

RETHINKING INSTITUTIONAL MEMORY: AN ADAPTIVE SYSTEMS APPROACH FOR DISRUPTIVE CONTEXTS

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Abstract:

Institutional Memory (IM) is often treated in Information Systems as a passive repository of data, routines, or archives. This paper argues instead that IM functions as the recursive infrastructure that enables and constrains the very subsystems through which organizations achieve viability. We advance the Adaptive Viable System Model (AVSM), an extension of Beer's cybernetic framework, in which IM is theorized not as content within organizational processes but as the connective medium through which sensing, control, learning, and adaptation unfold. Two novel subsystems are introduced: System D (Disruption Awareness), conceptualized as an epistemic filter that distinguishes routine disturbances from paradigm-threatening anomalies; and System R (Resilience Memory), defined as a repository of anti-procedural knowledge, successful improvisations and deviations that conventional systems are designed to erase. By positioning IM as the active architecture of digital governance, the AVSM reveals how memory infrastructures generate both capacities and silences. Importantly, the framework integrates the lens of epistemic justice, showing how memory systems can either reproduce exclusions or preserve marginalized and vernacular knowledges that are vital under disruption. The paper contributes a novel theoretical vocabulary for IS research and outlines a design-oriented agenda for resilient digital governance in disruptive environments.

Keywords: Institutional memory; viable system model; resilience; disruption-aware governance; epistemic justice; cybernetics; adaptive systems

1. Introduction

The concept of institutional memory (IM) has long been foundational in organizational and information systems (IS) research, often framed as a neutral repository of historical records, routines, and practices (Stein, 1995; Walsh & Ungson, 1991). Early treatments emphasized IM's role in supporting organizational efficiency, knowledge retention, and continuity (Olivera, 2000), aligning with a managerial view that emphasizes stability and productivity. However, this perspective proves inadequate in disruptive environments marked by policy shocks, resource volatility, strikes, and sociopolitical contestation (Avgerou, 2008; Ciborra, 2000). In such environments, the politics of what is remembered, and what is forgotten, become central to organizational resilience (Bowker, 2005; Fricker, 2007).

Recent IS scholarship has increasingly recognized memory infrastructures as active mediators of organizational sensemaking, coordination, and governance (Cosa, 2025; Jensen *et al.*, 2008). Rather than being passive containers of knowledge, IM systems act as recursive media through which governance subsystems interact, shaping how organizations interpret signals, allocate resources, and adapt under conditions of disruption (Beer, 1979; Tsoukas, 2003). This reconceptualization emphasizes IM as both an epistemic and political construct: while it preserves critical organizational knowledge, it can also silence indigenous, tacit, or vernacular practices essential for survival in contexts of disruption (Madon, 2009; Monteiro & Parmiggiani, 2019).

This dual capacity of IM links directly to the question of epistemic justice in IS, where the distribution of whose knowledge is institutionalized significantly shapes organizational viability (Fricker, 2007). Contemporary resilience research in IS highlights precisely these tensions: digital infrastructures enable resilience by supporting rapid reconfiguration and knowledge transfer, yet they also risk reproducing exclusions through selective codification (Boh *et al.*, 2023; Deepa *et al.*, 2025). Reviews of organizational resilience underscore that adaptability rests not only on systems availability but also

on inclusive memory practices that recognize diverse epistemic contributions (Barasa, 2020; Lansonia & Austin, 2024).

To theorize this contested role of memory, we extend Beer's Viable System Model (VSM) (Beer, 1972; Espejo & Gill, 1997) to propose an *Adaptive Viable System Model (AVSM)*. AVSM introduces two novel subsystems. System D (Disruption Awareness), which functions as an epistemic filter, distinguishing routine fluctuations from paradigm-threatening anomalies, and System R (Resilience Memory), which operates as a repository of anti-procedural knowledge, preserving improvisations, workarounds, and situated adaptations that conventional memory systems often erase (Cabantous & Gond, 2011). By highlighting these dynamics, AVSM positions IM not as background infrastructure or passive data store, but as *the* core recursive medium of digital governance and organizational viability.

The remainder of this paper develops the argument in three steps. Section 2 reviews the conflicts across the literatures on institutional memory, cybernetic governance, and resilience. Section 3 introduces AVSM, linking IM to epistemic justice concerns across governance subsystems. Section 4 outlines a research design for empirical validation, while Section 5 reflects on theoretical and practical contributions. We conclude by positioning AVSM as both a decolonial intervention in IS research and a design theory for robust digital governance.

2. Theoretical Foundations

Despite its cross-cutting presence in management, archival, and IS research, institutional memory (IM) remains undertheorized. This section examines three persistent tensions that contextualize our contribution: (1) IM as a political construct versus a neutral resource, (2) cybernetic stability versus disruptive reality, and (3) the epistemology of formal archives versus vernacular knowledge. These conflicts illuminate why traditional models of IM fall short in disruptive environments and motivate the development of the AVSM.

2.1 Politics: Managerial and Archival Perspectives on IM

Early IS and management research conceptualized IM as a neutral repository that organizations could use for learning, problem-solving, and decision-making (Olivera, 2000; Stein, 1995; Walsh & Ungson, 1991). This perspective aligned IM with efficiency and continuity, emphasizing mechanisms for encoding, retrieval, and transfer of knowledge. However, critical perspectives challenge this neutrality by revealing the political and selective nature of memory infrastructures (Bowker, 2005; Schwartz & Cook, 2002; Yeo, 2007). Memory is not simply stored, it is curated, privileging some narratives while marginalizing others. From this lens, IM is an architecture of power whose omissions reproduce epistemic injustices (Fricker, 2007; Patin *et al.*, 2020). Recent scholarship emphasizes that acknowledging epistemic justice in memory infrastructures is essential to democratizing knowledge organization (Anderson, 2012; Bolfarini, 2025; Cummings *et al.*, 2025; Hall *et al.*, 2020; Knöchelmann, 2021; Popow, 2025; Valkenburg, 2022).

2.2 Cybernetics: From Stability to Viability Under Disruption

The cybernetic tradition, particularly Stafford Beer's Viable System Model (VSM), defines organizational viability as the ability to maintain dynamic equilibrium across five interdependent subsystems of operations, coordination, control, intelligence, and policy (Beer, 1972, 1979; Espejo & Gill, 1997).

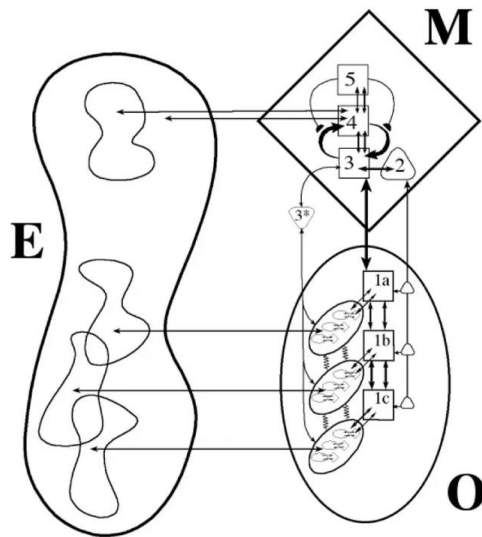


Figure 1: The Classical Viable System Model (VSM). A representation of Beer's VSM, illustrating the five core subsystems and their recursive feedback loops. (Metaphorum, 2024)

While the VSM offers powerful insights into organizational complexity, it assumes that adaptive feedback loops can manage disruption. Yet, in disruptive environments, marked by extreme internal or external shocks such as abrupt policy reversals, prolonged strikes, or other *force majeure* incidents, disruption undermines organizations' very interpretive capacities (Ciborra, 2000). In such contexts, IM is not merely a stabilizer but also the recursive infrastructure that shapes how organizations perceive and frame disruptions. Applications and extensions of the VSM increasingly highlight this dynamic, suggesting that resilience depends on reconfiguring memory as an active filter rather than a static resource (Barile *et al.*, 2019; Chen, 2023; Espejo & Gill, 1997; Fang *et al.*, 2024; Matei *et al.*, 2024; Sabogal *et al.*, 2020).

2.3 Knowledge: The Politics of Preservation

A third tension concerns what kinds of knowledge IM preserves. Traditional perspectives emphasize formalized documentation, codified processes, and official artifacts (Hardt, 2023; Harvey, 2012; Navidi *et al.*, 2017; Ravasi *et al.*, 2019; Stein, 1995; Walsh & Ungson, 1991). Yet research on improvisation and organizational archives highlights the role of vernacular, tacit, and situated practices, often invisible in official accounts, in enabling adaptation during crises (Dionne *et al.*, 2025; Glantz & Ramírez, 2018; Hadjimichael, 2019; Ley *et al.*, 2012; Wang & Inaba, 2022). These *anti-procedural knowledges* represent improvisations and workarounds that ensure survival when formal systems collapse. Ignoring such knowledges not only erodes resilience but perpetuates epistemic injustice by silencing marginalized or indigenous practices (Monteiro & Parmiggiani, 2019). Contemporary literature on epistemic justice in information systems underscores the risks of “*epistemicide*” when organizational memory fails to recognize these diverse contributions (Patin *et al.*, 2020).

Table 1: Persistent Theoretical Tension in Institutional Memory Research

Tension	Conventional Perspective	Disruptive Environment Perspective
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Politics of IM	IM is a neutral, managerial resource for efficiency and knowledge retention.	IM is a political architecture of power that curates memory, privileges certain narratives, and can reproduce epistemic injustices.
Cybernetic Models	Systems like the VSM assume adaptive feedback loops can manage disruption and maintain stability.	In disruptive contexts, the organization's interpretive capacity itself is undermined, requiring a focus on how disruptions are framed and perceived.
Epistemology of IM	Focuses on formalized documentation, codified processes, and official artifacts.	Adaptation relies on vernacular, tacit, and anti-procedural knowledge (improvisations, workarounds) which are often ignored or erased.

2.4 Toward an Adaptive Viable System Model

Taken together, these tensions highlight why conventional conceptualizations of IM are insufficient for theorizing governance in contexts of disruption. A reliance on formal archives obscures improvisations, cybernetic stability models underestimate the ubiquity of institutional disruption, and neutral views of memory conceal its political dimensions. To address these gaps, we propose the Adaptive Viable System Model (AVSM), which introduces two subsystems: System D (Disruption Awareness) and System R (Resilience Memory). Together, these reconceptualize IM as the recursive connective tissue of governance, integrating epistemic justice with systems thinking to theorize resilience in precarious digital governance environments.

3. Proposed Conceptual Framework: The Adaptive Viable System Model (AVSM)

The Viable System Model (VSM) has long provided IS scholars with a powerful lens to understand organizational viability through recursive arrangements of operations, coordination, control, intelligence, and policy (Beer, 1972, 1979; Espejo & Gill, 1997). Yet memory is treated only implicitly in the VSM, often assumed as a passive information store rather than theorized as a constitutive infrastructure. To address the realities of fragility and disruption, we propose the Adaptive Viable System Model (AVSM), which reconceptualizes institutional memory (IM) as the recursive medium through which subsystems interact, constrain, and co-evolve.

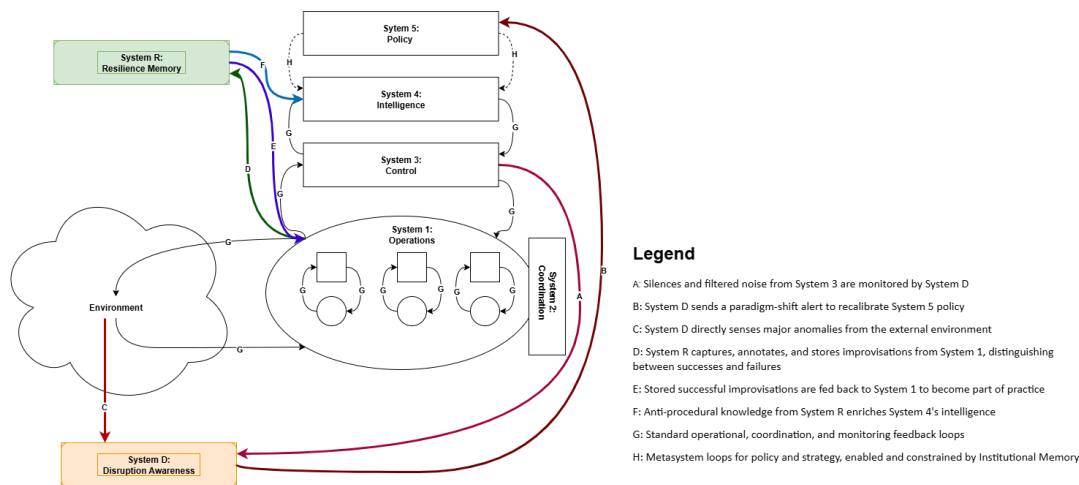


Figure 2: The Adaptive Viable System Model (AVSM) showing Institutional Memory (IM) Trajectories

3.1 IM as Recursive Infrastructure

In the AVSM, IM is not simply a background resource but the connective tissue linking governance subsystems. It dictates how signals are prioritized, which knowledges are preserved, and whose voices are silenced (Bowker, 2005; Schwartz & Cook, 2002). For example, System 4's interpretation of environmental intelligence is shaped by the adaptive knowledges stored in System R, while System D's disruption awareness depends on the silences generated by System 3. IM thus embeds power relations, enabling feedback loops while also limiting interpretive horizons (Fricker, 2007; Monteiro & Parmiggiani, 2019). Recent studies emphasize that epistemically inclusive memory infrastructures can expand organizational resilience by widening interpretive scope (Jalonen, 2025).

3.2 System D: Disruption Awareness

System D addresses disruptions that compromise both operational and interpretive capacities. Unlike a general sensor network, it acts as an epistemic filter that determines when ordinary disturbances become paradigm-threatening anomalies (Walker & Cooper, 2011). Crucially, its effectiveness depends on the inclusivity of IM. If indigenous, tacit, or marginalized knowledges are excluded, critical anomalies may remain undetected. Conversely, epistemically just memory infrastructures broaden the sensing horizon and improve adaptive viability (Hofbauer *et al.*, 2025).

3.3 System R: Resilience Memory

System R complements System D by ensuring that disruptions yield enduring adaptive knowledge. It functions as a repository of anti-procedural knowledge, situated practices, improvisations, and acceptable deviations that support survival when formal procedures collapse (Cabantous & Gond, 2011). Traditional organizations often suppress such knowledge for failing to conform to managerial orthodoxy. By contrast, System R institutionalizes these improvisations as part of IM, preserving marginalized or vernacular voices and directly addressing epistemic injustice (Ilcic *et al.*, 2025; Schmitt, 2021).

3.4 Interactions with Core Subsystems

Repositioning IM as recursive infrastructure transforms the classical VSM subsystems in the following ways:

- System 1 (Operations): Embeds both routines and improvisations in organizational practice.

- System 2 (Coordination): Relies on memory artifacts while reflecting whose knowledge frames coordination priorities.
- System 3 (Control): Produces silences by filtering *noise*, which in AVSM are theorized as epistemic exclusions.
- System 4 (Intelligence): Incorporates System R to extend interpretive horizons beyond formal knowledge.
- System 5 (Policy): Draws on remembered trajectories but is recalibrated by disruption signals from System D.

Table 2: An Adaptive Reconceptualization of the VSM

VSM Subsystem	Classical Function	AVSM Reconceptualization
System 1 (Operations)	Enacts established procedures.	Embeds both formal routines and sanctioned improvisations drawn from System R.
System 2 (Coordination)	Harmonizes operational units based on existing protocols.	Coordination priorities reflect whose knowledge is centered in memory artifacts.
System 3 (Control)	Monitors performance and filters out operational noise to maintain stability.	Produces silences by filtering noise, which are theorized as potentially harmful epistemic exclusions.
System 4 (Intelligence)	Scans the external environment for threats and opportunities.	Extends its interpretive horizons by incorporating vernacular and anti-procedural knowledge from System R.
System 5 (Policy)	Sets overall direction and identity based on intelligence and values.	Recalibrates strategic direction based on paradigm-threatening signals from System D.

3.5 Theoretical Implications

The AVSM contributes in two ways. First, it reframes IM as a dynamic infrastructure of governance, rather than a passive background resource. Second, it illustrates how memory infrastructures can either foster resilience, by preserving improvisations and broadening interpretive scope, or reproduce epistemic injustices by excluding marginalized knowledges. In doing so, the AVSM extends IS theory by fusing cybernetic systems thinking with critical perspectives on memory and epistemic justice, offering a new vocabulary for theorizing digital governance under disruption (Barile *et al.*, 2019; Egidy, 2023).

4. Research Design for Empirical Validation

To assess and refine the Adaptive Viable System Model (AVSM), we propose a convergent parallel mixed-methods design (Creswell & Plano Clark, 2018). Such designs are well-suited for conceptual frameworks that require both theoretical grounding and empirical validation (Venkatesh *et al.*, 2016). This approach will allow for comprehensive triangulation and ensure both theoretical and empirical robustness.

4.1 Qualitative Phase: Grounding the Constructs

A multiple-case study design (Yin, 2018) will be applied, targeting Nigerian universities purposively selected based on digital governance maturity (Palinkas et al., 2015). Data will be collected via document analysis (Bowen, 2009) and semi-structured interviews with digital governance stakeholders. Cross-case synthesis will reveal patterns and contextual particularities (Baxter & Jack, 2015). The goal is twofold. First, to examine what is remembered, forgotten, or silenced, by whom, and how Institutional Memory (IM) is enacted in practice. Second, to identify empirical manifestations of the seven AVSM subsystems, particularly System D (Disruption Awareness) and System R (Resilience Memory). Following best practices in interpretive IS research, thematic analysis (Braun & Clarke, 2006) will be applied to produce categories that map onto AVSM and uncover locally situated practices of improvisation, filtering, and silencing (Mousa *et al.*, 2020; Wickström, 2024).

4.2 Development of Measurement Instruments

Insights from the qualitative phase will inform and refine the survey stage. Constructs will be operationalized into scales that capture the presence, efficacy, and interconnection of AVSM subsystems. For instance, items measuring System D's filtering ability will draw on qualitative accounts of how organizations distinguish routine problems from paradigm-threatening anomalies. Similarly, System 3's silencing function will be operationalized through items probing whether normative or hierarchical filters routinely exclude knowledge from decision forums. System R's role will be measured using scales capturing the institutionalization of improvisation and the preservation of anti-procedural knowledge (Cabantous & Gond, 2011). This iterative instrument design follows recommendations for construct validity in IS research (Jarvis *et al.*, 2003) and recent advances in resilience measurement (Mirzaei *et al.*, 2021).

4.3 Quantitative Phase: Testing the AVSM

In the quantitative phase, a close-ended structured survey will be administered electronically across purposively selected Nigerian universities operating within disruptive environments. Using structural equation modeling (SEM), including variance-based approaches such as PLS-SEM, we will test the hypothesized relationships among AVSM subsystems, as well as the model's ability to predict organizational resilience (Huong & Dinh, 2025; Prayag & Chowdhury, 2024; Velu *et al.*, 2019). This stage will assess the reliability and validity of the newly developed scales while evaluating IM's role as recursive infrastructure.

4.4 Integration of Phases

The strength of this design lies in its integration of methods. The qualitative phase ensures contextual grounding and construct richness, while the quantitative phase provides robustness and generalizability. The triangulation (Fetters et al., 2013) of these phases would enable iterative refinement of the AVSM, ensuring that it remains both theoretically rigorous and practically relevant for digital governance in disruptive environments (Onyame *et al.*, 2025; Park *et al.*, 2023).

5. Expected Contributions

This paper seeks to make three sets of contributions, theoretical, methodological, and practical, that reposition Institutional Memory (IM) as the active architecture of digital governance and demonstrate the significance of the Adaptive Viable System Model (AVSM) for IS scholarship.

5.1 Theoretical Contributions

First, the paper seeks to advance IS theory by redefining IM as a recursive infrastructure that facilitates and constrains governance subsystems, rather than as a passive repository of data or routines (Stein, 1995; Walsh & Ungson, 1991). This reconceptualization would provide a new vocabulary for

examining how power dynamics, silences, and knowledge inclusions or exclusions affect organizational viability (Chatterjee *et al.*, 2015).

Second, the study seeks to extend the Viable System Model (VSM) (Beer, 1979; Espejo & Gill, 1997) by introducing System D (Disruption Awareness) and System R (Resilience Memory). System D functions as an epistemic filter that determines when anomalies qualify as paradigm-threatening disruptions, while System R serves as a repository of anti-procedural knowledge, workarounds, improvisations, and vernacular practices often erased in formal systems. This distinction between resilience under disruption and routine adaptation would significantly enrich cybernetics and digital governance theories.

Third, the paper seeks to contribute to critical IS research by integrating epistemic justice into the AVSM. Memory infrastructures are shown to either promote resilience by preserving marginalized knowledges or reproduce injustice by silencing them (Anderson, 2012; Fricker, 2007; Monteiro & Parmiggiani, 2019). In doing so, the AVSM would operate as both a systems-theoretic innovation and a normative intervention in decolonizing IS theory (Ndlovu-Gatsheni, 2021; Patin *et al.*, 2020).

5.2 Methodological Contributions

Methodologically, the paper proposes a convergent parallel mixed-methods design that triangulates qualitative inquiry with quantitative modeling. This approach would not only ground AVSM subsystems in context-specific practices but also operationalize them into measurable constructs, offering a roadmap for empirically validating conceptual models in disruptive environments (Creswell & Plano Clark, 2018; Venkatesh *et al.*, 2016).

5.3 Practical Contributions

Practically, the AVSM offers a diagnostic and design tool for resilient and adaptive digital governance. By prioritizing epistemic inclusivity, preserving improvisations through System R, and enabling earlier disruption recognition through System D, institutions, particularly those in disruptive environments such as universities, can enhance their resilience and viability (Bohensky & Maru, 2011; Comes *et al.*, 2019; Sriskandarajah *et al.*, 2011).

6. Conclusion

This paper has argued that Institutional Memory (IM) should be understood not merely as a passive repository of records, routines, or documents but as recursive infrastructure through which organizational subsystems sense, interpret, and adapt (Espejo & Gill, 1997; Walsh & Ungson, 1991). By reframing IM in this way, we position it as the active connective medium of governance, crucial to resilience in disruptive environments.

To extend Stafford Beer's Viable System Model (VSM), we have proposed the Adaptive Viable System Model (AVSM), which introduces System D (Disruption Awareness) and System R (Resilience Memory). System D functions as an epistemic filter that differentiates paradigm-threatening anomalies from routine variations (Walker & Cooper, 2011), while System R preserves situated practices, improvisations, and other forms of anti-procedural knowledge that traditional systems often erase. Together, these subsystems elevate IM from background support to the core architecture of viability.

Critically, the AVSM highlights the political and ethical dimensions of organizational memory. IM infrastructures determine whose knowledge is preserved, whose voices are legitimized, and whose perspectives are silenced. By embedding epistemic justice into cybernetic governance, AVSM

demonstrates that resilience is not only a technical or managerial problem but also a normative one (Comes *et al.*, 2019; Fricker, 2007).

The implications are twofold. Theoretically, the AVSM enriches IS scholarship with a new vocabulary that combines systems thinking and critical perspectives on memory, power, and epistemic justice (Chatterjee *et al.*, 2015; Vert *et al.*, 2021). Practically, it offers design principles for creating inclusive and disruption-aware digital governance infrastructures, particularly in disruptive environments such as universities navigating policy shocks, strikes, and resource volatility common in the Global South (Barile *et al.*, 2019; Ge, 2025).

Future work should empirically validate the AVSM through the convergent parallel mixed-methods design outlined in this paper, operationalizing its subsystems and assessing their impact on resilience. In doing so, IS scholars and practitioners alike will be better positioned to reorient digital governance away from paradigms of control and stability toward those of viability, inclusivity, and adaptive learning under disruption. Ultimately, leaders of organizations in disruptive environments must ask not only what their information systems remember but also who they empower to forget.

7. References

- [1] Anderson, E. (2012). Epistemic justice as a virtue of social institutions. *Social Epistemology*, 26(2), 163–173. <https://doi.org/10.1080/02691728.2011.652211>
- [2] Avgerou, C. (2008). Information Systems in Developing Countries: A Critical Research Review. *Journal of Information Technology*, 23(3), 133–146. <https://doi.org/10.1057/palgrave.jit.2000136>
- [3] Barasa, L. (2020). Closing the gap: Gender and innovation. *UNU-WIDER Working Paper*. <https://www.econstor.eu/handle/10419/229329>
- [4] Barile, S., Simone, C., La Sala, A., & Conti, M. E. (2019). Surfing the complex interaction between new technology and norms: A resistance or resilience issue? Insights by the Viable System Approach. *Acta Europæica Systemica*, 9(3), 93–104. <https://doi.org/10.14428/aes.v9i1.56053>
- [5] Baxter, P., & Jack, S. (2015). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2008.1573>
- [6] Beer, S. (1972). *Brain of the Firm*. Allen Lane.
- [7] Beer, S. (1979). *The Heart of Enterprise*. Wiley.
- [8] Boh, W., Constantinides, P., Padmanabhan, B., & Viswanathan, S. (2023). Special Issue Introduction: Building Digital Resilience against Major Shocks. *Management Information Systems Quarterly*, 47(1), 343–360.
- [9] Bohensky, E. L., & Maru, Y. (2011). Indigenous knowledge, science, and resilience: What have we learned from a decade of international literature on “integration”? *Ecology and Society*, 16(4), 6.
- [10] Bolfarini, N. (2025). Access to information and social justice: Pivotal values for a critical Knowledge Organization. *Información, Cultura y Sociedad*. <https://doi.org/10.35643/info.30.1.8>
- [11] Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2), 27–40. <https://doi.org/10.3316/QRJ0902027>
- [12] Bowker, G. C. (2005). *Memory Practices in the Sciences*. MIT Press.
- [13] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- [14] Cabantous, L., & Gond, J.-P. (2011). Rational decision making as a “performative praxis”: Explaining rationality’s éternel retour. *Organization Science*, 22(3), 573–586. <https://doi.org/10.1287/orsc.1100.0534>

- [15] Chatterjee, S., Moody, G., & Lowry, P. B. (2015). Strategic relevance of organizational virtues enabled by information technology in organizational innovation. *Journal of Management Information Systems*, 32(3), 134–167. <https://doi.org/10.1080/07421222.2015.1099180>
- [16] Chen, J. (2023). *A self-adaptive resilient method for implementing and managing the high-reliability processing system*. https://www.researchgate.net/profile/Junchao-Chen-2/publication/369366954_A-self-adaptive-resilient-method-for-implementing-and-managing-the-high-reliability-processing-system/links/6417730466f8522c38ba9d6c/A-self-adaptive-resilient-method-for-implementing-and-managing-the-high-reliability-processing-system.pdf
- [17] Ciborra, C. U. (2000). *From control to drift: The dynamics of corporate information infrastructures*. Oxford University Press.
- [18] Comes, T., Meesters, K., & Torjesen, S. (2019). Making sense of crises: The implications of information asymmetries for resilience and social justice in disaster-ridden communities. *Journal of Humanitarian Affairs*, 1(3), 44–57. <https://doi.org/10.1080/23789689.2017.1405653>
- [19] Cosa, M. (2025). How Institutional Pressures Drive Learning and Memory in Organizations. *IGI Global*. <https://www.igi-global.com/chapter/how-institutional-pressures-drive-learning-and-memory-in-organizations/359959>
- [20] Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). Thousand Oaks, CA SAGE. <https://www.scirp.org/reference/referencespapers?referenceid=2697821>
- [21] Cummings, S., Munthali, N., & Sittoni, T. (2025). Epistemic Justice as a “new normal?” Interrogating the contributions of communities of practice to decolonization of knowledge. *Sustainable Development*. <https://doi.org/10.1002/sd.3285>
- [22] Deepa, R., Jaiswal, A., & Shagirbasha, S. (2025). Sense-making the aftermath of crises: The emergence of adaptive and transformative resilience amid conflicting institutional logics. *Journal of Organizational Change Management*. <https://www.emerald.com/insight/content/doi/10.1108/jocm-05-2024-0276/full/html>
- [23] Dionne, K., Malas, K., Manent, M., & Reeves, S. (2025). Leveraging local knowledge for crisis management: A practice-based approach to managing uncertainty in healthcare during COVID-19. *BMJ Leader*. <https://doi.org/10.1136/leader-2024-000977>
- [24] Egidy, S. (2023). Resilient administrative technology. *Georgia Law Review*, 58(4), 1221–1276.
- [25] Espejo, R., & Gill, A. (1997). *The Viable System Model: Interpretations and Applications of Stafford Beer's VSM*. Wiley.
- [26] Fang, Z., Li, H., & Chen, D. (2024). An Integrated Method for Selecting Architecture Alternatives and Reconfiguration Options Towards System-of-Systems Resilience. *Systems*, 13(1), 9. <https://doi.org/10.3390/systems13010009>
- [27] Fetter, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs—Principles and Practices. *Health Services Research*, 48(6pt2), 2134–2156. <https://doi.org/10.1111/1475-6773.12117>
- [28] Fricker, M. (2007). *Epistemic injustice: Power and the ethics of knowing*. Oxford University Press.
- [29] Ge, S. (2025). Future Institutional Construction: Five Mechanisms and Four Boundary Conditions from a Model Evolution Perspective. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5284768>
- [30] Glantz, M., & Ramírez, I. (2018). Improvisation in the time of disaster. *Environment*, 60(6), 4–15. <https://doi.org/10.1080/00139157.2018.1495496>
- [31] Hadjimichael, D. (2019). *Defining the indefinite: Improvisation, tacit knowledge and perception* [PhD Thesis, University of Warwick]. <https://wrap.warwick.ac.uk/id/eprint/150411/>
- [32] Hall, B., Godrie, B., & Heck, I. (2020). Knowledge democracy and epistemic in/justice: Reflections on a conversation. *Canadian Journal of Action Research*, 21(1), 65–78. <https://doi.org/10.33524/cjar.v21i1.516>

- [33]Hardt, H. (2023). Institutional memory. In *Handbook of Knowledge and Policy*. Edward Elgar Publishing. <https://www.elgaronline.com/edcollchap/book/9781839103391/book-part-9781839103391-19.xml>
- [34]Harvey, J. (2012). Managing organizational memory with intergenerational knowledge transfer. *Journal of Knowledge Management*, 16(3), 400–417. <https://doi.org/10.1108/13673271211238733>
- [35]Hofbauer, B., Einhäupl, P., & Hochrainer-Stigler, S. (2025). Just Systems or Justice in Systems? Exploring the Ethical Implications of Systemic Resilience in Local Climate Adaptation. *International Journal of Disaster Risk Science*, 16(2), 233–248. <https://doi.org/10.1007/s13753-025-00653-2>
- [36]Huong, N. T., & Dinh, D. V. (2025). Accounting information systems and business capabilities' role impacting the Viet Nam-listed corporates' resilience: The smart-PLS SEM approach. *Journal of Accounting & Organizational Change*, 21(4). <https://doi.org/10.1108/JAOC-07-2024-0250>
- [37]Ilcic, A., Fuentes, M., & Lawler, D. (2025). Artificial intelligence, complexity, and systemic resilience in global governance. *Frontiers in Artificial Intelligence*, 8, 1562095. <https://doi.org/10.3389/frai.2025.1562095>
- [38]Jalonen, H. (2025). Epistemic Governance in the Context of Crisis: A Complexity-informed Approach. *Administration & Society*, 57(5), 851–879. <https://doi.org/10.1177/00953997241303935>
- [39]Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, 30(2), 199–218. <https://doi.org/10.1086/376806>
- [40]Jensen, T. B., Kjærgaard, A., & Svejvig, P. (2008). *Two perspectives on information system adaptation: Using institutional theory with sensemaking*. <https://pure.au.dk/portal/en/publications/two-perspectives-on-information-system-adaptation-using-instituti>
- [41]Knöchelmann, M. (2021). The democratisation myth: Open Access and the solidification of epistemic injustices. *Science & Technology Studies*, 34(4), 36–53. <https://doi.org/10.23987/sts.94964>
- [42]Lansonia, A., & Austin, M. (2024). The Role of Information Management in Enhancing Organizational Resilience. *APTISI Transactions on Management (ATM)*, 8(1), 32–39. <https://doi.org/10.33050/atm.v8i1.2198>
- [43]Ley, B., Pipek, V., Reuter, C., & Wiedenhoefer, T. (2012). Supporting improvisation work in inter-organizational crisis management. *Proceedings of the 2012 ACM Conference on Computer Supported Cooperative Work*. <https://doi.org/10.1145/2207676.2208617>
- [44]Madon, S. (2009). E-Governance for Development: A Focus on Rural India. *Palgrave Macmillan*. <https://doi.org/10.1057/9780230250499>
- [45]Matei, I., Piotrowski, W., Perez, A., & de Kleer, J. (2024). System resilience through health monitoring and reconfiguration. *Proceedings of the 2024 ACM Conference*. <https://doi.org/10.1145/3631612>
- [46]Metaphorum. (2024). Viable System Model. *Metaphorum*. <https://metaphorum.org/staffords-work/viable-system-model>
- [47]Mirzaei, S., Mohammadinia, L., & Nasiriani, K. H. (2021). Design and psychometric evaluation of schools' resilience tool in emergencies and disasters: A mixed-method. *PLOS ONE*, 16(7), e0253906. <https://doi.org/10.1371/journal.pone.0253906>
- [48]Monteiro, E., & Parmiggiani, E. (2019). Synthetic Knowing: The Politics of the Internet of Things. *MIS Quarterly*, 43(1), 167–184.
- [49]Mousa, M., Abdelgaffar, H. A., & Chaouali, W. (2020). Organizational learning, organizational resilience and the mediating role of multi-stakeholder networks: A study of Egyptian academics. *Journal of Workplace Learning*, 32(5), 335–357. <https://doi.org/10.1108/JWL-05-2019-0057>
- [50]Navidi, F., Hassanzadeh, M., & Shojai, A. (2017). Organizational knowledge documentation in project-based institutes: A case study at the satellite research institute. *The Electronic Library*, 35(5), 994–1011. <https://doi.org/10.1108/EL-10-2015-0196>

- [51] Ndlovu-Gatsheni, S. J. (2021). The cognitive empire, politics of knowledge and African intellectual productions: Reflections on struggles for epistemic freedom and resurgence of decolonisation. *Third World Quarterly*, 42(9), 1977–1994. <https://doi.org/10.1080/01436597.2020.1775487>
- [52] Olivera, F. (2000). Memory systems in organizations: An empirical investigation of mechanisms for knowledge collection, storage and access. *Journal of Management Studies*, 37(6), 811–832. <https://doi.org/10.1111/1467-6486.00205>
- [53] Onyame, E. A., Annim, S., Sayibu, A.-G., Amedahe, D. S. Y., Borketey-Coffie, N., & Manu, H. N. (2025). *Bridging Knowledge Silos at the University of Cape Coast: The Role of Cross-Departmental Knowledge Models in Enhancing Knowledge Sharing and Institutional Memory*. https://www.scirp.org/pdf/iim_8701791.pdf
- [54] Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533–544. <https://doi.org/10.1007/s10488-013-0528-y>
- [55] Park, J., Son, Y., & Angst, C. (2023). The Value of Centralized IT in Building Resilience During Crises: Evidence from U.S. Higher Education's Transition to Emergency Remote Teaching. *MIS Quarterly*, 47(1), 451–482. <https://doi.org/10.25300/MISQ/2022/17265>
- [56] Patin, B., Sebastian, M., & Yeon, J. (2020). Toward epistemic justice: An approach for conceptualizing epistemicide in the information professions. *Proceedings of the Association for Information Science and Technology*, 57(1), e242. <https://doi.org/10.1002/pr2.242>
- [57] Popow, M. (2025). Decolonizing knowledge in the postdigital era: Pedagogical strategies for navigating AI-driven epistemic transformations. *Educational Philosophy and Theory*. <https://doi.org/10.1080/00131857.2025.2552764>
- [58] Prayag, G., & Chowdhury, M. (2024). Antecedents of social performance in tourism and hospitality firms: The role of employee resilience, transactive memory systems, and dynamic capabilities. *Journal of Travel Research*. <https://doi.org/10.1177/00472875241291211>
- [59] Ravasi, D., Rindova, V., & Stigliani, I. (2019). The stuff of legend: History, memory, and the temporality of organizational identity construction. *Academy of Management Journal*, 62(3), 595–623. <https://doi.org/10.5465/amj.2016.0505>
- [60] Sabogal, S., George, A., & Wilson, C. (2020). Reconfigurable framework for environmentally adaptive resilience in hybrid space systems. *Proceedings of the 2020 ACM Conference*. <https://doi.org/10.1145/3398380>
- [61] Schmitt, U. (2021). Reframing a novel decentralized knowledge management concept as a desirable vision: As we may realize the memex. *Sustainability*, 13(7), 4038. <https://doi.org/10.3390/su13074038>
- [62] Schwartz, J. M., & Cook, T. (2002). Archives, records, and power: The making of modern memory. *Archival Science*, 2(1–2), 1–19. <https://doi.org/10.1007/BF02435628>
- [63] Sriskandarajah, N., Bawden, R., Blackmore, C., Tidball, K. G., & Wals, A. E. J. (2011). Resilience in learning systems: Case studies in university education. In *Resilience in Social-Ecological Systems*. Routledge. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315868387-7/resilience-learning-systems-case-studies-university-education-nadarajah-sriskandarajah-richard-bawden-chris-blackmore-keith-tidball-arjen-wals>
- [64] Stein, E. W. (1995). Organizational memory: Review of concepts and recommendations for management. *International Journal of Information Management*, 15(1), 17–32. [https://doi.org/10.1016/0268-4012\(94\)00003-C](https://doi.org/10.1016/0268-4012(94)00003-C)
- [65] Tsoukas, H. (2003). Do we really understand tacit knowledge? *Managing Knowledge: Critical Investigations of Work and Learning*, 410–427.
- [66] Valkenburg, G. (2022). Temporality in epistemic justice. *Time & Society*. <https://doi.org/10.1177/0961463X221094699>
- [67] Velu, S. R., Al Mamun, A., Kanesan, T., & Hayat, N. (2019). Effect of information system artifacts on organizational resilience: A study among Malaysian SMEs. *Sustainability*, 11(11), 3177. <https://doi.org/10.3390/su11113177>

- [68] Venkatesh, V., Brown, S., & Sullivan, Y. (2016). Guidelines for Conducting Mixed-methods Research: An Extension and Illustration. *Journal of the Association for Information Systems*, 17(7), 435–494. <https://doi.org/10.17705/1jais.00433>
- [69] Vert, M., Sharpanskykh, A., & Curran, R. (2021). Adaptive resilience of complex safety-critical sociotechnical systems: Toward a unified conceptual framework and its formalization. *Sustainability*, 13(24), 13915. <https://doi.org/10.3390/su132413915>
- [70] Walker, J., & Cooper, M. (2011). Genealogies of resilience: From systems ecology to the political economy of crisis adaptation. *Security Dialogue*, 42(2), 143–160. <https://doi.org/10.1177/0967010611399616>
- [71] Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16(1), 57–91.
- [72] Wang, W., & Inaba, K. (2022). Creative Improvisation in Disaster Responses: Practice in areas affected by the Kumamoto earthquakes. *Osaka Human Sciences*, 8, 173–193. <https://doi.org/10.18910/86904>
- [73] Wickström, L. (2024). *A Mixed Method Approach to Digital Resilience Awareness: Identifying Business Capabilities for Future Preparedness* [PhD Thesis, Åbo Akademi University]. <https://www.doria.fi/handle/10024/189270>
- [74] Yeo, G. (2007). Concepts of record (1): Evidence, information, and persistent representations. *American Archivist*, 70(2), 315–343. <https://doi.org/10.17723/aarc.70.2.u327764v1036756q>
- [75] Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications, Inc.