

Effectiveness of Reference Management Software in Enhancing Research Quality in Universities in Nairobi County, Kenya

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Outline

- **Background**
- **RMS Drawbacks**
- **Research Gap**
- **Scope**
- **Research Questions**
- **Methodology**
- **Research Findings**
- **Conclusions**
- **Recommendations**

Background

Reference Management Software (RMS) has been used to:

- Enhance research authenticity through in-text citations and referencing.
- Vindicate researchers from the question of plagiarism when done appropriately.
- Indicate in-depth levels of the research through sources of information referred.
- Hence;
 - These aspects suggest inherent enhancement of the quality of research.

Drawbacks

- The RMS programs have their drawbacks in terms of their inbuilt capacities and functionality. For instance;
 - Need for metadata cleanup,
 - Incompatibility with operating systems,
 - Need for internet connectivity,
 - Lack of documentation in case there is a need for troubleshooting, etc.

Research Gap

- Research has been done about the functionality and nature of RMS programs but very minimally to demonstrate actual effectiveness in relation to research enhancement.

Scope

For any computer-based system to be considered fully effective, three measures of evaluation need to be adopted and examined (Tech Talk (2015):

- i. Technical effectiveness,
- ii. Operational effectiveness, and
- iii. Economic effectiveness.

➤ These three aspects validate a computerized system's effectiveness.

➤ RMS programs are computerized systems and therefore the three measures of evaluation were applied.

Research Questions

This research, therefore, sought to address these two research questions:

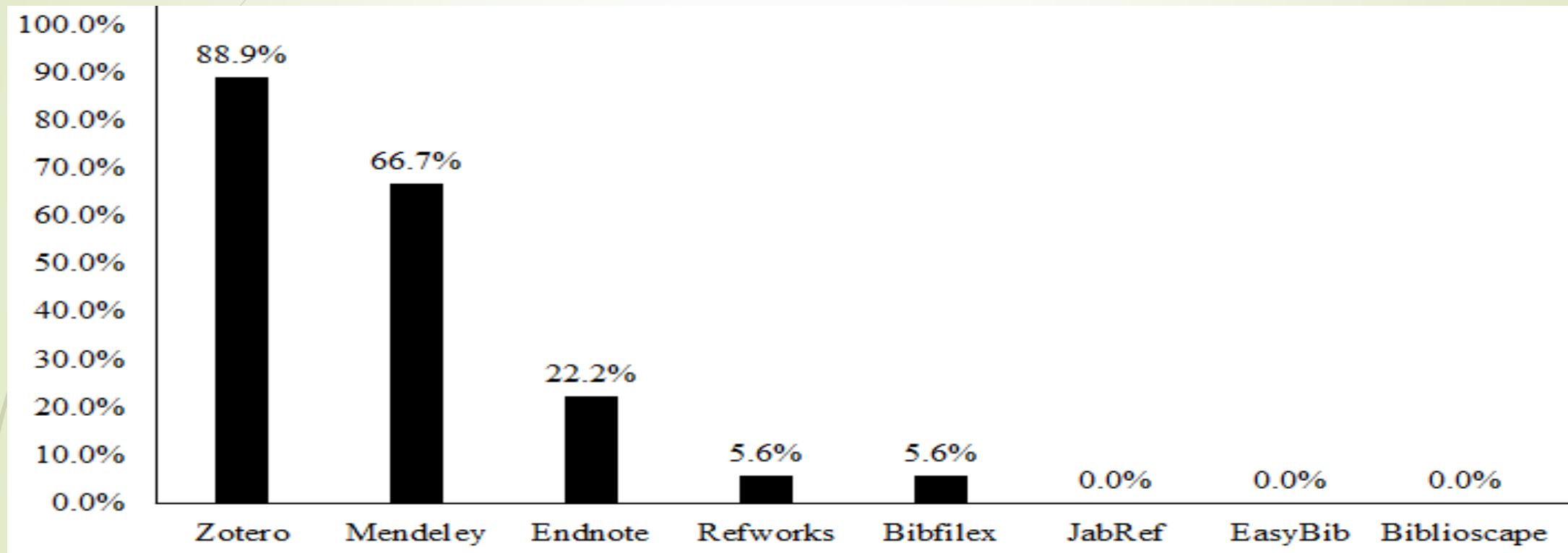
- i. Which reference management software are in use in the Universities in Nairobi County, Kenya?
- ii. Are the reference management software in use technically, operationally, and economically effective in enhancing the quality of research?

Methodology

- Descriptive research design to solicit data on RMS effectiveness.
- The research was carried out in 18 chartered universities in Nairobi County.
- The sampling frame was the Commission of University Education (CUE) list.
- The unit of analysis consisted of 18 University Librarians due to the significant role of university libraries in managing and using RMS.
- An online survey was adopted to collect data.
- SPSS version 23 was used for statistical analysis.
- 100% response rate was achieved.

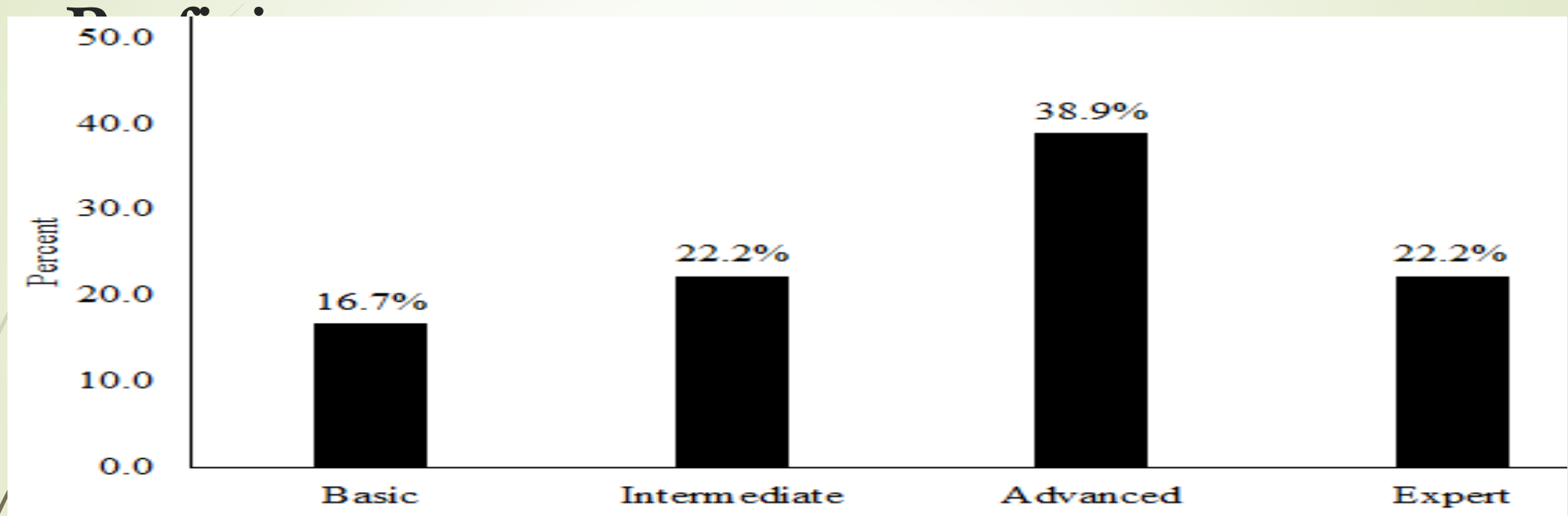
Research Findings

Reference Management Software Usage



- Majority of the respondents had used Zotero (88.9%), followed by Mendeley (66.7%), and Endnote (22.2%). The figure reveals that Refworks (5.6%) and Bibfilex (5.6%) were the least used, while JabRef, EasyBib, and Biblioscope were used by 0.0% of the respondents.

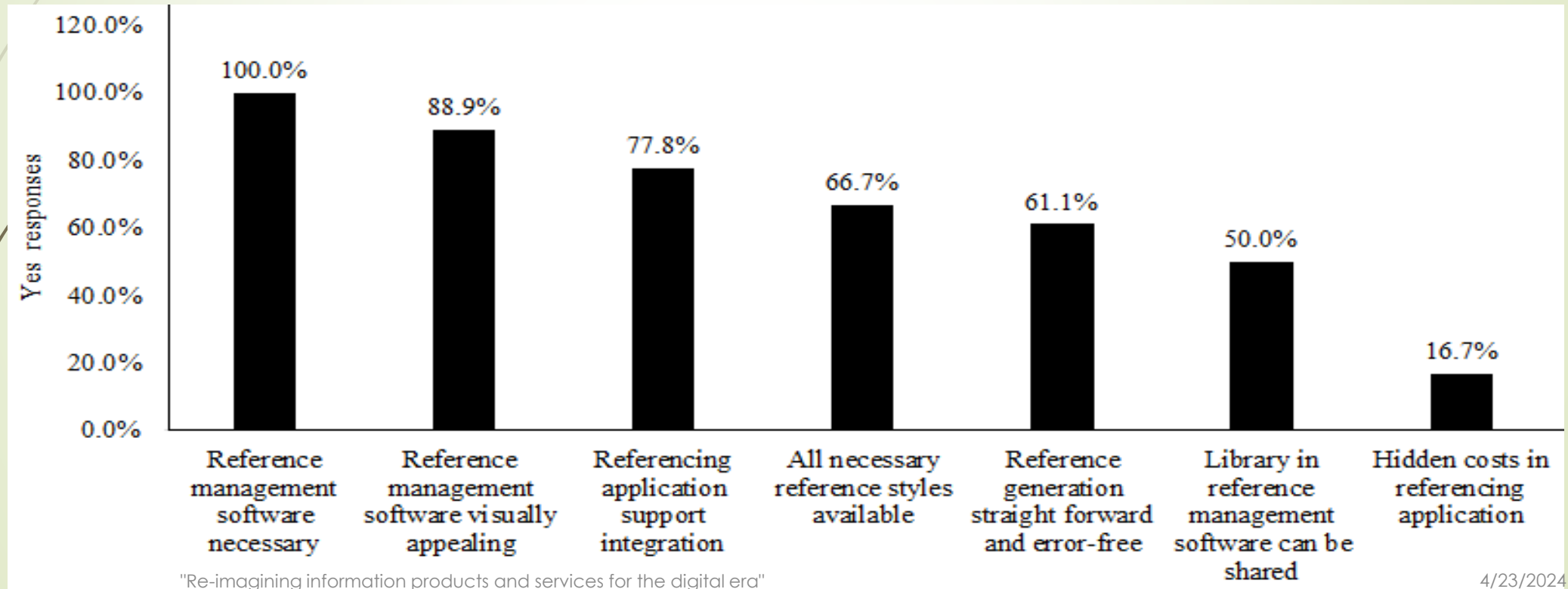
Reference Management Software Usage



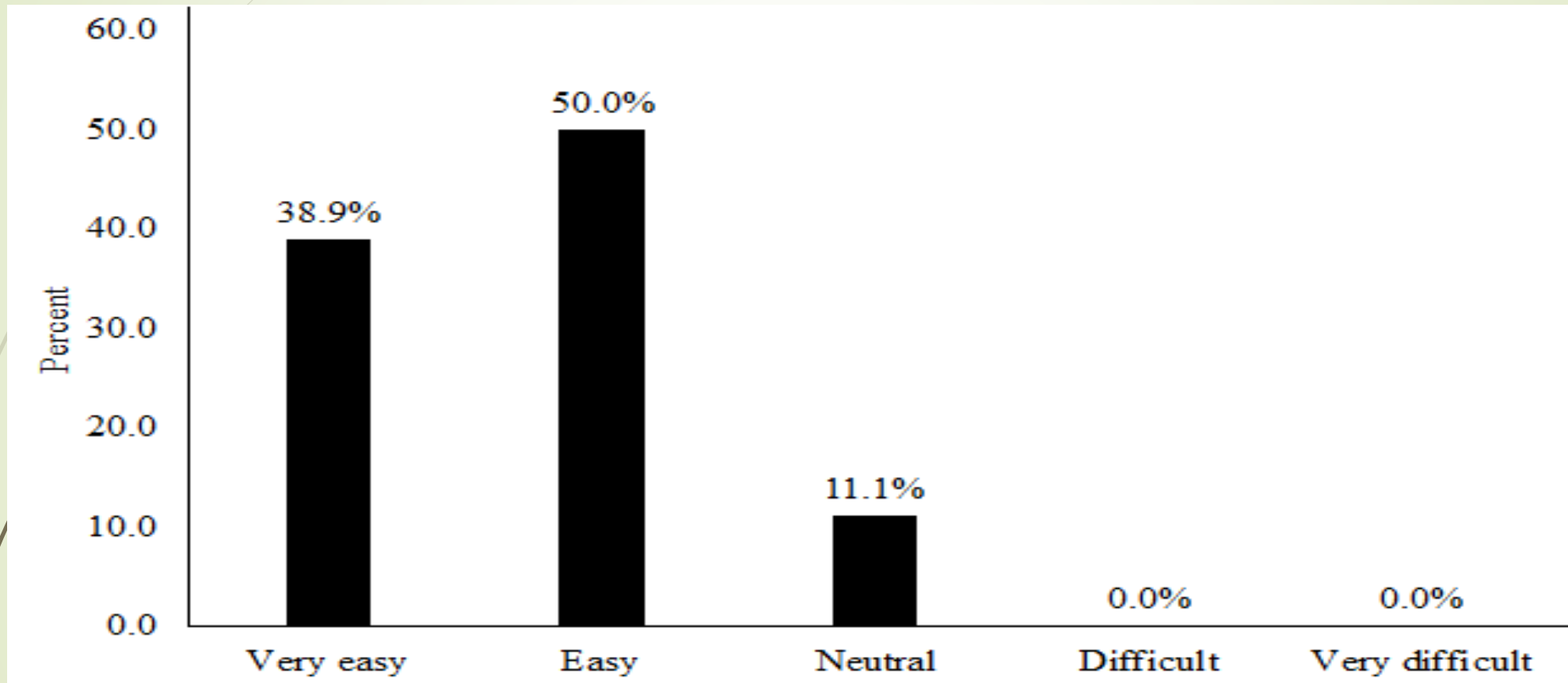
- The majority are at an advanced level (38.9%), followed by experts (22.2%) and users with intermediate skills (22.2%) while respondents with basic usage proficiency were 16.7%.
- 60% of all the respondents are either at an advanced stage or expert stage in terms of usage proficiency (38.9% and 22.2% respectively).

RMS Effectiveness

- Statements relating to RMS technical, operational and economical aspects were posed. The findings are as presented.



RMS ease of navigation



RMS versions preferred

What version of referencing application are you using?	Frequency	Percent
Free version	18	100.0%
Paid version	0	0.0%
Not sure	0	0.0%
Total	18	100.0%

Conclusion: RMS Usage

- The study indicated that specific RMS tools (Zotero, Mendeley, Endnote) are highly valued and widely used.
- University Librarians express a high level of satisfaction and proficiency in utilizing these tools, with notable strengths in automatic formatting, ease of navigation, significant reduction of time and collaborative capabilities.
- There is an opportunity for increased awareness and education about alternative referencing approaches.

Conclusion: Technical effectiveness

- 27.8% of the respondents indicated that the features are **Very Accessible**
- 66.7% of the respondents stated that the software features are **Accessible.**
- Any software program that has the accessibility of features is **Technically Effective.**

Conclusion: Operational effectiveness

- In this research, 66.7% of the respondents indicated that RMS programs significantly reduce the time taken in referencing and citation tasks.
- 50% of the respondents found RMS easy to navigate and an additional 38.9% reported very easy navigation.
- This means that the RMS tools are easy to navigate due to their ease of use and therefore they save up on time.
- Any computer-based system that saves up on time and is easy to use is **Operationally Effective**, Hence the RMS programs common to the University Librarians within Nairobi county are operationally effective.

Conclusion: Economical effectiveness

- All the respondents in this study used the free versions of RMS programs.
- This signals the absence of direct cost implications of RMS usage.
- Full utilization of free versions suggests a potential willingness to explore additional cost-effective options.
- Further, a relatively low percentage of respondents reported encountering hidden costs or unexpected charges.
- An indication that the preferred RMS programs that are commonly used within the selected universities are **Economically Effective**.

Recommendations

- Universities should undertake continuous institutional training programs for librarians and researchers about RMS to increase use and enhance research quality.
- Sensitization for additional RMS programs should be conducted among the librarians to raise the awareness levels of other RMS tools such as Jabref, Easybib, Biblioscape etc.
- Further research and innovation may be done to establish new ideas that may be adopted for referencing and citation (100% use of open-source software programs indicates readiness to use new products).

