



State Archives in the digital environment: the essential reconfiguration of the *modus operandi*

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ABSTRACT

The article characterizes the challenges facing archives in the digital age, and subsequently raises why in the recent decades the role of archives in this new universe has been weakened. Secondly, the article takes up the main transformations of the bureaucratic environment that jeopardize the relevance and legitimacy of the role of archives despite its unavoidable necessity for the maintenance of the rule of law. The office, information and archival professional practices are at the heart of the problem and the response expected to keep archives relevant. Finally, the article goes on to discuss the main transformations of the environment and its consequences for the actors in the field before concluding with some avenues for reflection to ensure the persistence of the role of archives in the maintenance of the rule of law, its effective functioning, memory and the bond of trust between institutions and citizens.

KEYWORDS

rule of law, archival practices, digital environment, office transformation, technological disruption

Archiwa państwowe w środowisku cyfrowym: zasadnicza rekonfiguracja *modus operandi*

STRESZCZENIE

Artykuł przedstawia wyzwania stojące przed archiwami w erze cyfrowej, a następnie rozważa, dlaczego w ostatnich dziesięcioleciach rola archiwów w tym nowym uniwersum uległa osłabieniu. W dalszej części omówiono główne przemiany zachodzące w środowisku biurokratycznym, zagrażające znaczeniu i podmiotowości archiwów, pomimo tego, że są one niezbędnym elementem utrzymania praworządności. Środowisko administracyjne, informacja i praktyka archiwalna stanowią sedno problemu i równocześnie dają odpowiedź na pytanie o sposób, w jaki można utrzymać znaczenie archiwów. W dalszej części artykułu omówiono główne przeobrażenia środowiska i ich konsekwencje dla podmiotów działających w tym obszarze, a następnie przedstawiono kilka kierunków refleksji dążących do zapewnienia stabilnej roli archiwów w utrzymaniu praworządności, ich skutecznego funkcjonowania, podtrzymywania pamięci i więzi zaufania między instytucjami a obywatelami.

SŁOWA KLUCZOWE

praworządność, praktyki archiwalne, środowisko cyfrowe, transformacja pracy biurowej, przełom technologiczny

Introduction

This paper critically examines whether current archival practices remain adequate for supporting the development of archives as foundational institutions within the rule of law in the current environment. The role of archives in creating, shaping, and preserving collective memory is a complex one that is profoundly embedded into socio-organisational documentary traditions. The rapid development of writing practices and systems, designed to create, manage, disseminate and leverage information in the contemporary technological environment, raises numerous questions and presents significant challenges. One such challenge is the preservation of the foundational principles that underpin archival practices and their role in supporting public administrations, both in their daily operations and in fulfilling their long-term obligations. At the heart of this challenge is public trust, as well as building informed and learning societies. While this paper focuses primarily on state archives, many of its arguments and reflections apply equally to the broader universe of public institutional archives. The principles discussed herein regarding documentation, governance, and accountability are relevant across the spectrum of public organizations that depend on structured information systems to sustain the rule of law and public trust. While examples primarily draw from Canadian and North American contexts, the issues raised – such as digital transformation, bureaucratic adaptation, and archival legitimacy – have broader international resonance.

State archives are not a simple grouping of documents, or an *archival fonds*, understood as the entire body of records organically created and accumulated. State archives transcend mere questions of material density, abundance, or scarcity, instead, they form an organized collection of deliberately produced records, comprising papers, data, or manuscripts on various carriers, that serve essential administrative and societal purposes for the State and its governance. This has several corollaries. First, archives are built for short-, medium- and long-term support of the State. Democratic societies depend on their ability to reflect upon and facilitate the ongoing evolution of the rule of law. To do so, it relies on information, current and past. It permits policy development, program evaluation and accountability, political and administrative. Second, in this context, an organized set of documents refers to materials systematically created, collected, and managed according to established guidelines and statutory requirements,

while also reflecting how individuals within organizations develop informal practices alongside formal rules, thereby leaving traces of their actions. This is what has allowed archives to play their role. For example, it may take the form of reports for decision-making, evidence for verification, information in support of transparency, proof for hearing in our court of law or testimony for historical foundation. Third and central to this paper, given the importance of the role played by archives in our democratic system, bureaucracies were built so they could support the creation of archives, as a place to preserve materials, but first and foremost as a *system* to identify and channel what should constitute archival material. For the archival function, this entails a longitudinal engagement within public organizations that encompasses both the phases preceding final appraisal and disposal, as well as the processes involved in the initial creation of records. Such involvement necessitates a profound integration into the operational practices of public administration.

After stating the problem of the relationship between the functioning of the state and the role of archives in the digital age, this paper discusses the main challenges posed by traditional archival practices in a digital world. Second, it recalls the importance of anchoring any project to reconceptualize archival practices in the modern bureaucratic world to ensure a viable and productive contribution. This universe is particularly marked by the development of new working and operating practices with the introduction of connectivity and computability. The latter raise several issues around the quantity, quality and value of information. Finally, the paper proposes some avenues for reflection to restore the essential role that reconceptualized archival practices should play to meet the needs of the digital era.

Problem statement

Over the last 50 years, the bureaucratic environment has drastically changed with the advent of all kinds of technologies allowing for the creation, channelling and utilisation of information. At the turn of the 1980s, micro-computing gradually invaded the office. In the beginning, these office tools allowed enormous efficiency gains in terms of word processing or statistical processing.

In traditional Weberian bureaucracies, the production, management, and archival preservation of official documents were governed by well-defined

procedural norms, centralization, and hierarchical control. These norms ensured creation of authoritative records that could be reliably maintained, retrieved, and audited, thereby supporting transparency, accountability, and the continuity of administrative action. However, the advent of widespread digital technologies and associated print democratization has markedly altered this environment. With the office staff rapidly expanding their technical competencies and professionals increasingly generating documentation independently, there emerged a pronounced decentralization in the capacity to produce and disseminate written information. The proliferation of printers and personal computing devices in the administrative apparatus accelerated this trend, enabling individuals to bypass traditional channels of document creation and approval. Yet, despite these shifts, much of the output remained anchored in paper form, a continuation of the bureaucratic tradition, but now occurring at a previously unimaginable scale and with diminished hierarchical oversight. This evolution carried profound implications for archival practices. While archivists continued to collect and preserve documents, the sheer volume, heterogeneity, and dispersed origins of records eroded the uniformity and reliability previously assured by centralized control. The formalized, unbroken chain of document production and approval, which is a cornerstone of Weberian archival regimes, was now disrupted by the ability to generate and circulate information outside established bureaucratic channels. The resultant proliferation of these records challenged the integrity of the documentary record, complicating not only archival management but also the broader objectives of transparency and administrative accountability. Persistence of paper-based output paradoxically sustained traditional archival frameworks even as those frameworks struggled to adapt to the decentralized production dynamics that accompanied technological change.

A further transformative shift occurred with the gradual decline of printers and the concurrent rise of cloud computing technologies. The demise of the printer as a central artifact in administrative work marked the end of this paper-mediated regime of documentary control. Instead, information creation and processing increasingly migrated to digital environments characterized by real-time collaboration, distributed storage, and ephemeral traceability on the official record.

Despite significant technological transformations, many bureaucratic structures continue to operate according to processes established decades ago, largely retaining the static, hierarchical paradigms of paper-based information

management. This persistence reflects an enduring institutional inertia, wherein the conceptual and procedural frameworks for handling information remain anchored to the material and organizational realities of the pre-digital era.

The archival paradigm has traditionally derived its value from providing assurance regarding the authenticity and completeness – in the sense of being representative – of records. This function has historically shaped debates about the desirable attributes of information, such as its quantity, quality, and interpretability, within administrative systems. Even as technological change disrupts the material substrate of documentation, these foundational concerns persist, underscoring the tension between the dynamic possibilities of digital information environments and the stability and control long associated with traditional bureaucratic models.

State administration operates within complex systems where decision-making relies on accurate information, clear priorities, transparency, and robust accountability mechanisms. However, systemic flaws often undermine these processes, leading to inefficiencies and eroded public trust. Drawing from archival and governance literature, this discussion points toward 4 interconnected issues: the lack of sound information in decisions, confusion around organizational priorities and directions, lack of transparency, and reverting to notion of oral traditions for accountability as demonstrated in Canada through several commissions of inquiry.

Lack of sound information significantly impairs decision-making in public administration. When data is inaccurate, incomplete, or biased, decision-makers risk errors in judgment, resulting in misguided policies. For instance, flawed inputs can lead to “asymmetric responses” where negative performance data is overemphasized, distorting resource allocation, exacerbating issues, and leading to policy failures. In archival contexts, diminished importance and resource allocations in state recordkeeping, reliance on misinformation or inaccessible information hampers evaluations of programs and accountability, perpetuating cycles of poor governance. This flaw is not merely technical; it stems from inadequate information validation, leading to decisions that fail to address root problems effectively¹.

¹ D.J. Caron, *Recordkeeping as a Pillar of Public Memory, Accountability, and Administration: The Canadian Experience* [in:] *Canada-Japan Symposium on e-Government document management. Speeches and statements*, 2 February 2011, pp. 1–12, https://publications.gc.ca/collections/collection_2017/bac-lac/SB4-18-4-2011-eng.pdf [access: 3.09.2025]; Library and Archives

This confusion is exacerbated by misaligned priority setting and directional clarity in State administration, where inefficiencies arise from outdated paradigms that fail to adapt to information overload and evolving demands. Without robust horizontal alignment mechanisms, public institutions grapple with fragmented initiatives, as fluctuating objectives breed internal misalignments and operational inefficiency. Operationally, this manifests in siloed organizational structures that emphasize short-term tasks at the expense of sustained strategic and operational planning, resulting in incoherent policy outputs and diminished institutional capacity to meet complex societal needs. Information asymmetries exacerbate these issues, as outdated paradigms fail to address information overload, leading to fragmented initiatives and reduced responsiveness to societal demands. Ultimately, such pervasive ambiguity erodes both intra-organizational cohesion and public confidence, often prompting reliance on ad hoc inquiries and informal review processes that address symptoms rather than structural information deficits².

Lack of transparency significantly aggravates systemic issues in public administration, creating fertile ground for corruption and mistrust. When decision-making processes remain opaque, citizens and stakeholders are unable to scrutinize actions, leading to perceptions of corruption, abuse of power, weakened accountability, destructions of records and concealment of operations which can mask misuse of funds or biased decisions. In archival administration, opacity in record-keeping contributes to “system vulnerabilities”, where errors or deliberate omissions go undetected, further eroding public confidence. This lack of openness not only hinders adoption of innovative frameworks needed for digital transformation but also perpetuates inefficiencies by limiting oversight and corrective action. Ultimately, without transparent practices, the

Canada, *The Recordkeeping Regime: Overcoming Recordkeeping Challenges in the Public Service*, <https://www.collectionscanada.gc.ca/obj/007001/f2/007001-5012-e.pdf> [access: 3.09.2025]; Government of Canada, *2023–2026 Data Strategy for the Federal Public Service*, 19 May 2023, <https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/2023-2026-data-strategy.html> [access: 3.09.2025].

² Gouvernement du Québec, *Commission d'enquête sur la gestion de la modernisation des systèmes informatiques de la Société de l'assurance automobile*, Report forthcoming, 2026, <https://www.cesis.gouv.qc.ca/accueil> [access: 14.09.2025]; N. Yeates, *Immigration, Refugees and Citizenship Canada (IRCC) Organizational Review Report*, Government of Canada, 16 November 2023, <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/transparency/committees/cimm-oct-24-2023/organizational-review-report.html> [access: 3.09.2025].

trust essential for effective governance diminishes, leaving public institutions struggling to maintain legitimacy amidst growing demands for accountability³.

Finally, these flaws often culminate in a “back to oral tradition” for accountability, exemplified by commissions of inquiry. When formal systems fail due to poor information or opacity, inquiries serve as ad hoc mechanisms for fact-finding and truth-telling, relying on oral testimonies to reconstruct events. These bodies, while restorative, highlight systemic breakdowns, acting as “episodic” responses to crises rather than preventive tools. They emphasize narrative over documented evidence, reverting to oral traditions to restore legitimacy, but often at high cost and with limited long-term reform⁴.

Archives: from sharpness to ambiguity

With the evolving bureaucratic and social environment, several concepts, areas, or functions have lost their original role and even occasionally their relevance. Archives is one of them. What constituted an Archive when it was conceptualized, at least in Western bureaucratic administration, may no longer be relevant in today’s digital environment and public administration context. Creation and evolution of archival practices have long reflected bureaucratic practices. Archival rigour is literally rooted in the bureaucratic phenomenon. It takes its source from it and reproduces its documentary processes. It is an

³ P. Desrochers, *La théorie sociale de la connaissance et la gestion du patrimoine documentaire à l'ère numérique*, doctoral thesis, Université de Montréal, 2015, <http://hdl.handle.net/1866/14050> [access: 3.09.2025]; idem, E. Rancourt, *Navigating the Privacy Landscape: Harmonizing Legislative and Public Sector Approaches in the Canadian Context*, “Harvard Data Science Review” 2025, vol. 6(1), pp. 73-88, <https://doi.org/10.1162/99608f92.dc58eb7a>; V. Mabilard, J.P. Villeneuve, *La transparence dans l'espace numérique: Principes, développements, enjeux*, Quebec 2023, <https://doi.org/10.1353/book.118097>; Government of Canada, Office of the Auditor General of Canada, *ArriveCAN Performance Audit Report*, 2024, pp. 1–30, https://www.oag-bvg.gc.ca/internet/docs/parl_oag_202402_01_e.pdf [access: 3.09.2025].

⁴ Canadian Press, *Info watchdog investigating record destruction allegations related to ArriveCan app*, *The Globe and Mail*, 23 February 2024, <https://www.theglobeandmail.com/canada/article-info-watchdog-investigating-record-destruction-allegations-related-to/> [access: 3.09.2025]; Gouvernement du Québec, *Commission d'enquête sur la gestion de la modernisation des systèmes informatiques...*; Treasury Board of Canada Secretariat & Goss Gilroy Inc., *Lessons Learned from the Transformation of Pay Administration Initiative*, October 2017, <https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/lessons-learned-transformation-pay-administration-initiative.html> [access: 3.09.2025].

auxiliary science. It is at the service of history, but long before that, it is a pivot of bureaucratic functioning and its information circulation practices. Its evolution bears witness to this⁵. This allowed archival practices to remain sharp at least as sharp as the emerging bureaucracies with their rules⁶. The principle of Max Weber's dossier is a good example of this⁷.

Contemporary societies rub off on bureaucracies and their functioning. This is one of the foundations of their existence, their ability to reflect the concept of law⁸. They cannot evolve in isolation from the multiple influences of society and its increasing complexity. It requires constant adjustment, and this may become destabilizing for some well-rounded traditional roles and functions within it.

Today's environment is increasingly characterized by individualization and by the transformative impact of the internet, social networks, and mobile information and communication technologies, which fundamentally reshape how people connect, work, collaborate, learn, document and seek information⁹. Bureaucracies are not exempt from that modernisation. As once well-defined theories, principles, and practices that governed institutions like national archives encounter the disruptive impact of technological and societal change, their boundaries and purposes become increasingly ambiguous. This shift has prompted practitioners and policymakers to re-examine and reinterpret the foundations on which these organizations were built and continue to operate¹⁰. Information and, as a corollary, archives at all stages are an important element of the bureaucratic infrastructure. In today's environment it is an even more central component because of its capacity to contribute to the configuration of the office¹¹, playing a major role in the constitution of information flows.

⁵ J. Ferrer-Bartomeu, *L'État à la lettre: Écrit politique et société administrative en France au temps des guerres de Religion (vers 1560-vers 1620)*, Ceyzérieu 2022; C. Vismann, *Files: Law and media technology*, Stanford 2008.

⁶ E. Friedberg, *Le pouvoir et la règle: Dynamiques de l'action organisée*, Paris 1993.

⁷ M. Weber, *Economy and society: An outline of interpretive sociology*, Berkeley-London 1968.

⁸ G. Burdeau, *L'État*, Paris 2009; F.A. Hayek, *Law, Legislation and Liberty. Volume 1: Rules and Order*, Chicago 1978.

⁹ L. Rainie, B. Wellman, *Networked: The New Social Operating System*, Cambridge, Massachusetts 2012, p. 17, <https://doi.org/10.7551/mitpress/8358.001.0001>.

¹⁰ D.J. Caron, *Memory, Literacy and Democracy* [in:] *Remarks, Canada 150th Anniversary Conference. Speeches and statements*, 11 March 2010, pp. 1–5, https://www.researchgate.net/profile/Daniel-Caron-4/publication/265467602_Memory_Literacy_and_Democracy/links/540f70a70cf2df04e75a3048/Memory-Literacy-and-Democracy.pdf [access: 3.09.2025].

¹¹ J.R. Galbraith, *Organization Design: An Information Processing View*, "Interfaces" 1974, vol. 4(5), pp. 28–36; C. Visman, *Files...*

However, this shift creates ambiguity in how the role of archives, their practices, theories and principles can be re-established.

Functioning of Western bureaucratic administration: an essential element to any archival project

Historically, the bureaucratic apparatus has constituted the essential scaffolding through which archives operate as repositories of collective memory and instruments of administrative continuity. Grounded in Weberian rational-legal authority¹², this model privileges rule-bound procedures designed to secure efficiency, predictability and accountability. This has a bonding role that maintains trust between institutions and citizens. For instance, and over the years, it became a key tool to make transparency achievable. In this context, archives assume an active role in contributing to governance; they are not inert document depositories but strategic mechanisms that uphold the rule of law by systematically preserving, organizing and managing records. Their functions in public administration encompass support for executive decision-making, rigorous policy evaluation and long-term accountability, capacities integral to democratic legitimacy.

To elucidate how this relationship is operationalized, one must interrogate the constitution of the bureaucratic office itself, its founding principles and its intended objectives. Drawing on Kenneth Arrow's economic theory, bureaucratic structures are engineered to mitigate uncertainty and redress information asymmetries, thereby ensuring that policy determinations rest upon equitable access to knowledge. From a media-theoretical perspective as articulated by Cornelia Vismann, the office functions as an information-processing matrix that converts heterogeneous data into coherent, actionable knowledge *through* codified archival practices. These dual mechanisms have historically underpinned the reliability and accessibility of archival holdings, reinforcing institutional accountability and engendering public trust. Within this structure, records constitute "recording apparatuses" that mediate orality, script and digitality, thereby shaping both the ontology of legal evidence and the exercise of state authority. Far from neutral byproducts, archival records exert formative influence

¹² M. Weber, *Economy and society...*

on power relations and institutional memory, either buttressing or eroding transparency¹³.

Transition to a digital environment has profoundly disrupted these entrenched archival paradigms. Contemporary scholarship documents how the proliferation of digital information and decentralization of data streams intensify information asymmetries and strain bureaucratic capacities. Persisting siloed structures and legacy frameworks originally optimized for paper-based regimes exhibit reduced adaptability, giving rise to fragmented governance and operational lacunae. Within state archival institutions, this disjunction manifests as opacity in digital record-keeping and system vulnerabilities in which omissions or anomalies erode public confidence.

The implications for the rule of law are substantial. Archives risk forfeiting their authoritative status as guarantors of transparency and accountability, as evidenced by increasing recourse to reactive commissions of inquiry that represent a reversion to oral-tradition adjudication in the face of systemic archival and documentary practices failure. Such developments imperil the evidential foundations of governance and, by extension, the democratic contract. Addressing these exigencies demands a reconceptualization of archival praxis that embeds comprehensive information-governance protocols. It calls for transdisciplinary approaches and a decompartmentalization of the foundations of archival practices. This is paramount to harness digital technologies and reorient archival practices toward strategic rarefaction and value creation rather than indiscriminate accumulation. Only through such reforms can archival rigor be restored, relevance of archival role re-established, and public trust sustained within the complexities of the digital age.

¹³ R. Brown, *The Value of "Narrativity" in the Appraisal of Historical Documents: Foundation for a Theory of Archival Hermeneutics*, "Archivaria" 1991, vol. 32, pp. 152–156; D.J. Caron, R. Brown, *Appraising Content for Value in the New World: Establishing Expedient Documentary Presence*, "The American Archivist" 2023, vol. 76(1), pp. 135–173; T. Cook, *What is past is prologue: A history of archival ideas since 1898, and the future paradigm shift*, "Archivaria" 1997, vol. 43, p. 17.

The office as a technology to process information

The office, as conceptualized within administrative theory, operates as a technological apparatus for processing information, embodying principles of rational organization while grappling with human cognitive limitations and mechanisms of control. Weber's ideal-type bureaucracy positions the office as a cornerstone of rational-legal authority, defined by hierarchical structures, specialization, and impersonal rules to ensure efficiency and predictability. Within this framework, the office transforms raw data into actionable knowledge through formalized procedures¹⁴, such as written records and standardized workflows, facilitating systematic governance. Weber's focus on hierarchical rules-bound process of decision-making, where information flows vertically, aims to minimize arbitrariness and enhance accountability, creating a structured environment for administrative consistency. However, and first, this rational ideal is moderated by the concept of bounded rationality, as articulated by James March and Herbert Simon¹⁵. Simon argues that decision-makers, constrained by cognitive limits, process only limited information and often satisfice – settling for acceptable rather than optimal solutions. March extends this argument with his notion of organizational anarchy, where information processing is shaped by ambiguity, fluid participation, leading to non-linear outcomes. In office settings, bounded rationality manifests as selective attention to information, with routines and heuristics compensating for incomplete data, often resulting in incremental rather than transformative changes. This highlights the inherent limitations in achieving Weberian efficiency due to human factors. However, these reflections were made before the advent of sophisticated ICTs as those unfolding today in society and organisations. Galbraith¹⁶ has argued that organisations are structured following some kind of arbitration between the use of hierarchical arrangements and ICTs, the ultimate objective being to find the best way to route information to where it needs to be. The combination depends primarily on the availability of the 2 factors. While hierarchical arrangements are pretty much unlimited, ICTs were more constrained; but are now limitless.

¹⁴ R.M. Cyert, J.G. March, *A Behavioral Theory of the Firm*, New Jersey 1992.

¹⁵ J. March, H. Simon, *Organizations*, Hoboken 1993.

¹⁶ J.R. Galbraith, *Organization Design...*

Likewise, Michel Foucault's¹⁷ concept of rarefaction further enriches this perspective by framing the office as a site of discursive control, where information is not merely processed but disciplined through mechanisms of exclusion, scarcity and sedimentarism. Rarefaction is not neutral. It restricts what qualifies as legitimate knowledge, channeling information flows to reinforce power structures, such as archival practices that prioritize dominant narratives over marginalized ones. Sedimentarism, or archiveity, conceives of the archive as an agglomeration of traces left by institutional practices – much like geological strata. Here, coherence does not emerge from a preestablished classificatory scheme but from the successive layering of documents, inscriptions and silences. In this model, each “layer” reflects the prevailing power relations and discursive formations at the time of its deposition, producing an archive whose internal logic is shaped by what has been preserved, what has been excluded and how those choices in themselves encode authority.

Considering these notions, the office incarnates and evolves as an information technology itself and calls for information governance balancing Weberian ruling requirements, Simon – March cognitive constraints, and Foucauldian discourse control. The objective is to produce orderly but constrained knowledge in an evolving informational environment characterized by an explosion of digital technologies. Persistent archival traditional practices limit adaptation to such a digital context, perpetuating controlled knowledge production in a totally decentralized, elusive information environment. Thus, the office as an information technology is paralysed by these practices and cannot efficiently and effectively technologize information processing within this new complex interplay of rationality, limitation, and power.

The digital environment and the office: the technology which lags

The digital transformation of the workplace has introduced new opportunities for connectivity, real-time information exchange, and collaborative work. Yet, the full potential of these technologies is often unrealized within bureaucratic offices, where embedded paper-based practices and hierarchical organizational

¹⁷ M. Foucault, *L'ordre du discours*, Paris 1971.

structures persist. These legacy systems – designed for scarcity, centralized control, and linear information flows – collide with a digital environment that thrives on abundance, decentralization, and immediacy.

The resulting misalignment between digital potential and bureaucratic realities creates pronounced operational inefficiencies. Information overload frequently complicates decision-making, as traditional administrative routines are ill-equipped to filter, synthesize, and act upon the unprecedented volume and velocity of digital data. Compounding this challenge, the absence of robust digital governance frameworks – such as standardized metadata, automated version control, and interoperable platforms – leads to fragmented knowledge management, inconsistent records, and uncertainty regarding the authenticity and recency of official information.

These challenges are intensified by questions of digital sovereignty. As underscored by recent analyses and public disclosures, continued reliance of various states on U.S – based cloud providers means that even data stored domestically may be subject to extraterritorial legal demands under the U.S. CLOUD Act, regardless of regional law or data residency requirements. This jurisdictional ambiguity not only undermines the confidentiality of sensitive government information but also threatens the state’s ability to preserve a complete, authoritative, and unredacted archival record. The widespread adoption of Software as a Service (SaaS) and commercial cloud-based systems has created an illusion of secure and permanent storage, masking the risks associated with externalized infrastructure, information and data fragmentation, as well as jurisdictional ambiguity. These developments fundamentally challenge the principles of care, custody, and control, as responsibility for the preservation and governance of records increasingly shifts beyond institutional boundaries. Similarly, integration of artificial intelligence into bureaucratic environments introduces new forms of disintermediation into decision-making processes, further obscuring accountability and weakening the chain of evidence linking decisions to their documentary traces over time and to the officials responsible for them. The prospect that foreign authorities (or the providers themselves) could unilaterally access, alter, or delete official records – without notice or recourse – introduces critical risks to the persistence, integrity, and trustworthiness of the state’s documentary memory. Such scenarios are not hypothetical, they

have direct implications for accountability, institutional continuity, and the rule of law¹⁸.

In public administration, these dysfunctions have particularly severe consequences. Operational silos, knowledge loss, and the persistent threat of losing authoritative records directly erode service delivery, transparency, and public trust¹⁹. Without a strategic shift toward sovereign digital infrastructure institutions remain exposed to both technical fragmentation and geopolitical vulnerability, risking the very foundations of effective, accountable government in the digital age.

At the same time, rising public expectations for seamless, citizen-centered digital services, coupled with government-wide digital transformation and infrastructure modernization, are reshaping how public information is produced, managed, and stored. As institutions move to digitize services and emphasize accessibility, these efforts introduce new ambiguities in information flows, processing, and residency. Digital service delivery often blurs organizational boundaries and creates hybrid environments where sensitive data may be processed or stored across multiple jurisdictions and systems, in the cloud or on-premises, sometimes with limited visibility for both administrators and citizens. This rapid evolution can inadvertently amplify risks to the integrity and sovereignty of government records, even as it seeks to improve responsiveness and access. The Government of Canada's Digital Ambition 2024–25 explicitly seeks to deliver “user-centric, trusted and accessible” services by leveraging technology and data – but acknowledges that the speed and complexity of this transition demand new governance, security, and workforce adaptation to manage ambiguity and protect core administrative functions²⁰. As a result, modernization, while essential for service quality, also magnifies the need for clear, enforceable norms to ensure that digitalization would strengthen – rather than erode – the persistence, accountability, and jurisdictional control of public information.

¹⁸ A. Rudolph, *Microsoft says U.S. law takes precedence over Canadian data sovereignty*, “Digital Journal” 2025, June 10, <https://www.digitaljournal.com/tech-science/microsoft-says-u-s-law-takes-precedence-over-canadian-data-sovereignty/article> [access: 3.09.2025].

¹⁹ T. Cook, *Billions of Records: What to Keep-What to Destroy?*, “Archivaria” 1997, vol. 43, pp. 75–129.

²⁰ Government of Canada, Treasury Board of Canada Secretariat, *Canada's Digital Ambition 2024–25*, 2025, <https://www.canada.ca/en/government/system/digital-government/canada-digital-ambition/canada-digital-ambition-2024-25.html> [access: 3.09.2025].

Professional caution, conservatism, and institutional inertia may further slow the adoption of new technologies, leaving many offices ill-prepared for the demands of a networked, data-driven environment. Without strategic investment in both technological infrastructure and organizational change management, including updated policies, professional training, and adaptive workflows, institutions risk perpetuating obsolete practices that not only limit administrative effectiveness but also weaken public trust and institutional memory.

Persistence of professional paradigms in archival practices

Continued dominance of established professional paradigms and bodies of knowledge within archival communities presents a significant challenge to the evolution of archival science in the era of digital transformation. Intellectual hesitancy that leads to maintaining traditional practices of knowledge rarefaction, is increasingly at odds with the decentralized, adaptive, and networked demands of digital environments. Entrenched approaches, methods, and conceptual frameworks developed for analog environments – such as *respect des fonds*, the lifecycle model, and value-based appraisal – are often non-transferable to digital contexts, where information is decentralized, dynamic, and user-generated. This misalignment impedes the evolution of effective digital recordkeeping, leads to fragmentation of knowledge governance, and results in operational silos, reduced organizational agility, and a limited capacity to integrate interdisciplinary expertise.

This conceptual mismatch is not merely technical but reflects a deeper tension between the centralized, rule-bound structures of traditional archival regimes and the fluid, interoperable, and user-driven imperatives of digital information architectures. Existing professional knowledge and practices remain persistent, which limits both development and implementation of new theoretical frameworks, administrative policies, and techniques associated with identification and selection of archival materials. Such entrenched practices foster operational silos, fragmented knowledge governance, and a diminished capacity for organizational agility or interdisciplinary collaboration, which are precisely the competencies needed for effective digital transformation.

The implications for public administration and State archives are significant. Reliance on legacy archival models carries the risk of eroding the state's ability to ensure authenticity, permanence, and accessibility of its records, even as digital service delivery and real-time information flows become central to expectations for transparency, accountability, and institutional memory. Traditional appraisal and retention approaches – centered on physical custody, linear workflows, and expert-mediated selection – struggle to accommodate the decentralized, metadata-driven, and cross-functional realities of contemporary digital ecosystems. In an environment where digital transformation demands rapid, adaptive responses to information needs, persistent attachment to analog-era methods leaves public institutions ill-equipped to manage risk, support evidence-based decision-making, or preserve a coherent, representative memory of the State's actions and decisions. The following table summarizes, in simplified form, key contrasts between analog and digital archival environments. It highlights how shifts in professional focus, information flow, and organizational impact reflect the broader transformations discussed above.

Table 1. Changes in the ways of documenting and archiving

Characteristic	Analog environment	Digital environment
Appraisal Focus	Content value, provenance, lifecycle	User behavior, metadata, domain/network analysis
Information Flow	Linear, custodial, expert-mediated	Decentralized, interoperable, user-driven
Professional Role	Disciplinary, custodial, support, guardianship and stewardship functions	Interdisciplinary, strategic, governance-oriented
Education Emphasis	Technical archival skills	Transversal skills, digital literacy
Organizational Impact	Siloed, fragmented governance	Integrated, risk-aware governance

Source: Author's own elaboration.

Conclusions

The fundamental role of documentation in the functioning of the rule of law, its institutions, the public organizations that embody its action, and in the functioning of democracy is hardly disputable²¹. Nevertheless, there can be no guarantee of certainty in this domain. The ongoing evolution of technologies, writing conventions, and modes of communication introduces a persistent fragility to the documentary function, which is consequently under constant threat within both institutional and democratic contexts. In response to these forces, organizations are undergoing transformation. If archival practices are to remain relevant, they too must evolve accordingly, recognizing the office as an evolving technology that actively shapes and is shaped by these changes.

Second, we highlighted the significant paradigm shifts introduced by new ICTs and evolving documentation practices, as well as the challenges organizations face in adapting to these developments. These challenges extend beyond the realm of documentation and archival practice, influencing the design of public policies and management of human and financial resources. Indeed, all socio-institutional functions must evolve to accommodate the changing environment. For instance, it would be untenable for a hospital to continue employing clinical protocols from the early 20th century, just as it would be impractical to manage contemporary transportation systems using regulations from the previous century. In both cases, technological progress has fundamentally altered established practices, necessitating corresponding adjustments in professional practices. This imperative for adaptation applies equally to archives, which play a critical role as guardians of memory and as facilitators of institutional trust.

Third, in the present context, a significant portion of collective memory and historical record is now being shaped in real-time, contemporaneously with unfolding events. Archivists are not historians; their responsibility is to ensure that the selection of archival materials accurately reflects the operations and decisions of the state, as well as shifts in public discourse. Trust in archives is, fundamentally, trust in the institutions they serve, extending beyond the professionals who manage them. This trust resides not in archivists as

²¹ D.J. Caron, *La production documentaire dans les administrations publiques* [in:] *Secrets d'État? Les principes qui guident l'administration publique et ses enjeux contemporains*, ed. N. Michaud, Quebec 2017, pp. 807–840.

mere guardians of memory, but in the political-administrative framework that guides archival practice through its policies. The latter must be the result of what society, and its politicians, produce. Consequently, the archives generated must result from a neutral and informed process of mediation and selection, based not on objectified subjectivity, but on transparent archival, public, and administrative policies.

Fourth, the digital era presents archives with the challenge of embodying legal and documentary principles while addressing the overwhelming volume of information generated by contemporary societies. This responsibility is more urgent than ever, given the rapid evolution of ICTs, the proliferation of social networks, and the increasingly open and decentralized modes of producing, sharing, and disseminating information. Achieving this requires, at a minimum, the fulfillment of several key conditions.

Institutionally, there must be a renewed focus on documenting the actions and decisions of the state through establishment of a robust information governance framework. Such a framework should be transdisciplinary, integrating high-level principles and guidance that align the diverse interests of archivists, operational units, information technology specialists, and legal experts within organizations.

Information management must move beyond isolated specialization and become integral to the design of algorithms and automated systems across organizations. Meeting digital-era challenges requires more than technical upgrades – it demands cultural and procedural transformation.

Archival programs and practices could benefit from more research and ongoing review to ensure they remain responsive to evolving organizational needs. While some existing programs continue to reflect traditional approaches, there is growing recognition of the value in cultivating a broader range of competencies, especially those that support strategic contributions to organizational change and information governance. Strengthening the alignment between archival education, emerging needs, and cross-disciplinary requirements may assist archival systems in maintaining adaptability and effectiveness within contemporary public administration.

Information strategies should emphasize selective retention and preservation, a process sometimes referred to as rarefaction, to ensure that records remain available to meet organizational and societal needs across short-, medium-, and long-term horizons.

Technological systems must be designed to support and enhance information governance, ensuring that business needs and the guiding principles of information management are reflected in their development and implementation.

Finally, archives are undergoing a profound redefinition of their very nature that puts into question their relevance and legitimacy. Technological, organizational, and cultural changes are compelling a fundamental reconsideration of what constitutes an archive in contemporary public administration, moving beyond the need for mere adaptation. As the boundaries between creation, management, and preservation of records dissolve and the authority of traditional documentary processes diminishes, the very concept of the archive is being reshaped. Archives can no longer be understood as passive repositories or the static outcomes of bureaucratic workflows; instead, they must be envisioned as dynamic, participatory systems that both influence and respond to the evolving information ecosystems of digital governance. This transformation requires not only procedural and technological innovation, but also a new epistemic foundation for archival science – one that accommodates the fluidity, interoperability, and distributed character of digital information while upholding the essential democratic functions of transparency, accountability, and memory.

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