



**Leadership Adaptation and Business Process Management  
in the Age of Generative AI: Evidence from UK  
Pharmaceuticals (Altered title)**

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**Leadership Adaptation and Business Process Management in the Age of Generative AI:  
Evidence from UK Pharmaceuticals**

**Abstract**

**Purpose:** Generative AI is increasingly influencing business processes through hybrid human–AI workflows. However, the success of this transformation depends not solely on technological capability but on how leadership interprets, governs, and integrates AI-enabled work. This study explores leadership adaptation in the UK pharmaceutical sector and advances the Recursive Evolutionary Leadership Activation Loop (RELAL) as an interpretive synthesis for understanding this dynamic.

**Design/methodology/approach:** A qualitative interpretive design using semi-structured interviews and a focus group with UK research-based pharmaceutical leaders and middle managers generated insights into how generative AI is influencing process governance, workflow execution, and leadership practice within a highly regulated context.

**Findings:** The findings indicate that leadership adaptation shapes how AI-enabled process change is governed and stabilised. Participants described shifts from control-oriented oversight toward orchestration, guardrail-setting, and the enabling of bounded experimentation. RELAL conceptualises these dynamics as recursive interactions between strategic intent, middle-manager mediation, governance refinement, and process evolution under regulatory constraint. The organisation may appear stable, yet underlying coordination mechanisms shift incrementally as hybrid human-AI routines become embedded.

**Practical implications:** The study offers guidance for leaders in regulated industries seeking to integrate conversational and agentic AI into business processes while maintaining human-in-the-loop accountability and adaptive governance structures.

**Originality/value:** By examining generative AI adaptation within a tightly regulated pharmaceutical context, this paper contributes to leadership and business process management scholarship and advances RELAL as a heuristic model for understanding recursive AI-enabled organisational change.

**Keywords:** Generative AI; Business process management; Leadership adaptation; Hybrid workforce; Agentic workflows; Regulated industries; Gestalt shift; UK pharmaceuticals

## 1. Introduction

Generative AI presents organisations with a perceptual challenge. As Kuhn (1962) argued in his work on paradigm shifts, change often begins not with new tools, but with a shift in how existing practices are interpreted. In the context of GenAI, work is increasingly enacted through interactions between human actors and generative systems and, more recently, agentic AI capable of semi-autonomous task coordination (Grange *et al.*, 2024). Yet these shifts can occur before organisations formally recognise them. Employees may experiment informally through shadow use, while leaders retain limited visibility of how workflows are already evolving, creating governance, compliance, and reputational tensions alongside operational opportunity (Hagendorff, 2024).

The leadership challenge is therefore not simply technological adoption, but organisational interpretation and governance. Conversational GenAI has altered how individual tasks are executed, yet in many organisations this change has outpaced formal strategy or process redesign (Duong and Nguyen, 2024). Leaders must balance augmentation and dependence (Parikh, 2023), enabling experimentation while maintaining accountability within established approval structures and compliance regimes (Reuel and Undheim, 2024). This requires perceptual flexibility in how work and accountability are understood, alongside governance strategies capable of absorbing experimentation without eroding control (Nersessian and Nickles, 2002).

The emergence of agentic AI (OpenAI, 2025) intensifies this tension. Unlike conversational tools that support discrete tasks, agentic systems exhibit persistence and goal-directed behaviour, positioning them as participants in workflow coordination rather than merely assistants (Russell, Norvig and Chang, 2022; Vu *et al.*, 2025). In regulated sectors, this shift moves AI from peripheral support toward embedded process execution, making questions of oversight, escalation pathways, and human-in-the-loop control structurally unavoidable.

The UK pharmaceutical sector provides a particularly revealing context. As a tightly regulated, globally networked industry, leaders must enable experimentation with GenAI while reassuring governance structures that control, compliance, and accountability are maintained (Heyden *et al.*, 2017; Vitellaro *et al.*, 2025). Under such conditions, the reconciliation of experimentation and control cannot be resolved at the level of strategic intent alone. It is mediated operationally, most often by middle managers positioned between executive direction and process execution.

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GenAI adoption rarely begins with formal redesign. It begins with use. Employees experiment to remove friction from everyday tasks, while senior leaders articulate acceptable risk and strategic intent. Between these levels, middle managers absorb, filter, and translate emergent practices into governed routines. Over time, what begins as informal augmentation is either contained, legitimised, or stabilised within existing process architectures. In regulated settings, this stabilisation requires explicit definition of decision rights, review pathways, and human accountability. GenAI does not eliminate governance requirements; rather, it requires their adaptation.

This pattern suggests that AI-enabled transformation unfolds less as a top-down programme and more as a recursive interaction between experimentation, mediation, and process recalibration. The organisation may appear stable, yet its underlying coordination mechanisms shift incrementally as hybrid human-AI workflows become embedded. Yet existing scholarship provides limited explanation of how such experimentation is translated into governed, repeatable business processes under regulatory constraint. This study addresses that gap.

From a Business Process Management (BPM) perspective, the integration of Generative AI is not simply a matter of technology adoption or leadership intent, but a reconfiguration of organisational process capability. BPM scholarship conceptualises this capability as multidimensional, encompassing strategic alignment, governance, methods, information technology, people, and culture (de Bruin *et al.*, 2010; vom Brocke and Rosemann, 2014). When GenAI experimentation emerges informally, these elements are recalibrated in practice before they are formally redesigned. This gap is particularly visible in regulated environments, where experimentation cannot remain informal and must ultimately be translated into auditable, accountable execution.

This article therefore contributes to the Business Process Management literature by examining how GenAI-enabled experimentation is translated into governed process capability within a highly regulated context. Drawing on qualitative evidence from UK research-based pharmaceutical organisations, the study foregrounds the role of middle managers as mediators between strategic intent and operational execution. Positioned between executive risk framing and employee experimentation, middle managers interpret emergent AI practices, assess feasibility and compliance implications, and integrate viable innovations into repeatable workflows. In doing so, they recalibrate elements of strategic alignment, governance guardrails, process methods, technological infrastructure, and workforce capability.

BPM scholarship is increasingly engaging with AI, intelligent automation, and the implications of foundation models for process discovery, redesign, and execution support. Much of this

work conceptualises AI as a capability that improves BPM artefacts and lifecycle activities (e.g., modelling, analysis, redesign, implementation, monitoring) or augments BPM software with new forms of recommendation and automation. However, this framing leaves a persistent empirical and theoretical gap for BPMJ readers: when GenAI enters organisations through local experimentation and “shadow use”, how does that variation become translated into governed, auditable, repeatable process performance, particularly when regulatory controls make informal diffusion untenable?

A second, closely related BPM debate concerns the discipline’s ability to balance process stability and control with process exploration and innovation - often articulated through BPM ambidexterity and through BPM governance work that foregrounds decision rights, roles, accountabilities, and alignment mechanisms. Yet we still lack detailed accounts of the mechanism by which bottom-up process experimentation is filtered, validated, and standardised into routine execution under compliance constraints. This gap matters because GenAI changes do not arrive only as formal redesign projects. They first appear as micro-variations in task execution, documentation, and decision support, which then create pressure on process governance (controls, escalation paths, human-in-the-loop accountability) before any “to-be” design is stabilised.

Accordingly, this study advances a BPM-centred contribution by treating GenAI not merely as a technology layer, but as a source of process variation that must be governed and stabilised across BPM capability dimensions. Empirically, we specify where GenAI enters regulated knowledge-work processes and what governance mechanisms are used to preserve accountability. Conceptually, we propose RELAL as a processual (non-validated) heuristic explaining the recursive cycle through which experimentation is facilitated by middle managers and translated into governed routines. Practically, we translate these dynamics into BPM-relevant guidance on process governance, decision rights, standardisation routines, and capability building appropriate to highly regulated environments.

## 2. Literature Review

If GenAI reshapes work before organisations formally recognise it, existing theory must help explain how such shifts are governed, stabilised, and translated into accountable execution. Much of the current literature addresses leadership, workforce adaptation, or strategic decision-making separately. Yet in regulated environments, these domains are tightly interdependent, connected through the processes that structure everyday work. It is therefore insufficient to treat GenAI adoption as a purely leadership initiative or as an isolated behavioural response. Under GenAI conditions, however, leadership, workforce, and strategy do not intersect primarily through formal plans or alignment exercises. They converge in the

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processes through which work is designed, governed, and executed. This review approaches GenAI transformation through a Business Process Management (BPM) lens perspective, examining how emergent practices become institutionalised within organisational workflows.

From this standpoint, BPM is not simply a technical toolkit but an organisational capability concerned with alignment, governance, and the continuous adaptation of execution. It provides a way to analyse how local experimentation with GenAI is surfaced, evaluated, and stabilised into repeatable, auditable routines. This orientation shifts attention away from linear models of change and toward the recursive interaction between leadership intent, workforce enactment, and strategic interpretation.

The review proceeds across three interlinked areas. First, it examines leadership transformation through Transformational Leadership (TL), Dynamic Managerial Capability (DMC), and IT Identity Threat Theory (ITIT), focusing on how leadership intent is recalibrated when GenAI adoption precedes formal strategy and alters process execution in practice. Second, it explores workforce adaptation using Job Demands–Resources and Appropriation frameworks to understand how employees engage with GenAI under conditions of compliance, bounded autonomy, and emerging role reconfiguration. Third, it considers strategic decision-making through Upper Echelons Theory and Affordance Theory, highlighting how senior leaders’ perceptions of GenAI possibilities are mediated through BPM artefacts, middle-manager interpretation, and governed experimentation.

Taken together, these perspectives position GenAI adaptation as a recursive, process-centred phenomenon rather than a linear leadership intervention.

## 2.1 Business Process Management as organisational capability

If processes are the point at which leadership, workforce, and strategy converge, then BPM must be understood not simply as a set of modelling tools but as an organisational capability concerned with how work is designed, governed, and continuously improved to deliver strategic outcomes. In this view, sustained process change depends on the development of interdependent capabilities spanning strategic alignment, governance, methods, information technology, people, and culture (de Bruin et al., 2010; vom Brocke and Rosemann, 2014).

This broader conception is particularly relevant to GenAI transformation. GenAI adoption frequently begins through local experimentation that alters task execution before it is stabilised as repeatable and auditable process performance. In regulated environments, BPM capability therefore becomes central rather than peripheral. It provides the mechanisms through which experimentation is surfaced, evaluated, and translated into accountable execution. This occurs under defined decision rights, escalation pathways, and human-in-the-loop controls. Unlike broader organisational change theories, BPM explicitly addresses how experimentation becomes embedded within governed, repeatable routines, making it particularly suited to analysing GenAI adaptation in compliance-intensive contexts.

Drawing on the Six Core Elements of BPM (vom Brocke and Rosemann, 2014), this review treats governance, methods, IT, people, and culture as interdependent dimensions through which GenAI-enabled change is stabilised. Leadership theories are considered primarily in relation to strategic alignment and governance; workforce theories in relation to people and culture; and strategy and affordance perspectives in relation to methods and IT as mechanisms for embedding experimentation into repeatable process performance. Consistent with maturity-based conceptions of BPM capability, these dimensions evolve over time rather than operating as isolated components (de Bruin et al., 2010).

## 2.2 Leadership transformation in the GenAI age

If GenAI reshapes work before a formal strategy is articulated, leadership adaptation cannot be understood solely through models that privilege vision, inspiration, or top-down direction. Traditional leadership theories offer important insights, but they address only part of the organisational challenge posed by GenAI. Transformational Leadership (TL) emphasises the articulation of an inspiring vision and the motivational alignment of followers (Bass, 1995). Dynamic Managerial Capability (DMC) highlights leaders' capacity to sense opportunities, seize them through strategic action, and reconfigure organisational resources in response to change. IT Identity Threat Theory (ITIT), in turn, draws attention to the psychological

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consequences of technological disruption, particularly where professional identity and expertise are implicated (Craig, Thatcher and Grover, 2019).

These perspectives are valuable, yet they share a common assumption: that strategic intent precedes and shapes organisational action. In GenAI-enabled environments, this sequencing is frequently inverted. Employees often experiment locally with GenAI tools before formal alignment occurs, altering task execution in ways that may not be immediately visible to senior leaders. In such contexts, inspirational vision alone is unlikely to resolve uncertainty. While TL suggests that alignment between leader values and employee values builds trust, GenAI may instead trigger anxiety about displacement or diminished expertise, particularly among knowledge workers in creative, analytical, and communication roles (Gibson, 2014; Zhou, Lu and Chen, 2025). In highly regulated sectors such as pharmaceuticals, where professional judgement underpins compliance, brand integrity, and patient safety, such perceived losses may be experienced as existential rather than incremental (Hermann, Puntoni and Morewedge, 2025).

The limitation, therefore, is not that leadership theories are misplaced, but that they insufficiently account for how emergent AI-enabled practices are incorporated into governed organisational routines. Leadership adaptation under GenAI must be examined in relation to process governance arrangements, including process ownership, decision rights, approval pathways, and human-in-the-loop controls, through which experimentation is stabilised. From a BPM perspective, leadership intent is not imposed and then executed; it is continuously recalibrated through feedback from process performance. Middle managers play a pivotal role in this recalibration, translating feasibility, risk exposure, and ethical constraints into actionable guidance within routine workflows.

This interpretation aligns with BPM governance research demonstrating that sustained performance improvement depends on executive engagement with process management as a strategic concern rather than a delegated operational function (de Bruin *et al.*, 2010). It also reflects findings that organisational culture is a decisive factor in BPM success, particularly where change requires behavioural adaptation rather than technical compliance (Ravesteyn and Versendaal, 2007). Under GenAI conditions, leadership transformation is therefore inseparable from the governance structures that legitimise experimentation and protect professional identity while enabling controlled process redesign.

### 2.3 From inspiration to adaptation: DMC as BPM capability

Dynamic Managerial Capability (DMC) extends transformational leadership by shifting attention from inspiration to adaptation. Rather than focusing primarily on vision, it emphasises leaders' ability to sense opportunities, seize them through strategic action, and reconfigure organisational resources in response to environmental change (Hossain, Fernando and Akter, 2025). In this sense, DMC speaks directly to the structural adjustments required during digital transformation, where motivation alone is insufficient (Hock-Doepgen *et al.*, 2025).

Yet DMC becomes more analytically precise when considered through a BPM perspective. Its relevance does not lie only in strategic repositioning, but in how adaptive decisions are translated into changes in process governance. BPM research has long argued that capabilities generate value only when deployed in context (Wong, Tseng and Tan, 2014). Management commitment and employee involvement, for example, do not directly improve performance. They enable the configuration of process-supporting IT, governance mechanisms, and strategic alignment that shape execution quality.

Seen in this way, DMC operates as a managerial BPM capability. It is exercised through judgement, about what can change, how quickly, and under what governance conditions. In GenAI-enabled environments, where experimentation often begins before strategy is formalised, this judgement becomes critical. Employees introduce AI tools into everyday workflows. Practices shift quietly. Middle managers, positioned closest to operational execution, must decide whether these shifts can be stabilised, modified, or constrained. They balance flexibility with control. They ensure innovation does not outpace governance. They protect compliance without extinguishing experimentation.

Integrating DMC with ITIT adds an important human dimension. Structural redesign cannot occur without attention to professional identity (Craig, Thatcher and Grover, 2019). In highly skilled, regulated environments, GenAI may be experienced not simply as efficiency support but as a challenge to expertise. Preserving dignity and professional value therefore becomes part of process redesign. This may involve employee-led job crafting (Wrzesniewski and Dutton, 2001; Tims and Bakker, 2010), or deliberate decisions to retain human judgement at critical process stages. These are not peripheral considerations. They are mechanisms through which trust and engagement are maintained during controlled change.

Such dynamics are particularly visible in pharmaceuticals. Medical, Legal, and Regulatory (MLR) requirements restrict uncontrolled experimentation. But they do not eliminate innovation. Instead, effective BPM governance establishes guardrails within which safe exploration can occur. When these guardrails are framed as enabling rather than restrictive, creativity and output quality improve (Cimino *et al.*, 2024). Here, DMC is enacted in practice.

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Middle managers translate regulatory constraints into actionable guidance, embedding experimentation within compliant process structures.

Practitioner research on agentic AI adoption reinforces this layered view. McKinsey distinguishes between M-shaped senior leaders with broad AI fluency and T-shaped middle managers with deep functional expertise (Sukharevsky *et al.*, 2025). Through a BPM lens, this reflects distributed leadership across governance and execution layers. Adaptation does not sit at the top alone. It unfolds through ongoing dialogue between strategic constraint and operational recalibration. In this sense, DMC is realised recursively, as process performance feeds back into leadership judgement under conditions of technological and regulatory uncertainty.

**2.4 Workforce adaptation: resources, people, crafting and compliance**

If leadership establishes the conditions for GenAI transformation, the workforce determines whether those conditions produce value in practice. Many employees already engage with GenAI informally. Shadow use is common. These interactions reshape both the mechanics of work and its meaning. Employees pursue efficiency, but they also seek relevance and professional growth.

The Job Demands–Resources (JD-R) model conceptualises work as a balance between demands that consume energy and resources that enable growth (Bakker, Demerouti and Sanz-Vergel, 2023; Demerouti *et al.*, 2001). GenAI affects both sides of this equation. Prompting, validating, and refining outputs require effort. Over time, however, GenAI can reduce repetitive cognitive strain and expand perceived resources. Evidence suggests that productivity gains depend less on leadership motivation and more on skill development and resource quality (Chuang, Chiang and Lin, 2025). In pharmaceutical settings, where errors carry significant consequences and tolerance for risk is low, improvement relies on structured support, shared learning, and clearly defined boundaries rather than individual persistence alone.

Yet JD-R assumes a degree of autonomy that is not always available in compliance-intensive environments. Fixed MLR timelines, formal approval processes, and regulatory documentation requirements constrain job crafting. Although GenAI has demonstrated performance benefits in healthcare contexts, such as nursing (Atallah *et al.*, 2024), these studies often understate structural rigidity. In regulated sectors, adaptation depends less on informal flexibility and more on organisational safeguards, including secure, firewalled language models, approved prompt libraries, and human-review workflows.

Appropriation Theory, derived from Adaptive Structuration Theory (DeSanctis and Poole, 1994), complements JD-R by shifting attention from stress to sense-making. It examines how employees adopt and adapt technologies within specific organisational contexts. Appropriation may be 'faithful', aligning with intended design, or 'unfaithful', diverging in ways that can still generate value. In pharmaceutical environments, this often takes the form of constrained appropriation. GenAI outputs are produced within auditable systems and subject to formal review. Improvisation occurs, but within boundaries.

This reframes compliance not as an obstacle to adaptation but as a design parameter. Clear guardrails can reduce ambiguity. They provide the conditions under which experimentation becomes legitimate rather than risky. Workforce adaptation, in this sense, is collective. It relies on shared norms, visible examples, and recognised pathways for integrating new practices into everyday work..

From a BPM perspective, these mechanisms function as enabling infrastructure rather than imposed control. BPM provides channels through which informal experimentation can be surfaced, evaluated, and stabilised. It legitimises learning without relinquishing accountability. Empirical research on middle managers' digital leadership supports this view, suggesting that engagement during transformation is driven less by senior vision and more by local empowerment and socially mediated support structures (Li *et al.*, 2024).

In the empirical material examined in this study, coordination occurred through communities of practice, shared prompt libraries, super-user networks, and internal benchmarking practices. These structures made experimentation visible. They reduced reliance on shadow AI. They provided recognised routes for transforming informal practices into approved routines. Interpreted through a BPM lens, such artefacts represent governance and cultural mechanisms through which adaptation becomes institutionalised.

As agentic systems expand, this coordination challenge intensifies. Oversight, orchestration, and exception-handling become central roles (Heyden *et al.*, 2017; Baptista *et al.*, 2020). Workforce adaptation therefore cannot be reduced to individual flexibility or stress management. It depends on the capacity of BPM governance structures to balance exploration with accountability, ensuring that emerging practices enhance rather than destabilise process integrity.

## 2.5 Strategic decision-making with GenAI

JD-R and Appropriation Theory explain how employees adapt to GenAI in practice. They do not, however, fully explain how those adaptations become strategic commitments. Strategic

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interpretation does not emerge in isolation. It is mediated through the processes that surface and stabilise experimentation within the organisation. To understand this mediation, attention must turn to the senior leaders who shape organisational direction.

Upper Echelons Theory (UET) argues that organisational strategy reflects the experiences and cognitive frames of senior executives (Hambrick and Mason, 1984). These are shaped by past successes. They influence what leaders perceive as feasible, legitimate, or risky when confronting emerging technologies such as GenAI. While employees may adapt through skill acquisition and experimentation, senior leaders often face the more difficult task of unlearning established assumptions (Bevilacqua *et al.*, 2025). Mental models that proved effective during earlier waves of IT and digital change may not transfer easily to generative systems. Technologies once evolved incrementally and within clearly defined regulatory domains. GenAI disrupts that linearity, introducing ambiguity about boundaries, authorship, and accountability (Spencerstuart, 2024).

Yet cognitive unlearning alone does not determine strategic response. In practice, senior leaders rarely form perceptions of GenAI through direct experimentation. Their understanding is mediated. It is shaped by governance reports, compliance assessments, performance metrics, and the interpretations of middle managers. As workforce experimentation produces second-order effects in work (Baptista *et al.*, 2020), BPM functions to stabilise these effects into observable signals. What began as informal use becomes documented variation in process performance. Those signals inform strategic deliberation.

From this perspective, leadership adaptation involves more than perceptual change. It depends on the organisation's capacity to surface and legitimise emergent practices within governed workflows. Strategic caution is often explained as executive conservatism. In practice, it is also shaped by accountability structures and reputational exposure (Finkelstein, 1992). In regulated environments, boards require process-level evidence before formalising strategic commitments. Innovation must be demonstrated as controllable before it is endorsed.

Affordance Theory complements UET by shifting attention from executive characteristics to the perceived possibilities of technology. Affordances are often treated as inherent features of a technology. In practice, they emerge through interaction and interpretation (Gibson, 2014). Empirical research suggests that the perceived value of GenAI depends less on technical capability than on how organisational actors interpret relevance and risk (Zhou, Lu and Chen, 2025). Affordance awareness, therefore, becomes distributed rather than individual. It develops through exposure to BPM-stabilised experimentation rather than through isolated executive insight.

GenAI strategy thus reflects the interaction of perceptual and procedural dynamics. Senior leaders interpret possibilities, but those interpretations are grounded in evidence generated through the execution of governed processes. Exposure to frontline experimentation can shift perception over time. Incremental, validated improvements in process performance accumulate. What initially appears as uncontrolled risk may gradually be reframed as managed capability.

Strategic adaptation under GenAI rarely follows a clean sequence. Boundaries are set at senior levels, yet they are often reshaped through what happens in everyday workflows. As experimentation becomes visible and repeatable, it can gradually alter how leaders interpret risk and opportunity. BPM enables this exchange. It makes experimentation visible without allowing it to become uncontrolled. In this way, strategic confidence grows through practice rather than proclamation.

## 2.6 Three unresolved tensions to be explored in this study

Although leadership, workforce, and strategy have each been studied extensively, these perspectives remain fragmented when applied to GenAI in regulated environments. Leadership theories emphasise vision, sensemaking, and unlearning. What they tend to underplay is how emergent practices are governed once experimentation reshapes process execution. Workforce frameworks help explain adaptation, stress, and identity. However, they often pay less attention to the structural and ethical constraints that shape work in compliance-intensive environments. Strategic theories help explain why senior leaders act cautiously. They pay less attention to how views of technological opportunity are shaped by process-level evidence rather than direct experimentation.

From a BPM perspective, these limitations can be understood as three interrelated tensions:

1. A tension between top-down strategic intent and bottom-up capability emergence, as employee-led GenAI experimentation alters process execution before formal alignment occurs.
2. A tension between ethical governance and innovation speed, where compliance requirements constrain the experimentation on which GenAI learning depends.
3. A tension between technological opportunity and identity threat, as organisations seek to enhance performance without eroding professional dignity, accountability, or trust.

These tensions echo the broader organisational challenge of balancing exploitation and exploration (March, 1991): maintaining stable, reliable execution while enabling experimentation that generates new routines. Strategic models such as dual transformation

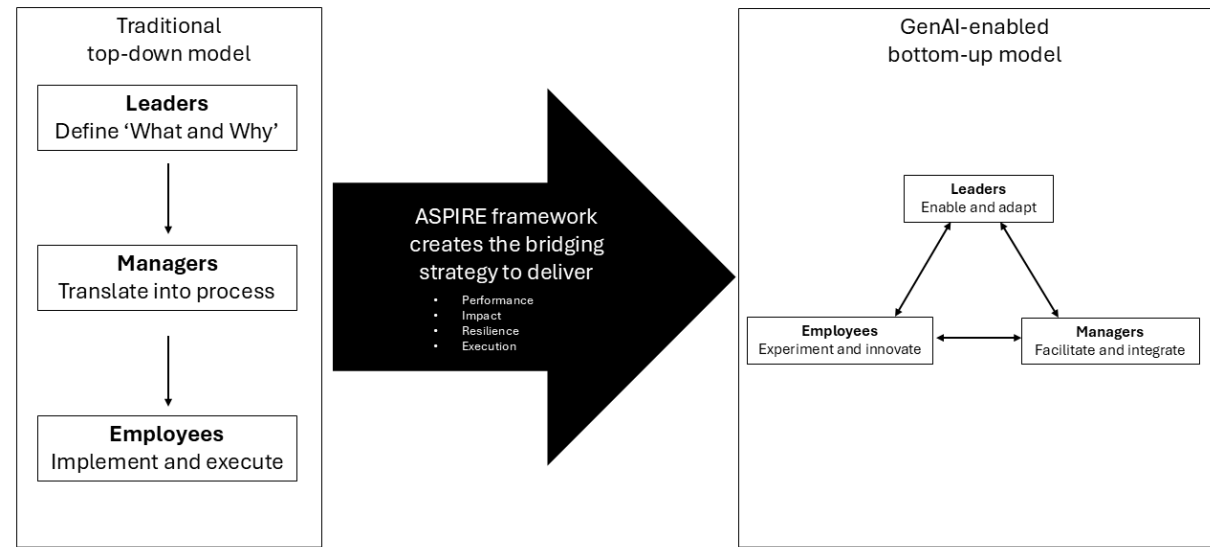
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recognise the need to optimise the core while developing new capabilities (Libarikian *et al.*, 2024). However, they offer limited guidance on how this balance is enacted when innovation emerges within core operations and must be stabilised through process governance rather than separated into parallel structures. In regulated environments, experimentation cannot be cleanly detached from routine execution. The challenge lies in governing their interaction.

It is within this gap that the ASPIRE framework was initially developed, as an attempt to bridge top-down direction and bottom-up experimentation. Early findings, however, suggested that a more dynamic representation was required to account for the recursive interaction between governance and experimentation under conditions of emerging agentic AI. This led to the refinement of ASPIRE into the Recursive Evolutionary Leadership Activation Loop (RELAL). Rather than treating leadership, workforce adaptation, and strategy as separate domains, RELAL conceptualises GenAI adaptation as an ongoing process. Middle managers stabilise experimentation into governed routines, while senior leaders recalibrate strategic intent in response to evolving process evidence.

This study examines how these tensions play out in practice, and how BPM governance structures help organisations balance alignment, experimentation, and accountability within everyday work.

Figure 1. From linear leadership alignment to distributed GenAI-enabled governance (ASPIRE model).



Original model - Source: Authors (developed for this study)

### 3. Methodology and Research Design

To examine how these tensions play out in practice, the study investigated how UK research-based pharmaceutical leaders and middle managers interpret and respond to GenAI within regulated process environments. Rather than treating GenAI adoption as a discrete implementation decision, the research focused on how GenAI-related practices emerge, are governed, and become stabilised within regulated processes.

Framed within an interpretivist paradigm (Saunders, Lewis and Thornhill, 2019), the study did not seek to establish causal mechanisms. Instead, it aimed to identify recurring patterns of meaning, interaction, and process tension that help explain leadership and BPM dynamics in context. Leadership responses to GenAI are socially constructed and shaped by professional identity, regulatory constraint, organisational culture, and existing process governance structures. Accordingly, the study examined how strategic intent, middle-manager mediation, and workforce experimentation interact in shaping GenAI-enabled process transformation within a bounded regulatory setting.

An inductive qualitative design was adopted, using semi-structured interviews and a focus group. This design enabled exploration of how participants experienced, interpreted, and navigated GenAI-related changes to workflow execution, governance guardrails, and hybrid human-AI coordination. The emphasis was on surfacing interpretive patterns rather than measuring organisational outcomes.

#### 3.1 Sampling and Data Collection

A purposive sampling strategy was employed to identify participants with direct responsibility for, or proximity to, GenAI-related decision-making and process integration within UK research-based pharmaceutical affiliates. Inclusion criteria required participants to:

1. hold a formal senior leadership or middle-management role;
2. be directly involved in GenAI experimentation, governance, or strategic oversight; and
3. operate within regulated medical, legal, and promotional process environments.

The final sample comprised six participants: three Managing Directors (MDs) and three Middle Managers (MMs). MDs held accountability for affiliate-level strategic alignment, risk management, and regulatory compliance, while MMs were responsible for digital execution, workflow coordination, and workforce enablement within governed process structures.

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The study focuses on UK-based affiliates of research-based pharmaceutical companies rather than manufacturing sites or retail pharmacies. These affiliates typically coordinate commercial and medical activities (e.g., medical affairs, compliance-facing communications, and cross-functional governance) and operate under stringent Medical, Legal, and Regulatory (MLR) requirements. Accordingly, the ‘process’ lens in this study centres on regulated knowledge-work processes where content and decisions must move through defined review, approval, and accountability pathways (including human-in-the-loop sign-off), as well as on the meta-process by which locally tested GenAI practices are evaluated, codified and scaled into repeatable routines within governance boundaries.

Although recruitment initially targeted senior leaders, the resulting balance across hierarchical levels proved analytically valuable. It enabled structured comparison between executive strategic intent and the mediation of GenAI practices within process governance and operational execution. This distinction aligns with BPM scholarship emphasising the interdependence of strategic alignment and governance capability in organisational change (de Bruin *et al.*, 2010; vom Brocke and Rosemann, 2014).

Interviews were conducted between April and June 2025 via Microsoft Teams and lasted approximately 35-45 minutes. A single semi-structured interview guide was used across both role groups to facilitate cross-level analysis of perceptions regarding experimentation, governance, workforce implications, and strategic positioning. All participants were assured confidentiality and organisational anonymity.

Following the individual interviews, a focus group was conducted with the three MMs (45-60 minutes). This allowed participants to collectively reflect on shared constraints, compare interpretations, and extend discussion toward practical governance implications that had emerged in the interviews. The focus group also provided insight into how process-level experimentation was collectively interpreted and stabilised, offering further visibility into the recursive dynamics identified in the literature review.

In combination, the two methods provided analytical depth through individual accounts and methodological triangulation through group dialogue (Lambert and Loiselle, 2008). Instead of seeking convergence in a positivist sense, triangulation was used to enrich interpretation by examining how process-level tensions were articulated and negotiated across roles. This strengthened credibility by enabling comparison of convergent and divergent sensemaking, rather than treating accounts as confirmatory evidence.

Consistent with interpretivist qualitative research, sampling was guided by the pursuit of analytical insight rather than statistical representativeness. The UK research-based pharmaceutical sector provided a bounded and theoretically meaningful context in which

leadership-process tensions, governance constraints, and AI-enabled workflow adaptations are highly visible. Studying GenAI integration under such regulatory conditions enabled closer observation of how strategic intent, process governance, and workforce experimentation interact in practice.

### 3.2 Data analysis

Data analysis followed Braun and Clarke's (2006; 2019) six-phase reflexive thematic analysis (RTA) process:

1. Familiarisation through repeated reading of transcripts;
2. Generation of initial semantic and latent codes;
3. Searching for candidate themes through pattern comparison across participants;
4. Reviewing and refining themes against the full dataset;
5. Defining and naming themes to ensure conceptual clarity;
6. Producing the final analytical narrative.

Coding and theme refinement occurred iteratively across the interview set, with early candidate themes recorded, reviewed against later transcripts, and adjusted to reflect contradictions and role-based differences.

Coding was conducted inductively using NVivo 15, supplemented by manual annotation of printed transcripts. For example, the initial code "*executive caution*" captured repeated references to waiting for external validation before committing to GenAI initiatives. When compared with middle-manager accounts of experimentation "*in the shadows*", this evolved into the theme "*Cautious Endorsement*". Through iterative comparison, this was reframed as part of the broader theme of "*Dual-Facing Leadership*", capturing leaders' simultaneous advocacy and restraint.

In the revised analysis, themes were further interpreted through a BPM lens. This involved examining how leadership narratives corresponded to strategic alignment, governance guardrails, workforce capability development, and process stabilisation. This theoretically informed reinterpretation is consistent with qualitative analysis in which concepts sharpen explanation after inductive patterning has been established. The analytic move was made explicit and remained grounded in the data. This interpretive step did not impose BPM constructs a priori, but used them as sensitising concepts to examine how participants' accounts reflected multidimensional process capability recalibration.

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RELAL emerged during this analytical phase as a conceptual synthesis of recurring tensions between experimentation, governance, and strategic recalibration. It is presented as an interpretive abstraction derived from this bounded dataset rather than as a validated structural model. In the Findings and Discussion, RELAL is linked explicitly to the thematic structure, showing which recurring tensions and governance patterns informed each component.

**3.3 Methodological rigour and reflexivity**

To enhance credibility, interviews and the focus group were triangulated to examine convergence and divergence across hierarchical roles. Dependability was supported through systematic coding procedures in NVivo and maintenance of an audit trail documenting coding decisions and theme evolution. Confirmability was strengthened through reflexive memo-writing to surface and examine the researcher’s assumptions regarding leadership and digital transformation. Transferability was addressed through detailed contextual description of the regulated pharmaceutical setting, enabling readers to assess its relevance to other compliance-intensive environments (Lincoln and Guba, 1985). As the study captures accounts at a single point in time, interpretations reflect how GenAI was being understood and governed during a specific phase of organisational sensemaking, rather than longitudinal process outcomes. Given the small purposive sample and interpretivist design, the findings should be understood as indicative patterns within a bounded regulatory context rather than sector-wide generalisations. Accordingly, the study contributes through theory elaboration, clarifying how leadership-process tensions are interpreted and governed in practice, rather than through theory testing, predictive modelling, or statistical inference.

**4. Research findings**

This chapter presents findings from six semi-structured interviews (three Managing Directors (MDs) and three expert Middle Managers (MMs)) and one MM focus group. The analysis is organised by hierarchical role in order to examine how leadership adaptation to GenAI is interpreted and enacted at different organisational levels. Themes were developed through reflexive thematic analysis and are presented as indicative patterns within this bounded context. To make the process object explicit, Table 1 summarises the business processes and process-governance routines that participants most clearly associated with GenAI use. The aim is not to claim comprehensive process coverage, but to specify where GenAI entered workflows, which controls were applied, and which roles were accountable in this regulated context.

**Table 1: Process and GenAI use-case map in the studied context**

| Process / BPM object                                                            | Where GenAI enters the workflow                                                                      | Example tools (as described)                                     | Governance controls / guardrails                                                                                       | Primary accountable roles                                                                    | Indicative empirical anchors                                                                                                                                                      |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regulated content creation and approval (MLR-facing outputs)                    | Drafting and private iteration prior to formal review; GenAI used as augmentation not decision-maker | Approved GenAI tools; prompts refined through practice           | Human-in-the-loop sign-off and sense-checking; approval checkpoints; restrictions on sensitive/proprietary information | MDs set risk posture; MMs coach usage; process owners/approvers retain final decision rights | “final signature” (P01); “sense check... manual adjustments” (P02); governance rules to avoid putting proprietary info in public domain (P02)                                     |
| GenAI acceptable-use governance (data, access and escalation)                   | Rule-setting and ongoing refinement as use becomes visible                                           | Guidance documents; approved use cases                           | Defined “what you can do / cannot do”; escalation routes; pacing (“started small”)                                     | MDs steward governance; compliance functions filter; MMs mediate interpretation              | “governance rules... not putting proprietary information... into the public domain” (P02); “started small” (P06); “We have guidance... what you can do, what you cannot do” (P04) |
| Bounded experimentation / micro-pilots within compliance boundaries             | Local teams test low-risk tasks and iterate outputs before entering regulated pathways               | Secure / approved environments; private iteration                | ‘Safe to try’ permission bounded by compliance; guardrails reduce personal and organisational risk                     | MMs run pilots; MDs provide ‘air cover’ and resource; peers validate                         | “learn-from-failure permission” (P03); “completely empowered colleagues... go ahead” (P04); “coming from the ground up” (P01)                                                     |
| Use-case discovery and peer diffusion (communities of practice / benchmarking)  | Sharing examples and case studies across teams and countries to normalise use and build confidence   | Global calls; communities of practice; internal sharing channels | Peer validation as informal governance; visibility reduces ‘shadow’ use and stigma                                     | MMs curate and share; super-users support; leaders endorse                                   | “share all of the examples... learn and exchange” (P03); “thousands of people... highlighting the case studies” (P04); stigma “it’s cheating” (P05)                               |
| Codification into repeatable routines (playbooks / SOPs) and upward translation | Promising practices converted into reusable routines and evaluated for wider rollout                 | Playbooks / SOPs; reusable prompt patterns                       | Standardisation and documentation; alignment with governance and decision rights                                       | MMs translate into routines; governance approves; leaders recalibrate intent                 | “...finding those gems... getting that best practice shared” (P04); “needs something... more formal” (P01); “pockets of examples... strong intent” (P06)                          |

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Participants consistently framed GenAI as an augmentation layer that changes early-stage drafting and iteration, but does not remove the formal approval pathway. In the accounts provided, teams iterate privately to improve quality before submitting outputs into regulated review, while approvers retain decision rights. One MD summarised this boundary as:

*“Of course, you still need a final signature...”* (Participant 01).

A second MD emphasised the need to validate outputs and correct errors: *“you need to sense check what it produces... and often make some manual adjustments”* (Participant 02).

This ‘private iteration then formal validation’ pattern is important for BPM because it specifies where GenAI changes the workflow (pre-submission iteration) and where it does not (final sign-off and accountability).

Across roles, GenAI adoption was described as emerging ‘from the ground up’ and then becoming more formal as use cases became visible.

One MD noted: *“It’s coming from the ground up at the moment... actually it needs something a little bit more formal to help people”* (Participant 01).

MMs described permission structures that enabled bounded experimentation (*“learn-from-failure permission”*, Participant 03) alongside practical routines for sharing and scaling what worked (*“finding those gems... getting that best practice shared”*, Participant 04). In the focus group, peer validation mechanisms such as global case-study calls (*“thousands of people... highlighting the case studies”*, Participant 04) and super-user support structures were described as ways to increase adoption while keeping experimentation visible and governable. In process terms, this clarifies the meta-process by which ad hoc GenAI use is translated into a repeatable routine:

- (i) a low-risk use case is trialled within guardrails,
- (ii) learnings diffuse through peer channels, and
- (iii) selected practices are codified into guidance/playbooks and aligned with governance.

#### 4.1 Thematic findings - MD perspective

##### *Cautious endorsement and incremental experimentation*

All three MDs described GenAI as strategically significant but still at an early stage of organisational integration. Adoption was framed as incremental and deliberately contained.

*"We, we still only see it as a step one ... it's a first step, it's a gatekeeper ..."* (Participant 01)

*Governance considerations were central to this positioning.*

*"They also figured out some of the ... governance rules around it... to make sure that... people were using it appropriately and not putting proprietary information... into the public domain."*(Participant 02)

*"So I think what I would say is we've started small."* (Participant 06)

Collectively, these accounts suggest cautious endorsement. MDs expressed optimism about GenAI's potential, but emphasised pacing, oversight, and risk mitigation in order to protect regulatory standing and organisational reputation. From a BPM perspective, this reflects a governance-first posture: experimentation is permitted, but bounded through early process controls (e.g., data restrictions, approval checkpoints) intended to prevent uncontrolled variation entering regulated workflows.

##### *Ethical stewardship and human-in-the-loop judgement*

Across interviews, MDs emphasised that GenAI should augment rather than replace professional judgement. Human oversight was consistently described as non-negotiable within regulated environments.

*"Of course, you still need a final signature..."* (Participant 01)

*"We've taught people... it's not perfect... you need to sense check what it produces... and often make some manual adjustments."* (Participant 02)

*"...I really feel that for us, AI and the combination of a human and AI is a really good combination."* (Participant 06)

Human-in-the-loop control was framed as essential for maintaining quality, regulatory compliance, and public trust. Rather than positioning GenAI as an autonomous decision-maker, MDs described it as a support tool operating within clearly defined ethical and governance boundaries. In BPM terms, "human-in-the-loop" operates as a formal approval pathway that preserves accountability by keeping decision rights and final sign-off within defined process roles.

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*Strategy emerging from practice*

Although all three MDs emphasised governance and oversight, several acknowledged that GenAI experimentation frequently began at local or team level before formal strategic direction was articulated.

*“It’s coming from the ground up at the moment... actually it needs something a little bit more formal to help people.” (Participant 01)*

*“...they were super curious about the fact that I was doing it. Actually, a few of them, you know, wanted to join in, and I got one or two of them involved in the early adopters group as well.” (Participant 02)*

*“We haven’t got a full road map as top-down, but we’ve got a strong intent and pockets of examples happening at the moment.” (Participant 06)*

In these accounts, strategy appeared to respond to emerging practice rather than precede it. Leaders described recognising, legitimising, and progressively structuring initiatives that had already begun to take shape within teams. Formal alignment followed experimentation. From a BPM lens, these accounts resemble a continuous improvement dynamic in which local process variation is observed, selectively standardised, and then incorporated into governance and strategic framing.

*Variability in workforce readiness*

All three MDs described uneven levels of digital confidence and readiness across roles and seniority levels. While some individuals had been experimenting with GenAI for extended periods, others were only beginning to engage.

*“The problem with many CEOs is that, by nature, they’re probably slightly older individuals who have come through the ranks and know how to do things a certain way.” (Participant 01)*

*“Maybe I’m further along the curve than some of my team colleagues because I’ve been playing with this now for 18 months... the broader team have had it only since the autumn.” (Participant 02)*

*“People are not at the same level of confidence. I think there’s a huge variety in how people feel.” (Participant 06)*

GenAI was viewed not only as a productivity tool but as a capability shift requiring new forms of judgement, experimentation, and oversight. Leaders recognised that differences in confidence and familiarity could influence both adoption speed and the consistency of

integration across teams. Within BPM capability terms, uneven readiness indicates variability in the “people” and “culture” dimensions of process performance, shaping how consistently AI-assisted routines can be enacted across teams.

#### *Leadership as stewardship and protective “air cover”*

All three MDs consistently framed their role as providing direction, protection, and ethical boundaries while enabling controlled experimentation.

*“A leader of an organisation, and I'm talking almost, you know, above countries, like CEO level, needs to be visionary enough to want to say this and drive it forward as a real change.” (Participant 01)*

*“They also figured out some of the governance rules around it... to make sure people were using it appropriately and not putting proprietary information into the public domain.” (Participant 02)*

*“You have to listen to their concerns... they're part of the journey rather than something that falls on them.” (Participant 06)*

Leadership was described less in terms of direct innovation and more as stewardship. MDs positioned themselves as setting guardrails, legitimising experimentation, and ensuring long-term integrity within regulated environments. They emphasised creating psychological safety within defined boundaries.

At the same time, their reflections suggested limited visibility into how experimentation unfolded within day-to-day process execution. In BPM terms, stewardship operates through the configuration of governance guardrails—clarifying decision rights, escalation routes, and acceptable use boundaries—rather than through direct intervention in process execution.

## **4.2 Thematic findings - Expert MMs' Perspective**

### *Peer-led knowledge transfer*

Across the three MMs they described learning and capability development as spreading primarily through informal, peer-driven mechanisms rather than formal training programmes. Knowledge sharing was embedded in day-to-day collaboration.

*“He's part of a team whereby we share all of the examples from all of those use cases as well, so we can learn and exchange.” (Participant 03)*

*“... now it's part of my job and my colleagues' finding those gems and then getting that best practice shared ...” (Participant 04)*

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Communities of Practice and informal networks enabled experimentation to diffuse quickly across teams. These structures made emerging use cases visible and helped colleagues build confidence ahead of formal governance frameworks. From a BPM perspective, these peer-led exchanges function as emergent “methods” and standardisation artefacts (e.g., shared use cases, reusable routines) that can later be formalised into playbooks or SOPs.

*Psychological safety, bounded by compliance*

Across the three MMs they emphasised that experimentation required psychological safety, but described that safety as conditional rather than open-ended. Teams were encouraged to try new approaches, provided they remained within clearly defined compliance boundaries.

*“So having a learn-from-failure permission really helps when you’re trying something innovative as well.” (Participant 03)*

*“We have guidance... what you can do, what you cannot do... So people have that reassurance.”(Participant 04)*

In this setting, “safe to try” did not mean unrestricted autonomy. It referred to structured permission: approved environments, clear escalation routes, and shared guidance that reduced personal risk while protecting patients, data, and organisational reputation. MMs positioned themselves as mediators of these boundaries, ensuring experimentation remained legitimate rather than informal or hidden. In BPM terms, “safe to try” is enacted through designed process controls—approved environments, defined escalation pathways, and boundary conditions—that enable variation without allowing regulatory drift.

*GenAI as a confidence generation tool*

Across the three MMs they described GenAI not only as a productivity aid but as a mechanism for building confidence. The ability to draft, test, and refine ideas before formal submission reduced the perceived risk of error.

*“... we have completely empowered colleagues. If you believe this is right and you think this is the way to go, go ahead.” (Participant 04)*

Participants emphasised that experimentation became less intimidating when outputs could be iterated privately before entering regulated review processes. Confidence developed through use, but remained coupled with judgement. MMs highlighted the importance of teaching colleagues not only how to prompt, but when and how to sense-check outputs. From a BPM lens, private iteration functions as a pre-submission quality assurance routine, improving output readiness before entering formal MLR review pathways.

### *Bottom-up innovation leadership and stabilisation*

Across the three MMs they described taking an active role in identifying use cases, running small-scale experiments, and sharing results across teams. Their influence was grounded less in formal authority and more in proximity to workflow challenges and tool fluency.

*“... we are free to innovate and as “middle managers” across the business, and I think it's very easy to do that.” (Participant 03)*

*“I started creating use cases... finding where it could add value and then sharing those examples with other teams.” (Participant 04)*

Across the three MMs they appeared to function as informal innovation conduits. They identified opportunities, conducted micro-pilots, and circulated emerging practices across functions. Given the small sample, this pattern should be interpreted cautiously. Nevertheless, their accounts suggest that middle managers played a stabilising role, translating experimentation into routines that could be recognised, shared, and progressively aligned with governance structures. In BPM terms, the stabilising role described here involves converting ad hoc experimentation into repeatable routines, supported by documentation and clearer process ownership.

### *Tension between local innovation and global caution*

Across the three MMs they described friction between rapid local experimentation and slower, more standardised global guidance. Local teams often iterated quickly, while global functions adopted a more cautious, harmonised approach.

*“It was not done, in terms of a strategy, it was done very much, as an organic way of addressing that issue ...” (Participant 04)*

In several accounts, practice developed ahead of formal alignment. This created periods of uncertainty regarding what could be scaled, codified, or publicly legitimised. MMs described navigating this gap, sharing local examples upward while waiting for clearer global direction. Their role frequently involved translating local experimentation into formats that could be evaluated and potentially incorporated into broader playbooks. From a BPM perspective, this tension reflects a standardisation dilemma: local optimisation can outpace global governance, creating misalignment in methods, controls, and decision rights across the process landscape.

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*Focus group – benchmarking and peer validation*

The focus group added a comparative layer by enabling cross-company benchmarking and collective reflection on themes emerging from the interviews. Participants validated areas of convergence and surfaced additional tensions, including perceptions of executive hesitation and stigma associated with GenAI use.

*...leaders are underperforming because they're not using the latest technology (Participant 03)*

*"We have a global call... thousands of people joining... highlighting the case studies they're doing." (Participant 04)*

*I think there was a perception, or there still is a perception, that it's cheating. (general nodding and smiling) (Participant 05)*

The discussion reinforced the importance of peer validation in legitimising experimentation. Shared examples and benchmarking practices helped normalise GenAI use and reduce informal stigma. At the same time, the group dynamic appeared to accelerate convergence around common experiences, suggesting these accounts should be interpreted as perceptions rather than sector-wide conclusions.

Super-user structures were also highlighted as mechanisms for scaling competence:

*Our digital leads across the countries have made themselves available. We've also created a super user team comprised of AI enthusiasts within the business who are eager to assist with larger use cases. Therefore, this approach has led to an increase in the adoption and usage of tools. (Participant 04)*

Such structures reduced friction and increased visibility of experimentation. However, participants acknowledged that diffusion remained uneven, particularly among less engaged employees.

**Table 2: Tension within leadership of GenAI**

| Aspect              | Managing Directors<br>(Participants 01,02,06) | Expert Middle Managers<br>(Participants 03,04,05) |
|---------------------|-----------------------------------------------|---------------------------------------------------|
| Primary orientation | Strategic oversight with caution              | Operational experimentation and application       |

|                              |                                                             |                                                              |
|------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|
| <b>Leadership emphasis</b>   | Stewardship and governance                                  | Use-case development and practice diffusion                  |
| <b>Strategic posture</b>     | Formal intent emerging alongside experimentation            | Practice-led experimentation seeking formal recognition      |
| <b>GenAI culture</b>         | Structured and progressively formalised                     | Limited visibility, evolving guidance, global alignment gaps |
| <b>Key constraints</b>       | Regulatory risk, reputational exposure, workforce readiness | Visibility, recognition, and global misalignment             |
| <b>Framing of GenAI</b>      | Opportunity within defined guardrails                       | Tool for productivity and capability enhancement             |
| <b>Risk &amp; governance</b> | High sensitivity to compliance and brand protection         | Managing ambiguity and evolving procedural clarity           |

### *Original analysis*

The table highlights a patterned tension rather than a contradiction. MDs emphasised stewardship, ethical oversight, and risk containment. MM's emphasised experimentation, peer diffusion, and practical integration within workflows. Across both groups, a recurring sequence emerged: experimentation began locally, governance mechanisms responded, and strategic framing adjusted incrementally.

Strategy, therefore, appeared to evolve in dialogue with practice. MDs articulated boundaries and long-term intent. MM's translated affordances into workable routines. Over time, selected practices became visible, stabilised, and more formally aligned with organisational direction.

These findings do not suggest competing leadership logics. Rather, they indicate complementary roles operating at different points within the governance–execution interface. The tension between strategic caution and operational experimentation appears less as misalignment and more as an adaptive dynamic through which regulated organisations balance control and innovation within business processes. In BPM terms, peer benchmarking functions as an informal governance mechanism: it legitimises emerging practices, strengthens shared norms, and increases the visibility of process variation across contexts.

Across themes, a recurring sequence was evident. Local experimentation introduced variation into established workflows; middle managers translated that variation into compliant routines; governance mechanisms filtered and stabilised acceptable changes; and senior leaders recalibrated strategic intent in response to observable process effects.

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This patterned interaction between experimentation, stabilisation, and strategic reinterpretation informed the refinement of ASPIRE into the Recursive Evolutionary Leadership Activation Loop (RELAL). The components of RELAL therefore map directly onto the empirical sequence identified across hierarchical accounts rather than emerging as an abstract overlay.

**5. Discussion**

Building on these findings, leadership adaptation to GenAI within UK pharmaceutical affiliates appears to be enacted less through unilateral strategic direction and more through iterative recalibration across hierarchical levels. Managing Directors articulated strategic intent and ethical guardrails, while middle managers translated experimentation into governed routines within day-to-day process execution. Adaptation therefore emerged not as a discrete strategic decision, but as a recursive pattern in which local experimentation prompted governance adjustments that informed incremental refinements to strategy. From a Business Process Management (BPM) perspective, this dynamic reflects an ongoing negotiation between experimentation, compliance, and process stability rather than a linear model of digital adoption.

This recursive pattern exposes limitations in dominant leadership and digital transformation frameworks. Transformational and dynamic capability perspectives emphasise vision, sensing, and strategic repositioning, yet they tend to assume that intent precedes execution. In the present study, however, execution frequently preceded formal strategy. Middle managers stabilised experimentation within existing governance structures before senior leaders recalibrated strategic positioning. Rather than strategy driving process change, process-level variation generated strategic reinterpretation. This inversion does not invalidate existing frameworks, but suggests that in regulated, GenAI-enabled environments, adaptation unfolds through structured feedback loops embedded in business processes rather than through top-down cascade alone.

RELAL conceptualises this inversion as a structured recursive mechanism rather than an anomaly. It explains how bottom-up experimentation introduces variation into existing workflows, how middle managers translate that variation into governed routines, and how senior leaders recalibrate intent in response to stabilised process evidence. In this formulation, leadership adaptation is not episodic or visionary alone; it is iterative and BPM-mediated. Governance, methods, information systems, and role boundaries are progressively reconfigured in response to controlled experimentation. The result is not linear transformation, but managed recursion across strategic, operational, and cultural layers.

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3 In the UK pharmaceutical context, this phase shift is particularly visible. Research-based  
4 companies employ large, digitally skilled workforces, many of whom are already  
5 experimenting with LLMs and generative tools in non-R&D functions such as administration  
6 and digital marketing (Astrazeneca, 2024). Even among globally recognised digital leaders,  
7 public narratives foreground experimentation and capability development, with less visible  
8 evidence of fully embedded, process-wide integration beyond R&D contexts. This suggests  
9 that the challenge is not one of technical sophistication or sectoral lag. Rather, it lies in the  
10 stabilisation of AI-enabled execution within governed operational workflows.  
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14 Rather than unfolding as a linear adoption process, GenAI integration appears recursive. Local  
15 experimentation introduces variation into existing workflows. That variation prompts  
16 adjustments to governance, decision rights, and strategic framing. RELAL conceptualises  
17 middle managers as the stabilising actors within this cycle. They translate bottom-up  
18 experimentation into controlled process redesign, enabling senior leaders to recalibrate  
19 strategy incrementally while maintaining compliance, accountability, and organisational  
20 learning.  
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24 This interpretation aligns with research suggesting that sustained digital transformation  
25 produces higher-order effects that reshape organisational structures, governance  
26 arrangements, and professional identity (Baptista *et al.*, 2020). In BPM terms, this shift moves  
27 organisations beyond optimising existing processes toward the ongoing configuration and re-  
28 governance of digital-human work systems. Within RELAL, this configuration work is enacted  
29 primarily by middle managers, who translate emergent changes in work into stabilised,  
30 repeatable, and compliant process arrangements.  
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34 For example, one middle manager described introducing Microsoft Copilot into their team's  
35 workflow, iteratively refining prompts, pairing early adopters with more hesitant colleagues,  
36 and feeding insights back to senior leadership. This recursive adaptation altered task  
37 execution and subtly reframed the leader's role from directing activity to orchestrating learning.  
38 Over time, these loops of experimentation, endorsement, and redesign produced a stabilised  
39 pattern of governed execution. This recursive stabilisation illustrates the dynamics  
40 conceptualised in RELAL.  
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**5.1 Leadership adaptations**

Interviews and the focus group revealed a consistent pattern across hierarchical levels. Senior leaders were perceived as most effective when they provided “guardrails” and “air cover”, legitimising experimentation within secure and compliant environments. However, the stabilisation of GenAI experimentation did not occur through vision alone. It depended on how emerging practices were translated into governed process adjustments.

Rather than a linear model in which strategy precedes execution, the findings indicate an iterative rhythm. Middle managers described introducing small-scale experiments, observing workflow effects, and adjusting practices within existing compliance boundaries. These adjustments were then surfaced to senior leaders for endorsement, refinement, or resourcing. Leadership adaptation, therefore, unfolded through the recursive recalibration of processes rather than unilateral strategic direction.

This pattern extends existing leadership and dynamic capability perspectives by showing that, in regulated contexts, sensing and seizing are mediated through business process governance. Middle managers were positioned closest to execution realities. They interpreted compliance thresholds, workforce capability, and technical feasibility, and translated these constraints into actionable redesigns. Senior leaders, in turn, adjusted strategic framing in response to stabilised process evidence rather than abstract technological possibility.

These findings complicate predictions that middle management roles may erode under increasing automation (Maurer, Bach and Oertel, 2024). In this dataset, middle managers did not appear marginalised. Instead, they assumed expanded coordination responsibilities, integrating human and AI-enabled workflows within compliance constraints. Their role shifted from supervision of tasks toward orchestration of hybrid process execution.

### 5.1.1 Organisational and ethical challenges

Both MDs and MMs emphasised that GenAI outputs, particularly externally facing materials, require human-in-the-loop validation. Ethical safeguards were described not as optional overlays but as embedded governance requirements. This created a structural tension: global leadership encouraged adoption, while affiliate-level compliance functions moderated pace and scope.

From a BPM perspective, this tension reflects the interaction between experimentation and control within regulated process environments. GenAI experimentation introduced variation into workflows, yet those variations required validation through existing review structures. Rather than blocking innovation outright, compliance mechanisms functioned as filters, determining which experiments could be stabilised into repeatable routines.

Non-engagement by some leaders or employees did not prevent experimentation from occurring elsewhere. Middle managers described continued bottom-up exploration, often within pre-approved sandboxes or secure systems, followed by escalation once demonstrable value had been established. This pattern reinforces the recursive dynamic identified in the findings: experimentation, validation, endorsement, and refinement occurred in cycles rather than through formal programme launches.

The emergence of agentic systems intensified this dynamic. As automation extended beyond drafting support into semi-autonomous coordination, questions of accountability, escalation, and oversight became more prominent. Governance arrangements, therefore, required recalibration, not removal. The organisational challenge was less about accelerating adoption and more about sustaining the evolution of trustworthy processes under increasing technical autonomy.

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**5.2 Novel theoretical contribution: from ASPIRE to RELAL**

The original ASPIRE framework conceptualised GenAI integration as a structured cascade: leaders articulate strategy, employees align, and governance constrains risk. The findings from this study complicate that linear sequence. Across interviews and the focus group, GenAI adaptation did not unfold as a top-down progression but as iterative interaction between experimentation and governance.

Three recurring empirical patterns informed the refinement of ASPIRE into the Recursive Evolutionary Leadership Activation Loop (RELAL).

First, experimentation repeatedly cycled back to leadership for validation and resourcing. Local use cases were introduced by middle managers, stabilised within compliance boundaries, and then endorsed or refined by senior leaders. Strategic adjustment followed practice rather than preceding it.

Second, diffusion operated horizontally as well as vertically. Peer-led experimentation often moved faster than formal strategy articulation. Governance structures did not initiate innovation but filtered and legitimised it once visible.

Third, compliance functioned simultaneously as constraint and stabiliser. In a highly regulated environment, review processes slowed the pace of adoption, yet also enabled sustainable integration by preventing uncontrolled drift. Progress therefore occurred through incremental cycles rather than discrete transformation phases.

RELAL captures this recursive dynamic. Rather than assuming alignment flows linearly from strategy to execution, the model conceptualises GenAI adaptation as a loop in which bottom-up experimentation generates process variation, governance mechanisms filter and stabilise that variation, and leadership recalibrates intent in response to observable outcomes. Middle managers occupy the pivotal position within this loop, acting as translators between technical affordances, workforce capability, and compliance requirements.

To increase transparency in the move from data to model, Table 3 maps each RELAL component to the empirical themes and indicative anchors that informed it.

**Table 3: Traceability from empirical themes to RELAL components**

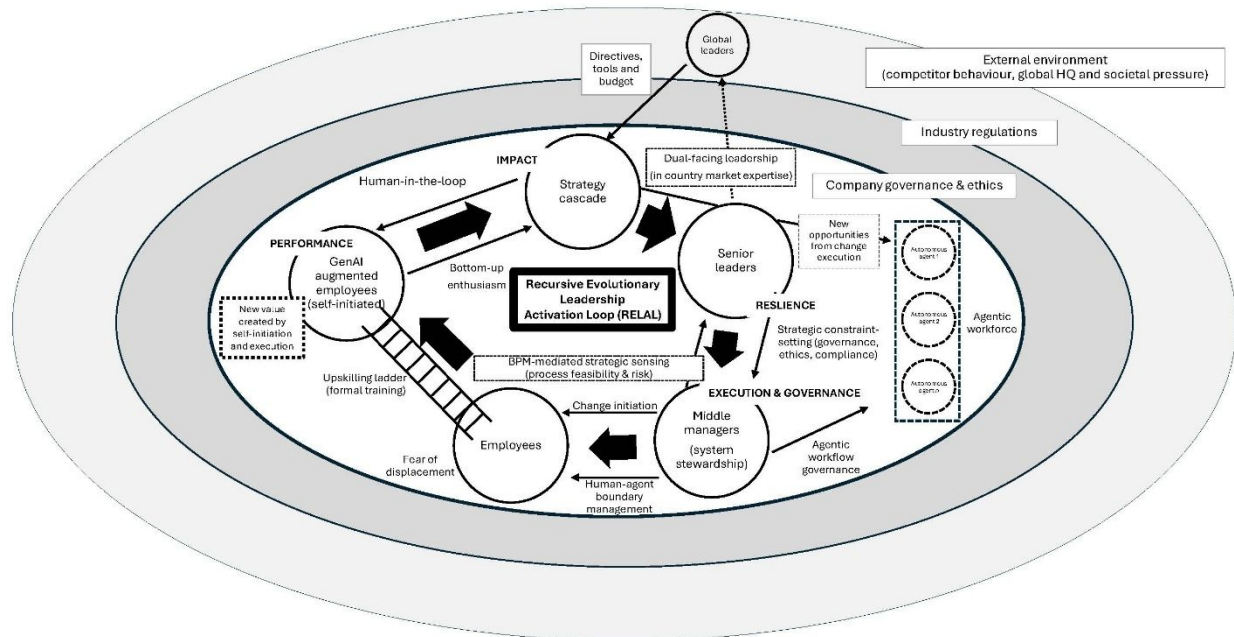
| RELAL component (process logic)                                | Empirical theme(s)                                                | What this explains in BPM terms                                                                                            | Indicative evidence (anchors)                                                                                                  |
|----------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1. Strategic intent and risk framing                           | Cautious endorsement; leadership as stewardship                   | How leadership sets the acceptable variation space for GenAI-enabled process change in regulated workflows                 | “started small” (P06); “step one... gatekeeper” (P01); “visionary enough... drive it forward” (P01)                            |
| 2. Guardrail-setting (governance rules, decision rights, HITL) | Ethical stewardship; psychological safety bounded by compliance   | How process governance preserves accountability while permitting experimentation (approval checkpoints, escalation routes) | “final signature” (P01); “sense check... manual adjustments” (P02); “guidance... what you can do, what you cannot do” (P04)    |
| 3. Local experimentation introduces variation                  | Empowerment and innovation; GenAI as confidence tool              | Where workflow changes begin (task-level variation) before formal redesign, creating ‘process drift’ risk if unseen        | “coming from the ground up” (P01); “free to innovate... as middle managers” (P03); “I started creating use cases...” (P04)     |
| 4. Middle-manager mediation and translation                    | Peer-led knowledge transfer; bottom-up stabilisation              | How ad hoc variation is translated into candidate routines that can be evaluated, documented and aligned with governance   | “finding those gems... getting that best practice shared” (P04); “share... examples... learn and exchange” (P03)               |
| 5. Diffusion and visibility (horizontal and vertical)          | Focus group benchmarking; super-user structures; stigma reduction | How practices spread and become governable through visibility (communities of practice as informal governance)             | “thousands of people... highlighting the case studies” (P04); super user team quote (P04); “perception... it’s cheating” (P05) |

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| 6. Governance refinement and process stabilisation | Strategy emerging from practice; alignment following experimentation | How acceptable routines are filtered and stabilised into repeatable, auditable execution; strategy adjusts to observed process effects | "needs something... more formal" (P01); "pockets of examples... strong intent" (P06); governance rules on proprietary info (P02) |
|----------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

Importantly, RELAL is presented here as a conceptual abstraction derived from a bounded qualitative dataset within UK pharmaceutical affiliates. It does not claim generalisability across sectors or regulatory contexts. Instead, it offers a BPM-centred explanation of how leadership adaptation may unfold where experimentation cannot be separated from core operational processes. In this sense, RELAL contributes by reframing leadership adaptation under GenAI not as visionary transformation alone, but as a governed process evolution enacted recursively across hierarchical levels

**Figure 2:** Recursive Evolutionary Leadership Activation Loop (RELAL) for UK pharmaceutical affiliates with global HQ influence



### Original model

Figure 2 conceptualises the Recursive Evolutionary Leadership Activation Loop (RELAL) as a processual mechanism through which organisations stabilise generative and agentic AI-enabled work over time. Rather than treating leadership as a static hierarchical function, the model foregrounds recursive interaction between experimentation and governance within business process structures.

In this configuration, middle managers are positioned as pivotal actors in process flow governance. They interpret strategic intent, translate technical affordances into workable routines, and ensure that emerging practices remain compliant, auditable, and aligned with organisational risk thresholds. Through this role, bottom-up experimentation is filtered, refined, and selectively incorporated into formal process design.

The recursive structure of RELAL illustrates how variation introduced through local experimentation is evaluated and stabilised through governance mechanisms before influencing strategic recalibration. In BPM terms, this reflects continuous alignment across strategic management, governance, methods, information technology, people, and culture. The model therefore offers a BPM-centred explanation of how leadership adaptation and process evolution co-develop under conditions of increasing AI-enabled autonomy.

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RELAL is presented as a conceptual abstraction derived from this bounded qualitative study. It is not a validated structural model, but a provisional framework intended to support further empirical examination of recursive process governance under generative and agentic AI.

**5.3 Recommendations for practice**

The findings suggest that GenAI adoption in regulated environments depends less on visionary articulation and more on the development of coordinated BPM capabilities across hierarchical levels. Practical implications therefore relate to governance design, capability configuration, and role recalibration rather than isolated leadership behaviours.

For senior leaders, reflecting the identified gap in MD visibility into day-to-day experimentation and the theme of cautious endorsement, the primary implication is the need to treat GenAI integration as an evolving governance challenge rather than a fully pre-specified strategy initiative. Establishing ethical guardrails and secure experimentation environments creates the structural conditions within which variation can be introduced safely. Strategic direction may then evolve iteratively in response to stabilised process outcomes rather than being fixed in advance.

For middle managers, building on the findings concerning bottom-up innovation leadership and process stabilisation, the implications highlight the importance of process-level orchestration. Their role extends beyond supervision to the translation of technical affordances into compliant workflows. This involves coordinating experimentation, documenting process adjustments, and escalating validated practices into broader governance structures. Middle managers therefore operate as integrators of experimentation and control within BPM systems.

At the workforce level, consistent with the findings on bounded psychological safety and peer-led knowledge diffusion, effective GenAI integration requires sustained capability development. Rather than positioning employees as passive adopters, organisations may benefit from enabling controlled experimentation within defined compliance boundaries. This supports role reconfiguration while maintaining accountability. Workforce literacy in GenAI tools becomes embedded within everyday process execution rather than treated as a discrete training initiative.

Finally, reflecting the recurring pattern in which local experimentation preceded formal alignment, cross-organisational mechanisms that link experimentation to governance may be necessary to prevent fragmentation. Structured forums, review cycles, and documentation practices can help ensure that bottom-up insights are surfaced and evaluated systematically.

In BPM terms, this supports alignment across strategic management, governance, methods, IT infrastructure, and organisational culture.

Taken together, these implications reinforce the central contribution of this study: leadership adaptation in the age of generative and agentic AI is enacted through recursive business process governance rather than episodic strategic transformation. Sustainable integration emerges when experimentation, compliance, and strategic recalibration are aligned within everyday process execution.

#### 5.4 Limitations and future research

This study is based on a small purposive sample within UK research-based pharmaceutical affiliates. The findings are therefore indicative rather than generalisable and should be understood as analytically bounded to compliance-intensive contexts. While this setting provides visibility into governance tensions under regulatory constraint, future research could examine whether similar recursive leadership-process dynamics emerge in less regulated sectors or in multinational headquarters contexts.

In addition, the data captures a specific phase (2024–2025) in the rapid evolution of generative and agentic AI. As technical capabilities and governance norms continue to mature, patterns of orchestration and process stabilisation may evolve. RELAL should therefore be viewed as a provisional conceptualisation grounded in this empirical moment, open to refinement through longitudinal and comparative research. Future research could test the model through longitudinal BPM studies tracking how experimentation cycles are codified into formal governance structures, or through cross-sector comparisons examining how regulatory intensity moderates recursive leadership–process dynamics.

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**6. Conclusion**

This study set out to examine how leadership adaptation unfolds when generative and agentic AI reshape work before formal strategy fully stabilises. Drawing on qualitative evidence from UK pharmaceutical affiliates, the findings suggest that adaptation is neither purely top-down nor purely emergent. Instead, it is mediated through recursive business process governance, in which middle managers translate experimentation into stabilised routines while senior leaders recalibrate intent within compliance constraints.

By integrating leadership theory with a BPM capability perspective, the study reframes GenAI integration as a processual, recursive phenomenon rather than a linear implementation initiative. The Recursive Evolutionary Leadership Activation Loop (RELAL) captures this dynamic, highlighting the central role of middle-manager orchestration in aligning experimentation, governance, and strategic recalibration over time. The model should be interpreted as an analytically derived abstraction grounded in this bounded dataset rather than as a predictive framework.

In regulated environments, sustainable GenAI transformation depends less on visionary declaration and more on disciplined iteration within everyday process execution. By foregrounding BPM as the mechanism through which leadership, workforce adaptation, and strategy converge, this study offers a grounded explanation of how organisations embed generative and agentic AI into compliant, accountable, and adaptive performance systems.

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## Appendix 1: Post pilot Set 1 (GenAI adoption) - Script and core interview questions for a 30-minute interview

### Introduction (2–3 minutes)

"Thank you for agreeing to take part in this interview. I'm currently completing an MSc in Digital Marketing with the University of Liverpool, and this interview forms part of my dissertation research. The aim is to investigate how UK research-based pharmaceutical leaders in marketing and communications functions are adapting to the impact of Generative Artificial Intelligence (GenAI) on leadership, workforce transformation, and business strategy."

"Your insights will contribute to a deeper understanding of how GenAI is shaping executive decision-making, hybrid workforce dynamics, and strategic planning."

"This interview is semi-structured, meaning I have a set of core questions, but I may ask follow-ups to explore interesting points. The conversation should take around 30-40 minutes, but this meeting is scheduled for 45 minutes in case the conversation really flows"

### Ethical considerations

"I sent you the Participant Consent Form and Participant Information Sheet and you have kindly returned the signed Participant Content Form."

"I wanted to confirm that everything you share will be treated confidentially. Your identity and your organisation's name will be anonymised in the final report. Participation is voluntary, and you may withdraw at any point without consequence."

"With your permission, I'd like to record the interview solely for transcription and analysis purposes. Is that okay?"

(Wait for confirmation)

### Transition to questions

"Great. I appreciate you are busy so let's begin."

### Questions (25-30 minutes)

**Baseline question 1:** Have you adopted GenAI within the marketing and communications elements of your business?

If they answer "Yes", then proceed to the following questions in Set 1.

**If not ask the Set 2 questions.**

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**Set 1**

**Theme 1: Business Strategy**

1. **[Post ethics approval]** How has your organisation used GenAI to inform or adapt its business or marketing strategy?
  - *Probe:* Were any strategic pivots driven directly by GenAI insights?
  - *Probe:* What role does regulation play in shaping your GenAI strategy?
  - *Probe:* How are partnerships or external vendors affecting your GenAI adoption?
  
2. **[Ethics submitted question]** What are the most significant GenAI-driven changes you have implemented in your organisation?
  - *Probe:* Which change had the greatest measurable business impact?
  
3. **[Ethics submitted question]** What factors influence your leadership team’s attitude toward integrating new technologies and innovations, including GenAI?
  - *Probe:* Are these attitudes shaped by past innovation experiences or market pressure?
  - *Probe:* What external pressures (e.g. regulators, customers, investors) are shaping your GenAI strategy?

## Theme 2: Workforce Transformation

4. [Post ethics approval] How does the workforce see GenAI as an enhancement or a threat?
  - *Probe*: How have employees reacted to initial GenAI integration?
  - *Probe*: Are there concerns about over-reliance on AI among staff?
  - *Probe*: How are you balancing innovation with compliance and governance?
5. [Ethics submitted question] What training initiatives do you currently have in place to equip your employees with the necessary skills for GenAI integration?
  - *Probe*: Are these trainings mandatory or optional, and how are they received?
6. [Ethics submitted question] Have you observed any changes in team dynamics or collaboration due to GenAI adoption?
  - *Probe*: Are employees exploring GenAI and sharing their discoveries?

## Theme 3: Leadership

7. [Ethics submitted question] What ethical considerations guide your decisions around deploying Generative AI tools?
  - *Probe*: Have any ethical dilemmas emerged during deployment or scaling of GenAI?
8. [Ethics submitted question] Can you describe how GenAI has influenced leadership decision-making within your organisation?
  - *Probe*: What specific experiences or challenges led to that shift?
  - *Probe*: What motivates you to lead AI adoption within your team or organisation?
9. [Post ethics approval] How would you describe your leadership style, and has it changed in response to GenAI adoption?
  - *Probe*: What specific experiences or challenges led to that shift?
  - *Probe*: How do you build trust around AI-driven insights?

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- *Probe:* What skills do you think future leaders will need in a hybrid AI-integrated environment?

**Closing (3-5 minutes)**

“Thank you for sharing your insights and experiences so openly — everything you’ve contributed today will be incredibly valuable for my research.”

“To briefly summarise, we’ve discussed how your organisation is engaging with GenAI - either directly or in preparation - and how that’s influencing leadership approaches, workforce transformation, and strategic planning. Your perspective offers a lot of depth on how the pharmaceutical sector is adapting to this emerging technology.”

“Before we finish, is there anything else you’d like to add that we haven’t covered? Or any reflections that have come up during our conversation?”

(Pause for any final thoughts)

“Do you have any questions for me about the research or next steps?”

“I’ll be transcribing and analysing the interview in line with university ethics procedures. If you’d like, I can share a summary of the findings once the dissertation is complete.”

“Thanks again for your time and contribution - I really appreciate it.”

Appendix 2: Focus group structure and questions

**ASPIRE focus group questions**

**Duration:** 45–60 minutes

**Purpose:** To explore the real-world relevance and usefulness of the ASPIRE model.

**Participants:** Expert middle managers/technical leaders.

**Session structure**

1. Welcome and framing (5 mins)
2. ASPIRE discussion (35–45 mins)
3. Consolidation question (3 minutes)
4. Closing (2 mins)

**Welcome and framing**

The primary objective of my approach is to address the challenges companies encounter when implementing AI. Even organisations like mine are trying to figure out the best approach. We have leaders at the top who don't quite grasp how AI works, as it's entirely new to them.

On the other hand, we have specialists within the company, typically at lower levels, who have a better understanding of AI. The real question is, how can these expert managers influence leadership that isn't as knowledgeable, and how do we structure this influence effectively?

I'm exploring a model called ASPIRE, which stands for AI Strategy for Performance, Impact, Innovation, Resilience, and Execution. Essentially, it covers everything from strategy and infrastructure to people and ways of thinking. All these aspects seem to pose barriers, and I would really like to hear your thoughts on them.

After talking to six individuals, three of whom are GMs in the UK and you three, who are specialist middle managers, I've noticed some common themes. The UK GMs often look to global teams for guidance and feel somewhat stuck in the middle. This sentiment is shared among specialists, who also feel they lack some control.

So, what I'm aiming for is a solution that helps people like us navigate these challenges. If it works for us, it should also help those above us push things forward more effectively.

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ASPIRE pillars and questions

A - AI Strategy

- How clearly do you feel your organisation has articulated an AI strategy that aligns with your day-to-day work? Do you feel middle managers have the space to influence that strategy, or are you mainly executing someone else's plan?

S - Performance

- In what ways, if any, has GenAI affected your or your team's performance? Do these tools reduce strain or simply create new expectations without reducing workload?

P - Impact

- How has GenAI changed how you see your role, or how others perceive it? Do you feel more empowered by these tools, or more at risk of being replaced or misunderstood?

I - Innovation

- Are you encouraged, formally or informally, to experiment with GenAI tools in your role? What blocks or enables innovation for people like you in the middle of the organisation?

R - Resilience

- What support or training, if any, have you received to build confidence with GenAI? What would a resilient, future-ready workforce look like in your context? Is your team close to that today?

E - Execution

- What happens in your organisation when someone tries to embed a GenAI tool into a workflow? Are there mechanisms to scale what works, do good ideas often explode or fizzle out?

Consolidating question

- Looking across these six areas: strategy, performance, impact, innovation, resilience, and execution, which one feels most urgent or relevant to you? If this model were handed to your leadership team tomorrow, what would you change?

Closing

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3 "Is there anything else you wanted to tell me after having heard these conversations today?"  
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6 Thank you all very much. I couldn't do this without you, and it's really been a very rich  
7 experience for me, and hopefully, you've got some enjoyment out of it as well.  
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**Response to Reviewer 1**

**1) Better focus on how GenAI transforms business processes (as title states).**

We re-framed the manuscript so that GenAI is treated as a source of process variation that must be governed and stabilised into repeatable, auditable execution. This BPM-centric framing is now explicit in the Introduction and carried through the Findings and Discussion.

**2) Define agentic AI tools vs conversational GenAI models.**

We added a clear distinction between conversational GenAI and agentic AI, including why agentic behaviour intensifies governance and oversight requirements in regulated workflows (Introduction).

**3) Provide concrete terms/examples: what GenAI tools are used and which activities are influenced.**

We added Table 3 (Process and GenAI use-case map) to specify which processes, where GenAI enters the workflow, what controls/guardrails apply, and who is accountable, supported by direct empirical anchors (Findings, start of Section 4).

**4) Methodology: criteria used to choose the 6 participants in purposive sample.**

We clarified purposive inclusion criteria and participant roles/responsibilities (Section 3.1 Sampling and Data Collection).

**5) Describe what the pharmaceutical companies do (manufacturers, distributors, pharmacies?).**

We clarified that the empirical setting is UK-based affiliates of research-based pharmaceutical companies (not manufacturing sites or retail pharmacies), and we defined the process scope as regulated knowledge-work processes operating through formal review/approval/accountability pathways (Section 3.1).

**6) Describe the (previously mentioned) framework and explain Braun & Clarke six-step RTA.**

We strengthened the analysis description by specifying Braun & Clarke’s six phases, the coding approach (NVivo), and an illustrative code to theme development example (Section 3.2 Data Analysis). We also removed reliance on the earlier Kallio framing present in the original draft and instead foregrounded the RTA procedure for transparency and fit.

**7) Need examples of GenAI uses and the business processes influenced; otherwise paper ‘goes around the bush’.**

Beyond Table 1, we added explicit narrative explanation in the Findings to show where GenAI changes workflows (e.g., private iteration/drafting before formal submission) versus where it does not (human sign-off/decision rights), including illustrative quotations (Section 4).

**8) (OpenAI, 2025) must be cited and included in bibliography.**

We have cited OpenAI (2025) in the Introduction (agentic AI discussion) and added the full reference entry in the reference list.

**9) Figure 1 needs to indicate the source for the ASPIRE framework.**

We updated the Figure 1 caption to state that the ASPIRE model is author-developed Source: Authors developed for this study).

## **10) Editing mistakes (commas, spaces, parentheses, etc.).**

We undertook a full language/formatting clean-up across the manuscript to improve readability and consistency (all sections).

## **Response to Reviewer 2**

### **1) Include data analysis in detail.**

We expanded the data analysis section to provide a clear, step-by-step account of reflexive thematic analysis and coding, including an example showing how an initial code was refined into a broader theme (Section 3.2).

## **Response to Reviewer 3**

### **1) Theoretical contribution is more integration than innovation; needs stronger academic credibility.**

We recalibrated the contribution and present RELAL explicitly as a bounded, interpretive heuristic (not a validated structural model), and we strengthened the BPM-specific explanation of how governance and stabilisation occur under regulatory constraint (Section 5.2 and Discussion).

### **2) Weak qualitative design / small sample; avoid overconfident extrapolation.**

We strengthened boundary conditions and clarified that findings are indicative patterns within a bounded regulated context, not sector-wide claims (Section 3.3 and Section 5.4).

### **3) Model appears designed rather than emerging from the data; clarify theory–data link.**

To make the data and model pathway transparent, we added Table 3 (Traceability from empirical themes to RELAL components) and explicitly explained how each component maps to themes and empirical anchors (Section 5.2).

### **4) Distinguish academic reasoning from consulting-style narrative; tighten evidence-based deductions.**

We strengthened the evidence trail (more direct bringing in participant accounts and clearer limitations), and tightened the discussion to foreground BPM governance mechanisms rather than broad managerial extrapolation (Discussion and Limitations).

## **Response to Reviewer 4**

### **1) Positioning: BPM is not sufficiently theorised as the primary object of analysis.**

We re-anchored the manuscript in BPM capability and process governance, explicitly framing GenAI adaptation as process variation that must be stabilised through BPM capability dimensions (Introduction and Section 2.1 BPM as organisational capability).

### **2) Conceptual ambitions exceed what can be supported; need stronger methodological grounding and analytical integration.**

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We strengthened methodological transparency (Sections 3.1 - 3.3), clarified the interpretivist stance, added explicit rigour criteria (credibility/dependability/confirmability/transferability), and repositioned RELAL as a heuristic interpretive abstraction rather than an empirically “validated” model (Sections 3.3 and 5.2).

**3) Results are descriptive; clarify the empirical basis for relationships proposed in the model.**

We added Table 3 (traceability), and we strengthened the Findings by making the process object explicit via Table 1 and by clarifying the recurring sequence (variation, translation, governance stabilisation, strategic recalibration) that informed RELAL (Sections 4 and 5.2).

**4) Implications need BPM operationalisation.**

We revised implications to specify how BPM capability development and governance design can support controlled experimentation and stabilisation in regulated settings (Section 5.3 Recommendations for practice).

We hope these revisions address the reviewers’ concerns in substance and make the paper’s BPM contribution clearer, more transparent, and more defensible on methodological grounds. Thank you again for the opportunity to revise.

Sincerely,  
  
Authors

## Appendix 1: Post pilot Set 1 (GenAI adoption) - Script and core interview questions for a 30-minute interview

### Introduction (2–3 minutes)

"Thank you for agreeing to take part in this interview. I'm currently completing an MSc in Digital Marketing with the University of Liverpool, and this interview forms part of my dissertation research. The aim is to investigate how UK research-based pharmaceutical leaders in marketing and communications functions are adapting to the impact of Generative Artificial Intelligence (GenAI) on leadership, workforce transformation, and business strategy."

"Your insights will contribute to a deeper understanding of how GenAI is shaping executive decision-making, hybrid workforce dynamics, and strategic planning."

"This interview is semi-structured, meaning I have a set of core questions, but I may ask follow-ups to explore interesting points. The conversation should take around 30-40 minutes, but this meeting is scheduled for 45 minutes in case the conversation really flows"

### Ethical considerations

"I sent you the Participant Consent Form and Participant Information Sheet and you have kindly returned the signed Participant Content Form."

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"With your permission, I'd like to record the interview solely for transcription and analysis purposes. Is that okay?"

(Wait for confirmation)

### Transition to questions

"Great. I appreciate you are busy so let's begin."

### Questions (25-30 minutes)

**Baseline question 1:** Have you adopted GenAI within the marketing and communications elements of your business?

If they answer "Yes", then proceed to the following questions in Set 1.

**If not ask the Set 2 questions.**

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**Set 1**

**Theme 1: Business Strategy**

1. **[Post ethics approval]** How has your organisation used GenAI to inform or adapt its business or marketing strategy?
- *Probe:* Were any strategic pivots driven directly by GenAI insights?
  - *Probe:* What role does regulation play in shaping your GenAI strategy?
  - *Probe:* How are partnerships or external vendors affecting your GenAI adoption?
2. **[Ethics submitted question]** What are the most significant GenAI-driven changes you have implemented in your organisation?
- *Probe:* Which change had the greatest measurable business impact?
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- *Probe:* Are these attitudes shaped by past innovation experiences or market pressure?
  - *Probe:* What external pressures (e.g. regulators, customers, investors) are shaping your GenAI strategy?

## Theme 2: Workforce Transformation

4. [Post ethics approval] How does the workforce see GenAI as an enhancement or a threat?
  - *Probe:* How have employees reacted to initial GenAI integration?
  - *Probe:* Are there concerns about over-reliance on AI among staff?
  - *Probe:* How are you balancing innovation with compliance and governance?
5. [Ethics submitted question] What training initiatives do you currently have in place to equip your employees with the necessary skills for GenAI integration?
  - *Probe:* Are these trainings mandatory or optional, and how are they received?
6. [Ethics submitted question] Have you observed any changes in team dynamics or collaboration due to GenAI adoption?
  - *Probe:* Are employees exploring GenAI and sharing their discoveries?

## Theme 3: Leadership

7. [Ethics submitted question] What ethical considerations guide your decisions around deploying Generative AI tools?
  - *Probe:* Have any ethical dilemmas emerged during deployment or scaling of GenAI?
8. [Ethics submitted question] Can you describe how GenAI has influenced leadership decision-making within your organisation?
  - *Probe:* What specific experiences or challenges led to that shift?
  - *Probe:* What motivates you to lead AI adoption within your team or organisation?
9. [Post ethics approval] How would you describe your leadership style, and has it changed in response to GenAI adoption?
  - *Probe:* What specific experiences or challenges led to that shift?
  - *Probe:* How do you build trust around AI-driven insights?
  - *Probe:* What skills do you think future leaders will need in a hybrid AI-integrated environment?

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**Closing (3-5 minutes)**

“Thank you for sharing your insights and experiences so openly — everything you’ve contributed today will be incredibly valuable for my research.”

“To briefly summarise, we’ve discussed how your organisation is engaging with GenAI - either directly or in preparation - and how that’s influencing leadership approaches, workforce transformation, and strategic planning. Your perspective offers a lot of depth on how the pharmaceutical sector is adapting to this emerging technology.”

“Before we finish, is there anything else you’d like to add that we haven’t covered? Or any reflections that have come up during our conversation?”

(Pause for any final thoughts)

“Do you have any questions for me about the research or next steps?”

“I’ll be transcribing and analysing the interview in line with university ethics procedures. If you’d like, I can share a summary of the findings once the dissertation is complete.”

“Thanks again for your time and contribution - I really appreciate it.”

## Appendix 2: Focus group structure and questions

### ASPIRE focus group questions

**Duration:** 45–60 minutes

**Purpose:** To explore the real-world relevance and usefulness of the ASPIRE model.

**Participants:** Expert middle managers/technical leaders.

#### Session structure

1. Welcome and framing (5 mins)
  2. ASPIRE discussion (35–45 mins)
  3. Consolidation question (3 minutes)
  4. Closing (2 mins)
- 

#### Welcome and framing

The primary objective of my approach is to address the challenges companies encounter when implementing AI. Even organisations like mine are trying to figure out the best approach. We have leaders at the top who don't quite grasp how AI works, as it's entirely new to them.

On the other hand, we have specialists within the company, typically at lower levels, who have a better understanding of AI. The real question is, how can these expert managers influence leadership that isn't as knowledgeable, and how do we structure this influence effectively?

I'm exploring a model called ASPIRE, which stands for AI Strategy for Performance, Impact, Innovation, Resilience, and Execution. Essentially, it covers everything from strategy and infrastructure to people and ways of thinking. All these aspects seem to pose barriers, and I would really like to hear your thoughts on them.

After talking to six individuals, three of whom are GMs in the UK and you three, who are specialist middle managers, I've noticed some common themes. The UK GMs often look to global teams for guidance and feel somewhat stuck in the middle. This sentiment is shared among specialists, who also feel they lack some control.

So, what I'm aiming for is a solution that helps people like us navigate these challenges. If it works for us, it should also help those above us push things forward more effectively.

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## ASPIRE pillars and questions

### A - AI Strategy

- How clearly do you feel your organisation has articulated an AI strategy that aligns with your day-to-day work? Do you feel middle managers have the space to influence that strategy, or are you mainly executing someone else's plan?

### S - Performance

- In what ways, if any, has GenAI affected your or your team's performance? Do these tools reduce strain or simply create new expectations without reducing workload?

### P - Impact

- How has GenAI changed how you see your role, or how others perceive it? Do you feel more empowered by these tools, or more at risk of being replaced or misunderstood?

### I - Innovation

- Are you encouraged, formally or informally, to experiment with GenAI tools in your role? What blocks or enables innovation for people like you in the middle of the organisation?

### R - Resilience

- What support or training, if any, have you received to build confidence with GenAI? What would a resilient, future-ready workforce look like in your context? Is your team close to that today?

### E - Execution

- What happens in your organisation when someone tries to embed a GenAI tool into a workflow? Are there mechanisms to scale what works, do good ideas often explode or fizzle out?

## Consolidating question

- Looking across these six areas: strategy, performance, impact, innovation, resilience, and execution, which one feels most urgent or relevant to you? If this model were handed to your leadership team tomorrow, what would you change?

## Closing

"Is there anything else you wanted to tell me after having heard these conversations today?"

Thank you all very much. I couldn't do this without you, and it's really been a very rich experience for me, and hopefully, you've got some enjoyment out of it as well.