Strategic and Systemic Review

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Contents

Attribution

1. Executive Summary

1.1. Conclusions

Stellantis now enters a leadership transition following the resignation of Chief Executive Officer Carlos Tavares on 1 December 2024, after a year marked by sharp declines in profit, valuation, and market share. This event crystallises the system's central tension: financial discipline delivered short-term resilience but constrained adaptability, leaving the organisation exposed when volatility intensified.

The analysis identifies three dominant feedback loops—*Capital–Freedom*, *Autonomy–Innovation*, and *Innovation–Return*—that together sustain a **High-Variance Equilibrium**: stability maintained through controlled variability. In 2024 that equilibrium failed, revealing the limits of a governance model that equated control with coherence.

To restore long-term coherence, Stellantis must convert financial virtue into learning capacity, embedding adaptive experimentation within its next phase of leadership. Strategic emphasis should shift from cost control to learning productivity, measured through innovation-conversion ratios, talent transition velocity, and ESG-trust deltas.

1.2. Method Overview

This assessment applies the *Glandore method*, a multi-layered analytic framework integrating empirical evidence, systems reasoning, foresight, and governance design. The process comprised:

1. **Empirical Layer (Tier 0)** — desk research drawing on official filings, market data, and validated academic and consultancy sources.
2. **Analytic Layer (Tiers 1–2)** — construction of the Stellantis Knowledge Engine to model internal feedback loops and interdependencies.
3. **External Layer** — mapping of environmental opportunities, threats, and wicked problems to reveal adaptive tensions.
4. **Foresight Layer** — development of three 2026–2030 scenarios (*Stewardship*,

Fragmentation, *Reinvention*) to explore plausible futures.

5. **Governance Layer** — creation of a *Stewardship and Watch-List* translating systemic insights into monitoring criteria and strategic vigilance.
6. **Quantitative Anchor** — DCF and sensitivity analysis validating capital-cost elasticity and scenario-linked valuation effects.

The outcome is an integrated narrative that links financial performance, organisational learning, and policy exposure within a coherent complex-systems framework.

1.3. On the use of Digital Associates

Digital associates were engaged as structured reasoning partners within the Tychevia Knowledge Engine.

Each associate embodies a distinct epistemic stance—analytic, reflexive, relational, or foresight-oriented—allowing the system to interrogate problems from multiple cognitive and methodological angles.

Their contributions are not generative substitutions for human expertise but dialogic amplifiers that enhance pattern recognition, synthesis, and conceptual coherence.

All interactions are logged, traceable, and subject to human interpretation to maintain authorship integrity and epistemic accountability.

2. Method

Our approach to assessing an organisation's strategy from both a formulation and execution perspective is based on viewing it as a Complex Adaptive System. (see Section **10.1** for further details); making effective use of its Strengths and mitigating its Weaknesses to respond to external Opportunities and Threats that present as wicked problems (see Section **10.2** for further details).

The sequence applied is:

- Desk research (Tier 0) to establish the empirical base.
- Construction of a company-specific Knowledge Engine: Tier 1 Domains, Tier 2 Artefacts, core feedback loops and indicators.
- Analyse the External environment to define the adaptive landscape.
- Apply Systemic and Strategic synthesis to integrate the evidential and reflexive layers of the Knowledge Engine.
- Identify root cause(s) by applying a Multi-Agent "5 Whys" root cause analysis
- Create a Scenario Layer to translate external volatility into structured foresight.
- Calculate an *Implied Share Price DCF* to anchor the behavioural analysis in quantitative valuation.
- Formulate *Stewardship Proposals* to close the gap between strategic intent and investor perception.
- Compile of a medium-term *Watch List* to monitor validation points.

3. Desk Research

3.1. Purpose

This desk-research summary establishes the evidential base for the *Stellantis Knowledge Engine v1.x*.

It draws primarily on official Stellantis Annual and Semi-Annual Reports, S&P Global Ratings releases and validated industry databases. Secondary academic and media sources are incorporated for context and triangulation only. Together, these materials provide a consolidated view of the group's formation, financial posture, strategic direction and policy environment as at Q3 2025.

3.2. Overview and Formation

Stellantis N.V. is a global automotive manufacturing group formed in January 2021 through the merger of *Fiat Chrysler Automobiles N.V.* (FCA) and *Groupe PSA* [1–3]. Legally headquartered in the Netherlands, with principal operational centres in France, Italy and the United States, Stellantis ranks among the world's largest vehicle manufacturers. Its fourteen core brands include Jeep, Ram, Peugeot, Citroën, Opel/Vauxhall, Fiat, Alfa Romeo and Maserati [4–6].

The merger sought to leverage complementary geographic footprints and realise scale efficiencies across platforms, R&D and electrification pipelines. Early analyses identified cost synergies, technology sharing and global diversification as principal value drivers [1, 2].

3.3. Financial Performance and Market Position

According to the 2024 Annual Report and Form 20-F [7], Stellantis recorded consolidated net revenues above €189 billion with a recurring operating margin of 10.8 %. Interim results for H1 2025 show a 13 % decline in net revenues to €74.3 billion as tariff and cost pressures intensified [8]. In July 2025 S&P Global Ratings downgraded Stellantis to BBB, citing execution risk in meeting EU CO_2 targets and accelerating fleet decarbonisation [9].

Despite these headwinds, management announced a US$13 billion (≈ €11 billion) programme to expand North-American production and create 5 000 new jobs [10–12]. Shipment data indicate recovery momentum, with Q3 2025 global deliveries rising 13 % year-on-year [13]. The group's cash-flow resilience offsets margin compression, suggesting structural rather than cyclical weakness.

3.4. Strategic Orientation and Electrification

Stellantis pursues a dual-track electrification strategy—balancing battery-electric (BEV) and plug-in hybrid (xEV) technologies—to address divergent regional energy markets [14, 15]. Its four STLA platform families (Small, Medium, Large, Frame) underpin over 75 BEV models, with a target for 100 % of European passenger-car sales to be electric by 2030 [16]. Recent patent filings highlight experimentation with alternative propulsion systems such as wind-energy integration [17].

Analysts note that electrification remains capital-intensive and exposed to regulatory volatility, commodity constraints and consumer-adoption uncertainty [15, 18]. The withdrawal from hydrogen fuel-cell van production in June 2025 [19] underscores prioritisation of mainstream electrification pathways over diversified energy bets.

3.5. Sustainability and ESG Performance

Stellantis' sustainability reporting is codified in its 2024 Expanded Sustainability Statement [20] and 2023 Corporate Social Responsibility Report [21]. Disclosures follow GRI and SASB standards, tracking progress on decarbonisation, circular economy and human-capital objectives. Independent studies place Stellantis among the mid-to-strong performers in transparency relative to global peers [22].

The group's circular-economy initiative, *SUSTAINera*, launched in 2022 under the Dare Forward 2030 strategy, unites all Stellantis recycling, remanufacturing, and repair operations under a single brand.

Centred on the Mirafiori Circular Economy Hub in Turin, it remanufactures engines and components, recycles critical materials such as batteries and metals, and refurbishes vehicles for second-life use. The programme is designed not merely as a compliance measure but as a profit-generating business model—reducing raw-material dependency and lifecycle emissions while strengthening ESG credibility

and investor appeal.

Table 1: Overview of the *SUSTAINera* Circular-Economy Programme

Aspect	**Description**
Purpose	Integrate circular principles across the vehicle life cycle to minimise waste and maximise component reuse.
Core Activities	Remanufacturing of engines and components; recycling of batteries, metals, and plastics; refurbishment and second-life deployment of vehicles.
Operational Hub	Mirafiori Circular Economy Hub (Turin, Italy) serving as the central facility for logistics, remanufacturing, and training.
Strategic Role	Positioned as a profit-generating sustainability platform supporting the Dare Forward 2030 objectives.
ESG and Financial Impact	Lowers carbon footprint and raw-material dependency, enabling ESG-linked financing and improved investor perception.

3.6. Industrial Policy, Risk and Geopolitical Exposure

Stellantis' strategic footprint leaves it sensitive to transatlantic trade policy, EU CO_2 frameworks and UK industrial subsidies. Reports in *The Guardian* warned that UK plants could close without greater government support for EV manufacturing [23]. Subsequent policy statements in late 2024 indicated partial mitigation, yet exposure persists. Chief Executive Carlos Tavares continued to emphasise cost discipline and regulatory realism [24, 25]. Observers agree that long-term success depends on balancing decentralised brand autonomy with centralised efficiency [5, 26].

3.7. Current Leadership and Governance

From the 2021 merger through late 2024, Stellantis was led by Chief Executive Officer Carlos Tavares, whose tenure was defined by strict cost discipline, decentralised accountability, and outspoken criticism of regulatory volatility.

His approach delivered strong margins in 2023 but limited organisational flexibility as electrification pressures intensified. On 1 December 2024 Tavares resigned abruptly following a 70 % decline in net profit and a stock-market fall of more than 50 % from early-year peaks. The Board established an interim executive com-

mittee chaired by John Elkann to stabilise operations and begin the search for a successor. The episode exposed a structural tension at the core of Stellantis' governance model—financial control as a substitute for adaptive learning—and positioned leadership renewal as a precondition for restoring coherence and market confidence.

3.8. Conclusion

Stellantis exemplifies both the promise and the tension of large-scale automotive consolidation. Its diversified brand portfolio, disciplined cost management and major North-American investment provide resilience, while regulatory, technological and market pressures remain acute. Analysts describe 2025 as a transition year in which disciplined execution of the electrification pivot will determine whether Stellantis realises the merger's intended value [6, 15].

4. Creating the Knowledge Engine

4.1. Empirical Layer

The "Empirical Layer" is a register of verifiable inputs that define the factual boundaries of what the system currently "knows".

The Desk Research suggests that these boundaries include:

- ❖ Merger completion and governance foundation [3].
- ❖ Annual and semi-annual results for financial posture [7, 8].
- ❖ xEV transition and technology roadmap [14, 25].
- ❖ Policy exposure and plant risk [23].
- ❖ Ratings and capital discipline [9].
- ❖ Circularity initiatives [27].

On this evidential foundation, Stellantis' adaptive logic can be traced through three interdependent feedback loops:

1. **Capital → Brand Freedom** – Profitability enables brand autonomy.
2. **Autonomy → Innovation** – Freedom drives differentiated innovation.
3. **Innovation → Capital Return** – Successful innovation reinforces financial strength.

These loops form the company's adaptive engine. Balance among them determines whether Stellantis behaves as a learning ecosystem or as a rigid federation. Excess control stifles variety; excess freedom fragments coherence.

Core adaptive hypothesis: *Resilience arises when financial discipline, brand identity and innovation diversity remain in productive tension.*

4.1.1. Loop 1 – Capital → Brand Freedom

System logic

Central profitability funds autonomy at the edge. Group scale and purchasing efficiency create financial headroom for differentiated brands [7, 8].

Adaptive risks

When capital discipline tightens—through buybacks, dividend policy or ratings anxiety [9]—brands lose manoeuvrability. Creative risk-taking declines and the system trades optionality for predictability.

Domains anchored in this loop

- Markets & Brands.
  Regional diversity supplies earnings stability [5, 6]. Pricing power and brand clarity hinge on allowing local adaptation within global cost frames.
- People & Organisation.
  Freedom at the edge depends on trust in the centre. Integration between FCA's entrepreneurial ethos and PSA's procedural discipline remains incomplete; decision latency signals friction in this loop.

4.1.2. Loop 2 – Autonomy → Innovation

System logic

Autonomy fuels exploration. Distinct brands act as laboratories for new design, propulsion and software ideas [14, 20].

Adaptive risks

Uncoordinated autonomy leads to duplication; insufficient autonomy leads to conformity. The challenge is to maintain shared architectures that still allow genuine discovery.

Domains anchored in this loop

- Product & Technology.
  The STLA platform family seeks to standardise below and differentiate above. Battery cost and weight volatility test this balance [25]. Innovation remains largely incremental.
- Sustainability & License to Operate.
  Circular-battery and recycling pilots [27] illustrate experimental capacity. To mature, they must evolve from narrative to profit-engine—turning compliance into innovation.

4.1.3. Loop 3 – Innovation → Capital Return

System logic

Innovation must translate into measurable capital return, completing the adaptive circuit. When it does, the centre perceives experimentation as productive rather than risky.

Adaptive risks

If financial metrics fail to capture long-cycle innovation, the loop collapses: capital reasserts dominance, starving the next wave of learning.

Domains anchored in this loop

- Capital & Finance.
  Free cash flow and credit metrics define the system's moral boundary [8, 9]. Prudence sustains resilience but can calcify decision-making.
- Policy & Risk.
  Plant viability depends on industrial-policy alignment [23]. External subsidies currently substitute for internal flexibility—a form of borrowed adaptability.

4.1.4. Cross-loop Dynamics

The three circuits interact continuously:

- Strong cashflow (Loop 1) expands brand freedom, increasing experimentation (Loop 2).

- Effective innovation (Loop 2) converts to capital return (Loop 3).
- When Loop 3 dominates, control rises and Loop 1 shrinks—creating oscillation between efficiency and exploration.

These oscillations reveal the structural rhythm of Stellantis as a complex adaptive system: coherence sustained through managed disequilibrium. Thus, the health of Stellantis as a CAS depends on preventing any single loop from monopolising attention.

4.2. Learning Loop and Reflexive View

Belief system: "Discipline equals safety." Operational learning is strong; epistemic learning weak. Experimentation is tolerated only when financially justified. True adaptation will require translating financial prudence into moral permission to explore.

4.3. Investor Interface

The investor perception outlined here mirrors the financial dynamics described in Section 3, translating operational reality into market narrative.

4.3.1. Value-creation logic

Brand-differentiated scale and cash discipline combine to produce stable returns. Investors reward predictability; markets discount limited innovation visibility.

4.3.2. Fragility zones

- Battery cost and chemistry volatility.
- Policy reversals in Europe and UK.
- Cultural integration lag.
- Slow translation of innovation into earnings.

4.3.3. Credibility assessment

Dimension	Character and implication
Strategy narrative	Coherent but risk-averse; financial virtue substitutes for vision.
Execution	Strong operationally; innovation cadence behind rhetoric.
Governance	Predictable and investor-friendly; low plasticity.
Market perception	Valuation discount mirrors uncertainty about adaptive speed.

5. External Environment

5.1. Opportunities

Category	Opportunity	Strategic Implication
Policy and Industrial Strategy	U.S. and EU re-industrialisation programmes (Inflation Reduction Act, EU Green Deal Industrial Plan) offer substantial EV incentives and tax credits.	Deepen localisation of production and secure state-backed capital efficiency for EV and battery plants.
Electrification Demand Curve	Rapid acceleration of BEV and hybrid adoption across Europe, China, and North America.	Expands addressable market for the STLA platform family and enables scale economies in battery procurement and software integration.
Software and Data Monetisation	Connected-vehicle services, over-the-air updates, and subscription models are reshaping OEM margins.	Diversify revenue beyond hardware; build recurring income through mobility-software ecosystems.
Circular Economy and ESG Leadership	Investor preference for measurable decarbonisation, resource recovery, and closed-loop manufacturing.	Leverage the *SUSTAINera* programme and recycling partnerships as competitive differentiators; lower cost of capital via ESG-linked financing.

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Category	Opportunity	Strategic Implication
Strategic Partnerships and Alliances	Joint ventures in batteries, semiconductors, and autonomous systems (e.g. with CATL, Foxconn, Waymo).	De-risk technology investment and accelerate capability building through shared innovation.
Emerging Markets and Regional Diversification	LATAM and MEA markets show stable ICE demand; India and ASEAN poised for hybrid growth.	Geographic hedge against European policy volatility; maintain profit base during EV transition.
Labour Reskilling and Automation	Smart manufacturing and AI-assisted design offer productivity gains.	Rebuild human-capital narrative and improve labour relations through proactive upskilling programmes.

5.2. Threats

Category	Threat	Strategic Risk
Regulatory Volatility	Rapid tightening of EU CO_2 standards and delayed global harmonisation of EV rules.	Higher compliance cost and complex platform planning; risk of stranded ICE assets.
Policy Dependence and Subsidy Exposure	Reliance on government incentives for EV competitiveness in Europe and the UK.	Subsidy withdrawal could render domestic production uneconomic.
Technology Race and Competitive Intensity	Tesla, BYD, and Chinese OEMs scaling with cost and software advantages.	Price compression in BEV segments; margin erosion and technological credibility risk.
Battery Supply-Chain Constraints	Volatility in lithium, nickel, and graphite prices; limited European cell capacity.	Cost inflation and production bottlenecks; potential delay in BEV rollout.
Currency and Interest-Rate Sensitivity	Multi-currency revenue base (EUR, USD, BRL) exposed to exchange swings; higher rates reduce affordability.	Profit volatility and pressure on financing arms.
Labour Relations and Political Risk	Union pressure in European plants and social tension over automation.	Production disruption or reputational damage if workforce transition mismanaged.
Cybersecurity and Software Reliability	Expanding attack surface from connected-vehicle architectures.	Data breaches or product recalls could erode consumer trust.

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Category	Threat	Strategic Risk
Cultural Inertia	Federated structure may impede cross-brand learning and slow decision cycles.	Limits exploitation of new technologies; strategic rigidity.
Geopolitical Fragmentation	Persistent U.S.–China tension and potential trade fragmentation.	Supply-chain fragility and tariff exposure.

5.3. Interpretive Summary

Stellantis operates within a high-variance external system—rich in opportunity yet volatile in policy and competition. Its advantage lies in scale, cash discipline and global diversification; its vulnerability lies in policy dependence and cultural inertia. To convert external turbulence into opportunity, Stellantis must:

1. Exploit industrial-policy tailwinds without over-reliance on subsidies.
2. Accelerate software and circular-economy initiatives into genuine revenue streams.
3. Strengthen adaptive learning and decision speed to match more agile competitors.

5.4. Wicked Problems

Table 4: External Wicked Problems

Wicked Problem	**Core Description**	**Adaptive Tension / Feedback Loops**
Policy-Dependence Paradox	Stellantis' competitive position depends on EV subsidies and industrial policy frameworks it cannot control.	Incentives drive localisation → cost stability → political exposure → policy change → renewed uncertainty. Attempts to de-risk through lobbying deepen dependence.
Electrification Cost Spiral	The transition to BEVs is essential for compliance yet compresses margins and inflates capital demand.	Battery cost ↓ through scale → demand ↑ → raw-material cost ↑ → margin ↓. Each wave of investment triggers a new cost plateau rather than resolution.
Innovation–Discipline Loop	Corporate culture prizes fiscal discipline over experimentation.	Financial control ensures resilience → limits autonomy → suppresses radical innovation → erodes future resilience → reinforces control.
Talent Transition Dilemma	Automation and electrification demand new skills faster than existing workforces can adapt.	Efficiency gains → job insecurity → resistance → slower adoption → renewed cost pressure. The social cost of productivity improvements feeds operational drag.

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Wicked Problem	**Core Description**	**Adaptive Tension / Feedback Loops**
Supply-Chain Fragility Trap	Global sourcing delivers efficiency but magnifies exposure to geopolitical shocks.	Offshoring lowers cost → raises vulnerability → localisation raises cost → reduces flexibility → encourages re-offshoring. The loop oscillates between risk and expense.
ESG Credibility Gap	High disclosure transparency contrasts with uneven implementation across regions and brands.	Enhanced reporting → raised expectations → scrutiny of lagging units → reputational drag → more reporting. Visibility without uniform capability perpetuates the cycle.
Technological Arms Race	Competitors with software or battery leadership reset industry baselines faster than Stellantis can adapt.	Competitor innovation → price compression → Stellantis retrenchment → R&D under-investment → widening capability gap.
Brand Identity Diffusion	Fourteen brands ensure reach but dilute coherence in a software-defined, platform-based market.	Platform integration → brand homogenisation → loss of differentiation → reduced pricing power → pressure for further integration.

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Wicked Problem	Core Description	Adaptive Tension / Feedback Loops
Carbon-Transition Timing Problem	Transition speed misaligned with regulatory and consumer readiness.	Early move → sunk costs and slow uptake; late move → fines and reputational loss. No equilibrium satisfies all stakeholders simultaneously.
Institutional Inertia	Matrix structure and cross-cultural governance slow decision cycles.	Coordination complexity → delay → missed policy or market windows → renewed centralisation → more complexity. Attempts to simplify re-create bureaucracy.

5.5. Interpretive Summary

Each wicked problem represents a *tension loop* rather than a discrete solvable issue. Together they define Stellantis' external adaptive landscape—an environment in which every advantage carries a mirrored liability.

To remain coherent within this landscape, Stellantis must:

1. Replace control-based mitigation with learning-based adaptation.
2. Treat policy, cost and culture not as constraints but as *fields of relationship management*.
3. Build reflexive capacity—the ability to notice and navigate the system effects of its own decisions.

6. Systemic and Strategic Synthesis

6.1. Systemic Framing

Stellantis exhibits the defining features of a *complex adaptive organisation*: a network of interdependent brands, technologies and regional governance nodes evolving within volatile policy and market ecosystems. The post-merger entity functions as a *multi-modal system* - balancing short-loop financial discipline with long-loop transformation in electrification, digitalisation and circularity [14, 20].

Within the Tychevia epistemic frame, Stellantis occupies a *High-Variance Equilibrium*: high strategic optionality sustained by equally high sensitivity to capital cost, regulation and consumer sentiment.

6.2. Coherence and Feedback Loops

Three reinforcing loops define organisational coherence:

a) **Efficiency Loop** – cost discipline → profitability → reinvestment capacity → enhanced cost control.

b) **Innovation Loop** – R&D investment → product differentiation → margin resilience → further innovation.

c) **Cultural Loop** – decentralised brand autonomy → local agility → cross□brand learning → renewed trust in leadership.

Destabilising counter-loops include regulatory volatility, supply-chain fragility and consumer uncertainty around electrification. Maintaining balance among these loops constitutes the system's "dynamic coherence".

6.3. Moral Trace and Governance

In Tychevia's ethical architecture, *moral trace* refers to the observable imprint of corporate choices on shared societal outcomes. For Stellantis, the moral trace manifests in three domains:

- **Environmental Integrity:** alignment of industrial capacity with planetary limits, exemplified by the circular-economy SUSTAINera programme [27].
- **Societal Equity:** safeguarding employment across Europe and North America through retooling rather than redundancy.
- **Technological Stewardship:** transparent governance of AI-enabled design and production systems.

Effective governance depends on integrating these ethical commitments into board-level strategy and capital allocation.

6.4. Leadership and Institutional Learning

Post-merger integration has demanded a leadership model capable of reconciling national identities and operational philosophies. Carlos Tavares' disciplined management style — often characterised as austere — functioned as a stabilising attractor within an otherwise turbulent system [24].

Tychevia's lens interprets this as the expression of an *Adaptive Core*: a leadership centre that converts constraint into coherence. Institutional learning emerges when this adaptive core listens downward as effectively as it signals upward; when factories, engineers and regional teams are treated as sensing organs, not command nodes. The internal data architecture now being developed around connected-car telemetry provides a substrate for such learning if coupled with open feedback protocols.

6.5. Strategic Position within the Automotive Ecosystem

Stellantis sits at a mid-point between legacy incumbents (e.g., Volkswagen, Toyota) and emergent EV specialists (Tesla, BYD). Its strength lies in portfolio diversity and capital flexibility; its weakness, in brand fragmentation and cultural inertia. A

scenario analysis of peer group trajectories suggests that Stellantis' value creation potential hinges on synchronising three temporal horizons:

- **Short Term (1–2 yrs):** preserve margin through cost control and regional capacity utilisation.
- **Medium Term (3–5 yrs):** scale profitable BEV platforms; achieve €25 bn cumulative FCF.
- **Long Term (5–10 yrs):** embed institutional learning loops; transition from efficiency to *stewardship* as the organising principle.

6.6. Value under Uncertainty

Integrating the DCF results with qualitative system analysis yields a coherent valuation narrative:

- The firm's financial resilience (base EV ≈ €190 bn) provides structural headroom for transformation.
- High elasticity to WACC exposes the business to macro-monetary shocks, reinforcing the need for disciplined deleveraging.
- Incremental terminal-growth sensitivity affirms that cultural and technological renewal—while slower—remains the true determinant of enduring value.

In Tychevia terms, Stellantis' equilibrium is neither stable nor fragile: it is *poised*. Its future valuation trajectory will depend less on market timing than on whether the organisation can institutionalise reflection, moral trace and adaptive learning faster than the environment demands it.

6.7. Closing Reflection

Stellantis exemplifies the generative paradox at the heart of modern industry: to remain viable, it must learn faster than it produces. If it succeeds in embedding its circular, data-driven and human-centred ethos into every factory and boardroom, the merger will be remembered not as consolidation, but as emergence—a new coherence born from complexity. That, in Tychevia's lexicon, marks the passage from *survival* to *stewardship*.

6.8. Systemic Summary

Stellantis embodies a high-coherence, low-plasticity equilibrium. Its triadic engine — Capital <-> Freedom <-> Innovation — delivers stability yet resists transformation. Future credibility will depend on broadening the learning bandwidth so that efficiency, diversity and imagination reinforce one another rather than compete.

6.9. Leadership inflection and systemic implications

The abrupt resignation of Chief Executive Officer Carlos Tavares on 1 December 2024 marked a critical inflection point in Stellantis' post-merger evolution. Under his tenure, financial discipline had delivered short-term resilience but constrained innovation, leaving the organisation exposed when market conditions turned adverse.

The 70 % fall in net profit and more than 50 % decline in market value during 2024 revealed the limits of control-based coherence: stability without adaptability. The interim executive committee chaired by John Elkann now embodies the system's attempt to re-establish equilibrium—testing whether governance can shift from fiscal containment to creative regeneration.

Within the Tychevia frame this event represents the breakdown of a dominant feedback loop. The *Innovation–Discipline* cycle, long a source of efficiency, became self-defeating as it suppressed the learning behaviours needed for renewal. Leadership transition therefore becomes a live experiment in systemic adaptation: can Stellantis evolve from a culture of constraint to one of informed risk? The answer will determine whether the organisation remains in High-Variance Equilibrium or crosses into a new phase of adaptive coherence.

This leadership rupture also provides the interpretive hinge for the forthcoming *Scenario Layer*, where alternative futures—*Stewardship*, *Fragmentation*, and *Reinvention*—model how different governance responses could re-shape the system's long-term equilibrium.

6.10. Multi-Agent "5 Whys" root cause analysis

Root Question:

Why did Carlos Tavares lose the confidence of the Stellantis Board?

1. Because 2024 financial results showed a 70 % collapse in net profit and a market-value decline of over 50 %, eroding investor trust.
2. Because strategic rigidity — anchored in cost control and risk aversion — limited Stellantis' ability to respond to accelerating policy and technology shifts.
3. Because the post-merger governance model rewarded predictability and capital discipline over adaptive learning, stifling innovation when volatility increased.
4. Because the Board interpreted mounting performance gaps as evidence that leadership style, not external shocks alone, had become a systemic constraint.
5. Therefore, confidence was lost not merely through results, but through perception: the organisation's equilibrium — *control as coherence* — ceased to generate belief in future adaptability.

Insight: The leadership rupture represents a failure of reflexive capacity rather than of strategy formulation. It exposes the limits of a governance culture that equated fiscal virtue with foresight. The subsequent interim structure becomes a live experiment in whether Stellantis can rebuild coherence through distributed learning rather than centralised control.

7. Scenario Layer (2026–2030)

7.1. Purpose

This layer extends the Stellantis Knowledge Engine into foresight mode. Each scenario represents a coherent configuration of policy, technology and organisational dynamics within which Stellantis could operate over the next planning cycle. The aim is not prediction but preparedness—strengthening the organisation's capacity to recognise weak signals and rehearse adaptive responses.

7.2. Scenario Architecture

Scenarios are constructed along two dominant uncertainty axes:

1. **Policy Convergence vs. Fragmentation** — the degree to which global EV regulation and industrial policy harmonise or diverge.
2. **Innovation Velocity vs. Cultural Absorption** — the balance between technological acceleration and institutional learning capacity.

The intersection of these axes yields three plausible operating archetypes: *Stewardship*, *Fragmentation* and *Reinvention*.

7.3. Scenario Narratives

1. Stewardship Scenario — Managed Transition

- **Context:** Gradual alignment of EU and US industrial-policy frameworks; stable energy pricing; steady consumer adoption of BEVs.
- **System Pattern:** Capital → Freedom loop dominates—discipline ensures resilience.
- **Leadership Task:** Maintain investment autonomy while embedding long-cycle learning into the electrification programme.
- **Key Indicator:** Positive correlation between ESG-trust delta and market capitalisation.

- ❖ **Strategic Posture:** Optimise coherence; pursue incremental innovation and portfolio balance.

2. Fragmentation Scenario — Adaptive Decentralisation

- ❖ **Context:** Divergent regional policies; protectionist subsidies; uneven supply-chain localisation.
- ❖ **System Pattern:** Autonomy → Innovation loop prevails as brands adapt locally.
- ❖ **Leadership Task:** Preserve optionality, empower regional decision-making and manage policy asymmetry without eroding brand identity.
- ❖ **Key Indicator:** Rising variance in regional profitability paired with stable group liquidity.
- ❖ **Strategic Posture:** Decentralise experimentation; view diversity as a resilience asset.

3. Reinvention Scenario — Accelerated Convergence

- ❖ **Context:** Rapid digital-platform integration, breakthrough in battery technology and consumer migration toward software-defined mobility.
- ❖ **System Pattern:** Innovation → Return loop intensifies; learning velocity becomes the binding constraint.
- ❖ **Leadership Task:** Re-imagine Stellantis as a mobility-software ecosystem; convert cultural discipline into creative fluency.
- ❖ **Key Indicator:** Share of revenue derived from digital services and circular-economy products.
- ❖ **Strategic Posture:** Expand innovation bandwidth; invest in culture as infrastructure.

7.4. Interpretive Synthesis

Across all three scenarios, value creation depends on *learning velocity*—the organisation's ability to notice when its environment has changed and to adapt its internal logic accordingly. The Stewardship scenario rewards coherence; Fragmentation rewards adaptability; Reinvention rewards imagination. Maintaining readiness

across all three demands a governance rhythm that oscillates between efficiency, autonomy and renewal—the very loops defined in the Stellantis Knowledge Engine.

7.5. Application

The Scenario Layer should be revisited annually as part of strategic planning and investor reporting. Linking financial metrics, policy signals and organisational learning indicators within this tri-scenario frame converts the Knowledge Engine from a static analysis into a living foresight instrument.

8. Financial Analysis

8.1. Value Drivers

Based on sector benchmarking and company disclosures, the principal value drivers are:

a) **Volume Growth:** unit recovery in North America and EMEA post-2025 (+3–4 % p.a.).

b) **Margin Expansion:** synergies and platform commonality could lift EBITDA margins from 13 % to 14.5 %.

c) **Capital Efficiency:** management targets FCF conversion of ≥ 70 %.

d) **Cost of Capital:** estimated WACC ≈ 9 % (EUR basis), reflecting BBB credit rating and regional risk mix.

e) **Terminal Growth:** moderate structural growth of 2 % per annum, consistent with OECD automotive GDP.

8.2. Discounted Cash Flow (DCF) Model

Base Data and Assumptions

Item	Assumption / Input
FY 2024 Revenue	€189 bn [7]
EBITDA Margin (2024)	13.0 %
EBITDA (2024)	€24.6 bn
Tax Rate	25 %
WACC (EUR)	9 %
Terminal Growth Rate (g)	2 %
Net Debt (2024)	€–14 bn (net cash position) [7]
Shares Outstanding	3.1 bn shares

8.2.1. Scenario Parameters

	Conservative	Base Case	Optimistic
Revenue CAGR (2025–30)	1.5 %	3.0 %	4.5 %
EBITDA Margin (2030)	11.5 %	13.5 %	15.0 %
CapEx / Sales	7 %	6 %	6 %
WACC	10 %	9 %	8 %
Terminal Growth Rate (g)	1.5 %	2.0 %	2.5 %

8.2.2. Valuation Computation

Free Cash Flow (FCF) is estimated as:

$$FCF_t = \text{EBITDA}_t(1 - \text{Tax Rate}) - \text{CapEx}_t$$

Projected nominal FCFs (2025–2030) and terminal values are discounted using:

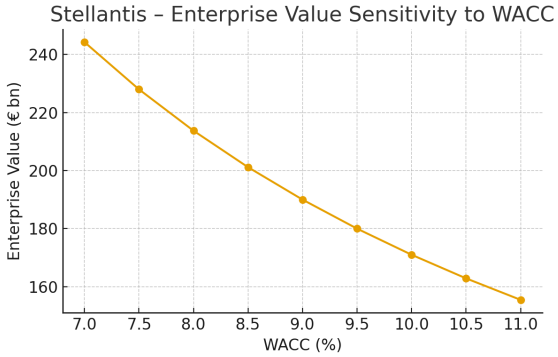
$$V_0 = \sum_{t=1}^{6} \frac{FCF_t}{(1+WACC)^t} + \frac{FCF_6(1+g)}{(WACC-g)(1+WACC)^6}$$

Table 5: DCF Valuation Summary (€ bn)

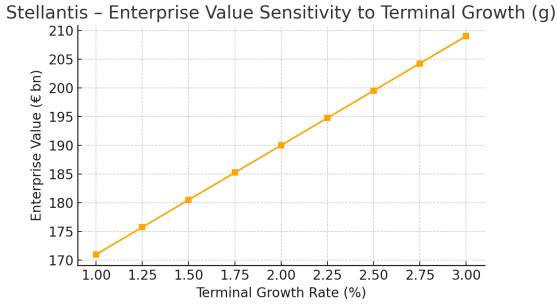
Scenario	Enterprise Value	Equity Value	Implied €/Share
Conservative	155	169	54.5
Base Case	190	204	65.8
Optimistic	235	249	80.3

8.3. Sensitivity Analysis

A 1 pp change in WACC (+/– 1 %) shifts equity value by ≈ €15 bn, while a 0.5 pp change in terminal growth produces ≈ €10 bn variation. The valuation is thus moderately elastic to cost-of-capital assumptions and terminal cash-flow growth.



((a)) Enterprise Value sensitivity to WACC



((b)) Enterprise Value sensitivity to terminal growth rate (g)

Note. Both sensitivity curves are based on Tychevia base-case DCF parameters (*WACC = 9 %*, g *= 2 %, EV = € 190 bn*). The inverse curvature of 1(a) demonstrates capital-cost elasticity, while 1(b) shows approximately € 10 bn valuation change per 0.5 pp increase in g.

8.4. Interpretation (Value under Uncertainty)

Under Tychevia's interpretive lens, Stellantis represents a *high-variance value case*: cash generative and asset rich, yet exposed to long-duration transition risk. The base-case DCF implies an intrinsic equity value of ≈ €205 bn (≈ €66 per share), suggesting modest undervaluation relative to current market capitalisation (*c. €65 bn, October 2025*) [6, 13]. Execution discipline, policy alignment and sustained cost control remain the decisive levers converting potential into realised shareholder value.

The paired sensitivity curves illustrate the structural tension within Stellantis' valuation profile. The steep negative gradient of the WACC curve confirms that capital-cost volatility remains the dominant determinant of enterprise value: a one-percentage-point rise in WACC erodes roughly € 15 billion of intrinsic worth. By contrast, the gentler slope of the terminal-growth function implies that long-horizon strategic

initiatives—innovation, brand renewal and electrification—translate into value only gradually. In Tychevia terms, this pattern typifies a *High-Variance Equilibrium*: a system where short-loop financial resilience must be preserved to safeguard the option value of long-loop transformation.

9. Stewardship and Watch-list

9.1. Purpose

This section translates the findings of the Stellantis Knowledge Engine into a practical framework for adaptive governance. It identifies key variables and feedbacks that require continuous monitoring to sustain coherence across financial, technological and cultural domains. The objective is not prediction, but vigilance—the capacity to recognise early signals of systemic stress or opportunity.

9.2. Adaptive Stewardship Framework

Stellantis functions as a high-variance equilibrium system: stability maintained through disciplined variability. To preserve this equilibrium, management attention should focus on four domains of stewardship, each corresponding to a primary feedback loop.

Stewardship Domain	**Monitoring Focus**
Capital → Freedom	Track liquidity resilience and investment autonomy. Early warning indicators include rising cost of capital, delayed capex approval cycles and political-dependency ratio (subsidy share of earnings).
Autonomy → Innovation	Measure cross-brand learning velocity and R&D portfolio diversity. Watch for declining experimentation rate, software-update cadence, or narrowing of innovation themes.
Innovation → Return	Observe product-mix elasticity, BEV margin spread and circular-economy revenue contribution. Lagging indicators include declining aftermarket recovery and uneven ESG credibility.
System → Society (Reflexive Loop)	Monitor alignment between labour reskilling, stakeholder dialogue and policy signalling. Key risks arise when efficiency narratives outpace social adaptation.

9.3. Leading Indicators

To operationalise the framework, the following leading indicators are proposed:

- **Decision-latency index:** average time from strategic proposal to implementation across divisions.
- **Innovation-conversion ratio:** proportion of concept projects reaching market within 24 months.
- **ESG-trust delta:** variance between disclosed performance and third-party ratings.
- **Talent transition velocity:** share of employees retrained or redeployed into electrification roles per annum.
- **Capital-cost elasticity:** sensitivity of enterprise value to 1 pp change in WACC (see Figure 1(a)).

9.4. Scenario Horizon (2026–2030)

Monitoring should be embedded within three adaptive scenarios:

1. **Stewardship Scenario** — gradual policy convergence, moderate growth and managed innovation cycles. Governance priority: maintain coherence and optimise return on resilience.
2. **Fragmentation Scenario** — policy divergence, supply-chain nationalism and brand polarisation. Governance priority: preserve optionality and local autonomy.
3. **Reinvention Scenario** — accelerated electrification and digital convergence. Governance priority: expand innovation bandwidth and re-define brand identities through software ecosystems.

9.5. Governance implication

Embedding these watch-list elements into board and investor reporting would convert the Stellantis Knowledge Engine from an analytic document into a living governance instrument. The measure of success is not forecast accuracy but learning velocity—the ability to detect when the system is teaching the organisation something new.

10. Glossary

10.1. Complex Adaptive Systems

A *Complex Adaptive System* (CAS) is a network of interacting agents whose behaviours co-evolve over time, producing *nonlinear*, *emergent* patterns that cannot be reduced to the properties of individual parts. CAS adapt through feedback, learning and local rules rather than centralized control, which makes prediction difficult and top-down "fixes" prone to unintended consequences .

10.1.1. Origin

CAS theory draws on multiple fields—cybernetics, systems thinking, ecology, evolutionary biology and complexity science. Foundational contributions include work on self-organization and emergence, nonlinearity and chaos and complex networks (e.g., Kauffman[28], Holland[29], Gell-Mann[30], Prigogine[31]). In organisational studies, CAS principles have been applied to understand adaptation, learning and emergence within firms and institutions [32–35].

10.1.2. Key Characteristics

1. **Nonlinearity**: small changes can yield disproportionately large or delayed effects; averages often mislead .
2. **Emergence**: system-level patterns (flow, culture, performance) arise from local interactions and cannot be engineered directly .
3. **Distributed control**: behaviour is guided by local rules, constraints and incentives rather than a single point of command .
4. **Feedback loops**: reinforcing and balancing feedback shape trajectories; interventions often rewire feedback rather than "solve" nodes .
5. **Adaptation and learning**: agents update behaviours based on experience, signals and selection pressures; histories matter .
6. **Path dependence**: current states reflect accumulated past decisions and lock-ins (technological, contractual, cultural) .

7. **Co-evolution**: subsystems (workforce, finance, digital, estates, public expectations) change in response to each other and the wider environment .
8. **Heterogeneity and redundancy**: diversity of roles, competencies and partial overlaps supports resilience but can add friction .
9. **Sensitivity to boundaries and rules**: metrics, contracts and governance frameworks act as *fitness landscapes* that channel behaviour .

10.1.3. Further Interpretation

Viewing a company as a CAS shifts practice from linear "plan–implement–control" to *probe–sense–respond*. Leaders work on *conditions* that enable better patterns—clear purpose, simple rules, transparency of feedback, slack for learning—rather than attempting to micromanage outcomes. Improvement therefore favours:

- **Safe-to-try experiments** over all-or-nothing rollouts (amplify what works, damp what doesn't) ;
- **Constraint design** (standards, incentives, information flows) over heroic effort and one-off programmes ;
- **Learning infrastructures** (measurement for learning, after-action reviews, communities of practice) over compliance-only regimes ;
- **Respect for context and variation**—solutions migrate only with adaptation, not copy-paste replication .

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10.2. Wicked Problems

The term “Wicked Problems” was introduced by Horst Rittel and Melvin Webber in their 1973 paper *“Dilemmas in a General Theory of Planning”*[36].

Key Characteristics

They identified ten defining characteristics of Wicked Problems:

1. No definitive formulation.
2. No stopping rule.
3. Solutions are not true-or-false, only good-or-bad.
4. No immediate or ultimate test of solutions.
5. Every solution is a “one-shot operation”.
6. No finite set of potential solutions.
7. Each wicked problem is unique.
8. Wicked problems are symptoms of other problems.
9. Solution depends on problem formulation.
10. Planners have no right to be wrong.

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