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BUSINESS IN PRACTICE – PERFORMANCE ANALYSIS OF THE CAR MANUFACTURER VOLTIX THROUGH THE OPERATION DIRECTOR'S EYES AND TEAM DYNAMICS

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Abstract

This paper explores the evolution of the automotive industry in response to increasing environmental concerns and the shift from internal combustion engines to electric vehicles. Drawing on a 3-week program and a business simulation developed by IndustryMasters®, it examines the strategic, operational, and marketing challenges faced by a fictional company in the electric vehicle sector. The study highlights key learnings from Voltix performance during 24 simulation rounds, 6 years, team dynamics and leadership development. Additionally, it provides a personal reflection on the importance of communication, conflict resolution, and self-awareness in fostering team success during this period of industry transformation.

Keywords: Business simulation; Electrification; Sustainability and ESG; Team Dynamics; Strategy; Marketing; Operations; Self-reflection; Interrelation of business functions

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1.1. Firm Analysis and Market overview

The business environment is becoming increasingly complex. The auto manufacturing industry is being challenged to decarbonize transportations and production itself (Crabtree 2019). A sector that has been considered stable in the last 50 years is now one of the most complex and unpredictable, with incumbents being forced to adapt and new players entering.

Electrification should not be a response to increasing government regulations. Instead, it should be a strategic initiative to ensure long-term competitiveness and sustainability, not only for our company but also society at large. However, consumers still present concerns, namely, range anxiety when choosing their next car (Heineke, Kampshoff, and Möller 2024).

The sector landscape exhibits trends pointing towards electrification, autonomous driving (AD), mobility-as-a-service, and connectivity (Kuhnert, Stürmer, and Koster 2018). Additionally, there is an interest in servitization models and China as a rising power in the industry. As a result of the latter, the industry is hostage to tariff-war between US and China.

Recent years have seen new entrants in the market, competing with ground-breaking ideas and cutting-edge technology, prompting established companies to reinvent themselves and increase partnerships with tech firms, such as Volvo with Uber and BMW with Intel.

The IndustryMasters® simulation provided the opportunity to lead Voltix, a fictional and established auto manufacturer for 6 business years. From the outset, Voltix's portfolio included 6 different car models, 2 of which powered by internal combustion engines (ICEs). The company operated eight assembly lines located across Europe, China, and United States, with an additional two under construction. In the end, Voltix was able offer a completely emission-free portfolio, be present in every car segment, sell 3,2M E-Cars, maintain a healthy workforce, and meet their goals on sustainable policies, training and investments.

This paper analyses Voltix's performance, based on simulation data, real market dynamics, and comparisons to real firms, focusing on company strategy, operations, and marketing.

1.2. Strategic Foundations and Market Positioning driving Voltix's Success

Strategy involves the integration and coordination of a "set of commitments and actions designed to exploit core competencies and gain a competitive advantage" (Hitt, Ireland, and Hoskisson 2020). Voltix aspires to "lead the electric vehicle industry with pioneering innovations that set new standards for sustainability, technology and quality, making electric mobility accessible and desirable for all" by creating "innovative, sustainable electric vehicles, combining exceptional quality with cutting-edge technology and a commitment to environmental responsibility". The company's core values are reliability, transparency, customer-focus and innovation, all of which guided Voltix through the 6 business years.

Voltix established its vision and mission through a comprehensive analysis of both the external and internal environments. Market dynamics were examined through PESTLE (appendix 1), briefly discussed in the introduction, and Porter's Five Forces (appendix 2). Conversely, an analysis of company capabilities was made with a SWOT analysis (appendix 3).

The Five Forces model presents some differences between the real-world and the simulation environment (appendix 2). By pondering both factors, we classify the threat of new entrants, bargaining power of supplier and the rivalry among existing competitors as high. Conversely, the bargaining power of buyers and threat of substitutes are moderate to low. From the outset, Voltix's strengths relied mostly on its strong market and financial position, sustainable investments that open the doors to green financing, its presence on the EV market and good operational performance. These factors allowed the company to explore opportunities, as demand for EVs, a differentiation strategy focused on industry trends, and gain relevance on the sustainability front. The most relevant initial weaknesses were the product similarity with competitors, late lifecycle stages of our portfolio, and CO_2 penalties. The biggest threat was managing the tariff-war between US and China in the sector and the electrification transition, by going full electric conscient of the challenging customer concerns over EVs (appendix 3).

Hambrick and Frederickson's 5 Elements Framework

The combined insights from the PESTEL and internal analyses, coupled with the definition of the company's mission, vision and core values, provided a robust foundation for strategic development. It consists of five elements: Differentiators, Vehicles, Economic Logic, Staging and Arenas. (Hambrick and Fredrickson 1993)

Arenas - The most challenging aspect of the strategy was to determine the best market to fit each model. The company recognized customer preference for domestically produced cars and anticipated that most accepted models would see its production allocation in Europe to mitigate the impact of the tariff-war. Frequent production adjustments in the first three years helped identify model acceptance and optimal locations, as shown by lower DoI and sales increase. Voltix segmented the market geographically into Europe, China, and America, and using psychographics, as regional preferences for AD levels, features, battery technology, and customers willingness to pay. The strategy targeted innovators and early adopters, both seeking premium and sustainable transportation. Voltix positioned itself as a premium and sustainable EV producer offering unrivalled technology based on each market preferences (appendix 4&5).

Vehicles - A key part of the strategy focused on R&D for product innovation, including next-gen E-drive modules, sodium batteries, V2V communication, and AI, as well as sustainability investments. The industry core competencies are shifting from ICEs to EVs and software, requiring companies to expand beyond traditional manufacturing and develop technology and software expertise. Tesla exemplifies this shift, excelling in innovation, software, and data, make them more prepared for the future, as in the run for AD. It is no surprise that Tesla is now the most valuable car manufacturer, a result not based on financial statements. Aligned with this thinking, directors prioritized internal development, which was reflected in simulation decisions like building a charging network and investing in in-house recycling facilities, rather than relying on external partners, which fostered valuable future knowledge.

Differentiators - Voltix aimed to create a strong brand image, centred on a commitment to societal well-being. Leading innovation by pushing the technological boundaries, with new features, AD levels, and battery models, resulting in premium products, while investing in emissions reduction projects and workforce development, we strengthened our sustainability efforts and created a 0 CO2 emissions fleet from Q17 onward. To increase brand awareness, firstly, we tackled customer concerns on EVs, namely, range anxiety and network coverage (Burkert, Fechtner, and Schmuelling 2021), by building our own charging infrastructure and offer extended batteries. Secondly, the car manufacturer focused on building a broader portfolio that reached all the different categories and using it to address different willingness's to pay.

Staging – Using Voltix internal strengths to create a competitive advantage (Barney 1991) focused on innovation and sustainability, we opted to make an abrupt shift to focus solely on EVs. We never launched any other type of vehicle and just maintained older ICE and hybrid models until its electric portfolio became operationally and financially sustainable. Also, prioritizing innovation made it infeasible to launch new cars without advanced technologies, constraining initial growth as the company sold highly mature products nearing the end of their lifecycle during the first year. From the beginning, a substantial portion of investment capital was allocated to innovation: right from Q4 with sodium batteries; Q6 by implementing AI, subsequently upgrading AD to levels 3 and 4; and beyond. The "Build-Out a Power Charging network" initiative boosted EVs adoption and our brand image. We missed opportunities like "Personalized Service (IoT)" that caters to connectivity needs and should have started sustainability investments in Q4. However, we recovered from the initial anaemic growth, made all sustainable investments in our hands and set new industry standards towards UNSDG 12 "Responsible Consumption and Production".

Economic logic - EV technology opens the door to an entire new market and the development of new technologies, leveraging customers' willingness to pay for innovative solutions. This

enabled premium prices by offering customers "difficult-to-match" vehicles and create a competitive advantage through differentiation (Porter 1985). However, this strategy limited the ability to leverage economies of scale. We explored new revenue streams, such as a charging network (Q8) and a subscription model (Q17), which bundled the car, insurance, maintenance, and roadside assistance into quarterly payments. These moves boosted Voltix's demand and brand awareness, especially among younger, environmentally conscious consumers, promoting sustainable mobility. It generated an additional 2 869 856 thousand dollars in revenue. By approaching shared value creation and "treating societal challenges as business opportunities" we captured the economic benefits of it (KRAMER and PFITZER 2016).

1.3. Operations Strategy: Driving Efficiency, Innovation, and Sustainability

Operations strategy lies at the heart of how organizations actually manage their strategic intent and is vitally important for long-term success. This bring us to the crucial factor of communication and an integrated view across all departments to prevent "strategic decisions being frustrated by poor operational implementation" (Slack and Lewis 2011).

Voltix main operational goals were to keep between 30 and 50 days of inventory (DoI), following Toyota, and 100% factory utilization, to keep COGS low and reduce inventory costs. For these, we needed production flexibility as it "allows a firm to track production more closely to sales, thereby yielding a lower optimal level of safety stock for a firm" (Cachon and Olivares 2010). Both goals were achieved halfway through the simulation, ending with 99.625% factory utilization and an average of 53 DoI. As utilization stabilized at 100% and DoI within targeted values, EBIT margin increased (figure 1).

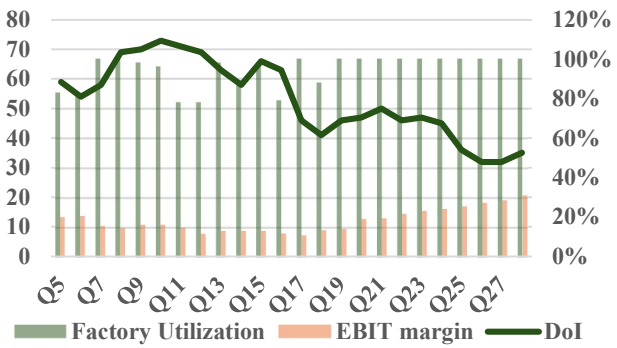

Figure 1: Influence of factory utilization and DoI on EBIT margin (own illustration)

The operational strategy, in light of the 4 V's of operations management, was simple but challenging to implement. The team realized that high volumes only worked for low specifications cars, a path followed by our competitors (appendix 4), and during the simulation no competitor launched sodium batteries nor features and AD beyond level II. By focusing on differentiation, Voltix was aware of the low volumes, by model, and consequently only being able to sustain two assembly lines at maximum and in certain models. However, the complementary work between departments, specially between Operations, Marketing and HR allowed to reduce the company cost structure and counteract the lack of economies of scale.

Voltix's value proposition, "Innovation 4 everyone", reflect the directors' commitment to make innovation accessible across various car types, from micros to SUVs, luxury cars, and pickups. High output variety allowed Voltix to reach more customers, boost brand awareness, and profit in niche segments. Low output volumes made variety essential to efficiently fill all the existing assembly lines. Pick-Ups (PUs) are an example of the latter, only sustaining one assembly line but maintaining production without building excess inventory. Additionally, we were able to charge monopoly price with healthy DoI levels and consistently stable sales.

A medium to high variation of the demand made operations management more difficult, highly influenced by product maturity and the evolving tariff-war. To manage it, we relied on medium-term operational planning, defining the target portfolio and roadmap. In an industry "where on-time delivery was critical", it was "imperative that manufacturing and marketing/sales be closely integrated" (O'Leary-Kelly and Flores 2002). Close coordination with marketing and HR was essential, helping to mitigate variations by adjusting pricing strategies for each operational situation and deploying top sales managers to car models requiring sales increase.

Visibility of production is low due to standardized processes and staff utilization. However, the level of information accessibility is so high that every customer may know where each part of

the car is manufactured and assembled. This benefits companies with responsible sourcing and ethical practices by attracting loyal customers, while negative information, like poor labor conditions or environmental violations, can harm reputation and sales. To exemplify, Volkswagen's "Dieselgate" scandal, involving manipulated emissions tests to meet legal standards, led to a massive backlash with legal issues, reputational damage, and sales decline. Information accessibility pushes manufacturers toward reliable supply chains. Voltix benefited from it, as from sustainable investments, policy creation and training, thereby boosting demand.

Operations strategies must reflect four perspectives: top-down, bottom-up, market requirements (outside-in), and operations resources (inside-out) (Slack and Lewis 2011). Voltix failed on the latter. The low volume output adjacent to our premium strategy primarily showed no need to expand assembly lines. However, demand grew beyond expectations, leading to production supply shortages. Failing to expand production by the end of the simulation negatively impacted speed and dependability, we were not able to meet demand, represented by the 30 DoI in most models, a minimum limited by the simulation, consequently, lost sales and limited growth.

Voltix's operational journey was more difficult in the first 3 years, translating into higher DoI and factory utilization variation (figure 1). To be innovative, we did not launch new cars right from Q5, given the lack of distinctive features available to differentiate from competition, delaying the launches until their development. As a result, directors had to manage operations during the first 2 years with a fleet close or at their maturity stage, while the marketing director declined to set lower prices, though it was a likely order winner in this stage of product lifecycle.

The first 2 years were marked by quarterly operational planning, a reaction to past results. Only after achieving a stable portfolio did Voltix transition to long-term strategic planning, defining a 2-year portfolio vision and diligently working to achieve it. We reached the quality operational performance objective by coordinating production with HR to avoid factory

inefficiencies during allocation changes. Its benefits were on-specification products able to meet customer expectations, and no wasted effort within the process, showed by the 101% workload for over 19 quarters. Collaboration between Operations, HR, and Innovation allowed flexible car design and production, without operations being affected by maturing products or fluctuations in factory employment, thus promoting decent working conditions (UNSDG 8.5).

The company implemented agile and lean operations, because even though we focused on differentiation and premium price, we wanted to ensure a competitive price-benefit ratio (Aitken, Childerhouse, and Towill 2003). By maximizing staff utilization, we achieved an average 101% workload, with highly qualified staff (100%), whilst minimizing waste and costs. Using a *quasi* "just-in-time" approach through forecasts and creating an inventory prediction table (appendix 6), operations directors were empowered to meet cost and sustainability goals. Although we could not pursue economies of scale, we counteracted the higher unit costs: first, through resources maximization; secondly, we reduced workforce variation by closely monitoring assembly changes with HR to assess production allocation changes viability.

Voltix's strategy focused on sustainability, following Elkington's (1997) triple bottom line approach. The team's proudest social accomplishments were promoting safe and stable workforce, competitive salaries (85% of managers with a comparison ratio above 3%), and empowering labourers with Sustainability Awareness Training (Q11), internal upskilling and reskilling (Q20), resulting in 100% employee satisfaction.

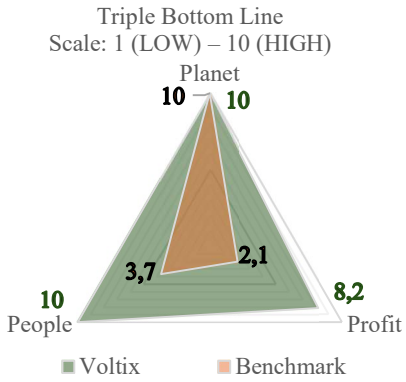

Figure 2: Triple Bottom Line

Regarding the environmental bottom line, one of the biggest initiatives was production circularity by investing in in-house recycling facilities for materials recovery and recycling. With investments in the various areas, Voltix diminished CO_2 emissions by 67%, 83% and

59%, in production (scope 1), energy (scope 2) and supply chain (scope 3), respectively. There was a clear reduction of the emission levels at the time of the investments, that mostly targeted

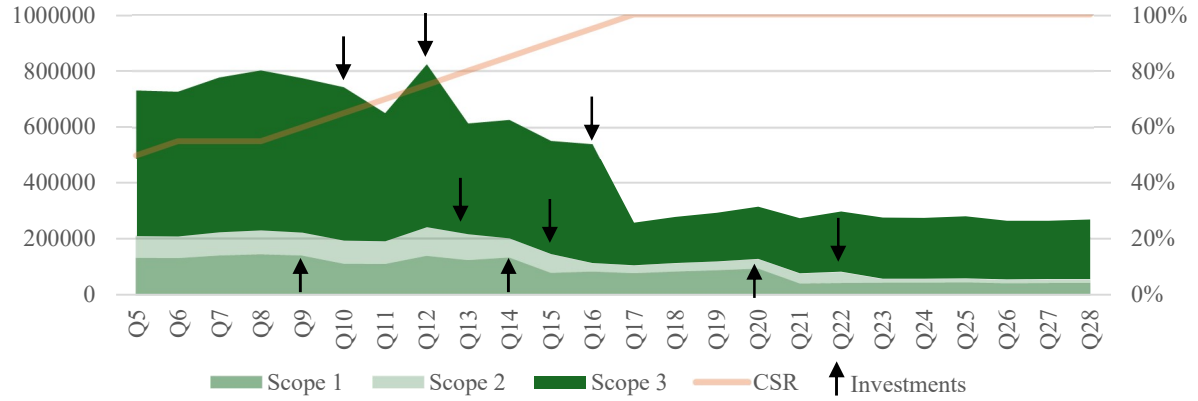

Figure 3: Evolution of CSR and CO2 Emissions by Scope (own illustration)

UNSDG's 6.4 on "clean water and sanitization", 12.4/5/6 on "Responsible Consumption and Production", 9.2/4 on "Industry, Innovation and Infrastructure", 7.2/3 on "Affordable and Clean energy" and 13.3 on "Climate Action" (United Nations, n.d.). Most of the investments worked on the intersection with the economic bottom line, since they impacted demand and reduced material costs. Besides these, Voltix developed sustainability policies and trainings to ensure company-wide alignment with environmentally responsible operations, targeting UNSDG 13.3. (appendix 7). Another proud achievement was obtaining "EMAS certificates," which Voltix believes can set new industry standards and push competitors toward greater sustainability.

On the economic bottom line, as previously explained, Voltix is missing built capabilities for the future with an inadequate number of assembly lines to meet growing demand. On the other hand, we can proudly applaud the effectiveness of our investments, with a RONA increase from 7.1% on Q18 to 25.9% on Q28. By taking a complete integration of the three sustainable dimensions into the company, we reaped benefits from cost reductions and brand awareness.

Voltix's commitment with society is extremely high, as our Corporate Social Responsibility index achieved a consistent level of 100% from Q17 onwards (appendix 8). By the end of year 6, the company had made everything possible to reduce its footprint, from full electrification to CO2 emissions reduction investments and creating sustainability policies and training.

1.4. Marketing Strategy: Fuelling Voltix's Growth and Brand Identity

The marketing department played a pivotal role in providing comprehensive market research, which was fundamental in shaping Voltix strategy. For the purpose of analysing Voltix's marketing performance, the focus will be on the department's daily operations, the 4 P's, product, price, place and promotion (McCarthy 1993), and crucial decisions.

The company ended the simulation with three products to offer: a charging network, a subscription model and innovative EVs. We capitalized on the substantial market potential, lack of advanced features and technology from competitors (appendix 4), while leveraging the company's financial capabilities to invest and position itself ahead of rivals. The company took advantage of various customer targets to expand its product mix breadth, and, by the 18th quarter, was competing in every car segment to serve a wide spectrum of customers. Believing this broad market presence along with sustainable investments would build brand awareness to offer entry-level models and portraying Voltix as a brand for every stage of life.

On the daily operations, the need for new product launches were generally highlighted by the operations team, based on DoI, average product maturity, and product lifecycle stage. These recommendations were followed by price adjustments, since tests showed customers were more sensitive to price changes than promotion. This was ensued by the new cars' design process, which was conducted by the Marketing and Innovation, aiming for vehicles that aligned with customer preferences in each location based on the technology that the company had developed.

Exemplifying with the Zenith (a new version of LUX) launch, the operations directors in Q11 called to the attention of Marketing regarding the bad performance of LUX, its inventory accumulation, and how it could affect the US assembly lines in 2 to 3 quarters thereafter. In response, price was adjusted and a new car development for this segment began. Marketing research and testing showed a best fit for the segment in the US, consequently, the car design

was based on US market preferences (appendix 5) and the segment specifications. To build a robust and sustainable portfolio, both operationally and financially, product launches were carefully scheduled, spreading investments and car lifecycle stages to avoid high inventory.

The simulation Marketing management issue on building a brand identity exemplifies Voltix's emphasis on customer-centricity and states the company positioning regarding placement. Opting for launching an e-commerce platform would be the reasonable choice on the innovation perspective. However, the company opted for leveraging the concept of "a car for everyone" and position itself as a universally appealing brand that caters to a broad spectrum of consumers. This decision was influenced by the opportunity cost of launching an e-commerce platform, losing valuable market insights and customer feedback provided by dealerships, besides the lack of competencies and capabilities from purely car manufacturers (Tordjman et al. 2022).

The company initially decided against exploring product depth by having more than one car in each segment. As such, having a simpler car was not congruent with Voltix's innovation ambitions. However, contrarily to this strategy, the company did it once, for the well-functioning of operations and given the good performance of an older version of the Sport E model. The management team did not detect any cannibalization effect on the previous model, likely because the two models targeted different regions, which were engaged in the tariff-war.

Voltix applied a price skimming strategy (Spann, Fischer, and Tellis 2015), his were vehicles priced at premium, as the strategy created high unit costs and investments, given the desired levels of technology. Additionally, it sought to attract innovators and early adopters (Rogers 2003) by leveraging price-quality inference (Kotler and Keller 2016). This approach aimed to foster brand loyalty through a justified premium price and an offering difficult to match. Interestingly, addressing willingness to pay did not involve lowering prices. Instead, responses to willingness to pay were based on segments: models like the Nano or Spark E were compact

and more affordable, while models such as the PU or Zenith were larger and more luxurious. Voltix successfully accomplished a market share higher than 30% in every region.

From the outset, we recognized that sales were more sensitive to price changes than marketing expenditures, making pricing our primary sales tool. Regarding promotion, the “Electric Vehicle Branding Campaigns” were the most effective, especially for NANO mE. Investing in “data-driven marketing analytics” boosted sales for BOLT E, SPARK E, and NANO mE. The early investment in “Social Media Influencer Partnerships” did not yield conclusive results.

Voltix have chosen different models to target each market. Quarter 18 was marked by major changes in the company assembly lines, a decision stemming from Marketing and Operations’ interconnectedness, allowing them to draw the final lineup and ensure production allocation consistency until the end of the simulation. It was based on market insights and forced tests conducted from Q4 to Q18. Based on the popularity of national production, the company drew the operational planning based on market preferences (appendix 5): China for smaller, more affordable cars; US favouring larger, luxury and sportier cars, leveraging willingness to pay; Europe preferring a broader variety of cars, being a combination of the other regions. Evidenced by top-ranked cars' sales by product segment market share in each country (appendix 9).

1.5. Voltix Similarities with Real-life Car Manufacturers

Voltix’s initial strategic decisions derived from what the team of directors envisioned for the company and the best path to reach it, in the wake of our transition towards green energy. One crucial decision concerned portfolio development, more precisely, which powertrains the company wanted to launch. The company’s approach followed BYD’s path, when they announced in 2022 their departure from the ICE market towards electrification. Similarly, Voltix decommissioned its ICE and single hybrid models to only launch EVs and position itself in customer minds as the electric car manufacturer, setting a new chapter for Voltix. Data shows

a tendency for companies only producing EVs to surpass other car manufacturers in sales, as 2022 EV sales were split primarily among BYD and Tesla, respectively, followed by a joint venture of GM and VW, with less than half of Tesla's sales (Hoffmann and Mehta 2023).

BYD's success is attached to their high levels of vertical integration (Campbell and White 2022). Voltix followed this strategy, coupled with investing in in-house recycling facilities and the build-out of a charging power network. "Only master enough technology in new energy vehicles can automobile enterprises achieve long-term development." (Liu and Meng 2017)

The company differentiates itself from BYD's low-cost strategy by targeting the premium market, answering to demand trends, and addressing customer concerns, similarly to Tesla. Additionally, as the latter, Voltix launched and expanded its own charging network to address range anxiety and heavily invested on innovation to ensure long-term technological advancement, following his path as a high-tech company.

1.6. Opportunities for Enhancing Voltix's Performance and Final Conclusions

"A continuous improvement culture refers to an organizational environment where the relentless quest for improvement, innovation, and excellence is deeply rooted and valued by every member" (Kaizen Institute, n.d.). It was based on this premise that Voltix took his decisions: on the side of innovation, to foster a sustainable economic profit; on the side of our workforce, by training, empower and giving them conditions; on the environmental front, to ensure we are able to operate in the future. This approach leveraged synergies across all three areas, and by challenging each director to become better each quarter we drove Voltix to success. Voltix's journey restated the importance of clear communication across managers and specially in departmental coordination that may turn into a competitive advantage.

The automotive industry, once stagnant, is now rapidly evolving, facing challenges from customer skepticism and concerns about new power sources, government regulations and

incentives, and emerging technologies and its trends. Voltix's resilience and commitment to its strategy, even when success seemed unlikely, enabled the company to navigate this transition successfully. Inspired by companies like Tesla and BYD, Voltix focused on understanding and addressing customer concerns, which proved crucial in its approach.

The first 3 years were challenging, and we could have improved our start by launching new cars earlier, while being more flexible with our strategy. The team was too focused on the initial strategy and saw this opportunity as a betrayal to the intended one. This, combined with risk-aversion, made us believe we did not need to expand assembly lines. If we had done it, we could have achieved higher profits by the end, better preparing the company for future growth.

By diversifying our product portfolio, we became less dependent on car manufacturing and boosted EV adoption by addressing customer concerns. After reaching clients who value ownership via offered a car on every segment, we created a subscription model for the younger generations who value flexibility, reinforcing our positioning as a brand for a everyone.

Voltix excels on data analysis on clients and their preferences. However, we underperform on using data to drive price setting. A dynamic pricing strategy, adjusted to the operational situation, demand and competition, rather than small adjustments on rigid pricing skimming, could have helped absorb demand variability and exploit revenues (Biller et al. 2005).

Upcoming challenges in the industry landscape may reshape business models and require careful consideration. Firstly, sustainability may push society to new forms of transportation and new generations are favoring flexibility over ownership. Voltix has tackled the latter, by introducing a subscription model. Secondly, real-life companies need to reevaluate their globalization strategies and supply chain dependencies, especially given past disruptions from COVID-19 and trade wars, which may intensify with the technological dominance of some countries.

2. Personal Reflection on Two Key Incidents

The intensity of the program's three weeks with unknown teammates and its dynamics made the experience transformative. It became an amazing journey, where we felt as actually managing our company in a start-up environment. The simulation's immersion and challenges created a strong sense of camaraderie and shared purpose.

From the beginning, we created strong bonds with each other. However, as time passed, some conflicts of ideas would inevitably arrive, which could spoil the good relationships in the team. To mitigate this, we were challenged during a team-building session to share who we are when we are at our best and worst, focusing on how team members perceive, act, communicate, think, and feel. Although initially skeptical, this activity proved invaluable in enhancing interpersonal understanding and communication. Teams will always have discordance, "disagreements are an inevitable, normal and healthy part of relating to other people" (Amy Gallo 2018).

The following section will provide an in-depth analysis of two incidents that occurred during the simulation. With this reflection, I aim to gain deeper self-awareness and identify key areas for personal growth and improvement.

The first incident emerged during the pre-simulation phase during brainstorming sessions to collaboratively developed Voltix's strategy. A team member adopted a domineering leadership style, undermining collective decision-making and revealing trust issues towards the group.

The second incident occurred in the day for year 3 decisions. Until then, Voltix had experienced a series of negative outcomes, and on that day, there was a misunderstanding in the team that made us believe we hadn't won a new client, as well as a conflict regarding the future of the company. This made the day end in frustration, revealing the necessity of a critical evaluation of personal frustration management strategies. To structure the reflective analysis of the incidents, Graham Gibbs Reflective cycle was applied (Wain 2017).

2.1. Overcoming my Fear of Conflict to Forge a Unified Strategy at Voltix

Description

Prior to the start of the simulation, the team of directors worked hard to define the company's short and long-term strategy. These initial sessions also allowed the members to get acquainted with each other, build trust, learn to operate effectively, and exploit our collective strengths.

A good team environment facilitated open discussion about the simulation's business environment and possible approaches. The definition of Voltix's long-term strategy was quite simple, as almost all members shared similar visions. The incident, however, arrived when we were discussing the short-term strategy.

During these team brainstorming sessions, we decided to create a schedule to help us define our short-term strategy and make every department informed and prepared for it. This included car launches, investments, assembly line changes and other major decisions.

During the meetings to define the initial schedule, I started to feel the Marketing director was unconsciously imposing his ideas. Though open to listen the other departments' perspective, he was not reflecting on them and evaluating the best approach because he truly believed that he was right. Consequently, it affected our operational scheduling since he started to interfere beyond his Marketing scope. This meant imposing new model launches, product allocations to assembly lines and giving reasons for production problems, which, given the complexity of analysing operations data, made his explanations not accurate. This invariably limited the Operations and Innovation departments' autonomy, while not dedicating himself to Marketing.

I decided to approach the other Operations and Innovation directors and tried to understand how they were feeling with the situation or if it was only me. Unsurprisingly, they expressed their dissatisfaction with the Marketing director's posture, with the Innovation director even commenting he started to avoid giving his opinion because he did not feel listened. At this time,

I concluded that we needed to take action and in a moment that we were both alone I asked if I could be open with him and express my feelings, which he accepted.

Feelings

The Marketing director's approach to the strategy definition made me feel uncomfortable. I truly believed in the team's potential and seeing Voltix future being visioned by only one director left me frustrated. The hardest part of the incident for me was when I realized that the Operations decisions, which were supposed to be done by me and another team member, were ultimately being impaired by the Marketing director. At this time, I became irritated, feeling disrespected and worried with lack of time Marketing director was spending on his department. I saw that was not only me, the rest of the team were not comfortable either by seeing their work done by a third person and become demotivated. So, for the sake of accomplishing our ambitions, I felt I needed to take action and counteract my fears.

I was initially scared and reluctant, having never done it before, but I felt proud of approaching the Marketing Director. It was my first time addressing a team member about an issue. He listened attentively and showed genuine concern through his effort to understand my feedback.

Evaluation

The uncomfortable situation ended up being favourable for myself and for the group. As I see it, it made me more comfortable and not fearful of expressing my feelings in similar situations. Even though it was my ambition that played a vital role on my approach to the director, it was my first time I took an active stance in the conflict resolution, a big step for my personal growth.

On the team side, our dynamic improved, brought transparent debate with more perspectives being expressed and listened, while the Marketing director continued actively involved in most decisions but not going beyond his sphere and paying the right attention to his department.

The way he handled the feedback contributed positively for the success of the simulation and my confidence to express myself. By working through the conflict together we felt closer, improving our relationship, and also understood the reasonings behind each other's actions making us realize that it's possible to have "good" fights and then move on (Amy Gallo 2018).

Analysis

Although it was me and the Innovation director who felt more uncomfortable with the situation, I can justify the difference in approaches by the influence of our distinct personalities (Winsborough, Chamorro-Premuzic, and Davey 2017). Based on the Insights discovery model (Insights Learning and Development, n.d.), I predominantly have traits of a red personality, characterized for being determined, competitive, direct, and action oriented. While the Innovation director has a green personality, characterized for being supportive and patient, valuing harmony. From this perspective, I can understand our different approaches to the Marketing director. He has a "fiery red" personality: decisive individuals, results-focused, and driven by ambition. Looking back, not taking control and having others decide my work made me uneasy. My ambition led me to approach him and a clear, concise, and "straight to the point" communication (typical of our personality) made the conversation beneficial.

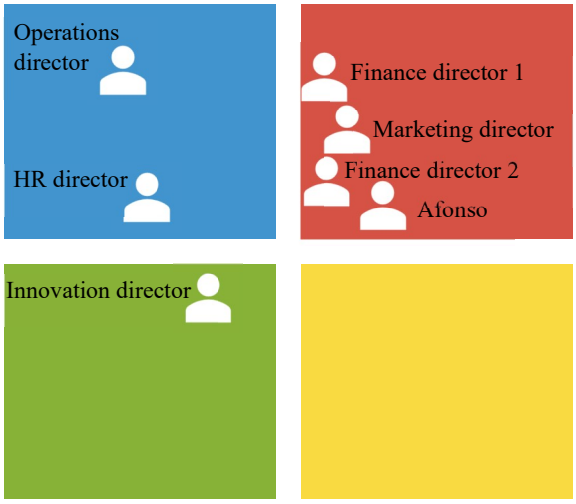

Figure 4: Team personality color distribution (own illustration)

The Marketing director's personality colour helps justify is way of acting, by preferring to take charge and be competitive – being the latter, in my opinion, the main factor for the incident. His mindset became a problem for the team, as the group was mostly composed by "fiery reds". However, in our conversation, we reached the conclusion that his actions were driven by his

lack of belief in the team and his eagerness to make Voltix successful, thus making him unable to build the foundation of trust necessary for effective teamwork. We were trapped in the five dysfunctions (Lencioni 2005). The Innovation director, on the contrary, decided to do nothing by fear of conflict, which stepped into a lack of commitment, since he did not try to solve the problem. Consequently, he simply decreased his interventions and did not express his ideas.

The teams were challenged to work in a shared leadership, which requires each member to develop their sense of leadership. Analysing the incident through Scouller's four-dimensional leadership model (Scouller 2016), the directors had a shared purpose, and the Marketing director was strongly engaged on trying to drive actions towards progress and results – the second key dimension. Nevertheless, his approach was unconsciously deteriorating the third and fourth dimensions, which are upholding group unity and paying attention to individuals.

Conclusion

This reflective cycle helped me understand the importance of talking when I feel something is not working and fight my fear of confrontation. My eagerness for Voltix success, focusing on the his business needs that made me overcome my fear of conflict (Su 2014), and consequently, improving the whole experience. My concern about escalating tensions proved to be wrong. The opposite happened: it strengthened the team, created more transparency between the members, boosting trust and ultimately improved my relationship with the Marketing director.

I realized that, even a harmonious team, may not reach its full potential. Different personalities can hinder open communication due to conflict avoidance. However, it underscored the importance of open communication, and by addressing the issue openly, we moved closer to success. Looking back, I wouldn't change anything as I believe I did everything in my hands. This analysis helped me realize that my past tendency to avoid conflict stemmed from a lack of trust in the teams, the key difference between past incidents and this one (Lencioni 2005).

2.2. Operational struggles that turn Emotional Struggles and Team Dynamics

Description

Voltix faced major challenges during its first three years, struggling to achieve profitability. In the Operations department, where I worked, we faced pressure from finance due to high inventory levels, a consequence of the initial strategy set by the team of directors. However, we couldn't reduce production, so we had to frequently shift allocations between countries, causing a month-long production halt each time. While it increased costs per car, impaired efficiency, and created issues for HR, it also helped us learn market preferences. During this challenging period, Voltix had the chance to pitch for a key customer that could significantly boost revenue. The team worked hard, seeing it as a turning point for the company. The day after the pitch, a misunderstanding led to believe we had lost them creating a tense and silent atmosphere, with no blame on the pitch team, just disappointment given the effort we had put in. Later that day, we learned we had actually won the customer.

At the start of the simulation, despite some frustration, we aimed to make the yearly company decisions as normally as possible. During this round, the Voltix directors recognized the need to launch a new car model, with two options being proposed. I suggested launching an electric pickup to expand our portfolio and address our operational issues. The other option was to launch a new Lux. Even though this respectful discussion started among Operations, Marketing and Innovation departments, we decided on the team chart that major decisions should be voted by the team. So, we took some time to present the different perspectives to the board and make sure all the directors understood the arguments and had all the information to decide. In the end, we opted to launch a new Lux. After the decision round, the team usually spent time together to unwind, but I chose to reflect alone. Some directors were surprised, as they knew me as one of the most extroverted members. It had been a harsh day, and I was struggling to deal with it.

Feelings

The operational challenges during the first three years left me frustrated. Despite our efforts and repeatedly raising the issue, these results highly affected my division's figures, which left me upset, feeling impotent to solve it. On the incident day, all these feelings were exacerbated by the idea of not having won the client and I felt my proposal was the solution for my problem. I was so obsessed with the idea of solving operational issues that my suggestion was the only logical decision. When the team rejected it, I started questioning my ability to correctly express my perspective and missed the post-decision cooldown, unable to manage my frustration and insecurity about my decision-making. I only got better after the director with whom I had the first incident approached me to discuss what had happened with me.

Evaluation

This incident taught me to reflect on handling frustration and recognizing when emotions impact my decision-making. The conversation with the director after the incident boosted my confidence. I went from doubting my communication skills to receiving praise for my presentation and the relevant information I provided, which helped the directors make an informed decision. This feedback reassured me and highlighted that my focus on solving my department's problem had clouded my judgment. While I successfully conveyed my point, I realized I had let emotions affect my decision-making process. From this moment on, I became even more comfortable to express my points of view.

On the negative side, my approach to the problem was not optimal. By leaving the team time we usually had without an explanation could have left the directors uncomfortable, interpreting it as unethical and a sign of dissatisfaction with the decision, subsequently perceiving a lack of commitment and collaboration. It could have influenced how other members interacted with me, potentially leading to a breakdown in trust, collaboration and communication.

Analysis

The “decision-making process is one of the specific processes associated with collecting and processing certain information necessary to formalize for its successful application” (Hudson 2015). It “is impossible to eliminate bias from humans”, However, “mitigating it can improve organizations’ financial performance and generate superior business and workforce outcomes” (Nangia and Enderes 2020). It highlighted my lack of awareness to decision-making biases.

I was so blinded by my determination to solve Voltix’s operational woes that my fiery red personality seemingly interfered with my openness to feedback and acceptance of opposing views. This came as a surprise because I have let others challenge my assumptions and been able to present my perspective to the others, as shown in the first incident (Acton 2022).

By failing to recognize it, I could not understand why the other directors were not believing in my perspective, resulting in frustration and not comprehending the logical reasoning behind the other perspective. I gave my best to try to make the group believe in my proposal and the emotions started to affect my decision-making. Giving myself some time to unwind was not a possible solution to mitigate emotions, prompting me to suppress my emotions. But as research indicates, this is “often counterproductive, intensifying the very emotional state” (Lerner et al. 2015), which made me leave the room as soon as possible. My first thought was that I was not qualified enough to be a director because what my ideas did not make sense to the others, thus indicating some impostor syndrome symptoms. Although research “shows that the impostor phenomenon does not hurt firm performance” (Guedes 2024), I believe it may indirectly do so, depending on mitigation measures. My reaction could have affected the team dynamics.

Conclusion

Even thought it could look like that my frustration and resentment could be towards the team, the director who had proposed a different solution came to look for me, to understand my

perspective and help. Showing that conflict should not be avoided, as in the room both defended his perspectives until the voting. We are a team, and these productive conflicts are vital to boost companies' performance. As Davey (2019) noted, we "should be in tension with one another. If Sales and Operations aren't frustrating one another, someone isn't pushing hard enough.". Once again, the importance of transparent and open communication in a team was crucial. The conversation with other member helped my reflection on self-awareness, making me understand the root of my feelings and put away my impostor syndrome tendencies, by highlighting my performance on the debate and shed light for the bias factor.

My research showed that communication should have started by not overreacting, rather verbalizing those emotions: "I feel disappointed/frustrated/upset/irritated because…"" (Toegel and Barsoux 2012). That is what I should have done, instead of leaving the room without saying anything and this way reducing possible misunderstandings in a team.

2.3.Reflection on Growth: Embracing Emotional Awareness, Conflict, and Peer Feedback

The analysis of these two incidents highlighted key areas for my personal growth. Firstly, I need to improve self-awareness to better understand and manage my emotions, reducing emotional bias in decision-making. Secondly, conflict avoidance is unproductive, as confrontations need not be bad; if respectful and done properly, we can take multiple benefits.

I have learned that even in seemingly harmonious teams, dysfunctions can still exist. Voltix demonstrated that failure at their foundations, leading to further issues. However, simple conversations beyond work helped build trust – it happened with the Marketing director after the first incident. Lencioni (2005) notes, "when team members reveal aspects of their personal lives to their peers, they learn to get comfortable being open with them about other things".

At the end of the simulation, I was initially proud of my performance, but my peer assessment made me question it. A team discussion revealed that personalities and cultural differences

affected our evaluation scales. I realized I might have overvalued both my own and my peers' assessments; what I rated as a 5 was often seen as a 4 by others. So, given these scale differences, I was pleased that my teammates' evaluations closely aligned with my self-assessment. This confirmed my high self-awareness of strengths and weaknesses, though I still struggle with emotional self-awareness, especially under stress, as shown by my second incident.

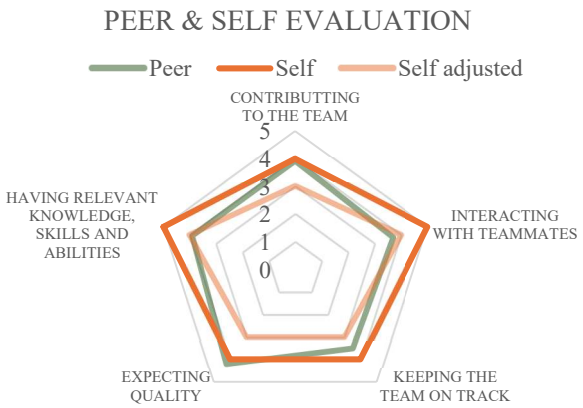

Figure 5: Peer and Self Evaluation (own illustration)

Adjusting for scale differences, assuming my self-evaluation is one point lower, there are two criteria with notable discrepancies where my peer evaluations were higher. Expecting quality, the self-adjusted and peer evaluation differences may be a result of impostor syndrome tendencies. However, the one I paid close attention to was my self-adjusted rating for "contribution to the team" to 3, while peers rated it 4. Interestingly, my self-adjusted rating for "interacting with teammates" is 4, compared to a peer rating of 3,9. It is an interesting relation: I actively engaged with my teammates, I had multiple times seated next to them, attempted to understand their roles, ask what they are doing and how they are tackling some company problems, while sharing some of my division's problems. However, at that time I did not fully realize how this contributed to team and offered valuable insights from my different background as I brought theirs to my department, fostering interdepartmental collaboration. So, I did not realize that, during my interactions with my teammates, I was also contributing to the team.

This section underscored the importance of reflection-on-experience (Johns 2017) as a tool for personal and professional development. Understanding the root causes of my behaviours helps me improve performance and well-being. The BiP program enhanced my business skills and personal growth, emphasizing the value of a cohesive team and interdepartmental collaboration.

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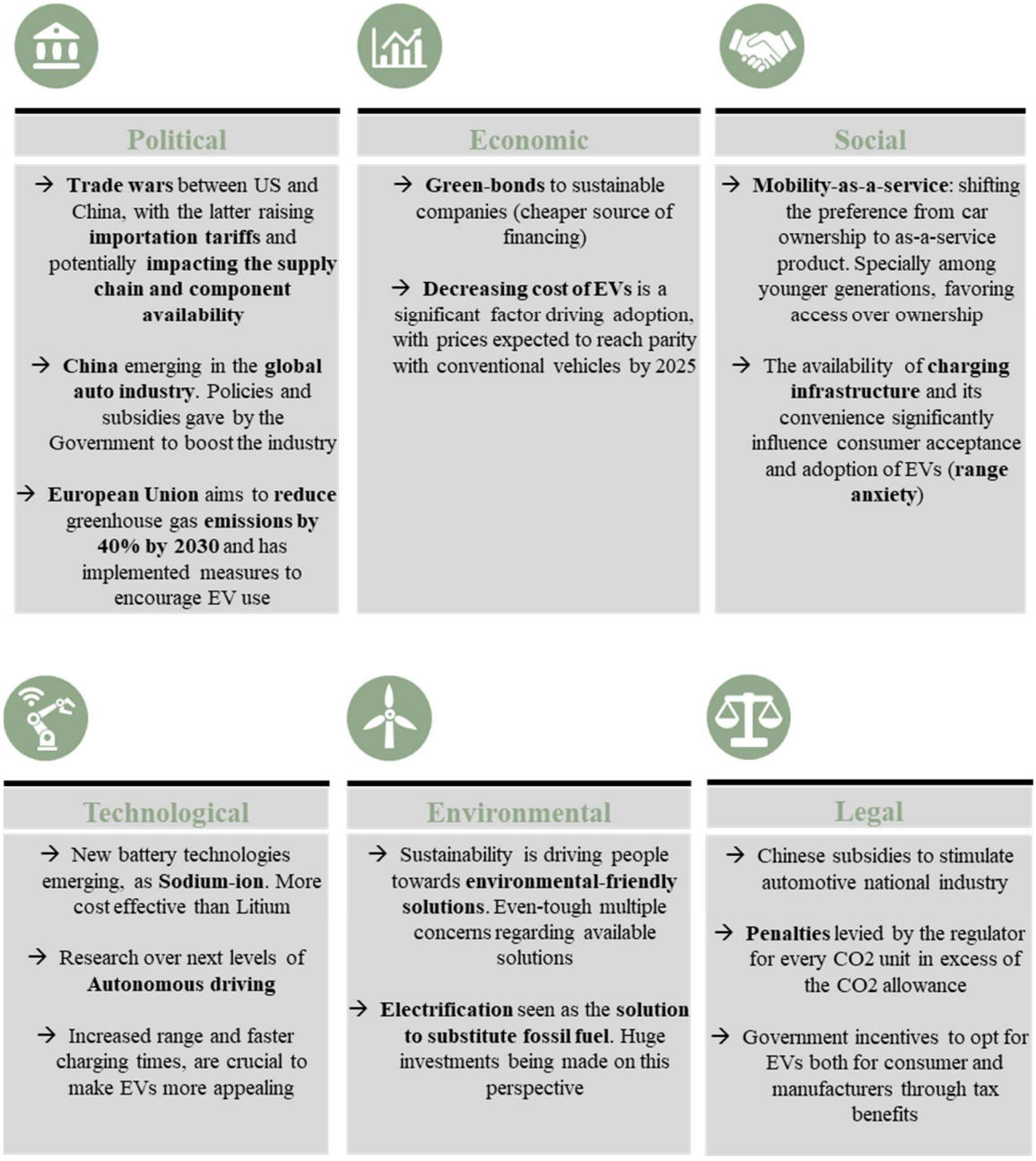
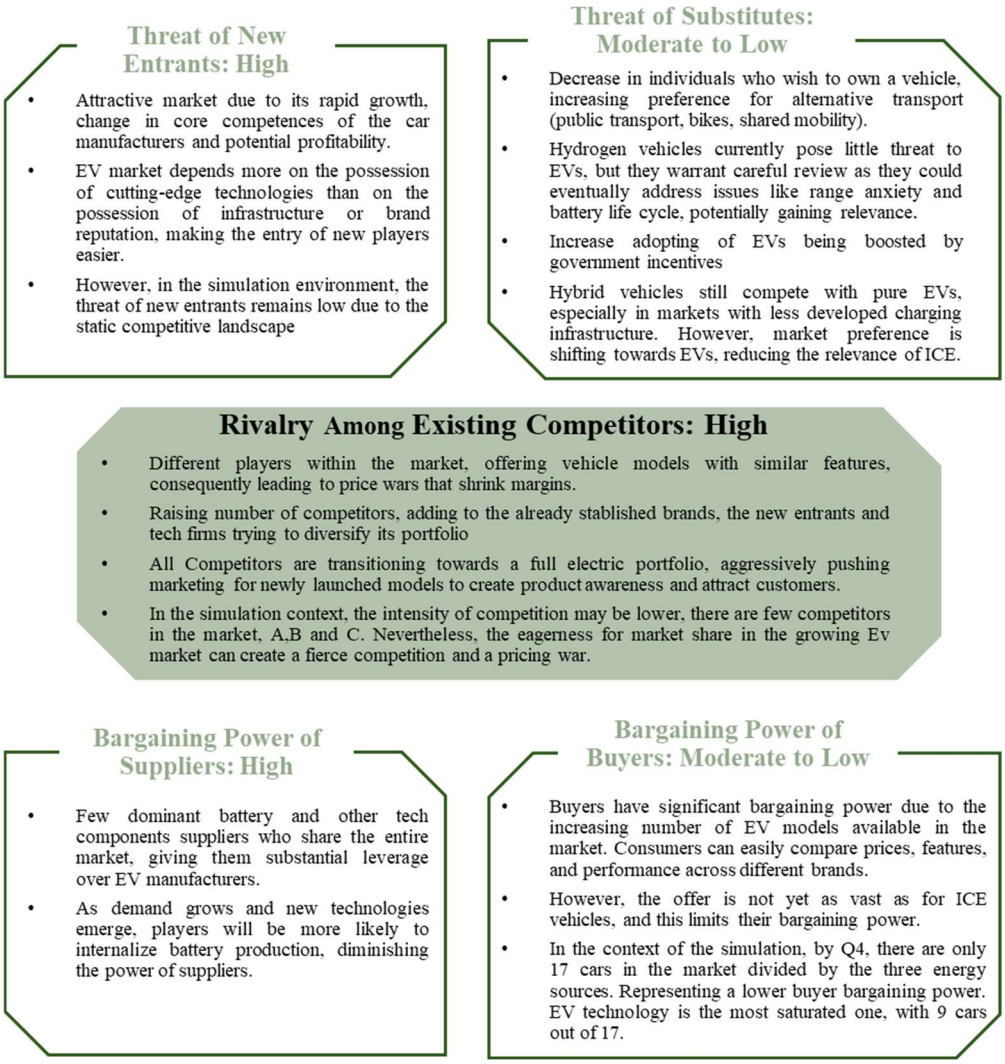
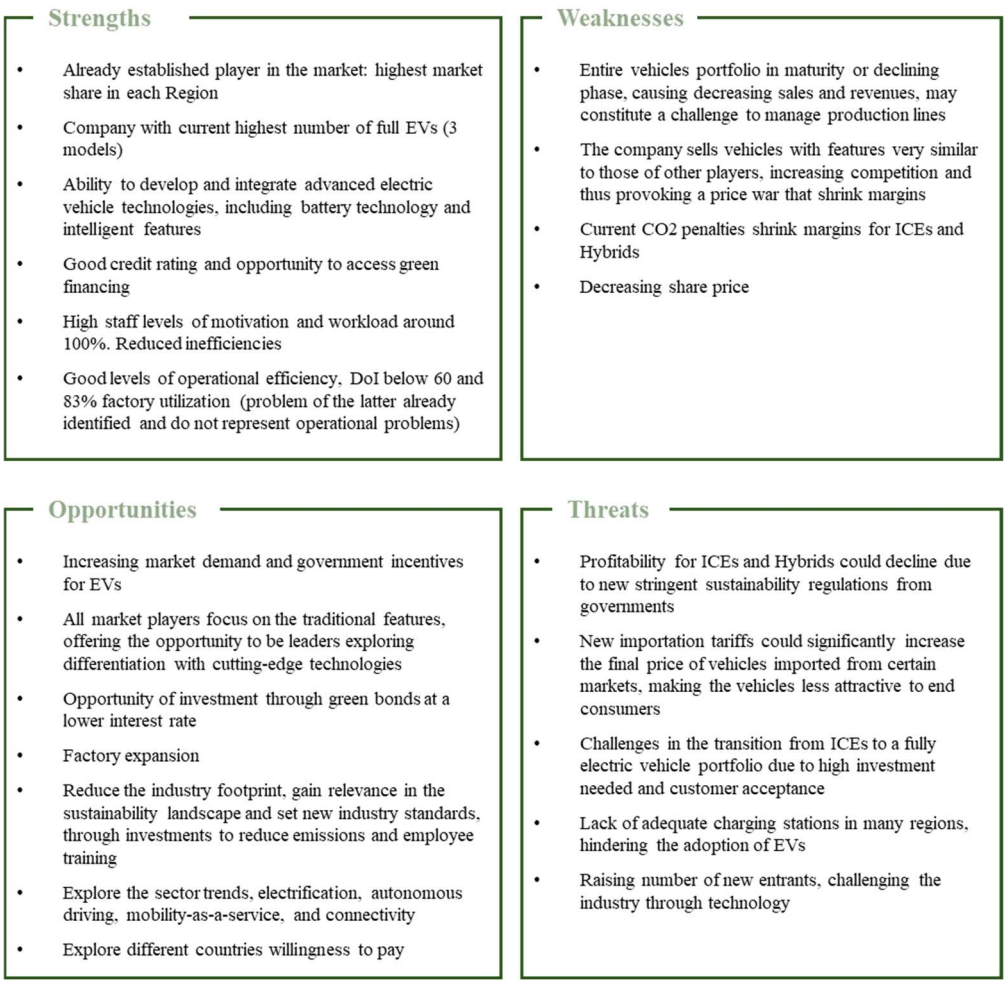
Appendices



Appendix 1: PESTEL Analysis (own illustration)



Appendix 2: Voltix Porter's Five Forces Analysis (own illustration)



Appendix 3: Voltix SWOT analysis (own illustration)

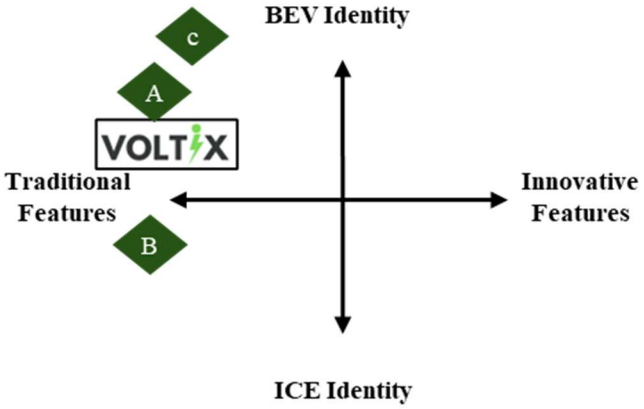
Starting Q4

Voltix:
ICE: 2
Hybrid: 1
EV: 3

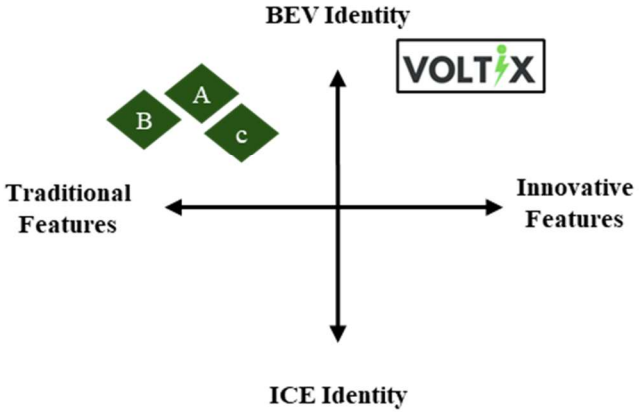
Competior A:
ICE: 0
Hybrid: 2
EV: 2

Competior B :
ICE: 2
Hybrid: 1
EV: 2

Competior C:
ICE: 0
Hybrid: 0
EV: 2



Starting Q28



Voltix:
ICE: 0
Hybrid: 0
EV: 8

Competior A:
ICE: 0
Hybrid: 0
EV: 6

Competior B :
ICE: 0
Hybrid: 0
EV: 5

Competior C:
ICE: 0
Hybrid: 0
EV: 4

Appendix 4: Industry positioning map (own illustration)

Consumer preferences								
America			Europe			China		
Preference		Rating	Preference		Rating	Preference		Rating
Battery Technology: Extended Sodium-ion (NA)		+++	Motor Type: Hybrid		+++	Autonomous Drive: Level IV		+++
Autonomous Drive: Level IV		+++	Autonomous Drive: Level IV		+++	Autonomus Drive: Level III		++
Engine: High		++	Battery Technology: Standard Sodium-ion (NA)		++	Autonomous Drive: Level II		++
Autonomous Drive: Level III		++	Battery Technology: Extended Sodium-ion (NA)		++	Battery Technology: Extended Sodium-ion (NA)		++
Autonomous Drive: Level II		++	Autonomous Drive: Level III		++	Motor Type: Diesel		++
Motor Type: Hybrid		++	Autonomous Drive: Level II		++	Motor Type: Hybrid		++
Motor Type: Diesel		++	Motor Type: Diesel		++	Battery Technology: Extended Li-ion		+
Battery Technology: Standard Sodium-ion (NA)		+	Battery Technology: Extended Li-ion		+	Battery Technology: Standard Sodium-ion (NA)		+
Battery Technology: Extended Li-ion		+	Engine: Medium		+	Engine: Medium		+
Autonomous Drive: Level I		+	Autonomous Drive: Level I		+	Autonomous Drive: Level I		+
Cars in this production location:			**Cars in this production location:**			**Cars in this production location:**		
ZENITH E (luxury)	Battery Technology: Extended Sodium-ion		**TERRA E (suv)**	Battery Technology: Extended Sodium-ion		**SPORT E (sport)**	Battery Technology: Extended Li-ion	
	Autonomous Drive: Level IV			Autonomous Drive: Level IV			Autonomous Drive: Level I	
	Feature Package: Level IV			Feature Package: Level II			Feature Package: Level I	
APEX E (sport)	Battery Technology: Extended Sodium-ion		**SPARK E (compact)**	Battery Technology: Extended Sodium-ion		**NANO Me (micro)**	Battery Technology: Standard Sodium-ion	
	Autonomous Drive: Level III			Autonomous Drive: Level III			Autonomous Drive: Level II	
	Feature Package: Level IV			Feature Package: Level II			Feature Package: Level I	
IRON Xe (pickup)	Battery Technology: Extended Sodium-ion		**BOLT E (executive)**	Battery Technology: Extended Sodium-ion				
	Autonomous Drive: Level II			Autonomous Drive: Level IV				
	Feature Package: Level II			Feature Package: Level II				

Appendix 5: Consumer preferences and Voltix car production by country (own illustration)

Days of Inventory prediction table					
*Just fill grey cells					
This quarter sales:	25000		Forecasted sales for next quarter:	25000	
Current number of assembly lines:	1		Next quarter number of assembly lines:	1	
Current Inventory:	15917		Model production output per line:	18000	
Current Quarter	Number of Lines	Production Capacity	Inventory	Days of Inventory (per line)	Sales
	1	18000	15917	80	25000
Next Quarter	Number of Lines	Production Capacity	Forecasted Inventory	Forecasted Days of Inventory (per line)	Forecasted Sales
	1	18000	8917	45	25000

Appendix 6: Inventory Prediction Table (own creation)

Voltix: Forming the Future of Sustainable Mobility and Eco-Driven Innovation through all our business units

Company information | Resource Management | Financial Management | Employee Management

VOLTIX

Mission

At Volitx, our mission is to **drive the future of sustainable mobility**. We are committed to protecting the planet through **innovative solutions** that respond to our **customers' needs** and shape a better tomorrow. By focusing on sustainability, cutting-edge technology, and customer satisfaction, we aim to redefine the landscape of the electric vehicle industry.

Vision

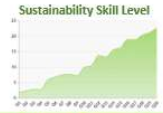
Volitx envisions leading the electric vehicle industry with **pioneering innovations** that set new standards for sustainability, technology, and quality. Voltix wants to make electric mobility **accessible and desirable** for everyone, transforming the way people think about and interact with transportation. We strive to create a world where sustainable mobility is not just a possibility but a reality.

Values

Innovation 4 Everyone Delivering sustainable, high-quality electric vehicles with advanced technology for all.

Innovation drives all our business units

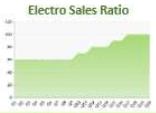
Sustainability Skill Level



Human Resources

- Training staff on **sustainability policies**
- 96% **employee satisfaction** rate since year 1.
- Respecting **Diversity & Inclusion** on new hires.

Electro Sales Ratio



Marketing

- Close collusion on **consumer preferences** with Innovations and Operations to **optimize** production.
- Pursued a **sustainable branding campaign.**

CO2 Fleet Emissions (g/mile)

Innovations

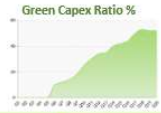
- Following a strict **electric vehicle-only** strategy, achieving **emission-free** operations since Year 3.
- Focus on R&D to sustain future innovations.

Days of Inventory

Operations

- Focused on improving **production, energy, and supply chain efficiency** through innovative technologies and practices.

Green Capex Ratio %



Finance

- Focusing mainly on **green financing options** e.g. green bonds to raise the awareness of the importance of sustainable investments.

We want to create new industry standards and change the industry with eyes on sustainability

Company information | **Resource Management** | Financial Management | Employee Management

VOLTIX

Scope 1

Resource Management

Commitment

We aim to lead **sustainable mobility** by offering more sustainable vehicles and continually improving our practices, setting higher industry standards. This commitment drives our investments, contributing to **positive impacts across our operations** and the industry. We have invested **$600 million** and plan further substantial investments in the future.

Key Achievement

29%

Reduction in CO_2 Emissions from production Q5-2024 to Q20-2028

Our path

1 Water Consumption Reduction

Water-use efficiency to address water scarcity and promote sustainable industrial practices and innovation. While help in cost reduction.
The **initiative target 6.4, 12.2 and 12.4 UNSDG's**

2 Waste Reduction

This investment aligns with our overall strategy and complements our waste reduction initiatives. From the outset, our approach on waste reduction has focused on reducing Days of Inventory (DOI), aiming for a target range between 35 and 50.
The **initiative target 12.5 and 12.6 UNSDG's**

CO_2 in production (scope 1)

What's next?

ISO 14001 / EMAS Certificates

Primary objective is to set new industry standards and inspire our competitors to adopt more innovative sustainability practices. While being able to accelerate improvement processes and achieving a higher success rate in implementing changes, thereby advancing our commitment to sustainability.
The **initiative target 9.2 and 12.6**

Next Achievement

Remain consistently below **80K tons** Of CO_2 emission in production

Direct CO_2 emissions from Voltix owned and controlled resources along the three different operating geographical areas

Q8	Q12	Q16	Q20
143,293 tons	**137,458 tons**	**82,480 tons**	**93,385 tons**

Accelerating the reduction of Scope 2 emissions through Renewable Energy Integration and Innovative Technologies

VOLTIX

Scope 2

Resource Management

Commitment

At Voltix we prioritize **reducing indirect greenhouse gas emissions** from purchased energy. Recognizing these emissions' critical role in our overall carbon footprint, we are committed to adopting and implementing innovative energy management practices. By focusing on reducing our Scope 2 emissions, we aim to significantly contribute to global efforts to combat climate change, ensuring a sustainable future for our planet and delivering long-term value to our stakeholders.

Key Achievement

57% » **Reduction in CO_2 Emissions from Q4-2024 to Q20-2028**

Our Initiatives

1. **Energy Efficiency Investment » Invested in Q13 - $150M**

Environmental effect: Enhancing efficiency can reduce greenhouse gas emissions and other pollutants, while also conserving water.

Economic effect: Boosting energy efficiency reduce utility costs, generate employment, and contribute to stabilizing electricity prices

2. **Solar Panels Installation » Invested in Q15 - $250M**

Environmental effect: Generate electricity without emitting air pollution or greenhouse gases, reducing the overall carbon footprint.

Economic effect: Significantly lower energy costs. Additionally, excess energy can be sold to utility companies, thus offering an opportunity for financial gain.

Scope 2 - CO_2 Emissions Trend

The graph highlights how our investments in Energy Efficiency (Q13) and Solar Panels (Q15) have **significantly** contributed to **lowering** CO_2 footprint across our facilities.

What's Next?

Next Achievement

80% **Reduction in CO_2 Emissions over the next 3 years**

How?

Energy Management System: A set of computer-aided tools to enhance the efficiency of the generation or transmission system

Combined Heat and Power System: A CHP Systems utilize waste heat from electricity generation for heating purposes, significantly enhance energy efficiency and reduce emissions

Cutting Scope 3 CO2 Emissions by 67%: Transforming Our Supply Chain for a Sustainable Future

VOLTIX

Scope 3

Resource Management

Commitment

As a highly innovative car manufacturer, we at **VOLTiX** are deeply committed to sustainability across our supply chain. Our approach 3 focuses on **reducing our carbon footprint,** enhancing **sustainability credentials,** and fostering **long-term environmental stewardship**. Here is an overview of our activities aimed at **increasing sustainability in our supply chain** promoting for a greener future for all.

Key Achievement

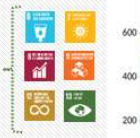
64% » **Reduction in CO_2 Emissions from Q4-2024 to Q20-2028**

Our Initiatives

1. **Supplier Carbon Offset Program » Invested in Q10 - $60M**

Beginning in Q10, our carbon offset initiatives involve investing in environmental projects worldwide. These efforts are primarily focused on **developing countries**, aimed at balancing our carbon footprint and mitigating future emissions.

As of quarter 20, the cumulative investment in carbon offset initiatives totals **$390.5 million.**



2. **Sustainable Supplier Engagement » Invested in Q12 - $20M**

We prioritize green supply management and have committed resources to **educate suppliers** on sustainable practices. By fostering sustained collaboration, we aim to **amplify our sustainability efforts across the supply chain**, enhancing environmental credentials and long-term commitment.

Scope 3 CO_2 Emissions (in thousand tons)

Call to Action

We invite our stakeholders, partners and customers to **join us on this journey** towards a greener, more sustainable future. Together, we can make a significant impact and drive positive change for our planet.

Investments

3. **External Battery Recycling**

We have invested **$200 million** in battery recycling initiatives focused on recovering valuable materials from end-of-life EV batteries. This proactive approach supports a **circular economy** by **reducing waste, conserving resources, and minimizing our environmental footprint.** Moreover, it underscores our commitment to environmental stewardship and significantly enhances our CSR standing.

Investment in Scope 3

610 M $

What's Next?

Future Plans for Sustainability

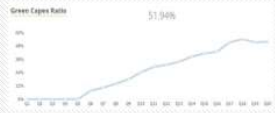
Building on our successes, we are committed to further advancing our sustainability efforts by **expanding our sustainable supplier network** and increase our investment in Circular Economy Practices.

The substantial sustainable investments allowed Voltix to access green financing, which contributed to profitability

Company information | Resource Management | **Financial Management** | Employee Management

VOLTIX

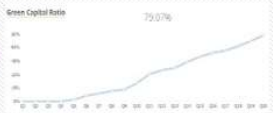
Green Capex Ratio



By having investments in **green projects** representing **more than 50%** of total expenditures, we showcase our commitment towards sustainability.

For the last 4 years this ratio has been **increasing** significantly and our objective for the next periods is to **continue the trend.**

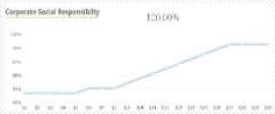
Green Capital Ratio



Being able to access **green bonds** has facilitated the CSR investments pursued by providing capital at a **lower rate** of 3%.

In turn, the continuous investment has allowed the company to keep accessing this **attractive capital source**.

CSR Investments



Our CSR had reached a **consistent level of 100%** in the last year due to the significant investments both in the **operations** side (scope 1, 2 and 3), the human resources **social** perspective (through a sustainability policy for our employees) and overall **strategy moves** (the charging network expansion and the next generation e-drive modules).

Financial penalties

For 2 consecutive **years Voltix has not been receiving any penalties** on CO2 emissions due to the disinvestment in non-electrical vehicles

By having received bonuses in the past, the company has proven to be a **pioneer** in sustainability and being ahead of regulations.

By having pursued with the strategy of offering a **fully electrical fleet**, together with the high investment in increasing overall sustainable and socially responsible practices within the firm, we have been benefiting from **better financing conditions** that recognize our efforts. For the future, we intend **to continue with our strategy of relying on green capital funds** to further invest in green strategies and grow organically. We also commit to **ethical and transparent reporting** which reflect our consideration towards our shareholders.

We look forward into providing our customers with **similar green financing** such as discounts on payment terms for sustainable electrical vehicles.

Employee Management – Boosting employee satisfaction for a greener future

Company information | Resource Management | Financial Management | **Employee Management**

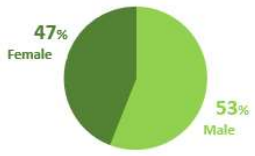
VOLTIX

Employee Management

At Voltix, we are dedicated to fostering a **health work environment** that promotes high employee satisfaction, integrity, and sustainable practices. In a shot, medium-, and long-term view we want to empower our workforce, investing in in **continuous learning** and **development** to empower our employees to grow, innovate and lead in the green automotive industry. We commit to keep stable and satisfied the workforce providing equal opportunities for all employees, maintaining open and transparent communication channels and fostering an inclusive leadership.

Diversity & inclusion

Employee gender proportion



VOLTIX is proud of its effort on guaranteeing gender equality within the company mainly in high management roles.

40% women on Executive Team

47% women on Management Team

GOAL: Reach 50% gender balance by 2025

Training and development

55% Management Skills in sustainability

+725,82% Increment in Sustainability Skill Level in 4 Years

GOAL: Train all manger in sustainability by the end of 2024

Sustainability Policy & Training

€45M Invested in Sustainability Policies and Training

GOAL: Actively measure and enhance the impact of this initiatives and train new employees.

Employee Satisfaction

95% Employee satisfaction

The employees' satisfaction has increased by 3% in 4 years.

The employees' satisfaction is 95,6%

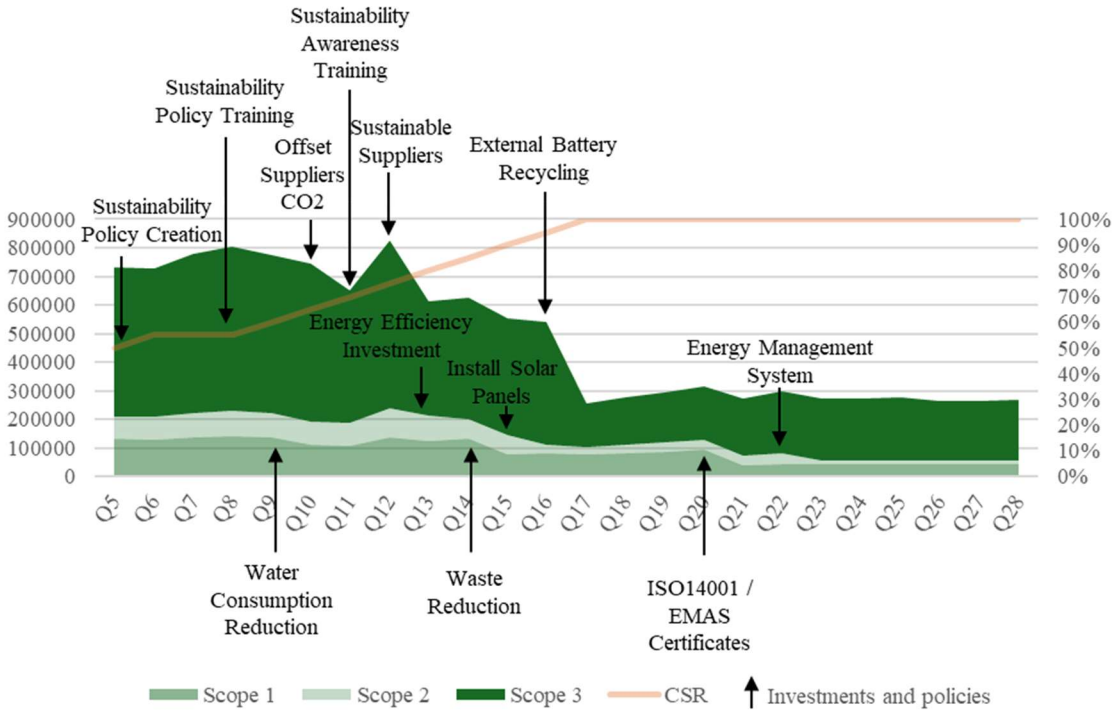
GOAL: Reach 100% of employee satisfaction by 2025

What's Next?

Foster community and stakeholder engagement
Implement HR management system and employee survey tools to efficiently gather and analyse data

Hire a CSO and a ESG manager
Hire a Chief Sustainability Officer and a ESG manager to ensure the alignment with business goals and reporting on ESG performance

Appendix 7: Voltix Q20 ESG Report



Appendix 8: Evolution of CSR and CO2 Emissions by Scope with correspondent investments and policies creation (own illustration)

Total Sales by Product - Americas						
Rank	**Product**	**Manufacturer**	**Sales**	**Price**	**Revenue**	**Segment Market Share**
1	ZENITH E	**VOLTiX**	4,380	$117,398.15	$504M	**8.5%**
2	APEX E	**VOLTiX**	6,372	$68,094.22	$425M	**7.1%**
3	City 2 100E	**Competitor C**	13,044	$31,124.23	$393M	**6.6%**
4	IRON xE	**VOLTiX**	5,635	$68,090.60	$374M	**6.3%**
5	SPARK E	**VOLTiX**	10,754	$37,751.88	$371M	**6.2%**
6	4x4 3 140E	**Competitor C**	5,712	$65,331.86	$364M	**6.1%**
7	Luxury 1 140E	**Competitor C**	4,407	$83,240.39	$358M	**6.0%**
8	City 5 100E	**Competitor A**	12,835	$28,480.35	$353M	**5.9%**
9	Sport-E	**Competitor A**	7,983	$44,795.23	$348M	**5.8%**
10	TERRA E	**VOLTiX**	3,653	$98,116.11	$335M	**5.6%**

Total Sales by Product - Europe						
Rank	**Product**	**Manufacturer**	**Sales**	**Price**	**Revenue**	**Segment Market Share**
1	 SPARK E	**VOLTiX**	13,203	$35,530.33	$456M	**8.5%**
2	 TERRA E	**VOLTiX**	4,333	$93,506.02	$397M	**7.4%**
3	 City 1 100E	**Competitor A**	12,967	$24,822.67	$310M	**5.8%**
4	 BOLT E	**VOLTiX**	5,450	$56,252.51	$299M	**5.6%**
5	 ZENITH E	**VOLTiX**	2,572	$131,029.27	$296M	**5.5%**
6	 Biz-E	**Competitor B**	8,275	$35,533.01	$284M	**5.3%**
7	 NANO mE	**VOLTiX**	9,960	$30,534.51	$256M	**4.8%**
8	 APEX E	**VOLTiX**	3,747	$76,161.94	$250M	**4.7%**
9	 4x4-E	**Competitor B**	3,660	$62,490.68	$223M	**4.2%**
10	 IRON xE	**VOLTiX**	3,310	$76,637.36	$220M	**4.1%**

Total Sales by Product - Asia						
Rank	**Product**	**Manufacturer**	**Sales**	**Price**	**Revenue**	**Segment Market Share**
1	 NANO mE	**VOLTiX**	24,919	$26,509.10	$640M	**10.2%**
2	 Micro-E	**Competitor B**	27,021	$20,413.94	$530M	**8.4%**
3	 Micro-E	**Competitor A**	20,446	$21,639.40	$426M	**6.8%**
4	 City 6 100E	**Competitor B**	17,075	$25,336.53	$417M	**6.6%**
5	 Sport E	**VOLTiX**	8,021	$50,770.55	$397M	**6.3%**
6	 SPARK E	**VOLTiX**	9,625	$42,342.08	$332M	**5.3%**
7	 TERRA E	**VOLTiX**	3,319	$109,813.47	$304M	**4.8%**
8	 Biz-E	**Competitor A**	8,720	$35,485.19	$299M	**4.7%**
9	 BOLT E	**VOLTiX**	4,821	$66,642.69	$265M	**4.2%**
10	 Micro-E	**Competitor C**	11,927	$21,639.40	$249M	**3.9%**

Appendix 9: Q28 Top-ranked Cars' Sales by Product Segment Market Share by Country (own illustration)