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ARCHIVAL PRACTICE AND ARTIFICIAL INTELLIGENCE

Abstract

Purpose: *The purpose of this article is to present the fundamental questions that potential users of artificial intelligence should ask themselves when deciding to adopt AI-based tools. It also examines which AI solutions can already be applied in archival practice today, along with the main obstacles that may prevent their wider use.*

Method/approach: *The study applied content analysis and survey method. Different use cases and practices were examined, as well as approaches for implementing AI tools.*

Results: *The analysis showed that the use of artificial intelligence is primarily driven by the core motivations for adopting such tools: the potential benefits or advantages they offer, weighed against possible drawbacks.*

Conclusions/findings: *The approach and analysis highlight certain fundamental questions that should be addressed when deciding to adopt AI tools or systems within archival practice. These questions determine whether the use of such tools is feasible, sustainable, and understandable.*

Keywords: *Artificial intelligence, archival practice, machine learning, archival theory, archiving.*

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INTRODUCTION

With the increasing volume of documentary and archival materials, the field of archival science is facing growing challenges in the effective management of records, particularly in terms of the use and administration of digital environments for their processing. Procedures such as appraisal, description, and storage become increasingly demanding when dealing with large volumes of data or with complex and unknown content. As a result, new solutions are being sought to enable more efficient processing. Traditional “manual” approaches often prove to be too slow and, in many cases, ineffective. Among the possible solutions are tools that use artificial intelligence (AI), which open up new opportunities for the efficient handling of documentary and archival materials.

In recent years, the use of AI tools in archival science has grown steadily, influencing practice both among record creators and within archives themselves. Since AI and especially its methods of application have developed rapidly in recent years, it has also transformed fundamental processes for handling archival materials. One of the central challenges facing archival science remains the ever-growing volume of materials, which can no longer be processed effectively using traditional “manual” methods. In addition to born-digital content, the growing amount of digitized material further expands the total volume of digital records.

ARCHIVAL PRACTICE AND ARTIFICIAL INTELLIGENCE

As noted by Shinde and colleagues (Shinde et al, 2024), artificial intelligence offers new possibilities for structuring tasks within archival practice and can also significantly improve certain work processes.

The use of artificial intelligence in the field of archival practice can be divided into the following categories (Shinde et al, 2024):

- Records Management:
 - Classification
 - Data Collection and Management
 - Retention and Disposition
 - General Records
 - Management.

- Archival Processing:
 - Appraisal
 - Arrangement and Description
 - Preservation.
- Access and Use:
 - Privacy
 - Records Retrieval
 - Use of Records in Research
 - Public Access.
- Professional Perspectives:
 - Archival Education
 - User Perceptions.

The advantages of using AI are now evident across nearly all domains. In archival science, it allows faster processing, easier identification and classification of content, and consequently greater accessibility for end users. Furthermore, AI tools support the analysis of large repositories, making possible new discoveries such as identifying patterns or connections in vast collections or uncovering content that might otherwise remain unnoticed. Increasingly, archival science already relies on specific categories of AI, such as Natural Language Processing (NLP), which has already become a mature and effective solution for carrying out archival tasks (Winters, 2024).

Natural Language Processing deals with creating approaches and systems capable of understanding, interpreting, and using human languages in such a way that the meaning and context of the content are clear. In practice, any communication between humans and computers takes place through programming languages, and when it comes to a machine understanding human language, achieving this interaction is quite demanding, as human language by its nature is complex and can involve different meanings, abbreviations, slang, etc. (Johri et al, 2021).

Typical applications of NLP in archival practice include (Khenous et al., 2023):

- Translating languages
- Text processing in various languages
- Text Summarization
- Analysing sentiments

- Topic modelling
- Speech Recognition
- Named Entity Recognition
- Phrase and keyword Extraction
- Tense Identification
- Relationship Extraction.

Despite certain advantages, the use of artificial intelligence in the field of archival science also brings numerous challenges and risks. One of the key drawbacks is the possibility of biased data processing, since such systems learn from existing data, which may already be incomplete or inherently inadequate and incorrect. There is also the danger that users of such systems may rely too heavily on the results themselves and overlook the need for additional verification or final professional judgment. Furthermore, the issue of the long-term sustainability and usability of such systems arises, as the field of artificial intelligence is currently experiencing rapid and continuous development of new solutions, many of which are commercial in nature and dependent on external providers of final solutions. This, in turn, raises questions about the long-term use, control, and security of such systems (Jaillant et al, 2025).

Based on all the possible approaches and solutions in the field of archival practice, several key questions emerge that should be answered for the effective use of artificial intelligence systems, namely:

- Why do we want to introduce artificial intelligence tools?
- What are the key problems we want to solve with these tools?
- Do we have the necessary knowledge to use such tools?
- Which tools should be used?
- How should we approach the use of the selected tools?
- Who should be involved in the introduction of such tools?
- What is an acceptable result of using such tools?
- How should the use of such tools be monitored?
- How can the long-term usability of such tools be ensured?

Why we want to introduce artificial intelligence tools is closely linked to the question “What are the key problems we want to solve with these tools,” since in most cases the aim is to address a specific issue in the work process, where the

goal is either to solve these problems or at least significantly improve their treatment. In addition, the reasons for using such artificial intelligence systems may also lie in optimization or, for example, simply in exploring the potential possibilities of their use. Below are some reasons why an organization might decide to adopt artificial intelligence systems:

- Saving time and increasing efficiency
- Improving accuracy and reducing errors
- Supporting decision-making and analysis
- Initiative from management/organization
- Curiosity/innovation

The use of tools that incorporate artificial intelligence may require specific advanced knowledge, particularly in cases where advanced tools must be applied. As long as we are dealing with generative models with simple user interfaces, their use is generally straightforward. However, when we want to perform complex processing on extremely large volumes of data, certain limitations of simple tools quickly become evident, and in such cases, it is necessary to turn to specialized tools, which may in turn require advanced knowledge for their use.

How to approach the use of selected tools is a question that relates primarily to the organizational aspect of implementing such tools, i.e., with the pursuit of specific goals. Consequently, the introduction of tools within an organization is directed towards developing new work processes or optimizing existing ones. This raises additional sub-questions, such as: “What dependencies exist within such a process?”, “What is the expected efficiency?”, “What is the financial structure for using such tools?”, “How will activities and related responsibilities be divided?”, and so forth.

The use of tools that incorporate artificial intelligence within work or business processes is not a “set it and forget it” approach, as it requires constant monitoring of their appropriateness. The field is developing rapidly and continuously, so it is also necessary to regularly track technological or conceptual changes that may affect the use of such tools.

Whom to involve in the introduction of such tools primarily relates to all stakeholders who should participate in the implementation of such processes, including not only employees but also partners or third parties, without whom the imple-

mentation of activities or the use of the tools would be impossible. It is advisable that such dependencies or necessary categories of stakeholders be addressed through a risk assessment, and based on its findings, appropriate measures should be adopted to ensure the successful and uninterrupted execution of processes in which tools incorporating artificial intelligence are used.

What is an acceptable result of using such tools is one of the key questions that anyone intending to use artificial intelligence tools should ask themselves. Before implementing such tools, clear expectations regarding acceptable results should be established. Perfect results in terms of precision or success will be difficult to achieve, but even a fairly high level of accuracy can be a major gain, as it allows end users to process data significantly faster (Shinde et al, 2024). An acceptable result should therefore not represent perfection, but rather an improvement compared to traditional methods. At the same time, it is crucial to establish mechanisms for monitoring the quality of the performed tasks, with all steps in the process and the resulting outputs being subject to professional verification by qualified experts. The process should also be complemented by the necessary metadata for proper evaluation of efficiency and acceptability of results (Felicati and Duranti, 2025).

The safe use of tools that incorporate artificial intelligence in archival science represents an important category, since the processing of documentary and archival materials often involves protected data, such as personal data. It is therefore necessary to ensure that all procedures and data processing comply with applicable legislation on data processing and the preservation of documentary and archival materials, as well as with ethical standards governing the use of such tools. Consequently, in the field of responsible use of tools that incorporate artificial intelligence, archives and other users in archival science must ensure adequate transparency, protection against misuse, and safeguarding of authenticity (Floridi and Cows, 2019). This prevents the risk that the use of such tools could lead to intentional or unintentional manipulation of content or endanger the integrity of documentary or archival materials.

Ensuring the long-term usability of such tools in archival environments essentially requires a comprehensive approach focused on long-term and above all flexible use, with the possibility of adaptation. Fundamentally, this means treat-

ing artificial intelligence tools as dynamic systems, with special attention given to continuous maintenance, ongoing verification of their proper functioning, and frequent updates, all of which are closely tied to the chosen architectural design of such tools (Myllyaho et al., 2021).

RESEARCH

Archives today follow clear guidelines for the use of artificial intelligence in the field of archival science. As a result, both awareness of the use of AI-based tools and their actual application are increasing. On the other hand, the creators of documentary and archival materials operate in diverse business environments, with different business processes and varying approaches to the use of such tools. The purpose of the conducted research was to examine how prepared the creators of documentary and archival materials are for the introduction of AI tools, and what the current status of their use is.

For the research, specific organizations were selected, namely Slovenian municipalities, which, by the nature of their operations involving numerous procedures, generate large volumes of documentary and archival materials.

The survey questions were sent to 100 key individuals in municipalities responsible for managing documentary and archival materials in municipalities or for overseeing this area. A total of 44 individuals responded and completed the survey.

SURVEY

The survey included 10 questions that examined the readiness of municipalities for the introduction of AI tools, as well as the current status of municipalities in the field of artificial intelligence use. The survey was anonymous.

Survey questions:

- Do you currently use any artificial intelligence (AI) tools in your work, either in the field of managing documentary materials or more generally in information management?
- If you use artificial intelligence tools, for which tasks do you use them? Multiple answers possible.
- If you use or intend to use AI – What would (was) be the main reason that you would (did) start using artificial intelligence tools?

- If you use AI – What type of artificial intelligence tools or solutions do you use in your work? Multiple answers possible.
- If you do not use artificial intelligence tools, what are the main reasons for not using them? Multiple answers possible.
- Do you think you have enough knowledge to use artificial intelligence tools effectively?
- What form of support or training do you think would be most effective for you to acquire the necessary knowledge for using artificial intelligence tools?
- In your opinion, what are the biggest risks of using artificial intelligence in the field of managing documentary materials or in information management? Multiple answers possible.
- How would you assess your organization's current readiness to implement artificial intelligence tools?
- In your opinion, what should be the main priority when introducing artificial intelligence tools in the field of managing documentary materials or in information management? Multiple answers possible.

RESULTS

Do you currently use any artificial intelligence (AI) tools in your work or in the field of documentary material management or in general in information management?

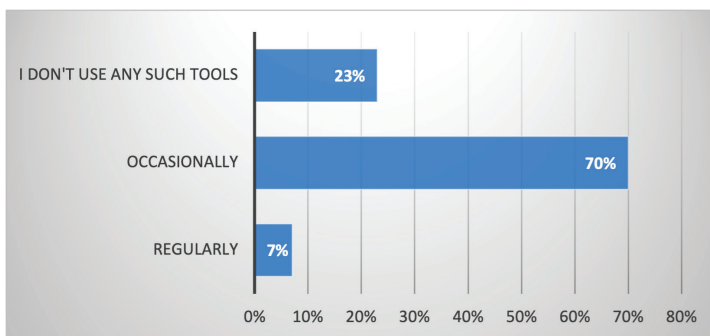


Figure 1: Use of AI tools

If you use artificial intelligence tools, what tasks do you use them for?

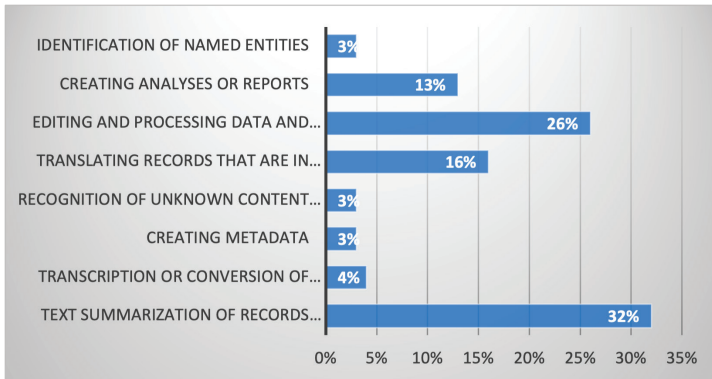


Figure 2: Use of AI tools for specific tasks

If you use or intend to use AI - What would be (was) the main reason that you would (did) start using artificial intelligence tools?

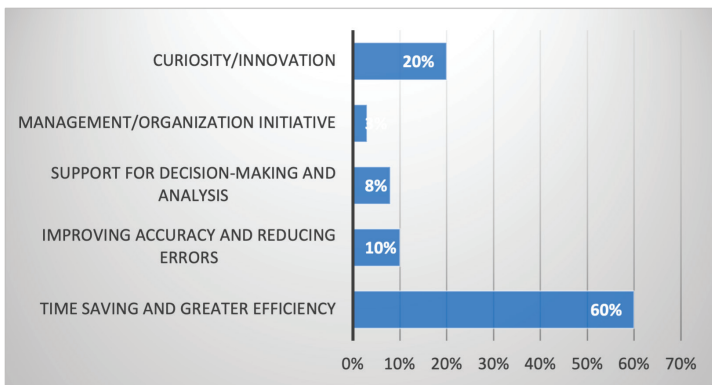


Figure 3: Reasons to use AI tools

If you use AI - What type of artificial intelligence tools or solutions do you use in your work?

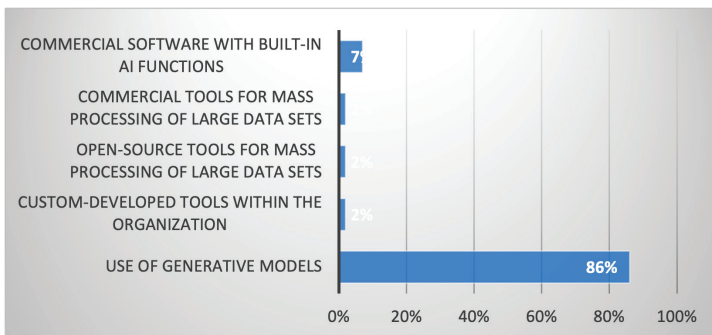


Figure 4: Type of AI tools

If you do not use artificial intelligence tools, what are the main reasons for not using them?

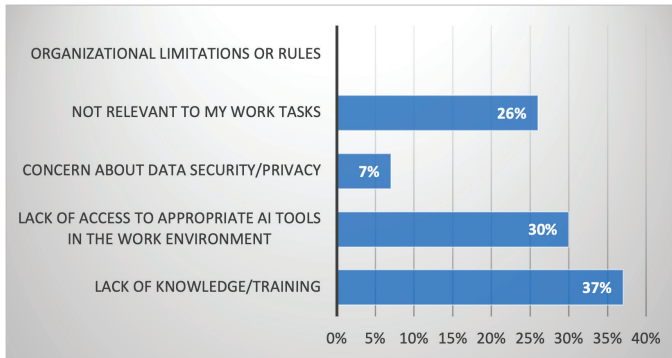


Figure 5: Reasons for not using AI tools

Do you think you have enough knowledge for the effective use of artificial intelligence tools?

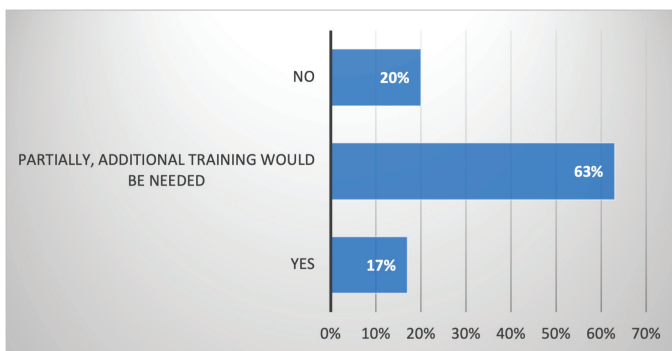


Figure 6: Needed knowledge to use AI tools

What form of support or training do you think would be most effective for you to acquire the necessary knowledge for using artificial intelligence tools?

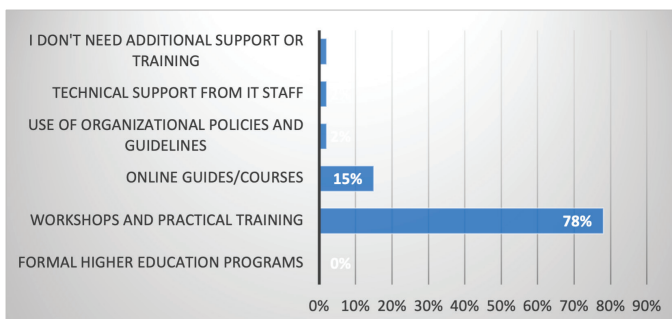


Figure 7: Necessary support or knowledge to use AI tools

In your opinion, what are the biggest risks of using artificial intelligence in the field of documentary material management or information management?

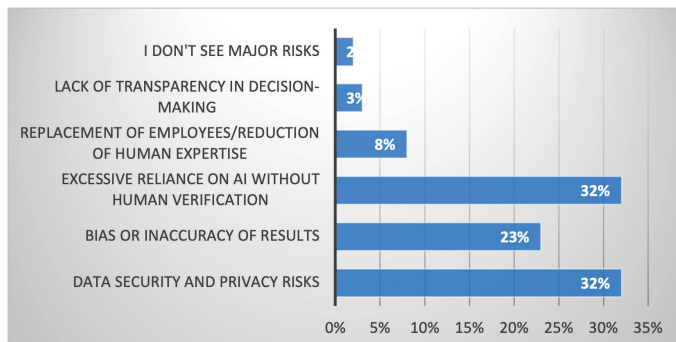


Figure 8: Risks of using AI tools

How would you rate your organization's current readiness for implementing artificial intelligence tools?

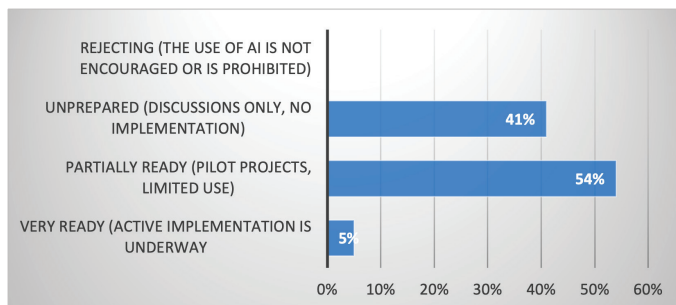


Figure 9: Readiness to use AI tools

In your opinion, what should be the main priority when introducing artificial intelligence tools in the field of documentary material management or information management?

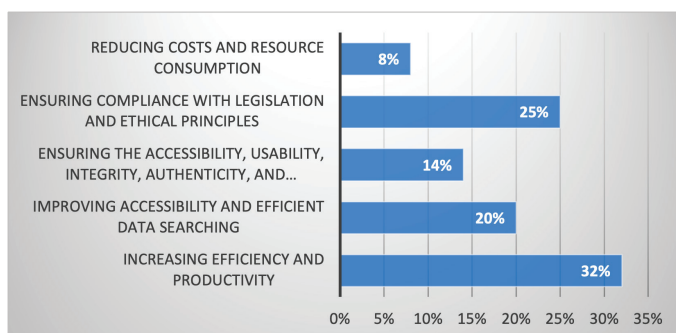


Figure 10: Priority for the use of AI tools

DISCUSSION AND CONCLUSIONS

DISCUSSION

Results show that municipalities already use a moderate proportion of tools that rely on artificial intelligence, with the majority of use focused on generative models, generally because of the ease of use of such tools.

The answers clearly indicate that the main reasons for using these tools are time savings, greater efficiency in task execution, improved accuracy, and the reduction of potential errors in data processing. Another interesting finding is the level of curiosity and the innovation factor, which suggest that the development of AI tools carries a certain momentum that generates curiosity about how these tools can be used as potential or actual solutions for work related problems.

Out of all the proposed tasks, AI tools are most commonly used for text summarization, as well as for editing and processing data and information. They are also regularly applied for language translation and for creating reports. However, the use of AI tools in tasks such as transcription or conversion of audio to text, recognition of unknown content, creation of metadata, or identification of named entities is still not widespread. This may be attributed to the fact that such processing is often not needed or not necessary, or that approaches capable of producing successful results require advanced tools and, consequently, more knowledge to use them. In certain cases, the limited maturity of available models and solutions may also be a contributing factor.

The main reasons for not using AI tools were identified as a lack of knowledge or training and limited access to such tools. Another notable reason is the perception that these tools are not relevant to the specific work tasks being performed. Regarding the knowledge required for the effective use of AI tools, the majority of respondents stated that they have some knowledge but would require additional training. As for the preferred form of support, the vast majority indicated that workshops and practical training would be the most effective way to gain the necessary knowledge, which may reflect the fact that such tools are best applied to specific, real work-related tasks.

As for the risks associated with the use of AI tools, the most frequently identified concerns were data security and privacy risks, bias or inaccuracy of results, and excessive reliance on AI without human verification.

When addressing organizational preparedness for the use of AI tools, the results were divided. Approximately half of the organizations are already fully or par-

tially using AI tools, while the other half are not yet using them but they are in the process of evaluating whether they should be adopted.

When considering the main priority for introducing artificial intelligence tools in the field of documentary material management or information management, the answers align with the primary reason for using such tools: to achieve greater efficiency and productivity.

CONCLUSIONS

The tasks of professionals working in the field of archival science are not fundamentally changed by the introduction of tools that use artificial intelligence. However, they may require greater attention in certain areas, such as overseeing the design and approach to the use of such tools and monitoring the quality of the results they produce. It remains essential to evaluate whether the outcomes are appropriate, relevant, and useful in relation to the intended objectives. A crucial component of this process is continuous education in archival science and in the related technological solutions, such as AI-based tools.

The use of artificial intelligence in archival practice presents an opportunity to increase efficiency in performing archival tasks. However, careful consideration must be given to how these tools are introduced and applied. This includes a clear understanding of the reasons for adopting AI tools, a precise definition of the problems they are intended to address, the selection of suitable tools, an awareness of the knowledge required for their effective use, the establishment of realistic expectations regarding acceptable results, and the implementation of mechanisms to monitor and control their application.

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