing assistance, and writing [detection capabilities](#).



AI Applications enhance the following research forms;
Efficiency, accuracy, and quality
Results in high-quality of work



The role of AI is to Enhance efficiency, accuracy, and collaboration while also presenting challenges related to quality, ethics, and data privacy.

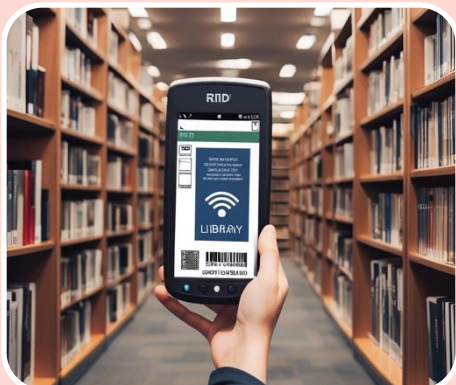


The impact of AI in research writing by enhancing efficiency, accuracy, and collaboration while also presenting challenges related to quality, ethics,

Recommended AI in research support

- ✓ **Idea generation and topic identification**
- ✓ **Literature review**
- ✓ **Data collection and analysis**
- ✓ **Writing assistance**
- ✓ **Peer review and feedback**
- ✓ **Collaboration and project management**
- ✓ **Ethical and bias detection**
- ✓ **Personalized learning and skill development**
- ✓ **Publication and dissemination**

Robotics in Libraries



Robotics enhance operational efficiency, improve user experience, and make libraries more accessible and inclusive. by automating book retrieval and inventory management, user assistance and interactive learning, modernizing library

Forms of Robots in Libraries;
Automated Storage and Retrieval Systems (ASRS) Sorting and Shelving Robots, Cleaning and Maintenance Robots Security and Surveillance Robots, Assistive Robots for Accessibility
Data Collection and Analysis Robots
Virtual and Remote Assistance Robots

The role of Robots is Automated Book Retrieval and Sorting. Inventory Management, User Assistance, and Customer Service, Accessibility, and Inclusivity, Library Maintenance, and Security, Interactive Learning and Engagement, Data Collection and Analysis, Remote Access and Virtual Assistance

The impact of Robotics Enhanced Operational Efficiency, Improved Accessibility and Inclusivity, Enhanced User Experience and Cost Savings and Resource Optimization, Improved Inventory Management, Enhanced Security and Maintenance, Data-Driven Decision Making,

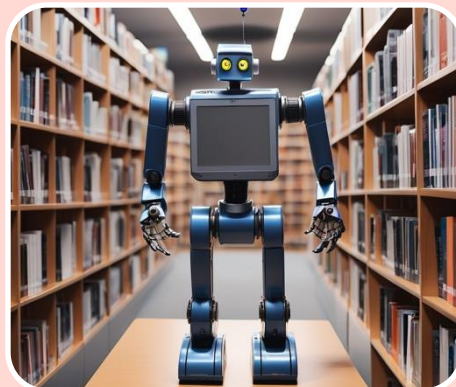
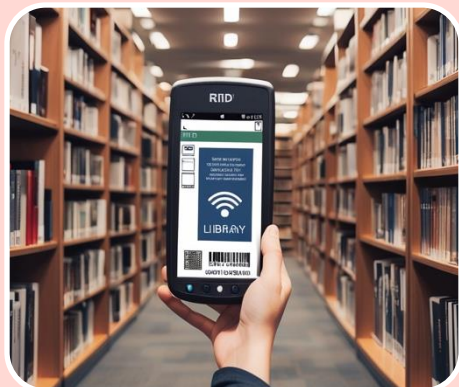
Recommended Robotics

- ✓ Automated storage and Retrieval systems,
- ✓ Sorting and shelving robots,
- ✓ Service and assistance robots,
- ✓ Educational robots,
- ✓ Cleaning robots,
- ✓ Security robots,
- ✓ Assistive robots,
- ✓ Virtual assistants,
- ✓ Data collection robots and
- ✓ Self-service kiosks.

Lessons learned

- ✓ **Costs**
- ✓ **Maintenance and Updates**
- ✓ **User Adaptation**
- ✓ **Ethical Concerns**

Digital literacies in Libraries



Digital transformation in libraries enhances access to resources, improves user experience, streamlines operations, and supports community engagement and lifelong learning.

Digital transformation in libraries takes many forms, from digital collections and integrated library systems to remote access, mobile services, maker spaces, and emerging technologies.

The critical role of digital literacies in modernizing libraries is to enhance access to resources, improve user experiences, streamline operations, and foster innovation.

Digital literacy has a **transformative impact** on libraries, empowering patrons with essential skills, bridging the digital divide, and fostering innovation and civic engagement. By promoting digital literacy, libraries play a critical role in ensuring that individuals

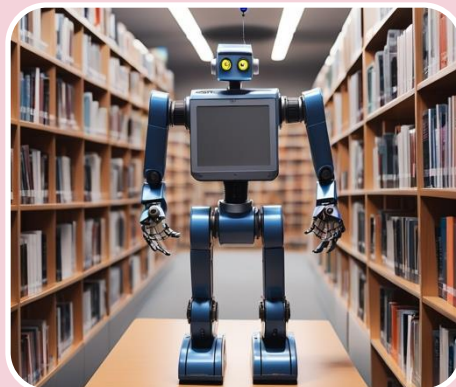
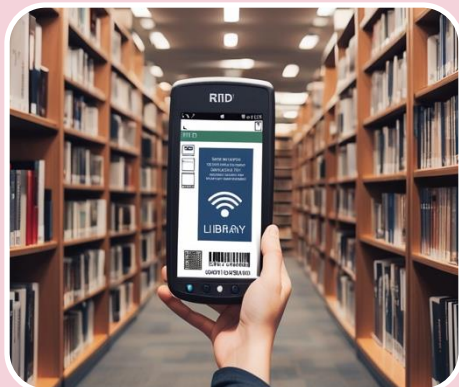
The recommended digital literacies

- ✓ Basic digital skills,
- ✓ Information literacy,
- ✓ Digital content creation,
- ✓ Online safety and privacy,
- ✓ Digital communication and collaboration,
- ✓ Accessing digital resources,
- ✓ Coding and computational thinking,
- ✓ Digital financial literacy,
- ✓ Digital health and well-being, and
- ✓ Civic and community engagement.

Lessons learned

- ✓ Staff Training
- ✓ Funding and Resources
- ✓ Digital Divide
- ✓ Privacy and Security

Upskilling of staff



The usefulness of upskilling staff in libraries is essential for enhancing staff competence, empowering visitors, modernising services, fostering innovation, and strengthening community.

The forms of upskilling in libraries include staff training, digital literacy programs, maker spaces, lifelong learning initiatives, community engagement, data-driven decision-making, and emerging technology exploration.

The role of upskilling staff in libraries is vital in empowering staff, supporting visitors, modernising services, fostering innovation, and strengthening community engagement.

The impact of upskilling staff in libraries has a transformative impact, empowering staff, supporting visitors, modernizing services, fostering innovation, and

The recommended Upskilling Strategies

- ✓ Staff training,
- ✓ Digital literacy programs,
- ✓ Makerspaces,
- ✓ Lifelong learning initiatives,
- ✓ Community engagement,
- ✓ Data-driven decision-making,
- ✓ Emerging technology exploration,
- ✓ Leadership development,
- ✓ Collaborative learning and
- ✓ Accessibility initiatives.

Lessons learned

- ✓ **Funding and Resources:** Developing and maintaining upskilling programs requires investment in technology, staff training, and outreach.
- ✓ **Equity and Access:** Libraries must ensure that upskilling opportunities are accessible to all patrons, including those from underserved communities.
- ✓ **Keeping Up with Trends:** Libraries must continuously update their programs to reflect the latest technological advancements and industry trends.

FINDINGS FOR PRE-TRAINING

- ✓ 60% have used AI tools for research pre-training library surveys
- ✓ ChatGPT is the most frequently mentioned tool
- ✓ Other tools include Microsoft Copilot, Gemini, and futuretools.io, [which are](#) specialised tools that are finding their way.
- ✓ Most tools are for general usage.

Conclusion

- ✓ AI, robotics, and digital transformation are reshaping research support at the University of Pretoria Library.
- ✓ While challenges such as cost, resistance to change, and ethical concerns exist, significant opportunities exist to enhance efficiency, improve digital literacy, and upskill staff and students.
- ✓ By leveraging partnerships, fostering interdisciplinary collaborations, and continuously evolving, the library can remain a leader in research support innovation.



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