

Hyperautomation as an Institutional Catalyst: Integrating Generative Artificial Intelligence and Process Mining for the Transformation of Financial Workflows

Alexander J. Morrison

Faculty of Business and Economics, The University of Melbourne, Australia

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ABSTRACT

The accelerating convergence of generative artificial intelligence, intelligent automation, and process mining has reshaped contemporary understandings of organizational efficiency, governance, and value creation within financial workflows. Hyperautomation, once framed narrowly as a technological upgrade, has increasingly emerged as a socio-technical paradigm that reconfigures institutional logics, labor relations, and strategic decision-making architectures across financial services organizations. This research article develops an extensive theoretical and interpretive analysis of hyperautomation as an institutional catalyst, grounded strictly in extant scholarly literature and framed through a rigorous academic lens. Drawing centrally on the hyperautomation framework articulated by Krishnan and Bhat, the study situates generative artificial intelligence and process mining as mutually reinforcing mechanisms that transcend traditional rule-based automation by embedding adaptive intelligence and real-time process visibility into financial operations (Krishnan & Bhat, 2025).

The article elaborates on the historical evolution of artificial intelligence from early symbolic reasoning paradigms to contemporary transformer-based architectures, contextualizing the rise of hyperautomation within broader trajectories of digital transformation and organizational learning (Bruderer, 2016; Bornet et al., 2020). It further interrogates how intelligent workflows mediate the relationship between technological innovation and human agency, particularly in financial institutions characterized by high regulatory intensity, legacy system entrenchment, and complex interdependencies between human judgment and algorithmic decision-making (Cameron, 2022; Kalluri, 2024). By synthesizing insights from research on meaningful work, ethical artificial intelligence, and digital governance, the article advances a nuanced conceptualization of hyperautomation not as a deterministic force but as an institutional assemblage shaped by organizational culture, leadership cognition, and normative constraints (Blustein et al., 2023; Kamatala et al., 2025b).

Methodologically, the study adopts an interpretive, theory-building approach that relies on critical textual analysis, cross-domain synthesis, and comparative conceptual reasoning. The results are presented as analytically derived patterns that reveal how generative artificial intelligence enhances process mining by enabling semantic abstraction, predictive reasoning, and dynamic orchestration of financial workflows, while simultaneously introducing new tensions related to bias, transparency, and accountability (Bura, 2025; Krishnan & Bhat, 2025). The discussion extends these findings by engaging competing scholarly perspectives on automation, digital transformation, and organizational ethics, ultimately proposing a research agenda that foregrounds hyperautomation as a central construct in future studies of financial innovation and institutional change.

Keywords: Hyperautomation, Generative Artificial Intelligence, Process Mining, Financial Workflows, Intelligent Automation, Digital Transformation

INTRODUCTION

The contemporary financial services sector is undergoing a profound transformation driven by the convergence of advanced digital technologies, shifting regulatory landscapes, and evolving societal expectations regarding transparency, efficiency, and ethical governance. Within

this milieu, hyperautomation has emerged as a dominant conceptual and practical framework that extends beyond isolated automation initiatives toward the systemic orchestration of end-to-end organizational processes through artificial intelligence, machine learning, and advanced analytics (Bornet et al., 2020). Unlike earlier

waves of automation that emphasized cost reduction and task substitution, hyperautomation encompasses a holistic reimagining of workflows, decision-making structures, and human-machine interactions, particularly within knowledge-intensive domains such as finance (Cameron, 2022).

The intellectual roots of hyperautomation are deeply intertwined with the historical evolution of artificial intelligence as a scientific and socio-technical endeavor. Early conceptualizations of artificial intelligence, often traced to mid-twentieth-century academic gatherings and symbolic reasoning systems, framed intelligence as a set of formalizable rules that could be encoded into machines (Bruderer, 2016). While these early paradigms laid the groundwork for computational reasoning, they proved insufficient for capturing the contextual ambiguity and dynamic complexity inherent in financial workflows. The limitations of rule-based systems became increasingly evident as financial organizations confronted growing volumes of data, accelerating transaction speeds, and heightened demands for real-time risk assessment and compliance assurance (Bornet et al., 2020).

Against this backdrop, the emergence of machine learning and, more recently, generative artificial intelligence has fundamentally altered the technological landscape. Transformer-based architectures and neural retrieval systems have enabled machines not only to process vast quantities of structured and unstructured data but also to generate novel representations, predictions, and recommendations that approximate aspects of human cognitive flexibility (Bura, 2025; Kamatala et al., 2025a). Within financial workflows, these capabilities have opened new possibilities for automating complex decision processes, detecting anomalies, and optimizing end-to-end operations in ways that were previously unattainable through deterministic automation alone (Kalluri, 2024).

Hyperautomation, as conceptualized in recent scholarly discourse, represents the institutionalization of these technological advances into coherent organizational systems. Krishnan and Bhat articulate a comprehensive framework that integrates generative artificial intelligence with process mining to create adaptive, self-improving financial workflows capable of learning from historical execution data while dynamically responding to emergent conditions (Krishnan & Bhat, 2025). Process mining, traditionally employed as a diagnostic tool for visualizing and analyzing operational processes, is reconceptualized within this framework as a continuous intelligence layer that informs automation strategies and governance mechanisms. The integration of generative artificial intelligence further enhances this capability by enabling semantic interpretation, scenario simulation, and prescriptive intervention across financial processes (Krishnan & Bhat, 2025).

Despite the growing prominence of hyperautomation in both practitioner discourse and academic research, significant gaps remain in the theoretical understanding of its broader organizational and institutional implications. Much of the existing literature adopts a functionalist perspective that foregrounds efficiency gains, error reduction, and scalability, often neglecting the socio-cultural, ethical, and human dimensions of automation (Bornet et al., 2020; Cameron, 2022). This narrow focus risks obscuring the ways in which hyperautomation reshapes power relations, professional identities, and notions of meaningful work within financial institutions, particularly as algorithmic systems increasingly mediate critical decisions affecting employees, customers, and stakeholders (Blustein et al., 2023).

Furthermore, the literature on digital transformation highlights the contingent nature of technological adoption, emphasizing the role of leadership cognition, organizational culture, and human agency in shaping transformation trajectories (Ano & Bent, 2022; Ceipek et al., 2021). Family businesses and multigenerational firms, for instance, exhibit distinctive patterns of digital transformation influenced by deeply embedded values, governance structures, and intergenerational dynamics, suggesting that hyperautomation cannot be understood solely through a technological lens (Ano & Bent, 2022). While financial institutions differ structurally from family enterprises, they similarly operate within complex institutional environments that condition the adoption and impact of advanced automation technologies.

Ethical considerations further complicate the hyperautomation discourse. The deployment of generative artificial intelligence within financial workflows raises critical questions regarding bias, transparency, and accountability, particularly in contexts where automated decisions have significant financial and social consequences (Kamatala et al., 2025b). Process mining techniques, while offering unprecedented visibility into organizational processes, also introduce surveillance concerns and potential tensions between performance optimization and employee autonomy. These issues underscore the need for a more integrative theoretical framework that situates hyperautomation within broader debates on responsible innovation and ethical governance (Blustein et al., 2023).

In light of these considerations, the present study seeks to address a central research gap: the absence of a comprehensive, theoretically grounded analysis of hyperautomation as an institutional phenomenon that transcends technical implementation to encompass organizational, ethical, and human dimensions within financial workflows. By synthesizing insights from the literature on intelligent automation, generative artificial intelligence, process mining, and organizational studies, the article advances a holistic conceptualization of

hyperautomation that accounts for its multifaceted impacts and contested meanings (Krishnan & Bhat, 2025; Bornet et al., 2020).

The contribution of this research is threefold. First, it provides an extensive theoretical elaboration of hyperautomation, tracing its historical antecedents and situating it within contemporary debates on digital transformation and artificial intelligence. Second, it offers a detailed interpretive analysis of how generative artificial intelligence and process mining interact within financial workflows to produce new forms of organizational intelligence and control. Third, it engages critically with ethical and human-centered perspectives to articulate the conditions under which hyperautomation can contribute to meaningful work and sustainable institutional value creation (Blustein et al., 2023; Kamatala et al., 2025b).

By foregrounding hyperautomation as an institutional catalyst rather than a purely technical solution, this article responds to calls for more nuanced, interdisciplinary research on the future of work and digital governance in financial services. The following sections develop this argument through a detailed methodological exposition, an interpretive presentation of results grounded in the literature, and an extensive discussion that situates the findings within broader scholarly debates while outlining directions for future research (Krishnan & Bhat, 2025).

METHODOLOGY

The methodological approach adopted in this study is interpretive, theory-driven, and firmly grounded in qualitative scholarly analysis, reflecting the complexity and conceptual depth of hyperautomation as a socio-technical phenomenon. Rather than pursuing empirical measurement or statistical testing, the research is designed to generate theoretical insight through systematic engagement with existing literature, conceptual frameworks, and scholarly debates on intelligent automation, generative artificial intelligence, and process mining within financial workflows (Bornet et al., 2020; Krishnan & Bhat, 2025). This methodological orientation aligns with established traditions in organizational and information systems research that emphasize theory building and critical interpretation as means of advancing understanding in emergent and rapidly evolving domains (Ceipek et al., 2021).

At the core of the methodology is an extensive critical literature analysis that treats published academic work not merely as sources of evidence but as theoretical artifacts that reflect underlying assumptions, paradigms, and normative positions. The selection of literature was guided by thematic relevance to hyperautomation, digital transformation, artificial intelligence, and organizational implications, with particular emphasis on peer-reviewed

journal articles, scholarly books, and rigorously reviewed working papers (Ano & Bent, 2022; Blustein et al., 2023). The framework proposed by Krishnan and Bhat serves as a central analytical anchor, providing a coherent conceptual model through which other scholarly contributions are interpreted and synthesized (Krishnan & Bhat, 2025).

The analytical process unfolded through iterative cycles of reading, coding, and conceptual comparison. Key constructs such as generative artificial intelligence, process mining, intelligent workflows, ethical governance, and meaningful work were identified and examined across the literature to uncover patterns of convergence and divergence. This process enabled the development of integrative themes that cut across disciplinary boundaries, linking technical perspectives on automation with organizational and human-centered analyses (Bornet et al., 2020; Blustein et al., 2023). By adopting this iterative approach, the study sought to avoid reductive interpretations and instead capture the multidimensional nature of hyperautomation as both a technological and institutional phenomenon.

A critical aspect of the methodology involved historical contextualization. Drawing on historical analyses of artificial intelligence and automation, the study situates contemporary hyperautomation within longer trajectories of technological evolution and organizational change (Bruderer, 2016; Cameron, 2022). This historical lens provides a foundation for understanding how current debates reflect enduring tensions between efficiency, control, and human agency, while also highlighting the novel characteristics introduced by generative artificial intelligence and advanced process analytics (Kamatala et al., 2025a).

The methodological design also incorporates comparative conceptual analysis. By juxtaposing perspectives from different research streams, such as family business digital transformation and financial services automation, the study explores how contextual factors shape the adoption and impact of hyperautomation (Ano & Bent, 2022; Kalluri, 2024). This comparative dimension enriches the analysis by demonstrating that hyperautomation is not a monolithic phenomenon but rather manifests differently across organizational settings, depending on governance structures, cultural norms, and strategic priorities.

Ethical and normative considerations were explicitly integrated into the methodological framework. Recognizing that hyperautomation raises profound ethical questions related to bias, transparency, and accountability, the study engages with literature on ethical artificial intelligence and decent work to evaluate the normative implications of automating financial workflows (Kamatala et al., 2025b; Blustein et al., 2023). This evaluative dimension moves beyond descriptive

analysis to consider the conditions under which hyperautomation can align with broader societal values and institutional responsibilities.

The limitations of this methodological approach are acknowledged as inherent to interpretive and theory-driven research. The absence of empirical data means that the findings are not intended to offer predictive generalizations but rather to provide conceptual clarity and theoretical propositions that can inform future empirical studies (Ceipek et al., 2021). Additionally, the reliance on existing literature may reflect prevailing biases and blind spots within the field, underscoring the need for ongoing critical reflection and empirical validation (Bornet et al., 2020).

Despite these limitations, the chosen methodology is well suited to the research objectives of this study. By privileging depth of analysis, theoretical integration, and critical engagement, the approach enables a comprehensive exploration of hyperautomation as an institutional catalyst in financial workflows. The following section presents the results of this analysis as a set of interpretive insights grounded in the literature, illuminating the dynamic interplay between generative artificial intelligence, process mining, and organizational transformation (Krishnan & Bhat, 2025).

RESULTS

The interpretive analysis conducted in this study yields a set of interrelated findings that collectively illuminate the transformative role of hyperautomation in financial workflows. These results are not presented as empirical measurements but as analytically derived patterns that emerge from the synthesis of scholarly perspectives on generative artificial intelligence, process mining, and intelligent automation (Bornet et al., 2020; Krishnan & Bhat, 2025). Each pattern reflects a distinct dimension of hyperautomation's impact, revealing both its enabling potential and its inherent tensions within financial institutions.

A central finding concerns the reconfiguration of process visibility and organizational intelligence through the integration of process mining and generative artificial intelligence. Traditional financial workflows have long been characterized by opacity, fragmentation, and reliance on tacit knowledge embedded in human expertise and legacy systems (Kalluri, 2024). Process mining techniques address these challenges by reconstructing actual process flows from execution data, thereby providing organizations with an empirical basis for understanding how work is performed in practice rather than as formally designed (Krishnan & Bhat, 2025). When augmented with generative artificial intelligence, this visibility is transformed into actionable intelligence, as AI systems can interpret patterns, generate hypotheses about process inefficiencies, and

propose adaptive interventions in real time (Bura, 2025).

This enhanced organizational intelligence fundamentally alters decision-making dynamics within financial workflows. Rather than relying solely on retrospective reporting or human intuition, managers and automated agents gain access to continuous, predictive insights that inform operational and strategic choices (Bornet et al., 2020). The literature suggests that such capabilities can improve compliance monitoring, risk management, and customer service by enabling proactive rather than reactive responses to emerging issues (Kalluri, 2024). However, this shift also introduces new dependencies on algorithmic interpretations, raising questions about epistemic authority and the balance between human judgment and machine-generated recommendations (Cameron, 2022).

Another significant result pertains to the transformation of labor and professional roles within hyperautomated financial environments. As generative artificial intelligence assumes responsibility for increasingly complex cognitive tasks, the nature of human work shifts toward oversight, interpretation, and ethical governance (Blustein et al., 2023). The literature indicates that this transition can create opportunities for more meaningful work by reducing routine burdens and enabling employees to focus on higher-order problem solving and relational activities (Blustein et al., 2023). At the same time, it can exacerbate anxieties related to job displacement, skill obsolescence, and diminished professional autonomy, particularly in highly standardized financial roles (Cameron, 2022).

The analysis further reveals that the institutionalization of hyperautomation is deeply contingent on organizational context and governance structures. Research on digital transformation emphasizes that technological adoption is shaped by leadership values, cultural norms, and strategic orientations, rather than being a purely technical process (Ano & Bent, 2022; Ceipek et al., 2021). In financial institutions, where regulatory compliance and risk aversion are paramount, hyperautomation initiatives are often framed as mechanisms for enhancing control and auditability, which can both facilitate adoption and constrain innovation (Krishnan & Bhat, 2025). This duality underscores the importance of aligning hyperautomation strategies with broader organizational goals and institutional logics.

Ethical governance emerges as a critical dimension of hyperautomation outcomes. The integration of generative artificial intelligence into financial workflows amplifies concerns about bias, transparency, and accountability, particularly when automated decisions affect credit allocation, fraud detection, or compliance enforcement (Kamatala et al., 2025b). Process mining, while enhancing transparency at the process level, can also

intensify surveillance and performance monitoring, potentially undermining trust and employee well-being (Blustein et al., 2023). The literature suggests that addressing these ethical challenges requires not only technical solutions, such as bias mitigation frameworks, but also robust organizational policies and participatory governance mechanisms (Kamatala et al., 2025b; Krishnan & Bhat, 2025).

Finally, the results highlight the emergent nature of hyperautomation as a dynamic, evolving phenomenon rather than a static end state. The rapid pace of innovation in generative artificial intelligence and machine learning means that hyperautomated systems are continually reshaped by new capabilities, regulatory developments, and societal expectations (Kamatala et al., 2025a). This fluidity reinforces the need for adaptive governance and ongoing learning within financial institutions, as well as for continuous scholarly engagement to refine theoretical models and normative frameworks (Borne et al., 2020).

Collectively, these findings underscore that hyperautomation, as articulated in the literature, represents a profound reconfiguration of financial workflows that extends beyond efficiency gains to encompass organizational intelligence, labor relations, and ethical governance. The following discussion section interprets these results through a deeper theoretical lens, engaging with competing scholarly viewpoints and exploring their implications for future research and practice (Krishnan & Bhat, 2025).

DISCUSSION

The findings of this study invite a comprehensive theoretical discussion that situates hyperautomation within broader debates on technological change, organizational transformation, and institutional governance. Hyperautomation, as revealed through the interpretive analysis, cannot be adequately understood as a linear progression from manual to automated processes. Rather, it constitutes a complex assemblage of technologies, practices, and meanings that reshape how financial institutions conceptualize work, authority, and value creation (Borne et al., 2020; Krishnan & Bhat, 2025).

One of the most salient theoretical implications concerns the reconceptualization of organizational intelligence. Traditional models of organizational decision-making often emphasize bounded rationality and hierarchical control, with information flowing upward through formal reporting structures (Cameron, 2022). Hyperautomation disrupts these models by embedding intelligence directly into workflows through generative artificial intelligence and process mining, enabling decentralized, real-time decision support (Krishnan & Bhat, 2025). This shift aligns with broader trends in digital transformation that privilege agility and data-driven adaptability, yet it also

challenges established notions of managerial authority and accountability (Ceipek et al., 2021).

From an institutional perspective, hyperautomation can be interpreted as a mechanism of isomorphic change, whereby financial organizations adopt similar technological configurations in response to competitive pressures, regulatory expectations, and normative discourses around innovation (Ano & Bent, 2022). However, the literature also suggests that such convergence is mediated by organizational identity and culture, resulting in heterogeneous implementations and outcomes (Ceipek et al., 2021). This tension between standardization and differentiation underscores the need for theories that account for both structural constraints and agentic choice in shaping hyperautomation trajectories.

The discussion of labor and meaningful work further complicates deterministic narratives of automation. While some scholars frame automation as an existential threat to employment, others emphasize its potential to enhance job quality by reallocating human effort toward more intrinsically rewarding activities (Blustein et al., 2023). The findings of this study suggest that hyperautomation amplifies this ambivalence. Generative artificial intelligence can support employees by augmenting cognitive capacities and reducing routine burdens, yet it can also erode professional autonomy if implemented without regard for human values and participation (Cameron, 2022; Blustein et al., 2023).

Ethical governance emerges as a critical arena in which these tensions are negotiated. The integration of generative artificial intelligence into financial workflows raises profound ethical questions that cannot be resolved solely through technical fixes (Kamatala et al., 2025b). Bias mitigation frameworks and explainability techniques are necessary but insufficient, as ethical challenges are embedded in organizational contexts and power relations (Blustein et al., 2023). The framework proposed by Krishnan and Bhat implicitly acknowledges this complexity by emphasizing governance and continuous monitoring as integral components of hyperautomation, rather than as afterthoughts (Krishnan & Bhat, 2025).

Comparatively, insights from research on family businesses and multigenerational firms illuminate the role of values and long-term orientation in shaping digital transformation outcomes (Ano & Bent, 2022). While financial institutions operate under different constraints, the emphasis on stewardship and intertemporal responsibility offers a useful counterpoint to short-term efficiency-driven automation strategies. Incorporating such perspectives into hyperautomation research can enrich theoretical models by foregrounding sustainability and social responsibility alongside performance metrics (Ceipek et al., 2021).

The dynamic and evolving nature of hyperautomation also has implications for theory development. As generative artificial intelligence continues to advance, existing conceptual frameworks may struggle to capture emergent forms of agency, creativity, and learning exhibited by AI systems (Kamatala et al., 2025a). This calls for interdisciplinary engagement that draws on fields such as organizational psychology, ethics, and science and technology studies to develop more robust and reflexive theories of hyperautomation (Bornet et al., 2020).

Limitations of the present study must be acknowledged within this discussion. The reliance on interpretive analysis means that the findings are contingent on the scope and orientation of the existing literature, which may privilege certain perspectives over others (Ceipek et al., 2021). Future research would benefit from empirical investigations that examine how hyperautomation is enacted in specific organizational contexts, as well as from longitudinal studies that track its evolving impacts over time (Krishnan & Bhat, 2025).

Despite these limitations, the discussion underscores the value of conceptual clarity and theoretical integration in advancing understanding of hyperautomation. By framing hyperautomation as an institutional catalyst, this study contributes to a more nuanced discourse that recognizes both its transformative potential and its ethical and organizational challenges. Such an approach aligns with calls for responsible innovation and human-centered digital transformation within financial services and beyond (Blustein et al., 2023; Kamatala et al., 2025b).

CONCLUSION

This research article has advanced a comprehensive theoretical and interpretive examination of hyperautomation as a transformative force within financial workflows, emphasizing its role as an institutional catalyst rather than a narrowly defined technological solution. Through extensive engagement with scholarly literature, the study has demonstrated that the integration of generative artificial intelligence and process mining reconfigures organizational intelligence, labor relations, and governance structures in profound and multifaceted ways (Krishnan & Bhat, 2025; Bornet et al., 2020).

The analysis underscores that hyperautomation's significance lies not only in efficiency gains but also in its capacity to reshape how financial institutions understand work, decision-making, and ethical responsibility. By situating hyperautomation within historical trajectories of artificial intelligence and contemporary debates on meaningful work and ethical governance, the study offers a holistic framework for understanding its opportunities and risks (Blustein et al.,

2023; Cameron, 2022). In doing so, it responds to the need for interdisciplinary perspectives that bridge technical innovation with organizational and societal considerations.

Future research is encouraged to build on this conceptual foundation through empirical inquiry and comparative analysis across institutional contexts. As hyperautomation continues to evolve alongside advances in generative artificial intelligence, ongoing scholarly engagement will be essential to ensure that its deployment aligns with principles of transparency, fairness, and human flourishing. Ultimately, understanding hyperautomation as an institutional phenomenon provides a pathway toward more responsible and sustainable transformation of financial workflows in an increasingly automated world (Krishnan & Bhat, 2025).

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