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Financial Sustainability and Entrepreneurial Strategy in Emerging Industrial Ventures: A Conceptual Framework

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ABSTRACT
This conceptual paper critically examines the emergence, strategic evolution, and financial sustainability of Dinson Iron and Steel Company (DISCO), a subsidiary of Tsingshan Holding Group, as a flagship entrepreneurial venture within Zimbabwe's volatile, uncertain, complex, and ambiguous (VUCA) industrial environment. The study explores how DISCO has designed a financially sustainable and resilient operating model by internalising critical utilities such as captive power and oxygen production, adopting staged capacity expansion, and embedding disciplined risk management systems. Through a multi-theoretical lens combining Chaos Theory, Innovation Management, Real Options Decision-Making, the Viable System Model (VSM), and Entrepreneurial Orientation, the paper explains how DISCO transforms turbulence into structured opportunity. These insights culminate in the DRISE framework, the DISCO Resilient Integrated Steel Ecosystem, which links sensing, strategizing, structuring, executing, and learning as a continuous loop to sustain performance and growth. Empirical and conceptual synthesis shows that financial sustainability in emerging industrial ventures depends not only on capital adequacy but also on systemic learning, resource orchestration, and adaptive organisational design. The paper contributes a practical conceptual model for managers, investors, and policymakers seeking to align entrepreneurial strategy with long-term financial viability in resource-constrained, high-volatility contexts.
Keywords: Financial Sustainability, Entrepreneurial Strategy, Emerging Industrial Ventures, Conceptual Framework, DRISE Model, Viable System Model (VSM), Real Options Decision-Making

1. Introduction

Financial sustainability has become a defining test of entrepreneurial survival and strategic success in emerging economies. In contexts marked by volatility, uncertainty, complexity, and ambiguity (VUCA), new industrial ventures face a dual challenge: they must build viable operating systems while securing enduring financial stability (Bennett & Lemoine, 2014). Zimbabwe's iron and steel sector epitomises this dilemma. Once a cornerstone of national industrialisation, the sector has struggled for more than a decade under high energy costs, unreliable electricity supply, currency volatility, and fragile logistics (EISAZ, 2025; Chamber of Mines, 2022a). For any new entrant, success requires more than installing production equipment, it demands constructing a financially self-sustaining ecosystem that integrates resources, energy, and market access in ways the broader environment cannot reliably provide.The emergence of Dinson Iron and Steel Company (DISCO), a subsidiary of Tsingshan Holding Group, provides a compelling case through which to explore how entrepreneurial ventures in heavy industry can sustain growth and financial resilience under these constraints. DISCO's approach, building on-site utilities such as oxygen, sintering, and power generation plants; deploying phased capacity expansion; and embedding tight working-capital discipline, demonstrates how system-building innovation can substitute for missing institutional infrastructure (DISCO, 2024; Sirmon, Hitt, Ireland, & Gilbert, 2011). This deliberate orchestration of resources transforms the liability of newness (Aldrich & Fiol, 1994; Yang & Aldrich, 2017) into an opportunity for financial control and learning-led scalability.Theoretically, DISCO's emergence illustrates the intersection of several well-established lenses. Chaos Theory underscores the importance of buffering small shocks that can trigger outsized financial and operational effects (Bennett & Lemoine, 2014). Innovation Management reframes process and utility integration as forms of systemic innovation that enhance cost efficiency, reliability, and competitiveness (Tidd & Bessant, 2021). Real Options Theory and the logic of bounded rationality highlight how managers can phase investment commitments to preserve flexibility and hedge risk (Trigeorgis, 1996; Adner & Levinthal, 2004; Simon, 1955). The Viable System Model (VSM) provides a blueprint for organising complex operations in a way that sustains internal balance and strategic coherence (Beer, 1984). Finally, Entrepreneurial Orientation (EO) theory explains how proactiveness, innovation, and calculated risk-taking (Lumpkin & Dess, 1996; Rauch et al., 2009) underpin the behaviour of ventures such as DISCO operating in unstable markets.

Drawing these perspectives together, this paper advances the DRISE conceptual framework, the *DISCO Resilient Integrated Steel Ecosystem*, which integrates sensing, strategizing, structuring, executing, and learning as a continuous loop. This model connects financial sustainability with entrepreneurial strategy by institutionalising real-time learning and disciplined resource allocation.

The rest of the paper proceeds as follows. Section 2 situates DISCO as an emerging entrepreneurial venture in Zimbabwe's industrial ecosystem. Section 3 presents the theoretical foundations, drawing from Chaos Theory, Innovation Management, Real Options, the Viable System Model, and Entrepreneurial Orientation. Section 4 develops the DRISE conceptual framework. Section 5 discusses practical insights around innovation, financial discipline, risk control, and organisational learning. Section 6 provides conclusions with while section 7 focuses on the recommendations for managers and policymakers aiming to enhance financial sustainability and strategic agility in emerging industrial ventures

2. Framing DISCO as an Emerging Organisation

Emerging organisations are not merely new enterprises; they are adaptive entities still in the process of constructing their internal systems, external legitimacy, and sustainable resource bases (Aldrich & Fiol, 1994; Yang & Aldrich, 2017). Their survival depends on how effectively they manage the "liability of newness" through entrepreneurial learning, innovation, and credible strategic behaviour (Rauch, Wiklund, Lumpkin, & Frese, 2009). In VUCA contexts, such as Zimbabwe's industrial landscape, emergence also requires the deliberate creation of an operating ecosystem that substitutes for absent or unreliable infrastructure (Bennett & Lemoine, 2014).

DISCO, a subsidiary of Tsingshan Holding Group, embodies these features of an emerging organisation. Rather than waiting for macroeconomic stability or policy certainty, DISCO is constructing a self-sufficient industrial ecosystem at Manhize by integrating oxygen generation, sintering, blast furnace and steel complex operations, and captive power generation within a single boundary (DISCO, 2024; EISAZ, 2025). This design mitigates energy and logistics risks that have historically undermined Zimbabwe's heavy industry (Chamber of Mines, 2022a). In innovation terms, this represents system-building, a form of process and utility innovation that enhances financial and operational resilience by internalising critical dependencies (Tidd & Bessant, 2021).From a strategic-financial perspective, DISCO's phased capacity development, from approximately 0.6 million tonnes to 5 million tonnes per year, illustrates the disciplined application of real-options logic (Trigeorgis, 1996; Adner & Levinthal, 2004). By tying each expansion phase to explicit triggers such as power reliability and firm demand, management preserves flexibility, reduces sunk-cost exposure, and enhances financial sustainability. This approach aligns with bounded rationality theory, which recognises that in uncertain settings, managers satisfice rather than optimise, relying on iterative learning and feedback loops to make adaptive investment choices (Simon, 1955).The firm's entrepreneurial orientation (EO) is also clear. DISCO exhibits innovativeness through technological integration, proactiveness in early market entry, and risk-taking tempered by resource orchestration (Lumpkin & Dess, 1996; Sirmon, Hitt, Ireland, & Gilbert, 2011). Backed by Tsingshan's global experience and resource base, DISCO converts these behavioural postures into tangible strategic advantages, transforming volatility into an arena for opportunity creation rather than vulnerability. The group's multi-sector presence in

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ferrochrome, coking coal, and energy provides ownership and internalisation advantages consistent with Dunning's (1980) eclectic paradigm, further anchoring the firm's financial and operational sustainability.

Crucially, DISCO's organisational evolution aligns with Stafford Beer's VSM, which emphasises balancing operational efficiency with long-term adaptability across interacting subsystems, operations (System 1), coordination (System 2), control (System 3), intelligence (System 4), and policy identity (System 5) (Beer, 1984). DISCO's project management and operational routines, daily huddles, weekly coordination meetings, and monthly performance reviews, reflect this viable system cadence, promoting both financial discipline and strategic coherence.

Taken together, these features position DISCO as a paradigmatic example of an emerging entrepreneurial organisation in a developing economy: innovative in its system design, financially disciplined in its growth strategy, and structurally viable in its organisational configuration. Its model demonstrates how entrepreneurial ventures can transcend contextual fragility by embedding innovation, real-options flexibility, and viable system governance into the core of their financial and operational strategy.

This framing lays the foundation for the subsequent theoretical analysis, which integrates Chaos Theory, Innovation Management, Strategic Decision-Making, the Viable System Model, and Entrepreneurial Orientation to explain how DISCO's architecture converts environmental turbulence into sustainable financial and strategic advantage.

3. Theoretical Framework

Financial sustainability in emerging industrial ventures is not achieved through financial capital alone, it depends on how effectively a firm senses volatility, innovates its processes, makes flexible investment decisions, and organises itself to remain viable under uncertainty. To explain this dynamic, the study draws on five complementary theoretical lenses: Chaos Theory, Innovation Management, Real Options and Dynamic Capabilities, the VSM, and Entrepreneurial Orientation (EO). Together, these perspectives form the conceptual backbone for analysing DISCO's emergence, strategic evolution, and financial resilience within Zimbabwe's volatile environment.

Chaos Theory and VUCA Awareness: Chaos Theory provides the foundation for understanding the unpredictability of complex systems. In environments characterised by high volatility, small disturbances, such as a tariff shift, policy amendment, or power outage, can trigger disproportionate systemic impacts (Bennett & Lemoine, 2014). For emerging ventures, financial sustainability depends on anticipating and buffering these nonlinear shocks through redundancy, short decision cycles, and early-warning mechanisms.Applied to DISCO, Chaos Theory explains the firm's proactive decision to install captive power and an 88 kV grid connection as "chaos-robust" design choices (DISCO, 2024; EISAZ, 2025). These investments create operational and financial buffers that stabilise production costs and cash flows. In this way, chaos awareness translates directly into financial sustainability by transforming environmental volatility into manageable, pre-modelled risk.

Innovation Management: Process, Utility, and Systemic Innovation: In heavy industry, innovation management extends beyond product innovation to include process and utility innovations that improve cost efficiency, reliability, and energy performance (Tidd & Bessant, 2021). By embedding oxygen generation, sintering, and captive energy production into a single integrated chain, DISCO demonstrates *system-building innovation*, the orchestration of interdependent processes that underpin both operational resilience and financial efficiency.

This approach aligns with the logic of ambidexterity, the ability to explore new solutions while exploiting existing capabilities (March 1991). By internalising critical utilities, DISCO reduces dependence on external providers, stabilises its input costs, and preserves profit margins in a high-cost energy market. Process and utility innovation thus act as the bridge between entrepreneurial strategy and sustainable financial performance.

Real Options, Bounded Rationality, and Dynamic Capabilities: In uncertain markets, firms rarely have full information to optimise decisions. Bounded rationality (Simon, 1955) recognises that managers must instead make satisficing decisions, those that are good enough given available knowledge, while learning iteratively. The real-options approach (Trigeorgis, 1996; Adner & Levinthal, 2004) offers a disciplined method to operationalise this principle by structuring investments as sequential, reversible commitments tied to explicit triggers.

DISCO's phased growth plan, from approximately 0.6 million to 5.0 million tonnes per year, embodies real-options logic. Each phase is conditional upon external triggers such as electricity price stability, logistics readiness, and firm order volume. This approach converts uncertainty into structured flexibility, allowing management to pause, pivot, or accelerate based on real-time conditions. The dynamic capabilities framework (Eisenhardt & Martin, 2000; Teece, 2007) further explains how DISCO builds routines, such as monthly strategic reviews and option registers, to continuously reconfigure its resources and sustain financial health amid changing conditions.

The Viable System Model (VSM): Structuring for Financial and Organisational Resilience: The Viable System Model (Beer, 1984) provides a systemic blueprint for designing organisations that remain stable and financially viable in turbulent contexts. It identifies five recursive subsystems: (1) operations, (2) coordination, (3) control, (4) intelligence and adaptation, and (5) policy and identity. Financial sustainability, in this model, emerges from the dynamic balance between short-term efficiency (Systems 1–3) and long-term adaptability (Systems 4–5).

DISCO's governance rhythm, daily operational huddles, weekly coordination on utilities, monthly control reviews, and quarterly strategic resets, reflects a practical application of the VSM structure (Lowe, Espinosa, & Yearworth, 2020). This rhythm institutionalises accountability and learning while ensuring that financial control mechanisms align with strategic foresight. As a result, the company avoids the twin dangers of operational chaos and strategic drift, both of which can erode financial viability in emerging industrial contexts.

Entrepreneurial Orientation (EO) and Market-Entry Strategy: Entrepreneurial Orientation (EO) captures a firm's behavioural posture of innovativeness, proactiveness, and risk-taking (Lumpkin & Dess, 1996; Rauch et al., 2009). EO links entrepreneurial behaviour directly to firm performance and, by extension, to financial sustainability when balanced with disciplined resource management.

DISCO's EO is evident in its bold greenfield investment in a volatile economy, its proactive internalisation of utilities, and its willingness to phase growth through controlled experimentation. The venture's ownership structure, rooted in Tsingshan's global capabilities, and its strategic location and integration advantages align with Dunning's (1980) eclectic paradigm, explaining how ownership, location, and internalisation advantages coalesce to sustain competitive and financial advantage. EO thus provides the behavioural and strategic complement to the financial systems that underpin DISCO's resilience.

Individually, each theory explains a specific dimension of emergence and financial sustainability. Collectively, they converge into a coherent logic:

- **Chaos Theory** informs early sensing and resilience design;
- **Innovation Management** guides process and utility integration;
- **Real Options** and **Dynamic Capabilities** govern strategic flexibility and investment discipline;
- **VSM** structures the organisation for balance and control; and
- **Entrepreneurial Orientation** anchors the behavioural drive that sustains momentum.

These insights culminate in the DRISE Conceptual Framework, the *DISCO Resilient Integrated Steel Ecosystem*, which operationalises the cycle *Sense → Strategize → Structure → Execute → Learn*. Through DRISE, DISCO converts environmental turbulence into a repeatable pattern of financial sustainability, entrepreneurial learning, and disciplined growth.

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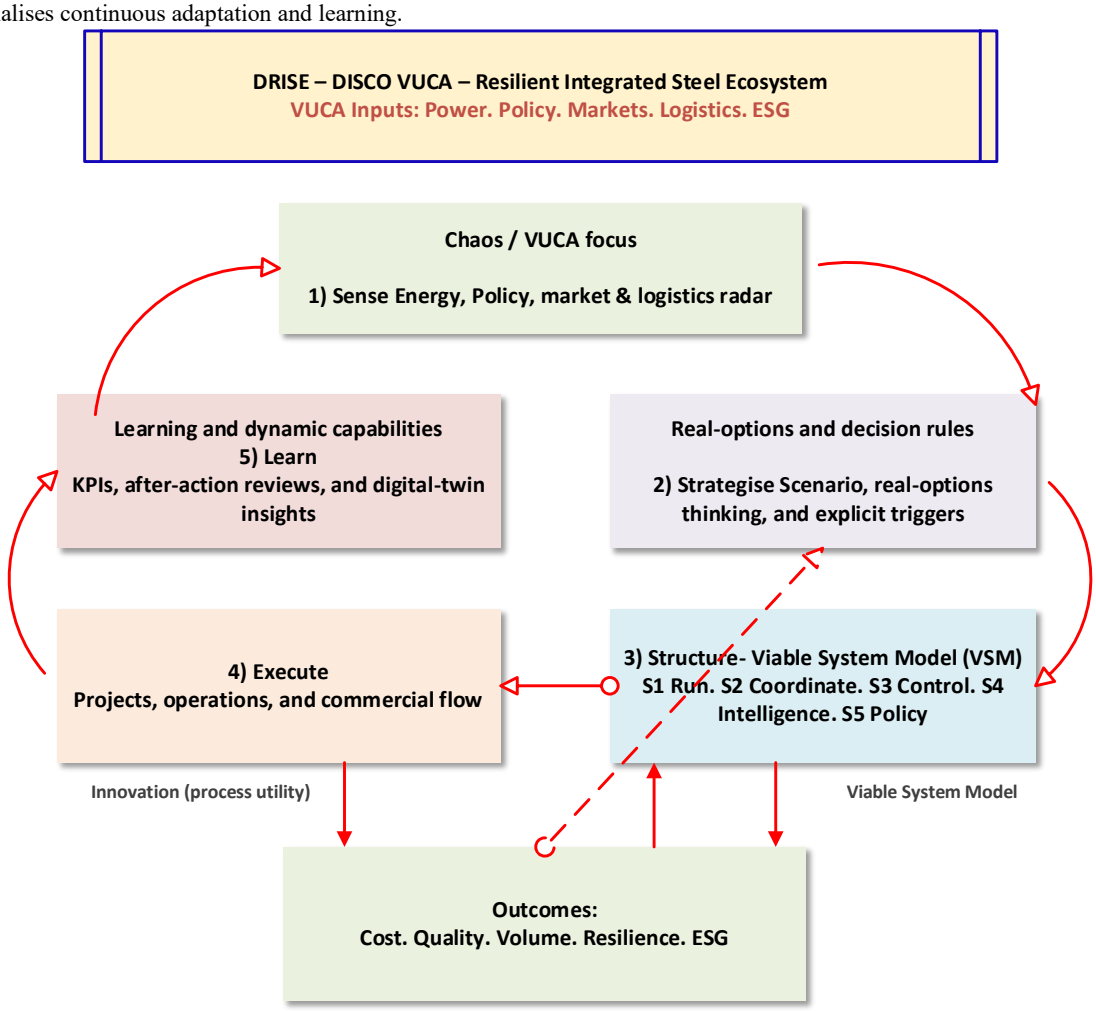
4. Developing the Conceptual Model: The DRISE Framework

Emerging industrial ventures operating in volatile environments require more than strong capital structures—they need an integrated learning and decision system that continually converts environmental turbulence into actionable knowledge, strategic flexibility, and financial sustainability. Building on the insights derived from Chaos Theory (Bennett & Lemoine, 2014), Innovation Management (Tidd & Bessant, 2021), Real Options and Dynamic Capabilities (Trigeorgis, 1996; Teece, 2007), the Viable System Model (Beer, 1984), and Entrepreneurial Orientation (Lumpkin & Dess, 1996), this study develops the DISCO Resilient Integrated Steel Ecosystem (DRISE), Figure 1 below, a conceptual framework that institutionalises continuous adaptation and learning.



Source: author generated

Figure 1. **DISCO Resilient Integrated Steel Ecosystem (DRISE)** DRISE conceptualises the firm as a *financially and strategically viable system* operating in a dynamic feedback loop of five stages: Sense → Strategize → Structure → Execute → Learn. This iterative cycle captures how entrepreneurial ventures like DISCO sustain financial health, strategic coherence, and organisational learning within high-volatility, resource-constrained settings (March 1991; Eisenhardt & Martin, 2000).

Sense: Scanning the Environment for Financial and Strategic Signals: The Sense stage represents the firm's early-warning and intelligence capability. Rooted in Chaos Theory and VUCA awareness, it involves continuously monitoring key variables, energy tariffs, logistics reliability, demand patterns, policy changes, and macroeconomic shifts, to anticipate disruptions before they cascade (Bennett & Lemoine, 2014). In financial terms, this equates to real-time monitoring of cost structures, cash flow exposure, and risk thresholds.

For DISCO, the "sensing" capability manifests through a *VUCA dashboard* that tracks power reliability, water supply, exchange rate movements, and customer demand. This aligns with System 4 (Intelligence) of Beer's (1984) Viable System Model, ensuring that strategic foresight informs financial planning. Sensing transforms uncertainty into data, which becomes the foundation for disciplined entrepreneurial decision-making and fiscal prudence.

Strategize: Converting Environmental Insights into Flexible Options: In the Strategize stage, environmental insights are transformed into viable options for action. Drawing on Real Options Theory (Trigeorgis, 1996; Adner & Levinthal, 2004) and bounded rationality (Simon, 1955), DRISE views strategy as a portfolio of contingent investment decisions, expand, defer, switch, or abandon, each tied to explicit triggers.

For example, DISCO's phased capacity expansion (0.6 → 5.0 million tonnes) represents a compound real option where each phase proceeds only when key thresholds, such as energy stability and confirmed orders, are achieved. This conditional commitment structure limits downside financial exposure while maintaining upside flexibility. Dynamic capabilities (Teece, 2007; Eisenhardt & Martin, 2000) ensure that strategy formation remains fluid, linking environmental sensing to resource reconfiguration. Strategizing, therefore, becomes a mechanism of financial sustainability through adaptive capital allocation.

Structure: Designing the Organisation for Viability and Control: The Structure stage operationalises Beer's (1984) VSM, which ensures that organisational architecture balances efficiency with adaptability. Financial sustainability depends on the firm's ability to align operations, coordination, control, intelligence, and policy identity (Systems 1–5). DISCO's internal governance rhythm, daily operational huddles (System 1), weekly coordination on utilities and logistics (System 2), monthly performance reviews (System 3), and quarterly strategic resets (System 5), exemplifies this balance. This cadence institutionalises financial control (through System 3) while maintaining strategic agility (through Systems

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4–5). The VSM thus provides the structural spine of DRISE, ensuring that entrepreneurial dynamism operates within a disciplined financial framework (Lowe, Espinosa, & Yearworth, 2020).

Execute: Translating Strategy into Operational and Financial Performance: The Execute stage captures the implementation of strategic decisions through operational excellence and financial discipline. Drawing on Innovation Management (Tidd & Bessant, 2021) and process integration logic, DISCO's execution framework centres on maintaining throughput stability, cost efficiency, and product quality while minimising financial leakage. Practical execution is supported by Key Performance Indicators (KPIs), such as energy intensity (kWh per tonne), yield, downtime, and working-capital days, that link technical performance with financial outcomes. These metrics reinforce learning-by-doing (March 1991), ensuring that operational efficiency directly supports profitability and long-term sustainability. Moreover, by internalising critical utilities like oxygen and power, DISCO reduces transaction costs and exposure to external market failures, an essential element of entrepreneurial strategy under VUCA conditions.

Learn: Institutionalising Organisational and Financial Learning

The Learn stage closes the DRISE loop through structured feedback and iterative improvement. Grounded in Organisational Learning Theory (March 1991) and Dynamic Capabilities (Teece, 2007), learning operates at two levels:

- *Single-loop learning* enhances process efficiency and cost control, and
- *Double loop learning* revises underlying assumptions about markets, energy strategy, or policy engagement.

DISCO's "After-Action Reviews" and monthly DRISE dashboards exemplify how experiential data are translated into operational and financial adjustments. Embedding learning routines not only raises performance but also strengthens the firm's financial resilience by preventing the recurrence of high-cost disruptions. As Eisenhardt and Martin (2000) note, this kind of adaptive learning constitutes a dynamic capability that differentiates sustainable ventures from fragile ones.

Integrative Value: DRISE as a Model for Financially Sustainable Entrepreneurship

The DRISE framework synthesises the five theoretical lenses into a continuous system of strategic sensing, adaptive planning, organisational structuring, disciplined execution, and embedded learning. Its contribution lies in demonstrating how entrepreneurial ventures can maintain financial sustainability while scaling in uncertain environments:

- *Chaos Theory* underpins sensing and resilience design;
- *Real Options and Dynamic Capabilities* support flexible investment and capital discipline;
- *Innovation Management* operationalises cost-efficient system-building;
- *VSM* provides a structural template for governance and control; and
- *Entrepreneurial Orientation* ensures a proactive and opportunity-driven posture.

In conceptual terms, DRISE extends the literature on industrial entrepreneurship by integrating financial systems thinking with organisational viability. In practical terms, it offers a repeatable playbook for managers and policymakers: anticipate volatility, structure investments with options, design viable organisations, execute with fiscal discipline, and learn continuously. The result is an *entrepreneurial ecosystem that is not only operationally robust but financially self-sustaining*.

5. Discussion

The DRISE framework provides a structured yet adaptive logic for understanding how emerging industrial ventures achieve financial sustainability through entrepreneurial strategy. When applied to DISCO, the model reveals how the company has translated theoretical insights into pragmatic, financially grounded management routines. Each phase of the DRISE cycle, Sense, Strategize, Structure, Execute, and Learn, interacts dynamically to sustain both operational and financial performance in a VUCA environment.

Innovation and Technology: System-Building for Financial Resilience

DISCO's integrated plant design, comprising on-site oxygen generation, sintering, blast furnace, and captive power units, represents process and utility innovation (Tidd & Bessant, 2021). Rather than viewing innovation purely as technological novelty, DISCO applies it as a mechanism for *system reliability* and *cost control*. This innovation strategy internalises key value-chain functions, thereby insulating the firm from external infrastructure failures that could threaten financial viability.

By generating its own power and securing dedicated grid connections, the company reduces energy volatility, a critical determinant of production costs and cash-flow stability (Chamber of Mines, 2022b). Such innovations align with Sirmon, Hitt, Ireland, and Gilbert's (2011) notion of resource orchestration, where managers structure and leverage assets to overcome contextual constraints. In effect, innovation becomes a financial safeguard, not merely a technological ambition, ensuring that productivity gains translate directly into profitability.

Strategic Planning and Agility: Real Options as Financial Discipline

DISCO's phased growth model demonstrates the application of real options logic as a tool of financial prudence (Trigeorgis, 1996; Adner & Levinthal, 2004). Each expansion phase, moving from 0.6 to 5.0 million tonnes annually, is contingent upon predefined triggers, such as tariff stability, logistics readiness, and demand assurance. This approach operationalises bounded rationality (Simon, 1955), accepting imperfect information and embedding flexibility into capital decisions.

Strategic agility is reinforced through dynamic capabilities (Teece, 2007), enabling the firm to adjust its resource configuration in real time as market conditions evolve. For example, during high-tariff periods, DISCO prioritises less energy-intensive products and maximises captive generation, reducing cost exposure. When logistical bottlenecks occur, it shifts toward local sales and short-term ex-works arrangements. These adaptive measures reflect how *strategic agility supports financial sustainability*, balancing opportunity pursuit with cash-flow discipline.

Organisational Structure and Culture: Embedding Viability through VSM

Financial sustainability in a complex enterprise requires internal coherence, ensuring that operational efficiency, coordination, and governance reinforce one another. The Viable System Model (Beer, 1984) provides a systemic template for this coherence. DISCO's management rhythm, daily operational meetings, weekly coordination on utilities, monthly performance reviews, and quarterly strategy resets, maps directly onto the VSM's five interacting subsystems (Lowe, Espinosa, & Yearworth, 2020).

This recursive structure stabilises decision-making and prevents financial and operational drift. System 1 (operations) drives production, System 3 (control) maintains cost and compliance discipline, while System 4 (intelligence) anticipates market and policy shifts. The result is a governance architecture that balances short-term financial efficiency with long-term viability. Moreover, this rhythm nurtures a learning-oriented organisational culture, critical for sustaining entrepreneurship under uncertainty (March 1991).

Customer Relations and Market Orientation: Entrepreneurial Proactiveness in Action

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Financial sustainability is inseparable from market responsiveness. DISCO's direct business-to-business sales model, targeting re-rollers, construction firms, and fabricators, demonstrates EO through proactiveness, innovativeness, and calculated risk-taking (Lumpkin & Dess, 1996; Rauch et al., 2009). By avoiding intermediaries and enforcing cash-in-advance terms, the firm maintains liquidity and minimises credit risk, key tenets of sound financial strategy in volatile economies.

Furthermore, DISCO's planned customer councils and collaborative logistics solutions ("milk-run" systems) reflect adaptive market orientation and relationship learning, both of which enhance demand predictability and throughput stability. This market-driven entrepreneurial behaviour transforms customer feedback into operational insights, closing the loop between EO and financial performance (Wiklund & Shepherd, 2005).

Risk Management and Performance Monitoring: Linking Chaos Awareness to Control Systems

In a VUCA environment, risk management becomes a dynamic rather than static process. Drawing on Chaos Theory (Bennett & Lemoine, 2014), DISCO's approach to risk control involves pre-defined "tripwires" that trigger adjustments to production or investment when external variables, such as tariffs, exchange rates, or logistics capacity, deviate from thresholds.

Financially, these tripwires act as early warning indicators, protecting working capital and preventing over-commitment. The company's DRISE dashboard integrates operational and ESG metrics (energy intensity, downtime, on-time delivery, safety, and emissions), providing a real-time financial-technical performance snapshot. This combination of *chaos awareness and managerial discipline* exemplifies how theoretical foresight can translate into financial resilience and governance accountability.

Organisational Learning and Continuous Improvement: Building Dynamic Financial Capability

Learning is the capstone of DRISE and the anchor of long-term sustainability. By institutionalising After-Action Reviews and monthly DRISE dashboards, DISCO fosters continuous improvement loops consistent with Organisational Learning Theory (March 1991). These feedback mechanisms ensure that mistakes generate insight rather than loss, and that each operational cycle refines both process efficiency and financial control.Over time, this systematic learning evolves into a dynamic capability, a routinised capacity to reconfigure assets and competencies in response to shifting conditions (Eisenhardt & Martin, 2000; Teece, 2007). Such adaptive learning transforms financial management from a reactive exercise into a proactive capability, one that stabilises performance and secures investor confidence even in unpredictable policy or market climates. ***Integrative Reflection: DRISE as a Financially Sustainable Entrepreneurial System***

Taken together, these practices confirm that the DRISE model is not merely conceptual but actionable. DISCO's experience demonstrates that financial sustainability in emerging industrial ventures depends on five interlocking dynamics: (i) sensing volatility early, (ii) strategizing with optionality, (iii) structuring for systemic balance, (iv) executing with efficiency and discipline, and (v) learning continuously from outcomes.

This synthesis resonates with Teece's (2007) assertion that dynamic capabilities, not static resources, drive sustainable enterprise performance. It also supports Beer's (1984) argument that organisational viability emerges from balanced interaction among operations, coordination, control, intelligence, and policy. For policymakers and managers, the key implication is clear: *financial resilience is designed, not improvised*. The DRISE framework offers a practical route for designing that resilience through disciplined entrepreneurship, system integration, and continuous learning.

6. Conclusions

This study set out to examine how financial sustainability and entrepreneurial strategy intersect to shape the emergence and growth of industrial ventures in volatile economies, using DISCO as a case study. Grounded in five theoretical lenses, Chaos Theory, Innovation Management, Real Options and Dynamic Capabilities, the VSM, and EO, the analysis revealed that sustainable industrial emergence is not the product of stable environments, but of *adaptive systems capable of learning and self-correction*.

DISCO's experience demonstrates that financial sustainability in a VUCA context depends on the ability to design an integrated, self-reinforcing ecosystem where strategy, operations, and learning are tightly coupled. By internalising critical utilities, deploying a phased investment model, and embedding a viable system structure, the firm has operationalised financial resilience through disciplined entrepreneurship (Beer, 1984; Trigeorgis, 1996; Teece, 2007). This approach aligns with Dynamic Capabilities Theory, which emphasises the strategic importance of sensing opportunities, seizing them through investment discipline, and reconfiguring resources for sustained advantage (Eisenhardt & Martin, 2000; Teece, 2007).The DRISE conceptual framework provides a replicable model for embedding financial sustainability into the DNA of emerging industrial ventures. Each stage of DRISE is underpinned by a corresponding theoretical principle: Chaos Theory enables early sensing of instability; Real Options introduce financial flexibility; Innovation Management and VSM provide structural stability; and Entrepreneurial Orientation drives proactivity and learning. Together, these elements form a resilient entrepreneurial system that converts turbulence into structured opportunity and uncertainty into disciplined growth.

In essence, the DISCO case confirms that *systemic resilience is designed, not discovered*. Through iterative learning and dynamic feedback loops, the firm has demonstrated that financial stability can coexist with strategic agility, proving that emerging ventures can achieve both growth and sustainability even in resource-constrained environments.

7. Recommendations

Based on the conceptual and empirical insights from this study, several practical recommendations emerge for managers, policymakers, and investors seeking to foster financially sustainable entrepreneurial ventures in developing economies:

Institutionalise the DRISE Management Rhythm.

Establish structured management cycles that mirror the DRISE logic, daily operational huddles, weekly coordination meetings, monthly performance reviews, and quarterly strategic resets. This cadence aligns short-term control with long-term strategic adaptation (Beer, 1984; Lowe, Espinosa, & Yearworth, 2020).

Embed Real Options Thinking in Capital Allocation.

All major investments should be treated as sequential, reversible decisions with defined "go, pause, or pivot" triggers tied to energy costs, logistics capacity, and market demand. This approach maintains liquidity and financial agility (Trigeorgis, 1996; Adner & Levinthal, 2004).

Prioritise Innovation as a Financial Strategy.

View process and utility innovation not as cost centres but as enablers of cost stability and margin protection. Internalising critical systems such as energy and oxygen supply transforms infrastructure fragility into competitive advantage (Tidd & Bessant, 2021; Sirmon et al., 2011).

Strengthen Financial Governance through the VSM Framework.

Use the Viable System Model to balance operational efficiency with financial oversight. System 3 should ensure fiscal control and compliance, while Systems 4 and 5 provide market intelligence and policy foresight to guide strategic investment (Beer, 1984).

Foster a Learning and Entrepreneurial Culture.

Institutionalise *After-Action Reviews* and *DRISE dashboards* that connect performance metrics, energy efficiency, yield, working capital days, to learning outcomes. Learning should become a financial capability that continuously reduces costs and improves reliability (March 1991; Teece, 2007).

1. **Align Policy and Investment Incentives with Resilient Systems Design.**

Policymakers should support ventures that internalise utilities, adopt phased investment strategies, and demonstrate ESG-linked learning capacity. Regulatory stability and reliable energy pricing are essential to scale such systemic models sustainably.

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Develop Cluster-Based Industrial Ecosystems.

Encourage linkages between primary producers, re-rollers, and fabricators to create shared logistics, testing facilities, and supply-chain resilience. Such clustering enhances domestic value retention and collective financial stability (Dunning, 1980; Rauch et al., 2009).

The DRISE framework offers managers a disciplined pathway for building financially sustainable and adaptive organisations in turbulent markets. For leadership teams, it underscores the need to institutionalise *strategic sensing* and *real-time decision loops* that balance entrepreneurial agility with fiscal prudence (Eisenhardt & Martin, 2000). Investors can interpret DRISE as evidence that capital efficiency and innovation are not competing priorities but mutually reinforcing, real-options logic ensures liquidity while innovation secures cost competitiveness (Trigeorgis, 1996; Tidd & Bessant, 2021). Policymakers, meanwhile, can use the model as a template for designing industrial policy that rewards resilience-building behaviour, such as process innovation, utility internalisation, and cluster integration, rather than short-term output expansion. Ultimately, DRISE reframes managerial effectiveness as the ability to convert uncertainty into structured opportunity, linking entrepreneurial ambition with enduring financial and systemic resilience

Ultimately, the DRISE framework provides both a conceptual and operational blueprint for financially sustainable entrepreneurship in industrial contexts. It integrates the agility of the entrepreneur with the discipline of systems thinking, bridging innovation and finance through learning and structure. For emerging economies, the key implication is clear: by institutionalising *sensemaking, flexibility, and viability*, entrepreneurial ventures can thrive even in environments of chronic uncertainty

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