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CORPORATE ANALYSIS AND PERSONAL REFLECTION ON THE SIMULATED PATH TO SUSTAINABILITY OF THE AUTOMOTIVE FIRM PANTHEON WITHIN BUSINESS IN PRACTICE

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Abstract

This study, “Corporate Analysis and Personal Reflection on the Simulated Path to Sustainability of the Automotive Firm Pantheon within Business in Practice,” analyzes Pantheon's shift to electric vehicles, exploring the synergy between innovation, operations, and finance. Pantheon's initial misalignment of demand and innovation highlighted the need for precise corporate planning. Unforeseen operational challenges underscored the importance of adaptability and risk management. Financial stability during demand fluctuations emphasized the relevance of pecking order and market timing theories. Additionally, personal reflections shed light on optimism bias, emotional intelligence, and active listening. This research offers valuable lessons for companies undergoing industry transformations.

Keywords

Automotive industry, business simulation, ESG transition, finance, innovation, KPI analysis, operations, personal development, self-reflection, team dynamics

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1. Extended abstract

In a rapidly changing automotive industry characterized by a swift transition to electrification and increasing pressure from Chinese car manufacturers, established industry giants are forced to rethink their business models (Cornet et al. 2023). Amid this background, we delve into a business simulation centered around Pantheon, a fictional automotive company. This critical analysis explores the complex interplay between innovation, operations, and finance while facing the difficulties of shifting to an electric vehicle fleet.

The initial steep decline in Patheon's revenue underscores the importance of matching demand with the latest technology (Di Stefano, Gambardella, and Verona 2012). The inconsistency led to low demand for our hybrid fleet, which subsequently caused challenges for the operations team to utilize the newly constructed factory in the USA. This demonstrates the role of resource planning in achieving efficient operations. Uncertain events and failure to plan require swift adaptability, robust financing, and adequate risk management (Kahn 2018; Spira and Page 2003). The financial difficulties during the period of low demand illustrate the limited flexibility of finance as a primarily supporting and monitoring function. However, it also highlights the importance of financial strategies, such as the pecking order theory and market timing theory (Myers 1984; Baker and Wurgler 2002), in maintaining the company's solvency.

Turning to personal reflection, we consider two significant incidents. The first incident illustrates the dangers of optimism bias (Irwin 1953; Bracha and Brown 2012), emphasizing the need for ongoing self-assessment. The second incident highlights the significance of active listening, empathy, and adaptive leadership styles in fostering a collaborative environment. These reflections underscore the crucial role of emotional intelligence and open communication in facilitating efficient team dynamics and problem resolution.

2. Firm analysis

The following section provides an in-depth analysis of Patheon's business performance. For this purpose, the finance, innovation, and operations management areas are critically examined and compared with actual companies. Overall, Pantheon achieved the primary objective of the simulation by transitioning its fleet to electric vehicles while retaining all six car models in its portfolio and expanding the business in the USA through a new factory. Furthermore, Pantheon exhausted the investment opportunities within both Operations and Innovation. Moreover, the company overcame challenging financial situations during the simulation and ended up in healthy financial shape. However, inefficiencies emerged in all three management areas over the six-year simulation period. In order to provide a comprehensive analysis of the company, the subsequent chapter is divided into three sections. Firstly, the innovation activities and processes are examined. Secondly, a thorough investigation of its operations is conducted. Lastly, the financial performance and planning are evaluated. This structured approach provides a holistic understanding of how innovation, operations, and finance contribute to organizational development, emphasizing their interconnectedness.

2.1. Innovation

Innovation is characterized by countless uncertainties and possibilities (Kline and Rosenberg 2009). It is difficult to fully represent the wide range of areas that innovation can infiltrate through a simulation, and thus, the area was subject to simplifications. Besides developing diverse vehicles, there were three investment categories: Electrification, Connectivity, and Autonomous Driving, each with three to four investments to be completed in a predetermined sequence. In addition, a car development time of a few quarters is relatively short. While the period is sufficient for illustration, caution should be exercised when comparing to actual car manufacturers since developing a new car takes about four years (Ewing 2022).

According to Kahn (2018), innovation can be divided into three areas: Mindset, Process, and Outcome. The author describes mindset as the individual's attitude towards innovation and the company's philosophy expressed through corporate culture and incentives. The process consists of organization and implementation, while the outcome can vary across product-, process-, and other innovations (Kahn 2018). Since the simulation aimed to transition from a gasoline/diesel to an electric car manufacturer, representing a predefined outcome, the management team's mindset was intensely focused on innovation. The process in the simulation was limited to the timing and implementation of the investments, as they had already been pre-designed. The Innovation manager created an investment plan with the Finance and Operations managers, which was adjusted as required. This coordination between the departments was necessary to provide sufficient funds and to schedule the possible new car models in the factories.

The outcomes of the innovation activity were diverse. Several product innovations arose from investments in a new e-car fleet, associated e-drive modules, and high-power charging modules. In addition, technology innovations occurred with investments in big data and cloud connection, among other things. Big data and high-power charging modules can also be classified as process innovations, as the former includes analyzing and utilizing data, and the latter includes new processes for implementing high-power charging solutions. Implementing such systems is a topic of much discussion, with the White House recently providing billions of dollars in subsidies for Tesla's electric vehicle charging stations (Quiver Quantitative and Nasdaq 2023). The article describes that other car manufacturers, including Ford, will switch to Tesla's charging model, covering around 60% of the total e-car fleet in the USA. This illustrates the high level of competition in this industry, which makes building up its own power charging network while simultaneously transitioning to e-cars difficult. Cooperation with other car manufacturers should, therefore, be considered.

Examining the conceptual framework of Urbano et al. (2022) reveals some similarities with Kahn (2018). Urbano et al. (2022) divide innovation into antecedents, dimensions, and consequences. Furthermore, the authors refer to individual and organizational levels in the antecedent's domain and, in contrast to Kahn (2018), include environmental factors, which include market, technological, social, and policy changes. The simulation reflected these by fines for exceeding CO2 limits, technological investment opportunities, and changing demand for environmentally friendly vehicles. Di Stefano, Gambardella, and Verona (2012) argue that successful innovation requires demand and technology to be aligned, as neither can succeed if the other is missing. Pantheon failed to align technology and demand in the first and second years. While the demand for electric vehicles has increased significantly, the company has invested in outdated hybrid cars (see investment plan in Appendix 1). Customers did not receive this step well, leading to a drastic decline in EBIT and Net income in the second year (see Appendix 2). At a later stage, the introduction of the Hermes Mark 2, a small electric vehicle, was a great success. Demand was high, and the latest technological standards were implemented.

Building on Urbano et al.'s framework, we can describe the consequences concerning financial and strategic dimensions (Urbano et al. 2022). These aspects were evident within the simulation, where we observed an improvement in the financial standing and the attainment of an influential role in setting industry standards, thereby creating strategic flexibility. Upon completion of the new electric fleet, substantial revenue and net income increases were observed, reaffirming the interconnectedness of innovation and finance (see income rise from Year 4 to Year 6 in Appendix 2).

Pantheon followed Casaca's (2023) theory on the innovation process, starting with the objective

identification and prioritization of technology trends. This involved using trend data from the marketing department and refining priorities by region, such as SUV car development in the US and compact car development in China. Subsequently, a roadmap was created and aligned with both financial and operational objectives. Phaal, Simonse, and Den Ouden (2008) emphasize the importance of coordinating different business areas to ensure budget certainty for long-term innovations. This was achieved by matching innovations with car production and other significant investments that pressured the budget. However, the alignment was only partly successful upon examining the investment timeline. For instance, a new executive car was created in Q17, but the latest innovations, namely "High Power Charging" and "Cross-Platform Technology," were only developed in Q18 (see Appendix 1).

Moreover, instead of investing in Q19, where all technological innovations were completed, two additional cars were built in Q20 (see Appendix 1). It is worth noting that two cars had already been newly manufactured in Q19, which had left the budget tighter. Additionally, it is preferable to develop a car a quarter too late than to launch a car with outdated technology, as in the former case. Such inconsistencies render the innovation plan suboptimal. The plan should have been refined through more precise matching to capitalize on the innovations fully. Nonetheless, Pantheon achieved its primary objective of reaching zero CO2 emissions (Appendix 3). The simulation did not incorporate the final two aspects, Pilot and Testing and Embracing Open Innovation, as Casaca (2023) described, and therefore, they will not be further addressed.

2.2. Operation

Operations Management comprises two key areas within the simulation: Factory management and investments in the three distinct scopes of the greenhouse gas (GHG) protocol. Scope 1

entails direct GHG emissions; scope 2 covers indirect emissions from purchased electricity, and scope 3 details other indirect GHG emissions (WBCSD/WRI 2004). Factory management includes producing various vehicles across factories in the EU, China, and the USA and expanding additional factories. At the beginning of the simulation, the EU and China each had an additional factory under development, with two quarters each left to complete, resulting in four factories in the EU, three in China, and two in the U.S. upon completion.

Krajewski, Malhotra, and Ritzman (2016) state that Operations encompasses all departments within a company. We examine the investment activities in more detail to demonstrate this interconnection between Finance, Innovation, and Operations. In addition to the previously mentioned investments in the various scopes of the GHG Protocol, investments could be made in expanding factories. As the investment amount was partly very high (e.g., new factory $800 million, Waste Reduction $400 million, EMAS Certificate $500 million), the Innovation, Finance, and Operations management had to collaborate to establish the investment plan, which was also discussed in the Innovation analysis. This ensured that sufficient funds were always available for the individual areas. From the Operations perspective, it is evident that no investments were made between Q10 and Q14. This can be attributed to the poor financial performance during this period and the necessary investments in new vehicles within the Innovation department. This instance illustrates the interdependence among the three departments within the investment activities.

Despite ongoing efforts to reduce greenhouse gas emissions, it is concerning that emissions within scopes 1, 2, and 3 increased between 1995 and 2015, with scope 3 emissions experiencing the most substantial rise (Hertwich and Wood 2018). Compounding the issue, scope 3 emissions are the most difficult to measure accurately and face limited reporting from

numerous companies and states, who primarily provide data on scope 1 emissions to avoid the complexities of double counting (Schmidt, Nill, and Scholz 2022). This situation emphasizes the significance of scope 3 investments. According to Schmidt, Nill, and Scholz (2022), scope 2 accounts for the smallest portion of the transportation sector, with scope 1 accounting for roughly two-thirds and scope 3 for around one-third. Close examination of the GHG investments reveals that two-thirds of the potential investments in the different scopes were completed within the first five quarters of the simulation, with all possible investments in scope 3 and two-thirds of scope 1 already accomplished. However, investments in scope 3 consumed the fewest financial resources, explaining the early preference. The investments in scope 2 were completed simultaneously with scope 1 in Q17 (Appendix 1). The delayed investment in ISO 14001 and EMAS certificates (the last investment in scope 1) requires critical evaluation, as it has the most significant impact. EMAS is particularly noteworthy as an expanded and officially audited version of ISO 14001 (German EMAS Advisory Board 2014). These investments were qualified for additional Green Bonds, highlighting the interrelationship between operational investments and financial possibilities.

The subsequent two paragraphs critically examine Pantheon's factory management, starting with an industry comparison. Within the simulation, we had access to the contribution margins of the individual cars. Since these values are unavailable in actual companies' financial statements, the analysis will be limited to the EBITDA margin of the entire company. Compared with Mercedes, BMW, and Ford, it is evident that Pantheon's Gross, EBITDA, and income margins are far above the industry's. Based on the analysis of their respective financial statements from 2019 to 2022, Ford has recorded EBITDA margins between 3% and 8%, with Mercedes' margins ranging from 7% to 18% and BMW's between 11% and 18%, while Pantheon's EBITDA margins in the last four simulation years ranged from 20% to almost 42%

(see Appendix 4). The primary reason is the comparably significantly lower Cost of Goods sold (CoGs) (BMW 2020; 2021; 2022; 2023; Mercedes-Benz 2020; 2021; 2022; 2023; Ford 2020; 2021; 2022; 2023; Appendix 2). It should be noted that the period impacted by COVID-19 led to slightly reduced figures. However, even before, the margins of the simulation were not nearly approached. Overall, even the hybrid cars, which did not have high demand, achieved margins above 25%. In addition, it is interesting that every car type attained high contribution margins, whereby the small Compact car (Athena Mark 3) and Micro electric (Hermes Mark 2) showed higher margins than the luxury models Aphrodite Mark 2 and Aphrodite Mark 3 with over 40%. This is not reflected in the actual market, where Ferrari is ahead of Tesla and BMW, which are far above less expensive car manufacturers such as Honda or Toyota (CompanyMarketCap.com 2023). In conclusion, the margins within the simulation were significantly higher than those of actual companies, reducing the analysis's validity.

Let us examine the vehicles produced in Q8. It becomes apparent that two distinct cars are manufactured in the two American factories, which already have exceedingly high days of inventory (DoI) (see Appendix 5). However, one car under development is destined for the US. In Q9, a vehicle previously produced in America (the SUV 4x4 100D) was scrapped, and the second former US model, the Lux 225H, was shipped to Europe, leaving few opportunities to fill the factories. Upon reflection, the expansion proved suboptimal as there was an insufficient volume of cars to exhaust the capacity of the factories, and the demand for hybrid cars was considerably lower than expected. The Athena Mark 2, Aphrodite Mark 2, and Zeus Mark 1 were created as new automobiles before the completion of the third factory, but these were designed for Europe and China. Days of Inventory (DoI) for the only remaining car, the Apollo Mark 1, in the US increased even before the third factory was opened (DoI in Q10: 44, Q11: 83, Q12: 84) and peaked at 212 days in Q13 after a quarter with three factories in the US. In

response, the City 75G was moved to the US, and the Apollo Mark 1 was reduced to two factories. However, this did not prove effective as the Days of Inventory for Apollo Mark 1 increased to 339 days despite 0% utilization and a Profit Margin of 20%, which was 15% lower than in Q11. Eventually, Apollo Mark 2 was introduced, replacing the original model. This case highlights the premature actions taken by the management team. Even if demand for hybrid cars were higher than anticipated, it would not have justified three factories for producing one car. This decision led to significant inventory and capacity utilization problems, ultimately becoming a financial burden for the company. This underscores the significance of carefully planning and monitoring production and demand to avoid such problems. However, as Essuman, Boso, and Annan (2020) emphasized, recoverability positively correlates to operational efficiency. Thus, although this decision could have been better, the operational management was generally efficient, as evidenced by the high contribution margins and, ultimately, low Days of Inventory (Appendix 5).

2.3. Finance

After examining the performance of Innovation and Operations, this section will focus on the financial analysis of Pantheon. The influence of the Finance management was partially demonstrated in the previous analyses. One of the primary objectives is to provide adequate funding for various investments (financial planning) while maintaining the balance between debt and equity (capital structure). Furthermore, internal controlling and financial statement analysis within the company are highly relevant to anticipate risks (Spira and Page 2003).

Ross, Westerfield, and Jordan (2021) demonstrate the benefits of long-term financial planning in aligning investments with ongoing liquidity requirements while anticipating and preparing for potential issues. The authors continue to describe how the absence or insufficiency of

planning can lead to financial distress in unforeseen events (Ross, Westerfield, and Jordan 2021). This situation was evident during the simulation at Pantheon. The necessary development of new vehicles had already led to a sharp increase in long-term debt. Meanwhile, the management team misinterpreted future trends and postponed investments from the second to the beginning of the third year to maintain liquidity. In this context, debt increased by more than 40% from the beginning of year 1 to the beginning of year 3, while at the same time, cash reserves decreased by 40% (see Appendix 6). This situation has been caused by the collapse of net profit and the consequent significant reduction in cash holdings. As a result, the credit rating dropped from A to BBB, making refinancing through loans more expensive.

Moreover, suspending investments beyond car development has influenced the structure of long-term liabilities, as investments in different greenhouse gas scopes are eligible for Green Bonds offering lower interest rates. As shown in Appendix 2, this further affected our income, as our interest expense increased by 40%. By the start of the third year (Q13), our earnings before interest and taxes (EBIT) could no longer cover our interest expenses (Appendix 2), reflected by an interest coverage rate below one. This can lead to financial distress (Dothan 2006) with the possibility of insolvency if it persists over several reporting periods (Ji 2017). Ji (2017) further describes the interest coverage ratio as a link between accounting information and stock price. The simulation shows this relationship as the interest coverage ratio falls and rises synchronously with the stock price (see Appendix 7). The situation has remained the same despite management's decision to increase marketing expenses by over 100% to boost demand for hybrid cars. Although the revenue increased by almost 17%, the Costs of Goods Sold saw an even more significant increase, resulting in a decrease in gross profit between years two and three. Year three showed a high net loss due to higher depreciation, G&A expenses, and loss on disposal of old models, which is included in “Other Items” (see Appendix 2). In the

subsequent quarters, the income statement improved significantly due to the additional sales of the new electric fleet and the high premiums for the positive CO2 balance (see “Bonus” in Income Statement – Appendix 2). Moreover, debt was reduced and replaced by Green Bonds with lower interest rates, leading to a sharp reduction in interest expenses. This resulted in a rapidly rising interest coverage rate, eventually exceeding 30, implying that Pantheon ended the simulation in a healthy financial position.

The following section discusses capital structure in more detail. The question of optimal capital structure has been the topic of heated debate in finance for a long time. In the 1950s, Franco Modigliani and Merton H. Miller developed their famous theory on capital structure. According to their first proposition, capital structure is irrelevant to firm value under frictionless, tax-free, and financial distress-free conditions (Modigliani and Miller 1958). Under proposition two, the authors considered corporate taxes and the tax shield, where more leverage leads to more firm value. Consequently, the Tradeoff Theory was formulated, stating that up to a certain point, leverage increases the company's value due to the tax shield. However, at a specific turning point, financial distress costs become too high, and the value decreases again (Robichek and Myers 1966). Myers (1984) also introduced the Peking Order Theory, which suggests that companies first engage in internal financing through retained earnings and adjustment of dividend policy, secondly, raise debt, thirdly exhaust mezzanine financing options, and finally raise equity. More recent theories, such as the Market Timing Theory of Baker and Wurgler (2002), argue that market conditions and the resulting cost of debt and equity are critical to a firm's capital structure decision. According to Jahanzeb et al. (2013), Trade-Off Theory, Peking Order Theory, and Market Timing Theory are empirically observable. Within the simulation, the Peking Order Theory can be observed for Pantheon. Specifically, the company exhausted its cash reserves until it raised short-term debt, which was immediately replaced by long-term

debt, thus avoiding short-term interest payments. The option of issuing new shares was not used. The sole opportunity would have been in Q8 when the share price locally peaked, but cash reserves were very high then. Later, the share price declined until Q17, followed by a gradual recovery. By the end of the sixth year, an increase in share capital would have been possible due to the very high price, but given the high level of deposits and additional green bonds, there would have been a tendency to refrain from issuing shares. Thus, the Market Timing Theory was also applied, as favorable debt was chosen over equity. The debt ratio fell to just below 40% at the end of the simulation (Appendix 6), even though debt was cheaper than equity, so no optimization of the WACC can be observed. Nonetheless, due to the financial improvement and the upgrade to an A+ rating, the cost of equity was reduced, and the WACC reached its lowest level.

To put Pantheon's financial performance into perspective, it is essential to compare a range of key performance indicators (KPIs) with those of established industry leaders such as Mercedes, BMW, and Ford. This includes a four-year profitability, liquidity, and capital structure analysis. As in previous paragraphs, the financial data for Mercedes, BMW, and Ford is extracted from the official financial statements of 2019, 2020, 2021, and 2022. For illustration, the data is presented in tabular form in Appendix 8.

Regarding capital structure, Pantheon displays a conservative approach, with the lowest recorded debt levels in recent years, averaging 49%. Mercedes and BMW have gradually decreased their debt ratios below 70%. Meanwhile, Ford has maintained a relatively high level of debt throughout the observed period, consistently above 80%. In terms of liquidity ratios such as Quick and Current Ratios, Pantheon is the most liquid company with an average Quick Ratio of 4.70 (current liabilities are covered 4.70 times by current assets less inventory). This

is predominantly attributed to the absence of short-term debt in the simulation at the end of the year. Instead, cheaper long-term loans directly cover any short-term debt, resulting in short-term debt limited to accounts payables. For this reason, it should be noted that this key figure cannot be compared directly. Adjusting the figures for Mercedes, BMW, and Ford to consider only accounts payables shows Mercedes (average 7.22) and BMW (average 6.65) with higher values and Ford (average 4.53) with similar values. However, this is a distorted version of the Quick Ratio and must be viewed cautiously. As this also holds for the Current Ratio, it is not analyzed, although the calculated values can be found in Appendix 8.

The profitability analysis indicates that Mercedes achieved the highest average return on equity (ROE) at 16%. Meanwhile, BMW and Pantheon also exhibit strong ROEs of 14.6% and 14.5%, respectively. In contrast, Ford has encountered difficulties with negative ROE values during certain years, although it still attained an average of 9.2%. However, comparing the return on assets (ROA) reveals a different picture. Pantheon has a relatively high ROA of 7.9% due to its high equity ratio. Following are BMW (4.6%), Mercedes (4.1%) and Ford (1.4%) (Appendix 8). It is necessary to exercise caution when considering the comparisons due to the simplifications made in the simulation. Towards the end of the simulation, for instance, there were no investment opportunities other than vehicles and factories, which meant that a lot of cash was accumulated, debt was paid off, and equity was built up. In reality, investment opportunities exist consistently; consequently, debt is seldom reduced to a comparable extent.

2.4. Conclusion

The analysis of Pantheon's business performance offers valuable insight into the complex relationships between innovation, operations, and finance. Both the individual areas and their interactions were examined and compared with the real automotive industry. These analyses

draw on theoretical concepts, enriching the existing innovation, operations, and finance literature with new insights from an automotive business simulation.

Firstly, as described by Di Stefano, Gambardella, and Verona (2012), the success of innovation depends on the synchronization of demand and technology. The initial mismatch in Pantheon's innovation strategy concerning demand for electric cars illustrated this relationship. The construction of hybrid vehicles led to a significant drop in sales, which was only offset by the introduction of state-of-the-art electric vehicles. This highlights the importance of comprehensive planning and the ability to anticipate future market developments, as inadequate planning can lead to financial and operational challenges (Ross, Westerfield, and Jordan 2021).

Secondly, planning is a constant companion. Uncertainty is a recurring theme in the simulation and represents the complexity and unpredictability of the innovation process, as outlined by Kline and Rosenberg (2009). Any change within the agile market can disrupt plans and require rapid adjustments. Uncertainty is even more prevalent in the real world, with more innovation opportunities and longer time horizons. This highlights the necessity for an innovative mindset emphasizing flexibility and resilience, as Kahn (2018) recommended, and a robust risk management framework that anticipates and responds to financial challenges (Spira and Page 2003). It also demonstrates the interconnectedness of innovation, operations, and finance, as all areas are involved in investment planning.

Thirdly, Finance within an automotive company serves as a supporting and monitoring function whose effectiveness depends heavily on operations and innovation activities. Without developing profitable vehicles and efficient production in factories, Finance is left with limited options other than monitoring economic decline through financial metrics and increasing debt.

Pantheon's capital structure followed the Pecking Order Theory (Myers 1984) and the Market Timing Theory (Baker and Wurgler 2002). Although it is possible to optimize the weighted average cost of capital (WACC) to some extent, the company would have filed for bankruptcy if the revenue had remained low. When compared to companies like Mercedes, BMW, and Ford, it became apparent that Pantheon has proven to be exceedingly stable, exhibiting consistently low debt ratios and high profit margins. Nonetheless, the comparison is only valid to a certain extent, as simplifications in the simulation have made specific metrics, such as the Current and Quick Ratio, hardly comparable.

In conclusion, Pantheon effectively managed the transition from diesel and gasoline vehicles to e-mobility. Pantheon seized all investment opportunities in innovation and operations management and attained a robust financial standing in the process. The simulation proved to be an insightful experience despite the many simplifications. It emphasized the significance of collaborating between departments, careful planning, and the ability to adapt in unpredictable situations as indispensable prerequisites for business success.

3. Personal reflection

In this section, the personal reflection on two incidents and the peer- and self-assessment analysis will be carried out. The first significant incident occurred after the second simulation year, during which we dropped out of the top 10 after an optimal first year with an intermediate first place in the ranking. This was very disappointing and tested our team morale and motivation. The second incident saw us locked in a seemingly endless cycle of discussions with no prospect of resolution. It challenged our communication strategy and tested our emphatic skills. During the analysis of the second incident, peer- and self-assessment are also touched upon, which is explored in more detail in the final section alongside the conclusion.

3.1. Dealing with failure

Before the official beginning of Business in Practice, I met with my team. I immediately noticed two things: On the one hand, we come from five different nations (Austria, China, France, Luxembourg, and Portugal) and have very different backgrounds, including biology and entrepreneurship, but also classic business subjects such as marketing and finance. I initially considered this to be an optimal mix. As Cox and Blake (1991) described, more diverse teams in terms of background and origin can have higher problem-solving skills and greater flexibility. Horwitz and Horwitz (2007) validated this finding in their meta-analysis on team demography, focusing primarily on task-related diversity, which includes academic background but excludes origin-related characteristics. On the other hand, I identified with the team on a personal level, and there was an immediate relationship based on trust. In general, a friendship quickly developed within the team. Combined with a solid first year (first place in the rankings), this gave me a deep sense of satisfaction and reassurance that everything would run smoothly. I even reached the stage of thinking that we could be the exception and complete the simulation without any conflicts. Upon reflection, we possessed all the necessary components for successful collaboration, as Haas and Mortensen (2016) described. From an objective to make our company green while generating the highest possible economic value added over a robust structure with the right amount of diversity to precise tasks, a supportive environment, and a shared mindset that rewards and involves all our roles equally, which is especially important in diverse teams with different values (Haas and Mortensen 2016).

After the successful first year, an optimism bias set in, leading to underestimating adverse events and overestimating positive events (Irwin 1953; Bracha and Brown 2012). Rather than solely relying on our initial success and praising our collaboration to the skies, we should have taken a step back and asked ourselves: Why did our strategy perform so well initially? I did not

do this then as I was too euphoric and content with the smooth progress. I refused to question anything. However, this was a significant mistake because companies cannot rest on their success and must constantly question their business model to maintain their competitive advantage. Especially in the fast-paced world we currently find ourselves in, managers must quickly identify and interpret signs of change to adapt to new challenges (Reeves and Deimler 2011).

It came as it had to come: In the second year, we received the news that demand for electric vehicles was soaring. Our fleet comprised petrol, diesel, and hybrid cars, with two hybrids in development. The demand for our vehicles rapidly declined, causing our morale to plunge. Initially, I was optimistic that we would be able to survive the year through an aggressive marketing campaign. However, any hope was lost by the third quarter of the second year, and disappointment set in. By the end of the second year, we were already at the point where we felt that we had lost any chance of a top-three finish, and it was now a matter of damage limitation. This moment was one of the most critical in the whole simulation. I transitioned suddenly from unwavering confidence, without questioning the slightest thing, to the complete opposite. The time pressure was too intense in the second year to understand how far we had fallen. Nevertheless, the moment we pressed the simulation button for the last time, a wave of sentiment flooded us, replacing our initial euphoria with disappointment and regret.

From a psychological perspective, some distinctions can be made. According to Zeelenberg et al. (1998), disappointment and regret are distinct emotions. Regret involves comparing the current situation to a hypothetical situation created by alternative decisions made in the past. In contrast, disappointment arises from comparing the same decisions but with a different outcome. Thus, expectations regarding decision outcomes are unmet (Zeelenberg et al. 1998).

Which of these emotions did I experience during the simulation? Both, but not at the same time. Initially, the blame was directed at the simulation: How can electric car demand grow so rapidly? Why were there no prior warnings? It all happened too quickly and seemed unrealistic. After applying the previous definition of regret and disappointment, I was disappointed at this point, as our decisions seemed sound to me, and only the expectations and the outcome differed. Once the initial emotions settled, I reflected on the situation. We should have expected the simulation to revolve around transforming a petrol/diesel car manufacturer into an electric car manufacturer. We should have made decisions focusing on that transition and pushed for more radical and faster progress. Kessler and Bierly (2002) suggest that if the outcome is predictable, then the speed of innovation should be high. We knew we would eventually need an electric fleet and should have transitioned faster without turning the long way around with hybrids. As a result, disappointment was replaced by regret, and we began to question our decisions about our team principles.

Through this change process, it was also noticeable that there was a difference in the feelings among the team members. Some of us, myself included, felt more remorseful than other members. This can be traced back to one of Kahneman and Tversky's early theories, which suggests that when an action is taken proactively, regret is bigger than when one is inactive and, therefore, has no direct influence (Kahneman and Tversky 1982). While everyone on the team had supported our strategy, some had only done so due to a lack of alternatives or agreement. These individuals felt less regret, focusing the blame on the strategies constructed by others instead of their failure to steer against it actively. Emotional attachment to the chosen theory may also be a factor in this. I strongly supported the strategy, which meant that my commitment was high, and ultimately, my disappointment and regret were more significant than for others.

According to the theory of Zeelenberg et al. (2000), our decisions should have become more risk-averse after this severe disappointment. However, the opposite was the case; we decided to drastically shift to electric cars and increase our debt strongly. The rationale behind this decision was straightforward – it was all or nothing. Generally, I like to work in situations of uncertainty and stress, which made me identify with this decision and motivated me to try to turn the tables once again.

In retrospect, what would I have handled differently, and what have I learned? It would have been wiser to respond less emotionally. The initial euphoria was premature, and the later disappointment and regret were too strong. The negative emotions were significantly amplified by the extreme initial positive emotions, resulting in a large discrepancy in a very short time. I learned that one should look at successes objectively and that there can be significant differences between short-term and long-term successes. However, this does not mean that you should not be excited about successes, but rather that you should build on them and take a closer look at their reasons so that long-term success can be achieved. The mistake made in this case was to assume that everything had been figured out after one simulation year and that you could rest on your success. This does not work. In retrospect, it is trivial to say that it would have been better differently, but when making decisions under uncertainty, as in this case, you cannot know in advance what will happen. That is why it is essential to allow for some room for mistakes and not condemn everything. Making mistakes provides valuable learning opportunities, which is the primary purpose of simulations like this one. A more reflective approach can lead to more rational decision-making by reducing emotional variability. Moving forward in my professional career, I will reflect on successes and setbacks and place them in proper perspective.

3.2. Conflicts resolution

During the simulations in the second year, I realized that our team dynamics had deteriorated significantly. At the beginning of each new quarter, we engaged in a fundamental debate regarding our strategy due to our continuously decreasing economic value added, which was the criterion for the overall ranking of the simulation, and miscommunication. The team conflicts revolved around the same issue: The number of cars in the fleet. Even after hours and days of discussion, a common solution remained out of reach. As Toegel and Barsoux (2016) note, the group's productivity is jeopardized by differences that cannot be overcome. These disagreements have also eroded trust between team members. I observed my trust gradually diminish until I felt the need to micromanage everything. I questioned every decision they made and looked over their shoulders. Ultimately, this was also based on reciprocity, leading to a sense of being monitored as Finance director. Neither of us wanted to budge, and as a result, our decision-making suffered, and countless small, unintentional mistakes were made, which only added to the mistrust. Lencioni (2002) also highlights this lack of trust as one of the five dysfunctions of a team. The author explains that group members become suspicious and prioritize their interests over the team's. As reasoning, Lencioni (2002) further describes that there can often be different behavioral and personality types of individuals in teams, which, if not respected, can lead to mistrust. During the Business in Practice sessions, we completed a brief self-assessment using the Insights Discovery personality test, which placed each member in one of four subcategories. My result was "fiery red," representing highly competitive, determined, and sometimes intolerant personalities. All four colors (red, blue, green, and yellow) were represented within the team, resulting in a diverse range of personalities. In retrospect, we did not initially consider the personality test very important, as things were going so well at the start, and we did not anticipate any further implications.

According to Lencioni's theory, we should have paid more attention to each personality type and given each the space they needed (Lencioni 2002). For instance, we should have given the precise blue types more time for analysis and included the green types more often. The green types were sometimes very reserved and, therefore, did not get a chance to express themselves because of the more dominant personalities. However, they could have made a helpful contribution. This was a valuable learning opportunity for me. Upon reflection, I realized I tend to impose my will on teamwork and do not listen enough to team members, according to the fiery red description on bad days. I intend to change this behavior as it can have negative consequences, as in this case. I partially implemented this change in later simulations, which I will discuss further below.

All of this accumulated during the second quarter of the fourth year. By then, it was clear that we were locked into a cycle of repetitive discussions without progressing toward a collective decision. By then, these repetitive behavior patterns tended to become habits. As per the Oxford English Dictionary (n.d.), habits are actions that are frequently repeated without much reflection. While in a group context, these discussions appeared frequently repetitive and did not add new insights. Instead, they caused further disagreement within the group and wasted valuable time during simulations. Hence, it can be deemed a bad habit. As a result, this behavior had to be stopped. According to Jager (2003), the most effective way to eliminate bad habits is to make them unfeasible. For instance, if an individual excessively consumes sitcoms, they may terminate their subscriptions to several streaming services. An economic alternative would be to terminate or reassign one's managerial position. This option was unavailable in the context of Business in Practice, and there are better ways to deal with conflict. It is essential to highlight that, in my opinion, our approach post-year 4 was very positive. Each participant was encouraged to present their point of view with sufficient time and without interruption. This

enabled us to identify the underlying issue of the conflicting objectives: miscommunication. We mostly shared the same viewpoint; only it was conveyed poorly.

Additionally, following Toegel and Barsoux (2016), individual gestures were misinterpreted as disruptive behavior, leading to more conflict and no one listening to the other. This hindered active listening as interruptions were frequent and empathy was lacking (Pinto Fernandes 2023). Our Business in Practice academic sessions taught us that active listening and open-ended questions lead to the root of the problem. My team and I failed to do this, which might have resolved the conflict long before. Adopting active listening helped us reach a solution and engage everyone, as it should have been from the start. However, this also highlights the importance of emotional intelligence, following Goleman (1995). Had I displayed empathy from the beginning and responded directly to the team members' arguments and views, we would have reached the same result much faster. It arrived two simulation years late, yet ultimately resolved the team conflict. Moreover, it had a beneficial side-effect: With our increased exposure to the issue, three teammates and I could retain the client in the retention role-play. Furthermore, I felt confident and competent during this role-play.

In hindsight, I participated actively in the initial discussion and tried convincing the person who disagreed. However, my involvement diminished over time as it did not contribute significant value, and my attempts were met with resistance. As a result, I took an overly confrontational approach, leading us all to become stubborn. As mentioned, I should have demonstrated greater responsiveness to my colleague's point of view and considered all aspects of the other person's position. As a result of my poor approach, I have also deducted one point from my self-assessment in the area of “Interacting with team members” (see Appendix 9 for the team- and self-assessment result). Although it may seem less than it should have been, I tried to keep an

open mind and did not want to be too hard on myself. My team rated me an average of 4.8, which was surprising. This also demonstrates that self-assessment can be challenging and that one may be overly critical. Nevertheless, this experience has had a significant impact on me and has taught me valuable lessons. Going forward, I will prioritize listening actively to my colleagues and being more mindful of what they say. I believe people cannot be easily categorized into different personality groups, but the idea that some people are more extroverted while others need more encouragement can be beneficial. Nonetheless, this must always be evaluated within context and should not be overgeneralized. An important takeaway from this experience was recognizing the value of open-ended questions. I realized how much more information you can get by asking the right open-ended questions. On the one hand, avoiding a simple yes/no answer avoids stagnation; on the other hand, motivating the other person to provide details can lead to a more stimulating and substantive conversation because the other person feels valued and heard, encouraging greater engagement.

3.3. Conclusion and critical discussion of peer feedback

In summary, both incidents provided valuable learning opportunities. On the one hand, success is no guarantee for future success. One must constantly develop and question oneself to remain relevant. To achieve this, one must objectively examine all the conditions for success and its sustainability. On the other hand, communication should always be based on active listening, as it provides new insights and encourages the other person to share more details. It is also essential to enable different personality types to express themselves. Although this was initially difficult to implement, these insights will help me along my future career path.

The peer- and self-assessment (see Appendix 9) shows a significant difference in Q3: "Maintaining Team Focus". In this area, I significantly underestimated myself, with a score of

2 compared to the team average of 4. This was mainly because, as the only Finance student, I focused on the financial data rather than participating in some group discussions and then commented only on the results. I was more of a disruption, as new input meant we had to revisit some things. However, I actively tried to remind the team of the time limit and helped where necessary. Thus, I may have focused too much on individual issues instead of the big picture, so I rated myself too low. Despite the team giving me a score of 4 out of 5, I recognize that there is still more to be done. To improve, I aim to become more actively involved in team discussions rather than solely providing feedback towards the conclusion of a discussion. As aforementioned, the second largest discrepancy is in Q2: "Interacting with teammates," where I was too hard on myself as described above, and with a score of 4.8, there is also little potential for improvement. However, I should listen to and consider the viewpoints of my team members to achieve even better outcomes. In Q4: "Expecting Quality" and Q5: "Having relevant knowledge, skills, and abilities," I rated myself 5, although I probably could have been more modest. My team gave me 4.3 on Q4 and 4.5 on Q5, which is close. However, these areas were also more challenging to assess, as my team members generally had little interest in the financial data and analysis. After such a short time (the assessments were in the middle of the simulation), they probably also had difficulty assessing how much quality I expected. In addition, after the very successful first year of the simulation, the finance role was relatively straightforward for some time, which meant that no special skills were required, and I had little opportunity to prove myself. Therefore, the 4.5 is entirely justified, and had there not been only whole numbers to choose from, I would probably have rated myself at 4.5. Finally, in “Contributing to the Team,” I rated myself at 4, which is identical to my team. From my point of view, this was mainly due to the beginning of the BIP, as the development of the strategy, the mission, and the vision did not correspond much to my interests, and thus, I kept a low profile. Nonetheless, I will try to use this peer feedback to improve my ability to work efficiently in teams.

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Appendix

Appendix 1: Investment Plan

OPERATIONS

ESG - INVESTMENTS

	Sustainabilty	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5		
		Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
Scope 1	Water Consumption Reduction		200																		
	Waste Reduction				400																
	ISO14001 / EMAS Certificates														500						
Scope 2	Energy Efficiency Investment						150														
	Install Solar Panels												250								
	Energy Management System														10						
Scope 3	Offset Suppliers CO2		17																		
	Choose Sustainable Supplier		10																		
	Co-Invest with Supplier						50														

FACTORY EXPANSION

EXPANSION	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5		
	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
EUROPE																				
CHINA																				
USA					800															

INNOVATION

TECHNOLOGY INVESTMENTS

Technology	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5		
	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
E-Drive Modules																				
Home Charging Stations								300												
High Power Charging (HPC)													200							
Connectivity Technology	250																			
Infotainment Services		160																		
Big Data				150																
Cross-Platform Technology													200							
Automated Parking			500																	
Driver Assistance					250															
Cloud Connection												300								
Secure Infrastrucutre														400						

CAR DEVELOPMENT

MODEL	Year 0	Year 1				Year 2				Year 3				Year 4				Year 5		
	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
Compact-Athena	520						510									550				
Convertible-Apollo			695						660							700				
Executive-Zeus					595									560						
Luxury-Aphrodite							710										750			
Micro-Hermes									560								600			
SUV-Poseidon												660								

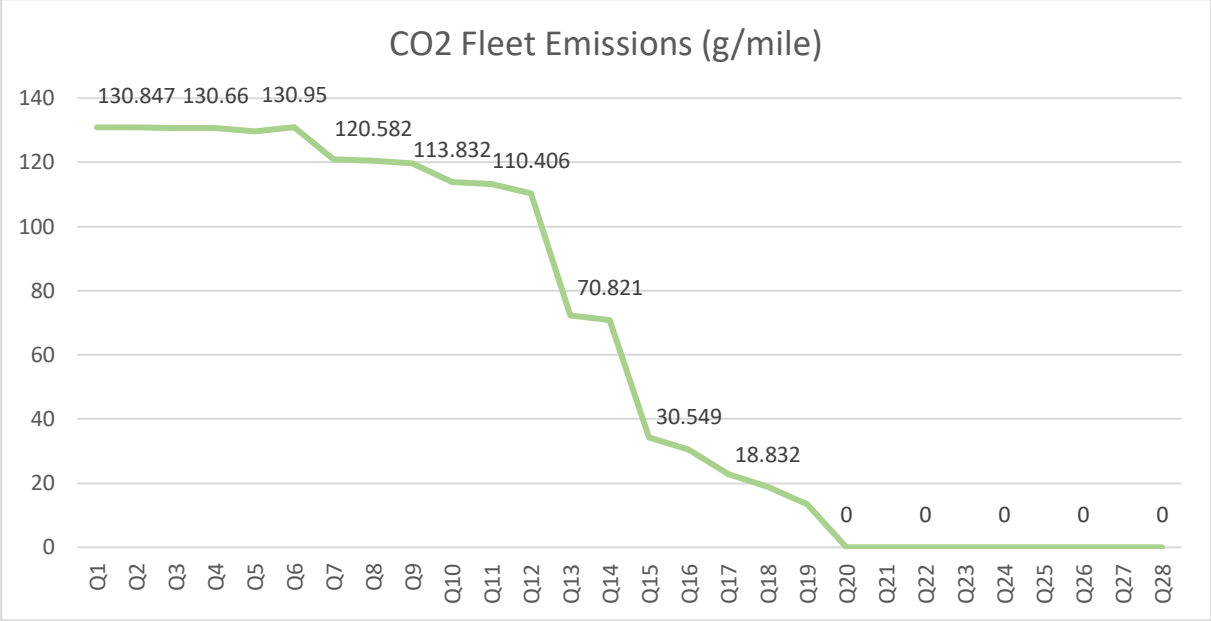
Appendix 1: This table shows Pantheon's investment plan. The operations and innovation investments are shown separately. In addition, the individual investments of the two areas are broken down, and the completion periods are highlighted in grey or orange, whereby the final quarter (darker shading) reflects the first quarter in which the investment can be used. For example, the Compact Athena (Car development) was developed from Q4 to Q6 and could be produced in a factory from Q7 onwards. The orange color indicates a Hybrid car. The sixth year and the last quarter of the fifth year of the simulation have been cut out because no investments took place. All values are in Millions of US Dollars and are displayed when the investment is cash-effective.

Appendix 2: Annual Income Statement

Income Statement							
in k USD	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Revenue	16'553'519	19'567'761	17'640'619	20'635'699	21'366'179	25'892'582	26'857'402
-CoGs	9'122'710	10'839'220	10'101'654	13'123'366	13'945'205	16'168'264	14'466'307
Gross Profit	**7'430'809**	**8'728'541**	**7'538'965**	**7'512'333**	**7'420'974**	**9'724'318**	**12'391'095**
-Marketing Expenses	180'130	435'855	573'935	1'201'777	987'904	934'767	581'588
-G&A Expenses	892'448	1'400'588	1'796'539	2'121'251	1'996'935	2'482'172	1'839'897
-/+Premium/Bonus	860'009	867'141	709'540	100'964	905'796	1'304'795	1'255'158
-Depreciation	1'710'428	2'107'941	2'575'323	2'885'384	2'813'026	3'201'401	3'287'456
EBIT	**3'787'794**	**3'917'016**	**1'883'628**	**1'202'957**	**2'528'905**	**4'410'773**	**7'937'312**
Other Items	(188)	(5)	(479'430)	(1'313'512)	(581'760)	(603'532)	(298'941)
Financial Income	0	0	25'851	73'453	58'870	41'580	30'086
-Interest Expense	452'969	483'600	544'115	677'849	677'508	448'032	288'167
EBT	**3'334'637**	**3'433'411**	**885'934**	**(714'951)**	**1'328'507**	**3'400'789**	**7'380'290**
-Tax	1'000'447	1'030'023	265'771	(30'987)	398'513	1'078'535	2'214'086
Net income	**2'334'190**	**2'403'388**	**620'163**	**(683'964)**	**929'994**	**2'322'254**	**5'166'204**

Appendix 2: This table shows Pantheon's annual income statement for the six simulation years. It also shows year 0, when we started the simulation in Q4. Deduction items are shown in light red. Numbers in brackets indicate negative numbers.

Appendix 3: CO2 Fleet Emissions over 28 Quarters



Appendix 3: This graph shows the CO2 emissions of Pantheon's fleet over the last 28 quarters. The sharp decrease is due to the introduction of electric cars, with only electric cars being sold from Q20 onwards and, therefore, CO2 emissions reaching 0.

Appendix 4: EBITDA Margins Comparison

EBITDA Margins

in %	Year 3 / 2019	Year 4 / 2020	Year 5 / 2021	Year 6 / 2022
Pantheon	19.8%	25.0%	29.4%	41.8%
Mercedes	7.0%	10.1%	17.2%	18.0%
BMW	12.9%	11.1%	17.9%	15.8%
Ford	6.4%	3.4%	7.2%	8.1%

Appendix 4: This table shows the EBITDA margin of Pantheon compared to Mercedes, BMW and Ford. It shows that the margins within the simulation are significantly higher than in reality. The calculations are derived from the respective financial statements and Pantheons financial figures (BMW 2021; 2022; 2023; 2020; Mercedes-Benz 2020; 2021; 2022; 2023; Ford 2020; 2021; 2022; 2023; Appendix 2 and 6).

Appendix 5: Factory Breakdown for Quarters 8 – 14 and 27 – 28

	Quarter 8				Quarter 9				Quarter 10			
	Car - model	U*	C-M*	Dol*	**Car - model**	U	C-M	Dol	**Car - model**	U	C-M	Dol
Europe	City 75G	100%	43.8%	65	City 75G	100%	42.2%	167	City 75G	64%	39.3%	15
	City 75G	100%	43.8%	65	BIZ 135D	100%	34.6%	64	City 75G	64%	39.3%	15
	City 75G	100%	43.8%	65	BIZ 135D	100%	34.6%	64	Biz 135D	97%	33.1%	204
	BIZ 135D	100%	36.1%	39	Lux 225H	100%	33.3%	114	Lux 225H	81%	30.6%	97
China	Air 135G	100%	41.8%	30	Athena Mark 1	100%	37.8%	57	Athena Mark 1	100%	38.5%	87
	Athena Mark 1	100%	40.7%	35	Athena Mark 1	100%	37.8%	57	Athena Mark 1	100%	38.5%	87
	Athena Mark 1	100%	40.7%	35	Athena Mark 1	100%	37.8%	57	Athena Mark 1	100%	38.5%	87
USA	4x4 100D	100%	31.6%	111	Apollo Mark 1	0%	0.0%	0	Apollo Mark 1	83%	24.7%	44
	Lux 225H	100%	35.1%	109	Apollo Mark 1	0%	0.0%	0	Apollo Mark 1	83%	24.7%	44
Out of Factory					4x4 100D	-	29.6%	30				
					Air 135G	-	35.2%	30				
Develop.	Apollo Mark 1				Zeus Mark 1				Zeus Mark 1			
									Aphrodite Mark 2			
									Athena Mark 2			

	Quarter 11				Quarter 12				Quarter 13			
	Car - model	U	C-M	Dol	**Car - model**	U	C-M	Dol	**Car - model**	U	C-M	Dol
Europe	City 75G	100%	36.7%	30	Lux 225H	100%	29.7%	108	Zeus Mark 1	100%	29.7%	59
	City 75G	100%	36.7%	30	Zeus Mark 1	83%	25.1%	15	Zeus Mark 1	100%	29.7%	59
	Lux 225H	100%	30.4%	95	Zeus Mark 1	83%	25.1%	15	Aphrodite Mark 2	83%	15.4%	18
	Zeus Mark 1	0%	0.0%	0	Aphrodite Mark 2	0%	0.0%	0	Aphrodite Mark 2	83%	15.4%	18
China	Athena Mark 1	100%	38.1%	113	City 75G	100%	36.0%	67	Athena Mark 1	0%	35.7%	204
	Athena Mark 1	100%	38.1%	113	Athena Mark 2	0%	0.0%	0	Athena Mark 2	83%	16.0%	30
	Athena Mark 1	100%	38.1%	113	Athena Mark 2	0%	0.0%	0	Athena Mark 2	83%	16.0%	30
USA	Apollo Mark 1	100%	34.8%	83	Apollo Mark 1	100%	33.6%	84	City 75G	83%	27.8%	30
	Apollo Mark 1	100%	34.8%	83	Apollo Mark 1	100%	33.6%	84	Apollo Mark 1	100%	23.1%	212
					Apollo Mark 1	100%	33.6%	84	Apollo Mark 1	100%	23.1%	212
Out of Factory	Biz 135D	-	27.8%	122	Athena Mark 1	-	34.7%	407	Lux 225H	-	26.4%	125
					Biz 135D	-	21.2%	30				
Develop.	Aphrodite Mark 2				Apollo Mark 2				Apollo Mark 2			
	Athena Mark 2				Hermes Mark 2				Hermes Mark 2			

	Quarter 14				Quarter 27				Quarter 28			
	Car - model	U	C-M	Dol	**Car - model**	U	C-M	Dol	**Car - model**	U	C-M	Dol
Europe	Aphrodite Mark 2	100%	23.9%	72	Hermes Mark 2	100%	42.5%	30	Hermes Mark 2	100%	41.9%	30
	Aphrodite Mark 2	100%	23.9%	72	Hermes Mark 2	100%	42.5%	30	Hermes Mark 2	100%	41.9%	30
	Hermes Mark 2	0%	0.0%	0	Hermes Mark 3	100%	44.0%	48	Hermes Mark 3	100%	39.5%	30
	Hermes Mark 2	0%	0.0%	0	Hermes Mark 3	100%	44.0%	48	Hermes Mark 3	100%	39.5%	30
China	Athena Mark 1	36%	28.0%	80	Zeus Mark 2	100%	42.7%	30	Zeus Mark 2	100%	42.8%	30
	Athena Mark 2	100%	28.0%	30	Athena Mark 3	100%	40.9%	30	Athena Mark 3	100%	43.2%	30
	Athena Mark 2	100%	28.0%	30	Athena Mark 3	100%	40.9%	30	Athena Mark 3	100%	43.2%	30
USA	Apollo Mark 1	0%	20.0%	339	Poseidon Mark 2	100%	38.0%	30	Poseidon Mark 2	100%	38.3%	30
	Apollo Mark 2	0%	0.0%	0	Apollo Mark 3	100%	45.2%	30	Apollo Mark 3	100%	46.0%	30
	Apollo Mark 2	0%	0.0%	0	Aphrodite Mark 3	100%	34.2%	77	Aphrodite Mark 3	100%	33.8%	67
Out of Factory	Lux 225H		25.5%	59								
	Zeus Mark 1		29.2%	209								

Legend		
	U	Utilization
	C-M	Contribution Margin
	Dol	Days of Inventory

Appendix 5: This table shows the composition of the individual factories in the EU, China, and the USA in the periods Q8-Q14 and Q27-Q28. In Quarters 14, 27, and 28, no cars were in development, and thus, the row was omitted. The first period illustrates the decision to build another factory in the USA, and the second shows the composition at the end of the simulation. The expansion of the factory was accompanied by several problems, such as the high days of inventory and, in some cases, utilization of 0%, as well as falling margins. In contrast, the factories were very well utilized towards the end and generated high margins. In summary, the expansion of the factory came too early but achieved good results in the end.

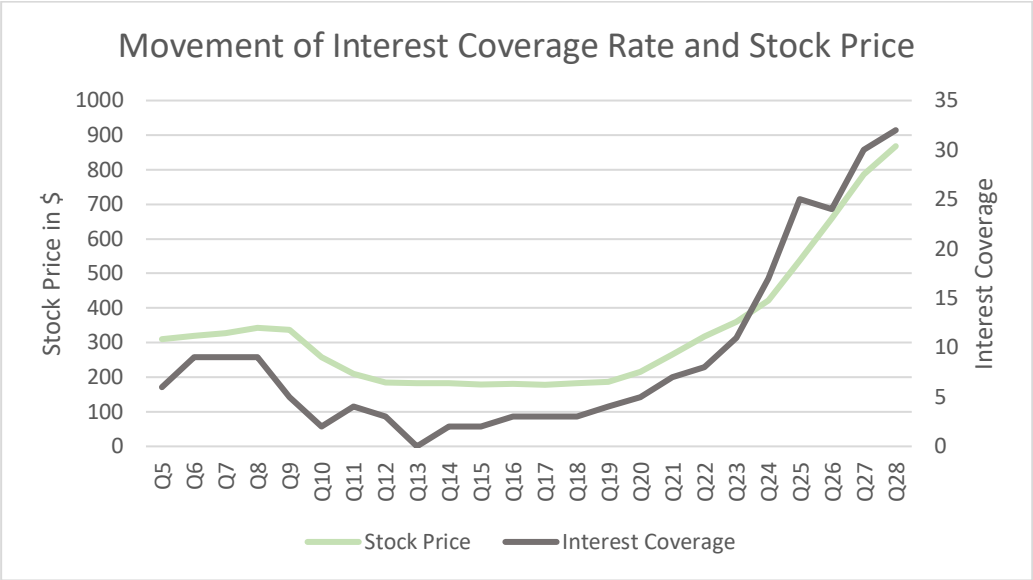
Appendix 6: Balance Sheet

Balance Sheet - Closing

in k USD	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Long-Term Assets	**13'451'757**	**16'132'527**	**17'837'293**	**15'799'752**	**16'084'427**	**15'210'386**	**13'689'056**
Property Plant & Equipment	8'751'756	11'532'527	13'337'293	11'399'751	11'784'427	11'010'386	9'589'055
Land & Buildings	4'700'000	4'600'000	4'500'000	4'400'000	4'300'000	4'200'000	4'100'000
Current Assets	**8'409'583**	**8'880'870**	**8'780'890**	**10'803'242**	**10'668'965**	**7'897'836**	**6'930'158**
Cash and Cash Equivalents	3'237'013	3'227'952	2'730'713	3'719'185	3'309'398	2'009'772	800'800
Accounts Receivable	2'749'220	3'328'520	2'445'404	3'570'172	4'029'090	4'204'036	4'637'362
Inventory	2'423'350	2'324'398	3'604'773	3'513'885	3'330'477	1'684'028	1'491'996
Equipment on Lease	0	0	0	0	0	0	0
Receivables from Financial Investments	0	0	0	0	0	0	2'600'000
Receivables from Financial Services	0	0	1'674'736	1'669'074	1'243'580	801	340
Total Assets	**21'861'339**	**25'013'397**	**28'292'919**	**28'272'067**	**27'996'973**	**23'909'018**	**23'559'230**
Shareholder Equity	**10'810'623**	**12'492'932**	**12'927'006**	**12'243'041**	**12'889'363**	**12'887'672**	**14'194'337**
Share Capital	10'000'000	10'000'000	10'000'000	10'000'000	10'000'000	9'650'000	9'300'000
Capital Reserve	0	0	0	0	0	(1'127'245)	(3'085'355)
Retained Earnings	810'623	2'492'932	2'927'006	2'243'041	2'889'363	4'364'917	7'979'692
Liabilities	**11'050'716**	**12'520'465**	**15'365'913**	**16'029'026**	**15'107'610**	**11'021'345**	**9'364'893**
Long-Term Debt	10'200'000	11'534'600	14'353'000	14'680'419	13'354'099	9'786'419	8'066'419
Short-Term Debt	0	0	0	0	0	0	103'434
Accounts Payable	850'716	985'865	1'012'913	1'348'607	1'753'511	1'234'927	1'195'040
Other Liabilities			0	0	0	0	0
Total Liabilities and Equity	**21'861'339**	**25'013'397**	**28'292'919**	**28'272'067**	**27'996'973**	**23'909'018**	**23'559'230**

Appendix 6: This table shows Pantheon's closing balance sheet over the simulation period. To compare opening balance sheets, please consult the closing values for the previous year. For instance, the opening balance sheet for year 1 equals the closing balance sheet for year 0.

Appendix 7: Comparison of Interest Coverage and Stock Price Movements



Appendix 7: This graph shows the positive correlation between the Interest Coverage, defined as EBIT divided by interest expense, and the Stock Price (in $) of Pantheon. The right y-axis represents the Interest Coverage, and the left the Stock Price. The x-axis shows the quarters over the simulated period.

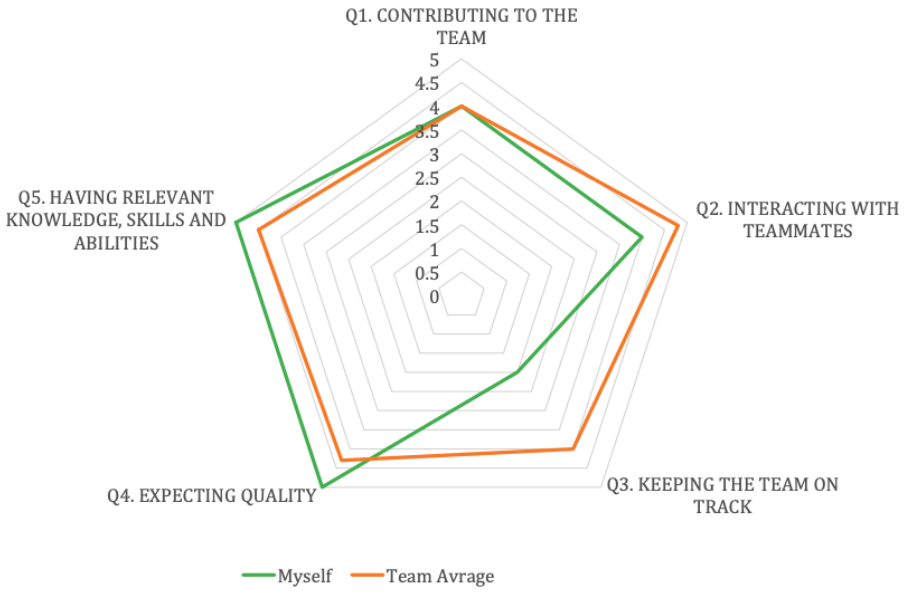
Appendix 8: KPI Comparison between Pantheon, Mercedes, BMW, and Ford

KPI - Analysis

	Debt Ratio	Debt/Equity	Quick Ratio	Adj. Quick Rat.	Current Ratio	Adj. Curr. Rat.	ROE	ROA
Pantheon	0.49	1.00	4.70	-	6.46	-	14.5%	7.9%
Mercedes	0.74	2.99	0.90	7.22	1.18	9.36	16.0%	4.1%
BMW	0.69	2.27	0.90	6.65	1.11	8.19	14.6%	4.6%
Ford	0.85	5.92	1.07	4.53	1.19	5.06	9.2%	1.4%

Appendix 8: The table shows the KPI comparison of Pantheon with Mercedes, BMW, and Ford. Thereby, measures of capital structure (Debt Ratio, Debt/Equity), Liquidity (Quick and Current Ratio), and Profitability (Return on Equity (ROE), Return on Assets (ROA)) are applied. To provide more context, the adjusted values for the Quick and Current Ratio are added, whereby these values should be compared to Pantheon's unadjusted Quick and Current Ratio. The data show average values over a four-year period, whereby the calculations are based on the financial statements from Mercedes, BMW, and Ford from 2019 to 2022 and Pantheons year 3-6 financial figures (BMW 2021; 2022; 2023; 2020; Mercedes-Benz 2020; 2021; 2022; 2023; Ford 2020; 2021; 2022; 2023; Appendix 2 and 6).

Appendix 9: Peer- and Self-Assessment



Appendix 9: The chart illustrates the average ratings provided by my team alongside my own self-assessment scores. Across most areas, the lines closely align. However, in Q3: “Keeping the Team on Track” a significant difference can be observed.