Unveiling tomorrow's libraries: A strategic framework for AI adoption

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Abstract

Purpose: The purpose of the study is to identify the potential of AI and propose a strategic framework for the adoption of Artificial Intelligence in Libraries and Information Centers (LICs).

Methodology: The study adopted a qualitative approach to find the answers to the research objectives. Primarily, the researchers identified the benefits of AI adoption in libraries and information centers based on an extensive review of existing literature by synthesizing insights from multiple empirical studies. To construct the strategic framework, the authors used their perspectives and long experience in the field of library and information sciences.

Findings: The study identified that AI tools and technologies can be adopted in diverse services at LICs, i.e., routine operations, administrative tasks, cataloguing, classification, translation services, personalized services, reference services, improving reading habits, and so on. The study provided a six-step framework for the adoption of AI in LICs, which includes setting an AI vision for the organization, determining the readiness of the organization, identifying crucial factors for the successful implementation of AI, implementation planning, assessing the performance of AI-based services, and planning for continuous improvement and sustainability.

Implications: This framework can be implemented by the LICs of different regions to adopt AI in their respective organizations.

Originality: This framework is one of the first attempts to view the adoption of AI holistic manner.

Keywords: AI, strategic framework, adoption of AI, libraries and information centers, sustainability, AI readiness.

1. Introduction

In the modern era, artificial intelligence (AI) is influencing almost all sectors. It is high time that everyone should accept the massive impact that AI could have on different industries. Particularly, the industry that is related to knowledge dissemination, Libraries and Information Centers (LICs). LICs must embrace AI if they want to be relevant in the twenty-first century and beyond. It is no longer a futuristic idea; it is

now urgently necessary for LICs to comprehend and adapt to AI. However, the adoption of AI in LIC services should not be viewed simply as a technological enhancement, but as a strategic initiative aimed at delivering long-term benefits to the user community. Without approaching strategically, LICs will not be able to get full potential from AI tools and technologies. This is why a strategic approach is a must before implementing AI at LICs. A one-size-fits-all approach is unlikely to be applied consistently in all situations because every institution has different circumstances, including variations in size, financial resources, infrastructural facilities, and user needs. However, a well-crafted strategic framework, on the other hand, might offer an outline that others can modify to suit their needs. Even though the precise techniques differ throughout organizations, it aids in launching organized thought, emphasizing important factors, and encouraging uniformity in the application of ethical and sustainable AI. From this perspective, the present study proposes a strategic framework to guide the adoption of AI in LICs. The rest of the paper is organized as follows: objectives of the study, methodology, AI in LICs, strategic framework for the adoption of AI, and conclusion.

2. Objectives of the study

This study primarily aims to achieve the following objectives:

- Identify the benefits of AI adoption in LICs
- Provide a strategic framework for the successful adoption of AI in LICs

3. Methodology

The study adopted a qualitative approach to find the answers to the research objectives. Primarily, the researchers identified the benefits of AI adoption in libraries and information centers based on an extensive review of existing literature because, by synthesizing insights from multiple empirical studies, a literature review can answer research questions with greater depth and breadth than any individual study alone (Snyder, 2019). The author reviewed a wide range of articles on the stated topic from Google Scholar and the Emerald database. Most recent articles published within the last five years were only reviewed for this purpose. To construct the strategic framework, the authors used their perspectives and long experience in the field of library and information sciences.

4. AI in library and information centers

AI can bring unlimited benefits and flexibility to the services at LICs. The AI in LICs can improve user experience, resource organization, and knowledge recovery (Siraskar & Bhongade, 2025). Providing answers to queries related to library hours, resource location, and other general information, information professionals need to engage themselves, while AI can easily be adopted in these cases (Thalaya & Puritat, 2022). AI tools, particularly Generative AI, can enhance reference services (Adetayo, 2023). AI

can also change the reading experience of the user community. By adopting AI tools, reading suggestions can be provided to the users (Lin et al., 2023). AI can equally be applied to administrative, technical, and informational tasks at LICs, i.e., staff management, cataloguing, information literacy training, etc. (Harisanty et al., 2023). AI can also be adopted in repetitive tasks with fewer errors than human beings (Ajani et al., 2022). Modern-day LICs' services, like sensor-based smart circulation, smart identification, can be implemented with the help of AI (Bi et al., 2022). Translation service is one of the traditional services of LICs. In this modern era, this service can be effectively and promptly provided with the help of AI-based tools and can solve language barriers (Mahmud, 2024; Amin & Mandapuram, 2021). It can also help in indexing resources (Farag et al., 2021). Tailored services can also be provided based on analyzing and predicting users' behavior by using data mining technologies (Tian, 2021). The adoption and application of AI empower information professionals to focus on higher-value tasks while offering personalized, data-driven services to users.

5. Strategic framework for the adoption of AI

A strategic framework is always a crucial part of any high-impact project where significant time and financial resources are involved. By coordinating priorities and resources, the strategic framework offers a clear path to long-term success. By foreseeing obstacles and possibilities, it improves decision-making. It also promotes responsibility, organizational coherence, and flexibility in a dynamic setting. The steps that are involved in the strategic framework are-

- Setting an AI vision for the organization
- Determining the readiness of the organization
- Identifying crucial factors for the successful implementation of AI
- Implementation planning
- Assessing the performance of AI-based services
- Planning for continuous improvement and sustainability

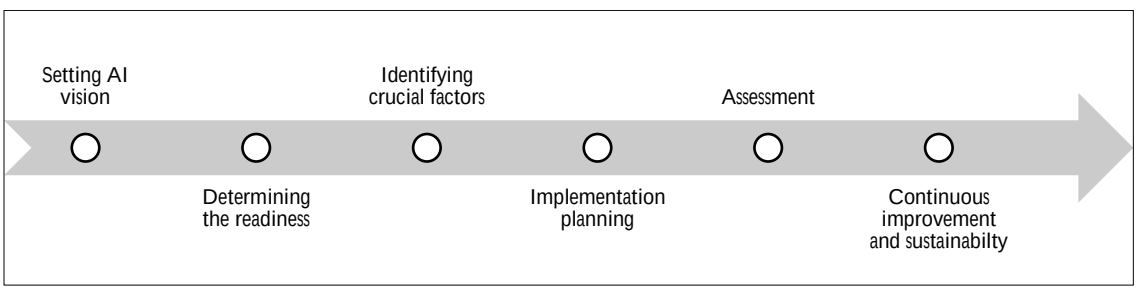

Figure 1: Strategic framework for the adoption of AI in LICs (authors' own work)

5.1 Setting an AI vision for the organization

Every organization must consider its future vision related to AI. LICs must come with a clear AI vision. The AI vision will determine how far the LICs plan to implement AI in their services. The AI vision must comply with the organizational vision. This AI vision will also help the LICs to plan for the rest of the steps in the strategic plan. AI vision will not only focus on the tools and technologies to be implemented, but also answer the following questions:

- What kind of future does the LIC envision with AI?
- Why should the organization need to adopt AI?
- What benefits will it bring to LIC?
- Who will be the beneficiary of AI adoption in LIC?
- How will the AI be implemented in the LIC?

The preparation of the vision requires time and the involvement of the stakeholders. The AI vision should also be pragmatic. The existing resources and capacity of the LIC should also be considered.

5.2 Determining the readiness of the organization

One of the most important aspects of the strategic framework is to determine the readiness of the respective LICs in adopting AI. The readiness of LICs includes a wide range of aspects (Begum and Elahi, 2025)-

- Psychological readiness: Psychological readiness refers to the attitudes, perceptions, and emotional preparedness of library staff, administrators, and stakeholders toward adopting Artificial Intelligence.
- Technological readiness: The degree to which a LIC possesses the digital infrastructure, systems, tools, and technical support necessary to implement and maintain AI applications is referred to as technological readiness.
- Financial readiness: Financial readiness refers to an LIC's capacity to allocate, manage, and sustain funding for the adoption and long-term integration of AI tools and technologies.
- Capacity readiness: Capacity readiness involves the capacity of both the information professionals and patrons to use the AI tools and technologies.
- Policy readiness: This refers to the robustness of the existing policy framework for the purpose of adopting AI.

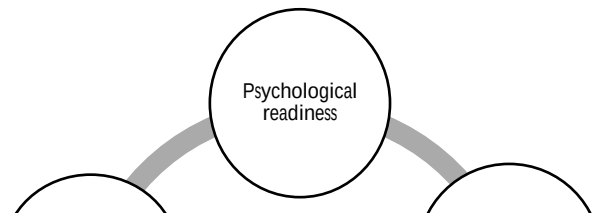

Figure 2: Determining AI readiness (authors' own work)

Assessing readiness is the prerequisite for the successful adoption and implementation of AI. The readiness assessment can be done either by surveys or interviews. It is important to get the maximum responses, particularly in assessing psychological readiness. Several research papers indicated that information professionals in LICs are not psychologically ready to adopt AI in their respective organizations (Oladokun et al., 2023; Khanzode and Sarode, 2020). The psychological readiness of patrons and authorities is also crucial to adopting AI in LICs. In case of technological readiness, the assessment can be conducted based on the infrastructure required for implementing AI-based services in LICs. Financial readiness is also related to this. The greater an organization's financial strength, the greater its capacity to successfully adopt and implement AI technologies. Financial readiness is also related to psychological readiness. An organization may possess sufficient funds, yet without a clear intention or strategic commitment to use those funds for AI adoption, progress is unlikely. Financial readiness must be matched by leadership vision and prioritization. The key question is whether the information professionals in LICs possess the necessary knowledge, skills, and preparedness to adopt and implement AI technologies effectively. The existing policy also needs to be assessed for the adoption of AI in LICs.

5.3 Identifying crucial factors for the successful implementation of AI

Based on the results of the readiness assessment, LICs should pinpoint the key factors essential for successful AI adoption. The following graphic illustrates the potential readiness assessment areas alongside the corresponding factors that need to be addressed:

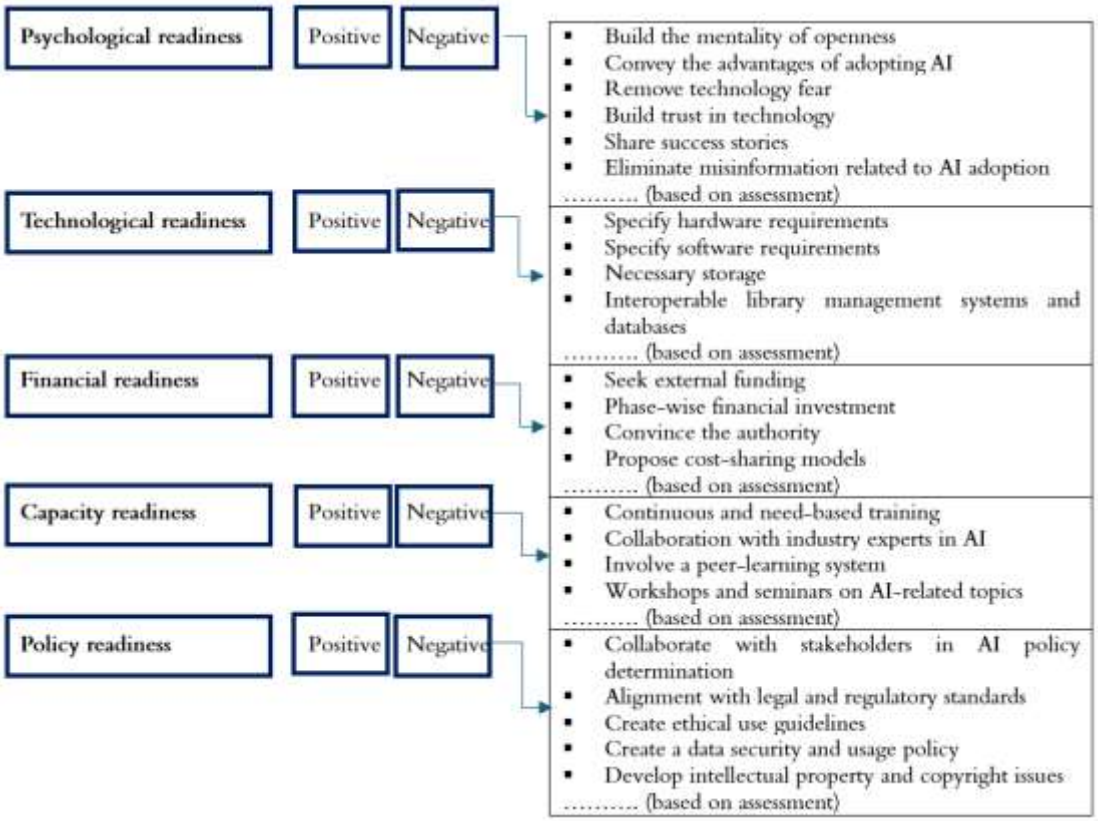

Figure 3: Crucial factors for the successful implementation of AI (authors' own work)

5.4 Implementation planning

In this step, the LICs need to plan how to adopt AI. The following elements can be considered while planning implementation:

- The phase-wise implementation plan should be adopted. The whole plan should be divided into logical milestones or phases. It will help the professionals in implementing the AI tools and technologies. At the same time, financial resources can be provided adequately.
- The problems or issues related to the implementation of a certain phase should be documented, analyzed, and discussed properly before going to the next phase.
- The user feedback (where necessary) can be taken into account after the implementation of any visible phase.
- Based on different readiness parameters, the LICs can either go for procurement or development of AI tools.

- The appropriate AI tools and technologies should be adopted or designed for existing services first to enhance the experience of the user community. In the next step, new AI-based services can be implemented.

5.5 Assessing the performance of AI-based services

After the successful implementation, the LICs need to assess the performance of the AI-based services. The assessment of the AI-based services includes-

- The assessment of the AI-based services should be evaluated based on the AI vision of the LICs.
- The service output and accuracy provided by AI-based tools should be benchmarked with the previous services.
- User satisfaction should also be considered to understand the effectiveness.
- The overall impact of AI-based services should be carefully evaluated in relation to the total cost of the project to ensure value and effectiveness.

5.6 Planning for continuous improvement and sustainability

The LICs should have a long-term plan regarding the improvement and sustainability of the implemented AI-based services. This may include-

- Since technological usage is changing radically, the LICs should make necessary arrangements for training and upgrading the skills of information professionals.
- LICs also need to play a vital role in the development of the curriculum. They need to clearly articulate their expectations and requirements from graduates of library and information sciences (LIS). A tech-savvy and skilled future graduate of LIS can lead AI-driven LICs.
- The LICs always need to adopt the best practices around the world for improving their services.
- For sustainable AI-based services at LICs, collaboration, networking, and advocacy are key. Enhanced collaboration at both national and international levels significantly contributes to the long-term sustainability and development of AI-based services at LICs.
- Motivation and recognition are essential for encouraging information professionals to actively participate in innovation and engage themselves in improving the AI-based services.
- The LICs should always consider the ethical and legal aspects of applying AI tools in LICs.

6. Conclusion

This study presents a strategic approach to adopting AI in LICs, highlighting key benefits that AI can offer, the strategic framework including setting an AI vision for the organization, determining the readiness of the organization, identifying crucial factors for the successful implementation of AI, implementation planning, assessing the performance of AI-based services, planning for continuous improvement and sustainability etc. However, its limitations include a conceptual focus without empirical validation and potential variability across different institutional contexts. Future research could explore the perception of the user community, information professionals, and authorities across diverse environments to identify their perception on the adoption of AI tools and technologies in LICs. There is also a scope to develop localized AI adoption models tailored to specific institutional needs, ensuring ethical, sustainable, and inclusive integration of AI in library and information services.

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Further reading

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Author biography

Md. Hasinul Elahi is currently working as a Senior Lecturer in the Department of Information Studies, East West University, Bangladesh. He is an exceptionally high-achieving academic, having earned both his B.A. (Hons.) and M.A. degrees from the University of Dhaka with a record CGPA. His outstanding academic performance was recognized with the prestigious "Dean's Merit List of Honor" for both examinations, as well as the "Abdul Aziz Chowdhury Scholarship". Mr. Elahi is also an active researcher in the field of information studies. His research interests are centered on critical areas within Information Studies, including information literacy, open access, open data, service quality, and information quality. He has a strong publication record, having published numerous research articles in peer-reviewed Scopus-indexed Q1 and

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