
Editorial: Transforming perspectives: why generative AI is a foundational technology, not just a tool

Setting the scene

At a recent higher education conference, I had a thought-provoking discussion with a colleague who confidently asserted that AI is akin to a scientific calculator. He argued that, just as calculators have not fundamentally changed the nature of mathematics, AI will not alter the essence of disciplines like literature or math. This common view sees AI as a useful but ultimately limited tool, enhancing efficiency without transforming underlying processes.

However, this perspective fails to recognize AI's dynamic and adaptive capabilities. Generative AI represents a foundational technology with the potential to reshape and transform all sectors, including libraries. Similar to transformative technologies like fire, electricity and the Internet, AI can enable entirely new activities and interactions. Unlike static tools, AI learns from interactions, adapts to new information and provides personalized responses, setting it apart from traditional technologies.

Understanding the AI adjustment period

We are in a fascinating transitional phase of AI development, reminiscent of the early days of electricity and the Internet. When electricity was first introduced, there was immense excitement about its potential to revolutionize industries and daily life. However, it took years of experimentation, infrastructure development and societal adaptation before its benefits were fully realized. Similarly, the Internet's advent brought high expectations but required a period of adjustment characterized by trial and error, hype and gradual practical application development.

Today, AI is undergoing a similar journey. The high expectations for AI's transformative potential coexist with the reality that many AI tools are still evolving. This adjustment period is marked by experimentation and cautious optimism. The rapid advancement of AI technologies has brought us to a point where the promise of AI is palpable but not yet fully realized in practical, scalable applications. This gap between expectation and reality often results in misaligned expectations, where hype leads to inflated hopes and, often, disappointment. The challenge is to discern what is genuinely achievable versus speculative, ensuring that AI integration into library services meets practical needs without falling into the trap of overpromising.

Ethical concerns are also at the forefront during this period. Just as the early Internet raised issues of privacy and security, today's AI technologies bring increased awareness of data privacy, algorithmic bias and ethical considerations. Many organizations approach AI



adoption with caution, necessitating a thoughtful and deliberate process for responsible AI integration. Drawing parallels to the early stages of electricity and the Internet helps us understand that current challenges with AI are part of a natural progression toward widespread and effective use. By learning from these historical examples, we can navigate the AI adjustment period with a balanced perspective, recognizing both the opportunities and the pitfalls.

The importance of thinking about AI as an enabling/foundational technology

Understanding AI as a foundational technology rather than just a tool is crucial for several reasons, and this perspective shift is not just beneficial but necessary for truly leveraging the potential of AI in a transformative manner. Here's why this paradigm is essential and what it means for the future of libraries and other sectors:

When AI is seen merely as a tool, its applications are limited to improving existing processes. However, recognizing AI as a foundational technology encourages a broader and more ambitious perspective. It shifts the focus from incremental improvements to radical innovation. This perspective opens up possibilities for entirely new ways of thinking, operating and serving patrons. For example, rather than just automating cataloging processes, AI could fundamentally alter how information is curated, accessed and utilized, leading to more intuitive and intelligent library systems.

AI's potential to enable entirely new activities and interactions cannot be overstated. Consider the impact of the Internet on communication: it didn't just make sending letters faster, but enabled entirely new forms of interaction, from social media to real-time video conferencing. Similarly, AI can transform how libraries engage with their users. AI-driven chatbots can provide 24/7 assistance, virtual reality can offer immersive educational experiences and predictive analytics can help librarians curate collections that anticipate future needs. These are not mere enhancements but entirely new services that redefine the library experience.

Treating AI as a foundational technology highlights the importance of long-term strategic planning. It prompts organizations to invest in sustainable AI development and integration, ensuring that they are prepared for future advancements and challenges. This approach fosters resilience and adaptability, enabling organizations to evolve alongside technological progress rather than lagging behind. Libraries, for instance, can develop AI literacy programs for their staff and users, ensuring that they are not just consumers of technology but active participants in its evolution.

Proactive steps for library leaders

In this transitional phase, library leaders must take proactive steps to learn and leverage AI's potential effectively.

Foster a culture of experimentation: Encouraging staff to explore AI applications through pilot projects and collaborations allows for trial and error while maintaining an open dialog about learnings and improvements.

Invest in upskilling: Providing training focused on AI literacy, ethical use and practical applications equips staff with the necessary skills to integrate AI tools effectively.

Develop ethical guidelines: Emphasizing transparency, fairness and data privacy ensures that AI use aligns with core library values. This ethical framework guides responsible AI use, addressing data security and bias concerns.

Build strategic partnerships: Collaborating with AI technology vendors, universities and industry consortia offers significant advantages. These partnerships provide early access to emerging tools and insights, along with learning opportunities for staff and users.

Strengthen data infrastructure: Enhancing data governance practices ensures data is well-organized, secure and accessible, providing a robust foundation for effective AI integration.

Engage in policy discussions: Participating in policy discussions is vital to shaping AI regulations that support innovation while protecting ethical standards. Library leaders should actively contribute to these discussions, sharing practical insights and use cases to inform policy development.

Develop user-centric programs: Tailoring AI applications to the needs of students, faculty and patrons ensures they serve the library's user base effectively. By working closely with patrons to identify their needs, libraries can create new programs and services that address specific challenges.

Conclusion

Embracing AI as a foundational technology will lead to more effective, adaptive and innovative library experiences. This perspective shifts the focus from merely enhancing efficiency to driving transformative change and creating new opportunities. By fostering a culture of experimentation, investing in upskilling, developing ethical guidelines, building strategic partnerships, strengthening data infrastructure, engaging in policy discussions and developing user-centric programs, libraries can harness the full potential of AI. These proactive steps will ensure libraries remain vital and dynamic institutions and position them at the forefront of technological innovation.

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