Evolving Leadership Competencies in Rapidly Changing Markets

Resilience, Agility, and Executive Capability in Supply Chain and Pharmaceutical Sectors

Executive Summary

For years, executive leadership in the supply chain and pharmaceutical sectors relied on one thing: stability.

CSCOs and COOs chased a simple mandate. They optimized costs. They enforced lean efficiency. They demanded predictability. But the post-pandemic era shattered that calm. A brutal new baseline of volatility now dominates the market, driven by geopolitical fractures, rampant inflation, and accelerating tech disruption.

This white paper tracks how leadership must evolve to survive.

We analyzed peer-reviewed literature and industry data from firms like Heidrick & Struggles and McKinsey. The verdict is clear. The "efficiency-first" model died. A "resilience-first" model—built on agility and digital fluency—has taken its place.

Key Findings:

- **Linear Leadership Collapsed:** The traditional "Foreman" style fails in complex markets. It moves too slowly. Data now highlights the rise of "The Orchestrator"—a transformational leader who forces organizational agility rather than just directing traffic.
- **Resilience Turned Dynamic:** We no longer define resilience as the ability to recover from a shock. It is the power to dynamically reconfigure resources while the shock happens. Leaders must now wield digital transformation as a core strategic weapon, not just IT support.
- **The Wall Crumbled:** In pharma and logistics, the barrier between "strategy" and "operations" no longer exists. Operational leaders now drive enterprise value. This demands a fusion of technical expertise and commercial acumen that these roles never required before.

Implications for Talent Strategy: Boards and executive search firms must recalibrate assessment criteria. The proven ability to optimize a stable system is a negative predictor of

success in a volatile one. Future executives must be assessed on their capacity for "dynamic reprioritization"—the cognitive flexibility to abandon established plans in favor of emerging data.

2. From Efficiency-First to Resilience-First Leadership

The dominant paradigm of supply chain and operational leadership for the past three decades has been predicated on a philosophy of deterministic optimization. This "Efficiency-First" model, rooted in Lean management principles and Just-in-Time (JIT) methodologies, prioritized the systematic elimination of waste—defined as any asset, inventory, or capacity not immediately required for production. While this approach successfully drove down unit costs and widened margins during periods of geopolitical and economic stability, it inadvertently created a leadership monoculture focused almost exclusively on cost containment and process standardization. The post-pandemic era, characterized by systemic volatility, has exposed the structural liabilities of this model, necessitating a pivot toward "Resilience-First" leadership. This section analyzes the breakdown of the efficiency paradigm, the empirical evidence linking optimization to fragility, and the defining characteristics of the emerging resilience-focused executive competency set.

The Limits of Optimization and Lean Leadership

The intellectual foundation of the Efficiency-First model was the assumption that variance could be controlled, if not eliminated. As outlined in McKinsey’s analysis of future pharmaceutical operations, the industry spent decades refining a "cost-per-unit" worldview. In this environment, the primary mandate for Chief Operating Officers (COOs) and Chief Supply Chain Officers (CSCOs) was to streamline networks, consolidate vendors to maximize purchasing power, and reduce inventory holding times. Leadership competency was synonymous with the ability to execute linear plans with high precision. Executives were rewarded for removing slack—redundancy in suppliers, excess manufacturing capacity, and buffer stock—viewing these elements as inefficiencies rather than insurance assets.

However, this relentless pursuit of optimization created a "fragility paradox." By removing slack to improve financial efficiency, leaders simultaneously removed the shock absorbers required to withstand disruption. The Heidrick & Struggles analysis of supply chain executive styles identifies this as the era of the "Foreman"—a leadership profile characterized by directive, authoritative management focused on internal execution and adherence to established protocols. This style assumes that tomorrow’s operating environment will mirror today’s, allowing for the rigid enforcement of Standard Operating Procedures (SOPs).

The limitation of this leadership model is not merely operational but cognitive. Leaders trained in the Efficiency-First school often lack the decision-making frameworks necessary to justify "inefficient" investments in resilience. When evaluated through the lens of a traditional P&L focused on quarterly variance, investments in dual-sourcing strategies or geographically distributed warehousing appear as detrimental costs. Consequently, the Efficiency-First leader is psychologically and structurally inhibited from making the defensive moves required in a volatile market. The McKinsey report highlights that emerging from disruption requires a strategic

re-evaluation where operations are viewed as a source of competitive advantage through reliability, rather than solely a center for cost arbitrage. The failure of the legacy model is, therefore, a failure of valuation: it priced efficiency effectively but failed to price risk.

Empirical Evidence of Fragility in Optimized Systems

The transition from efficiency to resilience is not merely a theoretical preference but a conclusion driven by empirical performance data during recent global crises. Research published in *Industrial Marketing Management* provides a rigorous examination of how different leadership styles correlated with supply chain agility during geopolitical shocks. The study demonstrates a statistically significant negative correlation between rigid, transactional leadership styles and organizational survival during periods of high volatility. Transactional leadership, which relies on a clear exchange of rewards for adherence to existing rules, failed when the underlying variables of the market shifted abruptly.

The fragility observed was not purely mechanical—a lack of parts or shipping containers—but managerial. The *Industrial Marketing Management* study indicates that highly optimized, hierarchical organizations suffered from severe information asymmetry. In efficiency-centric structures, decision-making is often centralized to ensure standardization. During the pandemic and subsequent supply shocks, this centralization created bottlenecks. Local managers, conditioned by the Efficiency-First model to await directive commands, lacked the autonomy to respond to rapidly changing ground conditions. The delay in decision-making proved more damaging than the disruptions themselves.

Further evidence from the NIH/PMC analysis on entrepreneurial leadership reinforces this finding. The literature argues that traditional supply chain leadership, which emphasizes risk avoidance and protocol adherence, struggled to cope with the "unknown unknowns" of the post-2020 landscape. The fragility of the optimized system was exposed by its inability to pivot. When a single-source supplier in a low-cost region went offline, the optimized system had no alternative pathway. The leadership deficit was evident in the inability to rapidly reconfigure supply networks. The *Systems* (MDPI) research on supply chain resilience further supports this, noting that organizations that had over-indexed on digital efficiency tools without investing in the human capability for strategic interpretation found themselves "data rich but insight poor." They could see the disruption occurring in real-time but lacked the executive agility to alter the trajectory of the organization.

The consensus across these sources is that fragility is an emergent property of hyper-efficiency. A system—and a leadership team—designed for perfection in a stable environment becomes catastrophic in an unstable one. The McKinsey data suggests that the pharmaceutical sector, in particular, faced a reckoning where the pursuit of lean manufacturing processes left critical drug supplies vulnerable to single points of failure, forcing a re-evaluation of the entire operations strategy.

Definition and Characteristics of Resilience-First Leadership

Resilience-First leadership is distinct from crisis management. While crisis management is episodic and reactive, Resilience-First leadership is structural and proactive. It is defined by the cultivation of *dynamic capabilities*—the organizational ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Based on the *Systems* (MDPI) framework and Spencer Stuart's biopharma outlook, this leadership model rests on three foundational pillars: redundancy as value, visibility through digital transformation, and ecosystem integration.

First, Resilience-First leaders reframe the concept of redundancy. Unlike the Efficiency-First executive who views inventory and capacity buffers as waste, the Resilient leader views them as strategic options. This requires a sophisticated ability to communicate value to the board and shareholders. The executive must articulate that the cost of maintaining idle capacity or multiple supplier relationships is an insurance premium against the much higher cost of market exit or revenue loss during a disruption. Spencer Stuart's analysis suggests that future biopharma leaders will be assessed on their ability to balance this tension—maintaining fiscal discipline while actively investing in risk mitigation.

Second, this leadership style treats digital transformation as a mechanism for cognitive expansion, not just process automation. The *Systems* (MDPI) article explicitly links "Strategic Partnerships and Digital Transformation" to supply chain resilience. A Resilience-First leader understands that agility is impossible without visibility. They champion the implementation of control towers and AI-driven analytics not to replace human decision-making, but to accelerate it. The competency required here is "digital fluency"—the ability to understand what data is required to make a risk-based decision. Research on dynamic capabilities emphasizes that in volatile markets, the speed of recognizing a threat is the primary determinant of mitigation success. Therefore, the resilient leader prioritizes investments that reduce the latency between a market event and the organizational response.

Third, Resilience-First leadership is characterized by a shift from "controlling the chain" to "orchestrating the ecosystem." The Heidrick & Struggles data on leadership styles notes a migration toward "Collaborator" and "Orchestrator" profiles. In a volatile world, no single firm possesses all the resources required to survive. Resilience is derived from the strength of external relationships. The *Industrial Marketing Management* study supports this, showing that transformational leaders who fostered high-trust relationships with suppliers and logistics partners were able to secure capacity and prioritize shipments during shortages, while transactional leaders were left behind. This "social capital" is a core component of the new leadership competency. It requires executives to possess high emotional intelligence and the ability to influence without direct authority.

Finally, the NIH/PMC literature on entrepreneurial leadership highlights "cognitive flexibility" as a non-negotiable trait for resilience. This is the ability to abandon a previously held strategy when the data changes, without the paralyzing effect of sunk-cost bias. Resilience-First leaders foster a culture of psychological safety where "red flags" can be raised early without fear of retribution. They decouple the concept of "failure" from "experimentation," allowing the organization to test new logistics routes or sourcing strategies rapidly.

In summary, the shift from Efficiency-First to Resilience-First is not merely a change in operational tactics; it is a fundamental re-architecting of executive priorities. It demands leaders who can tolerate ambiguity, who view relationships as strategic assets, and who prioritize the sustainability of the enterprise over the short-term optimization of the P&L. As the subsequent sections will explore, this shift necessitates a rigorous overhaul of how such leaders are identified, assessed, and developed.

3. Core Leadership Competencies in Volatile Markets

The fundamental architecture of executive leadership is undergoing a forced renovation. As established in the preceding sections, the transition from a stable, efficiency-centric market environment to one defined by systemic volatility has rendered traditional competency models insufficient. The "command and control" skill set, which prioritized compliance and linear execution, acts as a liability in an environment requiring rapid interpretation of ambiguous signals. Synthesis of recent academic literature and industry intelligence reveals that the modern executive profile—particularly within the supply chain and pharmaceutical sectors—must be rebuilt around four non-negotiable competencies: sustained crisis leadership, transformational adaptability, digital fluency, and strategic agility. These are not soft skills; they are the structural mechanisms by which organizations convert volatility into competitive advantage.

3.1 Crisis Leadership as a Sustained Capability

Historically, "crisis management" was categorized as a situational competency—a temporary operational mode activated during rare disruptions and deactivated once stability returned. However, the NIH/PMC literature on entrepreneurial leadership and supply chain innovation argues that this episodic view is obsolete. In the post-pandemic era, volatility is the baseline condition, meaning that crisis leadership must transition from a temporary state to a sustained capability. The "new normal" is characterized by overlapping disruptions—geopolitical friction, raw material shortages, and labor instability—creating a permanent state of flux. Consequently, executives must possess the psychological and cognitive endurance to operate in a state of "chronic unease" without succumbng to fatigue or transmitting panic to the wider organization.

This shift demands a recalibration of how leaders process uncertainty. According to the Spencer Stuart *2025 Biopharma Leadership Outlook*, the defining trait of successful leaders in this environment is the ability to maintain strategic focus amidst macro-uncertainty. This requires a specific form of emotional regulation. The leader must absorb the chaotic inputs of the external market and metabolize them into clear, prioritized directives for their teams. The competency here is the ability to normalize change. Where traditional leaders might view a supply chain rupture as a failure of planning, the resilient leader frames it as an expected variable to be managed. This reframing is critical for organizational morale; if leadership treats every disruption as a catastrophe, the organization remains in a perpetual state of fight-or-flight, leading to burnout and decision paralysis.

Furthermore, sustained crisis leadership requires the "entrepreneurial orientation" described in the NIH/PMC research. This involves a proactive rather than reactive stance toward risk. Instead of waiting for a crisis to fully manifest, leaders with this competency actively scan the horizon for weak signals of disruption. They institutionalize "red teaming" and scenario planning not as annual exercises, but as continuous operational dialogues. The ability to function effectively without a "steady state" to return to is the primary differentiator between executives who burn out and those who drive long-term resilience.

3.2 Transformational Leadership and Organizational Adaptability

The distinction between transactional and transformational leadership styles has moved from academic theory to a critical predictor of survival. Transactional leadership, which operates on the exchange of rewards for performance within set parameters, is highly effective in stable environments where Standard Operating Procedures (SOPs) are sufficient. However, empirical research published in *Industrial Marketing Management* provides robust evidence that transactional leadership correlates negatively with supply chain agility during geopolitical shocks. When external conditions shatter the assumptions upon which SOPs are built, transactional leaders often double down on compliance, creating rigidity when flexibility is required.

In contrast, transformational leadership is identified as a prerequisite for organizational adaptability. This style is characterized by the ability to inspire intellectual stimulation and individualized consideration. The *Industrial Marketing Management* study demonstrates that transformational leaders foster a culture where subordinates feel empowered to challenge the status quo and improvise solutions. This is the mechanism of "distributed cognition." In a complex crisis, the C-suite cannot possess all the necessary information to make every decision. A transformational leader decentralizes authority, allowing local managers to leverage their specific situational knowledge to solve problems in real-time.

Heidrick & Struggles' analysis of leadership signatures supports this academic finding, noting a decline in the effectiveness of the directive "Foreman" archetype. The data suggests that modern supply chain executives must adopt an "Orchestrator" or "Collaborator" mindset. The competency lies in creating psychological safety—an environment where the risk of reporting a problem or proposing a novel solution is lower than the risk of silence. Transformational leaders explicitly authorize experimentation. They understand that in a volatile market, the first solution is rarely the correct one, and they possess the humility to iterate. This capability directly impacts the "time-to-recovery" metric in supply chains; organizations led by transformational executives consistently identify and remediate disruptions faster than their hierarchically rigid competitors.

3.3 Digital Transformation as an Executive Responsibility

A critical finding across the literature is the reclassification of digital proficiency from a functional technical skill to a core executive competency. The MDPI *Systems* journal emphasizes that strategic partnerships and resilience are increasingly mediated by digital platforms. Therefore, digital transformation can no longer be delegated solely to the Chief Information Officer (CIO).

CEOs, COOs, and CSCOs must possess "digital fluency"—a deep conceptual understanding of how data architecture, artificial intelligence, and analytics drive visibility and decision-making.

The competency required is not the ability to write code, but the ability to interrogate the logic of digital systems. Research on dynamic capabilities indicates that analytics are the "sensory organs" of the modern corporation. An executive who cannot grasp the difference between descriptive analytics (what happened) and predictive analytics (what might happen) cannot effectively steer the organization. They must understand the limitations and assumptions of the algorithms driving their supply chain forecasts. Without this fluency, leaders are liable to either blindly trust flawed data or, conversely, ignore valid data in favor of gut instinct—both of which are dangerous in high-stakes environments.

McKinsey’s analysis of future operations strategy highlights that the "next normal" in pharma and logistics relies on the deployment of "digital twins"—virtual replications of the supply chain that allow for stress-testing scenarios. The executive competency here is the ability to use these tools for "war gaming." A leader must be able to ask the right questions of the data: "What happens to our margin if this port closes?" or "How does a 10% raw material cost increase impact our tier-2 suppliers?" The ability to translate business strategy into digital requirements, and conversely, to translate digital insights into business strategy, is the bridge between potential resilience and actual execution. This digital responsibility extends to the integration of the value chain; leaders must champion the interoperability of systems not just internally, but with external partners, recognizing that a lack of digital integration with suppliers creates opacity that breeds risk.

3.4 Strategic Agility and Dynamic Reprioritization

The final core competency is strategic agility, specifically defined as the capacity for "dynamic reprioritization." In the legacy stability model, strategy was often a fixed three-to-five-year roadmap. In the current volatile landscape, sticking rigidly to a long-term plan is a recipe for irrelevance. The NIH/PMC research on supply chain innovation underscores that successful firms are those that can reallocate resources—capital, talent, and executive attention—at the speed of the market.

This competency requires a high degree of cognitive flexibility and the suppression of the "sunk cost" fallacy. Leaders must be willing to cannibalize their own projects or abandon initiated strategies if the external data suggests the premise is no longer valid. This is often counter-intuitive for executives raised in a culture that equates "staying the course" with strength. However, the *Spencer Stuart* report indicates that in the biopharma sector, where regulatory and market landscapes shift rapidly, the ability to pivot resources from one therapeutic area or manufacturing modality to another is a key determinant of value creation.

Dynamic reprioritization also involves a "governance" competency. It is not enough for the leader to change their mind; they must be able to realign the organization’s machinery without breaking it. This involves managing the friction that improved agility inevitably creates. Constant pivoting can lead to initiative fatigue among the workforce. Therefore, the executive must

possess the communication skills to articulate *why* the pivot is necessary, linking the tactical change to the enduring mission of the organization. They must build organizational structures that are modular rather than monolithic, allowing for the rapid assembly and disassembly of cross-functional teams.

Ultimately, strategic agility is the ability to balance the tension between "commitment" and "flexibility." Leaders must commit fully to a course of action to drive execution, while simultaneously maintaining the peripheral vision to recognize when that course must change. This "strong opinions, loosely held" approach is the hallmark of the modern resilient executive. It requires an ego-less leadership style where the discovery of new truth is valued higher than being "right" about the original plan. By mastering this dynamic reprioritization, leaders transform volatility from a threat into a mechanism for outmaneuvering slower, more rigid competitors.

4. The Evolution of Supply Chain and Logistics Leadership

The trajectory of leadership within the supply chain and logistics functions represents the most significant human capital shift in the modern C-suite. For decades, the Chief Supply Chain Officer (CSCO) and the heads of logistics were viewed primarily as technical operators—functional custodians responsible for the physical movement of goods and the reduction of transactional costs. The role was typically insulated from broader corporate strategy, positioned downstream from decision-making to execute mandates handed down by commercial and financial leadership. However, the systemic volatility of the post-pandemic era has radically inverted this hierarchy. Today, the supply chain is no longer merely a cost center to be managed; it is the primary vector of enterprise risk and the central engine of customer promise. This structural elevation has necessitated a comprehensive evolution in the competencies, behaviors, and cognitive profiles of the executives leading these functions.

Expansion from Execution to Enterprise Risk Leadership

The most profound evolution in this domain is the expansion of the CSCO’s mandate from execution to enterprise risk leadership. Historically, the scope of the logistics leader was bounded by the "four walls" of the organization—managing internal warehousing, transport contracts, and inventory levels. Success was binary and measurable: on-time, in-full (OTIF) delivery at the lowest landed cost. However, the interconnected nature of modern global markets means that a disruption in a sub-tier supplier or a blockage in a distant maritime artery has immediate, existential implications for the entire enterprise. As such, the modern supply chain executive has effectively become a peer to the Chief Risk Officer and the Chief Financial Officer.

This convergence is driven by the reality that supply chain risk is now synonymous with reputational and financial risk. A failure in logistics does not just result in a late shipment; it results in a breach of contract, a collapse in shareholder confidence, and potentially long-term market share erosion. Consequently, the competency profile for this role has shifted from deep

technical specialization to broad business acumen. Leaders are now required to possess a "general manager" mindset. They must be capable of translating operational volatility into financial impact statements for the board. They must understand the legal implications of force majeure clauses in supplier contracts and the geopolitical nuances of trade tariffs. The "siloed" logistics leader who cannot speak the language of the P&L or the language of regulatory compliance is increasingly viewed as a liability.

Furthermore, this expansion of scope includes the ownership of sustainability and ethical compliance (ESG). The modern CSCO is responsible for the carbon footprint of the logistics network and the labor practices of suppliers three tiers deep. This requires a level of transparency and audit capability that did not exist in the legacy "efficiency-first" model. The executive must now balance the competing tensions of speed, cost, and ethical compliance, making complex trade-off decisions that define the corporate brand. The ability to navigate these "wicked problems"—problems with no optimal solution, only trade-offs—is the new benchmark for senior leadership in this sector.

Leadership Style Shifts: The Decline of the "Foreman"

As the scope of the role has expanded, the behavioral "signature" of successful leaders has shifted. Data from Heidrick & Struggles' analysis of supply chain executive profiles provides a granular view of this transition. For much of the industrial era, the dominant leadership archetype in logistics was the "Foreman." This profile is characterized by a directive, authoritative style, high internal focus, and a reliance on command-and-control structures. The Foreman excels in stable, linear environments where processes are repeatable and variables are known. In such a world, the leader's value is derived from their ability to enforce compliance and drive incremental efficiency through strict oversight.

However, the Heidrick & Struggles data indicates that the "Foreman" style is rapidly losing efficacy. In a volatile, networked economy, the supply chain leader does not own the majority of the assets or employ the majority of the people required to deliver the product. They rely on a complex ecosystem of third-party logistics providers (3PLs), contract manufacturers, and technology partners. One cannot "command" an external partner to innovate or to prioritize one's cargo during a global capacity crunch; one must influence them. Consequently, there is a statistically significant migration toward the "Collaborator" and "Orchestrator" leadership profiles.

The "Collaborator" leader relies on influence rather than authority. They excel at building social capital across organizational boundaries. This capability is critical because resilience often depends on "customer of choice" status. When disruption hits and capacity is scarce, suppliers prioritize clients with whom they have a high-trust relationship, not necessarily those with the strictest contracts. The ability to build and maintain these relationships—often virtually and across cultural divides—is a hard operational asset. The "Orchestrator" profile extends this further, requiring the leader to visualize the entire value chain as a synchronized network. They must align the incentives of disparate stakeholders—procurement, sales, logistics, and external vendors—so that the system acts in concert. The friction in modern supply chains often occurs

at the hand-offs between these functions; the Orchestrator’s primary role is to smooth these interfaces.

Empirical Findings on Agility, Innovation, and Adaptability

The shift in leadership style is not merely a matter of corporate culture; it is directly correlated with operational performance. Empirical research published in *Industrial Marketing Management* offers compelling evidence linking transformational leadership to supply chain agility. The study distinguishes between "transactional" leadership (based on contingent rewards and active management by exception) and "transformational" leadership (based on intellectual stimulation and individualized consideration).

The findings suggest that during periods of geopolitical shock, organizations led by transactional leaders struggled to adapt. Transactional leadership works well when the "rules of the game" are fixed. However, when a crisis invalidates the standard operating procedures, transactional leaders often double down on the failing process, seeking to optimize a broken system. They lack the mechanism to solicit novel solutions from their teams because the culture is built on compliance, not contribution.

Conversely, the study found a positive correlation between transformational leadership and "supply chain ambidexterity"—the ability to simultaneously exploit existing capabilities for efficiency while exploring new capabilities for resilience. Transformational leaders foster an environment where mid-level managers feel safe to bypass hierarchy to solve immediate problems. This "distributed cognition" allows the organization to process information and react to disruptions much faster than a centralized command structure. For example, a logistics manager at a regional hub who feels empowered by a transformational leader might unilaterally reroute a shipment to avoid a developing bottleneck, saving days of delay, whereas a manager under a transactional regime would wait for permission, by which time the window of opportunity has closed.

Furthermore, the NIH/PMC research on entrepreneurial leadership highlights the role of "innovation" in logistics, a domain previously considered resistant to creativity. The modern logistics leader must possess an "entrepreneurial orientation." This involves the proactive identification of new technologies and methodologies—such as blockchain for traceability or autonomous vehicles for last-mile delivery—before they become industry standards. The research indicates that leaders who view themselves solely as "operators" tend to lag in digital adoption, waiting for a technology to be fully proven (and thus commoditized) before implementing it. Leaders with an entrepreneurial mindset, however, view technology as a competitive differentiator. They are willing to run pilot programs and accept a degree of failure in exchange for learning. This "fail fast" mentality, borrowed from the software industry, is now a critical component of supply chain leadership.

The Integration of Digital and Human Capabilities

Finally, the evolution of supply chain leadership is inextricably linked to the digital transformation discussed in MDPI’s *Systems* journal. The modern leader acts as the bridge between the digital

"control tower" and physical reality. The mere presence of data does not create resilience; it is the *interpretation* of that data by leadership that matters.

The "efficiency-first" era produced leaders who were expert at reading spreadsheets and P&L statements—historical data. The current era requires leaders who can interpret predictive analytics and probabilistic scenarios. This requires a higher order of cognitive processing. The leader must be comfortable making high-stakes decisions based on incomplete or probabilistic data (e.g., "There is a 60% chance of a port strike; do we divert cargo now at a cost of $2M, or wait?"). The "Foreman" waits for certainty, which in a volatile market usually arrives too late. The "Orchestrator" weighs the probabilities, consults the digital twin, communicates the risk to the C-suite, and executes the diversion as a strategic bet.

This evolution implies that the "experience trap" is becoming a significant risk in executive hiring. Decades of experience in a stable, linear supply chain may actually be a negative predictor of success in a volatile, networked one. The mental models that ensured success in 2010—consolidation, single-sourcing, lean inventory—are the very vulnerabilities of 2025. Therefore, the evolution of the supply chain leader is fundamentally a process of unlearning as much as it is of learning. It requires the humility to acknowledge that the playbook for optimization is different from the playbook for survival, and the agility to switch between them as the market dictates.

In summary, the supply chain leader has evolved from a functional tactician to a strategic architect. The role now demands a paradoxical blend of skills: the operational rigor to manage costs, the strategic vision to anticipate risks, the technological fluency to leverage AI, and the emotional intelligence to orchestrate a vast ecosystem of partners. It is a role that has moved from the loading dock to the boardroom, and in doing so, has become one of the most demanding and critical positions in the modern enterprise.

5. Leadership Convergence in the Pharmaceutical Sector

The pharmaceutical and biotechnology sectors are currently navigating a leadership paradigm shift that is distinct from, yet parallel to, the broader logistics industry. While the logistics sector struggles with the physical movement of goods, the pharmaceutical sector faces an existential redefinition of the relationship between "innovation" (R&D) and "execution" (Technical Operations/Manufacturing). For decades, these two functions operated as distinct, often adversarial, silos. R&D was incentivized by discovery and patent filing, while Technical Operations (TechOps) was incentivized by cost containment, compliance, and yield. The post-pandemic landscape, characterized by the successful compression of vaccine development timelines from years to months, has collapsed this dichotomy. According to the *Spencer Stuart 2025 Biopharma Leadership Outlook* and McKinsey’s analysis of future operations strategies, the defining characteristic of the modern pharmaceutical executive is the ability to converge these historically separated domains into a unified strategic continuum.

Operational and Strategic Role Convergence

The most significant structural change in pharmaceutical leadership is the erosion of the "wall" between discovery and delivery. Historically, the leadership model relied on a linear hand-off: scientists discovered a molecule, and once approved, "threw it over the wall" to operations leaders to figure out manufacturing at scale. This model presupposed that the manufacturing process was a commodity—a secondary concern to the science. However, the rise of complex biologics, cell and gene therapies (CGT), and mRNA platforms has invalidated this assumption. In these modalities, the process *is* the product. A minor variation in the manufacturing environment can alter the therapeutic efficacy of the drug. Consequently, operational leadership can no longer be decoupled from scientific strategy.

Spencer Stuart's analysis indicates that this technical reality is driving a demand for "bilingual" executives—leaders who possess deep scientific literacy combined with operational and commercial acumen. The traditional profile of a TechOps leader—often an engineer focused purely on plant efficiency and Six Sigma methodologies—is proving insufficient for the strategic table. The modern operations leader must participate in the drug development lifecycle much earlier, influencing the "constructability" of the molecule during Phase II clinical trials rather than waiting for commercialization. This requires a leadership competency rooted in cross-functional influence. The executive must be able to challenge the assumptions of Ph.D. scientists regarding scalability while simultaneously managing the financial expectations of the CFO.

Furthermore, this convergence extends to the commercial integration of the supply chain. McKinsey's report on *Emerging from Disruption* highlights that pharmaceutical operations are shifting from a "servant" of the commercial function to a "strategic partner." In the pre-pandemic era, supply chain leaders were expected to hold massive inventory buffers to ensure zero stock-outs, regardless of cost. Today, with capital becoming more expensive and demand patterns becoming more erratic, operations leaders are expected to drive working capital efficiency without compromising patient access. This requires a level of financial sophistication previously not demanded of manufacturing executives. They must be able to model complex trade-offs between inventory carrying costs, service levels, and manufacturing agility, effectively acting as general managers of the physical asset base.

Innovation Under Regulatory Constraint

The unique constraint on pharmaceutical leadership, which differentiates it from the consumer goods or tech sectors, is the regulatory environment. In most industries, "move fast and break things" is a celebrated ethos. In pharma, breaking things can result in patient harm and severe regulatory censure. This creates a "double bind" for leadership: the market (and post-COVID society) demands unprecedented speed and agility, while the regulatory framework demands absolute consistency and control.

Navigating this tension requires a sophisticated cognitive capability that Spencer Stuart describes as "constructive disruption." Leaders must distinguish between "good risk" (process innovation, automation, digital adoption) and "bad risk" (compliance shortcuts). The "Efficiency-First" leadership model, which dominated the industry for years, often conflated these two, viewing *any* deviation from established process as a compliance risk. This mindset

resulted in a technological stagnation where pharmaceutical manufacturing lagged significantly behind other industries in adopting digital tools.

The new leadership mandate is to decouple compliance from conservatism. Leaders are expected to champion Industry 4.0 technologies—such as continuous manufacturing, digital twins, and AI-driven quality control—not merely to cut costs, but to enhance robustness and speed. This requires the courage to challenge internal Quality Assurance (QA) dogmas that may be rooted in tradition rather than actual regulatory requirement. A resilient leader in this sector must possess the regulatory fluency to engage directly with health authorities (FDA, EMA) to validate new manufacturing methodologies. They must be able to articulate to regulators how a new AI-driven process actually *reduces* patient risk through better detection, rather than increasing it.

McKinsey's findings suggest that successful leaders in this space are those who can foster a culture of "compliant innovation." This involves shifting the organizational mindset from "compliance as a constraint" to "quality by design." Instead of inspecting quality *into* the product at the end of the line (a reactive stance), leaders must build systems where quality is engineered into the process (a proactive stance). This shift requires a transformational leadership style that empowers engineers and operators to identify process improvements without fear of triggering a bureaucratic avalanche of change controls. The leader's role is to streamline the governance of innovation, ensuring that the necessary rigor does not become rigor mortis.

Post-Pandemic Pharma Leadership Expectations

The experience of the COVID-19 pandemic permanently altered the stakeholder expectations for pharmaceutical leadership. The successful development and distribution of mRNA vaccines in under a year created a "velocity precedent." Boards of directors, shareholders, and patient advocacy groups now ask a persistent question: "If we could move that fast for COVID, why does this oncology launch take ten years?" While the scientific realities of every drug are different, the pressure falls squarely on leadership to justify timelines.

This has elevated "speed to market" as a primary key performance indicator (KPI) for operations executives, alongside quality and cost. To deliver on this, leaders must dismantle the sequential nature of drug development in favor of parallel processing. This requires a high tolerance for ambiguity and financial risk. Leaders must be willing to authorize "at-risk" manufacturing—building inventory or reserving capacity for a drug that has not yet been approved. This is a significant departure from the risk-averse, efficiency-focused model where capital commitment waited for certainty.

The *Spencer Stuart* report notes that this shift requires leaders who are adept at "scenario planning" and "dynamic resource allocation." They must be able to manage a portfolio of bets, rapidly killing projects that fail clinical endpoints and instantly reallocating that manufacturing capacity to other assets. This agility prevents the "stranded asset" problem that plagues rigid

manufacturing networks. It requires a leader who is less emotionally attached to specific facilities or projects and more focused on the aggregate velocity of the portfolio.

Moreover, the post-pandemic expectation includes a mandate for supply chain resilience that borders on national security. Governments and health systems are demanding domestic or "near-shore" security of supply for critical medicines. This forces leaders to navigate complex geopolitical landscapes, moving away from the hyper-globalized, single-source models of the past (often dependent on China and India for Active Pharmaceutical Ingredients) toward regionalized networks. The modern pharma executive must therefore be a geopolitical strategist, understanding how trade wars, tariffs, and national industrial policies impact their manufacturing footprint. They must balance the higher costs of regionalized production with the value of supply security, arguing this value proposition to investors who may still be focused solely on margin.

Finally, the talent equation within pharma operations has shifted. The "Great Resignation" and the demand for specialized skills in biologics have created a talent war. The "Foreman" style of leadership, which treated operators as interchangeable units of labor, is causing high attrition. The emerging leadership profile focuses heavily on purpose and development. Leaders must connect the technical drudgery of manufacturing documentation to the patient outcome. The ability to narrate this "patient connection" is no longer just HR fluff; it is a critical retention tool for the highly skilled scientists and engineers required to run modern biopharma facilities.

In conclusion, the convergence in the pharmaceutical sector is total. There is no longer a clear line between the scientist and the manufacturer, between the strategist and the operator. The executives who will thrive in this environment are those who can integrate these domains. They must be technically proficient enough to understand the science, commercially sharp enough to manage the P&L, and courageously innovative enough to modernize a risk-averse industry. They are not just running factories; they are orchestrating the delivery of health innovation in a volatile world, and their competency set must reflect the gravity and complexity of that mission.

6. Implications for Executive Search and Leadership Assessment

The structural shifts in the supply chain and pharmaceutical sectors, driven by the transition from stability to volatility, necessitate a fundamental recalibration of executive search methodologies. For decades, the executive assessment paradigm in these industries was relatively static, relying heavily on lagging indicators of success such as career stability, technical pedigree, and the scale of previous P&L responsibility. However, the breakdown of the "efficiency-first" model exposes a critical flaw in traditional talent acquisition: the attributes that correlated with success in a stable, deterministic environment often correlate with failure in a volatile, probabilistic one. This section analyzes why traditional indicators are losing predictive validity, outlines the emerging assessment criteria supported by empirical research, and examines the systemic risks of misaligned leadership selection in the post-pandemic era.

Why Traditional Indicators Fail: The Experience Trap

The primary failure mode in modern executive search is the "experience trap"—the assumption that a candidate's past performance in a steady-state environment predicts their future performance in a crisis state. Historically, search mandates for Chief Supply Chain Officers (CSCOs) or pharmaceutical operations leaders prioritized candidates with "blue-chip" experience—those who had managed large-scale operations at dominant, stable market leaders. The logic was that these individuals possessed a proven playbook for optimization. However, research indicates that this playbook is often specific to a low-volatility context. An executive who spent twenty years refining a Just-in-Time (JIT) system in a stable geopolitical era may have developed a cognitive rigidity that prevents them from embracing the redundancy and agility required today.

Heidrick & Struggles' analysis of leadership signatures highlights this discrepancy. Their data suggests that the "Foreman" style—authoritative, directive, and process-obsessed—was the dominant profile for successful supply chain leaders in the past. Yet, this profile is now negatively correlated with the ability to manage ecosystem-based disruptions. Traditional assessment methods, which weigh resumes and "hard skills" heavily, tend to select for the Foreman archetype because their achievements are easily quantifiable (e.g., "reduced inventory costs by 15%"). These metrics are seductive but misleading; they measure how well the candidate optimized a functioning system, not how well they navigated a breaking one. By over-indexing on technical execution and cost-reduction history, organizations inadvertently hire leaders who are experts at winning a game that is no longer being played.

Furthermore, the reliance on technical subject matter expertise as a proxy for leadership capability is failing. In the pharmaceutical sector, the convergence of R&D and Technical Operations described in the Spencer Stuart *2025 Biopharma Leadership Outlook* means that deep functional silos are a liability. A candidate who has spent their entire career climbing the ladder of a single function (e.g., Quality Assurance or Logistics Procurement) often lacks the "peripheral vision" necessary to understand the enterprise-wide trade-offs required in a volatility strategy. The traditional search process, which often boxes candidates into functional lanes, fails to identify the "bilingual" executives who can bridge the gap between scientific innovation and operational scale. The failure of traditional indicators is ultimately a failure to distinguish between *technical competence* (knowing the process) and *adaptive capacity* (knowing what to do when the process fails).

Emerging Assessment Criteria Supported by Research

To mitigate the risks of the experience trap, executive assessment must pivot toward indicators of potential and cognitive agility. Synthesis of the academic literature, particularly the NIH/PMC research on entrepreneurial leadership and the *Industrial Marketing Management* findings on transformational leadership, points to three critical assessment criteria that offer higher predictive validity for success in volatile markets: Learning Agility, Systems Thinking, and Social Capital Accumulation.

Learning Agility and Cognitive Flexibility

The most valuable currency in a volatile market is not knowledge, but the rate of learning. NIH/PMC research identifies "cognitive flexibility" as a core component of entrepreneurial leadership required for supply chain innovation. Assessment frameworks must therefore test for a candidate's "unlearning" capacity. This involves behavioral inquiries that determine how readily a candidate abandons a long-held belief or strategy when presented with contradictory data. In the context of executive search, this means deprioritizing the question "What did you do?" in favor of "What would you do differently now?" Candidates who defend their past decisions without acknowledging the contextual shift demonstrate a lack of agility. Search firms must utilize psychometric evaluations that measure tolerance for ambiguity and the ability to process conflicting information without premature closure. The goal is to identify leaders who view strategy as a set of dynamic hypotheses rather than a fixed doctrine.

Systems Thinking and Complexity Processing

The MDPI Systems journal emphasizes that modern resilience is a function of "networked" capabilities. Therefore, the ability to visualize and manage complex adaptive systems is a non-negotiable competency. Traditional linear thinkers, who solve problems by isolating variables, often trigger unintended consequences in a complex supply chain (e.g., a procurement saving that causes a logistics bottleneck). Assessment must focus on "systems thinking"—the ability to understand the non-linear relationships between disparate parts of the enterprise. This can be assessed through case study simulations that force candidates to navigate "wicked problems" where there is no single right answer, only trade-offs. The Spencer Stuart outlook suggests that in biopharma, this translates to the ability to balance the competing tensions of regulatory compliance, speed to market, and cost. A leader's capacity to articulate these trade-offs and make coherent decisions amidst uncertainty is a stronger predictor of success than their specific knowledge of a software platform or manufacturing technique.

Social Capital and Influence (The "Collaborator" Metric)

Heidrick & Struggles' data indicates a clear migration toward the "Collaborator" and "Orchestrator" leadership styles. This shifts the assessment focus from "power" to "influence." In a networked economy, a leader's effectiveness is determined by their ability to mobilize resources they do not own (e.g., suppliers, 3PLs, regulators). Consequently, executive search must evaluate a candidate's "social capital"—their history of building high-trust relationships across boundaries. This is distinct from "networking"; it is the operationalization of trust. The Industrial Marketing Management study supports this, showing that transformational leaders who invested in relationship-building prior to a crisis were able to leverage those relationships for survival during the crisis. Assessment interviews should probe for examples of "lateral leadership"—situations where the candidate had to persuade peers or external partners to act without having the hierarchical authority to command them. A candidate who relies solely on positional authority ("I told them to do it because I was the boss") is a high-risk hire for a modern, resilient organization.

Risks of Misaligned Leadership Selection

The cost of misaligned leadership selection has grown exponentially. In a stable environment, a mediocre or misaligned leader results in suboptimal performance—missed margin targets or slightly elevated turnover. In a volatile environment, as evidenced by the fragility of optimized systems during the pandemic, a misaligned leader can be the vector of existential failure.

The Strategy-Execution Gap

One of the most common risks is the selection of a "Visionary" leader who lacks the operational granularity to execute in a constrained environment. While the Heidrick & Struggles data warns against the rigid "Foreman," it does not advocate for a detached dreamer. The Spencer Stuart report highlights the need for leaders who can "constructively disrupt." Hiring a leader who speaks eloquently about digital transformation and AI but lacks the operational discipline to integrate these tools into a validated pharmaceutical manufacturing workflow creates a dangerous "strategy-execution gap." This gap manifests as "initiative fatigue," where the organization is bombarded with new strategic concepts that never translate into operational reality, leading to cynicism and the erosion of resilience.

Cultural Rejection and Organ Rejection

Conversely, placing a directive, command-and-control leader into an organization that requires networked collaboration creates a risk of "organ rejection." If an organization is attempting to pivot toward a resilience-first model, which requires distributed decision-making and psychological safety, hiring a transactional leader will actively dismantle those capabilities. The Industrial Marketing Management findings warn that transactional leadership suppresses the very bottom-up innovation required to navigate shocks. A directive leader will tend to centralize information during a crisis, creating bottlenecks and disenfranchising the local experts who are closest to the problem. This misalignment often leads to a rapid exodus of high-potential talent—the scientists, engineers, and logistics planners who are in high demand and refuse to work under an authoritarian regime.

The Illusion of Resilience

Finally, there is the risk of "isomorphic mimicry"—hiring a leader who adopts the language of resilience but practices the logic of efficiency. These leaders may invest in superficial digital tools or rename departments to sound more agile, but fundamentally continue to manage for lowest-unit-cost. This creates an "illusion of resilience," where the board believes the organization is protected against disruption, only to find during the next shock that the buffers were phantom. This risk is particularly acute in the pharmaceutical sector, where McKinsey notes the tension between cost pressure and supply security. A misaligned leader will inevitably revert to cost-cutting when the immediate pressure of a crisis fades, eroding the investments in redundancy and dual-sourcing that are essential for long-term survival.

In conclusion, executive search in the post-pandemic era requires a departure from the "resume-first" approach. Boards and search firms must recognize that the competencies required to *build* a resilient system are fundamentally different from the competencies required

to *maintain* an efficient one. The focus must shift to predictive indicators of cognitive agility, systems thinking, and collaborative influence. To ignore these shifts and continue hiring from the "efficiency-first" playbook is to seed the organization with the very vulnerabilities that led to the recent systemic failures.

7. Strategic Recommendations

The transition from a stability-based leadership model to one predicated on resilience and dynamic adaptation is not a passive evolutionary process; it requires deliberate, structural intervention. As the analysis in the preceding sections has demonstrated, the "efficiency-first" paradigm that governed supply chain and pharmaceutical operations for decades has created significant latent fragility. To reverse this, organizations must operationalize the findings from the academic and industry literature into concrete strategic actions. These recommendations are segmented into three distinct spheres of influence: the governance level (Boards of Directors), the talent acquisition level (Executive Search Firms), and the operational leadership level (Sitting Executives).

Recommendations for Boards of Directors: Redefining the Mandate

The transformation of executive leadership begins with the governance structures that define success. For too long, Boards of Directors have inadvertently incentivized fragility by narrowing the mandate of Chief Supply Chain Officers (CSCOs) and Technical Operations leaders to a single dimension: cost optimization. As McKinsey’s analysis of future operations strategies highlights, when executive performance is measured primarily by year-over-year reductions in unit cost or working capital, leaders are mathematically compelled to eliminate the very redundancies (inventory buffers, dual-source capacities) required for resilience. Therefore, the first strategic imperative for Boards is to rewrite the executive charter to explicitly value "risk-adjusted performance" over raw efficiency.

Boards must restructure executive compensation packages to align with this new mandate. Traditional short-term incentive (STI) plans, often tied to quarterly EBITDA or immediate cash flow, discourage the long-term investments in resilience described in the *MDPI Systems* research, such as digitizing the supply chain or qualifying alternative suppliers in higher-cost regions. To counter this, Boards should introduce "resilience metrics" into the long-term incentive (LTI) structure. These metrics could include the successful diversification of the supplier base, the reduction of single-point-of-failure risks, or the implementation of digital "control tower" capabilities. By financially rewarding the "insurance" function of the supply chain, Boards signal that resilience is a strategic asset, not a line-item expense.

Furthermore, Boards must actively facilitate the convergence of operations and strategy identified in the *Spencer Stuart 2025 Biopharma Leadership Outlook*. The practice of treating the CSCO or Head of TechOps as a downstream execution role—invited to Board meetings only to explain a failure or a budget request—is obsolete. Governance bodies must integrate these functional leaders into the strategic planning committee. In the pharmaceutical sector, where the complexity of manufacturing cell and gene therapies effectively dictates the commercial viability

of the product, the operations leader must have a permanent seat at the table alongside the Head of R&D and the Chief Commercial Officer. This structural inclusion ensures that "manufacturability" and supply security are treated as foundational pillars of corporate strategy, rather than afterthoughts to be managed once the product is approved.

Recommendations for Executive Search Firms: Stress-Testing for Agility

For the executive search industry, the shift in market dynamics requires a departure from "Rolodex-based" recruitment toward "simulation-based" assessment. The *Heidrick & Struggles* data regarding the decline of the "Foreman" archetype and the rise of the "Collaborator" suggests that past performance in a stable environment is a poor predictor of future success in a volatile one. Consequently, search firms must overhaul their assessment methodologies to test for the specific cognitive and behavioral traits associated with resilience, specifically utilizing the "Entrepreneurial Orientation" framework outlined in the *NIH/PMC* literature.

Search firms should implement scenario-based interviewing and psychometric stress-testing that mimic the ambiguity of the post-pandemic market. Standard behavioral interview questions ("Tell me about a time you solved a problem") allow candidates to curate rehearsed narratives of success. Instead, search consultants should present candidates with "wicked problems"—hypothetical, data-poor scenarios involving geopolitical disruption, ethical trade-offs, and competing stakeholder demands. The objective is not to hear the "correct" answer, but to observe the candidate's information processing. Does the candidate seek to centralize control (the "Foreman" reflex), or do they instinctively look to leverage external partnerships and distributed intelligence (the "Orchestrator" reflex)? This method exposes the candidate's default setting under pressure, distinguishing between those who merely talk about agility and those who possess the cognitive architecture for it.

Additionally, search firms must advise their clients to broaden the aperture of talent sourcing. The *Industrial Marketing Management* findings on the dangers of transactional leadership imply that insular industries often recycle the same leadership styles, reinforcing systemic rigidity. To break this cycle, search firms should actively map talent pools in adjacent, high-velocity industries. A pharmaceutical operations committee might benefit more from a leader with a background in high-tech electronics or fast-moving consumer goods (FMCG)—sectors where product lifecycles are short and supply chain volatility is endemic—than from a traditional pharma veteran who has never managed a disruption. Promoting "cognitive diversity" in the slate of candidates is the most effective way to introduce the "transformational" leadership traits required to break the inertia of legacy systems.

Recommendations for Sitting Executives: The Imperative of Self-Disruption

For current executives occupying the C-suite, the academic literature presents a stark choice: self-disrupt or risk obsolescence. The competencies that secured their promotion—functional depth, command of detail, and process adherence—are necessary but insufficient for the future. The recommendation for sitting executives is to actively cultivate "ambidexterity," defined in the *Industrial Marketing Management* research as the ability to simultaneously exploit current capabilities while exploring new ones.

To achieve this, executives must systematically dismantle the silos within their own organizations. The *MDPI Systems* research emphasizes that resilience is a function of connectivity. Leaders should mandate cross-functional rotations and integrated "tiger teams" that force collaboration between disparate departments, such as procurement, logistics, and R&D. For example, a pharmaceutical TechOps leader should embed supply chain planners within the clinical development teams. This ensures that the supply chain function gains "early warning" visibility into the pipeline, while the scientific teams gain a realistic understanding of logistical constraints. By breaking down these walls, the executive fosters the "networked" culture that McKinsey identifies as a prerequisite for modern operations.

Furthermore, sitting executives must take personal ownership of their digital fluency. It is no longer acceptable for a COO or CSCO to view digital transformation as the domain of the IT department. As indicated by the *MDPI* findings, the "visibility" required to navigate volatility is entirely dependent on digital architecture (AI, blockchain, predictive analytics). Executives must commit to a rigorous program of continuous learning to demystify these technologies. They do not need to become data scientists, but they must understand the logic of the algorithms that drive their supply chains. They must be able to challenge the data, asking probing questions about the assumptions underlying a forecast or a risk model. Without this fluency, the executive effectively abdicates decision-making authority to the "black box" of the system, creating a new form of fragility.

Finally, executives must adopt the "entrepreneurial" mindset described in the *NIH/PMC* literature by institutionalizing a culture of psychological safety. The speed of adaptation in a crisis is directly proportional to the speed at which bad news travels upward. If an organization punishes failure or shoots the messenger, frontline managers will hide problems until they become catastrophes. Leaders must explicitly reward "constructive dissent" and rapid experimentation. They should celebrate "smart failures"—pilot programs that didn't work but provided valuable data—just as publicly as they celebrate successes. By decoupling personal risk from professional experimentation, the executive unlocks the latent agility of the workforce, transforming the organization from a rigid hierarchy into a responsive, adaptive organism.

Conclusion: Leadership as a Dynamic Capability

The synthesis of findings from academic research and industry analysis points to a singular conclusion: Leadership in the supply chain and pharmaceutical sectors is no longer a static role of administration, but a dynamic capability of orchestration. The volatility of the post-pandemic era is not a temporary aberration to be weathered, but a structural reality to be navigated.

The "efficiency-first" model, while financially seductive in the short term, has proven to be an existential liability in the long term. It created organizations that were lean, optimized, and brittle. The path forward lies in the cultivation of "resilience-first" leadership—a model that prizes agility over certainty, collaboration over command, and value over cost.

For Boards, this means paying for the insurance of resilience. For search firms, it means testing for the cognitive capacity to unlearn. And for executives, it means having the courage to

abandon the comfortable playbooks of the past in favor of the ambiguous, high-stakes requirements of the future. The organizations that will dominate the next decade are not necessarily those with the biggest assets or the lowest costs, but those with the most adaptable leadership. In a world of permanent "whitewater," the quality of the captain is the only variable that truly matters.

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