A Work Project, presented as part of the requirements for the Award of a Master's degree in

Finance from the Nova School of Business and Economics.

# WHAT INDUSTRYMASTERS BUSINESS SIMULATION REVEALED ABOUT VALUE CREATION, TEAMWORK, AND THE FUTURE OF AUTOMOTIVE

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07/09/2025

Abstract:

This thesis analyzes a six-year business simulation where a seven-person team led a virtual automotive firm, Ace, focusing on finance, strategy, and innovation. Benchmarking against theory and real-world developments in the automotive sector, it explores economic value creation. Financial metrics like EBIT-EBITDA gaps and low EVA revealed cross-operational issues, with Ace caught between scale-driven models (e.g., Tesla/BYD) and niche strategies (e.g., Ferrari). Reflections on two critical incidents, using Gibbs' cycle, highlight leadership lessons in communication, empathy, and alignment. The study blends analytical insight with emotional intelligence to offer strategies for resilience in disruptive environments.

Keywords:

Business simulation, Automotive industry, EV transformation, Economic Value Added (EVA), EBIT-EBITDA gap, Weighted Average Cost of Capital (WACC), Strategic missteps, Siloed operations, Porter's generic strategies, Red ocean rivalry, Blue ocean strategy, Creative destruction, Vertical integration, AI ecosystems, Emotional intelligence, Gibbs' reflective cycle, Team dynamics, Attribution theory

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

# 1. Section 1 - Ace's EV Transformation Journey

In a three-week business simulation, student teams took executive roles to guide Ace, our team's fictional automotive company starting at Q4 with combustion and electric vehicle (EV) production, aiming to become a premium EV brand with in-house AI and zero-emission leadership by Q28. This section analyzes Ace's finance, strategy, and innovation performance, comparing it to real-world automotive trends and drawing lessons for the industry's future.

## 1.1. Finance - Measuring, Managing, and Maximizing Value

Financial decision-making must reflect the foundational principles of corporate finance - time value of money and the link between risk and return (Berk and DeMarzo 2007).

### 1.1.1. Profitability Decay - EBIT vs. EBITDA Analysis

Profitability metrics assess operational and financial health. EBIT shows efficiency, excluding financing and taxes (Penman 2013). EBITDA strips non-cash costs like depreciation & amortization (D&A), highlighting cash flow (Damodaran 2007). From the start of the simulation, Ace's management focus was more on cash - using EBITDA instead of EBIT as the quarterly margin metric – a mistake, as shown next.

*Financial Snapshot - EBIT-EBITDA Gap:* At Q4, the company showed solid fundamentals: $4.58 billion (bn) in revenue, a 33.8% EBITDA margin, and a 23.7% EBIT margin. By Q26, revenue rose to $6.03bn (CAGR: 4.7%) and a 28.7% EBITDA margin, however, EBIT margin fell to 15.0%, revealing a widening gap between EBITDA and EBIT - a key issue explored next (Ace's 28-quarter performance synthesis: Appendix A).

*D&A Truth - EBITDA Masks True Costs; EBIT Reveals Decay:* Q24 EBITDA margin hit 37.8%, but D&A hid value erosion. Inventory bloat - $4.13bn unsold by Q17 - drained EBIT via its depreciation, as cars that sat unsold were written down in the simulation. In capital-

heavy sectors like automotive, D&A is critical. EBITDA masked decay (Brealey et al. 2019), with the EBITDA-EBIT margin gap reaching 14.7% in Q18 (see Appendix B). Research agrees that excluding D&A inflates cash flow but obscures sustainability. This means that EBITDA misleads in capital-heavy models, and EBIT better predicts real performance (Barth, Landsman, and Lang 2008; Penman 2013; Brealey et al. 2019). However, varying D&A and R&D treatments across firms and regions hinder comparability (Penman 2013).

*Margin Benchmarking - Ace Crushes Real-life Legacy Margins:* BMW, Mercedes-Benz, and Volkswagen's 2024 EBIT margins of 7–8% and 2024 EBITDA of 14–17% (see Appendix C). Ace's average EBIT (18%) and EBITDA (31%) surpass these by ~2x.

*EV Profit Surge – Ace Crushes Real-life EV Margins:* In 2024, Tesla posted 8% EBIT and 13% EBITDA margins, while BYD delivered 5% EBIT and 14% EBITDA (see Appendix D). BYD's profitability is poised to rise further as economies of scale kick in, supported by ~26% YoY revenue growth from 2023 to 2024. Yet despite Ace's suboptimal execution, as noted earlier, its average margins eclipsed even Tesla's by more than 2x. This outsized gap highlights not managerial excellence but the simulation's unrealistically generous profit dynamics - far removed from the intense margin pressure of today's real EV market.

### 1.1.2. Corporate Cost of Capital - Ace's WACC Advantage

Weighted Average Cost of Capital (WACC) blends the cost of equity and debt into a single benchmark for evaluating investment returns (Brealey et al. 2019). The 8.04% average WACC among global automakers (Damodaran 2025) highlights the financing costs typical of the industry. In contrast, Ace's average WACC of 5.8% reflects a cheaper capital structure - driven by access to low-cost green bonds (see Appendix E).

*ROIC vs. WACC – Testing Investment Returns:* If WACC defines cost of capital, Return on Invested Capital (ROIC) measures whether investments actually earn more than they cost. As

Appendix F illustrates, Ace's ROIC often lagged its WACC, plunging negative in Q18–Q19 from overcapacity and inventory bloat, then recovering to ~4–5% but still below the hurdle. In strict terms, this implied value erosion. Yet ROIC below WACC is not always fatal: many investments follow a J-curve, starting under the hurdle before compounding upward as scale and efficiency build. The real danger is when sub-WACC ROIC persists in maturity or decline phase, leaving no upside or turnaround potential - effectively destroying shareholder value. Yet management often looks through an operational lens. Economic Value Added (EVA) reflects that by folding in revenue growth, cost discipline, and capital charges into one metric - making it the practical tool to judge whether management creates value (see next section).

### 1.1.3. EVA as Target KPI - Profit ≠ Value

EVA - popularized by Stewart (1991) - anchors management on true economic profit: revenue must cover all capital costs. Formula: EVA = EBIT × (1 - T) - WACC × Capital. This makes EVA sensitive to operations, capital structure, and risk expectations. By charging capital employed (assets minus non-interest liabilities) at WACC, EVA enforces accountability for economic - not accounting - performance (Tortella and Brusco 2003).

*EVA Navigation - Discipline Unlocks Value:* By Q28, Ace's indexed EVA score hit $2.44 thousand (top tier, with the closest bot competitor being at $-0.4 thousand, see Appendix G). Early recession/EV transition in Q4-Q10 hit all, but Ace's decline was milder than that of the static bots. Due to the nature of EVA, we saw negative/flat EVA during expansion-phase, where investments lower EVA before its payback period. The Q10–Q18 pivot came from cost discipline and strategic alignment, driving recovery. Cross-functional coordination intensified: marketing targeted high-margin segments, operations optimized utilization, finance prioritized capital efficiency. Even Q24's recession saw EVA discipline hold (37.2% EBITDA, 24.7% EBIT). Unlike market-share grabs (Shapiro 1989), we prioritized value over volume. Yet, by Q26–Q28, EVA plateaued as products matured and operational (factory)

efficiency went down due to lowered workforce motivation - signaling a capital reallocation need toward HR. Retrospectively, no investment in AI, capacity, or products cleared the WACC hurdle, as ROIC remained consistently below WACC (Appendix F), mathematically implying negative EVA contributions. Yet, Ace ended Q28 with a net positive EVA above the $2 thousand baseline. This anomaly reflects the simulation's EVA formula, which embeds an undisclosed ESG credit rating adjustment, obscuring precise value-tracking.

*EVA Blind Spots - EVA Penalizes Unpredictable Long-Term Innovation:* EVA has flaws, it can be gamed via cost-cutting, investment deferrals, or accounting shifts, and hinges on subjective judgments (e.g., R&D capitalization). Crucially, EVA penalizes breakthrough R&D, discouraging long-horizon bets (Damodaran 2006). Our simulation confirmed this: late-game investment cuts boosted EVA but masked future vulnerability - highlighting short-termism risk. Our early bold bets fueled growth, but we started cutting investments - especially R&D for new model launches to maximize short-term EVA toward the end of the simulation – yet we started window-dressing the EVA too early. This aligns with Ford and Sullivan's (2004) conclusion that the timing of novel contributions strongly influences market outcomes. In conclusion, while stand-alone EVA excels in stable, capital-intensive contexts, its rigidity clashes with disruptive innovation (Biddle, Bowen, and Wallace 1997), see section 1.3.1.

### 1.1.4. Liquidity Paradox - Cash is king. Is it?

While "cash is king" remains a resilience mantra (Brealey et al. 2019) aligned with Pecking Order Theory's internal-funding preference (Myers 1984), our simulation revealed a critical nuance: with EVA as our KPI, liquidity mattered less than sustainable value creation above capital costs (Stewart 1991; Young and O'Byrne 2001). Hoarding cash or cutting investment only boosted EVA if it generated true economic surplus - consistent with research showing shareholder value hinges on returns exceeding capital costs, not cash reserves (Biddle, Bowen, and Wallace 1997; Grant 1996).

### 1.1.5. Finance Limitations - Simulation's Unrealistic Flexibility

Debt is nominal, not market-valued, ignoring markets' risk pricing. No PE, M&A, or divestitures were possible in the simulation, which limited strategic finance options. Taxation was oversimplified, excluding NOLs, or deferred taxes. Debt covenants, which restrict M&A/over-leveraging via financial thresholds (Smith and Warner 1979; Bradley and Roberts 2015), are missing - giving Ace unrealistic high amount of financial flexibility. Sentiment, activism, signaling, and product cannibalization are unmodeled.

## 1.2. Strategy - Navigating Markets, Rivals, and the Future

Strategy is the art of competing uniquely. Thompson et al. (2012) define it as the competitive moves and business approaches managers use to grow, attract and retain customers, outperform rivals, and meet performance goals. In our simulation, these strategic choices were made within a rapidly shifting external environment - as captured in the PESTEL analysis (Appendix H; Aguilar 1967). These macro trends intensified competitive pressures - as captured in the Porter's Five Forces analysis (see Appendix I), highlighting the fierce rivalry shaping Ace's woes (Porter 2008).

### 1.2.1. Our Strategy in the Simulation - Stuck in the Middle

Ace initially targeted mass-market adoption with advanced tech and low prices; Ace pivoted to premium positioning as we assumed based on early marketing data that the market favored innovation over price. Planning to leverage China's cost advantage for global exports, we deprioritized the US due to tariffs but were constrained by limited model variety from Chinese plants, spreading production across China, US, and Europe, eroding cost advantage strategies. High tech costs and low mass-market margins drove a premium pivot, but prior high-volume commitments led to overcapacity. Lacking focus, we chased both volume and premium pricing, gaining neither scale nor distinction (see Appendix J). Ace became "stuck in the

middle" (Porter 1980). Further, heavy regulatory combustion penalties pushed Ace and bot competitors toward electrification (net-zero emissions; see Appendix G), further lowering differentiation opportunities. This dynamic created a "red ocean" of rivalry (Kim and Mauborgne 2004). Inflexible simulation bots muted competitive pressure, but in a dynamic market, this would have been fatal (Rumelt 2011; Teece, Pisano, and Shuen 1997). Success demands commitment to either low-cost leadership with scale and efficiency or premium differentiation with innovation and/or branding (Porter 1996; Teece 2018). The Resource-Based View (J. Barney 1991; J. B. Barney and Hesterly 2016) further highlights rare, inimitable assets - such as proprietary manufacturing expertise and global reputation. Ace's evolution was analyzed using a SWOT framework to identify key internal and external factors, followed by a TOWS matrix to derive strategic responses (Weihrich 1982; see Appendix K).

### 1.2.2. Mixing Oil and Water - When Finance Becomes Strategy

Financial metrics define the playing field. The choice of KPIs shapes which markets to pursue, how aggressively to grow, and where to allocate capital. In this sense, the CFO's toolkit becomes a steering wheel for competitive positioning, making KPI design a core strategic act (Zorn 2004), echoing Drucker's "what gets measured gets managed."

*Strategic Imperative – Always Chase One Rabbit:* Strategic literature consistently warns against dilution: pursuing multiple conflicting objectives courts underperformance - empirically shown in ambidexterity research (March 1991; O'Reilly and Tushman 2013). The Japanese maxim - "chasing two rabbits catches neither" - captures this starkly. To combat fragmentation, scholars advocate a unified objective operationalized through one integrative KPI (e.g., EVA, see next part), aligning the organization and enabling rapid, data-driven decisions (Kaplan and Norton 1996; Simons 1995; Ittner and Larcker 1998). Focus isn't limiting; it's the bedrock of sustained advantage (Porter 1996). In complexity, one "rabbit" transforms ambiguity into action.

*Strategic KPI - Our Rabbit Was EVA, But We Could Not Follow:* EVA helped break down silos in our simulation, but tight time constraints (45 minutes/quarter) made it a "black box." When EVA changed, we couldn't quickly identify if it was due to market shifts, pricing, costs, or competition - limiting its usefulness for fast decisions. As Ittner & Larcker (1998) note, high-level KPIs only add value when broken down to their drivers. Even top firms struggle to connect EVA movements to specific actions, reducing its value as a real-time strategic tool.

*Data-driven Leadership – AI Powers Swift Decisions:* AI delivers real-time insights, surpassing intuition (Brynjolfsson and McElheran 2016). As our simulation showed EVA's opacity under time constraints, integrating EVA with AI-driven analytics and scenario tools would have enabled clearer, faster decisions (Moro-Visconti, Cruz Rambaud, and López Pascual 2023).

*Aligning the Hunt - Cascading EVA into Sub-KPIs:* EVA becomes most powerful when it's not a top-down monolith but is cascaded through the organization as tailored sub-KPIs - factory managers focus on plant efficiency and cost discipline; sales teams on conversion and revenue lift; marketing on digital performance and campaign ROI; finance on WACC optimization. Every layer chases its "rabbit," managing what's controllable and contributing to the company's EVA, while executives use sensitivity analysis to weigh the marginal benefit of strategic bets against their costs, exposing trade-offs that no single silo can capture (Grant 1996). However, EVA alone can miss softer value gains that shape tomorrow's performance but rarely show up immediately in quarterly results.

*The Rabbit and the Weather: Why Internal KPIs Need External Validation:* The aforementioned operational discipline must be periodically checked against Enterprise Value (EV): As Damodaran (2006) and Brealey, Myers & Allen (2019) show, EV brings in the outside view, capturing whether the market actually recognizes and values your internal performance, or whether external realities - brand, technology shifts, new customer demands

- are moving faster than your KPIs acknowledge. Yet, EV has real limitations: it can be buffeted by market sentiment, macroeconomic swings, or sector-wide downturns - sometimes punishing even the best-run companies through no fault of their own. For this reason, EV is best used as a periodic external reality check, with the CEO relying on EVA as the compass for internal execution while regularly benchmarking it against EV. to avoid missing market signals. In short, sustainable value creation means setting clear, actionable targets at every level, but never losing sight of the bigger, shifting landscape in which the game is played.

### 1.2.3. Scale or Die - The Brutal Rules of the New EV Race

As described in section 1.1, chasing premium margins led us to overproduce, causing inventory bloat, soaring D&A, and ultimately a loss of scale. R&D returns dwindled - a pattern that mirrors the real EV market's unforgiving logic.

*China's Scale Playbook - Subsidies, Speed, and Domination:* Tesla and BYD prove that in EVs, scale is no longer just an advantage - it's survival. When tech features become standard and specs trump brand, only mass production keeps you in the game. In China, heavy state subsidies fuel price-dumping, rapid scale, and tech leapfrogging (Tobin 2022). BYD's surge in EV battery patents positions it ahead of traditional powerhouses like Germany's auto industry, underscoring a shift in innovation leadership (Wan, Peng, and Zhan 2025). Armed with both cost leadership and tech superiority, Chinese OEMs are storming global markets.

*Europe's Response - Paralysis and Premium Nostalgia:* Europe's automakers, especially Germany's, face a self-inflicted squeeze: high labor costs, factories rooted in expensive regions, and soaring energy prices choke competitiveness. Across Europe, inconsistent EV subsidies - such as Germany's 2020 enhancements and 2023 cuts - disrupt automakers' long-term planning (Edenhofer, Knopf, and Luderer 2011; Bohnsack, Pinkse, and Kolk 2014). CEOs can't commit to decade-long electrification when political winds shift quarterly. The

result is strategic stasis: manufacturers hesitate between investing in scale and clinging to profitable, nostalgic "premium" models. German automakers, once champions of engineering, now risk strategic drift - caught between rising costs and the loss of policy certainty. Ultimately, Europe's approach exposes it to a double risk: losing the scale race to China while failing to defend its traditional luxury advantage.

*The Ferrari Exception - Scarcity Over Scale:* Ferrari stands alone, proving scale isn't always the rule. Their luxury playbook is built on scarcity, not mass production: tightly restricted output, waiting lists, and brand mythos drive EBIT margins over 25%. Ferrari's €6.68bn revenue and 28.3% EBIT-margin in 2024 are not from scaling but monetizing exclusivity, with total shipments of 13,663 units (see Appendix L; Ferrari N.V. 2024). Demand is recession-proof; cars become appreciating assets. Ferrari's brand loyalty and heritage forge an emotional moat. The firm's careful approach to electrification - delaying EV transition - keeps core clients loyal. Concentrating resources on exclusivity, Ferrari achieves returns no scaled rival can match (Kapferer and Bastien 2012). See Appendix L for mapping Ace's simulation results against all referenced car brands' financial and strategic positions.

*Strategic Takeaway - Scale Wins… Unless You're Ferrari:* True Ferrari-like success requires a unique, unrepeatable brand, but for EVs branding power is losing more and more value (Taylor and Fujita 2018). For most automakers, the viable path is a barbell strategy - balancing scale for survival with tightly defined premium offerings.

### 1.2.4. Strategy Limitation - The Sterility of Static Competition

The simulation's key limitation was static competitors. Porter's view that "strategy is about difference, not superiority" demands dynamic rivalry (Porter 1996), but bots didn't adapt to our moves. In reality, strategy hinges on anticipating countermoves - price cuts trigger wars,

innovations spur retaliation, entries prompt defense (Tirole 1988). Our decisions faced no real opposition, rendering differentiation academic.

### 1.3. Innovation - Building Moats in the EV Revolution

Innovation is the beating heart of competitiveness. As Schumpeter (1942) warned, only those willing to abandon the familiar and embrace the unknown can disrupt markets.

#### 1.3.1. Innovation in Action - Lessons from the Simulation

*Year 1 - Starting Line (Q1-Q4):* Ace began the simulation at a strategic crossroads: balancing legacy hybrid models with a nascent push toward full electrification. Our initial trading position reflected the inertia found in many established firms - anchored by historical market share, yet aware that disruptive change was imperative. In the real automotive world, this mirrors how legacy OEMs often "pilot" innovations on the periphery (O'Reilly and Tushman 2004), only later scaling bold bets as the urgency for transformation becomes unignorable.

*Year 2 - Electrifying the Core (Q5–Q8):* Ace's transformation began with a commitment to full electrification, phasing out combustion and hybrid models and investing heavily in EV technologies (see Appendix M). These investments enabled planned launches with deterministic certainty - an unrealistic luxury compared to real-world automotive innovation, where schedules often slip and technical setbacks are routine. By Q8, new EV models were confined by the simulation's static demand, limiting blockbuster or disaster outcomes - a contrast to the creative risk-taking defining real innovation management (March 1991; Schumpeter 1942). The simulation's key limitation was fixed, exogenous demand, forcing teams to compete for static market share without creating new markets. This overlooked disruptive innovation's core: leaders like Apple (iPhone) or Tesla (EV adoption) generate demand, reshaping industries (Arthur 1989; Holweg 2008) – missing "blue ocean" opportunities (Kim and Mauborgne 2004). In total in year 2 $2.65bn breakthrough technology

(especially AI & battery) and product investments were made. While the scale of investment was substantial, it left little room for mid-year pivots. As $CO_2$ penalties rose and low-emission subsidies emerged (see Appendix H), management focus shifted from market impact toward meeting internal process targets for net-zero compliance, particularly in EV launch and combustion phase-out timing.

*Year 3 - Launching Next-Gen Power (Q9–Q12):* With initial models in production, Ace launched a next-generation 4x4 EV, leveraging modular technologies like sodium-ion batteries and AI (see Appendix M). This strategy addressed the lag in the 4x4E segment and sharply reduced fleet $CO_2$ penalties (total penalties dropping from $57m to $4.7m/quarter). Overall, the model's design embodied eco-innovation, cutting Ace's CO2 penalties further and enhancing market appeal (Díaz-García, González-Moreno, and Sáez-Martínez 2015).

*Year 4 – Countering Mature Product Decline (Q13–Q16):* Ace deployed its mature tech stack in a series of high-spec EV launches, including a full-size pickup, halo sport models, and a city EV to counter segment decline (see Appendix M). These launches accelerated Ace's path to zero fleet $CO_2$ emissions by Q15 - a process win.

*Year 5 - Harvesting Wins (Q17–Q20):* Ace pivoted from exploration to exploitation, forgoing new R&D to maximize operational returns. The team harvested value from its full-stack innovation, with the city EV shoring up volumes in the urban segment.

*Year 6 & 7 – Stagnation's Costly Price (Q21-Q28):* Ace's prolonged harvest strategy - deferring new R&D to maximize short-term EVA - epitomized the "exploitation trap" warned by March (1991). This tactical choice proved catastrophic: premature innovation stagnation caused average product portfolio maturity to soar >120%, triggering a 31.6% demand collapse from Q23 to Q28 as offerings grew obsolete. While the simulation's fixed horizon made this

decline predictable, Ace's failure to reinvest in exploration ignored Schumpeter's (1942) core tenet: renewal requires perpetual creative destruction.

### 1.3.2. When Strategy Becomes Innovation – Innovation as Competitive Edge

Innovation defines competitive strategy, replacing traditional moats. These moats included high capital requirements, complex supply chain networks, and established brand loyalty, that deterred competitors (Holweg 2008). However, those moats, that historically protected incumbents, are eroding - with innovation driving new moats.

*Moats in Motion - From Engineering to Software, Integration, and Ecosystems:* Electrification, digital platforms, and globalized value chains lower entry barriers. New moats include technology leadership, vertical integration, and digital ecosystems. Today, software prowess (from battery management to autonomy) builds formidable switching costs through over-the-air updates and AI platforms (Bohnsack, Pinkse, and Kolk 2014), as demonstrated by Tesla and leading Chinese EV makers. The decisive advantage lies in vertical control: firms like CATL, BYD, and Tesla have redrawn the value chain through strategic integration, buffering supply shocks, capturing value in battery and electronics supply chains (exemplified by China's dominance in lithium-ion production and raw material refining), and combining battery control, software mastery, and global scaling to slash costs, boost margins, and outpace slower rivals. Their risk-embracing culture prioritizes rapid iteration, in contrast to Western caution (Teece 2019; see 1.3.3). As BYD's Wang Chuanfu puts it: "The first half [of the game] is about electrification, the second half is about intelligence" - underscoring the shift toward an AI-driven, data-centric automotive future (Ren 2024). As software and battery innovation reshape the industry, firms must build new moats - through vertical integration, AI-driven ecosystems, and rapid scaling - to sustain advantages in a dynamic market.

*The Western Scaling Paradox - World-Class Science, Stumbling Execution:* Western firms were leading in battery science in the past - BASF, BMW, and U.S. labs pioneered lithium-ion innovations, solid-state breakthroughs, and anode/electrolyte advances (Schmuch et al. 2018). Yet this R&D edge collapses at scale: Europe's gigafactories like Northvolt bleed capital and time on cost overruns and material sourcing, while Tesla's Nevada behemoth remains tethered to Asian suppliers. The result? A fatal disconnect between lab brilliance and mass production that cedes ground to faster rivals. The central shortcoming is that engineering excellence cannot compensate for sluggish industrialization. Further glance Appendix N for a Qualitative Regional Analysis: US, EU, China, uncovering real-world patterns replicated in the simulation, such as Asia's low workforce costs for volume output.

*Innovation as a Continuous Journey - Next Practices, Not Best Practices:* Incrementalism is extinction in modern automotive. Chinese rivals weaponize battery evolution, compressing product cycles and shattering cost-performance paradigms (Wang, Hu, and Rodrigues 2023). European OEMs' legacy strengths - reliability, luxury - crumble before this disruption. Competing demands next practices: relentless R&D, fused supply chains, and radical agility.

### 1.3.3. Culture Fuels Innovation - Global Contrasts

Culture can both enable and constrain innovation. Leading firms cultivate environments that tolerate failure and reward experimentation (March 1991). But national context shapes how these environments take form. In Germany, the tradition of "Ordnung" underpins engineering excellence but often reinforces risk aversion - especially among younger generations who increasingly value work–life balance (Alesina and Giuliano 2015; Hofstede 2001; Schein 2010). In contrast, both China and the U.S. see failure as part of progress, though through different lenses. China's advancement-hungry, future-oriented culture views failure as collective learning in the pursuit of national development (Nee and Opper 2012). The U.S.,

by comparison, treats failure as a badge of individual entrepreneurial boldness - epitomized by Silicon Valley's 'fail fast, learn faster' ethos (Cardon et al. 2009).

### 1.4. Synthesis - Value is Created, or Lost, at the Intersections

During our simulation journey, we learned most when we failed. Ace's simulation experience showed that true value emerges not from isolated excellence in finance, strategy, operations, marketing, HR, or sustainability, but at their intersections. Finance's 5.8% WACC and robust cash-generation enabled cheap investments but relied on cross-functional execution. Despite $1.25bn in sodium-ion batteries and AI, weak post-launch marketing left innovative vehicles unsold, showing technical breakthroughs need market-facing execution. Integrated R&D-marketing dialogue ensures innovations meet customer needs, not isolated tech pushes. HR's recession-era salary cuts seemed cost-effective but reduced motivation, increasing absenteeism and operational inefficiencies, turning savings into losses. Cost-cutting must account for human impacts to avoid undermining productivity and long-term gains. Overzealous production outstripped demand, causing inventory surplus, and margin erosion due to misaligned marketing insights. Achieving zero $CO_2$ emissions by Q15 advanced sustainability, but that phasing risked profits by hastily exiting legacy operations. Sustainable transitions require phased planning to preserve revenue. Without finance-departments' break-even analyses, rapid shifts forfeited earnings. Our wins - modular rollouts and emissions reductions - succeeded through cross-functional integration. Isolated efforts, like finance chasing cash or operations maximizing throughput, limited EVA growth. Ace lacked a clear strategy, oscillating between premium positioning and scale pursuits, ultimately getting stuck in the middle. This indecision echoed real-world legacies like Volkswagen and mirrored Porter's warnings: hybrids erode edges, while committed approaches - like Tesla/BYD's scale focus or Ferrari's scarcity - build durable advantages via fostering coherence.

### 1.5. Conclusion - The EV Future Belongs to High-Scale Innovators

Growing up in Bremen, home to Mercedes-Benz's second-largest plant worldwide, I saw how the automotive industry shapes entire communities. However, from recent private equity internships focused on cash flows in asset-light sectors like software, I underestimated capital-intensive realities like CapEx, inventory, and D&A in industrials. As Warren Buffett quipped, "Does management think the tooth fairy pays for capital expenditures?" (Buffett 2002). With enhanced industry expertise, I shifted from chasing EBITDA to emphasizing CapEx and R&D cycles for sustainable earnings in asset-heavy business models like automotive. It sharpened my awareness of how legacy automakers like Volkswagen, despite their engineering excellence, struggle to pivot quickly in capital-intensive ecosystems. Conversely, China's "scale is sovereignty" approach, exemplified by BYD and CATL, drives supply chain dominance and rapid EV industrialization. The simulation's core lesson - siloed efforts erode value - parallels China's edge in coordinated, state-backed production, positioning it to dominate mass-market EVs. In a winner-takes-all EV market, Western firms risk falling behind without scale and integration. Asia's 10-million-unit factories flood markets with affordable, tech-driven EVs, while Europe's premium focus falters without matching scale. Strategic moats in automotive will belong to firms that align innovation with scale - not those who pursue either in isolation. As this thesis shifts to teamwork and leadership, the core insight endures: only organizations achieving true alignment - blending strategic foresight with cross-functional execution - can navigate disruption and shape the future of mobility.

## 2. Section 2 – Personal Strength Molded in the Simulations' Trial Blaze

In an age of rapid AI disruption, emotional intelligence outshines IQ, proving crucial for managing tensions and sparking innovation, bolstered by research on its stress-resilience-enhancing role (Ashkanasy and Daus 2005). This section reflects on my journey as Finance Director using Gibbs' Reflective Cycle (1988), a six-stage framework (Description, Feelings, Evaluation, Analysis, Conclusion, Action Plan) to systematically explore two critical

incidents, integrating peer feedback and literature to distill personal growth and future applications (see Appendix O for detailed six-stage process explanation).

### 2.1. Critical Incident 1 - Seeing It Isn't Enough, You Have to Help Others See It Too

*Description - Context:* In my role as Finance Director during the IndustryMasters simulation, I was tasked with ensuring the financial health and strategic direction of our automotive company. A pivotal decision emerged: whether or not to discontinue two vehicle models that, based on our financial reports, were still net positive contributors to profit. I analyzed the cost structures, profit margins, and impact on overhead allocation. From a strictly financial standpoint, discontinuing them made no sense. Their contribution was not only material, but their existence also supported our scale efficiency and overhead recovery. I expected that, with no urgent product or innovation issues from other departments, the logic would hold. However, what I underestimated was the strength of emotional reasoning and individual departmental hopes.

*Description - Decision Dynamics:* From Operations, the argument was to consolidate production of the Bromo model onto two assembly lines. The logic was that if we cut the other cars and dropped the Bromo's price by 5%, we could sell twice the volume. The problem? Past attempts to stimulate demand through price cuts never delivered volume gains large enough to offset margin loss. From Innovation's side, it was about future opportunity - freeing up space for new cars they believed in passionately, even though those weren't yet ready or aligned with our value-added KPI. Another finance colleague hoped for gains from a fire sale of remaining inventory - but based this not on calculations, but wishful thinking. Despite speaking up, offering the financial risks clearly, and referencing past data, I found myself standing alone against a storm of hope and optimism dressed up as strategy.

*Feelings - Emotional and Interpersonal Impact:* What made this experience difficult wasn't just the numbers - it was watching a high-stakes decision move forward without true clarity. I spoke up. They listened, but they didn't hear me. There's a difference. The consensus formed fast, and I could feel it: the decision was already emotionally made, and I had become a source of friction for trying to slow it down. That's when I started to feel frustration - quiet at first, but growing. I knew we were driving toward a predictable failure. It was painful. Still, I chose to contain the emotion and not escalate. What followed was exactly what I had warned of: revenue and profit dropped by a third. Overhead absorption worsened, and our overall value-added KPI - our only company-wide metric - suffered. The room fell silent. And in that silence, I felt every eye briefly turn toward me. No one said it. But everyone was thinking it.

*Analysis - The Internal Conflict:* I was tempted to say it: 'I told you so.' It would have been emotionally valid - but strategically useless. Instead, I said nothing. That silence, though, had a cost. I had bitten my tongue, but my body language betrayed my frustration. Arms crossed, expression tense - I wasn't shouting, but I wasn't leading either. I had underestimated just how loud unspoken emotion can be. That moment didn't build trust. It fractured it. Not because I was wrong, but because I failed to lead beyond the moment. Emotional intelligence, I've come to realize, isn't about pretending you don't care. It's about staying present and constructive, even when you feel let down.

*Analysis - Evaluation:* This incident reflects the dangers of consensus without clarity, as highlighted in team dynamics literature where superficial agreement can mask underlying conflicts (Haas and Mortensen 2016; West and Anderson 1996). It confirmed something I've started to realize about myself: I tend to see things early. I often pick up strategic signals faster than others, but because my views are out of sync with group sentiment, they come off as pessimistic or too theoretical. I had clarity, but I didn't know how to make others see it. I also learned that influence is not a one-time act - it's built over time, through repeated calm,

consistent, valuable contributions. Yelling louder doesn't help. But neither does withdrawing. What I needed was more emotional patience and communication framing that matched the mindset of the group, aligning with strategies for preempting team conflict through proactive dialogue (Toegel and Barsoux 2016; Mortensen and Gardner 2021). Moreover, this created cognitive dissonance, as my rational analysis clashed with the group's emotional consensus, leading to internal tension and frustration (Festinger 1957). This aligns with Janis' (1972) concept of groupthink, where pressure for conformity suppresses dissent, leading to suboptimal decisions - a pattern evident in the rapid consensus despite my data-driven warnings. Reflecting on this, I see how fostering an environment where dissent is encouraged, as Janis suggests - for instance, by explicitly inviting HR to challenge the financial data during the debate - could have mitigated the fallout. Additionally, Goleman's (1995) emotional intelligence framework - comprising self-awareness, self-regulation, motivation, empathy, and social skills - highlights my struggle. See Appendix P for Goleman's Emotional Intelligence Competencies, framing my leadership approach with key emotional intelligence skills. My self-awareness grew as I recognized my frustration, but my self-regulation faltered with tense body language, reducing my social skills in leading the team. Enhancing these aspects, as Goleman advocates, could have bridged the gap between my insight and team buy-in.

*Action Plan - Learning and Forward Action:* Moving forward, I'll do three things differently. First, I'll reframe how I communicate foresight. I won't just present numbers - I'll link them to emotional consequences, risks to collective goals, and tie them back to our agreed KPIs. Second, I'll create more structured moments of reflection before decisions - pauses that force the team to re-evaluate its assumptions. And third, I'll train myself to manage emotional pressure not just through silence, but through active, constructive engagement. This means staying calm, but also remaining open - continuing to build influence even after being ignored.

Because leadership isn't just about seeing the problem - it's about helping others see it too. And when they can't, your job is still to lead - not to win. This incident didn't just teach me strategic foresight. It taught me emotional range, emphasizing the role of emotional intelligence in navigating team decisions and fostering psychological safety. Heifetz and Linsky's (2002) adaptive leadership model, which emphasizes navigating emotional tensions and accepting vulnerability, reinforces my need to stay present and constructive, building resilience through openness rather than withdrawal.

### 2.2. Critical Incident 2 - The Cost of Influence Is Exposure

*Description - Context:* Midway through the simulation, our company entered a simulated recession scenario. Demand fell sharply, and nearly all our car models simultaneously entered the decline phase of their product lifecycle. Revenue contracted fast, and we faced an urgent profitability crisis. As Finance Director, I felt a sharp responsibility to act. The combination of external demand shock and internal product maturity created a perfect storm of shrinking margins. We needed a cost containment strategy - quickly.

*Description - The Incident:* I proposed a reduction in salaries as a last-resort cost control measure. It wasn't a comfortable suggestion. It wasn't even a confident one. But it was what the data supported at the time. Labor was our largest fixed cost. The logic was brutal but mathematically clear: a broad-based salary cut would give us breathing room while buying time to restructure our portfolio and align capacity. I acknowledged the potential risks: we didn't know exactly how reduced salaries would impact motivation, and we couldn't precisely predict how motivation levels would affect production efficiency. Still, my assessment was that we needed to try something bold. The team debated it. HR objected fiercely, citing motivation as a critical metric, and pushing back hard on the human cost. But consensus eventually formed. The decision was made - and implemented. The consequences weren't immediate, but they were real. Over the next few quarters, motivation dropped significantly -

faster and deeper than we anticipated. Our operational KPIs slipped as factory performance waned. Morale suffered.

*Feelings - Emotional and Interpersonal Impact:* Although we had agreed on the salary cut as a team, it didn't feel like shared ownership when things turned south. The HR director - already overloaded - channeled her frustration in my direction. Comments became sharp. Blame became implicit. She felt personally undermined, as her department's core metric was deteriorating. From her vantage point, I had ignored the human element and forced through a decision rooted only in numbers. I tried to clarify that we made this decision together, that it had been a consensus. But that didn't matter. Influence comes with exposure. And now, I was exposed.

*Analysis - The Internal Conflict:* This was not a simple right-or-wrong situation. We had made a decision based on incomplete information - because that's what real leadership often requires. But as the outcomes became clear, I felt caught in a difficult space: between owning the impact and recognizing the collective nature of the choice. I could see the emotional toll on the team, especially HR. I could also see that I had underestimated the psychological fallout of a decision that, while rational, lacked emotional safeguards. Worse, I saw myself becoming a symbol of cold finance thinking - something I had tried to avoid. That disconnect hurt. And it forced me to confront a deeper leadership question: What does it mean to take responsibility when my influence leads to failure?

*Analysis - Evaluation:* This incident revealed two sharp truths. First, that influence carries risk - not just of being wrong, but of becoming the face of a shared mistake. Second, that consensus does not protect you from accountability. When things go well, success is spread out. When they go poorly, people look for clarity - and clarity often looks like a name. Mine. From a systems perspective, this reflected a breakdown in decision-making under uncertainty. We hadn't fully scoped the second-order effects of salary cuts because the variables were fuzzy.

It also showed that in times of stress, functional priorities clash: finance fights for survival, HR fights for culture. Neither is wrong. But neither was integrated in our debate. We had talked across each other, not with each other, echoing the dysfunctions where lack of trust and accountability can erode team cohesion (Lencioni 2002). Furthermore, this highlighted the importance of psychological safety in teams, where blame attribution can intensify during failures. Kelley and Michela's (1980) attribution theory explains this blame dynamic, where individuals assign responsibility based on perceived control - my visible role in proposing the cut made me the target, even with consensus. Reflecting on this, I see how understanding these biases could have prepared me to manage perceptions better. Emphasizing vulnerability also resonates; openly addressing the risks and emotional toll could have built trust, reducing the blame I faced.

*Action Plan - Learning and Forward Action:* This experience reframed how I think about influence. Moving forward, I'll seek not only alignment on decisions - but alignment on what failure looks like. That means building shared ownership not just for the 'what' but for the 'what if.' I've also learned that influence must be paired with empathy. If I propose something risky, I need to go beyond caveats - I need to co-design emotional buffers with the people most affected. And I'll carry forward a hard truth: in leadership, being the one who sees clearly means you may also be the one who gets burned. But if I avoid hard calls out of fear, I forfeit the chance to lead. The key is not to fear exposure - but to earn resilience through how I handle it. That's the difference between a sharp strategist and a trusted leader, particularly in adapting to team challenges under stress (Hadley and Mortensen 2018; Vrontis et al. 2020; Mortensen and Gardner 2021). Looking ahead, I want to improve how I build alignment without unintentionally owning all the risk alone. That means slowing down decisions when needed, creating more space for dissent, and being careful about how conviction is communicated - not as certainty, but as a contribution to the team's shared judgment.

### 2.3. Team Feedback - Decoding Peer Ratings and Personal Blind Spots

Peer feedback from the formative assessment amplified these reflections. Colleagues rated my strategic insight highly but noted room for improvement in communication framing and building buy-in during debates - aligning with my self-perception of being "early but ignored." Appendix Q graphs peer vs. self-evaluation across all aspects. Adopting the mindset that *feedback is a strategic asset, not a personal attack,* I reframed this input as an opportunity for growth rather than criticism. Additionally, the group's peer evaluation of my performance, compared to my self-evaluation, provided valuable insights into perceptual gaps. On a scale of 1-5, peers rated me at 5 for "Contributing to the Team" (self: 4), indicating they perceived my contributions more positively than I did, perhaps due to my focus on financial rigor benefiting the group overall. However, for "Interacting with Teammates," peers gave a 3 (self: 4), highlighting a discrepancy where I overestimated my interpersonal engagement - tied to the frustration in incidents where my warnings were overlooked, as reflected with my team post-simulation, revealing a need for better emotional expression and collaboration. "Keeping the Team on Track" scored 4 from peers (self: 5), suggesting I saw myself as more directive than others did, as stated by some my team members post-simulation, mostly due to my EVA-focused advocacy feeling like "pushing" rather than guiding. We aligned on "Expecting Quality" at 5, reflecting mutual strive for excellency. For "Having Relevant Knowledge, Skills, and Abilities," peers rated 4 (self: 5), indicating I have overvalued my expertise relative to team needs, underscoring humility in cross-functional settings. The SCARF Model (Rock 2008), a neuroscience-based framework that identifies five core social needs (see Appendix R), deeply illuminates these gaps; for instance, my directive style during the salary-cut debate likely threatened teammates' Autonomy by overriding their input and Relatedness by creating emotional distance, as seen in HR's frustration channeling toward me, which lowered my interaction score and eroded trust - reflecting how such threats trigger defensive responses

akin to survival instincts, a dynamic I'll counter by fostering inclusive discussions that affirm these needs, like soliciting explicit input to enhance predictability and equity, ultimately building stronger collaboration and resilience in high-pressure teams. Further, see Appendix S for an Insights Discovery analysis, revealing how personality traits fueled these team tensions (Insights Learning & Development n.d.).

### 2.4. Personal Conclusion - From Reflection to Resilience

The business simulation revealed that expertise falters without coordination, clear communication, and empathy across teams. Two critical incidents reshaped my approach. First, my unheeded warnings about discontinuing profitable models taught me to overcome self-doubt and frame communication to drive action, not just agreement. Second, proposing salary cuts during a recession sparked backlash, exposing how unaligned priorities erode trust. Peer feedback highlighted my strategic strengths but underscored the need to improve how I frame ideas and build buy-in during debates. The simulation deepened my self-awareness, honing my ability to analyze decisions and adapt under pressure. Journaling proved transformative, capturing insights that amplified my growth. I plan to continue this practice professionally, with weekly reflections to guide further continuous personal growth. Most crucially, I learned to tackle problems early. For example, ignoring early signs of EV inventory buildup led to costly bottlenecks, while unchecked team tensions disrupted collaboration. By acting swiftly - fostering dialogue and anticipating "what if" and "what if not" scenarios - I shifted from reactive to proactive. These lessons (Appendix T for Punctual Key Learnings Overview), synthesizing Ace's strategic and personal growth insights are directly transferable to my first full-time role in M&A investment banking. Deals hinge on data, but success depends on people - bridging analytical clarity with human-centered leadership.

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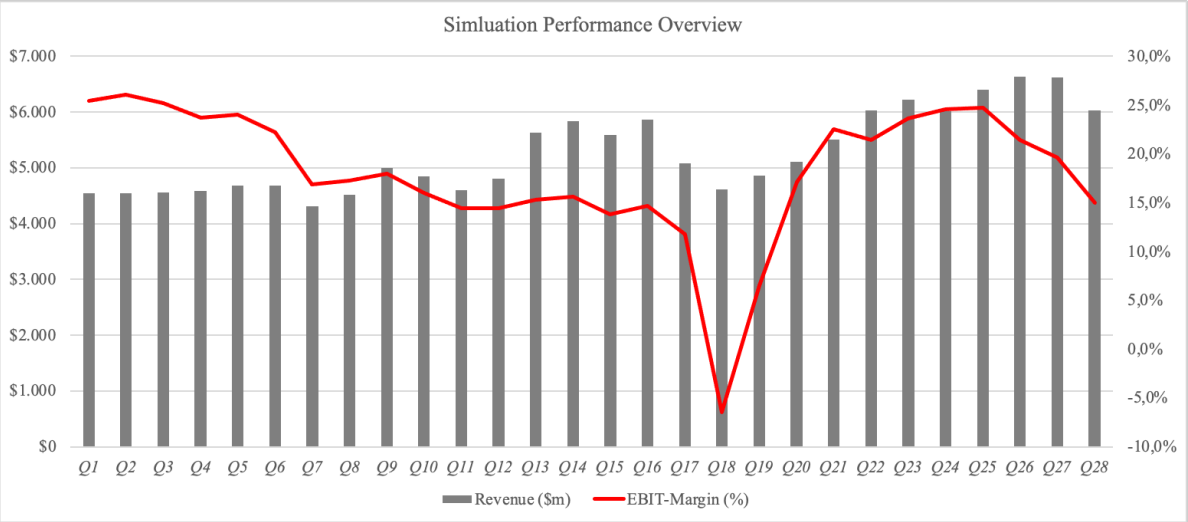
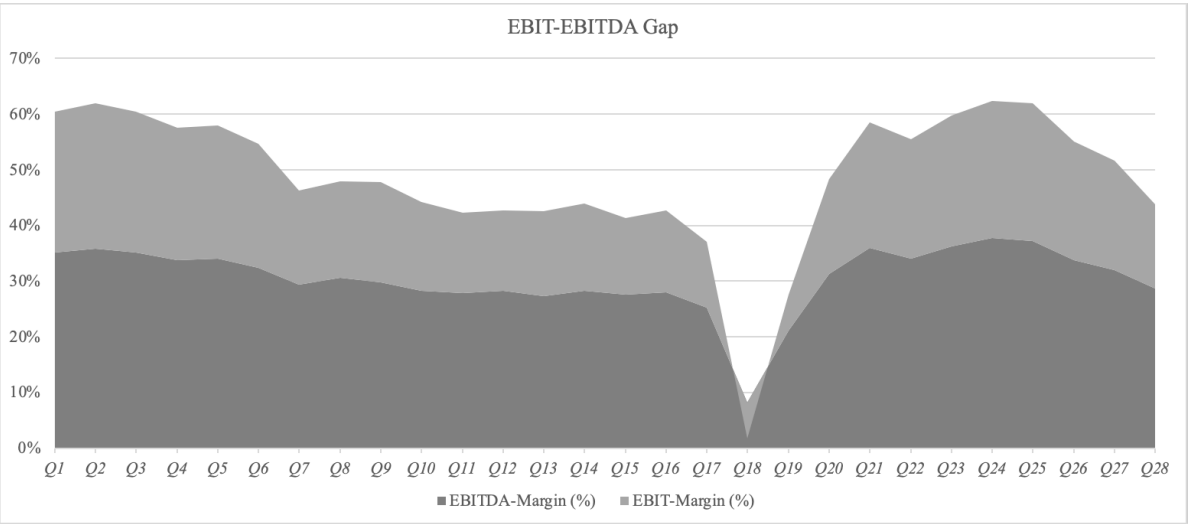
## Appendix A: Simulation Performance Overview



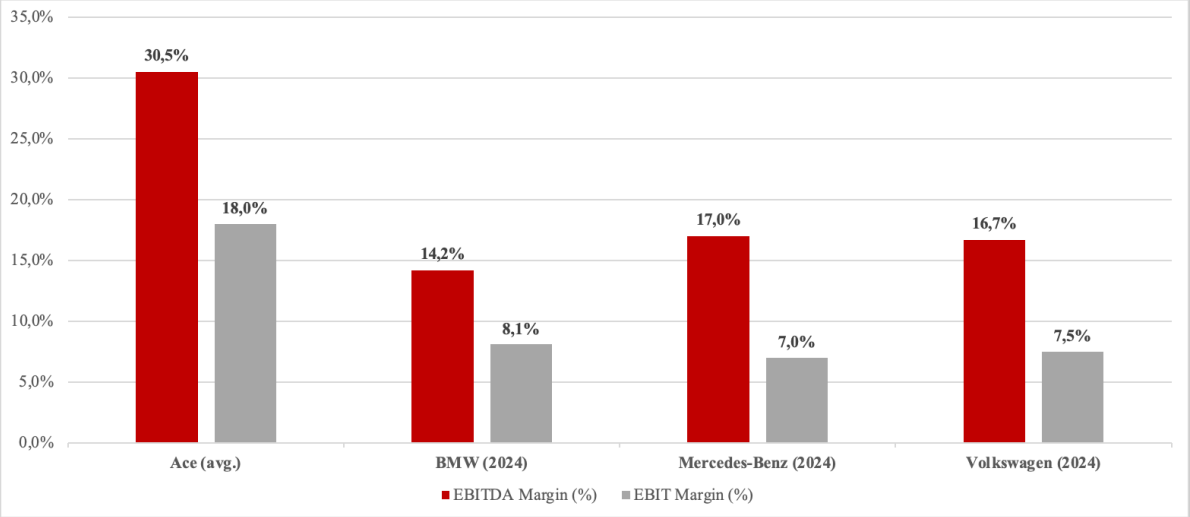

This chart illustrates Ace's revenue around $4-6bn amid market disruptions, with EBIT margins dipping to negative in Q17 due to significant demand (revenue) drop, before recovering to 25% by Q25 through cost discipline. Yet, the margin declines later quarters, up to 15% by Q28, due to overcapacity, underscoring the need for aligned operations to sustain value creation in volatile sectors.

## Appendix B: EBITDA-EBIT Gap




The growing divergence between EBITDA (averaging 31%) and EBIT (18%) margins reveals hidden depreciation burdens from unsold inventory ($4.13bn by Q17), masking operational inefficiencies, becoming evident in the increasing EBIT-EBITDA gap from Q20 onward.

## Appendix C: Margin Benchmarking – Ace vs Legacy Automakers

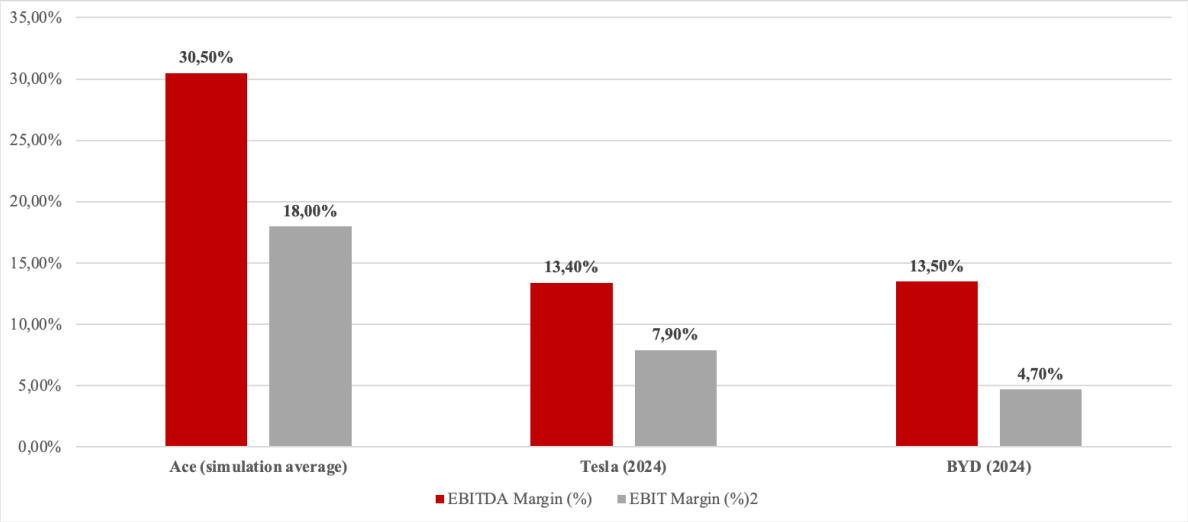



| Company | EBIT Margin (%) | EBITDA Margin (%) | Figure Year |
|---|---|---|---|
| ***Ace (Simulated)*** | 18.0% | 30.5% | *Simulation Average* |
| ***BMW*** | 8.1% | 14.2% | 2024 |
| ***Mercedes-Benz*** | 7.0% | 17.0% | 2024 |
| ***Volkswagen*** | 7.5% | 16.7 | 2024 |

Source: Bloomberg L.P. 2025.

This table compares the profitability metrics of Ace, the simulated automotive company, against legacy automakers (BMW, Mercedes-Benz, Volkswagen), highlighting Ace's superior EBIT and EBITDA margins, which averaged 18.0% and 30.5%, respectively, nearly doubling real-world competitors' margins for 2024 (Bloomberg L.P. 2025).

## Appendix D: Margin Benchmarking – Ace vs New EV Giants

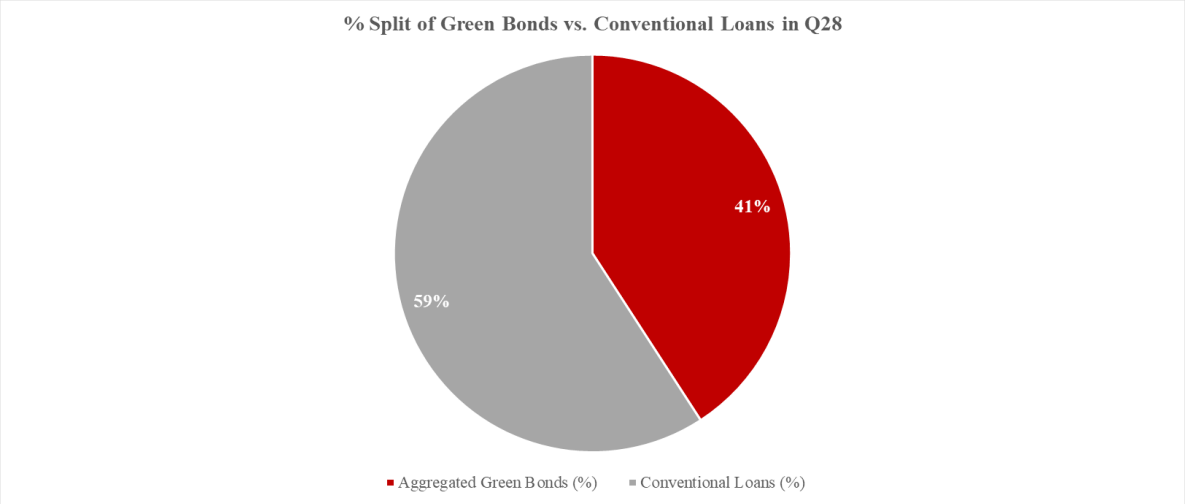



| Company | EBIT Margin (%) | EBITDA Margin (%) | Source Year |
|---|---|---|---|
| ***Ace (Simulated)*** | 18.0% | 30.5% | *Simulation Average* |
| ***Tesla*** | 7.9% | 13.4% | 2024 |
| ***BYD*** | 4.7% | 13.5% | 2024 |

Source: Bloomberg L.P. 2025.

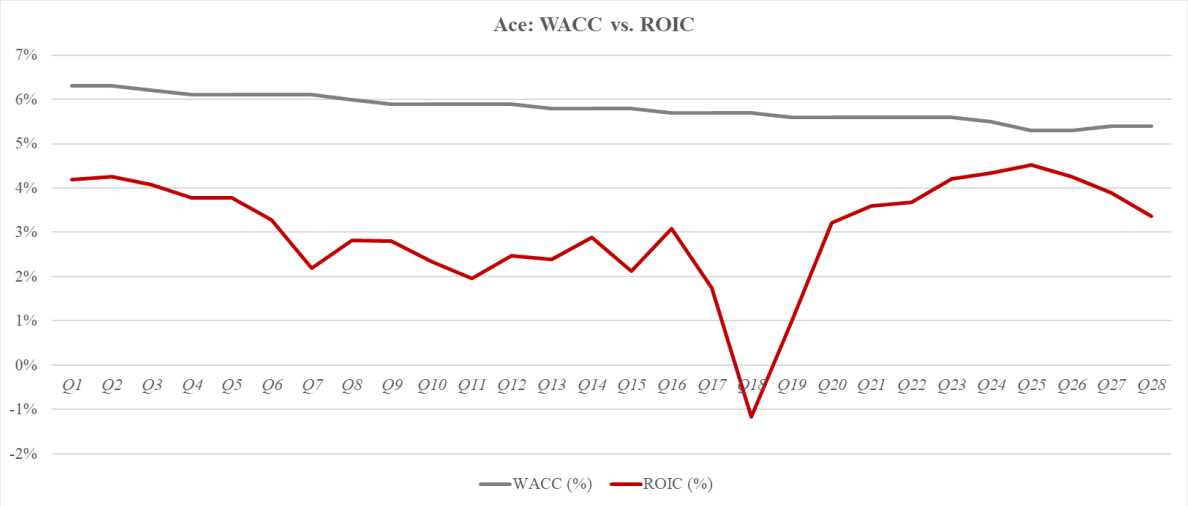
This table benchmarks Ace's simulated profitability against leading EV manufacturers (Tesla, BYD), revealing that Ace's EBIT (18.0%) and EBITDA (30.5%) margins significantly surpass Tesla's 7.9% and 13.4% and BYD's 4.7% and 13.5% for 2024, reflecting the simulation's lenient dynamics (Bloomberg L.P. 2025).

## Appendix E: Percentage Split of Green Bonds vs. Conventional Loans in Q28



By the end of the simulation, green bonds accounted for 41% of Ace's debt base, up from 0% at inception. Their 3% coupon compared favorably to the 4.85% average on conventional loans at an A+ rating (1.85 percentage points cheaper). This shift, driven by Ace's sustained green investments, lowered the company's cost of debt and helped reduce WACC from 6.1% at takeover (Q4) to 5.5% in Q28, strengthening financial flexibility while reinforcing the strategic positioning as a sustainability-focused automaker.

**Appendix F: Ace's Cost of Capital vs. its Return on Investment**




ROIC was calculated to measure the efficiency of Ace's use of capital in generating after-tax operating profits. The following steps were applied:

1. **Define Invested Capital**
    - Invested Capital = Total Debt (short-term + long-term interest-bearing liabilities) + Total Shareholders' Equity.
    - This captures all permanent sources of financing committed to the business, consistent with corporate finance practice (Brealey et al. 2019).
    - Non-interest-bearing current liabilities (e.g., accounts payable, accrued expenses) were excluded, as they represent spontaneous financing rather than long-term capital investment.

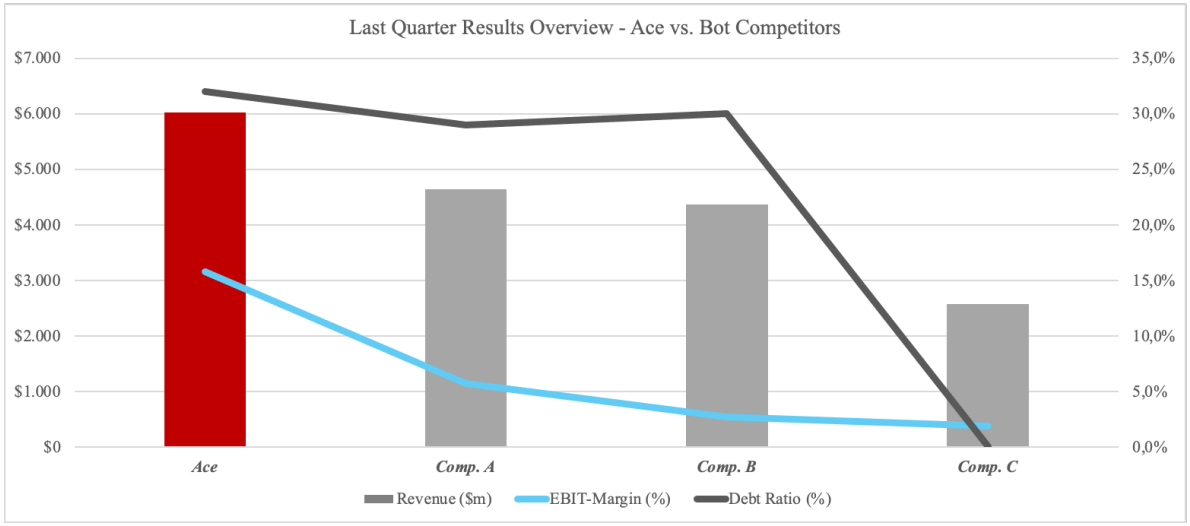
2. **Calculate NOPAT (Net Operating Profit After Taxes)**
    - NOPAT = EBIT × (1 – Tax Rate).
    - EBIT (Earnings Before Interest and Taxes) reflects operating performance independent of capital structure.
    - The statutory tax rate applied was the simulation's effective rate (30%), ensuring comparability across periods.
3. **Compute ROIC**
    - ROIC = After-Tax Operating Profit ÷ Invested Capital.
    - This ratio expresses the return generated on all capital provided by both equity and debt holders.
4. **Interpretation**
    - ROIC was then benchmarked against Ace's WACC of 5.8% to determine whether capital deployment created or destroyed value.
    - As the chart shows, Ace's ROIC fell negative in Q18–Q19 during periods of heavy overcapacity, later recovered to ~4–5%, but did not clear the WACC hurdle.

**Appendix G: Benchmarking our Performance Against our Bot Competitors**

| Rank | Corporation | Credit Rating | Debt Ratio | Revenue | EBIT Margin | Share Capital | CO2 | Score |
|---|---|---|---|---|---|---|---|---|
| 1 | Ace | A+ | 32% | $6,027M | 15.8% | $9,300M | 0.00g/mile | 2440.69 |
| 2 | Competitor C | AAA | 0% | $2,571M | 1.9% | $10,000M | 0.00g/mile | -374.58 |
| 3 | Competitor A | AA | 29% | $4,641M | 5.7% | $10,000M | 0.00g/mile | -689.87 |
| 4 | Competitor B | A+ | 30% | $4,375M | 2.7% | $10,000M | 9.59g/mile | -1000.18 |

Ace's EVA recovery to $2.44k by Q28, outpacing bots' negative values by far, underscores EVA's role in enforcing value over everything else. Our share capital ended lower than peers ($9.3bn vs. $10.0bn) because we started buying back shares toward the last 6 quarters. We attempted to window-dress short-term EVA by not investing, so cash piled up. Returning it to shareholders through buybacks lifted EVA by reducing invested capital.

*Last Quarter Results Overview - Ace vs. Bot Competitors*



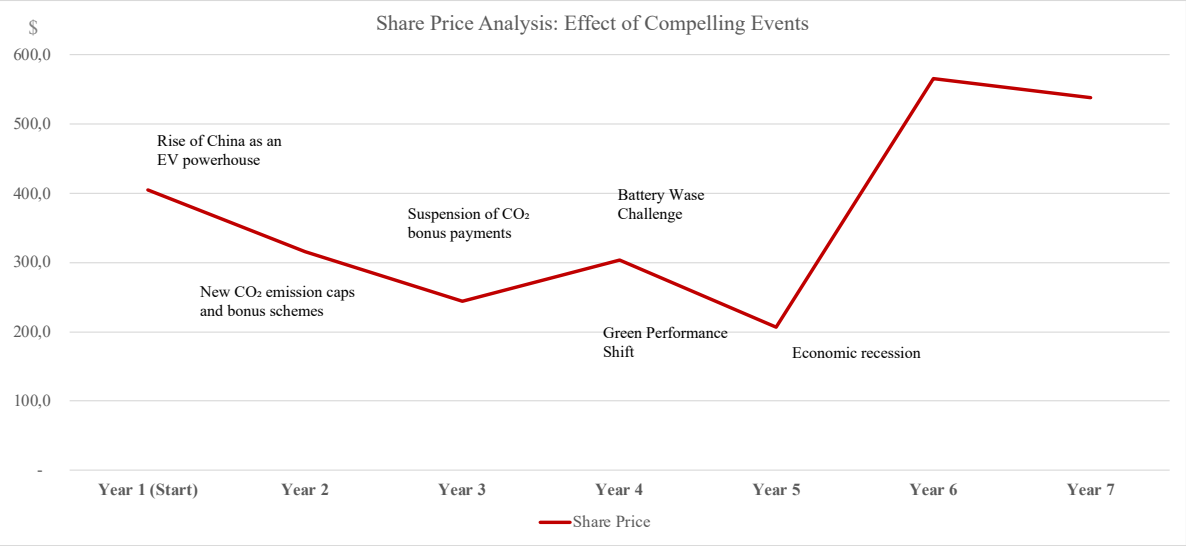

Ace posts the highest revenue ($6,027M) and EBIT margin (15.8%), with a solid A+ credit rating and a debt ratio of 32% - higher than others, but justified by its superior performance. In contrast, Competitor C has no debt and an AAA rating, yet delivers weak results: just $2,571M in revenue and a 1.9% EBIT margin, hinting at underused capital. Competitors A and B show similar debt levels (29–30%) but lag in profitability (5.7% and 2.7%). To sum up, Ace combines scale, efficiency, and smart financing better than any rival.

## Appendix H: PESTEL Analysis

| Political | Economic | Social | Technological | Environmental | Legal |
|---|---|---|---|---|---|
| ***Trade Wars:*** Tariffs from US-China tensions (Q6: 100% on imported Chinese EV in the USA; Q9: China increasing American EV tariffs from 25% to 40%) raise input costs and hit supply chains. | ***Recession Pressure:*** Downturns cut consumer demand, and increasing material costs, worsening carmaker margins (Q24). | ***Green Preference Shift:*** Consumers favor EVs due to eco-awareness and incentives – while being limited by adequate charging infrastructure (Q17) – leading still to stagnation in EV demand. | ***China's EV Surge:*** China soldifies its EV leadership with tech scale and production power (Q4). | ***Battery Waste Challenge:*** More EVs mean urgent need for lithium-ion recycling solutions (Q15). | ***Stricter Emissions Rules:*** New $CO_2$ standards push (substitute – up to Q12) OEMs to innovate or pay penalties (Q4, Q5, Q6, Q12). |
| ***Supply Chain Risks:*** Escalating geopol. tensions over critical mineral sources (e.g., lithium, cobalt) leading to export restrict., impacting EV prod. (Q6, Q9). | ***Weak Demand:*** Economic uncertainty due to tariffs dampen growth and profitability (Q9). | ***Autonomous Hype:*** Driverless tech draws buyers with safety and convenience benefits. | ***Charging Gaps:*** Weak infrastructure slows EV adoption and market growth (Q17). | ***Production Footprint:*** Increased EV prod. and usage may shift emissions from vehicles to manuf., necessitating greener production methods | ***Data Privacy Regulations:*** Stricter laws on consumer data from connected EV systems may require compliance and innovation. |

As seen in the PESTEL Analysis, political EV mandates and economic recessions intensified rivalry, mirroring Ace's Q17 dip (see below Year 4 & 5). This macro snapshot ties external forces to Ace's missteps, advocating adaptive strategies for disruptive environments.

*Effect of Key PESTEL Items on Share Price*



**Appendix I: Porter's Five Forces Analysis – Ace Automotive Simulation**

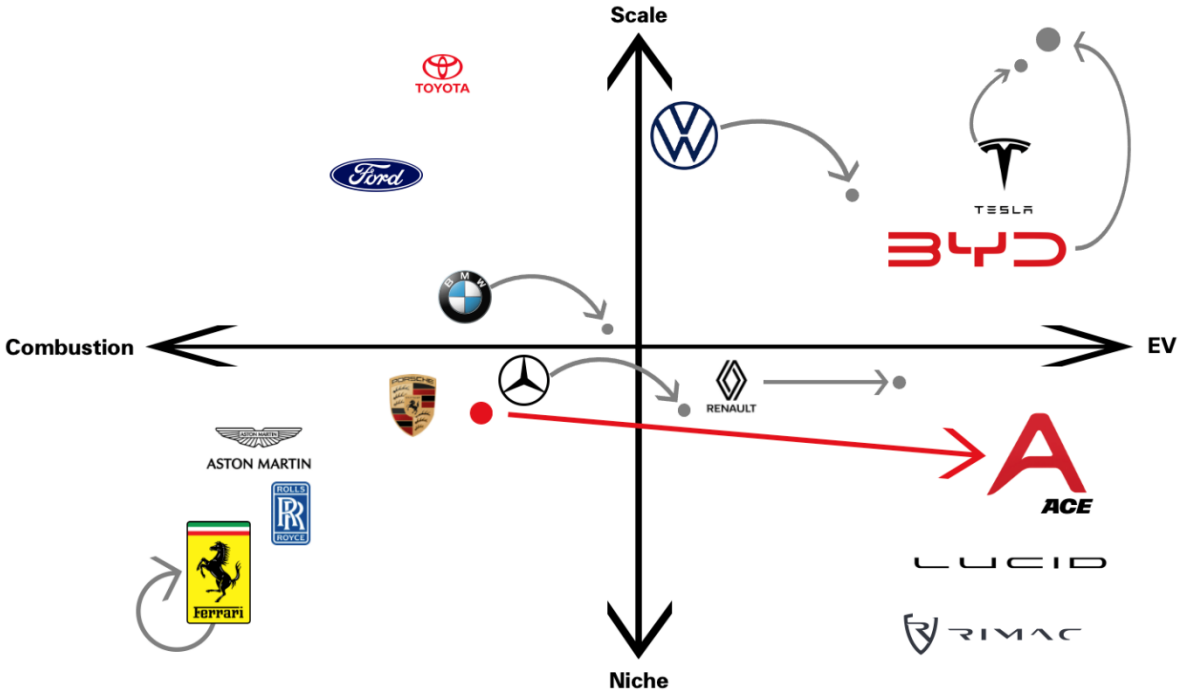
This analysis uses Porter's Five Forces framework to evaluate the competitive dynamics encountered by Ace during the simulation. Each force is assessed based on simulation insights and real-world EV industry developments, with a qualitative intensity rating and academic referencing where relevant.

| Force | Intensity | Justification |
|---|---|---|
| ***Threat of New Entrants*** | Low *(Real-World: High)* | Despite high capital requirements and regulatory burdens, the increasing role of software and battery innovation lowers barriers for tech-savvy entrants. *Caveat: In the simulation, no new competitors emerged dynamically.* |
| ***Bargaining Power of Suppliers*** | High | Global concentration in raw materials like lithium and cobalt gives suppliers leverage. Vertical integration by BYD and Tesla addresses this risk. Ace lacked this leverage, exposing vulnerability. |
| ***Bargaining Power of Buyers*** | High | Buyers, represented by dealerships in the simulation, exerted pricing pressure and shifted expectations. They compared specs and demanded both innovation and affordability. In real-world, with digital platforms enabling instant comparisons, switching costs decline. For Ace, premium positioning without significant brand-advantage in the simulation led to lowered demand. |
| ***Threat of Substitutes*** | Low *(Real-World: Moderate)* | EVs face soft substitutes like public transport, ride-sharing, and micromobility. However, cars offer unmatched flexibility and convenience for many use cases. In premium markets, emotional and functional appeal helps maintain relevance. Simulation demand remained stable, though static competitors muted dynamic substitution effects. |
| ***Industry Rivalry*** | High | Ace operated in a red ocean, with price wars and tech races defining competitive dynamics. Brand differentiation was difficult, especially with bots not responding strategically, limiting learning but simulating margin pressure (Porter 2008; Kim and Mauborgne 2004). |

High supplier power and shifting buyer demands defined a red ocean in both the real world and the simulation. In real life, global concentration of critical materials like lithium gives suppliers leverage - addressed by vertical integration at firms like Tesla - while Ace, in the simulation, lacked such control, exposing cost vulnerabilities. Similarly, real-world buyers use digital tools to compare specs and prices instantly, lowering switching costs; in the simulation, dealership behavior mimicked this pressure, leading to reduced demand for Ace's undifferentiated premium offer. Static competitor behavior limited dynamic rivalry, yet still simulated pricing and margin pressure. Altogether, Ace's stuck-in-the-middle position highlighted the strategic risks of weak differentiation - making a strong argument for future blue ocean strategies both in simulated and real markets.

**Appendix J: Competitive Analysis: Positioning Map**

The positioning map illustrates the strategic trajectories of automotive brands along the dimensions of scale vs. niche and combustion vs. EV.




In the real world, industry leaders such as Tesla, and BYD are moving decisively toward the EV scale quadrant, reflecting heavy investment in battery technology, vertical integration, and mass-market accessibility (dynamic captured with arrows within the map). Premium incumbents like Mercedes, BMW, and Porsche are shifting gradually toward EV adoption, though their starting point is rooted in combustion luxury. At the niche end, brands like Ferrari and Aston Martin remain closely tied to combustion performance, with limited EV movement, while newer entrants like Lucid and Rimac define the EV niche.

In contrast, Ace's simulated trajectory shows a distinct path: moving away from a mid-positioned, combustion-influenced niche toward the EV niche quadrant. However, unlike Lucid or Rimac, Ace failed to achieve strong differentiation in the simulation, reflecting its "stuck-in-the-middle" challenge - neither achieving the scale efficiencies of Tesla and BYD

nor the distinct premium exclusivity of established luxury brands. The red arrow underlines this simulated movement, highlighting both the potential for repositioning and the risk of drifting into a crowded niche without sufficient brand strength or technological edge.

**Appendix K: SWOT Analysis with TOWS Matrix Analysis of Simulation Strategy**

The strategic analysis first employed the SWOT framework to identify internal and external factors, followed by the TOWS matrix to generate actionable strategies from these insights.

| | |
|---|---|
| **Strengths**<br>- Strong EV focus with $1.25B committed to R&D in batteries, AI, and modular platforms.<br>- Full $CO_2$ fleet compliance achieved by Q15, showcasing operational discipline.<br>- Cross-functional leadership and coordination across product lines and launches.<br>- Robust cash flow and disciplined capital allocation in early simulation years. | **Weaknesses**<br>- Overcommitment to fixed R&D plans reduced mid-cycle flexibility.<br>- Late reinvestment led to product obsolescence in final simulation stages.<br>- Dependence on process-driven success limited creative risk-taking.<br>- Missed 'blue ocean' opportunities due to simulation's static demand constraints. |
| **Opportunities**<br>- First-mover advantage in sodium-ion and V2V technologies within the simulation.<br>- Potential to scale ambidextrous innovation model in real-world volatile markets.<br>- Integration of AI platforms and over-the-air updates as future revenue streams.<br>- Utilize Gibbs' reflective insights for continuous leadership and team learning. | **Threats**<br>- Emerging market entrants with faster product cycles and lower cost structures.<br>- Increased regulation on battery sourcing and sustainability reporting.<br>- Supply chain instability and global inflation risk in real-world conditions.<br>- Complacency in 'harvest mode' can erode competitive edge over time. |

The SWOT analysis highlights Ace's simulated strengths in EV commitment, R&D investment, and disciplined capital allocation, which mirror real-world levers of competitiveness in volatile markets. Within the simulation, full $CO_2$ compliance and strong cross-functional leadership demonstrated operational discipline, though overcommitment to fixed R&D paths and late reinvestment exposed weaknesses such as reduced flexibility and product obsolescence. Opportunities like sodium-ion batteries and V2V technologies were simulation-driven, yet they represent plausible first-mover advantages in real markets where ambidextrous innovation models and AI-driven platforms could generate long-term revenue. Similarly, while threats like supply chain instability and inflation risks stem from real-world dynamics, the simulation replicated pressure from fast-moving competitors and missed blue ocean opportunities due to static demand.

*TOWS Matrix*

| Strategy Type | Strategic Approach | Example from SWOT |
|---|---|---|
| ***SO (Strengths-Opportunities)*** | Use strengths to capitalize on opportunities | Leverage strong EV focus and R&D investment to gain first-mover advantage in V2V technologies. |
| ***WO (Weaknesses-Opportunities)*** | Use opportunities to overcome weaknesses | Use AI platform integration to enhance flexibility and counter overcommitment to fixed R&D plans. |
| ***ST (Strengths-Threats)*** | Use strengths to minimize threats | Deploy robust cash flow and cross-functional leadership to mitigate supply chain instability. |
| ***WT (Weaknesses-Threats)*** | Minimize weaknesses and avoid threats | Improve reinvestment timing and mid-cycle flexibility to stay competitive against fast-moving market entrants. |

The TOWS matrix (Weihrich 1982) operationalizes SWOT insights: leveraging simulation strengths (e.g., EV and R&D focus) to capture emerging opportunities such as V2V, applying opportunities like AI integration to overcome rigid R&D structures, deploying robust cash flow to buffer against global risks, and addressing weaknesses in reinvestment timing to remain competitive in fast-paced markets. Strengths like AI innovation, however, were undermined by organizational silos, while external opportunities in EV adoption remain threatened by tariffs in real-world markets. Vertical integration emerges as a crucial response to supply chain vulnerabilities, complementing the zero $CO_2$ compliance already achieved in the simulation and reinforcing resilience in real conditions. Together, the simulation underscored where Ace's strategy faltered under static constraints, while also providing lessons with direct real-world relevance for sustaining advantage in an evolving EV landscape.

## Appendix L: Combined Financial & Strategic Comparison

| Metric / Attribute | Ace (last year) | Tesla (2024) | BYD (2024) | Volkswagen (2024) | Ferrari (2024) | BMW (2024) | Mercedes-B. (2024) |
|---|---|---|---|---|---|---|---|
| ***Revenue*** | $6.0bn | ~$97.7bn | ~$107bn | €324.7bn (~$351bn) | €6.68bn (~$7.22bn) | €142.4bn (~$154bn) | €145.6bn (~$158bn) |
| ***Revenue YoY Growth*** | +8% | +0.9% | +26.4% | +0.7% | +11.8% | - 8% | - 4% |
| ***EBIT%*** | 20.3% | 7.9% | 4.7% | 7.5% | 28.3% | 8.1% | 7.0% |
| ***EV-focus*** | +++ | +++ | +++ | + | - | + | + |
| ***Combustion Presence*** | - - - | - - - | - - | ++ | +++ | ++ | ++ |
| ***Scale*** | + | ++ | +++ | ++ | + | ++ | ++ |
| ***Premium Positioning*** | ++ | ++ | + | ++ | +++ | ++ | ++ |

Source: Bloomberg Terminal (2025).

Appendix L benchmarks Ace's simulated performance against leading global automakers, combining financial results with strategic positioning to test how our outcomes compare to real-world realities. It translates raw metrics into context: revenue scale, margin strength, EV focus, combustion drag, and brand positioning (with "+ / ++ / +++" used for relative emphasis). For comparability, euro-denominated revenues have been converted at the 2024 average EUR/USD exchange rate of ~1.082.

Ace's final-year EBIT margin of 20.3% outperformed mass-market EV leaders like Tesla (7.9%) and BYD (4.7%) and was well above legacy giants Volkswagen (7.5%), BMW (8.1%), and Mercedes-Benz (7.0%). Yet it remained below Ferrari's extraordinary 28.3%, which highlights the unique profitability of scarcity-driven luxury. Importantly, while BYD's EBIT looks thin today, its 26.4% year-on-year revenue growth signals rapid scaling that will lift margins as fixed costs are absorbed, showing how scale expansion can offset initially low profitability. The comparison reveals two structural truths of the industry. First, scale sustains EV survival: Tesla (++ EV focus, ++ scale) and BYD (+++ scale, + EV margins improving) prove that survival in electrification is a function of volume, not just near-term profitability. Second, scarcity sustains ultra-premium margins: Ferrari (+++ premium, - EV focus) achieves EBIT above 28% despite limited scale, an unrepeatable exception built on exclusivity.

## Appendix M: Simulation Investments and Launches

| Quarter | Initiative / Model | Type | Investment ($m) | Notes |
|---|---|---|---|---|
| Q5 | Sodium-ion battery R&D | R&D | $250m | Pioneering eco-efficient battery tech |
| Q6 | AI implementation | R&D | $500m | Cutting-edge AI integration |
| Q7 | Next-gen E-Drive modules | R&D | $300m | Advanced electric drivetrain innovation |
| Q8 | V2V communication | R&D | $200m | Next-level vehicle-to-vehicle connectivity |
| Q7 | Fuego | Model Launch | $785m | Accessible volume EV sedan, market-driven |
| Q8 | Fuji | Model Launch | $616m | Compact urban EV, efficiency-focused |
| Q12 | Bromo | Model Launch | $1.14bn | Next-gen 4x4E; reduced $CO_2$ penalties |
| Q15 | Reventador | Model Launch | $901m | Full-size EV pickup |
| Q15 | Arenal | Model Launch | $832m | Halo electric sport model |
| Q13 | Nevado | Model Launch | $1.03bn | Luxury high-end EV sedan, elite positioning |
| Q15 | Pico | Model Launch | $686m | City E segment, mass-market agile, electric |

Early R&D ($250m+ in batteries/AI) fueled launches like Bromo ($1.14bn), reducing $CO_2$ penalties and driving Q12-18 recovery. This chronology highlights the value of timely innovation, though underfunded marketing limited ROI.

*Overview of Key Models Launched*


## Appendix N: Qualitative Regional Analysis: US, EU, China

| Criteria | US | EU | China | Notes |
|---|---|---|---|---|
| ***Low Energy Costs Advantage*** | ++ | + | +++ | Asia benefits from cheap energy in China; US has shale energy, EU higher costs |
| ***Battery Tech*** | +++ | ++ | ++ | US leads with Tesla/Panasonic; EU catching up; Asia strong in China/Korea |
| ***Scale*** | ++ | ++ | +++ | Asia (China) massive production scale; US and EU smaller |
| ***Brand*** | +++ | +++ | ++ | US strong premium EV brands (Tesla); EU luxury heritage; Asia strong domestic brands |
| ***Production Costs (Workforce Salary)*** | + | + | +++ | Asia has low labor cost advantage; EU high wages; US mid |

Legend: + = Weak, ++ = Moderate, +++ = Strong

The regional analysis highlights both real-world dynamics and their simulation parallels. The US shows strong battery innovation (++) and premium brand power (++), though tariffs made

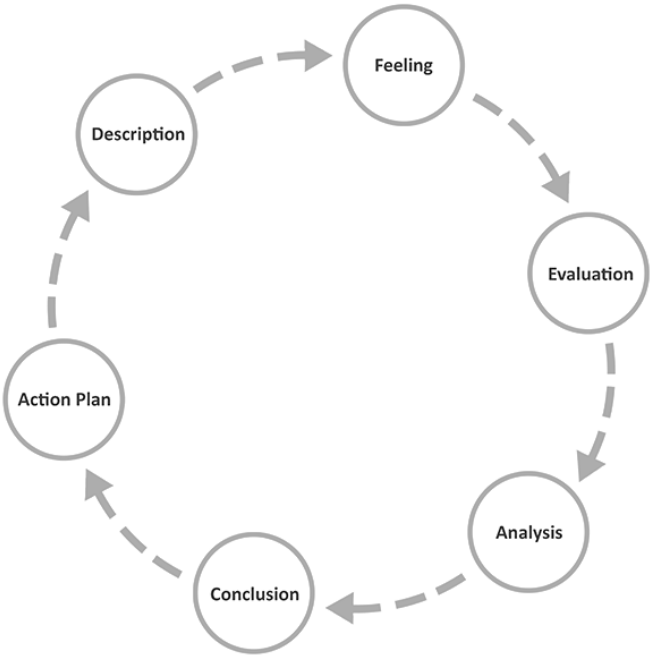
it a costly market to access in the simulation. Europe retains its luxury heritage (++), but suffers from high energy (--) and labor costs (--), limiting competitiveness. China, by contrast, combines low production costs (++), cheap energy (++), and scale (++), though global brand perception (--) remains weaker. In the simulation, these contrasts were clear: Ace's exports from China to the US were heavily hit by tariffs, eroding market access, yet Chinese production remained significantly cheaper. This tension mirrors the real world, where cost-efficient Chinese scale must be balanced against US and EU brand advantages.

**Appendix O: GIBBS Reflection Cycle**

Gibbs' Reflective Cycle (Gibbs 1988) is a structured model for reflecting on experiences to promote learning and improvement. It encourages a cyclical process rather than linear thinking, making it ideal for analyzing critical incidents in professional settings like business simulations. The model was applied in Section 2.1 and 2.2 to dissect two incidents (model discontinuation debate and salary cut proposal), breaking down description, emotions, evaluation, analysis, conclusions, and action plans to foster self-awareness and adaptive leadership.

| Stage Number | Stage Name | Description |
|---|---|---|
| 1 | Description | *What happened? Provide an objective account of the event.* |
| 2 | Feelings | *What were you thinking and feeling? Explore emotional responses.* |
| 3 | Evaluation | *What was good and bad about the experience? Assess outcomes objectively.* |
| 4 | Analysis | *Why did it happen? Draw on theory, literature, or external factors to interpret.* |
| 5 | Conclusion | *What else could you have done? Summarize learnings and alternatives.* |
| 6 | Action Plan | *If it arose again, what would you do? Outline future improvements.* |

*Textual Representation of the Cycle Diagram:*




The six-stage cycle dissects incidents like model discontinuation, revealing communication gaps via description-to-action. It ties emotional responses to leadership growth, extracting value in structured reflection for adaptive teamwork in simulations.

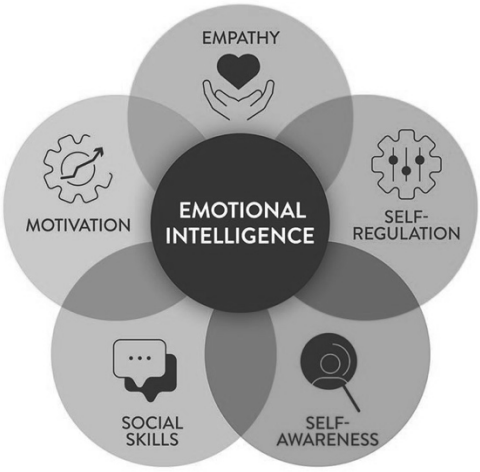
**Appendix P: Goleman's Emotional Intelligence Competencies**

Daniel Goleman's Emotional Intelligence (EI) framework (Goleman, 1995; 1998) outlines competencies beyond IQ that drive leadership success, particularly in high-stress environments like business simulations. EI involves managing one's emotions and understanding others' to enhance relationships and decision-making. It was referenced in the abstract and Section 2.1 (Analysis) to evaluate struggles with self-regulation (e.g., tense body language) and social skills (e.g., bridging insight with team buy-in during the model discontinuation incident).

Key Competencies:

- *Self-Awareness:* Recognizing one's emotions, strengths, and limits (e.g., acknowledging frustration without reacting impulsively).

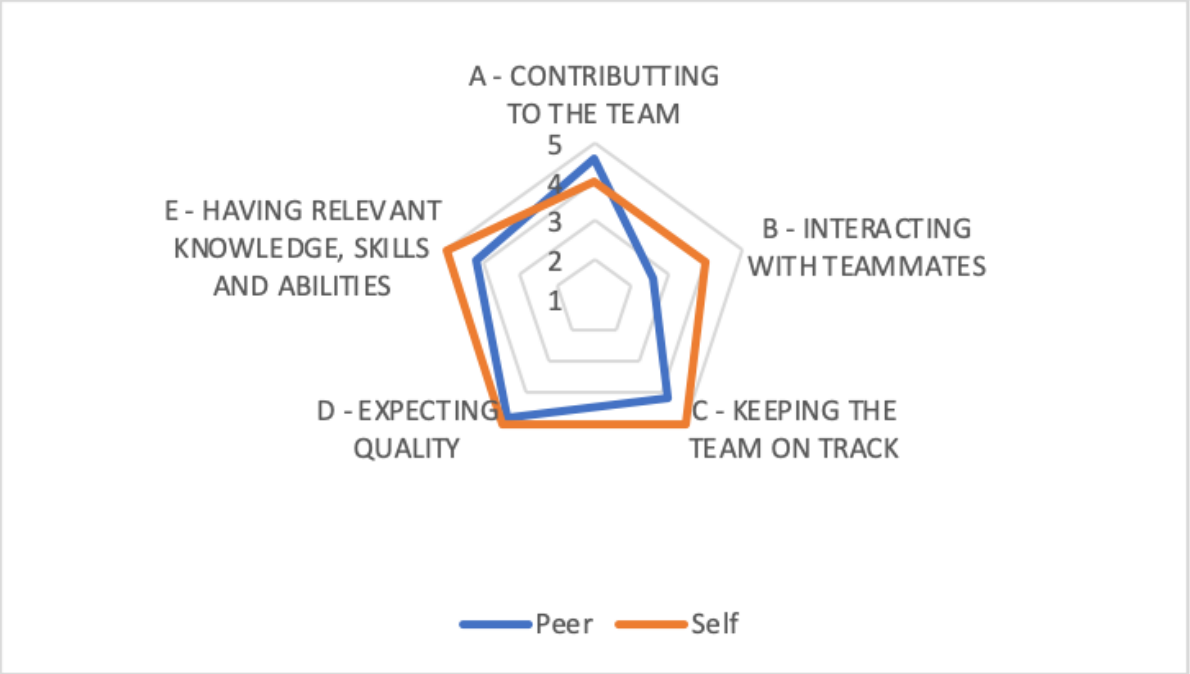
- *Self-Regulation:* Managing disruptive emotions and adapting to change (e.g., controlling impulses in debates).
- *Motivation:* Drive to achieve beyond external rewards, with optimism and commitment (e.g., persisting in influence despite setbacks).
- Empathy: Understanding others' feelings and perspectives (e.g., sensing team emotional undercurrents).
- *Social Skills:* Building networks, leading teams, and managing relationships (e.g., framing communication to foster consensus).




Self-regulation lapses (e.g., frustration in debates) eroded social skills, as per the four domains. This framework extracts insights on empathy's role in consensus, informing strategies to bridge cognitive dissonance in high-stakes teams.

In the reflection, emotional intelligence competencies addressed cognitive dissonance in groupthink scenarios (e.g., unheeded warnings), emphasizing empathy and social skills to enhance psychological safety and adaptive leadership.

**Appendix Q: Overview of Peer vs. Self-Evaluation**




The hexagon reveals discrepancies, like lower peer scores in interaction due to directive style, versus self-perceived strengths in analysis. This visual ties to trust erosion, extracting value in feedback alignment for enhanced psychological safety.

**Appendix R: SCARF Model**

The SCARF Model (Rock 2008) is a neuroscience-based framework that identifies five social domains influencing human behavior in teams: Status, Certainty, Autonomy, Relatedness, and Fairness. It explains how threats or rewards in these areas trigger brain responses similar to physical survival instincts, affecting motivation, collaboration, and decision-making. In Section 2.3, it was used to analyze peer feedback discrepancies, such as how a directive style threatened teammates' Autonomy and Relatedness, leading to lower interaction scores and trust erosion.

<u>Key Components:</u>

- *Status:* Sense of importance or respect relative to others (e.g., feeling valued in contributions).

- *Certainty:* Need for predictability/clarity about the future (e.g., stable expectations in decisions).
- *Autonomy:* Desire for control over one's actions and choices (e.g., input in team debates).
- *Relatedness:* Feeling of connection and belonging with others (e.g., trust and rapport in groups).
- *Fairness:* Perception of equitable treatment and justice (e.g., balanced accountability).

*Textual Representation of the Model (as a Brain Response Matrix):*

| **Domain** | **Threat Response (Avoid)** | **Reward Response (Approach)** |
|---|---|---|
| Status | Feeling diminished or overlooked | Feeling recognized and valued |
| Certainty | Uncertainty or ambiguity | Clear plans and predictable outcomes |
| Autonomy | Being micromanaged or overruled | Freedom to make choices |
| Relatedness | Isolation or exclusion | Building bonds and inclusion |
| Fairness | Perceived inequity or bias | Transparent and just processes |

Threats to autonomy (e.g., salary cuts) triggered avoidance responses, lowering motivation per the five domains. This neuroscience-based matrix extracts leadership lessons, advocating inclusive processes to reward relatedness and fairness in teams. In the reflection, applying SCARF revealed how salary cuts threatened Fairness and Autonomy, exacerbating blame dynamics (per attribution theory), and suggested inclusive discussions to affirm these needs for stronger team resilience.

**Appendix S: Discovery Insights – Team profile Analysis**

Insights Discovery categorizes personality traits into four color energies - Fiery Red (decisive), Cool Blue (analytical), Earth Green (supportive), Sunshine Yellow (creative) - via a 25-question evaluator, revealing team dynamics and conflict drivers.

Categorization Process (Step-by-Step):

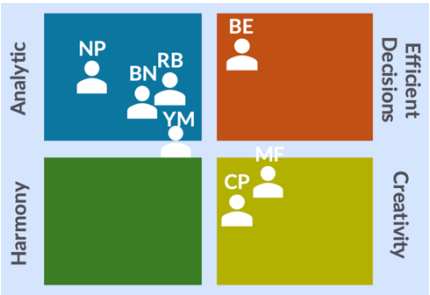
1. *Questionnaire:* Answer 25 preference-based questions (e.g., rank behavior statements).
2. *Scoring:* Responses align with Jung's types, plotting a profile wheel (analytic-harmony vs. decisions-creativity).
3. *Output:* Unique color mix with strengths, weaknesses, and development areas.

Example Questions:

- "Do you prefer quick decisions or thorough analysis?" (Red vs. Blue).
- "Are you more task-focused or people-oriented?" (Blue vs. Green).
- "Do you lead with structure or inspire with spontaneity?" (Blue vs. Yellow).

Insights Discovery framed team dynamics through color energies, translating abstract personality traits into visible patterns of decision speed, caution, and creativity. Within the simulation, this lens contextualized recurring frictions - such as Red urgency clashing with Blue deliberation - while complementing reflective tools like Gibbs and SCARF by adding a dispositional layer to behavioral and emotional analysis. In doing so, it reinforced the value of personality mapping as a bridge between individual tendencies and collective performance, offering a structured way to interpret both simulation outcomes and real-world leadership challenges.

*Team Dynamics:*




As Finance Director, my Red-top position near Blue fuses decisive action with analytical insight, powering EVA strategies but clashing with Blues' caution (e.g., Q15 model cut debates). Multiple Blues (detail-oriented) reinforced rigor, risking groupthink (Janis, 1972), while two Yellows (enthusiastic, creative) lifted morale but misaligned with Red's (my) pace (e.g., marketing silos). This left me "early but ignored" as Yellows sought harmony and Blues deliberated. Conflicts stemmed from Red's urgency overriding Blue's analysis and Yellow's divergence diluting focus, a dynamic to balance for future alignment per Goleman's EI (1995) and Jung (1921).

*Note:* Insights Discovery (Insights Learning & Development n.d.) profiles, rooted in Jung (1921), provide qualitative team insights, though less peer-reviewed than MBTI. Data from simulation feedback.

## Appendix T: Overview of Punctual Key Learnings

| Principle | Key Insight | Simulation Tie-In |
|---|---|---|
| ***Address Issues Early to Prevent Escalation*** | Nip misalignments in the bud to prevent escalation. Unresolved friction, like ignored financial warnings, snowballs into distrust or value erosion. Transform potential crises into quick, collaborative fixes. | Ignored warnings in model discontinuation led to a 33% profit drop due to misaligned team assumptions (Section 2.1). |
| ***Prioritize Alignment for Collective Success*** | Synchronize efforts across functions to turn friction into momentum. Re-calibrate regularly through shared KPIs like EVA to avoid fragmentation. | Siloed functions, such as production outpacing marketing, eroded EVA growth and caused inventory bloat (1.4). |
| ***Commit Decisively to Scale or Differentiate*** | Organizations should clearly choose between scaling for efficiency or differentiating through exclusivity to avoid diluted strategies and create sustainable competitive advantages. | "Stuck in the middle" strategy caused overcapacity and weak margins, unlike Tesla/BYD's scale or Ferrari's exclusivity (1.2.1, 1.2.3). |
| ***Embrace Accountability in Failures*** | Own decision outcomes, shared or not, to build trust. Denial erodes cohesion; accountability fosters learning. But also communicate about "what if not". | Salary cut backlash highlighted blame dynamics, despite team consensus, underscoring the need for shared ownership (2.2). |
| ***Reflect Objectively for Continuous Growth*** | Analyze setbacks without emotional burden for actionable insights. Structured reflection equips you for challenging future challenges. | Gibbs' cycle revealed communication blind spots, refining influence for future high-stakes roles (2.3, 2.4). |

This table distills key leadership principles into actionable lessons, showing how missteps in the simulation - ranging from ignored warnings to siloed strategies - highlighted the importance of alignment, accountability, and structured reflection for building sustainable performance.