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

Finance from the Nova School of Business and Economics.

Transitioning to Electric Vehicles: Strategic, Financial and Operational Challenges for NOVA in the Business In Practice Program

Gonçalo José Torres Ferreira Brás

Work project carried out under the supervision of:

DR. JOÃO BAPTISTA, PHD

09/09/2024

Abstract
This thesis looks at how NOVA has changed within the automobile industry, emphasising how it has responded strategically to operational and financial difficulties. Through the integration of financial innovation, such as green bonds, with strategic objectives and operational adaptability, NOVA overcame initial obstacles to become a frontrunner in EVs. The study highlights the significance of striking a balance between short-term and long-term goals as well as the importance of self-reflection and adaptable leadership techniques. This work examines how resilient, adaptable methods and reflective behaviours lead to sustained company performance through case analysis and personal reflections on roleplays and operational inefficiencies.

Keywords

Electric Vehicles, Automotive Industry, Sustainability, Finance,

Strategy, Operations, Transition, Innovation, Market Dynamics,

Green Technology, Corporate Strategy, Sustainable Mobility,

Operational Efficiency, Business In Practice

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. Firm Analysis

NOVA, a prominent global automotive manufacturer with established production facilities across Europe, China, and the United States, finds itself at the forefront of a rapidly transforming industry. Environmental concerns and regulatory pressures are driving a major change in the automotive industry away from internal combustion engines and towards electric cars (EVs). With a focus on electric transportation and high technology, NOVA has embraced this change and made notable progress in shifting its product portfolio towards sustainability. Stricter environmental laws and shifting consumer preferences for eco-friendly items have further accelerated this shift.

Over the past several quarters, NOVA has demonstrated its capacity to adapt to this new reality. NOVA has been able to scale production to satisfy the growing demand for EVs while reducing the risks related to regional market changes by utilising its worldwide manufacturing base. The company's operational methods, which include investments in energy management systems and sustainable supply chains, demonstrate its dedication to sustainability in addition to its product offerings. Through these initiatives, NOVA has successfully balanced the needs of environmental responsibility and efficiency to establish itself as a competitive participant in the global automobile and more specifically the EV industry.

In this firm analysis, we will delve into the key components of NOVA, in general, with special focus on the company’s finance, strategy and operations. We'll look at how these factors have affected the business's performance in the dynamic automotive sector. The examination will use pertinent academic frameworks and practical examples to offer a thorough comprehension of NOVA's situation and the obstacles it encounters in preserving its competitive advantage amidst the complexities of the worldwide marketplace. Ultimately, NOVA’s story serves as a testament to the tenacity and flexibility needed to prosper in a time of extraordinary industry change.

2. Finance

2.1. Introduction

Finance is the core of any company, making sure that resources are efficiently allocated and that strategic goals are met. It surrounds the management of assets, liabilities, revenue and expenses to ensure sustainable growth and profitability. Financial management helps organizations navigate uncertainties in the market, optimize operations and achieve long-term objectives, with robust financial practices being fundamental in maximizing shareholder value and securing lasting success (Ross, Westerfield and Jaffe, 2013).

2.2. Free Cash Flow (FCF)

The FCF represents the cash that a company generates after accounting for cash outflows to support operations and maintain its capital assets, thus, being a measure of profitability of the company (Fernando, 2024).

As we can see in *figure 1*, during the majority of the simulation, NOVA had negative FCF until Q20 where it was possible to observe the first positive value and high growth with regards to this metric. This was mainly due to our company strategy surrounding high innovation and tech leadership that led to us having CAPEX of large values (Damodaran, 2015). Some of this CAPEX was related to the expansion and development of factories, 2 in the USA region in Q8 and Q14 and 1 in Europe in Q12, with each investment being 800M. Not only that but during the period of low FCF there were also other investments that resulted in these numbers, as there was 2560M in Green Investments and 950M in innovation with the goal to improve and meet our sustainable goals, and in general, expand our EV business. For comparison, Tesla has also invested heavily in factory expansion with its Gigafactories in Texas, Berlin and Shanghai which temporarily strained its cash flow but positioned it for significant growth. BYD, on the other hand, benefited from strong state support leading to rapid expansion of its production

capacity, resulting in FCF growth of 11,2% YoY in 2023. Also important to note is that we had issues with operational efficiency during that time, with inadequate inventory control and excess of unsold vehicles that consumed resources. Despite this, we extended the supplier payment terms to 40 days in Q4 and Q16 to solve cash flow concerns by improving liquidity and better manage working capital and made radical changes in operations to increase our Operating Cash Flow (*figure 2)* (Brealey, Myers and Allen, 2020). With these investments and changes, from Q20 onwards, our company maintained healthy and positive FCFs resulting in repayment of debts and dividends to shareholders.

2.3. Weighted Average Cost of Capital (WACC)

The WACC is the blended cost a company expects to pay to finance its assets. It's the combination of cost to carry debt plus the cost of equity (Segal, 2024).

Looking at *figure 3*, it is possible to note that NOVA's WACC decreased in most quarters despite the company increasing its debt ratio from Q7 until Q19 on a slow growth. This can be explained with the fact that we went for cheaper forms of debt in green bonds that provided lower interest rates of 3%, with us increasing the green capital ratio (*figure 4)* to almost 93% due to the repayment of "normal debt" and the higher issuance of green bonds. In "normal debt", interest rates were around 4% and 7%, with this difference being called the "greenium" (E. Agliardi & R. Agliardi, 2021). When a business has a high WACC, it is more difficult to create value and make competitive investments since it is related with higher financing costs and perceived risk.

2.4. Financial Performance

When looking at financial data, there are some important metrics that we have to analyse and evaluate in order to gauge the overall performance of the company and what are its key strengths and weaknesses. With regards to revenue, NOVA had a moderate growth rate of 9.2% YoY

(*figure 5)*, which was similar to the one of BMW that had an average of 9,9% in the last years whilst Tesla had a staggering growth of 36,7% during that same period which was driven by their aggressive expansion and increasing vehicle deliveries (Glen, 2024), with this being something that Tesla is currently having challenges with, due to also the emergence of key new players, for example BYD, which reported a revenue growth of 28% in 2023 making it the fastest-growing EV company globally**.** Looking at the EBIT *(figure 6)*, it had a rate of 16% which was pushed upwards due to the last 2 financial years of 2029 and 2030 (growth rate of almost 100%), that was result of the better inventory and production management the company had and also better control of expenses such as marketing and HR related ones. In contrast, Mercedes-Benz's 2023 EBIT margin of roughly 13% was a reflection of the company's emphasis on high-margin automobiles. One important factor is also related to the subscription income provided by the 50M$ investment the company did generating 1B$ of extra income in the last 2 years.

2.5. Capital Structure

The capital structure of a company describes the mix of a firm's long-term capital, which is a combination of debt and market value of equity. The debt ratio is an important metric in this aspect as it relates to how much of a company's assets are paid with debt, with the greater the ratio, the more leveraged the company is.

Throughout the simulation, NOVA's debt strategy was focused on preserving a credit score higher than BBB, guaranteeing financial stability and prevent excessive debt accumulation. This careful management of debt had the goal to reduce the likelihood of bankruptcy costs and maintain the stability and financial health of the company. In 2023, Tesla kept its D/E ratio comparatively low at approximately 12% whilst BMW's debt ratio was over 110%. In *figure 3*, we can see that the D/E ratio increased between Q3 and Q19, related to the high expansion and

investments the company made during that period, with a maximum value of 51,2%, which is moderate compared to industry standards.

2.6. Return on Investment

To measure the company's efficiency in allocating capital, the Return On Invested Capital (ROIC) metric is used. It is calculated by dividing net operating profit (NOPAT) by Invested Capital which is made of Debt plus Equity minus Operating Cash.

Comparing the ROIC to the WACC is helpful for us to gauge an idea of whether the company is generating value or not (Lloyd & Davis, 2007). We can see the evolution of both ratios in *figure 7*, that shows a clear reduction of the ROIC comparing to the almost stable WACC. From Q14 to Q19, it shows that the company struggled in value creation due to the already mentioned lack of operational efficiency. This decrease of the ROIC is mainly explained by the decrease in the NOPAT (*figure 8*), which from Q20 onwards showed a positive turnaround, leading to a higher ROIC, surpassing the WACC in Q22. For comparison, BYD's ROIC was somewhat lower at roughly 12% in 2023, reflecting its fast expansion phase and investments in new markets while Tesla's ROIC was approximately 17% in the same period, suggesting strong capital efficiency. It is also important to note that indeed, the diminishing returns of the company were the main explanation as the invested capital didn't significantly alter during the simulation only showing a spike in Q21 due to the increase of Equity, explained by the rise in the share price (*figure 9*).

3. Strategy

3.1. Introduction

Long-term success in the field of strategic management depends on gaining and retaining a competitive advantage (Porter, 1985). As a differentiated brand with a broad market scope,

NOVA successfully catered to a variety of consumer demographics while making sure that its products stand out in the competitive automotive industry. By emphasising innovation, sustainability and operational effectiveness, NOVA successfully navigated complex market conditions and seized opportunities (Barney, 1991).

3.2. External Analysis

The external landscape in which NOVA operates is highly influenced by political, economic and social factors. It is evident from the PESTEL framework, looking at the political side, that trade conflicts and regulatory changes had a major effect. For example, tariffs between key regions, such as the 100% tariff imposed by the Americas on electric cars from Asia in Q6 shape market dynamics (Hill and Jones, 2012). This poses problems in places like Asia where export costs to other regions are higher and opportunities in places like Europe where tariffs are more reasonable. Tesla had notable obstacles because of trade tensions between the United States and China, which had an impact on its production costs and supply chain. In the meantime, protectionist measures and local government subsidies, already mentioned before, have helped BYD, which has its headquarters in China, grow domestically.

On the economic side, while Europe and the Americas are mature markets, Asia presents a strong growth opportunity due to its larger customer base and greater market potential. However, the previously mentioned trade wars affect demand and production planning, adding volatility to that region.

From a social and technological perspective, consumer preferences are changing quickly with a significant desire for EVs and cutting-edge technology like autonomous driving (Kotler and Keller, 2016). The consumer preference data indeed indicates that high-tech features are clearly in demand in all regions, particularly in autonomous driving and advanced battery technologies.

The legal landscape is also getting stricter with increased CO2 emissions regulations *(figure 10)*. Due to this, NOVA and other firms were compelled to reconsider their fleet of cars in order to reduce emissions, leaning more and more to a sustainable way of transportation.

Based on Porter's Five Forces framework, the automotive industry continues to have fierce competition (Porter, 2008). Established firms are shielded from new competitors by high entry barriers, yet breakthrough goods from tech titans like Apple might, on the other hand, disrupt the established market dynamics. Customers still have a lot of negotiating power, particularly in developed countries where price and feature comparisons are more significant than brand loyalty. Suppliers are starting to gain more power as they develop unique technologies required for next-gen vehicles. Examples of this include BYD's vertical integration approach to keep control over battery production and Tesla's reliance on suppliers like Panasonic to provide them a competitive edge.

Lastly, NOVA has placed itself in the broad differentiation quadrant (*figure 11*) competing with high-tech premium brands. With this positioning, NOVA leverages its strengths in innovation and advanced vehicle technology while allowing it to compete effectively in diverse markets globally.

3.3. Internal Analysis

NOVA's established worldwide manufacturing infrastructure and strong commitment to sustainability are the foundation of the company's internal strengths and skills. With factories in Europe, USA and China, each contributing to a diverse range of EVs for different market niches, NOVA is able to reduce risks related to variations in local markets while also scaling up production.

One notable advantage of the firm is its steady factory utilization **(***figure 12)* which even in the face of operational and market difficulties has maintained high efficiency rates for multiple

quarters. Furthermore, the business has successfully controlled material costs per unit, preserving a degree of stability over time, which is a critical component in preserving competitive pricing and safeguarding profit margins.

NOVA's investments in sustainability have also been a driver in its internal capabilities. The company's general strategic objectives and decisions are always taken with the environment in mind and in focus. Through these initiatives, NOVA not only strengthened its environmental credentials but also drew investment and increase in Green Bond capital improving its standing in the market (E. Agliardi & R. Agliardi, 2021). Mercedes-Benz has made comparable investments in sustainability and green technologies with the goal of becoming carbon neutral by 2039 in order to satisfy consumer and governmental demands (Brealey, Myers and Allen, 2020).

However, the company's internal operations are not without difficulties as there were inefficiencies in the allocation of marketing resources as seen by the wide fluctuations in marketing expenses (*figure 13*). Furthermore, although the firm was generally efficient, there were also times when demand planning and production alignment could be further optimized, with the factory utilization also fluctuating across some quarters.

Now for the SWOT analysis, the firm's strengths includes its global manufacturing network, commitment to sustainability and high innovation and technology in its vehicles. However, challenges like fluctuating marketing expenses and mismatches between supply and demands drew attention to the need for better resource planning and forecasting. Opportunities for NOVA to profit from through its sustainability efforts come from the increased demand for EVs and the push from regulations to be more sustainable. NOVA must however handle threats including growing competition, supply chain interruptions and sustainability expenses in order to preserve its competitive advantage.

4. Operations

4.1. Introduction

Operations are the foundation of any manufacturing company, with this being especially true in the automobile sector, where meeting consumer demand and production capacity is essential to success. Operations management involves the planning, organizing and supervision of processes to convert inputs into outputs efficiently (Krajewski and Malhotra, 2021). This covers all areas, from sourcing and product creation to production and distribution, to make sure the business satisfies both client expectations and its strategic goals. The operations department was crucial to the company's move from conventional cars to EVs, which required a deliberate trade-off between quality, speed, cost and flexibility. Maintaining a competitive edge in an industry increasingly driven by environmental concerns and regulatory demands required the integration of sustainability into operations, particularly through investments in green technology and effective resource management (Slack and Brandon-Jones, 2019).

4.2. Key Components of Operational Strategy

With environmental concerns having an increase in influence on both consumers behaviours and regulatory frameworks, NOVA integrated sustainable practices into their core operations. The company's commitment to reduce its environmental footprint was evident through competitive investments across all scopes ranging from direct emission reductions to improving energy efficiency and fostering sustainable supply chains (*figure 14)* (Christopher, 2016). These efforts were further driven by the string environmental regulations with the limit on CO2 emissions that made NOVA change its line of cars and factory utilization.

The 4V model of operations, which encompasses volume, variety, variation and visibility further guided NOVA's strategic production decisions (Hill, 2022). The volume aspect, which represents the scale of production, is evident the large-scale production capabilities with models

like the Luna E and the Astro E while some models showed a lower scale production such as our luxury car, the Zephyr E. By providing a wide selection of cars from city to luxury to pickup ones, the variety aspect made sure that NOVA could serve various market niches with these vast arrays of models catering to various consumer preferences across geographies. For example, with a wide range of EVs, from premium to economy models, BYD uses a similar approach to maximise its appeal across several market segments. Demand fluctuations required NOVA's adaptability, especially when the business switched to only electric vehicles. The variation in manufacturing levels and how many factories a certain model should be produced in demonstrated how NOVA adjusted to shifting market demands. To maintain operational efficiency, it was required the flexibility to scale output up or down in response to customer preferences and demand projections. Lastly, sustaining openness and meeting sustainability required visibility throughout the process. To achieve this, NOVA placed a strong emphasis on decreasing its environmental effect. Additionally, by tracking and optimising Days Of Inventory, this visibility allowed NOVA to maintain the models within ideal inventory levels.

4.3. Operational Performance

NOVA's factory utilization (*figure 12*) ranged from a low of 71% in Q13 to a peak of 100% in multiple quarters (Q3, Q9 and Q23-Q28). The initial decrease in utilization coincided with the introduction of new factories, which were a hassle to manage in the first quarters that they were built and ready-to-use. The periods of high utilization particularly from Q23 to Q28 reflected the successful scale of production following this expansion, that aligned with market demand and operational goals. With regards to the factory expansions, they marked critical turning points in NOVA's production strategy. By expanding in key regions (Europe and USA), we positioned ourselves to capitalize on market opportunities and increase the company, in general. However, these expansions also presented challenges, such as the initial underutilization of new and "old" facilities that led to temporary inefficiencies. Over time, the demand caught up with

production capabilities, with factory utilization stabilizing demonstrating the long-term benefits of these strategic investments. For example, models like the Aurora E and Luna E saw significant spikes in production that were based on an aggressive production strategy that led to periods of overproduction and consequently higher inventory levels, which impacted operational efficiency and tied up capital in unsold goods. Similar difficulties were encountered by BMW with the i3 and i8 models, when early overproduction resulted in increased inventory levels, necessitating a revision of the production plan to better suit consumer demand (Schmidt, 2018).

One important operations management indicator is the Days of Inventory (DOI) that calculates how long it takes a business to sell through its inventory. It is a crucial sign of how well a business controls its production and inventory processes. A low DOI indicates an effective inventory turnover in which goods are moved from production to sales rapidly. On the other hand, a high DOI indicates possible inefficiencies, such as products going unsold for long stretches of time, with inventory being thus “dead money”. In order to keep a healthy cash flow and promptly adjust to demands and tech improvements, the company is highly dependent on regulating its DOI. NOVA’s DOI fluctuated during the simulation (*figure 15*) as a result of a number of variables, including changes in production levels and the factory expansions. For instance, overproduction was the cause of the large increase in DOI in various quarters, especially in the beginning of the simulation. However, a more efficient strategic approach in operations helped the company to stabilise the DOI in the following quarters, revolving around a less aggressive entrance to the market of new models. Tesla experienced DOI issues during the Model 3 production ramp-up in 2018–2019, however, after making operational changes, inventory levels were lowered and cash flow was improved.

4.4. Integrated View Across Functions

The combination of NOVA's three functions: finance, strategy and operations were the foundation of its success. Together, these interrelated tasks propelled the business' expansion and place in the market.

Finance provides the resources necessary to support NOVA's strategic goals. For instance, choosing to pursue innovation and sustainability necessitated making financial expenditures in technology, research and green production methods. Through the management of its WACC via green bonds and the optimisation of its debt structure, NOVA was able to maintain a sound balance sheet while financing important objectives such as the development of EVs and market expansion.

NOVA's competitive positioning is guided by its strategy, which establishes the course for both financial and operational decisions. To become a high-tech, sustainable brand, rigorous financial management was necessary to strike a balance between investment and efficiency. Decisions like product differentiation, market entry, and the optimisation of FCF to finance growth prospects, including expanding to American markets, were all influenced by this strategic focus. Operational priorities at NOVA were directly influenced by these strategic goals.

Operations carries out the financial and strategic plans of NOVA. For instance, the strategic objective of regional growth was matched by the expansion of production facilities in Europe and the USA, which was also financially feasible because of optimised CAPEX. Additionally, operational tactics that aligned with financial objectives to maintain liquidity and stability, such as extending supplier payment periods and improving supply chain efficiency, boosted working capital management.

NOVA improved its position in the market and its financial performance by closely combining these services. NOVA's competitive advantage was strengthened by operational improvements

resulting from strategic investments financed by careful financial management. The cooperation of several departments made it possible for NOVA to develop, adapt, and maintain its position as a leader in the automotive sector.

4.5. Conclusion

Thinking back on NOVA's path provides a deeper analysis than a typical business strategy, finance, and operations case study. It is a story about flexibility, resiliency, and the skill of striking a balance between immediate difficulties and long-term goals. With the automobile industry moving towards electrification and digital transformation, NOVA's experience highlights the opportunities and challenges that come with driving this kind of industry change.

Financially speaking, NOVA's early negative FCF was a deliberate risk taken to support future growth rather than just a warning indication. The idea that there are situations where financial difficulty now is the price of opportunity later is highlighted by this choice to give priority to long-term capital investments, such as increasing factory capacity and committing to green technologies. NOVA's capacity to change course by extending supplier contracts, cutting expenses, and enhancing cash flow management serves as an example of the importance of financial planning flexibility. It also casts doubt on the idea that stability in cash flow and expansion must always occur simultaneously, arguing that sometimes strategic planning can take precedence over short-term financial considerations.

Examining NOVA's choice to use green bonds to fund expansion reveals a business that embraces financial innovation as a strategic goal as well as a means of reducing costs. NOVA used its capital structure to minimise its WACC through more affordable, environmentally friendly financing, thereby bringing financial goals into line with its sustainable brand image. This choice highlights a little-known but important fact: in today's dynamic business

environment, financial tactics can function as marketing initiatives, enhancing a company's brand and competitive positioning.

From a strategic standpoint, NOVA has struck a balance between market appeal and differentiation, which reveals an important aspect of competitive positioning. A new strategic paradigm, the multi-layered identity, is suggested by NOVA's simultaneous emphasis on innovation and sustainability, combined with a diverse product line. Many organisations struggle to find the proper strategic fit, either by focussing too narrowly or seeking too broad a reach. With this positioning, NOVA was able to deftly handle external difficulties including shifting customer preferences and geopolitical conflicts. It challenges us to think again about the inflexible frameworks of conventional strategic models in favour of more adaptable strategies that can quickly adapt to changes in the market.

Operationally, NOVA's difficulties with overstock and demand forecasting served as stark reminders of how crucial operational excellence is to strategic success, a concept that is frequently disregarded. However, the firms' ability to address these inefficiencies by Q22 suggests that operational failures presented chances for growth and learning as well as obstacles to overcome. The choice to expand its manufacturing footprint internationally reflected the idea of diversification in investment portfolios by striking a balance between risk and flexibility. This method reinforces the notion that operational resilience depends on a diversified strategy that minimises local risks while maximising global opportunities, just as financial health depends on a balanced portfolio.

In the end, NOVA's experience shows us that mastering the art of integration, rather than succeeding in discrete domains, is what makes modern businesses successful. Operations, strategy, and finance are not only functional silos, rather, they are interdependent forces that need to cooperate in order to spur growth. From its early challenges with cash flow and

operational inefficiencies to its current position as a global leader in EVs, NOVA's story demonstrates how, in order for an organisation to stay competitive, its financial structures must constantly be in line with its strategic goals and operational realities.

This study challenged us to reconsider how we define success in the corporate sphere, looking beyond NOVA. Metrics that reflect a company's capacity to innovate, adapt, and reinvent itself in the face of a constantly shifting environment may be more important than those seen in financial statements. The lessons from NOVA's experience highlighted a fundamental truth as businesses face unprecedented challenges, whether from shifting geopolitical landscapes, technological disruption, or environmental concerns: in an uncertain era, the most resilient businesses will be those that can see beyond traditional metrics and adopt a more holistic, adaptive approach to growth.

5. Personal Reflection

5.1. Introduction

Self-reflection is essential for leadership and is a fundamental component of both professional and personal development. This introspective process involves examining our experiences, decisions, and actions to gain a deeper understanding of our strengths, weaknesses, and areas needing improvement (Goleman, 1995). In the context of leadership, where decisions can have significant effects on groups and companies, self-reflection is not just helpful but crucial. It enables leaders to manage the intricate interactions between their goals, values, and the many requirements of the people they oversee.

The age-old proverb "Know Thyself," which is notably engraved at the Temple of Apollo in Delphi, emphasises the everlasting importance of self-awareness in obtaining success and personal fulfilment (Edmondson, 1999). This knowledge highlights how important it is to know oneself in order to make morally sound, sensible decisions. By taking stock of our choices and

actions, we may identify what went wrong as well as opportunities for growth and adaptation. The "illusion of transparency," in which people overestimate the degree to which others can perceive their internal states (Gilovich et al., 1998), or the impact of cognitive biases in decision-making under uncertainty (Kahneman & Tversky, 1979), are just two examples of the underlying biases and cognitive patterns that can be revealed through this process.

The significance of continuous reflection in professional development is emphasised by Schön's concept of reflective practice (Schön, 1983). It promotes an ongoing cycle of action and reflection in which experiences are evaluated critically to promote growth and adaptation. Such introspective skills are crucial for leaders to remain flexible, make wise judgements, and lead with clarity and confidence in a time of rapid change and complexity.

Leaders who practise self-reflection benefit not just themselves but also their teams and organisations. It encourages a culture of ongoing development, empowering leaders to adjust, think creatively, and deal with the changing problems they encounter. In order to achieve both personal fulfilment and leadership greatness, self-reflection becomes an invaluable tool.

5.2. Critical Incident #1: The Challenges of Roleplays and Pitches

During the business simulation, our team had to contend with a number of roleplays each of which presented a chance to secure important clients and prove our business strategy. But for our team, these roleplays turned into crucial teaching moments with these being high-pressure situations that tested our preparation, team dynamics and ability to adapt in real-time.

I was part of the team that was unprepared and lacked the interpersonal skills necessary to interact with the client in the first occurrence, the sales pitch. Anxiety had a big part in it, causing us to forget small but important things like shaking hands and introducing ourselves correctly. The situation was exacerbated by technical issues with the computer setup, which made the client wait and further interrupted the pitch's flow. This event brought to light our

inability to implement the fundamental professionalism and rapport-building concepts that Goleman (1995) emphasised in his work on emotional intelligence. More specifically, there was a gap that affected the pitch's conclusion since we were unable to control our own emotions while still acknowledging the client's.

A well-researched psychological phenomenon, performance anxiety is frequently caused by a worry of receiving a poor grade (Beck, 1987). We failed to establish a personal connection with the client during the pitch, which was clear evidence of our nervousness. This worry was further heightened by the technological issues, which made it more difficult for us to recover and establish the necessary link. Decision-making under uncertainty is frequently impacted by cognitive biases, according to Kahneman & Tversky (1979). In our situation, the anxiety prompted us to concentrate more on our fear of failing than on the tactics that would have helped us succeed.

In many ways, the second roleplay, the Client Retention one mirrored the first. This time, the rest of the group joined in, but as we exited the room, there was still an air of unease. The result was neither a complete failure nor a resounding success, but rather a middle ground that left us unmotivated. This ambiguity brought to light an important lesson: clarity is critical for both planning and carrying out. According to Tuckman's (1965) model of group growth, our team seemed to be trapped in the "storming" phase and was finding it difficult to transition into "norming" and "performing." Not knowing whether we performed well suggested a lack of confidence and coherence in our team.

This ambiguity is also related to Edmondson's (1999) definition of psychological safety. A team environment that fosters psychological safety is one in which members may express themselves without worrying about the repercussions. We may not have been able to completely commit to the roleplay in this instance because of our team's inability to construct a strong psychological

safety net, as seen by our lack of clarity and confidence. This insight highlighted the necessity of improved team feedback systems and communication in order to create a more encouraging atmosphere.

Maybe the most depressing roleplay was the third and last one, the ESG one. We were confident in our PowerPoint presentation and our ability to explain our sustainability efforts, so we thought we had done a fantastic job. We lost the roleplay by only one point, though, and our result was among the lowest of all the teams. The frustration was palpable, both towards ourselves and even towards the professors who graded the exercise. This event brought to light the subjective character of evaluations and the difficulties in matching our own perceptions of our performance with those of others, a phenomenon known as the "illusion of transparency," as defined by Gilovich et al. (1998).

This instance demonstrated a disconnect between our goals and how others understood them as our confidence in our presentation did not result in success. This is consistent with Schön's (1983) idea of reflective practice, which holds that in order to improve performance, practitioners must constantly reflect on their decisions and results. The fact that our team was unable to match the expectations of the evaluators with our presentation demonstrated how crucial it was to comprehend the standards by which we were judged and how our main points needed to be communicated more effectively.

5.2.1. Response

These events gave important new perspectives on how people behave individually and as a team under pressure. It is possible to connect the fear and worry that appeared throughout the ESG Accreditation and Sales Pitch roleplays to performance anxiety. Concern of receiving a poor grade is a common cause of performance anxiety (Beck, 1987). This concern can lead to actions that compromise performance, like avoiding eye contact or not interacting with the client. In

our instance, our anxiety prevented us from recognising crucial interpersonal indicators that would have improved our connection with the client.

In addition, the technological challenges we faced throughout the sales pitch underscored the significance of backup plans. The capacity to quickly adjust to unforeseen events is essential in high-stakes scenarios (Kahneman & Tversky, 1979). This experience served as a reminder of the need of careful planning, which includes practicing the presentation and making sure all technological elements are working before the pitch starts.

The uncertainty that ensued from the Client Retention roleplay revealed a deficiency in self-assurance and effective communication among team members. Tuckman's (1965) stages of group development state that forming, storming, norming, and performing are common stages that teams go through. It's possible that our team was still in the "storming" phase, which is characterised by disagreements and uncertainty. This incident made it clear that the team needs to communicate and provide feedback more clearly in order to make sure that everyone is on the same page and confident in the final product.

The "illusion of transparency" is a cognitive bias that can be identified by the disappointment and frustration experienced after the ESG Accreditation simulation (Gilovich et al., 1998). People who overestimate how visible their goals and emotions are to others are prone to this prejudice. Although we thought we had effectively communicated our commitment to sustainability, the academics' evaluation revealed otherwise. This experience made us see how important it is to get outside input and that people might not always see our objectives as clearly as we do.

5.2.2. Lessons Gained and Future

These roleplays were essential in identifying areas that needed work, both personally and collectively. Personally, I discovered how critical it is to control emotions and pay closer

attention to human dynamics when giving pitches. As recommended by Goleman (1995), this entails not just preparing the information but also practicing the delivery to make sure I can interact with them confidently and successfully.

Collectively, these accidents highlighted the need for increased contingency planning, improved communication, and greater preparation. In order to make sure that everyone was on the same page and that we had backup plans in case of technological difficulties, we went ahead and organised more formal practice sessions. Additionally, we stressed the value of getting outside input prior to final presentations so that, as Schön (1983) noted in his work on reflective practice, we could modify our strategy in light of helpful critique.

We also understood how critical it was to promote psychological safety among team members (Edmondson, 1999). We wanted to increase team cohesiveness and boost productivity by fostering an atmosphere where everyone felt free to voice their ideas and worries. This required open communication and frequent check-ins to make sure that everyone was on the same page and that any possible problems were dealt with right away.

5.3. Critical Incident #2: Operational Inefficiencies and Their Impact

The second critical incident revolves around the significant operational inefficiencies that we faced throughout the simulation. Our team initially demonstrated potential by efficiently managing operations, factories, and automobile models. Inside information from the team that was in the first place, however, had a significant impact on our strategic choices and, despite its dubious ethical implications, drove us to adopt a more aggressive expansion plan. This included the debut of new auto models and the expansion of factories. At first, it appeared wise to decide to start producing these new models right away across two facilities, which resulted in short-term growth. But as soon as demand fell short of our high production targets, this reckless growth backfired, leading to a precipitous drop in performance. Because we were

unable to sell the cars that were built, factories were left idle, inventory levels shot through the roof, and the number of days of inventory rose. Poor planning and coordination made the problem worse, underscoring the dangers of overexpansion without sufficient market research.

Team morale suffered as a result of the disruption these operational difficulties caused. Our attempts to address the issue using different tactics, such as modifying production schedules and trying to get rid of extra inventory, were mainly unsuccessful. I noticed that I was getting more and more irritated, and that I occasionally stopped participating in team conversations, which made the inefficiencies we were experiencing even worse. There was a noticeable strain on team chemistry as we tried to stay cohesive and focused in the face of the company.

The turning point came in the last two years of the simulation, where we managed to partially resolve the operational issues. We were able to better match market demand with our production strategy, even though some factories remained inactive. All of the factories were back up and running by the last year, setting the firm up for a more secure future. This comeback was a result of more than simply operational changes, it also demonstrated our tenacity and dedication to taking lessons from our errors. Even with the failures, we were encouraged by the simulation's successful conclusion, which gave us hope for the future of the business.

5.4. Response

This event was a valuable teaching tool that brought to light the significance of operational effectiveness and strategic alignment in business management. The mismatch between the real market demand and our aggressive expansion strategy was one of the main problems we encountered. This mismatch is related to the idea of "strategic drift," which occurs when businesses don't modify their plans sufficiently in response to shifting external circumstances (Johnson, Scholes, & Whittington, 2008). We prioritised rapid expansion over sustainable operations due to internal assumptions and incomplete information that excessively influenced

our decision-making. Our judgement was impaired by the overconfidence brought about by the dependence on insider information, which led us to make decisions without careful consideration of the market's reaction.

Our observations of operational inefficiencies, like idle factories and excessive inventories, are classic signs of inadequate demand forecasting and poor capacity management. According to the Theory of Constraints (Goldratt & Cox, 1984), the performance of a system is restricted by its primary constraint, which in our instance is the improper handling of production capacity and market alignment. Our early success encouraged relaxation, and as the market changed, our inflexible operating model was unable to adjust fast enough, creating bottlenecks that hindered productivity. From a personal perspective, the irritation I felt and the retreat that followed are typical of the "fight or flight" reaction to stress (Cannon, 1932). This response not only had an adverse effect on my interactions with the team, but it also created a vicious cycle in which a lack of cooperation and communication made operational difficulties worse. My quiet and sporadic disengagement probably contributed to the team's overall demotivation, an endless circle of disengagement that impeded our capacity to come up with workable answers.

Moreover, groupthink, a psychological phenomenon in which a group's drive for harmony and uniformity leads to irrational or dysfunctional decision-making can be used to examine how the group responded to the operational failures (Janis, 1972). When things started to go wrong, we didn't communicate openly and we didn't evaluate the aggressive growth plan critically as a group, which suggests that we were more concerned with keeping the group together than questioning our initial assumptions.

5.5. Lessons Gained and Future

When we consider this occurrence, a few important insights become clear. First, it is crucial, it must be emphasized that operational capacity and market demand be matched. In addition to

careful capacity planning and demand forecasts, this calls for a flexible approach that can be adjusted as circumstances change. Our experience highlights the importance of ongoing market monitoring and the ability to adjust operations to suit changing conditions. In the future, I would place a strong priority on putting adaptive capacity management techniques into place, such as using real-time data analytics instead of what we feel like doing to guide production choices and avoid the kind of overproduction that resulted in our excessive inventory levels.

This event brought to light the vital role that dispute resolution and communication play in preserving efficient teamwork. I learnt the need of open dialogue and the necessity of finding positive ways to deal with difficulties instead of retreating at this time due to the breakdown in team dynamics. Preventing similar problems in the future will require building emotional resilience and creating a supportive team atmosphere. When a team is having trouble, we can use frameworks like Tuckman's stages of group development (1965) to recognise it and take proactive measures to get them from "storming" to "norming" and "performing."

Finally, it is impossible to overlook the moral implications of basing strategic judgements on insider knowledge. The significance of honesty and moral decision-making in business was brought home by this episode. In the future, I would support a more open and moral approach to strategy formulation, making sure that our choices are supported by reliable information and moral behaviour. This experience has strengthened my resolve to promote an environment of accountability and ongoing development, where failures are seen as chances for development.

To sum up, this crucial episode revealed the intricacies of operational management and the influence of team chemistry on business results, providing a substantial potential for learning. We can create more effective and resilient teams that can handle the difficulties of a changing business environment if we accept these lessons and use them in our future undertakings.

5.6. Conclusion and Overview

My understanding of leadership and team dynamics has greatly improved as a result of my eye-opening journey of reflection on the business simulation experience and peer feedback. The significance of self-awareness and ongoing introspection in fostering successful leadership abilities was emphasised by this activity. Comparing myself and peer-evaluations has given me new insights into my areas of growth, notably in communication, emotional control, and team management.

Peer review (*figure 16*) revealed differences in how I saw myself and how other people saw my contributions. This criticism is in line with the difficulties I encountered during roleplays, where confusion and anxiousness caused me to coordinate poorly. Knowing different viewpoints has helped me become more conscious of how my actions affect team dynamics and has motivated me to take a more welcoming and helpful stance. I understand the value of empathy and self-control in leadership, especially under pressure. In the future, I want to improve my ability to handle performance anxiety and fortify my connections with teammates by developing my emotional self-awareness and taking constructive criticism seriously.

Critical incidents in the simulation have highlighted the difficulties of leading under changing conditions and have emphasised the significance of clear, straightforward decision-making and flexibility (*figure 17*). I understand that I need to modify my strategy given the makeup of the team, which consisted of three Sunshine Yellows, one Cool Blue, and two additional Fiery Reds. My straightforward approach fits well with my Fiery Red coworkers, but balancing team dynamics will come from adding more empathy and patience, as advised by the Earth Green and Sunshine Yellow styles. In the future, I want to cultivate a climate of psychological safety and reflective practice so that my actions as a leader better suit the variety of styles present in the team.

References

Agliardi, E., and R. Agliardi. 2021. *Corporate Green Bonds: Understanding the Greenium in a Two-Factor Structural Model*. Environmental and Resource Economics.

Barney, Jay B. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17 (1): 99–120.

Beck, Aaron T. 1987. *Cognitive Therapy of Depression*. New York: Guilford Press.

Brealey, Richard A., Stewart C. Myers, and Franklin Allen. 2020. *Principles of Corporate Finance*. New York: McGraw-Hill Education.

Cannon, Walter B. 1932. *The Wisdom of the Body*. New York: W.W. Norton & Company.

Christopher, Martin. 2016. *Logistics and Supply Chain Management*. 5th ed. Harlow: Pearson Education.

Damodaran, Aswath. 2015. *Applied Corporate Finance*. Hoboken: Wiley.

Edmondson, Amy. 1999. "Psychological Safety and Learning Behavior in Work Teams." *Administrative Science Quarterly* 44 (2): 350–383.

Fernando, Jason. 2024. "Understanding Free Cash Flow." *Investopedia*. https://www.investopedia.com/terms/f/freecashflow.asp.

Gilovich, Thomas, Victoria Husted Medvec, and Kenneth Savitsky. 1998. "The Illusion of Transparency: Biased Assessments of Others' Ability to Read Our Emotional States." *Journal of Personality and Social Psychology* 75 (2): 332.

Glen, Andrew. 2024. "Electric Vehicle Market Analysis." *Automotive News*. https://www.automotivenews.com/electric-vehicle-market-analysis.

Goldratt, Eliyahu M., and Jeff Cox. 1984. *The Goal: A Process of Ongoing Improvement*. Croton-on-Hudson, NY: North River Press.

Goleman, Daniel. 1995. *Emotional Intelligence: Why It Can Matter More Than IQ*. New York: Bantam Books.

Hill, Alex. 2022. *Operations Management*. 5th ed. London: Red Globe Press.

Hill, Charles W. L., and Gareth R. Jones. 2012. *Strategic Management: An Integrated Approach*. Boston: Cengage Learning.

Janis, Irving L. 1972. *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascoes*. Boston: Houghton Mifflin.

Johnson, Gerry, Richard Scholes, and Kevin Whittington. 2008. *Exploring Corporate Strategy: Text and Cases*. Harlow: Pearson Education.

Kahneman, Daniel, and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision Under Risk." *Econometrica* 47 (2): 263–291.

Kotler, Philip, and Kevin Lane Keller. 2016. *Marketing Management*. 15th ed. Harlow: Pearson Education.

Lloyd, W. J., & Davis, L. 2007. Building long-term value: Objective financial analysis focuses clients on business revenue growth. *Journal of Accountancy*.

Krajewski, Lee J., and Manoj K. Malhotra. 2021. *Operations Management: Processes and Supply Chains*. 12th ed. New York: Pearson.

Porter, Michael E. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

Porter, Michael E. 2008. *The Five Competitive Forces That Shape Strategy*. Boston: Harvard Business Review Press.

Ross, Stephen A., Randolph W. Westerfield, and Jeffrey Jaffe. 2013. *Corporate Finance*. New York: McGraw-Hill Education.

Schmidt, Heinrich. 2018. "BMW and the Challenge of EV Overproduction." *Automotive Weekly*. January 15, 2018.

Schön, Donald A. 1983. *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.

Segal, Troy. 2024. "Understanding WACC." *Investopedia*. https://www.investopedia.com/terms/w/wacc.asp.

Slack, Nigel, and Alistair Brandon-Jones. 2019. *Operations Management*. 9th ed. Harlow: Pearson Education.

Tuckman, Bruce W. 1965. "Developmental Sequence in Small Groups." *Psychological Bulletin* 63 (6): 384.

Appendix

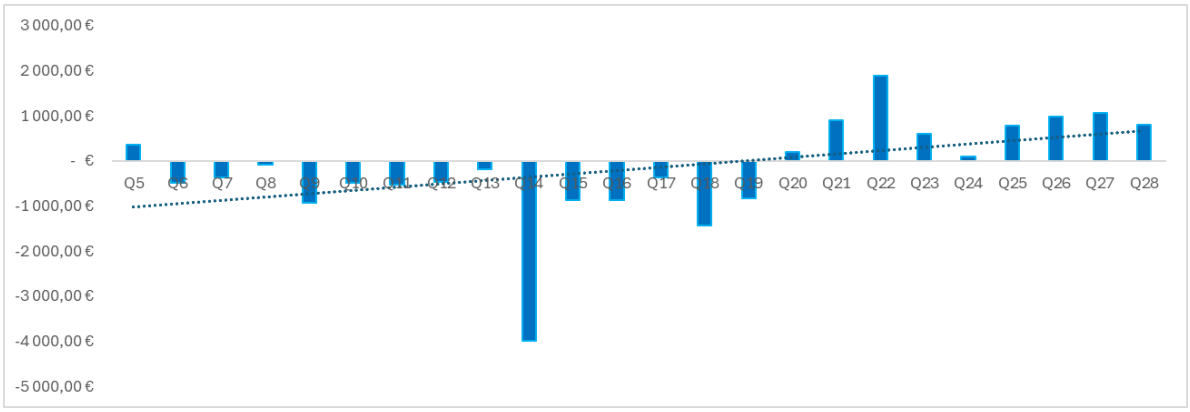

Figure 1: Free Cash Flow evolution of NOVA

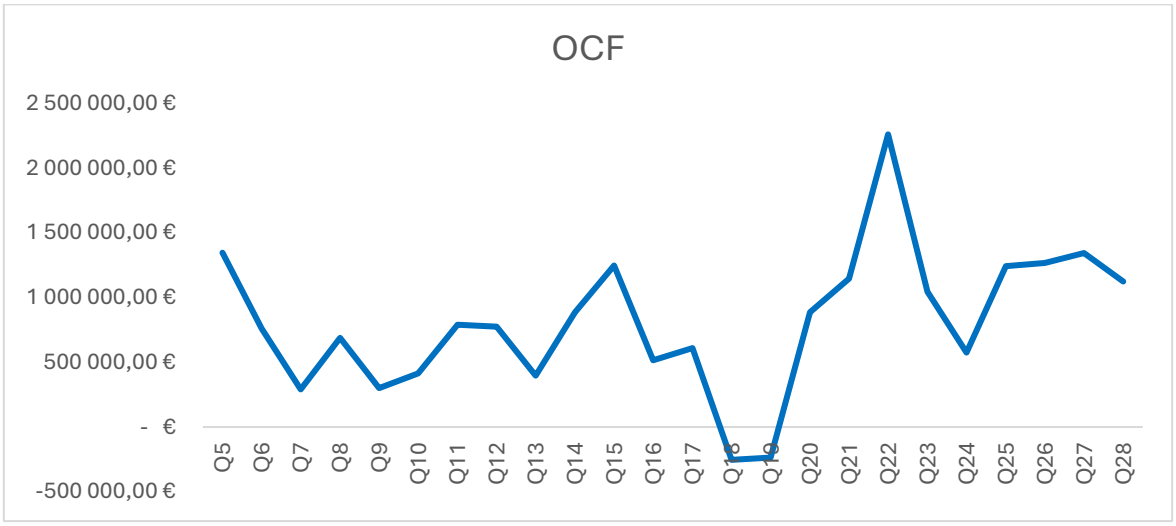

Figure 2: Operating Cash Flow evolution of NOVA

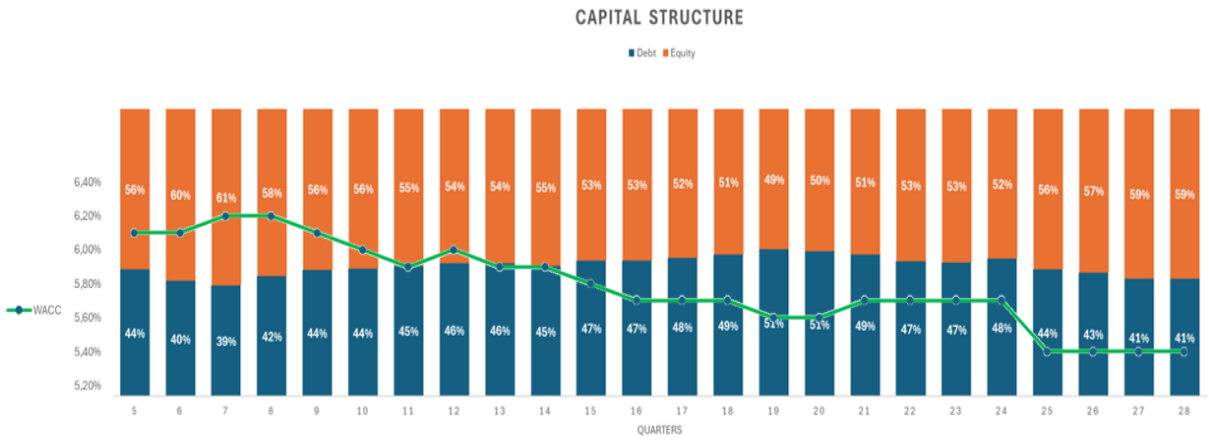

Figure 3: Capital Structure and Weighted Average Cost of Capital of NOVA

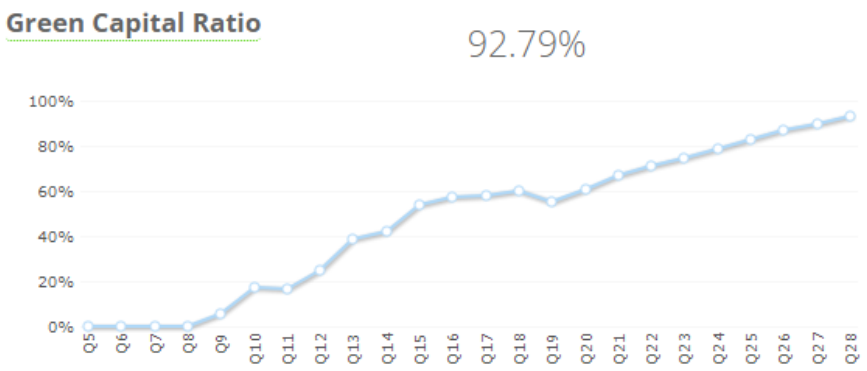

Figure 4: Green Capital Ratio evolution of NOVA

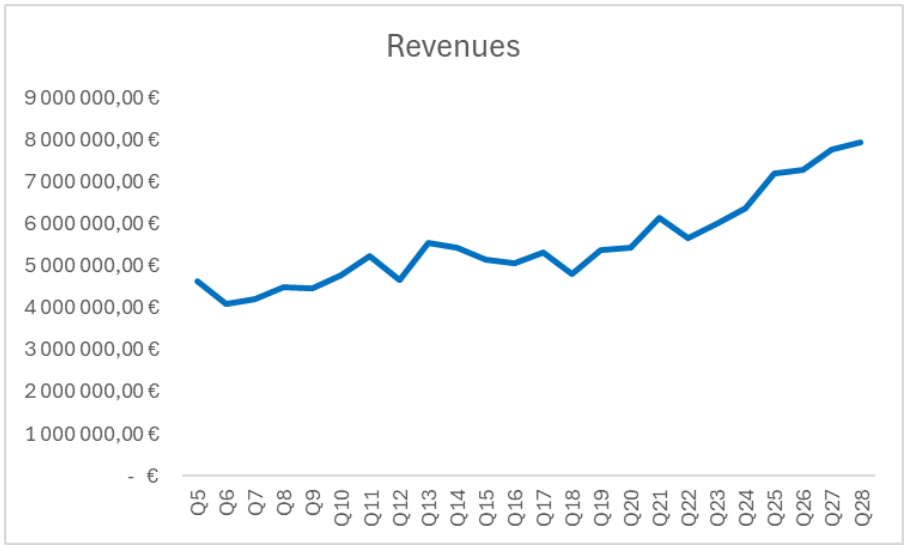

Figure 5: Revenues evolution of NOVA

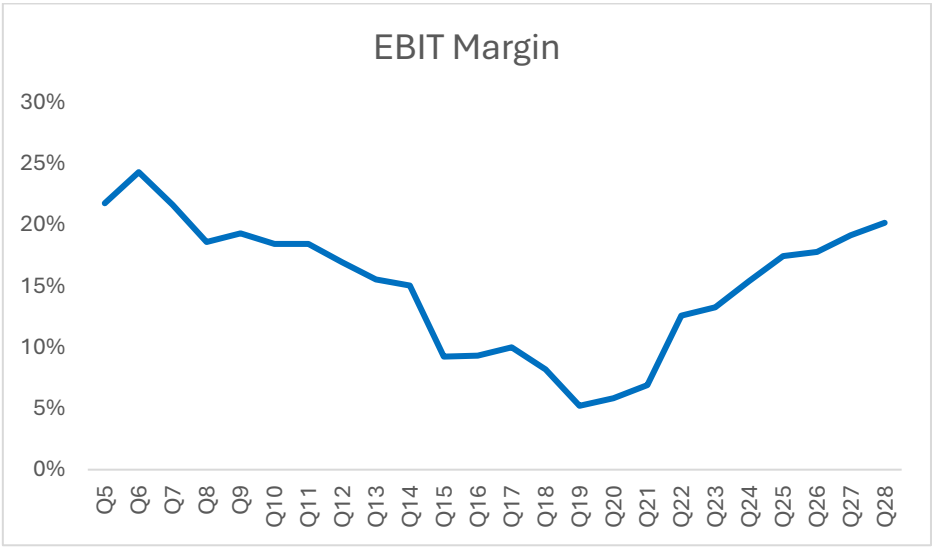

Figure 6: EBIT Margin evolution of NOVA

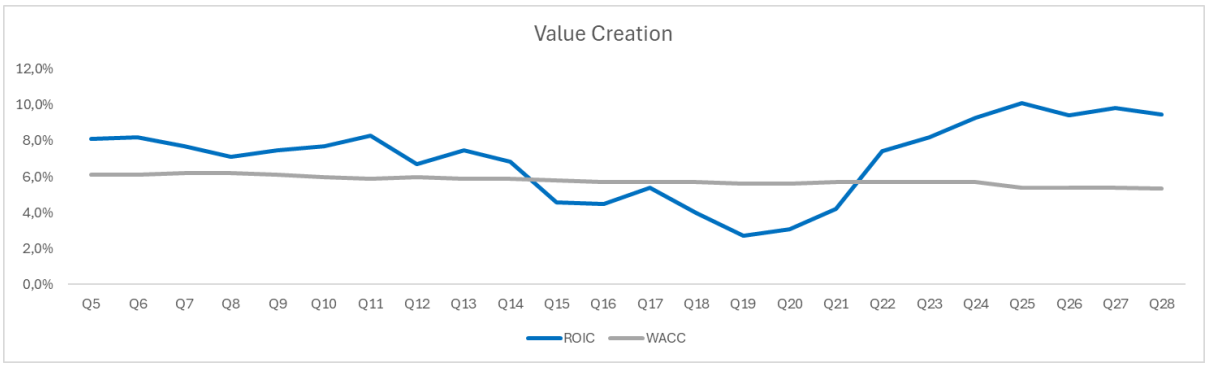

Figure 7: ROIC vs WACC of NOVA

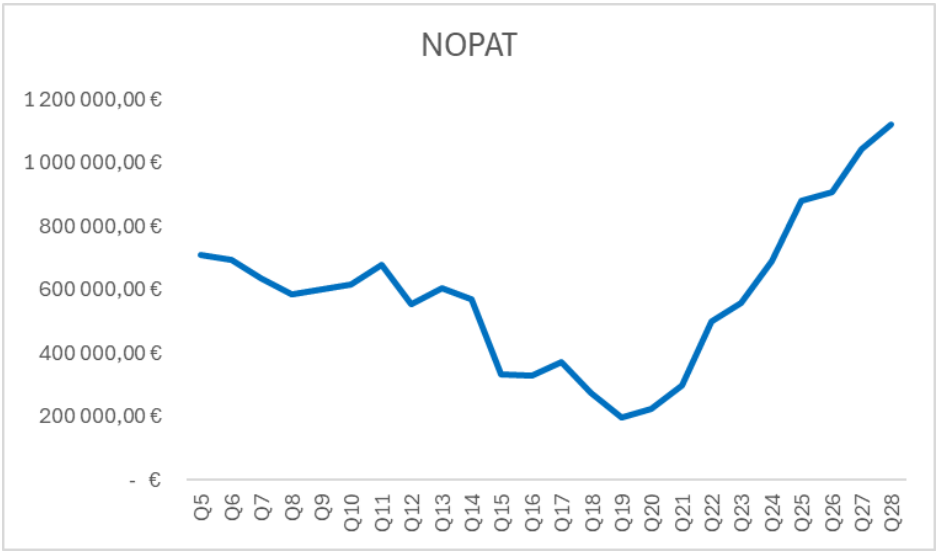

Figure 8: NOPAT evolution of NOVA

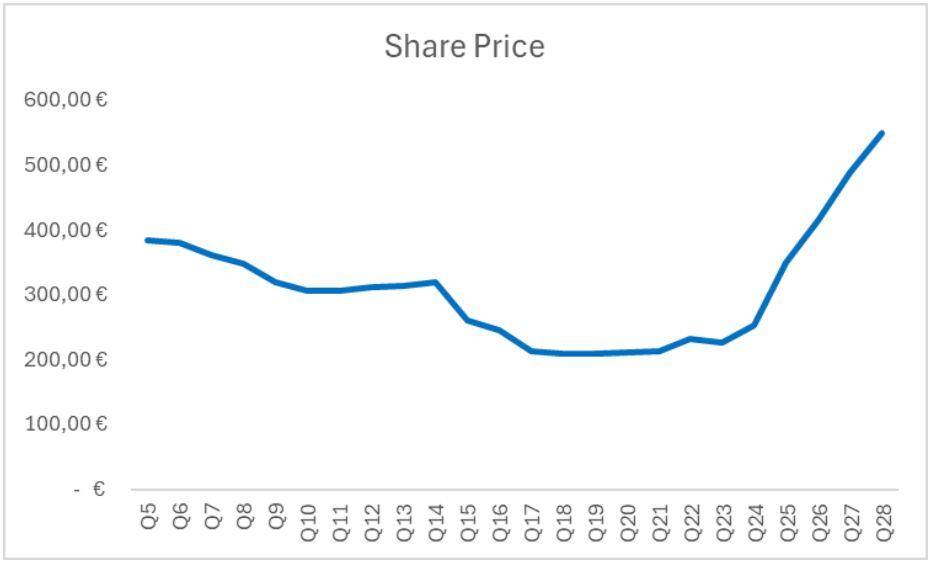

Figure 9: Share Price evolution of NOVA

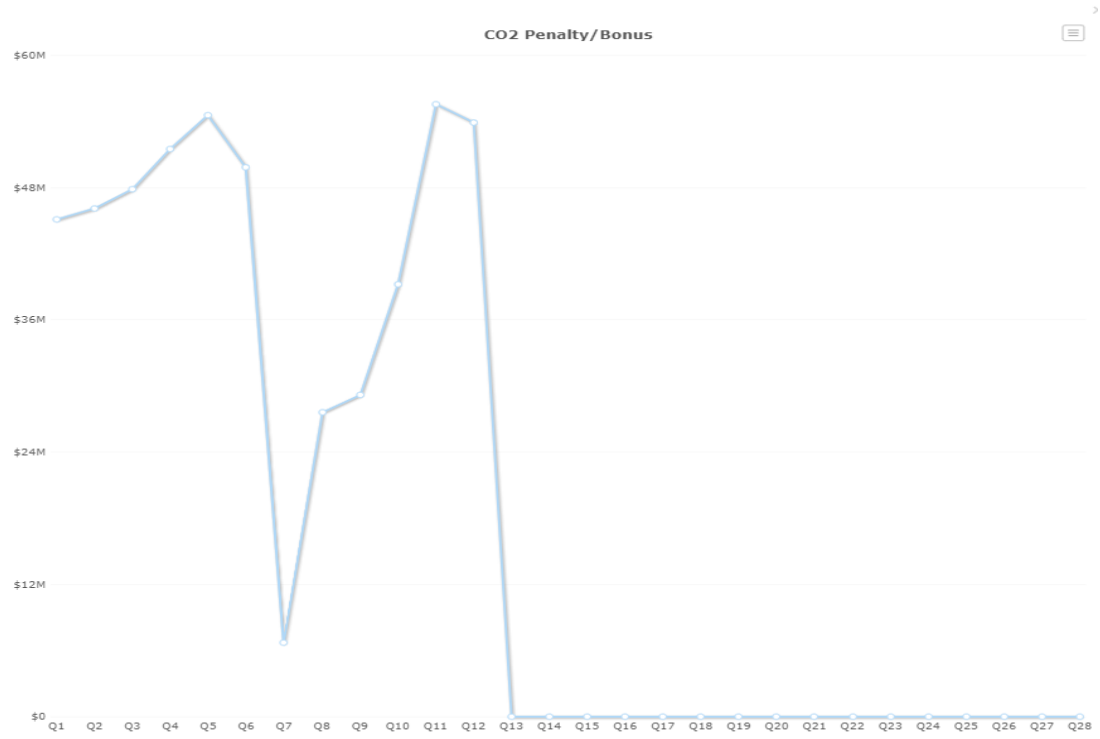

Figure 10: Bonus payments made to NOVA due to low CO2 emission in fleet of cars

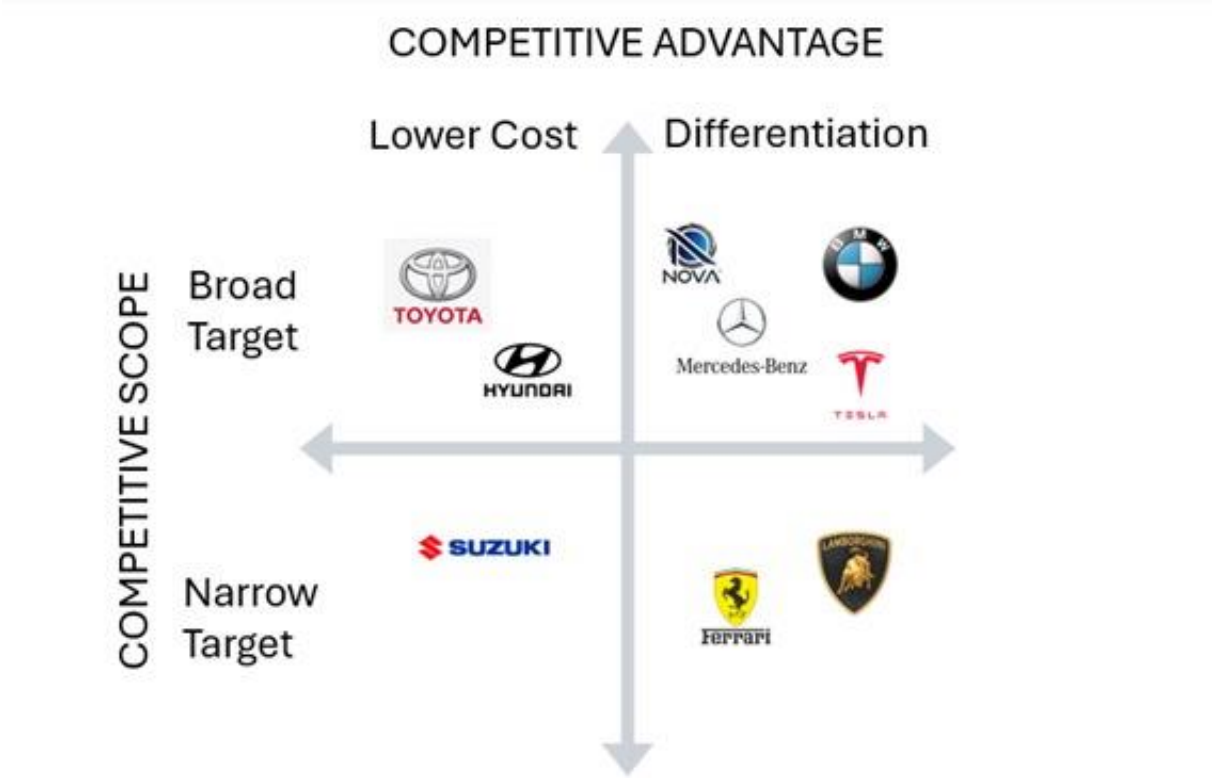

Figure 11: Competitive Landscape of NOVA

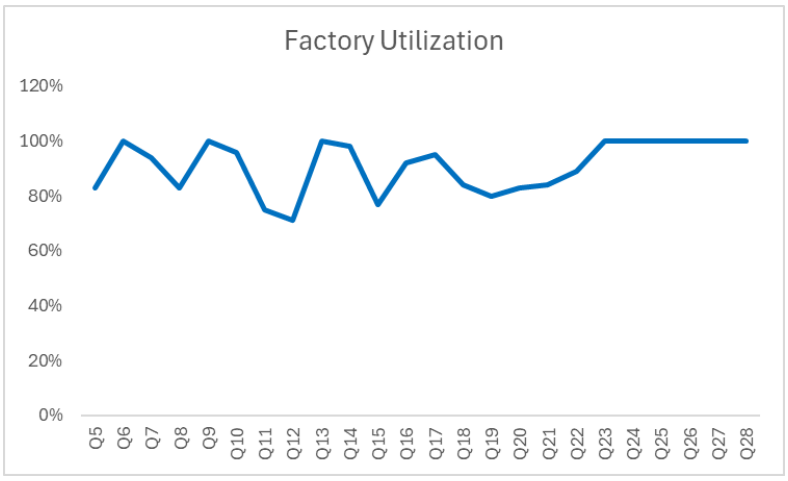

Figure 12: Factory Utilization evolution of NOVA

Figure 13: Marketing Expenses of each car model of NOVA

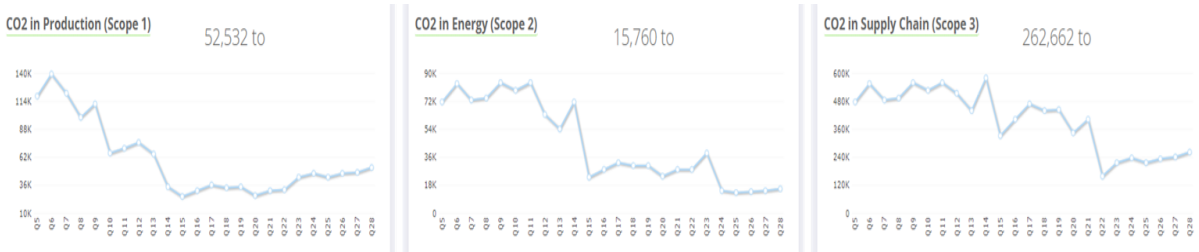

Figure 14: CO2 emissions in Supply Chain of NOVA

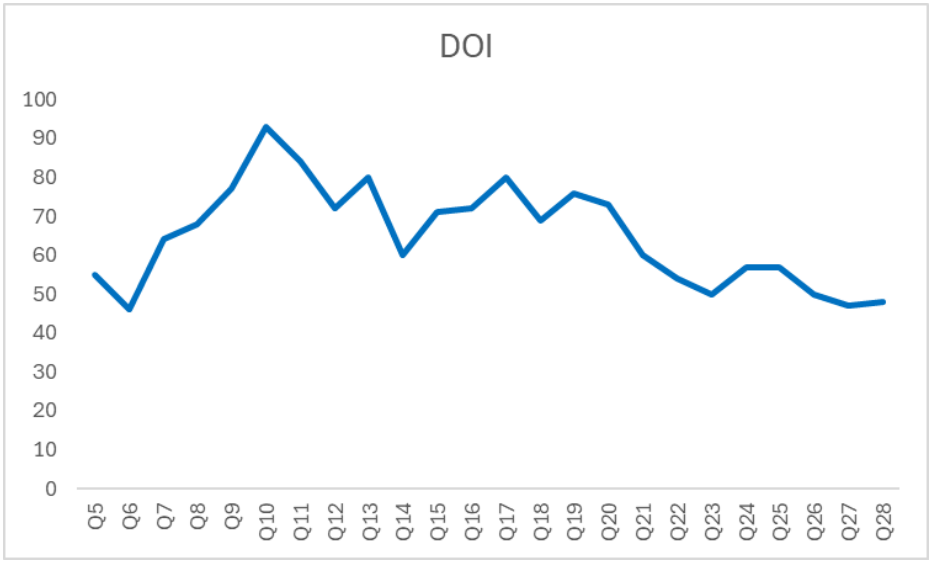

Figure 15: DOI evolution of NOVA

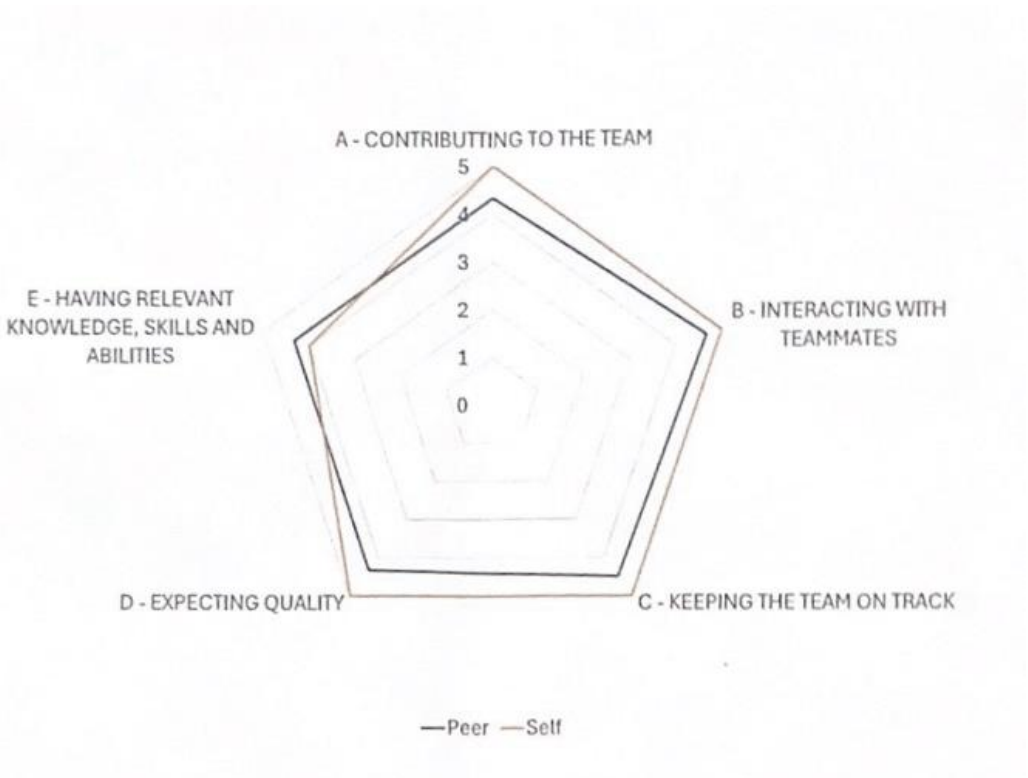

Figure 16: Peer Evaluation

Figure 17: Characteristics of people on a good and bad day, according to each personality