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Strategic Priorities for AI Integration and Digital Transformation in Academic Libraries

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1. Round 1

1.1 Reviewer 1

Reviewer:

In the introduction, the statement “AI has become a strategic imperative for modernizing library systems and improving access to information” is theoretically important but insufficiently problematized. The manuscript currently assumes the necessity of AI integration without critically discussing competing perspectives, institutional resistance, or concerns regarding technological determinism. A more balanced conceptual framing would strengthen the scholarly rigor of the introduction.

The paragraph beginning with “Despite these promising developments, prior studies have largely focused on specific AI tools” effectively identifies a literature gap; however, the review remains descriptive rather than analytical. The authors should synthesize prior studies into thematic clusters (e.g., ethics-focused research, operational AI applications, user-service optimization, strategic governance) and explicitly demonstrate how the present study differs methodologically and conceptually from each cluster.

The manuscript states that approximately “1,200 pages of strategic documents” were analyzed, but the selection logic for the final corpus requires greater justification. Specifically, the study mixes library-specific strategic plans with broader institutional digital transformation plans, which may produce conceptual inconsistency in the unit of analysis. The authors should discuss how comparability across these heterogeneous documents was ensured.

In the “Research Design and Data Collection” section, the authors mention that documents “published or updated primarily between 2018 and 2024” were included, yet several plans listed in Appendix A date back to 2016–2017. This temporal

inconsistency may influence the validity of comparisons because AI discourse evolved significantly after the release of generative AI systems. The authors should justify the inclusion of older strategic plans or conduct a temporal sensitivity analysis.

The explanation of the coding procedure lacks sufficient operational detail for reproducibility. For example, the manuscript states that concepts such as "digitization," "AI," and "chatbot" were identified through open coding, but no coding tree, category hierarchy, or sample coded excerpt is provided. Including an appendix with representative codes and category definitions would significantly enhance methodological reliability.

The reported Cohen's Kappa value ($\kappa = 0.737$) is interpreted as "substantial agreement," yet the manuscript does not specify whether agreement was calculated at the code level, segment level, or document level. Since reliability metrics in qualitative content analysis are highly sensitive to coding granularity, the authors should provide a more precise explanation of the calculation procedure.

The regional comparison in Table 5 is potentially valuable, but the analytical basis for labels such as "Very Strong," "Strong," and "Medium" is insufficiently substantiated. Because these categories are interpretive, the authors should either provide frequency-based scoring criteria or convert the table into a narrative comparative discussion supported by coded evidence.

The manuscript repeatedly emphasizes "developing countries such as Iran," yet the empirical dataset does not include any Iranian university strategic plans. This creates a conceptual disconnect between the data source and the contextual recommendations. The authors should acknowledge this limitation more explicitly and justify how insights derived from elite global universities can be validly transferred to developing-country contexts.

Author revised the manuscript and uploaded the updated document.

1.2 Reviewer 2

Reviewer:

The manuscript employs Shannon entropy for prioritization, but the statistical rationale remains underdeveloped. The sentence "This method was chosen because it provides an objective measure of the relative importance and distribution of priorities" is insufficient for readers unfamiliar with entropy-based weighting. The paper would benefit from a mathematical explanation of how entropy values were normalized and interpreted in this context.

The entropy formula itself appears to be missing or improperly rendered in the manuscript. The text reads "The entropy formula used was:" followed immediately by explanatory prose without an equation. This omission is methodologically critical because readers cannot evaluate the quantitative procedure without the explicit formula and parameter definitions.

Table 1 presents component frequencies and significance levels, but the criteria for classifying priorities as "High," "Medium-High," or "Medium" are not explained. These categories appear interpretive rather than statistically derived. The authors should define the thresholds used or remove qualitative labels that may imply unwarranted precision.

In Table 2, the "Change" values reported in the sensitivity analysis appear mathematically inconsistent with the entropy differences shown. For example, an initial entropy of 2.259 and a post-removal entropy of 2.214 would imply a difference of 0.045 rather than 0.315. The authors should carefully verify all calculations and ensure consistency between the reported values and their interpretation.

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The section discussing “strategic interest in AI” would be stronger if supported by direct quotations or coded excerpts from the analyzed strategic documents. Currently, the findings rely heavily on interpretive summaries, which reduces evidentiary transparency. Including representative institutional excerpts would make the analysis more convincing.

Table 3 lists examples of AI applications at selected universities, but the criteria for choosing these institutions are unclear. It is uncertain whether these are representative examples, exemplary cases, or simply the most explicit mentions identified during coding. The authors should explain the selection logic and indicate whether other institutions showed comparable practices.

Author revised the manuscript and uploaded the updated document.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.

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