

Strategies for Preserving Analog Collections in Digital Format as a Preventive Measure: A Systematic Literature Review



Strategi Preservasi Koleksi Analog Kedalam Bentuk Digital sebagai Tindakan Preventif: Sebuah Tinjauan Literatur Sistematis

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Abstract

Background: Nowadays, various analog collections like cassettes, vinyl records, and VCDs circulate broadly within society. However, despite technological advancements, few institutions—whether governmental or private—have undertaken the task of digital preservation, even though the information contained within these collections holds significant value for future generations. The safeguarding of collections in analog formats, including cassettes, VCDs, and vinyl records, is essential due to the wealth of information they hold for future generations. Thus, preservation efforts are undertaken as a proactive strategy to ensure that the valuable content within these collections remains accessible for an extended period ahead. **Purpose:** To examine the transformation of analog collections into digital formats through preservation activities **Method:** The method used in this study is the Systematic Literature Review (SLR). **Result:** The findings indicate that numerous organizations, encompassing both private and public sectors, have engaged in efforts to convert analog collections, including CDs, VCDs, and vinyl records, into digital formats. This awareness underscores the significance of these initiatives, ensuring that the information contained within the collections remains accessible for future use. **Conclusion:** The items typically safeguarded include video cassettes, audio recordings, and vinyl records, with the preservation method involving digitization or conversion of media functionalities. The most extensively maintained microfiche collections, as these collections continue to be utilized by the Indonesian populace. There remain individuals who engage in the preservation process by hand, yet gradually, they have begun to incorporate contemporary technology.

Keywords: Preservation; Media Conversion; Digitalization

Abstrak

Latar Belakang: Saat ini koleksi-koleksi analog seperti, kaset, piringan hitam, VCD dan koleksi-koleksi analog jenis lainnya sangat banyak beredar di tengah masyarakat, namun seiring berjalannya kemajuan teknologi, belum banyak lembaga baik pemerintah, maupun swasta yang melakukan preservasi ke dalam bentuk digital, padahal informasi di dalam koleksi tersebut sangat bernilai untuk generasi yang akan mendatang. Untuk itu Preservasi koleksi dalam bentuk analog seperti kaset, VCD, dan piringan hitam perlu dilestarikan karena banyak informasi yang dapat disebarluaskan ke generasi yang akan mendatang, maka kegiatan preservasi dilakukan sebagai tindakan preventif agar informasi yang terkandung dalam isi koleksi dapat digunakan dalam jangka waktu yang lama di masa mendatang. **Tujuan:** Untuk melihat bagaimana kegiatan preservasi koleksi analog ke dalam bentuk. **Metode:** Metode yang digunakan pada penelitian ini adalah Systematic Literature Review (SLR) **Hasil:** Hasil menunjukkan bahwa dari berbagai instansi baik swasta maupun pemerintah, sudah melakukan kegiatan preservasi koleksi analog, seperti CD, VCD, dan piringan hitam ke dalam bentuk digital, karena sudah menyadari pentingnya untuk melakukan kegiatan tersebut, agar informasi dalam koleksi tersebut dapat digunakan di masa yang akan mendatang. **Kesimpulan:** koleksi yang biasanya dilakukan preservasi adalah kaset video, audio dan piringan hitam dan proses preservasi yang dilakukan yaitu dengan cara digitalisasi atau alih fungsi media. Koleksi mikrofis yang paling banyak dilestarikan, karena koleksi mikrofis masih banyak

digunakan oleh masyarakat Indonesia. Kemudian masih ada yang melakukan proses preservasi dengan cara manual, akan tetapi secara perlahan sudah menggunakan teknologi yang terkini.

Kata kunci: Preservasi; Alih fungsi media; Digitalisasi

I. INTRODUCTION

Background. Digitally preserving cassettes is crucial as a preventive strategy, given that libraries typically include collections of non-book formats, such as audio cassettes, video cassettes, vinyl records, CDs, and VCDs. These collections are crucial to preserve, as they hold vital information and insights for future generations, such as cassettes with recordings of significant events or incidents. Consequently, it is imperative to safeguard collections that encompass significant information. The interests of archival preservation activities, specifically with music, are governed by the Law of the Republic of Indonesia No. 43 of 2009 respecting Archives. The legislation mandates that archives, representing the nation's identity and character, as well as serving as materials for memory, reference, and responsibility in social, national, and state affairs, shall be controlled and conserved by the state. Law No. 43 governs the archiving practices of both government and private entities to ensure the preservation and maintenance of records or media that hold vital information for organizational survival. The deterioration of resources is ultimately influenced by their value, the local climate, and maintenance practices, necessitating the preservation of library materials. The preservation of library materials encompasses not only the physical preservation but also the safeguarding of the information contained inside them. The utilization of analog recording media, such as vinyl records and cassettes, is indeed infrequent and seldom encountered. Similar to numerous other information mediums that have transitioned to digital formats, music media, films, videos, and rare collections are likewise inextricably linked to the shift from analog to digital media. The recording media will sustain harm if not handled correctly. Prasetyo (2019).

Media transfer typically occurs with historical library materials, ancient manuscripts, rare books, or items in fragile physical condition. Conventional media transfer through photocopying often causes additional damage to physical library materials. Consequently, government and private organizations should implement policies for digital media transfers to preserve the information contained in these materials. Prasetyo (2019). The digital era is characterized by the emergence of three key technologies: computers, communications, and multimedia. The advancement of three technologies has transformed the content of communication, allowing information or messages to exist not only as text, numbers, and images but also as sound (music) and moving images (films, videos), often experienced through live broadcasts via radio stations or television. Technological advancements have enabled the compression of data, facilitating faster transfer and subsequent parsing upon arrival at the destination. Developments in technology enable the compression of data size,

facilitating quicker transfer and subsequent re-decomposition at the destination. Digital data formats not only expedite daily activities but also enhance community service initiatives. To preserve the value of information in library materials, both government and private organizations must maintain and protect individual copyright through policies that prioritize public interest while respecting the intellectual rights of individuals and the community. Preservation involves systematic and strategic efforts to maintain an asset, whether it is a natural resource or historical artifact, ensuring its longevity and usability. The definition of preservation concerning library materials retains a similar meaning, albeit within a different context. The preservation of library materials involves a systematic and organized approach to ensure their maintenance and longevity for continued use. Preservation Library material preservation refers to the methods and practices employed to protect and maintain the physical and intellectual integrity of library resources over time. Sutarno N.S. (2008) defines preservation as an activity within the library field aimed at maintaining and caring for library material collections. Lasa (2009) defines "Preservation 10" as encompassing all aspects of management, finance, storage, tools, manpower, and methods employed to preserve library materials, archives, and their contained information. Preservation constitutes a systematic and organized effort aimed at maintaining the usability of library collections for an extended duration. Preservation refers to the systematic effort to maintain the durability of both printed and non-printed materials in a library, preventing rapid deterioration. Preservation encompasses all facets of initiatives aimed at safeguarding library materials and archives, including processing policies, methodologies, human resources, and storage solutions. Ibrahim, 2014. Preservation aims to maintain the collection in its current, intact state. The preservation policy will not address existing damage, focusing instead on preventing further deterioration of the collection. The preservation of library materials extends beyond their physical maintenance; it also necessitates an emphasis on the significance of the information value inherent in these materials. The description indicates that preservation encompasses not only the activities of care, preservation, and repair but also incorporates management elements related to techniques, methods, processes, finance, labor, and other factors. Preservation seeks to maintain the integrity of library materials by safeguarding the information they contain.

Problems. In light of the aforementioned background, it is evident that analog collections, including cassettes, VCDs, and vinyl records, have not received adequate preservation efforts. While these collections are maintained, there is a pressing need for more proactive measures, specifically the digitization of these materials. The information they contain is invaluable and holds significant potential for future generations who possess greater technological literacy.

Previous Literature Review. Arienda Addis Prasetyo conducted a study titled "PRESERVASI DIGITAL SEBAGAI TINDAKAN PREVENTIF UNTUK MELINDUNGI BAHAN PUSTAKA SEBAGAI BENDA BUDAYA" (Digital Preservation as a Preventive Measure to Protect Library Materials as Cultural Objects). This study demonstrates that Lokananta, as an electronic documentation institution, preserves information value for extended use. Consequently, various measures are implemented, including technological preservation,

refreshment or renewal preservation, migration and reformatting preservation, and preservation through emulation.

Artanto's research, titled "Analog To Digital Audio Archiving Sebagai Upaya Preservasi Seni: Studi Kasus Kelompok Ok. Surya Mataram Yogyakarta" (Analog to Digital Audio Archiving as An Effort to Preserve Art: Case Study of the Ok. Surya Mataram Yogyakarta Group) examines the transition from analog to digital audio archiving as a means of art preservation. This study examines the archiving of physical (analog) data into digital format as a means of preservation in the technological era, emphasizing the importance of maintaining the intra-aesthetic value of artworks. The intra-aesthetic value represents a significant legacy that should be transmitted to future generations to comprehend the form and significance of historical artworks. The physical release of cassette tapes containing analog audio data from the Surya Mataram Yogyakarta, Orkes Keroncong (OK) Group is an intra-aesthetic value that must be preserved. Founded in 1975 as OK. Surya Mataram, this keroncong group has played a significant role both nationally and internationally. It is among the keroncong ensembles that have recorded extensively, resulting in numerous physical releases of cassette tapes that are preserved to the present day.

The article by Sheila Alysia Denanty is titled "STRATEGI PRESERVASI DIGITAL PADA KOLEKSI PUSTAKA NUSANTARA" (Digital Preservation Strategy in the Nusantara Library Collection in the Khastara Portal). This study demonstrates that the digital preservation strategy employed by the Center for Preservation and Media Transfer of Library Materials comprises six strategies: technology preservation, refreshing, migration, emulation, data archaeology, and digital to analog conversion.

The fourth article written by Musrifah (200,,,) is entitled "Strategi Preservasi Digital di Perpustakaan UIN Sunan Kalijaga Yogyakarta" (Digital Preservation Strategy in the UIN Sunan Kalijaga Yogyakarta Library). This article examines digital preservation strategies, specifically technology preservation, backup, migration and reformatting, and refresh strategies. The implementation of digital preservation encounters several challenges, including the inherent difficulty of ensuring the longevity of digital information, vulnerability of preserved files to viruses and hacking, potential damage to digital collection files, and the sudden and untraceable disappearance of digital collection materials.

Then, research conducted by Dhani Sugiarto entitled "PENYELAMATAN INFORMASI DOKUMEN/ARSIP DI ERA TEKNOLOGI DIGITAL" (Rescue of Document/Archive Information in the Era of Digital Technology). This study explains that the employed strategy involves server storage. At this level of system automation, robotic devices continuously assess media quality beyond human capabilities, providing significant advantages for the durability and accessibility of documents and archives to the public, particularly concerning service quality over time.

State of The Art. Thus, the prior five articles served as the foundation and reference for this study. The studies share a common focus on the strategy of converting cassette preservation into digital form; however, they primarily provide a technical description of the stages or procedures involved in transforming analog collections into digital collections. This study is distinguished by its focus on specific aspects, particularly the explanation of

the strategy for preserving cassettes in digital format as a preventive measure, supported by an analysis of relevant literature findings. This study aims to address the posed questions. A systematic literature review is necessary to address the questions posed in this study.

Purpose. This study aims to analyze an institution's strategy for transitioning preservation activities from analog to digital collections and to identify the types of collections that are frequently preserved.

II. METHODS

This study employs the Systematic Literature Review (SLR) methodology alongside a qualitative framework, aimed at synthesizing the findings of qualitative descriptive research. The process of synthesizing the findings of qualitative research is referred to as "meta-synthesis". Meta-synthesis is defined as a technique for integrating data to generate new theories or concepts, or to achieve a deeper and more comprehensive understanding (Perry & Hammond, 2002).

The stages of compiling this study include planning (identifying research questions and limitations), conducting (tracing and identifying relevant references, extracting and synthesizing data), and reporting (translating into article form) (Torres-Carrion et al., 2018).

This study was conducted from June 1, 2024 to August 28, 2024. In identifying research questions and limitations, the researchers used the PICOC (Population, Intervention, Comparison, Outcomes, and Context) approach from Petticrew (2006).

Table 1.
Scope of Research Questions

Criteria	Scope
Population	Research on cassette preservation strategies into digital form through media transfer processes in Indonesia
Intervention	Limitations on strategies and preservation processes from cassette to digital form through media conversion
Comparison	Not Applied
Outcomes	Strategies and preservation processes from cassette form to digital form carried out by private and government organizations in Indonesia
Context	Review of research investigation results

Source: Author Documentation, 2024

The research questions (RQ) are defined as follows, in accordance with the scope of the aforementioned research:

RQ1: How are collections in cassette or analog form preserved in digital form in Indonesia?

RQ2: What type of analog collection is most widely preserved in Indonesia?

RQ3: How is the preservation process from cassette form to digital form carried out by both government and private organizations in Indonesia?

During this execution stage, the search strategy is implemented by inputting the search term formula, utilizing literature sources from online databases, applying inclusion and exclusion criteria, and conducting a search quality assessment.

Researchers have developed various formulas to enhance search efficiency in Google Scholar and the UI repository, enabling the formulation of inclusion and exclusion criteria and the evaluation of research quality. This study employs the Boolean search method utilizing the "AND" and "OR" functions. This function seeks to guarantee that the search results generated comprise a synthesis of two or more keyword elements pertinent to the research topic. Researchers developed a search formula utilizing the terms "Preservation Strategy," "Analog Collection," and "digital collection," with a specified time range from 2018 to 2024 on Google Scholar and the UI repository.

This study utilizes Google Scholar as a database to search for articles and employs an online database from the UI repository. This portal was selected due to its extensive coverage and open access availability. The search functionality within the UI repository facilitates the identification of specific research topics, particularly the strategy for digitizing cassettes as a preventive measure. The study employs citation limitations to publications from the period 2018 to 2024, encompassing the last seven years from the time of research execution.

Inclusion and exclusion criteria are employed to identify scientific works relevant to this research question. Indonesian literature is utilized to facilitate researchers in information retrieval and keyword-based searches. The study's inclusion and exclusion criteria are presented in the following table:

Table 2.
Research Inclusion and Exclusion

Inclusion	Exclusion
All scientific works published in Indonesian	Scientific works published using languages other than Indonesian
All scientific works published in the last 7 years starting from 2018-2024	Scientific works published before and after 2018-2024
Scientific work that focuses on research topics, about how analog collections are preserved in digital form, the types of preservation that are most often carried out, and also the preservation process.	Scientific work that does not match the scope of the research topic

Source: Research Data, 2024

In systematic literature review research, the data utilized will be assessed according to the following quality assessment (QA) criteria:

QA1: Explaining about how collections in cassette or analog form are preserved in digital form?

QA2: Explaining about what types of cassette collections or analog collections are most widely preserved?

QA3: Explaining about the preservation process from cassette form to digital form carried out by both government and private organizations?

Evaluation of Search Quality

This stage involves evaluating the obtained scientific articles for quality control, following the quality assessment criteria outlined below.

Each question has only 2 alternative answers, which are Yes = 2; Partially = 1, and No = 0. The data that has been found will be evaluated based on the following questions:

1. Are there activities in the literature that address the preservation of cassettes in digital format as a preventive measure?
2. Does the study address the categories of analog collections that are maintained in digital format?
3. Does the study address strategies or methods for converting analog collections into digital format?

Data Collection

The data collection stage involves gathering the identified literature necessary for research purposes.

Data Analysis

At this stage, the data that has been collected will be analyzed to show:

1. Explaining about how collections in cassette or analog form are preserved in digital form? Referring to RQ 1
2. Explaining about what types of cassette collections or analog collections are most widely preserved? Referring to RQ 2
3. Explaining about the preservation process from cassette form to digital form carried out by both government and private organizations? Referring to RQ 3

III. RESULTS AND DISCUSSION

Search results from Google Scholar over a seven-year period, specifically from 2018 to 2024, yielded 159 articles relevant to the specified keywords. Additionally, a search through the UI repository during the same timeframe resulted in 11 articles. The subsequent phase involves selecting articles from the search results according to the established inclusion and exclusion criteria of the research. Prior to this selection, the researchers will first perform a search based on the title. Upon acquiring relevant literature related to the title, the next step involves reviewing the abstracts. If a suitable topic is identified from the abstract, the researchers will proceed to examine the complete text of the selected literature for further insights. The selection yielded 8 articles that met the inclusion criteria and were deemed

relevant to the research focus on the strategy of converting cassettes to digital format within Indonesian organizations.

In this section, the researchers discuss in detail and presents the results related to the research questions.

How collections in cassette or analog form are preserved in digital form? (RQ1)

Eight articles were identified through the search and selection process, focusing on the strategy of digitizing cassettes as a preventive measure for government and private organizations in Indonesia. Eight articles addressing preventive measures for safeguarding information value and preserving national culture are identified as A1, A2, A3, A4, A5, A6, A7, and A8.

How collections in cassette or analog form are preserved in digital form? (RQ1).

Eight articles were identified through the search and selection process, focusing on the strategy of digitizing cassettes as a preventive measure for government and private organizations in Indonesia. Eight articles addressing preventive measures for safeguarding information value and preserving national culture are identified as A1, A2, A3, A4, A5, A6, A7, and A8.

Table 3.

Strategies and purposes for the preservation of analog collections through digital formats

Code	Purpose	Strategies
A1	To preserve the value of information for extended usage and to ascertain the preventive measures implemented.	Digitization through the steps of technology preservation, preservation of refreshment and updates, migration and reformatting, and emulation.
A2	Describes how the collection is managed at the Indonesian Music Museum.	It is still manually managed.
A3	To discover the procedure for converting a video cassette collection into digital format for preservation, and to investigate methods for conserving video cassettes utilizing specific software.	Transfer of media functions (refreshing, migration, and converting to analog media).
A4	In order to analyze preventive measures, damage restoration, and the digitization of the analog recorded media collection possessed by the Indonesian Music Museum.	Preventive preservation employs silica gel to mitigate humidity, routine playback, cover creation, and digitization, which is accomplished by playing the media and recording it via a digital recorder connected to the player. The recorded results undergo editing and the selection of a digital file format.

Source:

A5	To identify the operation of video recording collections at the Jogja TV documentation center and the attributes of the applied system.	Management encompasses purchase, processing, data input, storage, and retrieval of collections.
	To determine the procedure for digitizing audio materials at the UPT library of the Indonesian Institute of the Arts.	Digitization and media conversion utilizing the Magix Audio Cleaning Lab software application.
A6	To determine the application of Magix Audio Cleaning Lab software within the audio digitization system of the audio collection at the UPT Indonesian Institute of the Arts.	
A7	To determine and characterize the digital preservation methodology of ANRI's audiovisual assets.	Media transfer and digitalization utilizing analog methods and information technology
A8	To further clarify the procedure of digitizing static archives, the digital archive services available inside the network, their advantages and limitations, and the digital archive services offered by Gajah Mada University.	Analog video recorded in formats like VHS and Betamax is transferred via a media player linked to a converter, thereafter processed by a computer.

Research Data, 2024

3 outlines the objectives and strategies for the preservation of analog collections in digital formats. The aims of converting analog collections into digital formats, as outlined in the eight literatures, indicate that preservation activities are proactive measures designed to ensure the accessibility of the collection's contents for future use. The preservation procedures outlined in the eight literatures are implemented variably, depending on the technology available to an agency or institution, including the use of Magix Audio Cleaning Lab software, media player converter software, and even manual approaches. All of these actions are undertaken for preventive purposes to ensure that the informational content of each collection can be utilized for future interests, such as in literature A5. Yogyakarta Television converts analog collections into digital format to conserve storage space; this digital collection enhances research, information distribution, and reduces the risk of damage or loss of the original data. Every analog collection converted into a digital format is stored on a computer, facilitating maintenance for archivists. Previously, they were required to perform constant checks, including dusting, temperature regulation, and various other manual tasks. In digital form, these processes can be executed more efficiently. The information retrieval process is expedited and enhanced in comparison to analog collections, which require meticulous examination of individual locations or shelves. In contrast, digital collections allow for information to be accessed through keyword or subject searches. The strategy of converting analog collections into digital format through manual techniques is deemed less efficient as a preventive measure due to the considerable time

required, high energy consumption, and the necessity for specialized skills and experience to effectively manage the collection.

What types of cassette collections or analog collections are most widely preserved? (RQ2)

The analysis of various selected articles pertinent to the strategy for digitizing cassettes as a preventive measure concludes that the most preserved collection type by governmental and private organizations is non-book collections, such as video and audio cassettes. Each organization employs distinct procedures and methodologies to ascertain the cassette collections prioritized for preservation, based on their specific needs and objectives, as evidenced by the analysis of various articles highlighting multiple organizations dedicated to preserving this type of collection. Numerous entities, both governmental and private, were identified as maintaining their collections of cassettes, including CD cassettes, VCDs, vinyl records, and audio cassettes.

Table 4.
Types of Collections

Types of Collections	Literature Code
Microfiche collection (Vinyl recordings, tapes, compact discs)	A1,A2,A3,A4,A5,A6,A7,A8
Audio cassette	A3,A6,A8
Video cassette	A3,A6,A7,A8

Source: Research Data, 2024

This case illustrates that the microfiche collection, along with vinyl records and CDs, is the most extensively preserved. According to various sources A1 to A8, vinyl records remain highly sought after in Indonesia, resulting in a significant demand for such collections, which must always be readily available. The second is succeeded by a compilation of video cassettes including 4 literatures, audio cassettes comprising 3 literatures, and a collection of mini cassettes featuring 2 literatures.

How are the preservation process from cassette form to digital form carried out by both government and private organizations? (RQ3)

The analysis of various selected articles on the preservation process from analog to digital formats conducted by organizations in Indonesia reveals that each entity, whether governmental or private, employs distinct methodologies tailored to its specific objectives and requirements. For instance, organizations such as museums and libraries implement preservation through digitization or functional transformations, including emulation, refreshing migration, and, in some cases, manual processes.

Table 5.

List of preservation processes in Selected Articles

Code	Preservation Process	Type Of Institution
A1	Digitization through the steps of technology preservation, preservation of refreshment and updates, migration and reformatting, and emulation.	Government
A2	It is still manually managed.	Government
A3	Transfer of media functions (refreshing, migration, and converting to analog media).	Government
A4	Preventive preservation employs silica gel to mitigate humidity, routine playback, cover creation, and digitization, which is accomplished by playing the media and recording it via a digital recorder connected to the player. The recorded results undergo editing and the selection of a digital file format.	Government
A5	Management encompasses purchase, processing, data input, storage, and retrieval of collections.	Private Organization
A6	Digitization and media conversion utilizing the Magix Audio Cleaning Lab software application.	Private Organization
A7	Media transfer and digitalization utilizing analog methods and information technology	Government
A8	Analog video recorded in formats like VHS and Betamax is transferred via a media player linked to a converter, thereafter processed by a computer.	Government

Source: Research Data, 2024

The findings from each Research Question (RQ) reveal the rationale behind the digital preservation of cassette collections, the types of collections typically safeguarded as preventive measures, and the methodologies employed by organizations in Indonesia for preservation from 2018 to 2021.

Table 6.

Summary of Data Analysis Results

RQ	Aspect	Data Analyst Results
1	The purpose of preserving analog or cassette collections.	As a preventive measure, and identification of activity processes, and describing the preservation activity processes carried out.
2	Types of collections that are preserved in digital form.	Video cassettes, audio such as CDs, VCDs and vinyl records.
3	Preservation Process.	7 through digitalization or conversion process, 1 manually.

Source: Research Data, 2024

Population

Research 1 discusses that the research indicators possess a specific objective, ensuring that the content within analog collections is accessible for future generations, with a focus on technology, migration, and upgrades. Findings from RQ 3 indicate that numerous institutions employ technological preservation measures, including migration and upgrades, to ensure the accessibility of content from analog collections for future generations.

Interventions

Research 2 breaks down the indications of converting physical (analog) data into digital format as a preservation strategy in the technological era, which is essential for sustaining the intra-aesthetic worth of an artwork. This intra-aesthetic value constitutes a significant legacy to impart to future generations for comprehending the form and worth of historical artworks. Likewise, the results of this study aim to preserve analog collections in digital format, ensuring that the information contained within becomes a meaningful legacy for future generations.

Comparison

Research 3 identifies six essential digital preservation strategies: technology preservation, refreshing, migration or reformatting, emulation, data archeology, and digital-to-analog conversion. This strategy is implemented to preserve the value of information for future use.

Outcomes

Strategies for technology preservation, data backup, transfer and reformatting, and system refresh. The obstacles encountered in executing digital preservation include the inherent fragility of digital information over time, susceptibility of preserved files to viruses and cyberattacks, degradation of digital collection files, and the abrupt and untraceable loss of digital resources. Consequently, it is essential to conduct regular assessments to mitigate the loss of this information, ensuring its transmission to future generations.

Context

The employed strategy involves utilizing a storage server at the system's automation level, where robotic devices consistently assess media quality beyond human capacity, providing significant advantages in the durability and accessibility of documents and archives for public service quality over time. The indicators are designed to ensure that the information contained within can be utilized sustainably for the benefit of future generations. In addition to media conversion, regular monitoring is required.

Discussion of Research Findings The findings of the research question indicate that institutions, both governmental and private, have intentionally implemented strategies to convert analog collections into digital formats. This initiative aims to ensure the long-term accessibility of the information contained within these collections. However, some governmental institutions continue to employ manual preservation methods, as evidenced by the findings in article A2 in the table above, which, despite lacking technological integration, share the same objective of transmitting the value of the information to future generations. The vinyl record collection is the most frequently converted from analog to

digital media due to institutional awareness and public demand, resulting in the regular preservation of these collections in media format.

Discussion of other interesting findings The digitization and conversion of media, particularly collections like vinyl records, are extensively preserved due to their distinct segmentation, exemplified by the presence of a dedicated community of music enthusiasts. This fosters a strong commitment to the preservation of vinyl collections, aiming to ensure that contemporary generations, immersed in advanced technology, recognize the existence of vinyl records today. Furthermore, the preservation of the information contained within these collections is essential for enhancing knowledge, particularly in the realm of music. The findings of QR (A6) indicate that numerous institutions utilize specialized software to preserve collections, including vinyl recordings.

IV. CONCLUSION

According to the findings of the research, it can be concluded from the Systematic Literature Review (SLR) that the objective is to implement preventive measures and to examine the digitization process undertaken. The collections typically preserved include video cassettes, audio recordings, and vinyl records, with the preservation process involving the digitization or conversion of media formats. Microfiche collections are predominantly retained from the literature discovered, as they continue to be extensively utilized by the Indonesian populace. Some individuals continue to do the preservation process manually, however they are gradually using the latest technology.

This study's findings reveal that the library should prioritize the conversion of analog collections into digital formats. Further research should focus on non-book collections, such as cassettes, and it is advisable to conduct field investigations to assess the current state of these non-book collections. This approach will enable managers and researchers to identify necessary actions effectively.

Future Directions of Research

The utilization of Systematic Literature Review (SLR) facilitates researchers in categorizing their areas of inquiry, particularly when seeking to identify methodologies or strategies for transitioning preservation activities from analog to digital formats. This includes examining the specified technologies employed, the procedural aspects involved, and the types of institutions engaged in such practices. Subsequently, researchers can delve into more specific topics with greater depth by selecting appropriate research methodologies. For instance, one might choose to investigate the preservation of vinyl record collections in greater detail through case studies that involve direct observations at relevant locations. This study can significantly contribute to library and archive science, as the application of the SLR method is relatively uncommon among academics and practitioners in this field, thus providing an alternative for future researchers.

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