

Structural resistance - competence in social element on digitalisation process of historical archiving

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Abstract Digitisation of archives is an effort to preserve and utilise technology in the field of historical archiving. Archives hold significant value as they serve as authentic evidence and a form of 'retrieval' communication between the past, present, and future. The development and implementation of technology, particularly in archiving, are not always fully accepted by the agents who are part of the structure executing the archive digitisation policy. One of the challenges is technological resistance within the social elements of the structure, where the lack of training to improve staff competence is identified as an obstacle in the implementation of the archive digitisation policy. The Adaptive Structuration Theory was used as an analytical lens because it provides a holistic framework on how competence, as a social element, contributes to the success of the archive digitisation policy. The research used a qualitative descriptive method, with a case study approach allowing for more comprehensive research. The research paradigm used was constructivist, viewing knowledge as a social construct emerging from interactions and communication within a sociocultural context.

Keywords: archives digitisation; adaptive structuration; historical archives; resistance; technology

INTRODUCTION

The digitalisation of archives is a crucial effort in preserving information, as archives are not merely stacks of documents but serve as a fundamental basis for formulating policies. Furthermore, digitalisation represents a pivotal moment for self-improvement and adaptation to technology (Kominfo, 2021). One of the digital reform efforts, particularly in the field of archiving, implemented by the government institution National Archives of the Republic of Indonesia (ANRI), is the Integrated Archival Information System (Srikandi). This general archival application within the Electronic-Based Government System (SPBE) was introduced four years ago and has been applied across all government archival institutions. One of the agencies implementing this system is the Regional Library and Archives Office of the Special Region of Yogyakarta (DPAD DIY) (DPAD, 2023).

The adoption of digital technology in Indonesia, especially in the context of archive digitalisation, is crucial as it serves as a fundamental indicator for the implementation of digital information management systems, particularly within government institutions (Bawono, 2022). The importance of digital archive management, especially in Indonesia, which is known for its diversity and rich historical information, is seen as an effort to enhance accessibility and digital literacy (Salim, 2014). Additionally, the digitalisation of archives is an option that can be implemented to improve efficiency and effectiveness in archive management (Muhidin et al., 2016). The digital transformation in the field of archiving has opened new opportunities for historical learning and posed challenges to conventional archive models (Ahmad, 2022).

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The legal basis regulating digital archives and archive digitalisation policies is outlined in the National Archives of the Republic of Indonesia Regulation Number 6 of 2021 on the Management of Electronic Archives. This regulation states that the digitalisation of archives is a crucial step to enhance the effectiveness, efficiency, and security of archive management in Indonesia. This initiative benefits not only the government but also the wider community by providing access to relevant and accurate information (Peraturan Arsip Nasional Republik Indonesia Nomor 6 Tahun 2021 Tentang Pengelolaan Arsip Elektronik, 2021). Additionally, the diversity and cultural heritage of the nation need to be recorded to preserve Indonesia's historical and cultural journey for future generations (Salim, 2014). This aligns with the statement that the existence of digital archives facilitates use and accessibility; moreover, the digitalisation of archives is an option that can be implemented to improve efficiency and effectiveness in archive management (Muhidin et al., 2016).

The importance of archives goes beyond the academic realm and plays a substantial role in public history through collaboration between archivists and public historians (Galloway, 2009). Archival activities are not just about storing documents, photos, and artefacts but also about how they are used to convey history, as archives are a key element in the communication process (Revianur, 2020). Thus, archives are considered a medium for 'retrieval' among parties who need the information contained within them (AB, 2024).

The key to successful archive digitalisation not only depends on the implementation of digitalisation policies but also on how the digitalisation process itself is conducted. Digitalisation in the archival field requires adjustments in implementing adaptive structures that can accommodate evolving information management practices and technologies (Flinn et al., 2009). The use of devices, both hardware and software, also requires competence, resources, and social elements, including norms, values, and culture within an organisation that influences the interaction between human agents and technology (DeSanctis & Poole, 1994).

Several previous references used by the author as the State of the Art (SOTA) analyse technology implementation within an organisational context, where Adaptive Structuration Theory is used as an analytical lens. For instance, research conducted by Kharisma & Sujono (2018) highlights that adaptive structuration theory can be used to analyse the transformation of public information services based on information technology in government organisations. Similarly, in the application of technology in government organisations related to public information management policies (digitalisation of archives), where the author took a case study at the Regional Library and Archives Office of the Special Region of Yogyakarta (DPAD DIY), the results revealed technological resistance that was not addressed in previous studies.

The digitalisation of archives is seen as a 'necessity' as a form of participatory preservation of collective memory and culture, especially in the dynamic era of digital production (Duran Casablanco et al., 2024). However, the use of digital technology in archive digitisation is not without challenges. A study by Gonçalves & Gonçalves (2012) noted resistance, particularly from staff who are either inadequately trained or accustomed to manual systems. This resistance can hinder the implementation of new technologies if not properly addressed. This aligns with the author's field findings, where technological resistance was observed in DPAD DIY. Therefore, it is crucial to provide ongoing training and support to overcome this resistance and ensure successful technology adoption (Brown, 2020).

The important role of archive digitalisation is to ensure accessibility and long-term preservation of data. Digitalisation helps document previously marginalised narratives and ensures that information is accessible to various community groups. Digital technology also enables the development of systems that are more responsive and adaptive to the diverse needs of users. Research by Velhinho & Almeida (2023) noted that the shift from traditional methods to digital can cause discomfort and resistance, especially if the community or staff are not involved in the transition process.

Previous studies and research that have focused on implementing technology and digitalisation are rarely based on the discipline of communication studies. The studies discussing digitalisation using SOTA (State of The Art) are grounded in literature from the disciplines of information technology or social sciences. Additionally, there are studies and research oriented towards fieldwork (site work); however, these are not within the discipline of communication studies but rather in history and social sciences. This gap, identified by the author, serves as the basis for selecting digitalisation as the topic of this study.

The essence of archive digitalisation, in terms of its function, is its dual role as storage evidence of past events, playing not only as authentic facts but also as catalysts in affecting perceptions and interpretations of history (Weldon, 1982). The importance of archives extends beyond academic scope to substantial public history through collaboration between archivists and public historians (Galloway, 2009). Archival activities are not just about storing documents, photos, and artefacts, but also about how they are used to convey history because archives are a key element in the communication process (Revianur, 2020). Therefore, recognising the urgency of archive digitalisation has also become the foundation for the Regional Library and Archives Office of the Special Region of Yogyakarta to implement digitalisation policies. This strengthens the role of archives as a medium of 'retrieval' between parties that need the information contained in those archives (AB, 2024)

The importance of the digitalisation process is one of the efforts to preserve archives in the long term, aiming to support institutions with interests in research, documentation, and publication (Sugiharto, 2012). Welland (2018) describes the impact of digitalisation as a preservation strategy as well as an access tool. Broadly speaking, the archiving system at DPAD of the Special Region of Yogyakarta is divided into static archives, which consist of records that are no longer used in daily activities but have significant historical, legal, or administrative value and must be permanently preserved (AB, 2024). On the other hand, dynamic archives are records that are still used in the daily administrative and operational processes of an organisation (AA, 2024). Therefore, due to the complexity and high mobility of document movements, the effort to digitize documents or images and provide them electronically, the repeated use of the original documents can be reduced, thus extending the lifespan of those documents becomes important for enhancing accessibility and ensuring long-term preservation (AC, 2024).

Digitalisation in the archival domain requires adjustment in the implementation of an adaptive structure that can accommodate evolving information management practices and technologies (Flinn et al., 2009). By adopting an adaptive structure, archival institutions can optimise their processes, increase accessibility to digital records, and ensure the preservation of digital assets over time (Ringel, 2021). Furthermore, the integration of adaptive structures in archival arrangements allows organisations to better manage and utilise digital resources, leading to improved organisational performance and service delivery (Agostinho, 2019). By collating content in one accessible platform, digital archives can effectively convey stories and information, enhancing communication and understanding of local heritage and history (Davidson & Reid, 2022)

As stated by AB (2024), archives serve as a means of 'retrieval' because they play a role in conveying messages from the past to recipients in the present and future. This reflects Harold D. Lasswell's definition of communication, which states, '*Who? Says what?, In which channel? To whom?, With what effect?*' where archives act as the channel connecting communicators (creators of archives) with communicants (users of archives). With digitalisation, archives become a means of cross-temporal dialogue. Speaking of history, it is inseparable from public history, where archives become a means of creating richer and more diverse historical narratives, giving a voice to those unheard in their time, and enabling a deeper understanding of the complexity and nuances of history. Therefore, it becomes important to recognise that the effective interpretation of historical archives depends on how the digitalisation process is carried out, which, in this context, the author examines from the perspective of resistance to the implementation of technology in the archival field.

From a technological perspective, digital archives are crucial for digital curation, preservation, and the long-term sustainability of digital libraries. Therefore, digital archives play a vital role in documenting and preserving history, memory, and cultural heritage, utilising digital tools to interact with complex narratives and historical materials (Collins, 2023). Digital archives are essential in communication as they facilitate the preservation and dissemination of historical narratives, support community engagement and activism, empower marginalised voices, provide accessibility to valuable historical knowledge, and challenge traditional archival practices. By leveraging digital technology, digital archives significantly contribute to enhancing communication, sharing knowledge, and preserving culture in various contexts (Bharti & Singh, 2022).

The involvement of information technology plays a pivotal role in this archival digitalisation process, and indirectly, the digitalisation process is influenced by social and cultural structures. This digitalisation reflects how technology's role affects, shapes, is implemented, and is accepted within a society (Littlejohn et al., 2011). The strong dependency between technology and socio-cultural contexts allows archival digitisation to be viewed through this structuration perspective, where technology is not merely a tool but an integral part of social and communicative structures.

In the realm of digital archives, managing electronic records is a crucial aspect that utilises principles drawn from archival diplomacy (Duranti, 2010). Understanding the concepts and principles guiding electronic record management is essential to ensure the authenticity, reliability, and integrity of digital archives (Duranti, 2010). Additionally, the use of metadata and provenance information plays a significant role in ensuring trust in digital archives (Sandusky, 2017). By capturing provenance information and preserving it through system migration, digital archives can maintain trust in the materials they preserve (Sandusky, 2017).

Perceptions about the use of technology affect how that technology is utilised and impact the productivity of groups or organisational outcomes (WA, 2012). The success indicators of a proposed policy lie in the role of interconnected agents within a public information service structure that implements information technology, reflecting the dynamics between a technology-supported public information service structure. This aligns with the topic of archival digitisation, where the internal systems of governmental organisations also play a crucial role in this process (Kharisma & Kurniawan Sujono, 2018)

Adaptive structuration theory offers a framework for understanding how individuals within an organisation interact with technology to shape the organisation's structure itself (Dallas, 2016). When applied in the context of archival digitisation, this theory can help explain how archivists and other stakeholders interact with digital tools to affect archival processes and practices (Dallas, 2016). Digitisation of archives involves technical, cultural, social, and political dimensions (Ringel, 2021). It is important to recognise that archival digitisation is not merely the process of converting physical records into digital format, but rather a complex interaction of various factors influencing how archives are organised and accessed (Ringel, 2021).

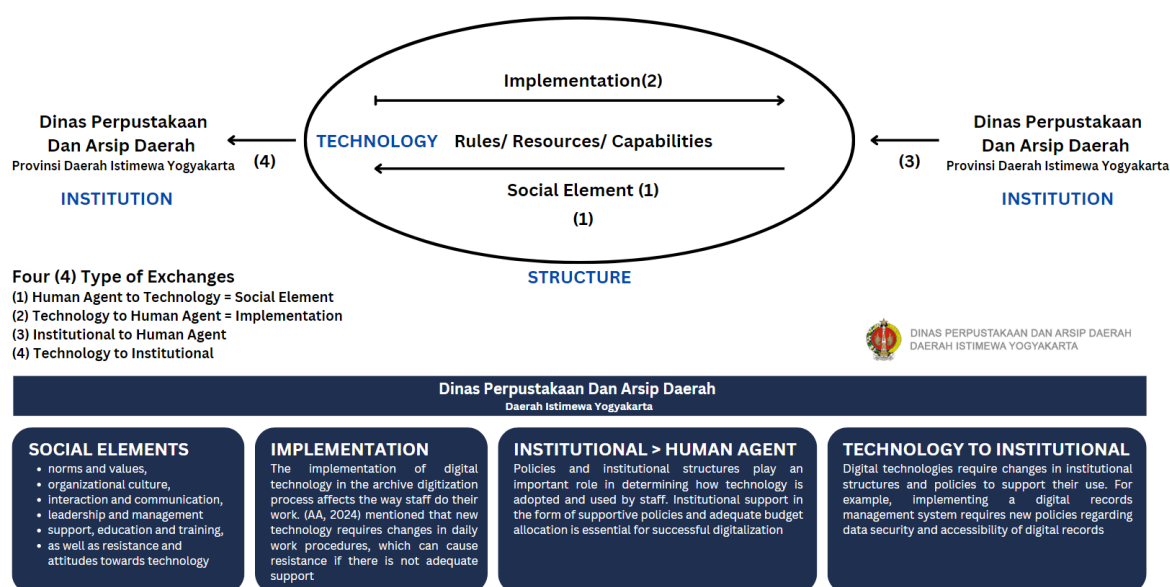


Figure 1. Adaptive Structuration Theory Model in the Case Study of DPAD, Special Region of Yogyakarta (DeSanctis & Poole, 1994) (Giddens, 1979)

The theoretical lens of adaptive structuration is used to dissect the participation and response to archival digitisation policies, demonstrating the complex interaction between technology, organisational structure, and human agents (See Figure 1). The principles found in Adaptive Structuration Theory (DeSanctis & Poole, 1994) provide a framework for understanding how archival practices are adapted and transformed through digital archival technology, which can address the challenges of digital preservation while also encouraging community engagement. This perspective highlights the importance of agent participation in the archiving process to ensure the representation of diverse voices and the collaborative and sustainable preservation of cultural heritage (Hellmer, 2023).

The author sees the urgency of this study underlying revealing the innovative and adaptive ways undertaken by the Regional Library and Archives Agency of the Special Region of Yogyakarta in integrating digital technology into their archival practices and comprehensively examining the potential resistance arising from the implementation of information and communication technology, especially in the field of archiving.

Collaboration also becomes easier and more effective; interconnected digital archives allow researchers from various parts of the world to work together without physical barriers (Serge, 2018). Similarly, museums serving as repositories can collaborate on virtual exhibitions, expanding their impact far beyond on-site visitors. Finally, historical communication through digitisation facilitates ongoing dialogue among communities, curators, and historians, allowing history to continue evolving and being retold in new, engaging, and relevant ways.

Furthermore, the underlying reason the author chose to address the theme of digitisation, particularly in the field of archiving for analysis, is because the author sees digitisation's role as a benchmark for an institution in adapting to technological advancements, as it is considered a catalyst for change in the processes of social interaction. From the perspective of socio-cultural communication traditions, it is observed that the process of social interaction does not occur spontaneously, but there are external factors influencing the interaction process and social reality, with technological advancement playing a significant role. Digital technology, especially in archiving and information dissemination, aids in shaping social and cultural identities. The constant and rapid flow of information helps individuals form an understanding of themselves and others, influencing how they interact within society (Nugroho, 2019). In this research, based on the above explanation, the author determines that the purpose of the study is to examine how technological resistance, particularly the competency of human resources, which is part of the social element of a structure, contributes to the success of archive digitalisation policies.

METHODOLOGY

This research applied a case study method (Baskarada, 2014) with a constructivist paradigm, focusing on archival digitisation. A qualitative descriptive approach was chosen because it allowed for an in-depth exploration of the context and meaning within the phenomena under investigation (Huyler & McGill, 2019), with the research object including interactions among agents within the structure related to the implementation of information technology. This research also adopted a constructivist paradigm, which viewed knowledge as a social construction emerging from interactions and communication within sociocultural contexts.

The author used a case study method at the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta, based on Yogyakarta's cultural diversity, which presents unique challenges and opportunities in archive management as it must encompass various aspects of local and national culture (AC, 2024). This includes managing archives related to the various cultural communities and diverse cultural activities in Yogyakarta. Additionally, the special status recognised by the Indonesian government for Yogyakarta, which grants it special autonomy in managing its culture and history, allows DPAD to develop more flexible archiving policies tailored to local needs. This special status enables DPAD to develop archiving policies that are more flexible and suited to local needs. This case study allows the research to explore how archive digitalisation can be carried out by considering specific cultural and historical aspects and how archiving policies and practices can be adjusted to meet unique local needs.

Data were collected using observation techniques, where the researcher directly observed and recorded occurring phenomena (Sugiyono, 2016). This method was combined with in-depth interviews to deepen the understanding of the processes and dynamics involved, highlighting how socio-cultural communication traditions influence archival digitisation. This research also integrated document tracing as part of the data triangulation process, which helped identify conceptual frameworks and strengthen the research's theoretical foundation (Arikunto, 2014).

Table 1. Research Informants and Data Collection Techniques

Data Source	Informants	Data Collection Techniques	Collected Data
Implementers	The Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta AA, AB, AC	Interviews, Field Observations & Document Tracing	Interaction among agents within a structure in the implementation of archival digitisation policies

Source: Author's Archive (2024)

Data analysis (See Table 1) was conducted using the technique proposed by Spradley (1997), which facilitated the identification of domains and categories and the understanding of the influence of social interaction and power on archival digitisation. For data validity, the author used data triangulation to strengthen the validity of the research by comparing various data sources. This approach utilised diverse data collection techniques to establish the credibility of the research findings, avoid researcher bias, and provide a more comprehensive perspective on the phenomena under study. Additionally, the triangulation process allowed the researcher to assess how various agents and social structures influence the digitalisation process. This method was applied by gathering information from interviews, written documents, and field observations, providing a holistic view of the archival digitalisation process.

Triangulation of sources, extending the duration of the study, and involving academics from social science and history disciplines were implemented to validate findings and enhance the credibility and scientific trustworthiness of the research (Moleong, 2021). Through Spradley's domain analysis, the researcher obtained a comprehensive overview of the social situation under study, enabling the identification of various categories or domains within the data, which were obtained through a series of open-ended and detailed questions. Thus, the research outcomes are expected to provide a holistic and in-depth insight into the impact of archival digitisation on social and cultural structures within the framework of socio-cultural communication traditions.

RESULTS AND DISCUSSION

Resistance to Archival Digitisation Policy

Archival digitisation is a multifaceted process involving technological, cultural, and organisational dimensions. The importance of archives extends beyond the academic scope and plays a substantial role in public history through collaboration between archivists and public historians (Galloway, 2009). Consistent with previous studies, as presented by Cushing & Osti (2022), who state the importance of archive digitalisation lies in its role in preservation and accessibility enhancement. Archive digitalisation enables improved accessibility of data and efficiency in archive management. This is crucial to ensure that archival materials remain accessible in the long term without damaging the original materials, underscoring the urgency of digitisation as a means of archive preservation until archival readiness is achieved, in line with the institutional tasks and functions outlined in Governor Regulation no. 72 of 2023. The Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province is a strategic response to the need for more efficient access and management of information in the digital era.

Archivists and the media conversion team are key players in ensuring the smooth implementation of digitisation processes, from the perspective of Adaptive Structuration Theory, these actors involved in the institutional structure circle include: fellow archivists, media conversion colleagues who play roles in the implementation and utilisation of digital systems, and directly interact with technology users (AA, AB, 2024). Leadership ranks such as those in the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province are responsible for formulating policies, implementing them, allocating resources, and providing support and training to staff (AC, 2024).

The involvement of these agents is inseparable from the embedding of technology, including the digital archive management system used to manage, store, and access digital archives. This encompasses hardware, software, and network infrastructure necessary to support digitisation, such as scanners, computers, servers, and specialised software used for archival digitisation processes. Moreover, a fundamental aspect is the competence possessed by these agents, which is key to the success of archival digitisation. As mentioned by AA (2024) the lack of continuous training provided to fellow archivists and media converters is also cited as one of the reasons why the archival digitisation process in the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province encounters obstacles, alongside infrastructure considerations (hardware and software).

The government of the Special Region of Yogyakarta Province also plays a role in providing policy support and budget allocation to support archival digitisation in the DPAD of the Special Region of Yogyakarta Province. The complexity of an institution and the support from each role/actor involved contribute to the integration in technology processing, transforming archival activities from being merely a 'duty' to a more holistic form of participatory role in realising an integrated archival system (SRIKANDI) (Kominfo, 2021), making archives more engaging and improving public access. Digitisation provides significant opportunities to enhance archival services through better data accessibility and security (Şentürk, 2014). One of the main challenges faced is how to manage and integrate rapidly evolving information technology with existing resources (AC, 2024).

Field facts obtained revealed various challenges faced by archivists and media conversion colleagues in implementing archival digitisation, one of which is resistance that arises when applying digital technology in the archiving process. Resistance emerges with the skills and competencies of human resources. (Fahmi Dienillah et al., 2018) in their study showed that digitisation requires changes in structures and workflows, often hindered by resource shortages and training. Field facts obtained from interviews with archivist and media conversion colleagues depict how limitations in training and skills of human resources impact the institution's ability to manage and utilise digital technology effectively. Another challenge faced is resistance to change and adaptation to new technology, often due to a lack of deep understanding of the benefits of technology for the archiving process. Additionally, it highlights the need for better information management to support the processing of static archives, hindered by suboptimal information systems (AB., AA, 2024)

AA (2024) emphasises that technological resistance often arises due to a lack of understanding and technical skills among staff. Staff at the DPAD of the Special Region of Yogyakarta Province have limited technical knowledge and digital skills. They need more training to feel prepared to adopt new technologies. This is reinforced in an interview quote from AB (2024): "Most of our senior staff are not accustomed to digital technology. They require intensive training to adapt to the new system." Uncertainty and anxiety about their ability to operate new technologies lead to resistance. Staff who feel less competent often worry that they will not be able to perform their tasks effectively using the new system (AA, 2024) This aligns with the views of Md. Noor & Salim (2013) use Adaptive Structuration Theory (AST) to explore the influence of technology on organisational dynamics. When individuals within an organisation resist technology, it can disrupt expected patterns of interaction and structuring processes (Md. Noor & Salim, 2013).

Resistance also arises from concerns about changes in daily work routines (AB, 2024). Kim & Kankanhalli (2009) highlight that resistance to implementing information systems from the perspective of status quo bias explains how individuals can reject technological changes that challenge their existing routines and practices. This resistance can be seen as a manifestation of reluctance to deviate from established norms and behaviours, hindering the adoption and integration of new technology into organisational structures (Kim & Kankanhalli, 2009).

The embedded image in Figure 2 (from left to right) illustrates the variety of archives received by the DPAD of the Special Region of Yogyakarta Province, as depicted: (left) archival records of naturalised Chinese-Indonesian citizens residing in the Special Region of Yogyakarta Province, becoming Indonesian citizens in 1956. (middle) represents a stack of static archives, some of which have been digitised. (right) AA is explaining the digitisation process using scanners, and the media conversion team is engaged in archival digitisation activities.



Figure 2. Archive Stack and Media Conversion Process
Source: Author's Archive (2024)

Based on findings and field documentation, the existing technology and competencies may be deemed sufficient. However, it is essential to note that limitations in understanding, infrastructure, and technology adoption by the agents within a structure also play a crucial role in determining the success of archival digitisation processes. This is in line with Giddens's findings (1979), which state that technological transformation also requires changes in the social and structural dimensions within the organisation (Giddens, 1979).

The Head of the Regional Library and Archives Office of the Special Region of Yogyakarta Province, informant AC, stated in the interview presentation that technological resistance is also influenced by inadequate management support and training. DeSanctis & Poole (1994) show that the complexity of using advanced technology, through the Adaptive Structuration Theory framework, highlights the various ways in which organisations adapt to and reject technological innovations. Resistance to the implementation of information technology can be multifaceted, involving components such as behaviour, threats, and initial conditions contributing to the challenges faced during the technology transition (Lapointe & Rivard, 2005). Understanding these components is important for addressing and reducing resistance in organisations undergoing technological changes (Lapointe & Rivard, 2005).



Figure 3. Digitisation Process and Equipment Used
Source: Author's Archive (2024)

Figure 3 illustrates the archival digitisation process conducted by the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province—Media Conversion Team led by AA. The team uses limited resources and does not pay sufficient attention to employee competencies. This situation contributes significantly to the occurrence of technological resistance within the DPAD of the Special Region of Yogyakarta Province environment.

In addition to resistance related to technology implementation, digitisation, which is essentially a process of media conversion from analogue to digital (Pearce-Moses, 2005) cannot be denied that with the advent of archival digitisation, there has been a significant change in historical research. With the increasing number of digitised materials, including long-existing documents (retro-digitised) and born-digital ones, historians are transitioning from a culture of information scarcity to abundance. However, this research also underscores that the digitisation process is not neutral and has significant political dimensions (Zaagsma, 2023). In his study, it was found that sometimes this digitisation process should proceed better. Despite being based on good intentions, for archival preservation, sometimes this digitisation process is not neutral and may be infiltrated by political dimensions to benefit an individual or group of people.

In line with the findings in the field, informant AB - Junior Archivist and Static Archive Data Processor (2024) stated that during the archival digitisation process, where archives are digitised in various forms, it is not only population archives but also historical archives such as those owned by the palace. The challenge faced in managing the Palace archives, which are rich in historical documents. Interventions often occur when certain parties want to influence what should or should not be published or archived. These interventions may stem from a desire to maintain an image or conceal certain aspects of history that may be deemed sensitive or less favourable.

The relative alignment between archival digitisation policies and field practices indicates positive progress but also reveals critical areas that require improvement, especially in infrastructure and human resource capabilities. Greater investment in technology and training will help the Regional Library and Archives Office (DPAD) not only meet its short-term goals but also ensure the long-term sustainability of digitisation initiatives.

Elaboration of Adaptive Structuration in Relation to Archival Digitisation Policy

The Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta has adopted archival digitisation policies as part of efforts towards modernisation and improving public access to historical and administrative information. Through the analytical lens of adaptive structuration theory, we can delve into how digitalisation technology is implemented within a structure. The introduction of digitalisation technology in the operations of the Regional Library and Archives Office (DPAD) not only changes the tools used to manage archives but fundamentally alters the way work is conducted within the organisation.

The archives received by the Regional Library and Archives Agency (DPAD) are not limited to historical archives but include population archives. This reflects the diversity of archives within the scope of the Regional Library and Archives Office (DPAD) and the lengthy process of serving them to the public, involving interactions between agents and structures in applying technology. The theoretical lens of adaptive structuration dissects the participation and response to archival digitisation policies, showing the complex interaction between technology, organisational structure, and human agents. In the process of digitising archives, the use of technology, such as software applications (scanner applications) and hardware devices (scanners), as well as uploading digitised results to an integrated archival data system (SRIKANDI), fosters interactions between agents and technology that sometimes lead to resistance, especially among staff lacking adequate competencies. As a result, the digitisation process may not proceed smoothly, as stated by (AB, 2024), who points out that a lack of understanding of how technology can be effectively applied in daily tasks also contributes to this resistance. Staff who feel that technology does not align with their job needs tend to resist change, even though change is inevitable and essential due to the dynamic and evolving nature of technology. Adequate training and ongoing technical support are crucial to overcoming this resistance and ensuring the successful implementation of technology in the archival digitisation process (AA, AB, 2024).

The field findings indicate that the Regional Library and Archives Agency (DPAD), guided by its main duties and functions (Tupoksi - Regional Regulation no. 72 of 2023), has sought to enhance the efficiency and accessibility of archives through digitisation. This aligns with the objectives of digitisation policies aimed at integrating modern technology to manage and provide access to archives more effectively (Fahmi Dienillah et al., 2018). However, it was also found that there are significant barriers to the implementation of this technology, especially related to infrastructure limitations and resistance from personnel towards the technology implementation process.

Technology infrastructure is a crucial foundation for the success of archival digitisation policies. From the interviews, it is known that the existing infrastructure does not fully support the efficient digitisation needs, as reflected in the limitations of equipment and software (Prabowo & Rukiyah, 2020). Furthermore, the lack of training and skills among personnel in managing and using new technology leads to suboptimal technology implementation.

The theory of adaptive structuration suggests that technology and organisational structure influence each other in a dynamic process. In the context of the Regional Library and Archives Agency (DPAD), digitalisation technology has the potential to alter work structures and organisational processes, but in reality, it is often hindered by existing rules, resources, and capabilities (DeSanctis & Poole, 1994). Agents within the Regional Library and Archives Office (DPAD), such as informant AA and informant AB, play a role in interpreting and implementing technology based on their understanding and experiences, which can be different. (DeSanctis & Poole, 1994) states that agents have the ability not only to follow but also to change the structure, which in this context means that human resources within the Regional Library and Archives Office environment must also actively play a role in shaping the success of technology implementation. The implementation of new technology in the digitalisation process involves learning the workings of the new system and modifying their daily routines to accommodate digitalisation policies.

Resistance to digitisation is not only a technical issue but also cultural. Employees who have long worked with conventional methods may feel threatened by change or worried about their skills becoming obsolete. DeSanctis & Poole (1994) articulated that social structures and agents interact in complex ways, where old norms often remain strong despite external pressures for change.

Resistance to innovation in services, particularly in the era of the 'Internet of Things', highlights psychological barriers, and individual factors that can impede the acceptance and adoption of new technology. By integrating functional, psychological, and individual barriers, researchers hope to provide a comprehensive framework to minimise agents' resistance to technological advancements (Mani & Chouk, 2018).

Although the desire for technological adaptation is high, there is often a lack of training and development of skills necessary for staff. Resistance to technological change, faced by informant AB and colleagues, is often associated with a lack of understanding or fear of new technological advancements, which can disrupt established work practices or be 'too comfortable' with old work cultures. The 'hesitancy' from agents toward new technologies often arises from a mismatch between the technology and user needs or from a lack of training and understanding of how the technology works. When new technology is introduced, existing rules and procedures may need to be adapted. This requires flexibility from staff to adopt and comply with these new guidelines. The extent to which these rules and resources support or hinder the use of technology will determine the effectiveness of the digitisation implementation.

A more holistic and integrated approach is needed to address these challenges. Digitalisation policies should not only involve the mere conversion of all analogue material to digital format; holistic reform should also encompass comprehensive strategies for infrastructure improvement, including investment in cutting-edge technology and employee training. Moreover, efforts are needed to transform organisational culture to become more receptive to technological change and innovation.

Thus, the outcome of the archival digitalisation policy implemented by the Regional Library and Archives Agency (DPAD) becomes a role model that can be emulated by similar agencies that are daring and innovative in managing public archives. It is said to be a role model for similar agencies in terms of archive management and digitisation. The archives held by DPAD are well-organised and effectively managed. One example of the implementation and

integration of modern archival technology is the 'Diorama Arsip Jogja', directly managed by the Regional Library and Archives Agency of the Special Region of Yogyakarta Province (Wiryopranoto et al., 2022). Digitised archive collections are made available to the public for educational purposes and presented engagingly, transforming them from mere stacks of transferred files into accessible resources for learning and broad community access. However, the success of this initiative heavily depends on the organisation's ability to manage the technological and social changes required. This necessitates DPAD to not only focus on acquiring the latest technology but also on developing human resources, adjusting policies, and fostering an organisational culture that supports innovation and adaptation.

Şentürk (2014) also highlights that effective digitisation in archives requires careful planning and competent human resources. Without these, digitisation projects could be at risk of failure (Şentürk, 2014). This indicates that resistance to technology stems not only from unprepared human resources but also from the organisation's failure to provide adequate resources to support technology implementation.

Addressing this resistance requires a comprehensive approach that involves more than just introducing new technology. This includes developing policies that support technology adaptation, training that is tailored to the needs of employees, and communication strategies that explain the benefits of change for individuals and the organisation. Leaders in the Regional Library and Archives Agency (DPAD) need to be the driving force behind this change, not only by supporting the use of technology through example but also by fostering an environment that supports growth, learning, and adaptation.

The lack of training focusing on competencies in using and implementing archival technology is cited as one of the resistances emerging in the implementation process of archival digitisation policies. This is supported by the statement of the head of the media conversion team, who is at the forefront of dealing with archival technology (AA, 2024). Additionally, there needs to be a greater effort to align the organisational structure with the introduced technology. This may involve the development of better infrastructure, stronger security systems, and adequate technical support, all of which will help reduce resistance to technology and enhance technology adoption in daily operations.

Furthermore, the Regional Library and Archives Office (DPAD) should also strive to communicate the benefits of digitisation more effectively to its staff. Through clear and inclusive communication, employees can better understand how technology can assist and support their work, not just as a replacement tool. Improved communication and support will help alleviate fears and resistance, paving the way for smoother and more effective digital transformation.

CONCLUSION

The policy and process of digitising archives at the Regional Library and Archives Office of the Special Region of Yogyakarta is a crucial effort in bridging the past with the future through technology. However, the implementation of this technology faces significant challenges rooted in the internal dynamics of the organisation and existing power structures. Human resource constraints and technological resistance pose major obstacles to this endeavour, creating a gap between the potential of technology and its effective utilisation. Human resource constraints and resistance to technological change emerge as central issues hindering the effectiveness of technology innovation implementation. Although technology offers great potential to connect the past with the future through digital archives, bureaucratic structures within organisations often still rely on outdated methods and insufficiently support technological innovation. The digitisation process not only focuses on converting physical archives into digital formats but also involves adapting existing organisational structures and work cultures. However, this research finds that resistance to technology, stemming from a lack of competence among employees, remains a major barrier to the implementation of digitisation policies. The conflict between rapidly advancing technology and inadequate resources creates challenges in adopting and integrating effective digital solutions. Staff members often find themselves in situations where they have just mastered the current technology when innovations emerge, making it difficult to keep up with technological advancements. This gives rise to resistance stemming not only from skill shortages but also from adaptation fatigue and insufficient ongoing training. This phenomenon highlights the urgent need for a more proactive adaptation approach and more effective training that can keep staff up to date with the latest technology.

From a theoretical perspective, Adaptive Structuration Theory provides a framework for understanding the dynamic interaction among human agents, digital technology, and institutions. In the context of archival digitisation at the DPAD of the Special Region of Yogyakarta Province, human agents (staff), digital technology, and institutional structures influence each other in the adaptation and implementation of technology. To overcome resistance, it is crucial for the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province to provide adequate and ongoing training to its staff and to develop policies that support the use of technology. By doing so, the Regional Library and Archives Office (DPAD) of the Special Region of Yogyakarta Province can enhance the efficiency and effectiveness of archival digitisation processes, ensure long-term data preservation, and improve public accessibility to historical information.

Digitisation of archives serves not only as a storage method but also as a crucial means of 'retrieval', enabling communication between the past and the present, connecting past narratives with present-day informational needs. However, the implementation of digitisation is often hindered by outdated bureaucratic practices that are not aligned with the pace of technological innovation. This situation demands reform in organisational governance that not only pursues technological advancement but also modernises internal structures and procedures to maximise the benefits of digital technology. Therefore, the Regional Library and Archives Office (DPAD) needs to develop a more inclusive and holistic strategy for adopting technology. This involves not only acquiring the latest technological tools but also building the capacity of human resources through continuous training, as well as changes in organisational structure that support full innovation and adaptation to technology. Thus, the Regional Library and Archives Office (DPAD) will not only improve the efficiency and accessibility of archives but also ensure that they play an active role in shaping and preserving rich and accurate historical narratives for the future.

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