

A Work Project, presented as part of the requirements for the Award of a Master's degree in  
Management from the Nova School of Business and Economics.

***BUSINESS IN PRACTICE***

**PERFORMANCE ANALYSIS OF CURRO CARS AND PERSONAL REFLECTION**

SOPHIA HANNAH SCHRAML

Work project carried out under the supervision of:

João Loureiro Rodrigues

04/10/2023

## **Abstract**

This work project explores effective collaboration dynamics within diverse teams, reflecting on the simulation-based leadership experience of transitioning a car manufacturer to e-mobility. It examines corporate strategy, marketing tactics, and innovation drive. Cross-functional teamwork emerged as crucial for informed decisions and sustainable success. Overcoming personal obstacles and resolving conflicts with open communication and self-awareness paved the way for comprehensive collaboration. Both business and personal analyses highlight the crucial role of interconnectivity for success, revealing the need for consistent efforts to maintain effective teamwork in complex environments.

## **Keywords**

Sustainability and ESG, Teamwork, Business Simulation, Team Dynamics, Cross-functional Management, Apply Theory in Practice, Automotive Industry, Develop a Business Strategy, Self-reflection

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 INTRODUCTION**

In a rapidly changing world, the automotive industry is evolving quickly. Environmental awareness has led to a strong emphasis on sustainable products. As one of the world's most influential industries, manufacturers are prioritizing sustainability in vehicles, focusing on reducing environmental impact, improving fuel efficiency, and offering electric options with recycling potential (Mayyas et al. 2012). Despite increased sustainability awareness, major car manufacturers and their suppliers often fall short of meeting social and environmental expectations and regulations (Szász, Csíki, and Rácz 2021; Koplin, Seuring, and Mesterharm 2007). The global push for net-zero emissions by 2050 poses a significant economic challenge, especially for the automotive industry, which is a major contributor to climate change through emissions like greenhouse gases and air pollution (Demartini et al. 2023). To prepare for this transformative future of net zero, the automotive industry faces its most substantial change in decades. The shift to electric vehicles and emission reduction encompasses various challenges, including supply chain redesign, raw material scarcity, effects on employment, technology, mobility patterns, and infrastructure (Demartini et al. 2023). In the Business in Practice (BiP) simulation, we effectively transformed “Curro Cars” (CC) into a sustainable company by transitioning to an electric vehicle fleet and a net-zero supply chain. Firstly, I conduct an initial company analysis and core function assessment within the change process. Subsequently, I apply psychological concepts to interpret two critical incidents from the simulation.

## **2 SECTION ONE – COMPANY ANALYSIS**

### **2.1 Introduction To The Company Analysis**

This analysis comprehensively examines CC’s Strategy, Marketing, and Innovation departments in terms of performance and sustainability. Academic theories and real-world strategies provide insights into the decision-making process guiding CC towards a fully electric portfolio.

All data in this work on CC's performance is solely derived from the *industry masters simulation*.

## **2.2 Strategy Review: Creating A Sustainable Competitive Advantage For Curro Cars**

***External and Internal Analysis:*** To craft a comprehensive strategy considering both internal and external factors, a multifaceted analytical approach was employed. This included a PESTEL analysis, Porter's Five Forces, VARS framework, SWOT analysis, and 4P framework. The PESTEL analysis identified (see Appendix 1.1) government incentives and regulations impacting adoption, economic conditions influencing consumer choices, and sustainability trends driving demand. Rapid technological advancements in batteries and charging infrastructure reshape the industry, while environmental concerns simultaneously prompt regulatory changes. Legal frameworks also impact manufacturing, sales, and safety standards. Adapting to these factors enables CC to navigate challenges and capitalize on growth opportunities in the competitive EV market, as indicated by Porter's Five Forces analysis (see Appendix 1.2). The high threat of new entrants and strong supplier bargaining power, along with moderate buyer bargaining power, indicate rapid market growth. Consequently, CC has adapted its strategy to prioritize innovation, lead in electric vehicle development, and secure a substantial market share. After gaining industry insights, a SWOT analysis was conducted to gauge the company's competitive positioning (see Appendix 1.3). Additionally, the resource-based view (RBV) was employed to delve into internal resources, emphasizing how a firm's unique and valuable assets drive its ability to outperform competitors and establish a sustained competitive advantage (see Appendix 2.1) (Kraaijenbrink, Spender, and Groen 2010). These internal resources fall into three categories: organizational, human, and physical resources (Barney 1991). To assess CC's tangible and intangible resources shaping its business model, the VARS framework was used (Appendix 1.4). This internal analysis revealed valuable sources of competitive advantage. Comprehending these external and internal factors is essential for crafting an effective strategy and gaining a competitive edge (David 2011). According to Porter (1996), strategy involves

creating a unique and valuable position through distinct activities, a concept I'll discuss in relation to CC's position shortly.

***Strategy Introduction with Mission Vision and Values:*** Adapting to evolving consumer preferences and sustainability trends, such as electric vehicles, connected cars, mobility fleet sharing, and autonomous driving, has been crucial for the automotive industry's long-term success over the past decade (Rossi et al. 2020; P. Gao et al. 2016). In response to these emerging trends from the PESTEL analysis, CC introduced a sustainable strategy targeting price-conscious younger customers (see Appendix 1.1). The mission is “to drive sustainability in the automotive industry by offering innovative, eco-friendly cars at mid-range prices.” Our vision is to “lead the generational shift of Gen Z by embracing innovation and youthfulness while prioritizing environmental responsibility”. The goal is to provide cutting-edge, affordable transportation solutions that align with the values and aspirations of the younger generation, contributing positively to our world (see Appendix 1.5). Cupra, the Volkswagen Group's challenger brand, proves that combining sporty design and innovation can drive substantial revenue growth. By prioritizing emotion, electrification, and performance, Cupra positions itself as a brand that blends sportiness with technological innovation in electric mobility, resulting in impressive sales growth, doubling in 2022 (Vall-Llosada and Prowel 2023). Consequently, sustainability should no longer be considered a privilege. CC embodies the future of impactful driving, gradually shifting to electric cars while upholding core values of integrity, environmental responsibility, innovation, and social impact.

***Strategy Formulation and Initial Strategy:*** CC's competitive success is driven by its internal ability to bridge the gap between innovation and affordability. By uniquely integrating cutting-edge technology and sporty design into eco-friendly vehicles, the company caters to the preferences of young professionals who seek the perfect blend of performance, environmental consciousness, and mid-range prices. Thus, a mixed strategy combining differentiation with cost-

effectiveness is employed. Furthermore, exclusively following a single *generic strategy* can lead to gaps in product offerings, inflexibility to evolving customer needs, and a limited organizational vision over time. (Miller 1992). By adopting a *mixed generic strategy* of *cost leadership* for combustion and hybrid vehicles and a *broad differentiation* for innovative electric vehicles, CC wants to excel in the automotive market (see Appendix 1.6). Tesla initially pursued a differentiation focus strategy by introducing pioneering technology to attract early adopters in the narrow EV market of 2013. Once establishing brand recognition, Tesla followed a broad differentiation competitive strategy, offering more affordable options like the budget-friendly Model 3 for the mass market (Stringham, Miller, and Clark 2015). In response to competition in the simulation's EV market, CC quickly adopts a broad differentiation strategy, recognizing that the technology is no longer pioneering. For its pricing strategy, CC utilizes a hybrid approach inspired by Volkswagen (see Appendix 1.7), which categorizes the portfolio into different price segments, reflecting customer preferences based on price, length, and engine size. The entry segment offers value-for-money options to compete, while the upper-level segment commands higher prices due to customer willingness to pay (Proff 2000). Thus, CC employs a two-tiered approach for EVs in each segment: a premium edition with advanced technology and an affordable alternative, both competitively priced. Middle-level combustion and hybrid vehicles are competitively priced as entry-level options (see Appendix 2.2). To lead in innovation and phase out combustion engines by year three, a three-step strategy was developed: **Phase 1 - Growth and Expansion:** Lasting until year three, this phase involves substantial R&D investments for innovation and new manufacturing facilities for hybrid and combustion vehicles. In terms of financial resources, priority will be given to the e-mobility project over extensive sustainability enhancements (scopes 1, 2, and 3). **Phase 2 - Transition:** CC transitions to an EV-focused company, entering the EV market, and phasing out combustion engines. Investments targeting production (scope 1), energy (scope 2), and supply chain improvements (scope 3) will

be made. Nevertheless, the e-mobility project should be completed, laying the foundation for the future. **Phase 3 - Sustainability Focus towards Stability:** The final phase prioritizes sustainability. With only electric vehicles produced, operations will be optimized, and carbon emissions reduced throughout the supply chain. Investments in sustainability were deferred to the stability phase due to positioning outside the premium segment and not being a frontrunner in sustainability but innovation. How this initial strategy was implemented, and which adjustments had to be made will be analyzed in the following.

**Strategy Implementation and Evaluation:** As sustainability trends advance, combustion engines will decline in value, prompting necessary adjustments by companies. The following analysis assesses CC's effectiveness in navigating the competitive landscape and adapting to sustainability trends. In Figure 1, we observe a decline in value-added during the initial growth and expansion phase, followed by stabilization during the transition phase. After Q21, there was a significant increase, which coincided with the removal of combustion cars from the portfolio in Q18 and the phase-out of hybrid cars in Q22.

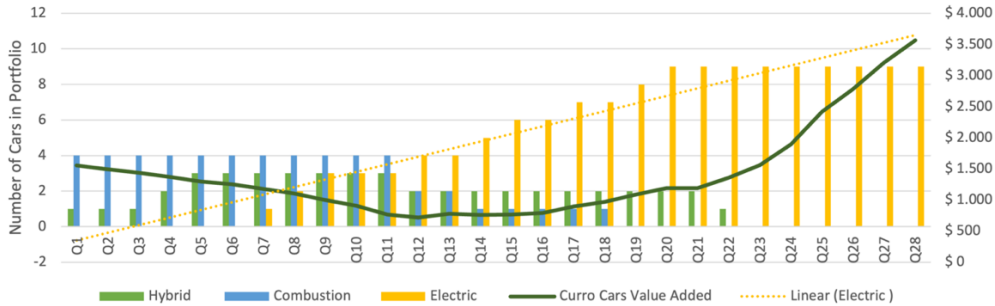


Figure 1: Rising Electric Portfolio Increases Value-Added (in Million)

The KPI value added stabilized in Q12 due to the 50% share of electric vehicle (EV) sales, highlighting their role in creating sustainable value for CC (see Appendix 2.3). The initial strategy aimed to finance the e-mobility project through mass production of combustion and hybrid cars (PHEV). However, the planned cash-generating hybrid cars underperformed even combustion vehicles (ICE) with high-level maturity in total revenues (see Appendix 2.4), resulting

in minimal profit that declined over time (see Appendix 2.5), defying expectations. This prompted CC to reconsider its transitional strategy. Instead of making a full switch to an all-electric lineup using PHEVs as a gradual transition, CC decided to relaunch their top-selling ICE, the Air 135G, and introduce just three PHEVs. The strategy deviation thus resulted in lower sales numbers of PHEVs and forced CC to adjust the pricing strategy of cost leadership. Low market demand necessitated price increases to generate minimal revenue from the limited customer base interested in PHEVs (see Appendix 2.6). Contrary to the simulation's claim of limited market demand for hybrid vehicles as transitional options, real-world data tells a different story. In the German market, hybrid cars hold a larger share than electric vehicles in 2023, although electric vehicles are experiencing stronger growth and are described as the future (Statista 2022). New electric vehicle registrations increased from 10% in July 2021 to 20% by July 2023, while hybrid vehicle market share dipped from 29.5% to 27.7% in the same period. Despite a clear trend towards EVs, hybrids continue to outperform them due to infrastructure constraints. The simulation's portrayal of the trend seems somewhat overstated, leading to misjudgment in the transition phase and the significance of hybrid vehicles (Statista 2023a). Furthermore, E-car sales stagnated in the last five quarters, revealing a major strategic misstep of not expanding factories further (Appendix 2.7). Factory utilization reached 100% from Q25 onward (Appendix 2.8), and days of inventory stayed below the 60-day ideal benchmark for four car models by Q24. Despite the potential for increased sales and revenue, limited factory capacity posed challenges in meeting demand. While the team adopted the scrum development process to enhance adaptability and productivity, the right timing for factory expansion was not achieved. Organizations increasingly rely on such agile teams for enhanced client satisfaction and higher-quality work (Schwaber 1995). Each decision year was treated as a sprint, involving strategy reviews and adjustments (Appendix 1.8). Research indicates that scrum teams embrace change and share an understanding of teamwork and task allocation (Nerur and Balijepally

2007; Moe, Dingsøy, and Dybå 2010). Despite striving for strict adherence to agile practices, success was inconsistent. A detailed assessment of this will follow in the paper's next section.

### **2.3 Marketing Review: Effective Positioning Secured Curro Cars Market Leadership**

To serve customers better than competitors do, crafting a strategic marketing plan with a central focus on positioning is vital. Achieving successful placement is crucial for establishing a long-term competitive advantage and attaining superiority in performance (Iyer et al. 2019; G. Hooley et al. 2001). Previous literature explored the relationship between brand positioning and market orientation and how this influences strategy selection (G.J. Hooley, Piercy, and Nicoulaud 2008; Blankson et al. 2013). Based on this perspective, I argue that CC's responsive market orientation allowed for answering the existing needs of eco-friendly customers and the rising trend of electromobility (Saini and Johnson 2005). Utilizing a positioning map of car manufacturers revealed gaps in unmet customer needs, guiding us to position as mid-priced market frontrunners within the simulation (see Appendix 1.9). Comparing CC's positioning to the Chinese firm BYD reveals notable similarities. BYD holds a significant presence in China's EV market, which stands as the most dominant globally, encompassing 59% of global EV sales in 2022 and serving as the largest EV production hub. This places BYD at the forefront of China's EV revolution, establishing a robust competitive position. The company's emphasis on innovative battery technology, affordability, and environmental consciousness further strengthens its positioning and aligns with CC. Unlike Tesla, a key rival, which markets its cars as status symbols, BYD positions its products as budget-friendly transportation choices, echoing CC's positioning. Remarkably, Tesla's cars as status symbols are tied to their distinctive "Zero Euro" customer-driven marketing strategy, fostering exclusivity and desire through word-of-mouth and customer enthusiasm (Mangram 2012; Bratzel 2016). This strategy contributes to the perception of Tesla vehicles as status symbols. Nevertheless, BYD's success with its positioning suggests that CC's decision to operate as a non-premium company leads to high market shares.

Besides positioning the brand correctly, the *Ansoff matrix* (see Figure 2) was employed to determine the optimal growth strategy (Loredana 2016). When a new product is developed for the existing market, previously dominated by combustion engines, electric vehicle development can be categorized as a product development strategy (Jussani et al. 2015). In Phase One, CC focused on capturing a substantial market share and revenue by exclusively selling combustion and hybrid cars. The shift to introducing electric cars marked a transition from market penetration to a product development strategy. Targeting the existing consumer base (market) previously interested in combustion and hybrid cars with the new products of EVs, CC effectively positioned itself as a market leader across America, Europe, and Asia by Q28 (see Appendix 2.9).

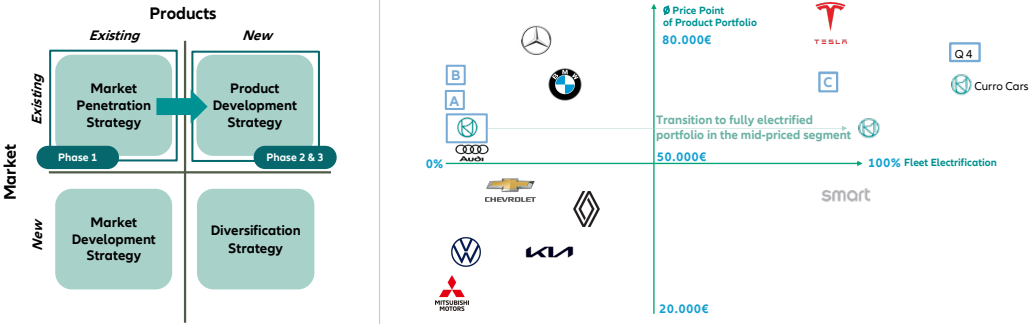


Figure 2: Ansoff Matrix and Positioning Map

This transition prompted a redesign of the product portfolio, exclusively offering electric vehicles, at two distinct pricing tiers: a premium line and a standard version to establish market demand. This diversified product range allowed CC to secure the top positions in the market with the four leading car models, surpassing our competitors in performance (see Appendix 2.10). Furthermore, as seen in Figure 3, a clear trend of increasing fleet electrification comes with increasing customer satisfaction and increasing revenues. In Q13 (+14%) and in Q23 (+10%) CC reported the highest revenue increases, which can be ascribed to the peak of gross profit contribution of the Pico (electric compact) and the Douro-E (electric SUV) car models in Q13 and a 100% electrified fleet in Q23 (see Appendix 2.11). When analyzing the company's

revenue by car models, it becomes evident that the division of premium and standard car models based on price and features proved to be a successful strategy. The premium models, denoted by the “Plus” label in their names, not only secured the largest market shares in terms of revenue but also commanded the highest total revenues of CC’s offerings (see Appendix 2.12). Among the standard models, the "Sintra-E," the luxury car's standard version, stood out by generating similar revenue to its premium counterpart (Appendix 2.13). This is because the "Sintra-E" yielded significant revenue despite fewer unit sales due to its high selling price.

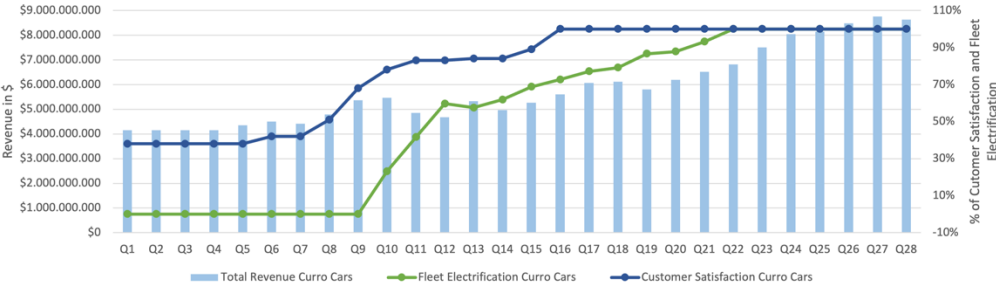


Figure 3: Total Revenues Correlate with Fleet Electrification and Customer Satisfaction

Comparing electric car variants with their combustion predecessors reveals superior revenues (see Appendix 2.14) and higher sales units (see Appendix 2.15) for electric models. However, this distinction is influenced by the simulation's portrayal of unusually high market readiness, a scenario not fully representative of the current reality. Despite it is also applicable to the real world that pure electric vehicles (BEV) are growing faster than plug-in hybrid vehicles (PHEV), it is important to note that PHEVs still stood for 27% of the market share of global plug-in sales in 2022. Even though PHEV sales volumes continue to rise, market share is decreasing, signaling the need for incentives to improve BEV offerings, similar to the simulation, but not as drastically. The simulation portrayed an electric vehicle market share of 98% in Q28, whereas the global market share for PHEVs and BEVs in the total light vehicles sales reached 13% in 2022 (Hertzke et al. 2018; EV-Volumes 2023). The BCG matrix assessed CC’s market share and product life cycle (growth). The portfolio's attractiveness and competitive position were considered. High share, low growth products (cash cows) were managed to generate cash for

newer, higher growth businesses (stars and question marks). A pet is financially draining and should be divested (Hambrick, MacMillan, and Day 1982). The initial strategy aimed to phase out combustion cars while using hybrid vehicles as cash cows for electric models.

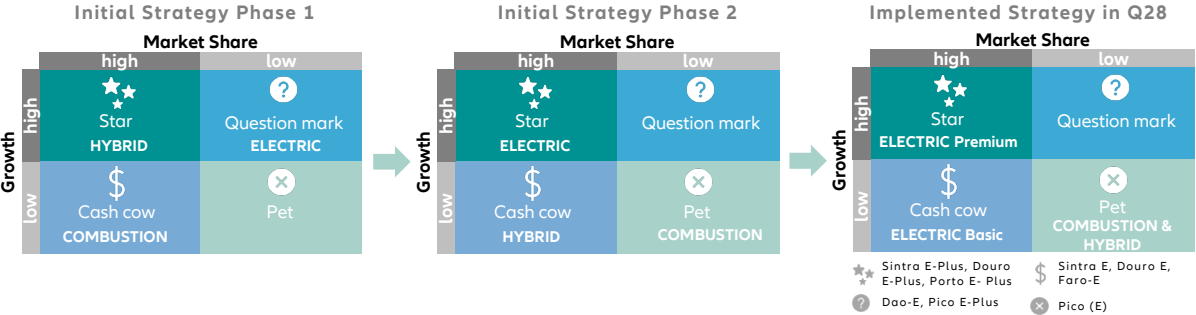


Figure 4: BCG Matrix Development

However, due to lower demand for hybrids after introducing the first EVs, both combustion and hybrid cars were discontinued. Hybrid cars became outdated more quickly than expected, leading to a loss of market share and declining profits (see Appendix 2.16). Thus, the new financial pillar became the standard electric car lineup, maintaining a significant market share even in a mature product stage. Notably, the premium "Plus" models showed strong growth and capture high market shares. The Pico E-Plus (compact class), the only premium model not meeting sales projections, has the smallest market share among premium offerings (see Appendix 2.12). Increased marketing investments were necessary to elevate sales and market share. The Pico (compact class) was identified as a pet, as it had the lowest market share of all products and declined every quarter in terms of market share and generated revenue. This might suggest limited market demand for compact cars, despite consumer preferences (see Appendix 2.17). Other KPIs to analyze CC's successful performance are its marketing expenses per \$ revenue and its EBIT margin. CC managed to achieve a significant market share within its competitive landscape, even with relatively low marketing expenses amounting to approximately 2.5% of revenue (see Appendix 2.18). This can be attributed to CC's high-quality products and cost-effective marketing strategy. Another indicator of CC's efficient operations is its high EBIT

margin of approximately 25% from Q23-Q28. Compared to leading car manufacturers, an EBIT margin of 25% would outperform them. Tesla is leading with a margin of 16.8%, followed by Mercedes-Benz (13.6%), Stellantis (11.7%), and BMW (9.8%) (Statista 2023).

#### **2.4 Innovation Review: E-mobility Is The Automotive Future**

Innovation is key for growth and survival in the long run, thus one of CC's most important departments (Tidd 2001). Changing customer demands and increased environmental policies are driving original equipment manufacturers (OEMs) into a race for innovation. Controlling costs while at the same time increasing innovativeness is a key challenge for achieving strategic business objectives in the future (Ili, Albers, and Miller 2010). Rising global consumer demands for climate action drive the need for change. The COP21's 17 Sustainable Development Goals (SDGs), adopted in Paris in 2015, emphasize the requirement for eco-friendly policies across sectors, including automotive. Passenger cars are a major polluter, accounting for 60.6 % of total CO<sub>2</sub> emissions from EU road transport in 2019 (European Parliament 2023). Vehicles not only need to become less polluting but also waste during the manufacturing process needs to be reduced (Kushwaha and Sharma 2016). Green innovation assists in guiding the automotive industry toward environmentally innovative accomplishments (Lin, Chen, and Huang 2014). This concept encompasses eco-friendly products, such as energy-efficient technologies, waste recycling, environmentally conscious product design, and pollution control (Y.-S. Chen, Lai, and Wen 2006). Yet, implementing green innovation in the auto sector poses complex challenges. CC invested \$10.2 bn in the innovation department to sustain its competitive advantage during the transition from traditional ICE to EV (see Appendix 2.19). Investment timing exhibits a clear downward trend, with high initial investments and the last investment made in Q20 (see Appendix 2.20). Furthermore, innovation strategy and timing are influenced by the dynamics of market-push and demand-pull, where technology can lead or follow market demand, known as 'technology-push' and 'demand-pull,' respectively. Tesla, for instance, served as a

pioneer in opening up the lead market for EVs, performing a technology-push approach. In both the simulation and reality, the market demands electromobility, driving a demand-pull strategy. However, internal R&D to enhance existing electric vehicles still represents a technology-push (H. Choi 2018). Aligned with the innovation strategy, resources were directed into connectivity, autonomous driving, and electrification during the initial phases. Simultaneously, technology investments were synchronized with new car launches. Therefore, during Q10 and Q11, investments were paused, as other technologies were in development for the upcoming car launch of the e-convertible model in Q12. Coordinated investment and launch planning emerged as a pivotal success factor, ensuring customers access to the latest technology. Analyzing Figure 5, CC's allocation to total investments falls below the industry average at around 10% of total revenue, with only 3% dedicated to pure electric vehicle technology (R&D in Figure 5).

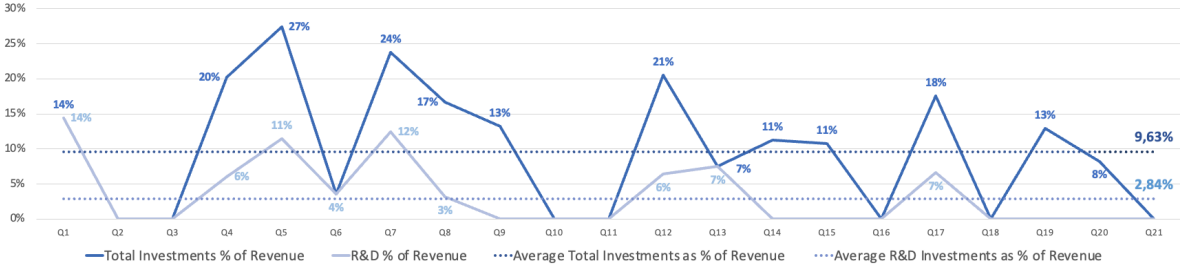


Figure 5: Investments as Percentage of Revenue

While Mercedes Benz invests only 2.7% of revenue in R&D projects solely focused on EVs and digital technologies, Volkswagen invests 6%, and Ford even 7% (International-Energy-Agency 2023). When assessing the innovativeness (quantity of innovations) of global automotive giants, Volkswagen, BMW, and Tesla have consistently maintained their positions as the industry's forefront innovators (AutomotiveINNOVATIONS 2022). Meanwhile, Chinese automakers, notably BYD, are increasing innovation, resulting in sales growth (BYD-Company 2022) and a diverse electric portfolio including various segments (SUV, upper-middle class models, minivan, etc.), mirroring CC's portfolio approach. Furthermore, BYD's collaboration with Didi, a Chinese ride-hailing firm, has yielded an electric vehicle tailored for the lower

middle class and particularly to ride-hailing needs (Handelsblatt 2020). During the simulation, CC as well decided on a joint venture in the car-sharing sector, reaffirming their innovative yet economic approach, as inhouse development of car-sharing would have been more expensive. Examining cumulative investments per sold electric car reveals a gradual decrease over time (see Appendix 2.21), indicating investments are paying off. As shown in Figure 6, CC's early innovation investments declined, as e-car sales and the e-mobility project initially grew, later stabilizing. This aligns with the technology S-curve, depicting technology's gradual start, acceleration, and eventual saturation (Schilling and Esmundo 2009).

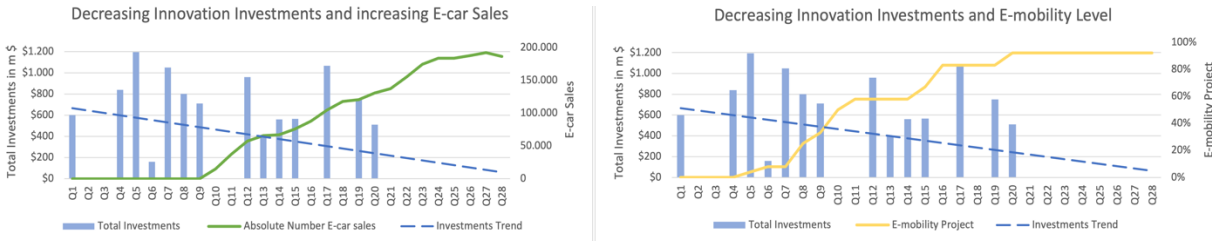


Figure 6: Decreasing Investments and Increasing E-mobility

The period of substantial investment and gradual growth of e-mobility during Q1-9 can be attributed to elevated R&D expenses for emerging battery technology and the initial market skepticism towards EVs. With an increased understanding of technology, advancement in innovative features speeds up. As limits in e-mobility innovation are approaching, expenses for marginal improvements rise, leading to the flattening of the S-curve (see Appendix 1.10) (Ayres 1994). This happened when reaching Q23, as the e-mobility project was finalized and sales were not increasing as drastically as before, which can also be connected to the product life cycle of the portfolio (PLC) (see Appendix 2.22) (Cao and Folan 2012). From Q13 to Q17, the portfolio was primarily filled with cars in the growth phase, leading to a strong sales increase, with Q13 and Q14 notably having 60% of the portfolio in growth and none in decline (see Appendix 2.23). In Q18, a shift occurred with more cars in the decline and maturity phases than in the growth and introduction phases, coinciding with a sales decline (Q18: \$6.11 billion and

Q19: \$5.81 billion). This underscores the PLC's revenue impact, leading us to introduce three new EVs after Q18 to sustain growth. Furthermore, the degree of innovation embedded in new electric vehicles is another driving force for CC's success. Using the innovation matrix (see Appendix 1.11) with the dimensions incremental vs. radical and disruptive vs. sustaining, EV's rise in the automotive industry is a clear example of radical innovation (Norman and Verganti 2014; Davila, Epstein, and Shelton 2012; Assink 2006). Radical innovation brings about substantial complexity, as seen in the transformation of a combustion powertrain to an electric one, necessitating entirely new components and maintenance procedures (S.-L. Chen and Chen 2023). Entering the EV market after its establishment, CC's EV launch leaned towards sustaining or disruptive innovation, prioritizing incremental improvements in products and technology for competitiveness, exemplified by the LFP Blade battery investment. This choice balanced innovation and stability, sidestepping radical disruption. Solid-state batteries, while novel, lacked maturity and market readiness. The priority was on advancing technology rather than process improvements to maintain customer-friendly pricing. Notably, the sustainability rating improved and CO<sub>2</sub> penalties decreased from Q10 when EV sales began. However, the ranking declined as EV sales plateaued in the final quarter (Appendix 2.24 and 2.25).

## **2.5 Integrated View Across Functions**

Research indicates that coordination level influences performance output (Van de Ven, Delbecq, and Koenig Jr 1976). Collaboration among departments is crucial for delivering top-notch products and services (Tjosvold 1988). As interdependence among individuals rises, to be more precise, how reliant individuals are on one another to fulfill their work roles, coordination improves, enhancing output quality and quantity. This underscores interdependence's pivotal role as a key moderator for successful collaboration (Cheng 1983). Thus, at CC, effective cross-departmental collaboration was crucial for delivering high-quality vehicles guided by the strategy plan. Marketing's pricing, target segmentation, and growth strategies were

aligned with the vision, closely working with the innovation department to craft customer-tailored electric vehicle products based on insights from market research. Innovation's coordination with operations ensured streamlined production and called for HR collaboration for proper factory staffing. When launching a new car, operations had to develop a factory slot, taking 3-4 quarters, longer than the car's 2-3 quarter time to market, necessitating an earlier factory expansion and HR staffing adjustments. All departments engaged with finance for investment budgets and long-term plans. As evident, all departments, are intricately interconnected. The overarching goal of achieving net zero drove the shift towards complete electrification, impacting all functions of the organization. Sustainability as an overarching goal guided green financing, sustainability training, reduction of production scopes 1, 2, and 3, and the shift to an electric portfolio (see Appendix 2.26). The effectiveness of individual tasks at CC relied heavily on collaborative and communicative efforts. Thus, collaborative information sharing and joint decision-making are crucial, relying on harmonious communication and coordinated teamwork (Raposo and Fuks 2002). In the next section, I discuss teamwork challenges and my responses.

### **3 SECTION TWO – SELF-REFLECTION AND CRITICAL INCIDENTS**

#### **3.1 Introduction To The Self-Reflective Analysis**

Collaborative teams offer numerous benefits like increased productivity, better quality, and enhanced creativity, yet failures persist (Johnson, Heimann, and O'Neill 2000). BiP exposed team dynamics and personal growth, shaping my reactions, adaptability, and accountability. The next part analyzes two incidents and assesses my performance, acquired skills, and contributions to team decisions. Incident one demonstrated the interplay of personalities and psychological needs in a diverse team, emphasizing the vital roles of trust and communication for teamwork. Incident two highlighted subgroup dynamics' impact on cohesion, strengthening my commit-

ment to prioritize inclusivity and diverse collaboration. Faultlines, self-categorization, and social identity theory provide a fascinating framework to study team dynamics and the significance of inclusive leadership in promoting unity and collaboration.

### **3.2 Incident 1 – Nurturing Trust And Collaboration With Varied Psychological Needs**

**Description:** In the early stages of the simulation, I felt that my innovation role lacked challenge. To enhance teamwork and make a more significant contribution to the team, I voluntarily took on additional responsibilities from the marketing department. Recognizing the importance of close collaboration between innovation and marketing, I extended my involvement in this role which I perceived was needed. Consequently, I assumed marketing duties due to concerns about the assigned team member's suitability for the task, influenced by the initial reserve of our marketing director (MD), unclear communication, and limited participation in discussions. As found by Anderson and Kilduff (2009), the personal trait “dominance” leads to influence, as individuals behave in ways that show a high social and task expert skill set. Characterized as “dominant”, this led to me speaking more than other group members and my growing control over marketing processes. In the second-year decision round, our team dynamics quickly shifted from enthusiasm to negativity, impacting productivity as we struggled with rising conflicts and ineffective discussions (Toegel and Barsoux 2016). I persisted in trying to control group decisions, even interrupting or not allowing our reserved team members to finish their sentences. When confronted by fellow group members, they expressed dissatisfaction, stating that I had not given them a voice, ignored their contributions, and did not take their opinions seriously.

**Response:** Following the confrontation, I attempted to deflect criticism, emphasizing my intention to act in the team's best interests. However, my remaining teammates disagreed, asserting that taking someone else's role and attempting to lead solo hindered productivity and collaboration. I then withdrew, staying silent for the decision round's last half-hour. Perplexed by the

consensus against me, I questioned why concerns weren't voiced directly, believing open expression was crucial. Upon reflection, I recognized my behavior's inappropriateness, counter-productivity, and its potential to hinder honest communication from the outset. I neglected my team's emotions, focusing solely on simulation success. My "sunshine yellow" and "fiery red" traits led to aggressive reactions, exemplified when I hastily left the room. Extravert feelers (sunshine yellow) are personally involved in decisions and when confronted, they try to push their opinion with many arguments to save their face. This is exactly how I reacted to the circumstances. Upon introspection, I realized my unfriendliness stemmed from frustration with my unchallenging role. My teammates might have seen me as arrogant and uninterested in listening or resolving the issue. This perception could stem from my swift exit after the decision round, during which I only rejected accusations without addressing the matter constructively. Upon this realization, I addressed the subject the following day, directly expressing my concerns to the marketing director (MD). I shared my concerns about his seeming disengagement and exhibited ineffective communication. He explained feeling under pressure due to my tendency to rush through decision rounds, seeking perfection and precise information. I promptly apologized, acknowledged my behavior, and promised improvement. We agreed on improving information sharing and assigning specific tasks for innovation and marketing roles.

***Analysis and Reflection:*** The results of the insights discovery personality test were mirrored by CC's diverse team constellation. The group primarily consisted of individuals from three out of four personality types. "Fiery Reds" are extroverted thinkers, focused on results and competitiveness, but may exhibit impatience or aggression under stress. "Sunshine Yellows" are extroverted feelers, good at motivating others but become overly responsive and argumentative when stressed. "Earth Greens" are introverted feelers, nurturing team relationships and feeling stress from perceived unfairness or value conflicts. "Cool Blues" are introverted thinkers, valuing processes and detail, and tending to stay analytical even under stress. Three "Sunshine

Yellow" and one "Fiery Red" members dominated with their dynamic, persuasive, and strong-willed attributes. This combination resulted in a confident and action-focused work approach (Insights Discovery 2022). Yet, with three "Earth Green" members and no "Cool Blue" personality, our group dynamics lacked relaxation and clear structure, evident in practice rounds and the initial year of decisions. This shaped a dominant dynamic within the team, overshadowing quieter members struggling with self-expression (Anderson and Kilduff 2009). Besides personality characteristics, another reason influencing group conflict is differing psychological needs. According to Chun and Choi (2014), varying psychological needs within groups can result in intra-group conflicts. The importance of psychological needs is particularly evident in groups as working together requires a high degree of interpersonal coordination. This interaction creates fertile ground for tensions arising from the different needs that members are trying to satisfy (Maslow 1943). In the given incident, differing psychological needs emerged. The MD leaned towards an affiliation need, seeking positive relationships, while I pursued achievement and power, emphasizing control and superior performance. McClelland (1987) identified these three core needs (achievement, affiliation, power), which exhibit a predictive association with the three recognized conflict types: task conflict, relationship conflict, and status conflict (Bendersky and Hays 2012; DeChurch and Marks 2001). The prevailing level of dispersion in needs contributed to the emergence of task conflict. The MD's psychological need to foster a harmonious work environment led him to adopt an approach of remaining quiet during discussions, not actively sharing information, and ultimately not addressing my mistakes. Unfortunately, I misinterpreted this as a sign of limited knowledge or willingness to engage, causing me to perceive integrity as an absent element of trustworthiness in Mayer's model of trust (Mayer, Davis, and Schoorman 1995). Subsequently, this resulted in a trust deficit. Nevertheless, trust is vital for effective teamwork (Costa, Fulmer, and Anderson 2018). As De Jong and Dirks (2012) argue, team performance can only be high, if there is low trust asymmetry between

all team members. According to the social exchange theory, trust evolves over time. Studies underscore that trust is nurtured as individuals perceive benefits from their interactions (Cook and Emerson 1987; Cropanzano et al. 2017). In the context of the conflict, the communication between the MD and me improved significantly. This acted as a reinforcing element, further enhancing the development of trust. Drawing some learnings for my future career, I experienced how important open communication, and active listening, are. By seeking to dominate the quieter individual's tasks, I not only undermined growth but also hindered the group's collaborative potential. This incident not only again increased my motivation but also guided me toward effective communication. I will enhance my communication skills and avoid unnecessary pressure to strengthen my leadership. Through active listening, I aim to show empathy and respect, especially to more introverted team members. I now comprehend the importance of fostering an inclusive and supportive group environment, one that encourages each member to contribute their unique perspectives and strengths. The conflict helped me to realize my initial lack of trust in-group members, my communication and listening gaps, and my strong desire for leadership. In the future, I will establish trust and familiarity with each group member before tasks get done. Additionally, I will openly communicate my concerns if I sense a lack of intrinsic motivation from fellow group members. Moreover, the incident showed me, that a clear task distribution was absent. The MD and I failed to communicate about responsibilities before the situation escalated, and I never inquired about his actual needs or preferred communication style. Interestingly, the conflict yielded a positive impact on our group performance. Post-conflict, the MD felt secure sharing insights from his department, including important data tracked in his Excel analysis. This newfound openness not only benefited me but also allowed the entire group to identify the potential for producing a premium segment of EVs. This, in turn, enhanced my ability to coordinate tasks efficiently and fostered collaborative synergy among the innovation and marketing functions, as well as within the group. This effect of increased efficiency

and cooperation after task conflicts is also analyzed in previous research (J.N. Choi and Sy 2010; Chun and Choi 2014).

### **3.3 Incident 2 – Subgroup Dynamics And Inclusive Leadership As Moderator**

**Description:** Despite Curro Car's team being formed randomly, by coincidence our team came together consisting of three friends who already knew each other, including myself, and four other teammates who were initially strangers. Our pre-existing familiarity allowed us to establish a higher level of trust and work collaboration synergies immediately. Since we had previously worked in groups, we were aware of one another's strengths, weaknesses, and working dynamics. As a result, we often exchanged tasks, questions, or specific knowledge only among the three of us. During the first week of BiP, the dynamic of us forming a subgroup intensified. Beyond the regular BiP sessions, we collaboratively prepared Excel files for the upcoming decision round, and we even started to speak German, assuming it was only us who understood the specific materials we prepared. This isolation from the remaining group led to a lack of integration, less social interaction, and less knowledge sharing (Carton and Cummings 2012). In Year Three's decision round, in which we collectively decided to introduce a premium line after initial discussions, a significant conflict emerged between our subgroup and the remaining four group members of CC. This division stemmed from differing opinions on this strategic decision, underscoring the emergence of two opposing factions. The group atmosphere became strained, characterized by negative emotions, which forced a conversation. Concerns over the subgroup's presence and lack of cooperation were raised throughout the discussion. Until then, the three of us were unaware of the subgroup's consequences. The team expressed exclusion, judgment, mistrust, and stressed the need for better communication.

**Response:** I immediately felt terrible about the situation after concerns were raised. I remained silent and discouraged, unable to voice my thoughts. Earlier, I believed that our group dynamic had improved significantly after resolving the issues with the MD and myself and highlighting

open communication's importance. I apologized expressing sincere regret for not recognizing the subgroup formation earlier. Reflecting on incident one, I realized that I struggle with trusting my teammates' skills and abilities. I mistakenly assumed they lacked my level of motivation or ambition, which I now see as a misjudgment. My swift apology might have seemed insincere, but I aimed for harmony, a lesson from the prior incident. To ensure sincerity, I acted. I wanted to eliminate the subgroup, so the next day, I proposed a seating change and a "no German" policy to show understanding and validation to my teammates.

***Analysis and Reflection:*** The incident described above can be analyzed with the faultline model (Thatcher and Patel 2012; Lau and Murnighan 1998) and the self-categorization and social identity theory it builds upon (Turner and Reynolds 2011; Turner and Oakes 1986). Faultlines are imaginary lines that divide a group into smaller subgroups based on shared individual traits, which arise from demographics like age, but they can also stem from non-demographic aspects such as personality or values. In the above-described incident, shared familiarity and working dynamics as well as demographic similarities led to the division of the team into two subgroups. As defined by Carton and Cummings (2012), if a set of members collaborates differently with each other than with other team members, a subgroup exists with shared knowledge or cultural values. Attributes that are more closely correlated lead to the formation of more cohesive subgroups, thus strengthening the faultline. The self-categorization theory explains that individuals who categorize themselves and others into a group based on salient social attributes develop a sense of belonging to that group's social category (Hornsey 2008). Based on their affiliation with this social category of the in-group, individuals either perceive themselves as belonging or place themselves in the out-group. I, as a member of the subgroup, felt a stronger in-group identity with increased trust and collaboration than with the out-group. Furthermore, subgroups can be categorized into three different types: an identity-based subgroup, a resource-based sub-

group, and a knowledge-based subgroup. A resource-oriented subgroup entails members sharing specific resources, while a knowledge-centered subgroup forms when individuals possess specialized expertise in a particular domain (Hogg and Terry 2014; Carton and Cummings 2012). In this case, an identity-based subgroup was formed, as similar values, social characteristics, and demographic similarities were shared, as a group of three German friends. After being categorized as in-group members, the intergroup bias, as defined by the social identity theory, results in unfavorable judgments of out-group members. This can escalate conflict and reduce trust, cohesion, and knowledge exchange, as was the case for our team (Turner and Oakes 1986). At the simulation's start, I perceived that the three of us (subgroup) would handle most tasks, overlooking others' potential contributions. This led me to misjudge their actions, dismissing differing opinions and considering only ours as correct. The conflict illustrates how subgroup dynamics can lead to division within a team, triggering feelings of exclusion, mistrust, and an imbalanced perception of fairness and power among the out-group. Upon reflection, I see the need to improve my teamwork skills, underscoring the fragility of teamwork's significance (Lencioni 2003). Moving forward, I will prioritize inclusivity, communication, and diverse collaborations to avoid similar incidents. Recognizing my past tendency to favor familiarity, I now value broadening my perspective and stepping outside of my comfort zone. My role in forming the subgroup highlighted hasty judgments and a lack of trust, lessons I am determined to grow from. As a future leader, I will seamlessly integrate inclusive leadership principles to enhance adaptability in diverse environments. Inclusive leadership entails embracing six key attributes that I aspire to embody. These include demonstrating a visible *commitment to diversity*, practicing *humility* by acknowledging mistakes to foster others' contributions, being *mindful of biases*, and cultivating curiosity about others to exhibit an *open mindset*. Furthermore, displaying *cultural intelligence* to honor diverse backgrounds, and *fostering effective collaboration* by empowering others and valuing diverse perspectives to create psychological

safety (Bourke, Titus, and Espedido 2020). Had I incorporated these traits during the simulation, I might have averted the incident, as inclusive leadership helps to mitigate group faultlines and creates psychological safety (H. Chen et al. 2023). Team members' diverse experiences and perspectives, as evident in our team, can cause conflicts but can also add value, as seen in my learning to embrace inclusive leadership. (Toegel and Barsoux 2016).

### **3.4 Peer Assessment And Review Of Learning**

The incidents showcased the complexity of modern collaboration within diverse teams. However, the success of teams still hinges on foundational elements such as a solid structure, a nurturing environment, a clear purpose, and a shared perspective. A single weakened factor can undermine the group's effectiveness (Haas and Mortensen 2016). The incidents served as valuable lessons in enhancing my leadership skills, handling team dynamics, and improving communication, all of which underscore the significance of effective collaboration for successful teamwork. Employing the emotional intelligence theory (EI), I will analyze my behavior during the simulation and identify instances where I hindered efficient collaboration. As defined by Goleman (2001), EI includes four factors: self-awareness, self-management, social awareness, and relationship management (see Appendix 1.12). Research states that an individual's level of these emotional competencies plays a critical role in determining the potential for group cohesion, high performance, and effective collaboration (Rapisarda 2002). Analyzing the peer assessment (see Appendix 1.13) and incidents with the EI framework highlights my deficiencies in these competencies. In incident one, my lack of self-awareness hindered me from realizing how my dominant behavior affected team dynamics, impeding effective communication. The peer assessment discrepancy in "keeping the team on track" reveals a possible disconnect between my self-perception and teammates' perception, highlighting a potential lack of self-confidence. In incident two, a social awareness gap prevented me from recognizing the emerging subgroup, while insufficient relationship management hindered inclusive communication. This

links to the peer assessment dimension "expecting quality," where my higher self-rating might reflect a communication gap in expressing my quality expectations to the team. These incidents underline the imperative role of self-awareness and EI in fostering effective collaboration within diverse teams (Dierdorff, Fisher, and Rubin 2019).

#### **4 CONCLUSION AND MAIN LEARNINGS**

This paper explores CC's reaction to the evolving sustainability landscape in the automotive sector, delving into the interconnection of the marketing department, strategy formulation, and innovation approach. It underscores the essential teamwork required for collaborative decision-making, which is crucial for the company's achievements. CC's strategy aimed for substantial EV market share through mid-priced offerings, targeting eco-conscious Generation Y and Z customers valuing innovation over status symbols. The company's effective collaboration and subsequent success hinged on the team working cohesively toward a common goal. However, this unity was achieved only after overcoming two critical incidents early in the simulation. These issues stemmed from diverse personalities, causing problems like communication gaps, exclusivity in the work environment, and limited information sharing. My key takeaway was that overcoming these initial challenges significantly improved our group's performance. We accessed more insightful information for better decision-making, resulting in increased efficiency and significant value-added growth. This experience highlighted the crucial role of effective collaboration and improving self and social awareness and relationship management. BiP showed me, that successful outcomes rely on strong group collaboration, surpassing the impact of individual efforts. Diverse viewpoints and emotional intelligence enhance group dynamics, emphasizing the collective strength of teamwork.

## 5 LIST OF REFERENCES

- Anderson, Cameron, and Gavin J Kilduff. 2009. "Why do dominant personalities attain influence in face-to-face groups? The competence-signaling effects of trait dominance." *Journal of personality and social psychology*, 96 (2): 491.
- Assink, Marnix. 2006. "Inhibitors of disruptive innovation capability: a conceptual model." *European journal of innovation management*, 9 (2): 215-233.
- AutomotiveINNOVATIONS. 2022. "Innovative strength of the global automobile manufacturer." AutoInstitut. Accessed 12.08.2023. <https://autoinstitut.de/automotiveinnovations/innovative-strength-of-the-global-automobile-manufacturer/>.
- Ayres, Robert U. 1994. "Toward a non-linear dynamics of technological progress." *Journal of Economic Behavior & Organization*, 24 (1): 35-69.
- Barney, Jay. 1991. "Firm resources and sustained competitive advantage." *Journal of management*, 17 (1): 99-120.
- Bendersky, Corinne, and Nicholas A Hays. 2012. "Status conflict in groups." *Organization Science*, 23 (2): 323-340.
- Blankson, Charles, Kirsten Cowan, John Crawford, Stavros Kalafatis, Jaywant Singh, and Stanley Coffie. 2013. "A review of the relationships and impact of market orientation and market positioning on organisational performance." *Journal of Strategic Marketing*, 21 (6): 499-512.
- Bourke, Juliet, Andrea Titus, and Andrea Espedido. 2020. "The key to inclusive leadership." *Harvard Business Review*, 6.
- Bratzel, Stefan. 2016. "Warum Tesla die Autobauer das Fürchten lehrt." Zeit Online. Accessed 12.08.2023. <https://www.zeit.de/mobilitaet/2016-04/automobilindustrie-digitalisierung-elektromobilitaet-autonomes-fahren-tesla-wandel>.

- BYD-Company. 2022. "BYD Company Limited - Annual Report 2022." Static CN Info. Accessed 17.08.2023. <http://static.cninfo.com.cn/finalpage/2023-03-29/1216246589.PDF>.
- Cao, Hui, and Paul Folan. 2012. "Product life cycle: the evolution of a paradigm and literature review from 1950–2009." *Production Planning & Control*, 23 (8): 641-662.
- Carton, Andrew M, and Jonathon N Cummings. 2012. "A theory of subgroups in work teams." *Academy of management review*, 37 (3): 441-470.
- Chen, Hui, Qiaozhuan Liang, Chao Feng, and Yue Zhang. 2023. "Leadership and follower voice: the role of inclusive leadership and group faultlines in promoting collective voice behavior." *The Journal of applied behavioral science*, 59 (1): 61-87.
- Chen, Shieh-Liang, and Kuo-Liang Chen. 2023. "Exploring the Impact of Technological Innovation on the Development of Electric Vehicles on the Bibliometric Perspective of Innovation Types." *World Electric Vehicle Journal*, 14 (7): 191.
- Chen, Yu-Shan, Shyh-Bao Lai, and Chao-Tung Wen. 2006. "The influence of green innovation performance on corporate advantage in Taiwan." *Journal of business ethics*, 67: 331-339.
- Cheng, Joseph LC. 1983. "Interdependence and coordination in organizations: A role-system analysis." *Academy of Management Journal*, 26 (1): 156-162.
- Choi, Hyundo. 2018. "Technology-push and demand-pull factors in emerging sectors: evidence from the electric vehicle market." *Industry and Innovation*, 25 (7): 655-674.
- Choi, Jin Nam, and Thomas Sy. 2010. "Group-level organizational citizenship behavior: Effects of demographic faultlines and conflict in small work groups." *Journal of Organizational behavior*, 31 (7): 1032-1054.
- Chun, Jinseok S, and Jin Nam Choi. 2014. "Members' needs, intragroup conflict, and group performance." *Journal of Applied Psychology*, 99 (3): 437.

- Cook, Karen S, and Richard Marc Emerson. 1987. *Social exchange theory*. New York: Kluwer Academic/Plenum Publishers.
- Costa, Ana Cristina, C Ashley Fulmer, and Neil R Anderson. 2018. "Trust in work teams: An integrative review, multilevel model, and future directions." *Journal of Organizational Behavior*, 39 (2): 169-184.
- Cropanzano, Russell, Erica L Anthony, Shanna R Daniels, and Alison V Hall. 2017. "Social exchange theory: A critical review with theoretical remedies." *Academy of management annals*, 11 (1): 479-516.
- David, Fred R. 2011. *Strategic management concepts and cases*. 13th ed. New Jersey Pearson Education
- Davila, Tony, Marc Epstein, and Robert Shelton. 2012. *Making innovation work: How to manage it, measure it, and profit from it*. 1st ed. New Jersey: Wharton School Publishing
- De Jong, Bart A, and Kurt T Dirks. 2012. "Beyond shared perceptions of trust and monitoring in teams: Implications of asymmetry and dissensus." *Journal of Applied Psychology*, 97 (2): 391.
- DeChurch, Leslie A, and Michelle A Marks. 2001. "Maximizing the benefits of task conflict: The role of conflict management." *International Journal of Conflict Management*, 12 (1): 4-22.
- Demartini, Melissa, Marco Ferrari, Kannan Govindan, and Flavio Tonelli. 2023. "The transition to electric vehicles and a net zero economy: A model based on circular economy, stakeholder theory, and system thinking approach." *Journal of Cleaner Production*, 410: 137031.
- Dierdorff, Erich C, David M Fisher, and Robert S Rubin. 2019. "The power of percipience: Consequences of self-awareness in teams on team-level functioning and performance." *Journal of Management*, 45 (7): 2891-2919.

- Discovery, Insights. 2022. "Official Flagship Product - Insights ". The Insights Group Limited.  
Accessed 01.08.2023. <https://www.insights.com/de/produkte/insights-discovery/>.
- EV-Volumes. 2023. "Global EV Sales for 2022." <https://www.ev-volumes.com>.
- Gao, Lidan, Alan L Porter, Jing Wang, Shu Fang, Xian Zhang, Tingting Ma, Wenping Wang, and Lu Huang. 2013. "Technology life cycle analysis method based on patent documents." *Technological Forecasting and Social Change*, 80 (3): 398-407.
- Gao, Paul, Hans-Werner Kaas, Detlev Mohr, and Dominik Wee. 2016. "Automotive revolution - perspective towards 2030." McKinsey. Accessed 20.08.2023.  
<https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry/de-DE>.
- Goleman, Daniel. 2001. "An EI-based theory of performance." *The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations*, 1 (1): 27-44.
- Haas, Martine, and Mark Mortensen. 2016. "The secrets of great teamwork." *Harvard business review*, 94 (6): 70-76.
- Hambrick, Donald C, Ian C MacMillan, and Diana L Day. 1982. "Strategic attributes and performance in the BCG matrix—A PIMS-based analysis of industrial product businesses." *Academy of Management Journal*, 25 (3): 510-531.
- Handelsblatt. 2020. "BYD und Didi enthüllen eigenes Elektroauto – und es sieht aus wie der VW ID.3." Handelsblatt Online. Accessed 17.08.2023.  
<https://www.handelsblatt.com/unternehmen/flottenmanagement/design-plagiat-byd-und-didi-enthuellen-eigenes-elektroauto-und-es-sieht-aus-wie-der-vw-id-3/26631124.html>.
- Hertzke, Patrick, Nicolai Müller, Stephanie Schenk, and Ting Wu. 2018. "The global electric-vehicle market is amped up and on the rise." *McKinsey Cent. Futur. Mobil*, 1: 1-8.

- Hogg, Michael A, and Deborah J Terry. 2014. "Social identity processes in organizational contexts." *Academy of Management* 25 (1): 121-140.
- Hooley, Graham, Gordon Greenley, John Fahy, and John Cadogan. 2001. "Market-focused resources, competitive positioning and firm performance." *Journal of marketing Management*, 17 (5-6): 503-520.
- Hooley, Graham J, Nigel Piercy, and Brigitte Nicoulaud. 2008. *Marketing strategy and competitive positioning*. 4th ed. Essex: Pearson Education Limited
- Hornsey, Matthew J. 2008. "Social identity theory and self-categorization theory: A historical review." *Social and personality psychology compass*, 2 (1): 204-222.
- Ili, Serhan, Albert Albers, and Sebastian Miller. 2010. "Open innovation in the automotive industry." *R&d Management*, 40 (3): 246-255.
- International-Energy-Agency. 2023. "Global EV Outlook 2023." Clean Energy Ministerial Accessed 20.08.2023. <https://iea.blob.core.windows.net/assets/dacf14d2-eabc-498a-8263-9f97fd5dc327/GEVO2023.pdf>.
- Iyer, Pramod, Arezoo Davari, Mohammadali Zolfagharian, and Audhesh Paswan. 2019. "Market orientation, positioning strategy and brand performance." *Industrial Marketing Management*, 81: 16-29.
- Johnson, Pamela R, Virginia L Heimann, and Karen O'Neill. 2000. "The wolf pack: team dynamics for the 21st century." *Journal of Workplace Learning*, 12 (4): 159-164.
- Jussani, Ailton Conde, Andreas Heer, Ugo Ibusuki, and Carlos de Moura Côrtes. 2015. "Electric car and Porter's five Forces: Marketing Positioning in the Automotive Industry." 24th SAE Brasil International Congress and Display, Sao Paulo, Brasil <https://www.sae.org/publications/technical-papers/content/2015-36-0486/>.
- Koplin, Julia, Stefan Seuring, and Michael Mesterharm. 2007. "Incorporating sustainability into supply management in the automotive industry—the case of the Volkswagen AG."

- Journal of cleaner production*, 15 (11-12): 1053-1062.
- Kraaijenbrink, Jeroen, J-C Spender, and Aard J Groen. 2010. "The resource-based view: A review and assessment of its critiques." *Journal of management*, 36 (1): 349-372.
- Kushwaha, Gyaneshwar Singh, and Nagendra Kumar Sharma. 2016. "Green initiatives: a step towards sustainable development and firm's performance in the automobile industry." *Journal of cleaner production*, 121: 116-129.
- Kylliäinen, Julia 2019. "Types of Innovation - The Ultimate Guide with Definitions and Examples." Viima. Accessed 21.08.2023. <https://www.viima.com/blog/types-of-innovation>.
- Lau, Dora C, and J Keith Murnighan. 1998. "Demographic diversity and faultlines: The compositional dynamics of organizational groups." *Academy of management review*, 23 (2): 325-340.
- Lencioni, Patrick M. 2003. "The trouble with teamwork." *Leader to leader*, 2003 (29): 35-40.
- Lin, Ru-Jen, Rong-Huei Chen, and Fei-Hsin Huang. 2014. "Green innovation in the automobile industry." *Industrial Management & Data Systems*, 114 (6): 886-903.
- Loredana, Ecobici Mihaela. 2016. "The use of Ansoff matrix in the field of business." MATEC Web of Conferences, University of Târgu Jiu, [https://www.utgjiu.ro/revista/ec/pdf/2017-02.Volumul\\_2\\_Special/21\\_EcobiciL.pdf](https://www.utgjiu.ro/revista/ec/pdf/2017-02.Volumul_2_Special/21_EcobiciL.pdf).
- Mangram, Myles Edwin. 2012. "The globalization of Tesla Motors: a strategic marketing plan analysis." *Journal of Strategic Marketing*, 20 (4): 289-312.
- Maslow, Abraham H. 1943. "Preface to motivation theory." *Psychosomatic medicine*, 5 (1): 85-92.
- Mayer, Roger C, James H Davis, and F David Schoorman. 1995. "An integrative model of organizational trust." *Academy of management review*, 20 (3): 709-734.
- Mayyas, Ahmad, Ala Qattawi, Mohammed Omar, and Dongri Shan. 2012. "Design for

- sustainability in automotive industry: A comprehensive review." *Renewable and sustainable energy reviews*, 16 (4): 1845-1862.
- McClelland, David C. 1987. *Human motivation*. 1st ed. New York Cambridge University Press.
- Miller, Danny. 1992. "The Generic Strategy Trap." *Journal of Business Strategy*, 13 (1): 37-41.  
<https://doi.org/10.1108/eb039467>. <https://doi.org/10.1108/eb039467>.
- Moe, Nils Brede, Torgeir Dingsøy, and Tore Dybå. 2010. "A teamwork model for understanding an agile team: A case study of a Scrum project." *Information and software technology*, 52 (5): 480-491.
- Nerur, Sridhar, and VenuGopal Balijepally. 2007. "Theoretical reflections on agile development methodologies." *Communications of the ACM*, 50 (3): 79-83.
- Norman, Donald A, and Roberto Verganti. 2014. "Incremental and radical innovation: Design research vs. technology and meaning change." *Design issues*, 30 (1): 78-96.
- Parliament, European. 2023. "CO2 Emissionen von PKW: Zahlen und Fakten (Infografik)." Aktuelles- Europäisches Parlament. Accessed 01.09.2023.  
<https://www.europarl.europa.eu/news/de/headlines/society/20190313STO31218/co2-emissionen-von-pkw-zahlen-und-fakten-infografik>.
- Porter, Michael E. 1996. "What is strategy?" *Harvard business review*: 37-55.
- Proff, Heike. 2000. "Hybrid strategies as a strategic challenge—the case of the German automotive industry." *Omega*, 28 (5): 541-553.
- Rapisarda, Brigitte Ann. 2002. "The impact of emotional intelligence on work team cohesiveness and performance." *The International Journal of Organizational Analysis*, 10 (4): 363-379.
- Raposo, Alberto Barbosa, and Hugo Fuks. 2002. "Defining Task Interdependencies and Coordination Mechanism for Collaborative Systems." *Frontiers in Artificial Intelligence and Applications*, 74: 88-103.

- Rossi, Matteo, Giovanna Minicozzi, Giacomo Pascarella, and Arturo Capasso. 2020. "ESG, competitive advantage and financial performances: A preliminary research." *Business Theory and Practice Across Industries and Markets*: 969-986.
- Saini, Amit, and Jean L Johnson. 2005. "Organizational capabilities in e-commerce: An empirical investigation of e-brokerage service providers." *Journal of the Academy of Marketing Science*, 33 (3): 360-375.
- Schilling, Melissa A, and Melissa Esmundo. 2009. "Technology S-curves in renewable energy alternatives: Analysis and implications for industry and government." *Energy policy*, 37 (5): 1767-1781.
- Schwaber, Ken. 1995. "Scrum development process." Business Object Design and Implementation: OOPSLA'95 Austin, Texas.
- Statista. 2023. "Automobilkonzerne weltweit nach EBIT-Marge in den Jahren 2022 ". <https://de.statista.com/statistik/daten/studie/694792/umfrage/top-3-der-profitabelsten-autokonzerne-weltweit/>.
- Stringham, Edward Peter, Jennifer Kelly Miller, and Jonathan R Clark. 2015. "Overcoming barriers to entry in an established industry: Tesla Motors." *California Management Review*, 57 (4): 85-103.
- Szász, Levente, Ottó Csíki, and Béla-Gergely Rácz. 2021. "Sustainability management in the global automotive industry: A theoretical model and survey study." *International Journal of Production Economics*, 235: 108085.
- Thatcher, Sherry MB, and Pankaj C Patel. 2012. "Group faultlines: A review, integration, and guide to future research." *Journal of Management*, 38 (4): 969-1009.
- Tidd, Joe. 2001. "Innovation management in context: environment, organization and performance." *International journal of management reviews*, 3 (3): 169-183.
- Tjosvold, Dean. 1988. "Cooperative and competitive interdependence: Collaboration between

- departments to serve customers." *Group & Organization Studies*, 13 (3): 274-289.
- Toegel, Ginka, and Jean-Louis Barsoux. 2016. "How to preempt team conflict." *Harvard business review*, 94 (6): 78-83.
- Turner, John C, and Penelope J Oakes. 1986. "The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence." *British Journal of Social Psychology*, 25 (3): 237-252.
- Turner, John C, and Katherine J Reynolds. 2011. "Self-categorization theory." *Handbook of theories in social psychology*, 2 (1): 399-417.
- Vall-Llosada, Christina, and Owen Prowel. 2023. "CUPRA increases sales by 93% in 2022 and drives the financial turnaround of SEAT S.A.". Seat Mediacenter. Accessed 06.08.2023. <https://www.seat-mediacyenter.com/smc/seat-sa/seat-sa-news/company/2023/CUPRA-increases-sales-by-93-in-2022-and-drives-the-financial-turnaround-of-SEAT-SA>.
- Van de Ven, Andrew H, Andre L Delbecq, and Richard Koenig Jr. 1976. "Determinants of coordination modes within organizations." *American sociological review*: 322-338.
- Visual-Paradigm. "Scrum Guides ". Visual Paradigm Online. Accessed 04.09.2023. <https://www.visual-paradigm.com/scrum/>.

## 6 APPENDIX

<b>1. List of Abbreviations</b> .....	<b>37</b>
<b>2. List of Figures (In-Text)</b> .....	<b>37</b>
<b>3. Appendix 1: Figures</b> .....	<b>38</b>
Appendix 1.1: PESTEL Analysis .....	38
Appendix 1.2: Porters 5 Forces .....	38
Appendix 1.3: SWOT-Analysis.....	39
Appendix 1.4: VARS Framework Curro Cars.....	39
Appendix 1.5: 4 P Framework Curro Cars .....	40
Appendix 1.6: Generic Strategy Framework.....	40
Appendix 1.7: Car Segments .....	40
Appendix 1.8: Scrum Sprints (Visual-Paradigm).....	41
Appendix 1.9: Positioning Map in Q4 and Q28 incl. Real Car Manufacturers.....	41
Appendix 1.10: Technology S-Curve (L. Gao et al. 2013) .....	41
Appendix 1.11: Innovation Matrix (Kylliäinen 2019).....	42
Appendix 1.12: Emotional Intelligence Framework (Goleman 2001) .....	42
Appendix 1.13: Peer Assessment .....	43
<b>4. Appendix 2: Graphs</b> .....	<b>43</b>
Appendix 2.1: Value-Added Curro Cars and Competitors.....	43
Appendix 2.2: Pricing Strategy CC: Entry level vs. Premium Line vs. Standard Line.....	44
Appendix 2.3: E-Car Sales Ratio.....	44
Appendix 2.4: Revenues Hybrid and Combustion Cars.....	45

Appendix 2.5: Profit Contribution per Car .....	45
Appendix 2.6: Sales Price Hybrid and Combustion Cars.....	45
Appendix 2.7: E-Car Sales in Quantity .....	46
Appendix 2.8: Factory Utilization .....	46
Appendix 2.9: Market Share by Segment.....	46
Appendix 2.10: Ranking of Car Sales in the Market.....	47
Appendix 2.11: Gross Profit per Car .....	47
Appendix 2.12: Market Share and Revenue by Car Model.....	47
Appendix 2.13: Revenue by E-Car Model .....	48
Appendix 2.14: Revenue by Car Model (all) .....	48
Appendix 2.15: Sales Units by Car Model (all) .....	48
Appendix 2.16: Segment Market Share of Hybrid Cars.....	49
Appendix 2.17: Consumer Preferences and Product Ratings.....	49
Appendix 2.18: Marketing Spend by Revenue.....	49
Appendix 2.19: Overview of Investments in Technology and Car Models .....	50
Appendix 2.20: Investments in Innovation Overview.....	50
Appendix 2.21: Investment Amount per Car.....	50
Appendix 2.22: Product Life Cycle Portfolio.....	51
Appendix 2.23: Product Life Cycle in Years 3 and 4.....	51
Appendix 2.24: CO <sub>2</sub> Bonus increases with E-Car Sales .....	51
Appendix 2.25: Sustainability Rating.....	52
Appendix 2.26: CO <sub>2</sub> in Production, Supply Chain and Energy.....	52

## 1. LIST OF ABBREVIATIONS













BiP =	Business in Practice
CC =	Curro Cars
DOI =	Days Of Inventory
EV =	Electric Vehicle
EI =	Emotional Intelligence
HR =	Human Resources
ICE =	Internal Combustion Engine
KPI =	Key Performance Indicator
MD =	Marketing Director
PHEV =	Plug-In Hybrid Electric Vehicle
Q =	Quarter
R&D =	Research & Development
SDG =	Sustainable Development Goal

## 2. LIST OF FIGURES (IN-TEXT)

Figure 1: Rising Electric Portfolio Increases Value-Added (in Million).....	6
Figure 2: Ansoff Matrix and Positioning Map .....	9
Figure 3: Total Revenues Correlate with Fleet Electrification and Customer Satisfaction .....	10
Figure 4: BCG Matrix Development.....	11
Figure 5: Investments as Percentage of Revenue .....	13
Figure 6: Decreasing Investments and Increasing E-mobility .....	14

### 3. APPENDIX 1: FIGURES

#### Appendix 1.1: PESTEL Analysis

	Political 	Economic 	Social 	Technological 	Environmental 	Legal 
Description	<ul style="list-style-type: none"> <li>Tariffs on exported products</li> <li>Incentives and subsidies for electric vehicles (EVs) encourage manufacturers to shift toward eco-friendly options</li> <li>International agreements and policies promote sustainable manufacturing practices</li> <li>Policies promoting emission reduction and sustainability</li> <li>Political stability influencing investment in EV infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Market growth of different regions</li> <li>Higher disposable income (e.g., China)</li> <li>Growing demand for EVs creates opportunities for market expansion and revenue growth</li> <li>Fluctuations in fuel prices impacting the attractiveness of EVs</li> </ul>	<ul style="list-style-type: none"> <li>Increasing consumer awareness and preferences for environmentally friendly products drive demand for EVs</li> <li>Social pressure to combat climate change pushes manufacturers to prioritize sustainability and reduce carbon footprint</li> <li>demographic trends on EV demand (urbanization, younger tech-savvy consumers)</li> </ul>	<ul style="list-style-type: none"> <li>Advancements in battery technology and charging infrastructure drive innovation in EV design and performance</li> <li>Connectivity and autonomous features shape customer expectations and demand for advanced electric vehicles</li> <li>Embracing Industry 4.0 technologies enhances manufacturing efficiency and reduces environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>Escalating environmental concerns emphasize the need to reduce emissions and adopt cleaner manufacturing processes</li> <li>Stricter emissions standards necessitate the development and production of zero-emission vehicles like EVs</li> <li>Sustainable practices in sourcing materials and minimizing waste become imperative for long-term viability</li> </ul>	<ul style="list-style-type: none"> <li>Stringent emissions regulations require automotive manufacturers to transition to cleaner technologies like EVs</li> <li>Compliance with international standards is essential for global market access</li> <li>Legal frameworks encourage manufacturers to invest in research and development of eco-friendly solutions</li> </ul>
Impact on Curro Cars	Medium 	High 	High 	High 	High 	Medium 

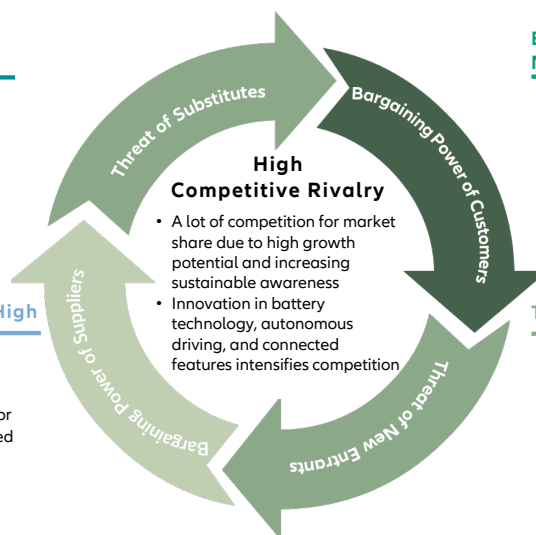
#### Appendix 1.2: Porters 5 Forces

##### Threat of Substitutes: Low

- Traditional internal combustion engine vehicles remain a substitute, but global push toward environmental sustainability and stricter emissions regulations is increasing
- Ride-sharing services
- Public transportation
- In areas with low EV infrastructure the threat for substitutes is higher

##### Bargaining Power of Suppliers: High

- Electric car industry is reliant on a few key supplier for batteries with specialized expertise
- As EV production scales up, the demand for critical components might lead to increased supplier power
- Outsourced battery production even increases supplier power



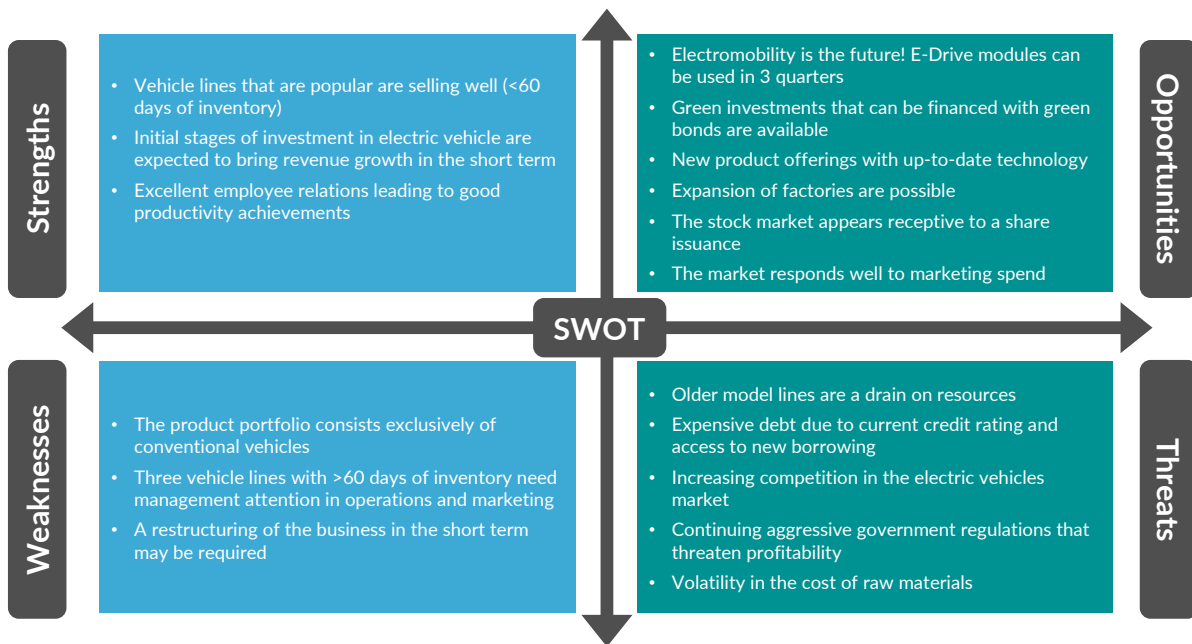
##### Bargaining Power of Customers: Moderate

- In the beginning a few electric car manufacturer but rapidly rising number
- Low switching costs for customers
- Buyers are price sensitive which leads to competitive pricing
- New market, small order volumes
- Government incentives and subsidies

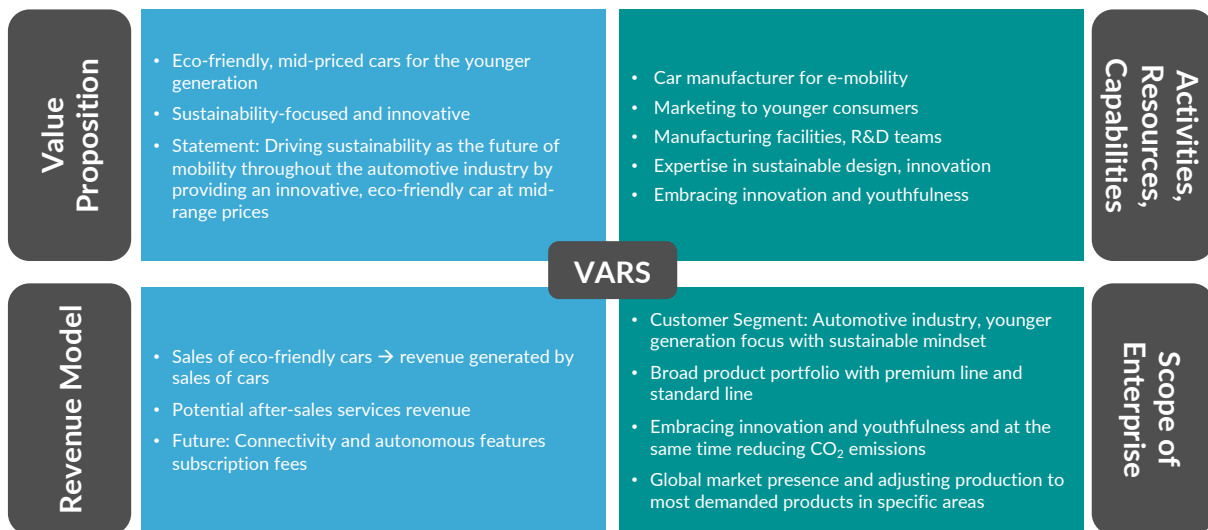
##### Threat of new Entrants: High

- Large amount of capital required for new technology, charging infrastructure, production
- Few legal barriers
- Established brand image and reputation
- New entrants could easily access suppliers and enter market
- New entrants need high level of specialization
- Existing automakers have a head start due to their experience, distribution networks, and brand recognition

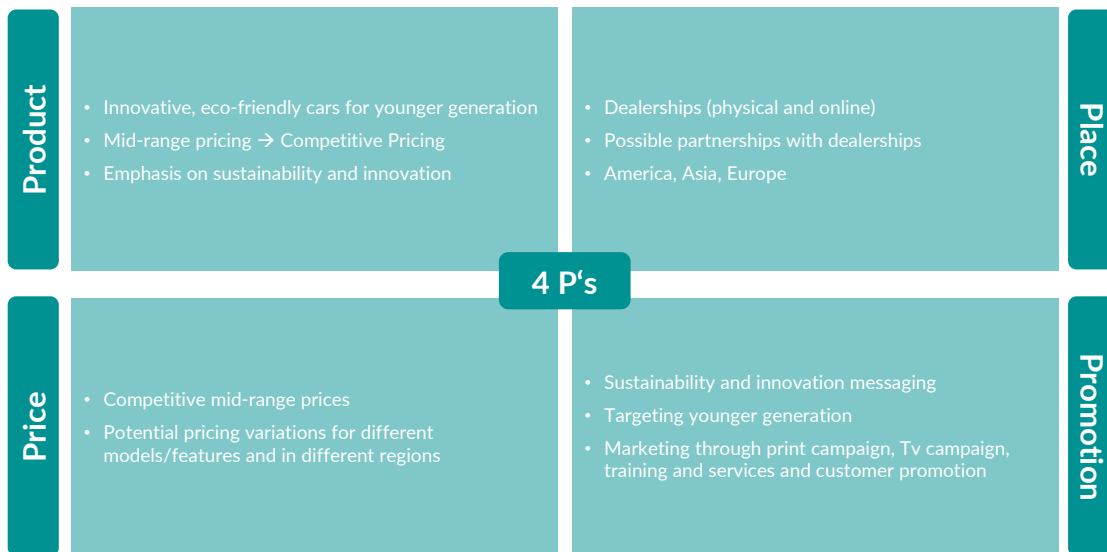
### Appendix 1.3: SWOT-Analysis



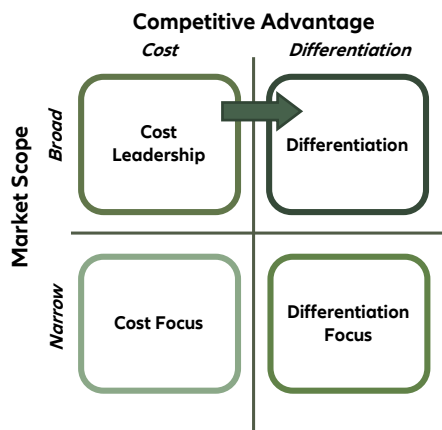
### Appendix 1.4: VARS Framework Curro Cars



## Appendix 1.5: 4 P Framework Curro Cars



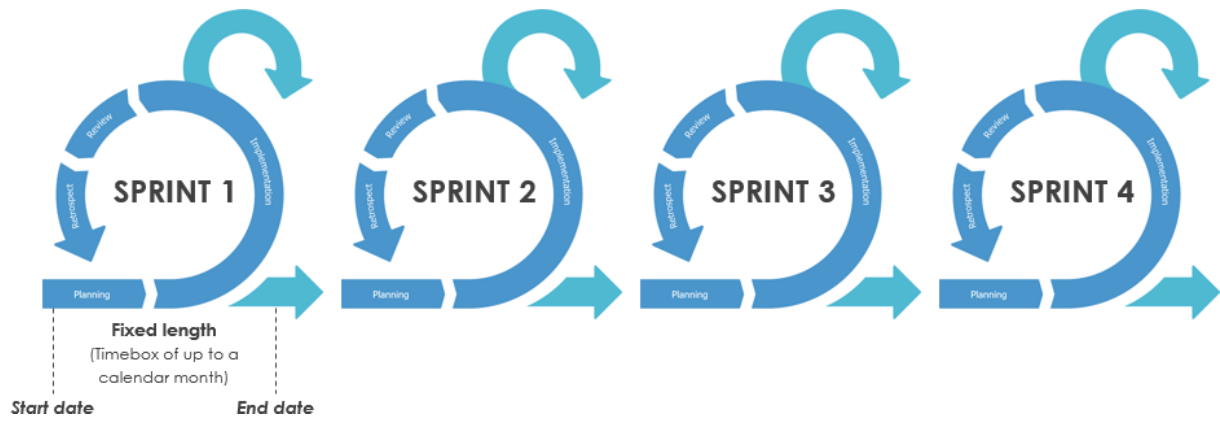
## Appendix 1.6: Generic Strategy Framework



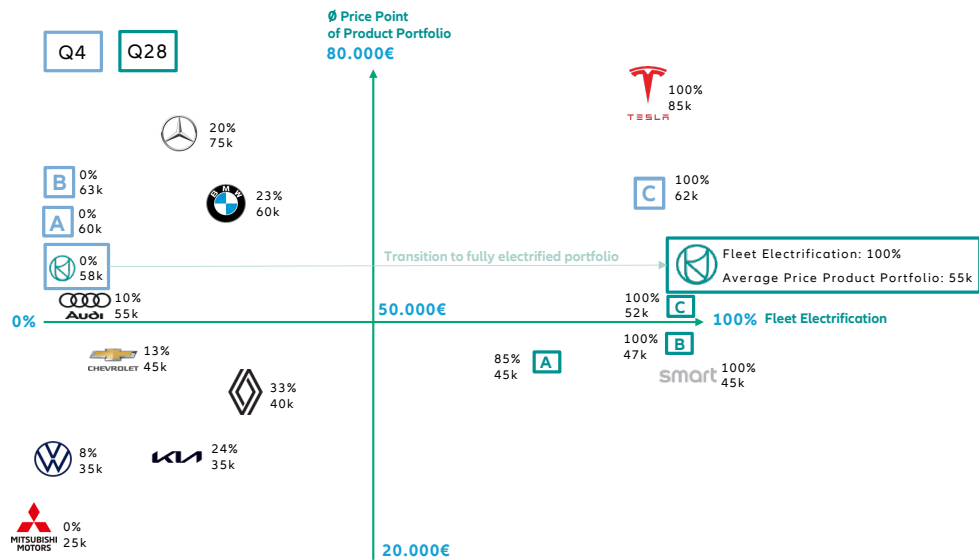
## Appendix 1.7: Car Segments

Segment <sup>(1)</sup>	Platforms	actual vehicles (Volkswagen group)				Share of segment in total market
		Audi	VW	Skoda	Seat	
Luxury segment	# 1	A8				9 %
Upper-level segment	# 2	A6				38 %
Upper-middle-level segment		A4	Passat			
Traditional middle-level segment	# 3	A3	Bora Beetle Golf	Oktavia		33 %
Lower-middle-level segment					Toledo	
Entry segment	# 4	A2	Polo Lupo	Felicia	Cordoba Ibiza Arosa Marbella	20 %

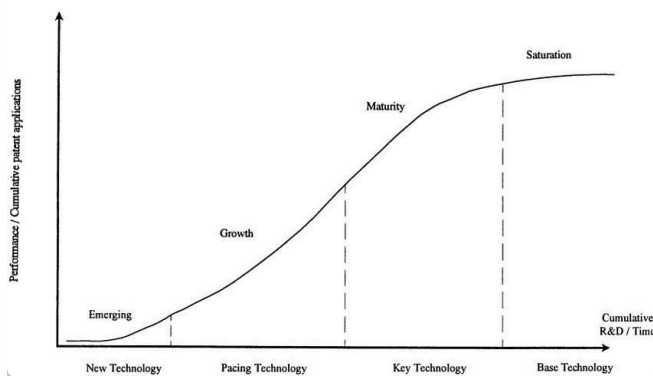
## Appendix 1.8: Scrum Sprints (Visual-Paradigm)



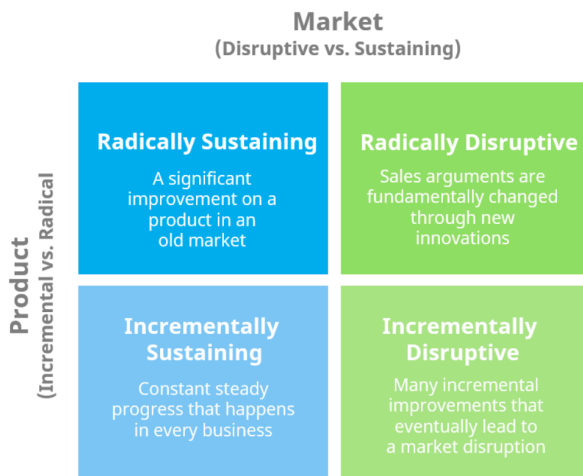
## Appendix 1.9: Positioning Map in Q4 and Q28 incl. Real Car Manufacturers



## Appendix 1.10: Technology S-Curve (L. Gao et al. 2013)



## Appendix 1.11: Innovation Matrix (Kylläinen 2019)

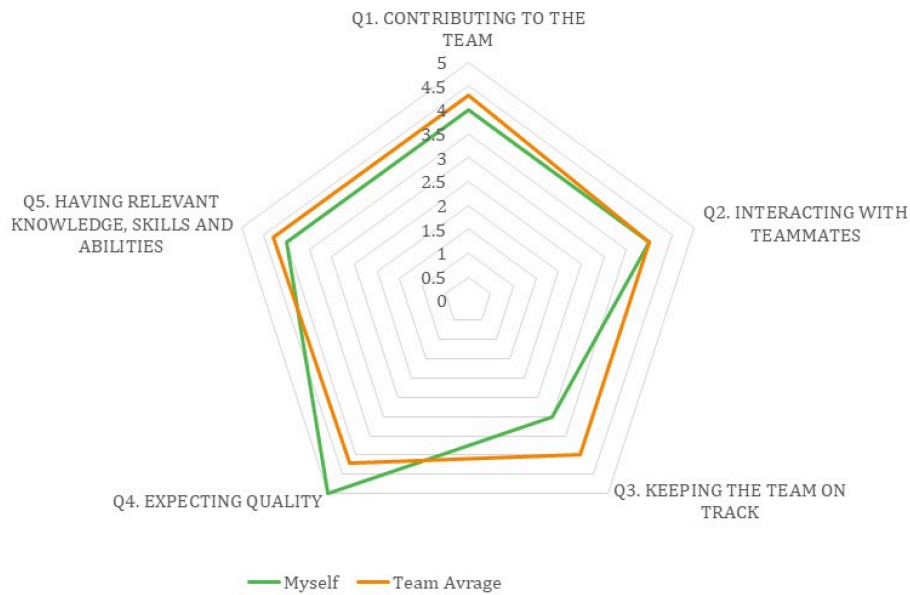


## Appendix 1.12: Emotional Intelligence Framework (Goleman 2001)

	<b>Self</b> Personal Competence	<b>Other</b> Social competence
<b>Recognition</b>	<b>Self-Awareness</b> <ul style="list-style-type: none"> <li>- Emotional self-awareness</li> <li>- Accurate self-assessment</li> <li>- Self-confidence</li> </ul>	<b>Social Awareness</b> <ul style="list-style-type: none"> <li>- Empathy</li> <li>- Service orientation</li> <li>- Organizational awareness</li> </ul>
<b>Regulation</b>	<b>Self-Management</b> <ul style="list-style-type: none"> <li>- Self-control</li> <li>- Trustworthiness</li> <li>- Conscientiousness</li> <li>- Adaptability</li> <li>- Achievement drive</li> <li>- Initiative</li> </ul>	<b>Relationship Management</b> <ul style="list-style-type: none"> <li>- Developing others</li> <li>- Influence</li> <li>- Communication</li> <li>- Conflict management</li> <li>- Leadership</li> <li>- Change catalyst</li> <li>- Building bonds</li> <li>- Teamwork &amp; collaboration</li> </ul>

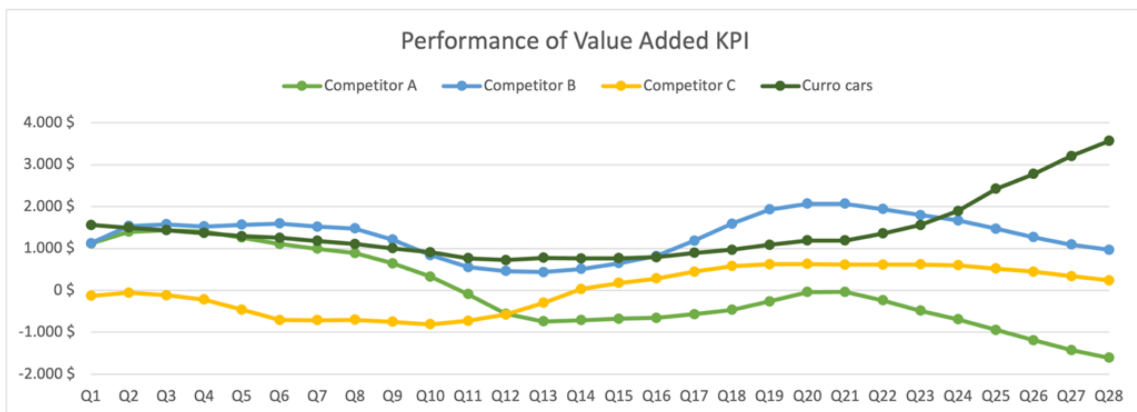
## Appendix 1.13: Peer Assessment

53413\_ Sophia Hannah Schraml

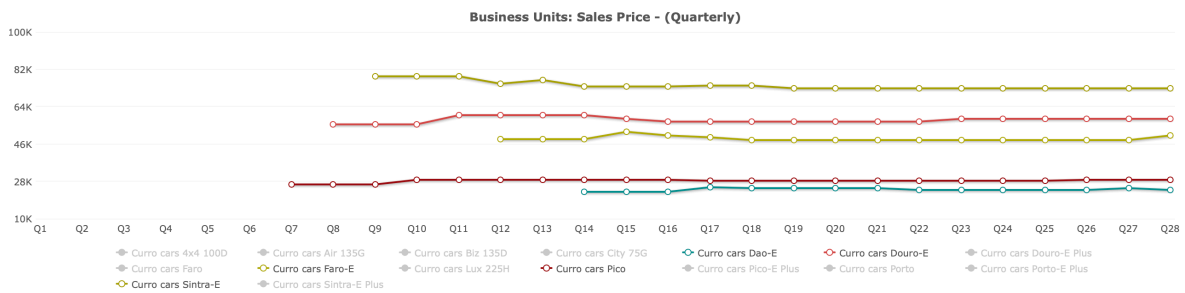
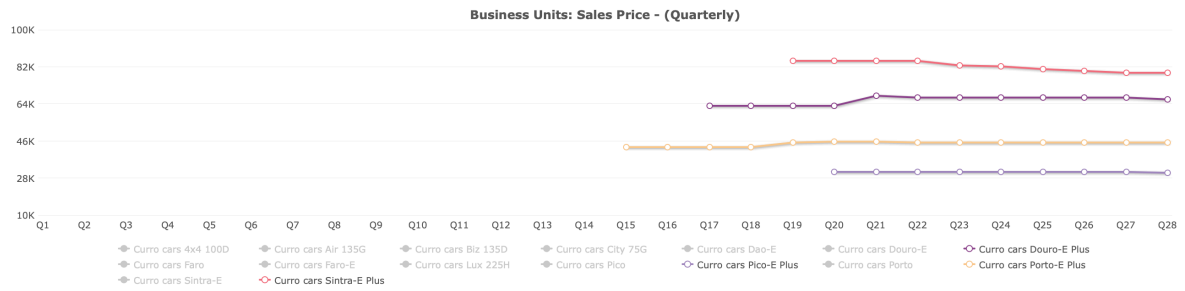
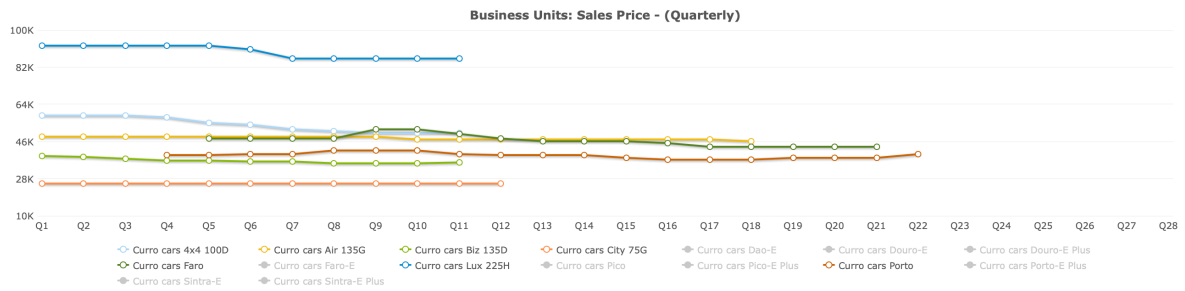


## 4. APPENDIX 2: GRAPHS

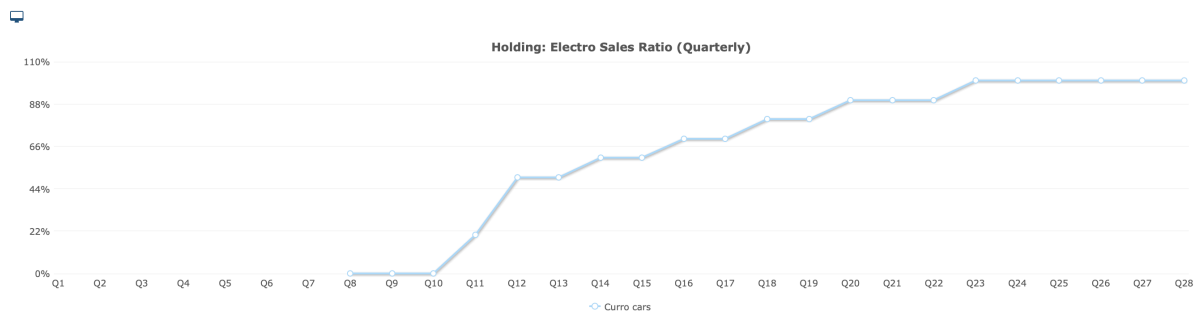
### Appendix 2.1: Value-Added Curro Cars and Competitors



## Appendix 2.2: Pricing Strategy CC: Entry level vs. Premium Line vs. Standard Line

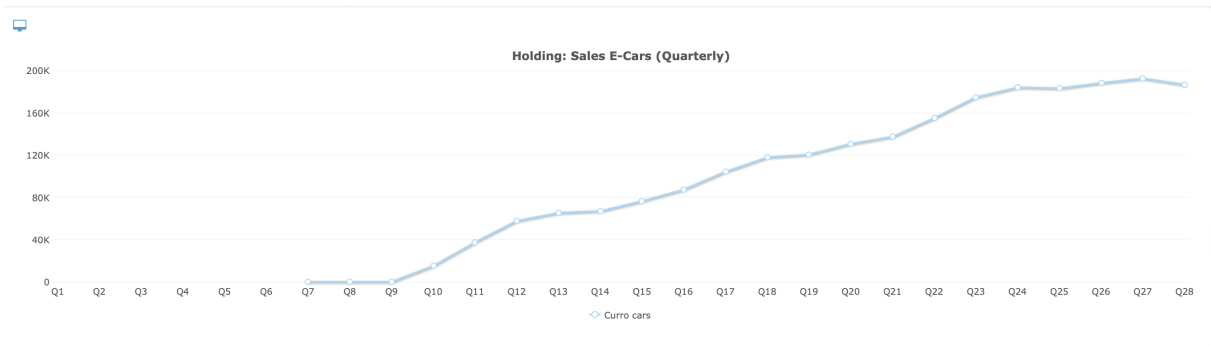


## Appendix 2.3: E-Car Sales Ratio

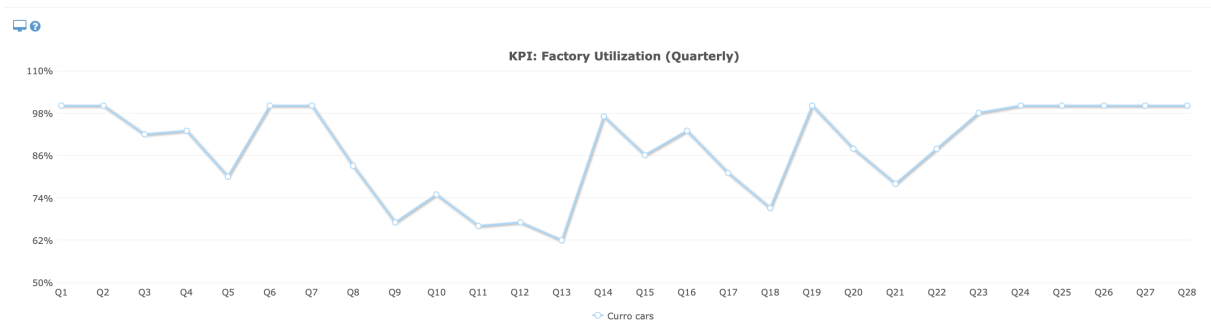




## Appendix 2.7: E-Car Sales in Quantity



## Appendix 2.8: Factory Utilization



## Appendix 2.9: Market Share by Segment

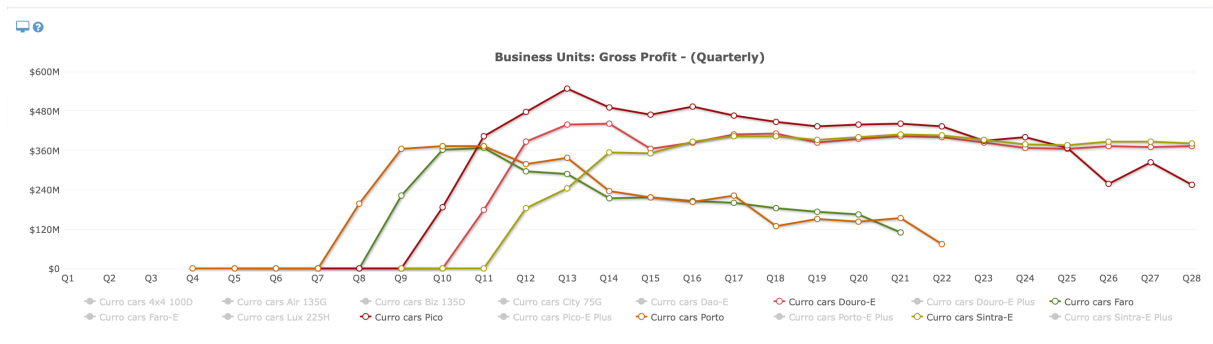
Segment Sales Player - Curro cars

	Total Sales	Total Revenue	Player Sales	Player Revenue	Segment Market Share
Americas	155,694	\$6,980M	60,355	\$2,977M	42.7%
Europe	135,213	\$5,627M	55,729	\$2,454M	43.6%
Asia	196,679	\$7,882M	70,035	\$3,118M	39.6%

## Appendix 2.10: Ranking of Car Sales in the Market

Rank	Product	Manufacturer	Type	Sales	Price	Revenue	Segment Market Share
1	Sintra-E Plus	Curro cars	Luxury Electric Class	16,084	\$85,473.60	\$1,262M <span style="color: green;">▲</span>	6.2%
2	Douro-E Plus	Curro cars	SUV Electric Class	17,840	\$71,538.26	\$1,169M <span style="color: green;">▲</span>	5.7%
3	Porto-E Plus	Curro cars	Executive Electric Class	24,215	\$49,644.36	\$1,081M <span style="color: red;">▼</span>	5.3%
4	Sintra-E	Curro cars	Luxury Electric Class	14,640	\$78,785.70	\$1,057M	5.2%
5	Lux-E	Competitor B	Luxury Electric Class	12,881	\$79,873.91	\$937M	4.6%
6	Lux-E	Competitor A	Luxury Electric Class	13,024	\$76,462.17	\$913M	4.5%
7	Pico-E Plus	Curro cars	Compact Electric Class	30,021	\$34,078.21	\$910M <span style="color: green;">▲</span>	4.4%
8	Biz-E	Competitor A	Executive Electric Class	25,360	\$39,922.88	\$904M	4.4%
9	Faro-E	Curro cars	Convertible Electric Class	17,985	\$55,091.96	\$894M <span style="color: red;">▼</span>	4.4%
10	Douro-E	Curro cars	SUV Electric Class	15,519	\$63,047.95	\$894M	4.4%

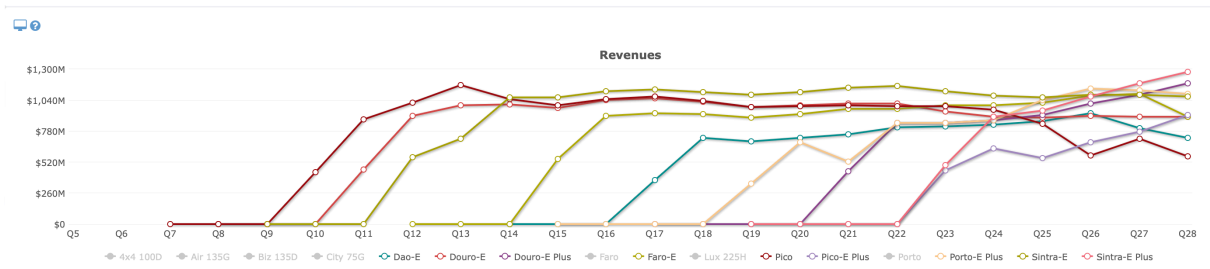
## Appendix 2.11: Gross Profit per Car



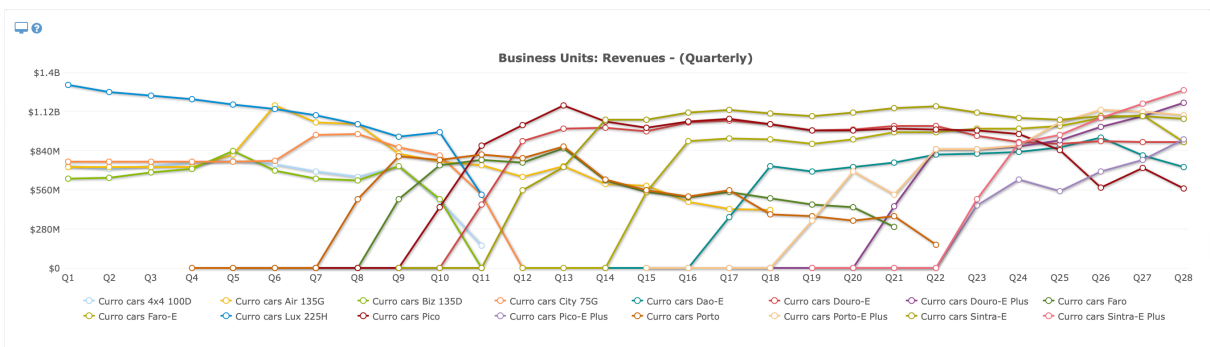
## Appendix 2.12: Market Share and Revenue by Car Model

Product	Age	Emissions	DOI	Revenue	Sales Price	Market Share	Contribution Margin
Sintra-E Plus	6 Quarters	0 g/mile	86 days <span style="color: red;">▼</span>	\$1,275M <span style="color: green;">▲</span>	\$79,053	6.3%	33.3% <span style="color: green;">▲</span>
Pico-E Plus	6 Quarters	0 g/mile	30 days	\$919M <span style="color: green;">▲</span>	\$30,512	4.5%	38.0%
Douro-E Plus	8 Quarters	0 g/mile	58 days <span style="color: red;">▼</span>	\$1,180M <span style="color: green;">▲</span>	\$66,009	5.8%	39.4%
Porto-E Plus	10 Quarters	0 g/mile	31 days <span style="color: red;">▼</span>	\$1,092M <span style="color: red;">▼</span>	\$45,002	5.4%	34.5% <span style="color: red;">▼</span>
Dao-E	12 Quarters	0 g/mile	30 days	\$723M <span style="color: red;">▼</span>	\$24,003	3.6%	37.3% <span style="color: red;">▼</span>
Pico	13 Quarters	0 g/mile	30 days <span style="color: red;">▼</span>	\$572M <span style="color: red;">▼</span>	\$28,800	2.8%	29.2% <span style="color: red;">▼</span>
Faro-E	14 Quarters	0 g/mile	30 days <span style="color: red;">▼</span>	\$903M <span style="color: red;">▼</span>	\$50,020	4.4%	36.9% <span style="color: green;">▲</span>
Sintra-E	17 Quarters	0 g/mile	73 days <span style="color: green;">▲</span>	\$1,068M	\$72,757	5.2%	26.5% <span style="color: green;">▲</span>
Douro-E	18 Quarters	0 g/mile	37 days <span style="color: red;">▼</span>	\$902M	\$58,010	4.4%	31.4%

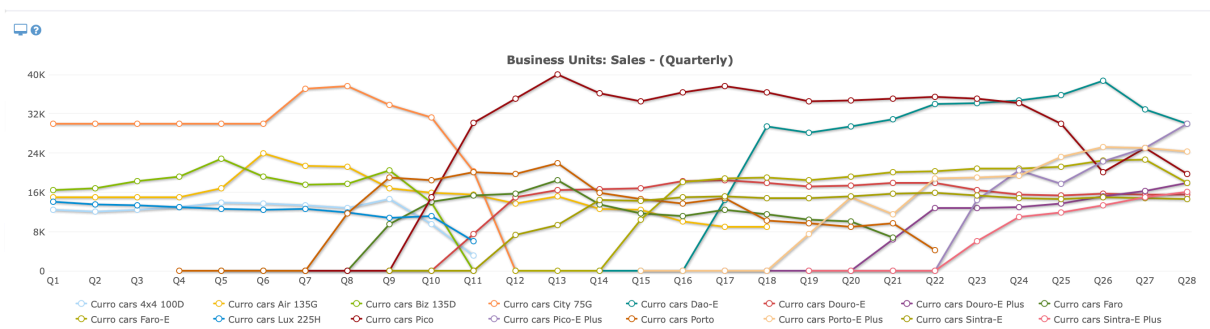
## Appendix 2.13: Revenue by E-Car Model



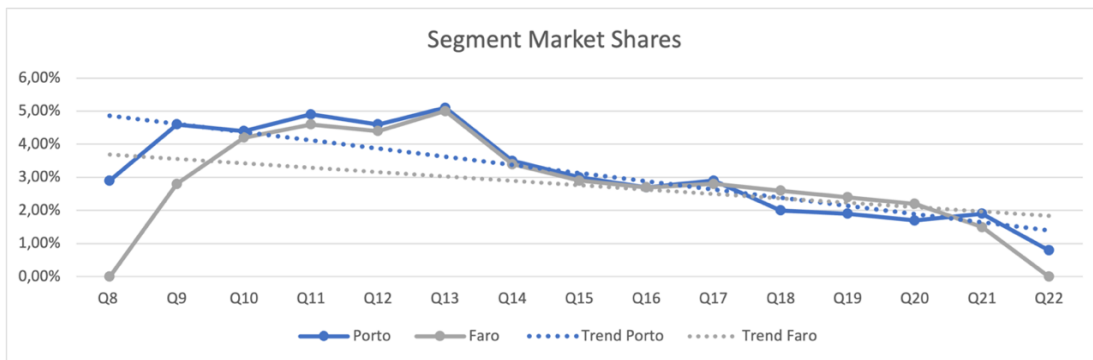
## Appendix 2.14: Revenue by Car Model (all)



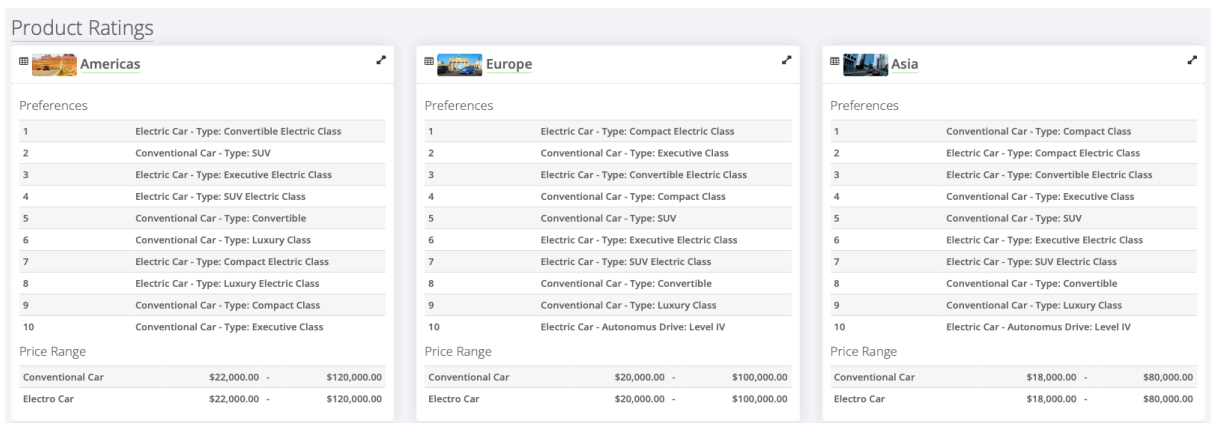
## Appendix 2.15: Sales Units by Car Model (all)



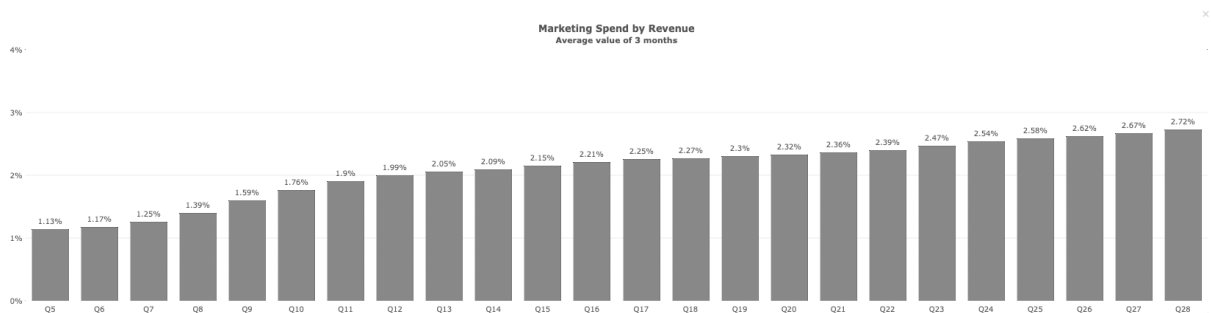
## Appendix 2.16: Segment Market Share of Hybrid Cars



## Appendix 2.17: Consumer Preferences and Product Ratings



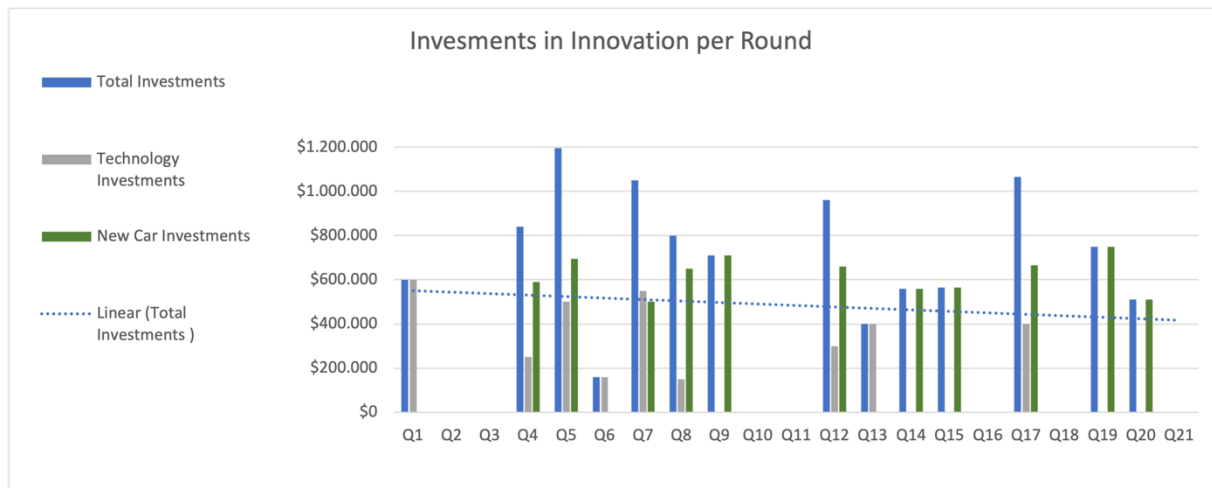
## Appendix 2.18: Marketing Spend by Revenue



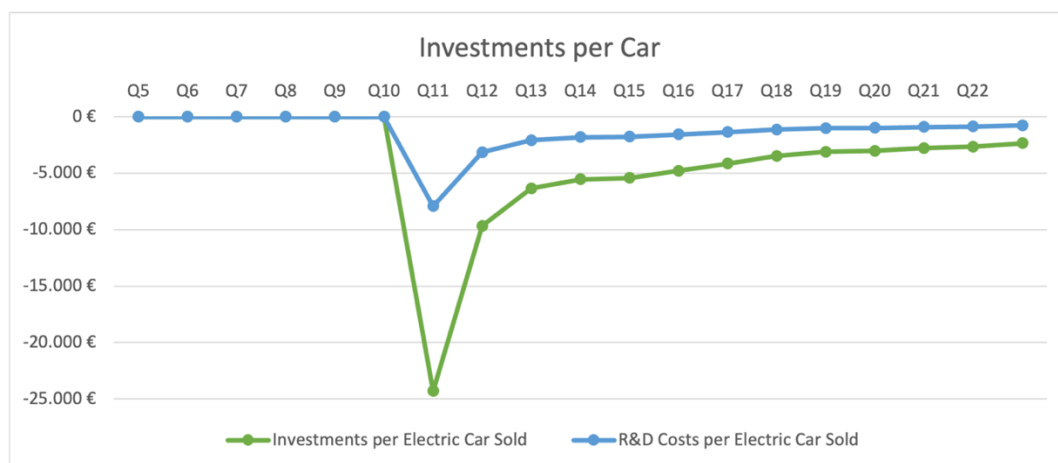
## Appendix 2.19: Overview of Investments in Technology and Car Models

Research and Development Investments		Year 1				Year 2				Year 3				Year 4				Year 5	
Area	Technology	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Electrification	E-Drive Modules			Available															
	Home Charging Stations			300,000,000		Available													
	High Power Charging																		
Connectivity	Connectivity Technology	Available																	
	Infotainment Services		160,000,000		Available														
	Big Data				250,000,000		Available												
Autonomous Driving	Automated Parking																		
	Driver Assistance	500,000,000		Available															
	Cloud Connection			250,000,000		Available													
New Car Launches	Secure Infrastructure								300,000,000		Available								
	Foro Convertible	895,000,000		Available													400,000,000	Available	
	Picco E Compact			500,000,000		Available													
	Douro E SUV				650,000,000														
	Sintra E Luxury					710,000,000	Available	Available											
	Foro E Convertible								660,000,000		Available								
	Dao E Micro										560,000,000								
	Picco E Plus Executive											565,000,000	Available						
	Douro E Plus SUV													665,000,000	Available				
	Sintra E Plus Luxury															750,000,000	Available		
	Picco E Plus Compact																550,000,000	Available	
Time		Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22
Technology Investments		500,000,000	160,000,000	550,000,000	150,000,000	0	0	0	300,000,000	400,000,000	0	0	0	400,000,000	0	0	0	0	0
New Car Investments		605,000,000	0	500,000,000	650,000,000	710,000,000	0	0	660,000,000	0	560,000,000	565,000,000	0	665,000,000	0	710,000,000	510,000,000	0	0
Total Investments		1,105,000,000	160,000,000	1,050,000,000	800,000,000	710,000,000	0	0	960,000,000	400,000,000	560,000,000	565,000,000	0	1,065,000,000	0	710,000,000	510,000,000	0	0
Total Revenue		4,352,200,000,000	4,509,100,000,000	4,418,300,000,000	4,786,500,000,000	5,365,900,000,000	5,462,100,000,000	4,855,400,000,000	4,679,900,000,000	5,313,800,000,000	4,966,400,000,000	5,269,300,000,000	5,603,100,000,000	6,066,600,000,000	6,114,000,000,000	5,807,400,000,000	6,198,400,000,000	6,515,000,000,000	6,812,800,000,000
Total Investments % of Revenue		27.46%	3.55%	23.96%	16.71%	13.23%	0.00%	0.00%	20.51%	7.50%	11.28%	10.72%	0.00%	17.56%	0.00%	12.21%	8.23%	0.00%	0.00%
R&D % of Revenue		12%	4%	32%	3%	0%	0%	0%	6%	7%	0%	0%	0%	7%	0%	0%	0%	0%	0%
Electric Car Sold		0	0	0	0	14,944	37,547	57,328	65,644	67,074	75,983	87,549	104,474	117,612	120,526	130,818	137,398	155,073	
Investments per Electric Car Sold		0	0	0	0	24,293	9,669	6,333	5,530	5,432	4,778	4,147	3,475	3,087	3,012	2,775	2,642	2,341	
R&D Costs per Electric Car Sold		0	0	0	0	7,920	3,148	2,062	1,805	1,762	2,556	2,330	1,512	1,005	881	604	460	762	

## Appendix 2.20: Investments in Innovation Overview



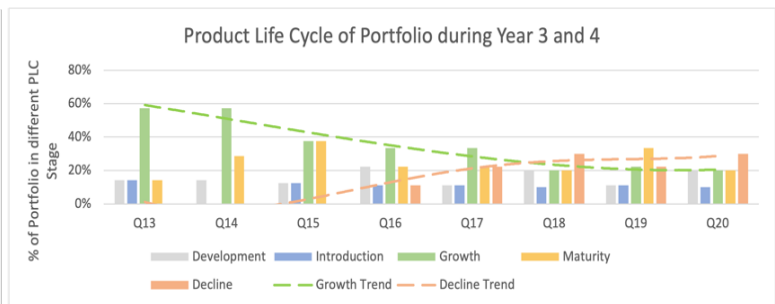
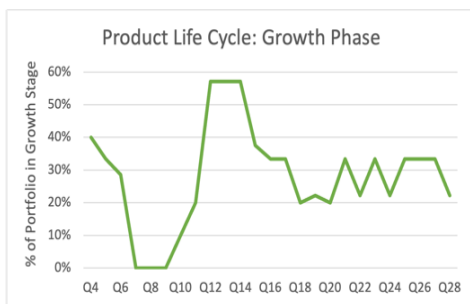
## Appendix 2.21: Investment Amount per Car



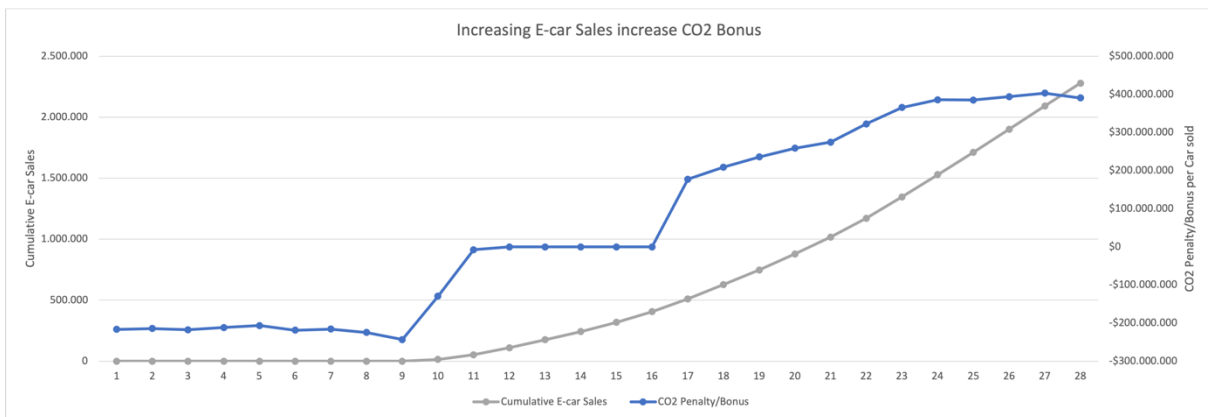
## Appendix 2.22: Product Life Cycle Portfolio

Product Life Cycle Sector	Car Model	Year 0		Year 1				Year 2				Year 3				Year 4				Year 5				Year 6					
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
H-Luxury	Lux 225H			50%	60%	70%	80%	90%	100%	110%	120%	END																	
Executive	Biz 135D			50%	60%	70%	80%	90%	100%	110%	120%	END																	
Compact	City 75G			80%	90%	100%	110%	120%	130%	140%	150%	END	160%	END															
SUV	4x4 100D			80%	90%	100%	110%	120%	130%	140%	150%	160%	END																
Convertible	Air 135G			90%	100%	110%	120%	130%	140%	150%	160%	RELAUNCH	80%	90%	100%	110%	120%	130%	END										
H-Convertible	Faro			START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	END						
H-Executive	Porto			START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	END						
E-Compact	Pico					START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	END				
E-SUV	Douro-E						START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	170%	180%	190%	
E-Luxury	Sintra-E							START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	170%	180%	
E-Executive	Porto-E Plus								START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	170%	
E-Convertible	Faro-E									START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	160%	
E-Micro	Dao-E										START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	150%	
E-SUV	Douro-E Plus											START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	140%	
E-Luxury	Sintra-E Plus												START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	130%	
E-Compact	Pico-E Plus													START	-10%	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	110%	120%	

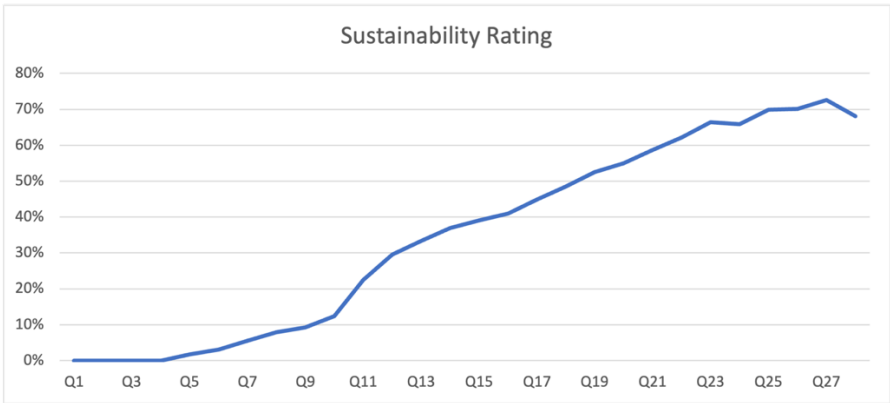
## Appendix 2.23: Product Life Cycle in Years 3 and 4



## Appendix 2.24: CO<sub>2</sub> Bonus increases with E-Car Sales



**Appendix 2.25: Sustainability Rating**



**Appendix 2.26: CO<sub>2</sub> in Production, Supply Chain and Energy**

