How GenAI Use Cases Emerge and Evolve in Organizations: Analysis of a Case Study

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Abstract: The present study investigates how Generative Artificial Intelligence (GenAI) use cases emerge and evolve within organisational settings, challenging dominant "blueprint" perspectives that assume static implementation pathways. While Generative AI offers transformative potential by generating novel content and workflows, research often overlooks the dynamic, socio-technical processes through which its value is realised in practice. Addressing this gap, we conduct a longitudinal case study analysing 18 months of GenAI implementation within the pre-sales processes of a manufacturing firm. Our analysis reveals that GenAI use cases evolve dynamically across two key dimensions: process formalisation (structured vs. emergent) and user type (internal vs. external). Findings indicate use cases emerge organically through user interaction, organizational learning, and strategic imagination, progressing through four distinct phases. This evolution is enabled by specific conditions, including organisational legitimacy, technological flexibility, reflexivity, experimentation, and strategic foresight. The study develops a dynamic framework mapping this use case emergence, identifying key patterns and enabling conditions. Theoretically, this research contributes by shifting focus from static GenAI adoption models to dynamic, path-dependent processes, extending affordance theory through "evolutionary affordances," and deepening understanding of value co-creation and co-destruction dynamics over time. Practically, the framework assists organizations in managing GenAI adoption as an emergent process, guiding capability development and investment strategies for expanding GenAI applications across diverse organizational contexts.

Keywords: Generative AI, Use case evolution, Organizational implementation, Socio-technical systems, Value co-creation

1. Introduction

Generative Artificial Intelligence (GenAI) has emerged as a transformative technology with potential to reshape organizational processes and individual capabilities, driving value creation across diverse sectors. Unlike traditional AI, which excels in analysing predefined data for prediction and classification, GenAI's adaptive nature enables it to generate novel content, solutions, and workflows across organizational contexts (Alavi et al, 2025; Brynjolfsson et al., 2023; Kuss and Meske, 2025). This generative capability creates a unique socio-technical dynamic: as users interact with GenAI, they discover new applications and possibilities that were not initially envisioned, leading to continuous emergence of novel use cases (Möllers, 2025). For organizations, this presents both unprecedented opportunities for value creation and challenges in managing AI adoption strategically (Benbya et al., 2024; Sviokla, 2024).

The extant literature on Artificial Intelligence has predominantly adopted a "blueprint approach," where researchers identify specific use cases and their associated benefits to provide prescriptive guidance for practitioners (Berente et al., 2021; Lacity and Willcocks, 2016). These studies often focus on predefined applications in specific domains, such as manufacturing, healthcare, or software development (Bruhin, 2024; Dakhel et al., 2023; Gupta et al., 2021). Research has explored AI role in specific organizational contexts, examining its contributions to outcomes like operational efficiency, decision-making, or innovation (Brynjolfsson and McAfee, 2016; Shollo et al., 2022). While these studies offer valuable insights, they often assume static or linear adoption pathways, overlooking GenAI's socio-technical nature, which allows users to iteratively design and deploy new applications as they engage with the technology. These emergent dynamics, where use cases continuously evolve through sustained user-technology interaction rather than following predetermined paths, remain underexplored in the literature (Abhari et al., 2025; Möllers, 2025), limiting organizations' ability to fully harness GenAI's generative potential.

To address this gap, our study poses the following research question: *How do GenAI use cases emerge and evolve during organizational implementation*? We explore this question through an in-depth longitudinal case study of a manufacturing firm specialising in sterilisation machinery, where we observed GenAI implementation in pre-sales processes over 18 months. Our analysis reveals that organizational processes exhibit varying degrees of structure and that GenAI applications target different user groups, creating distinct patterns of value creation and evolution. This complexity requires decomposing processes to understand where and how different types of GenAI value creation occur, leading us to develop a framework that maps use case emergence across process formalisation and user targets.

This study offers theoretical and practical contributions to GenAI adoption literature. Theoretically, it advances understanding of GenAI socio-technical dynamics by proposing a framework to model the iterative emergence of use cases. Unlike static blueprint approaches, our framework emphasises the evolutionary nature of GenAI adoption, extending theories of value co-creation and co-destruction (Echeverri and Skålén, 2011) and contributing to affordance theory (Markus and Silver, 2008) by illustrating how GenAI's generative capabilities shape and are shaped by user interactions, offering insights into the mechanisms of use case evolution and enabling conditions that facilitate transitions between application types. From a practical perspective, the framework provides organizations with a structured approach to manage, rather than predetermine, GenAI use case emergence by recognising that successful implementation requires understanding the hybrid nature of organizational processes and sequential development of applications across user groups.

The paper is organized as follows. Section 2 reviews the literature on GenAI and identifies the gap in understanding how GenAI use cases emerge during human-AI interaction. The theoretical framework for mapping these use cases is presented. Section 3 outlines the methodology used to address our research question. Section 4 presents the results of our analysis and maps the emergence of GenAI use cases using the proposed framework. The final section discusses our results in the context of GenAI literature and explores their implications for organizations.

2. Literature Review and Theoretical Framework

The literature on Generative AI in organizations has rapidly expanded, documenting specific applications and benefits across diverse contexts (Brynjolfsson et al., 2023; Shollo et al., 2022). However, it often lacks a deep understanding of how GenAI use cases emerge and evolve through ongoing user-technology interaction within organizational settings (Benbya et al., 2024; 2011; Bruhin et al., 2025; Möllers, 2025; Walenta et al., 2025).

Much of the existing research adopts what we term a "blueprint" approach (Berente et al., 2021; Lacity and Willcocks, 2016). This perspective focuses on identifying predefined GenAI use cases, such as automation in manufacturing or coding assistance in software development, and prescribing their implementation, often assuming static pathways and predetermined outcomes (Bruhin et al., 2025; Dakhel et al., 2023; Mehlet et al., 2024; Negi et al., 2025; Walenta et al., 2025). While valuable, this approach has limitations for understanding GenAI's dynamic nature. It tends to overlook the generative paradigm shift GenAI represents, from deterministic automation of routine tasks (Brynjolfsson and McAfee, 2016) towards creating novel content and workflows. This shift enables users to iteratively discover and design new applications, leading to continuous use case emergence (Brynjolfsson et al., 2023), a process largely missed by static "blueprint" studies.

Furthermore, these approaches often neglect the dual dynamics of value co-creation and co-destruction inherent in GenAI adoption (Bruhin et al., 2025). While GenAI can enhance collaboration and outcomes (Dell'Acqua et al., 2023), it simultaneously poses risks such as skill erosion or over-reliance (Järvi et al., 2018). Additionally, organizational processes vary significantly, ranging from highly structured, rule-based routines to emergent, adaptive activities requiring human judgement and sensemaking (Mintzberg, 1979; Shollo et al., 2022). GenAI impact differs accordingly, supporting efficiency in structured work and augmentation/creativity in emergent work. Similarly, applications serve distinct user groups, internal uses often focus on operational efficiency, while external uses target customer experience or co-creation (Huang and Rust, 2021; Treacy and Wiersema, 1993). However, existing literature often treats these process and user dimensions separately, failing to capture how organizations might transition use cases from, for example, internal automation to external collaboration over time, or how capabilities developed in one context enable evolution into another.

This literature review reveals a gap in understanding GenAI adoption as a dynamic, path-dependent process where use cases emerge and evolve through organizational interaction. Existing research has only partially explored how GenAI transitions between automation and augmentation modes, how value co-creation/destruction dynamics evolve temporally, or the conditions under which early successes enable more ambitious applications. The blueprint orientation misses the interplay between GenAI's generative capabilities and organizational contexts driving continuous evolution. Table 1 summarises the key insights and limitations of the literature on GenAI use cases' emergence.

Table 1: Summary overview of key literature streams and limitations

Research stream	Key references	Key messages	Limitations for understanding GenAI use cases' emergence
AI evolution	Brynjolfsson et al. (2023); Berente et al. (2021); Dell'Acqua et al. (2023)	GenAI shifts from deterministic automation to generative paradigm; Creates socio-technical dynamics where users discover emergent applications	Focuses on capabilities rather than emergence processes; Limited exploration of organizational transition dynamics
Blueprint approach	Berente et al. (2021); Lacity and Willcocks (2016); Dakhel et al. (2023)	Domain-specific studies assume static implementation pathways; Focus on predefined applications with predetermined outcomes	Treats applications as fixed rather than evolutionary; Misses organizational learning and adaptation processes
Value co-creation/co-destruction	Echeverri and Skålén (2011); Bruhin et al. (2025); Järvi et al. (2018)	GenAI simultaneously enables value co-creation through collaboration and co-destruction through over-reliance; Dual impact spans operational excellence, product leadership, customer intimacy	Limited exploration of how dual dynamics evolve over time; Lacks frameworks for managing temporal interactions between enabling and constraining effects
Process and user types	Mintzberg (1979); Shollo et al. (2022); Huang and Rust (2021); Treacy and Wiersema (1993)	Structured vs. emergent processes require different GenAI approaches; Internal vs. external applications follow different value creation logics; Strategic value spans multiple disciplines	Examines process types and user domains separately; Limited understanding of transitions and cumulative capability building across contexts

To address these gaps, we propose an integrated theoretical framework that captures the dynamic, emergent nature of GenAI adoption. Building on value co-creation and co-destruction theory (Bruhin et al., 2025; Echeverri and Skålén, 2011), process theory (Mintzberg, 1979; Shollo et al., 2022), and strategic value perspectives (Treacy and Wiersema, 1993), our framework centres on two key dimensions

Process Formalisation differentiates between structured and emergent organizational processes, acknowledging that GenAI impact varies significantly depending on the nature of the work it supports. Structured processes align naturally with GenAI automation capabilities, while emergent processes benefit from its generative and augmentative potential (Abhari et al., 2025; Möllers, 2025).

User Type distinguishes between internal and external GenAI users, recognising that the value creation logic differs when GenAI supports internal operations versus external customer-facing applications.

Unlike existing approaches that position applications within static categories, our framework conceptualises these dimensions as dynamic spaces through which GenAI use cases can evolve. This evolutionary perspective recognises that GenAI implementations can transition between structured and emergent process support, and can extend from internal to external applications as organizations develop capabilities and experience.

3. Methodology

To investigate how use cases emerge during GenAI projects in organizations, this study adopts a longitudinal qualitative case study design (Langley, 1999; Yin, 2009). Case studies are particularly suitable for answering "how" research questions, allowing in-depth exploration of contemporary phenomena within real-life contexts (Yin, 2009). Given our goal to understand the socio-technical dynamics underpinning GenAI use case evolution, a case study enables detailed observation of contextual and temporal factors influencing these developments.

The research was conducted at SterTech, a medium-sized European manufacturing firm specialising in high-precision sterilisation machinery for healthcare and pharmaceutical sectors. Due to complexity and customisation required for each order, the company's pre-sales process is extensive and knowledge-intensive, often requiring analysis of large technical specifications submitted by clients. This pre-sales process constitutes our unit of analysis. SterTech recently initiated a GenAI project to enhance its pre-sales function, addressing inefficiencies in analysing customer requirements, preparing documentation, and coordinating cross-departmental inputs. Over time, the project evolved from structured task automation to emergent forms of human-AI collaboration, making SterTech an ideal site for investigating dynamic GenAI use case emergence.

Data collection occurred over 18 months (October 2023 to March 2025) through multiple engagement phases with GenAI initiative stakeholders. Semi-structured interviews were conducted with organizational actors

including sales managers, the head of pre-sales, the GenAI project manager, product manager, and IT department members, plus representatives from the GenAI supplier. Since the aim of the study was to capture the dynamics of use cases' emergence and evolution, some informants were interviewed more than once. For example, the Head of Pre-sales, who initiated the GenAI project, was interviewed at the outset of the project and in key moments when GenAI use cases were adopted. Similarly, the technology provider who accompanied the company through the transformation was interviewed twice. Additional data sources included internal presentations, process documentation, project meeting notes, and non-confidential digital artifacts generated during AI implementation. Table 2 summarises the interview participants, the period of the interviews, and the key contributions made to the study.

Table 2: Key informants of the study

Informant role	Interview period	Key input to the study
Sales manager (SterTech)	January 2024	Strategic vision, business needs, and expected benefits
Head of Pre-sales (SterTech)	October 2023 September 2024 March 2025	Workflow details, pre-sales bottlenecks, AI expectations
GenAI project manager (SterTech)	September 2024	Implementation approach, coordination with departments
Product manager (SterTech)	October 2024	Integration with existing tools, feedback loops
IT manager (SterTech)	December 2024	Technical constraints, system integration
GenAI project manager (supplier)	March 2024 February 2025	Delivery approach, customization logic
GenAI technical specialist (supplier)	December 2024	System architecture, model fine-tuning, feedback adaptation process

The analysis of qualitative data followed an iterative approach, moving between theory and data in different cycles. This process involved coding the data and then analysing it to derive patterns. The coding combined deductive, inductive, and abductive strategies to capture both theoretically informed insights and emergent patterns from the data.

Deductive, inductive, and abductive coding contributed to a deeper understanding of the dynamics of GenAI use case emergence. Deductive coding was informed by prior literature on AI in organizations and established theoretical frameworks, including automation versus augmentation (Raisch and Krakowski, 2021) and value co-creation versus co-destruction (Echeverri and Skålén, 2011). For example, the code "efficiency improvement" captured instances where GenAI reduced task completion time. Inductive coding identified patterns and themes that emerged directly from the data, revealing organizational dynamics not anticipated by existing theory. For instance, the code "credibility building" described how early GenAI successes established organizational trust. Abductive coding involved theoretical reasoning where unexpected patterns prompted refinement and new conceptual categories. The code "emergent use case discovery" was developed when interview data revealed that users continuously identified new GenAI applications through sustained engagement, a phenomenon not fully captured by existing adoption models.

The coding process was iterative, with multiple passes through the data to refine and integrate the three approaches. For example, the deductive code "efficiency improvement" was enriched by the inductive code "task complexity variation," leading to the insight that GenAI's impact follows different patterns across structured versus emergent processes, contributing to the development of the process-type dimension in the theoretical framework.

Triangulation strategies enhanced validity and reliability of findings. Source triangulation was achieved by collecting data from diverse organizational roles and external GenAI suppliers, enabling verification across different viewpoints. Data triangulation involved comparing interview insights with documentary evidence. For instance, efficiency improvements claimed by personnel were verified against internal process reports documenting measurable changes in task completion times and resource allocation. Methodological triangulation combined formal interviews, document analysis, and observation of digital artefacts, providing complementary perspectives where quantitative metrics supported qualitative insights.

The longitudinal design (Langley, 1999) was essential to capture the dynamics of use case emergence. By conducting interviews and observations at different stages, we were able to follow how new use cases were proposed, which mechanisms enabled their realisation, and how each use case built on the conditions created by earlier ones. For example, the use of GenAI to facilitate cross-departmental discussions was made possible by the experience gained from the initial application in customer requirements analysis. Similarly, the solid technological foundation established in the early stages, together with growing awareness of GenAI's potential, enabled the subsequent design of new customer-facing services.

4. Findings: The Evolution of GenAI use Cases

Our analysis reveals that GenAI use cases at SterTech evolved through four distinct phases, each corresponding to a specific quadrant in our framework. Rather than following a predetermined implementation plan, use cases emerged organically through user interaction, organizational learning, and strategic imagination. This evolutionary trajectory shows three critical patterns: (1) transition from structured to emergent processes driven by deepening human-AI interaction, (2) expansion from internal to external applications enabled by strategic foresight, and (3) cumulative capability building where each phase creates foundations for subsequent development. This section traces this evolutionary path and identifies the enabling conditions that drove transitions between phases.

4.1 Phase 1: Automating Structured Internal Processes

SterTech faced significant efficiency challenges in their pre-sales process, where analysis of customer requirement documents, often exceeding hundreds of pages of technical specifications, required manual review by sales and technical teams. This time-intensive process could take several days, with teams sometimes discovering deal-breaking requirements only in final stages.

To address this challenge, SterTech implemented GenAI to automate document parsing and analysis. The system was trained to extract key technical requirements, identify potential compliance issues, and flag non-viable opportunities early in the bidding process. This application represented direct substitution of manual labor with automated analysis, focusing on clearly defined, routine tasks within the Internal Users-Structured Processes quadrant (Table 3).

The primary benefit was operational efficiency, with dramatic reductions in analysis time and earlier identification of problematic requirements. As the pre-sales manager explained: *"Before, we could spend three or four days analysing a bid only to find out in the last paragraph that there's a requirement we can't meet. Now, with GenAI, this process is dramatically faster, and we can filter out non-viable opportunities much earlier."*

This phase was enabled by two critical organizational conditions. First, clear efficiency gains provided immediate organizational legitimacy for the GenAI initiative, demonstrating tangible value and securing stakeholder support. Second, technological flexibility of the modular GenAI architecture allowed for rapid training and integration with existing document formats, enabling swift implementation without major system disruptions.

4.2 Phase 2: Augmenting Emergent Internal Processes

As internal users became comfortable with the GenAI tool, they recognised opportunities beyond its original automation purpose. The organization needed better coordination and knowledge sharing between departments during the bidding process, particularly among engineering, sales, and compliance teams who often worked in silos.

Building on Phase 1 foundations, employees began experimenting with GenAI-generated summaries and classifications to facilitate cross-departmental discussions and strategic decision-making. Rather than simply processing inputs, the tool evolved to support collaborative sensemaking, helping teams interpret complex requirements together and develop sophisticated bid strategies.

A product manager captured this evolution: *"It's not just that the AI gives us answers; it's that it stimulates questions we wouldn't have thought to ask. It pushes us to rethink our assumptions."* The IT manager noted: *"We initially thought of GenAI as a tool to extract data. But now, it's become a shared space, a kind of knowledge hub where different departments can find common ground and speak the same language."*

Benefits extended beyond efficiency to include enhanced cross-functional communication, creativity in solution design, and emergence of new collaborative practices around bid management, positioning this use case within the Internal Users-Emergent Processes quadrant (Table 3).

Three interconnected dynamics drove this transformation. User experimentation enabled employees to actively explore applications beyond the tool's intended purpose. Sociotechnical alignment emerged as GenAI became integrated into interdepartmental communication. Organizational learning and reflexivity prompted teams to question established practices in response to AI-generated insights.

4.3 Phase 3: Envisioning Structured External Applications

Encouraged by internal success, SterTech leadership began envisioning how GenAI could address external challenges, particularly in early customer interaction stages. The organization needed to improve quality and structure of information received from potential customers, as poorly defined requirements often led to inefficient communications and suboptimal proposals.

Building on internal capabilities, SterTech planned customer-facing applications to help clients structure and articulate needs more effectively. The proposed solution involved intelligent portals where customers could upload specifications and receive immediate feedback on feasibility and fit with SterTech's capabilities, potentially including guided forms or chatbot interfaces.

A sales manager described the vision: *"We're thinking about a portal where clients can upload their specifications, and GenAI gives them feedback on whether we're a good match. That would save both sides a lot of time."* The business manager added: *"If we can guide the client toward better-structured input from the beginning, we reduce the back-and-forth and improve the quality of the bid."*

Anticipated benefits include service scalability, improved customer onboarding experiences, and higher conversion rates through better initial requirement matching, corresponding to the External Users-Structured Processes quadrant (Table 3).

Strategic imagination allowed internal actors to project their positive GenAI experiences into customer-facing domains, envisioning how internal success could translate to external value creation. Technological flexibility of the existing GenAI platform supported these ambitions by enabling relatively straightforward adaptation to external interfaces.

4.4 Phase 4: Imagining Emergent External Co-Creation

The phase observed in the case emerged from recognising that customer relationships could be fundamentally transformed through GenAI. Rather than simply meeting predefined customer requirements, SterTech began envisioning collaborative innovation processes where they could work jointly with clients to shape and refine specifications in real-time.

This vision addressed a deeper organizational challenge: traditional arm's-length customer relationships often limited innovation opportunities and resulted in suboptimal solutions that met stated requirements but missed underlying needs. SterTech aimed to create dynamic, partnership-oriented relationships driving mutual innovation.

The envisioned application involves GenAI-facilitated collaborative platforms supporting joint design sessions, iterative feedback loops, and interactive specification refinement between SterTech and hospital clients. The AI would capture and learn from past projects to offer design suggestions anticipating customer constraints and goals.

The GenAI supplier's consultant explained the potential: *"We see a lot of potential in using GenAI to bridge the customer-manufacturer gap. If we can capture and learn from past bids, we can start offering design suggestions that anticipate the customer's constraints."* The sales director reflected: *"This could change the way we interact with hospitals. It's not just about meeting requirements, but about jointly shaping them."*

Anticipated benefits include deeper customer intimacy, faster alignment on technical feasibility, and potential to create more tailored and innovative solutions through collaborative design processes, mapping to the External Users-Emergent Processes quadrant (Table 3).

This vision was enabled by accumulation of learning and confidence from previous phases. Strategic imagination reached fullest expression as leadership conceptualised customers as co-design partners rather than simply requirements providers. The culture of reflexivity and learning developed through earlier

experimentation created openness to redefining traditional organizational roles and customer relationships. Growing sociotechnical adaptability demonstrated organizational willingness to explore new engagement forms blurring boundaries between internal and external innovation processes. The following Table 3 summarises the GenAI Use Cases developed in the company, their positioning in the study Framework, their benefits, and enabling conditions.

Table 3: Positioning of the Gen AI use cases in the study framework

Users (Internal vs External)	**External users - Structured processes**	**External users - Emergent processes**
	- Application: Customer interaction tool - Benefits:Scalability and better onboarding - Enabling conditions: Strategic imagination; GenAI platform adaptability	- Application: Co-creation platforms - Benefits: Customer intimacy and agility - Enabling conditions: Strategic vision; reflexivity; sociotechnical reconfiguration
	Internal users - Structureded processes	**Internal users - Emergent processes**
	- Application: Requirement parsing - Benefits: Efficiency and reduced time-to-bid - Enabling conditions: Organizational legitimacy; technological flexibility	- Application: Collaboration platform - Benefits: Cross-functional collaboration; innovation and insight - Enabling conditions: User experimentation; sociotechnical alignment; organizational learning
	Processes (Structured vs Emergent)	

4.5 Evolutionary Patterns and Enabling Conditions

Our analysis reveals three critical patterns governing GenAI use case emergence at SterTech, demonstrating how organizations can manage GenAI evolution by understanding enabling conditions.

Pattern 1: Structured to emergent transition is characterised by deepening human-AI interaction and increasing interpretive complexity. As users move beyond executing predefined tasks, they begin questioning underlying assumptions through reflexivity and organizational learning. User experimentation serves as the primary mechanism for expanding GenAI functionality, while sociotechnical alignment enables tool evolution from isolated automation asset to shared collaboration platform. This trajectory represents a fundamental shift from efficiency logic toward innovation logic.

Pattern 2: Internal to external expansion is driven by strategic foresight and infrastructural capabilities. Strategic imagination enables organizational actors to envision broader applications by building on internal success stories and projecting learned capabilities into customer-facing domains. Technological flexibility supports these ambitions by allowing scalable adaptations without fundamental architectural changes. As applications extend to external stakeholders, trust-building and role redefinition become essential.

Pattern 3: Cumulative capability building follows a path-dependent sequence where each phase creates cognitive and infrastructural foundations for subsequent phases. Early efficiency gains establish organizational legitimacy, providing permission for experimentation and learning. This experimentation generates reflexivity about organizational processes and capabilities, seeding strategic imagination about future applications. Strategic imagination ultimately enables envisioning transformational applications that redefine customer relationships and organizational boundaries. The following Table 4 summarises the enabling conditions in the three identified patterns.

Table 4: Patterns and enabling conditions

Transition patterns	**Key enabling conditions**
Structured → Emergent processes	Reflexivity, experimentation, sociotechnical alignment
Internal → External users	Strategic imagination, technological flexibility, trust-building
Across all phases	Accumulation of legitimacy and learning enabling progression

This evolutionary trajectory shows that successful GenAI adoption differs from traditional technology implementation. Rather than following predetermined plans, effective GenAI adoption requires creating organizational conditions that enable use cases to emerge and evolve through sustained human-AI interaction.

5. Discussion and Conclusion

This study explored the emergence and evolution of generative AI use cases within organizations, moving beyond static "blueprint" models toward a dynamic understanding of socio-technical processes. Through a longitudinal case study of SterTech's pre-sales implementation, we analysed GenAI evolution across process formalisation (structured versus emergent) and user type (internal versus external) dimensions. Our findings reveal systematic progression from internal structured automation to emergent internal collaboration, eventually expanding to structured and emergent external applications. These transitions were facilitated by specific socio-technical conditions including organizational legitimacy, technological flexibility, reflexivity, experimentation, strategic imagination, and trust-building. Our study contributes two key insights to theory and one significant insight to practice.

5.1 Contributions to Theory

First, we enhance existing GenAI adoption research by transitioning from static blueprint perspectives to dynamic views of adoption as emergent, path-dependent processes. While previous studies assume AI applications are designed upfront to meet predefined objectives (Berente et al., 2021; Gupta et al., 2021), our findings demonstrate that use cases emerge iteratively through sustained user-technology interaction, organizational learning, and context-specific adaptation. This reinforces socio-technical perspectives (Markus and Silver, 2008) and value co-creation theories (Echeverri and Skålén, 2011) by showing how GenAI's generative nature influences both task execution and organizational meaning-making over time. SterTech's trajectory from efficiency-driven document automation to cross-functional collaboration platforms illustrates how organizations "discover" applications through experience, emphasising adoption as a journey of unfolding opportunities rather than discrete implementation decisions.

Our framework extends affordance theory (Markus and Silver, 2008) by revealing how GenAI affordances evolve through sequential realisation phases. Early affordance actualisation creates conditions enabling perception and realisation of more sophisticated affordances. In our study “evolutionary affordances" are possibilities that arise only after prior affordances have been actualised and integrated into organizational practice. SterTech's efficiency affordances in document automation established legitimacy enabling collaboration affordances, which inspired strategic imagination for customer-facing applications. This perspective indicates that managing GenAI requires fostering conditions for affordance evolution rather than merely implementing predetermined affordances.

Second, we deepen theoretical understanding of patterns and conditions governing GenAI evolution. Our framework identifies systematic transitions, from structured to emergent processes and internal to external users, and theorises enabling conditions facilitating these shifts. Structured-to-emergent trajectories are driven by reflexivity, experimentation, and socio-technical alignment, while internal-to-external trajectories require strategic imagination, technological flexibility, and trust-building mechanisms. This advances socio-technical theories (Raisch and Krakowski, 2021) by specifying organizational capabilities and contextual factors needed for different evolutionary pathways. These conditions develop cumulatively: organizational legitimacy and early wins in structured internal applications create foundations for experimentation and visioning, subsequently enabling external-facing applications. This theorisation offers a novel lens for understanding GenAI adoption as staged, path-dependent processes building organizational capabilities over time.

5.2 Contributions to Practice

We propose a process-user framework enabling organizations to manage GenAI use case emergence rather than predetermining applications. By situating applications within four-quadrant matrices and identifying enabling conditions, managers can anticipate capabilities and investments required for expansion across quadrants. Transitioning from internal automation to external co-creation necessitates investments in relationship-building and adaptive technology design, while internal innovation transitions require fostering experimentation, psychological safety, and cross-departmental knowledge sharing. The framework encourages strategic sequencing: initiating with structured internal applications establishes legitimacy and user familiarity, creating foundations for ambitious collaborative applications.

SterTech's journey exemplifies this sequential development. Early efficiency gains generated organizational momentum and technology trust, encouraging employees to propose novel applications and adapt tools for creative tasks. This highlights viewing GenAI adoption as dynamic portfolios of evolving applications rather than isolated projects. Organizations should cultivate reflexive infrastructures, routines encouraging questioning and rethinking of applications, and design flexible technical architectures reconfigurable for new

user groups and process types. This shifts managerial focus from fixed implementation plans to adaptive, learning-oriented strategies for realising GenAI's evolving potential.

5.3 Limitations and Directions for Future Research

This study has several limitations suggesting future research directions. First, findings are based on a single longitudinal case study within one manufacturing organization, limiting generalisability across industries and contexts. While rich qualitative insights offer depth and theoretical development, additional comparative cases are needed to validate and refine the proposed framework. Second, focusing on pre-sales processes means dynamics in other functional areas remain unexplored, potentially limiting understanding of framework applicability across different process types. Third, the study primarily captures internal stakeholder and AI supplier perspectives; incorporating external user viewpoints would provide fuller understanding of external-facing transitions and co-creation dynamics.

Future research should address these limitations through multi-case comparative studies across industries and organizational sizes to validate framework generalisability and identify boundary conditions. Process-focused investigations examining GenAI adoption in diverse functional areas would enhance understanding of how process characteristics influence use case emergence. Mixed-method approaches combining qualitative insights with quantitative performance measures could assess both experiential and outcome dimensions. Finally, longitudinal studies incorporating external user perspectives would provide comprehensive understanding of co-creation dynamics and external value generation in GenAI implementations.

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