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BUSINESS IN PRACTICE

The Strategic Journey to Net Zero in the Automotive Sector. A Company Analysis and Personal Reflection

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Abstract

The automotive industry stands at the precipice of a profound transformation, driven by stringent environmental regulations. In this era of change, industry titans face daunting challenges; failure to adapt heralds the demise of longstanding enterprises and threatens widespread unemployment. Business in Practice - The Strategic Journey to Net Zero in the Automotive Sector. A Company Analysis and Personal Reflection, embarks on a rigorous exploration of Pantheon's arduous six-year simulation journey towards electrification. It delves into the complexities of change management, shedding light on the intricacies of board-level decision-making through a critical self-reflection lens.

Keywords: Sustainability, Strategy, Net Zero, Innovation, Electrification, Change Management, Positive Conflict, Team Dysfunctions, Automotive Industry, Electric Vehicles, Operations, Agile, Lean

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Firm Analysis

Climate change stands as one of the foremost global challenges today, urging companies to adopt sustainable practices and environmentally conscious investments due to governmental, consumer, and investor pressures. The automotive sector, driven by technological disruptions, shifting consumer preferences, and stricter emission regulations, is undergoing a profound transformation from internal combustion and hybrid vehicles to electric ones. As a global car manufacturer with operations in Europe, China, and the U.S., Pantheon is actively reshaping its governance, strategy, and operations to effectively navigate this industry upheaval. This analysis scrutinizes Pantheon's six-year journey toward an electric portfolio, focusing on the areas of strategy, innovation, and operations drawing on simulation data, real-world cases, and academic theories to elucidate the company's decisions and outcomes.

Strategy Review – The roadmap to success

Pantheon's journey to success was guided by a strategic roadmap aligned with the vision of "Driving sustainable excellence for a better future." This roadmap prioritized high-quality vehicle delivery and environmental stewardship, rooted in core values spanning sustainability to innovation. This comprehensive approach led to substantial growth; nearly doubling value added over six simulated years (*Fig 1*). This section delves into extensive external and internal analyses. Frameworks like PESTEL and Porter's Five Forces were used on the first part, while a Value Chain Analysis further explores our differentiation strategy's impact. This holistic exploration illuminates Pantheon's strategic bedrock, propelling us towards lasting success.

External Analysis – PESTEL and Porter's Five Forces

I opted to employ the PESTEL model (Aguilar 1967) to conduct an in-depth analysis of the automotive industry in which Pantheon operated. From a political standpoint, the industry faced significant trade disputes between the USA and China during the simulation, leading to fluctuating tariffs that directly impacted production and pricing decisions (*Fig 2*). Economically, the Asian market demonstrated increased potential, emerging as the leading market in both volume and revenue by the simulation's end (*Fig 3*). However, the political unrest created uncertainty in demand, complicating factory allocation due to the tariffs' effect on imports and exports. Socially and technologically, consumer preferences witnessed a notable shift towards greener and more sophisticated alternatives. Electric vehicles (EVs) experienced a considerable surge in demand by Q10 (*Fig 4*), and autonomous driving gained prominence among customers by Q14 (*Fig 5*). Global EV sales exhibited a remarkable 55% growth in 2022, with China surpassing all other regions with an astonishing 87% increase (Irle 2022).

Regarding the environment and legal aspects, government actions significantly impacted the simulation. The CO2 scandal in Q4 triggered a demand decline of 20% for combustion vehicles (*Fig 6*). The imposition of average CO2 allowances per car sold, coupled with premiums, further incentivized the industry's transition towards greener practices. Initiatives like "Project Green Car" offered incentives for carmakers to reduce CO2 emissions, while "Project E-mobility" invested $20B in charging stations (*Fig 7*), promoting EV adoption. Ultimately, the EU's announcement of banning combustion vehicle sales for cars and vans

further exemplified the industry's paradigm shift (Posaner 2022). Concepts of nature and urban living intertwine, with cities like Denmark aiming to achieve carbon neutrality by 2025, necessitating innovative alternatives like EVs (DGB Group 2023).

To gauge the industry's profit potential, I employed Porter's Five Forces framework (Porter 2008). The threat of new entrants, traditionally low in the automotive sector due to economies of scale requirements, has seen changes with the rise of EVs and new business models. Companies like Tesla and Chinese manufacturers such as BYD have demonstrated that innovative approaches can invite new competitors into the industry. Moreover, technology advancements and changing consumer perceptions have allowed agile players to adapt more readily, posing potential challenges to established giants (Fang, Bill and Tony 2023). The threat of substitutes has grown moderately as cities implement car restrictions and environmental pressures encourage alternative modes of transportation like public transit, bikes, and scooters. While the bargaining power of suppliers has traditionally been low, the entrance of new suppliers might temporarily lead to monopolistic situations, enhancing their power. The bargaining power of buyers remains high, with automakers predominantly selling to dealerships in large quantities, allowing dealerships to exert influence on selling prices more than the final consumers. Lastly, the competitive rivalry within the automotive industry is intense, further intensified by the entrance of new global players, resulting in lower average profitability compared to other industries, with an average operating margin of 5.82% (Damodaran 2023).

Internal Analysis – Value Chain Analysis

As supported by Ensign (2001), conducting a Value Chain analysis aid in shaping effective business and corporate strategies by revealing the interlinked activities that create value for customers, fundamental to gaining a competitive edge. In this case, Pantheon's activities reflect the company's overarching strategy, aligned with sustainable practices and carbon neutrality.

Pantheon's primary activities within its Value Chain prioritize environmental responsibility and operational efficiency. Inbound logistics, involving upstream and downstream emissions, showcase Pantheon's strategy of environmental impact reduction through partnerships and co-investments with suppliers. Operational agility, evident in its global manufacturing facilities, is central to Pantheon's production philosophy. Investments targeting scope 1 and 2 emissions have led to ISO14001 and EMAS certifications, highlighting the company's commitment to environmental management and process optimization (*Fig 8*). Outbound logistics exemplify Pantheon's production location optimization strategy, ensuring full factory utilization (*Fig 9*). This alignment between production and market needs reduces transportation emissions, emphasizing the company's dedication to sustainability and responsive supply chain management. In marketing and sales, Pantheon adeptly balances demand generation and market-driven pricing. Competitive pricing in the Asian market and vehicle customization for regional preferences capitalize on market trends. The ability to swiftly adapt models and proficiently address evolving customer needs underscore Pantheon's resilience, agility, and innovation. Simultaneously, post-sales services highlight Pantheon's

focus on cultivating customer relationships for revenue retention and brand loyalty. Therefore, the importance of a post-sales support emerges with the retention of a significant $1.92B in revenue (*Fig 11*), as well as with securing a substantial $960M pilot project (*Fig 10*).

Support activities are equally crucial in Pantheon's Value Chain. The company's firm infrastructure, bolstered by visionary leadership, involves daily meetings, scenario forecasting, and strategic investment planning (*Fig 12*), all intertwined with sustainability and innovation. Human resources management reflects Pantheon's commitment to diversity and employee satisfaction, setting an industry benchmark with a remarkable 45.6% diversity ratio and 100% employee satisfaction (*Fig 13*). Technological development remains central to Pantheon's pursuit of excellence, with substantial investments totaling $3.31B (*Fig 14*). This commitment keeps the company at the forefront of innovation, enhancing its competitive edge and adaptability to future changes. In procurement, Pantheon's collaborative co-investments with suppliers enhance sourcing processes (*Fig 15*), promoting efficiency, quality, and sustainability across the supply chain.

Strategy Overview

In conclusion, Pantheon's value chain seamlessly weaves these activities, yielding remarkable results. With a differentiation strategy centered on a fully electric portfolio tailored to consumer needs, Pantheon boasts an impressive 31.3% margin against internal competitors (*Fig 16)* and substantial market dominance across three continents. This success is reinforced by a robust 32.5% return on net assets (*Fig 17*), a testament to the fusion of the value chain with

a commitment to sustainable excellence. The intricate orchestration of these strategic activities, as proposed by Porter (1996), could potentially yield competitive advantage. The complex interplay of these endeavors creates a barrier for potential rivals aiming to replicate it. In light of the ever-evolving industry landscape, sustaining the relevance of this network necessitates nurturing dynamic capabilities—swiftly reallocating resources in response to ongoing structural shifts shaping the automotive sector.

Innovation - A Catalyst for Transformation

The trajectory of human civilization has been intricately woven through successive waves of creative disruption. Ancestral adaptability to novel technologies and fresh modes of thought has been instrumental in navigating shifting paradigms (Acemoglu 2012). This evolution of societal norms finds a parallel in the corporate realm, where entrenched beliefs are consistently challenged, giving rise to more streamlined and effective methodologies that cater to consumer needs and propel economic expansion. Similar to historical nations hesitating to embrace inclusive institutions fostering innovation, the success of a company is indelibly intertwined with its cultural ethos. Cultivating an environment of open innovation, marked by collaboration with external partners, consumers, and suppliers, while dispelling apprehensions linked to perceived innovation failures, emerges as a cornerstone for thriving amid uncertainty (Williams and Scott 2012).

The domain of innovation resonates notably within the automotive industry, presenting both challenges and opportunities. This sector faces the imminent specter of formidable

financial setbacks, potentially translating into substantial revenue losses and a prolonged recuperative journey. Notwithstanding, enterprises embarking on the odyssey of reshaping their operational paradigms position themselves for success in the emerging era (Hofstätter 2020). The dynamic landscape depicted in the IndustryMasters® simulation expertly mirrors the ongoing metamorphosis within the automotive sector. Four pivotal forces underpin this transformation: Electric Vehicles (EVs), Autonomous Vehicles (AVs), Connectivity, and the paradigm shift towards Personal Mobility as a Service (TaaS) (Teece 2018). In the simulation, the ascendancy of Hybrid and EV technologies gained momentum, fostering greater acceptance and anticipation. In this section, I will delve further into Pantheon's voyage of innovation, exploring the encountered challenges and the company's adept navigation of the innovation wave.

Pantheon's Journey of Innovation

Commencing in Q4, the Pantheon board of directors confronted a pressing dilemma: the existing diesel portfolio, albeit containing minor hybrid solutions, was approaching obsolescence due to mounting environmental concerns across stakeholders (*Fig 6*). This, coupled with a pronounced shift in consumer preferences towards sustainable alternatives to traditional combustion engines, posed a formidable challenge. As with any innovation, the combustion engines had reached the decaying phase of their S-curve (Ashkenazi 2022), after decades of exponential growth and widespread adoption of personal vehicles. Consumers were increasingly exploring alternative modes of transportation, prompting a significant decline in

demand for traditional combustion vehicles. The threat of losing customers who were gravitating towards solutions like scooters and public transit in urban areas was a compelling impetus for Pantheon to act swiftly. The company's response involved substantial investments in technology and the meticulous design of products aligned with evolving consumer preferences.

Upon meticulous evaluation of the existing portfolio, the board charted a vehicle launch plan encompassing simultaneous investments in Electrification, Connectivity, and Autonomous Driving, all to be fully developed by Q17 (*Fig 18*). The transition was envisioned in three phases for the targeted models. The "Mark I" line aimed to convert the best-selling diesel engine models into hybrid substitutes, resulting in the launch of Athena, Apollo, and Zeus Mark I in quarters 4, 6, and 8 respectively (*Fig 19*). Subsequently, the "Mark II" series would transform these same models into fully electric variants, which would further transition into a cutting-edge "Mark III."

The Hybrid Challenge

Pantheon's initial decision to transition to a hybrid portfolio posed a substantial hurdle to early success, compounded by the financial pressures following the underwhelming launch of the Mark I series. The complex interplay of revenues and step costs created challenges in breaking even on the initial investments. Additionally, a significant shift in consumer preferences towards fully electric solutions further exacerbated the situation (*Fig 4*), leaving limited room in the market for intermediary solutions. This not only caused Pantheon to miss

the initial wave of opportunity but also led to inventory issues, ultimately necessitating the liquidation of the Mark I line to make way for the more successful Mark II series. The latter series, characterized by enhanced acceptance and better alignment with current market needs, showcased models like Aphrodite, Apollo, Hermes, and Athena across various segments, such as Luxury, Convertible, Micro, Compact and SUV (*Fig 20*).

Hybrid vehicles, while serving as a bridge between traditional combustion engines and fully electric options, face certain limitations. This intermediary status results in extra maintenance requirements due to the coexistence of a combustion engine and a smaller battery, and they may not be as eco-friendly as fully electric counterparts (Gosh 2023). Additionally, the manufacturing process for hybrids can be intricate and costly. In contrast, the scaling of Electric Vehicles (EVs) and evolving battery technologies offer the potential for more cost-effective and simplified manufacturing processes compared to conventional combustion engines (Ewing 2023).

Pantheon's approach could have been more audacious and assertive, strategically positioning to seize the coveted first mover advantage within the electric vehicle segment. Notably, other automakers have embraced a remarkably aggressive stance, outlining definitive timelines for the cessation of diesel vehicle production. For instance, Volvo's resolute commitment to discontinue non-electric and hybrid vehicle manufacturing from 2019 onward exemplifies this bold trajectory (Volvo 2018). In contrast, our strategic choice leaned toward a middle-ground strategy rather than an assertive and adaptive embrace of profound

transformation. Even though Pantheon's strategy translated into less than optimal operational profits and extended periods for investment payback, such experience offers a pivotal lesson that will illuminate its future trajectory. As succinctly articulated by Steve Jobs, *"Innovation is the ability to see change as an opportunity – not a threat."* This dictum encapsulates a fundamental perspective for our future strategic endeavors.

Operations – Balancing Innovation and Operational Agility

The profound shifts in customer preferences, technological advancements, and market dynamics have sparked a profound transformation across the industrial landscape. Consequently, competition has escalated, prompting numerous enterprises to recalibrate their unique strengths and cultivate an array of strategies and methodologies to not only endure but also amplify their competitive prowess (El-Khalil and Mezher 2020). The assimilation of these strategies and methodologies has been critically evaluated by both industry practitioners and academic circles, culminating in the evolution of a novel manufacturing paradigm known as "Agile Manufacturing" - An agile enterprise represents a technology-fueled ecosystem of teams, rooted in a culture that prioritizes people, and functions through swift learning and rapid decision-making processes (Mckinsey 2023).

The realm of operations management in the automotive sector is a dynamic interplay of various dimensions that directly impact a company's competitiveness and success. The 4Vs framework – Volume, Variation, Variety, and Visibility – provides a comprehensive lens through which we can analyze the challenges, strategies, and outcomes that define the

operations function (Hattangadi 2021).. Moreover, this framework allows us to delve deeper into the critical aspects of quality, speed, dependability, cost, and flexibility – all of which are integral to thriving in a rapidly changing landscape.

Volume of Output

In operations, volume of output goes beyond quantity; it involves aligning production capacity with market demand, striking a delicate balance to optimize inventory levels, minimize excess production, and meet customer expectations. Quality is closely tied to volume, as maintaining high standards amid fluctuating output poses challenges. The rapid shift to electric vehicles challenged Pantheon's ability to balance factory utilization while producing cars that didn't meet market expectations. This issue persisted until the electric portfolio was fully developed. The opening of a third factory in China by Q12 exacerbated the situation, resulting in some cars having over 200 days of inventory (DOI) (*Fig 21*).

Variation in Demand

Variation in demand, triggered by external factors such as market trends and global events, underscores the need for operational agility. Speed, as a vital component, is not just about rapid production but also the ability to swiftly adapt to varying demand patterns. The disruption caused by unforeseen decrease in the hybrid attractiveness, negatively affecting our stocks and consequently profit margins. The capacity to smoothly scale up or down production lines in response to market variations and external disruptions directly impacted Pantheon’s competitive edge as we were not able to plan adequately and placed all our hopes in a slow

transition to electric which was not the case during the simulation. Agile organizations possess the capability to promptly redirect their focus, expand their scope, configure their operations, and realign their strategies to capitalize on emerging opportunities. Furthermore, they demonstrate the capacity to proactively anticipate and outmaneuver competitive challenges (Yusuf, Sarhadi and Gunasekaran 1999).

Variety of Output

Variety of output pertains to diversification and customization within a product portfolio, offering customers tailored solutions. However, managing diverse product lines while maintaining dependability can be intricate. By having a larger and much broader portfolio, timing correctly product maturities with factory allocations got harder. Moreover, the complexity of offering a wide range of products, from the SUV and Luxury lines (heavy reliant on human capital) to Micro (low human capital requirements) posed new challenges. Pantheon was optimizing by producing each product in the location where it would sell best. However, every time a decision was made to discontinue a product line, if that same line was not to be replaced with a car with similar human capital needs, high layoff costs could be associated with that trade. By year 5, Pantheon was starting to become more agile and optimizing factory layouts while minimizing DOI and maximizing factory utilization (*Fig 22*).

Visibility of Production

Visibility of production refers to the transparency and efficiency of a company's operational processes. In a landscape characterized by sustainability imperatives, cost-

efficiency and environmental responsibility are paramount. Efficient operations encompass optimized resource utilization, waste reduction, and cost-effective practices. Sustainability in operations translates into not only fiscal benefits but also an enhanced brand reputation. As electrification becomes a norm, managing the transition while containing costs necessitates strategic investments in efficient production technologies, employee training, and eco-friendly practices. Pantheon placed great importance in achieving a high degree of visibility of production, investing heavily to reduce all scopes of emissions (*Fig 23*).

Pantheon's journey to Lean and Agile

In the 6 simulation years, Pantheon demonstrated remarkable strides towards adopting a leaner and more agile manufacturing process. As the final year drew to a close, this transformation manifested in an average inventory holding period of 35 days for the entire product portfolio, accompanied by factory utilization approaching the 100% mark (*Fig 24*). Similar to Toyota, a trailblazer in lean manufacturing, renowned for its commitment to ongoing enhancement, waste reduction, and heightened efficiency (Toyota n.d), Pantheon vigorously pursued the optimal approach to large-scale manufacturing management. Concurrently, the application of Agile methodologies endorsed iterative development strategies prioritizing swift introduction of initial product or service prototypes to customers (Raedemaecker 2020). The simulation itself vividly illustrates how both lean management and agility emerged as pivotal prerequisites for triumph in the contemporary dynamic business landscape. While Pantheon's

efforts to optimize production and the timing of EV introduction have borne substantial returns, further embracing these principles promises even greater success moving forward.

Conclusion and integrated view across functions

The collaborative efforts of Pantheon's board of directors culminated in the addition of $2.784 billion in value. Over the six years, the company demonstrated unwavering commitment and followed a structured approach to navigate the evolving industry landscape. This achievement was made possible through seamless cooperation across all departments. Our vision became attainable by ensuring the innovation department was fully dedicated to launching new products at the right pace while driving R&D across every technological aspect of the company's ecosystem. Simultaneously, the introduction of cutting-edge vehicles had to align perfectly with production facility planning to prevent inefficient factory allocation. Marketing played a crucial role in conducting essential research to meet customer expectations for new launches, and human resources management was pivotal in ensuring personnel allocation adapted to ever-changing production requirements. Lastly, finance had to strike the ideal balance between bank loans and green bonds to finance this transition.

Pantheon not only achieved this harmoniously but also kept sustainability as a top priority, a value communicated to shareholders who continued to trust the management team (*Fig 25*). While challenges lie ahead for Pantheon, we believe the company now possesses the capabilities to overcome the upcoming hurdles in the transition toward a net-zero society.

Personal Reflection

It is inherent for teams to aspire to success, being the high-performing ones built on five essential factors: trust, conflict, commitment, accountability, and results (*Fig 26*) (Lencioni 2002). Establishing trust and fostering a safe and supportive environment where constructive conflicts can occur are vital for effective team functioning. Engaging in healthy conflicts promotes commitment among team members, leading to a natural emergence of peer pressure that fosters mutual accountability. Ultimately, accountability plays a pivotal role in enabling teams to achieve exceptional results.

Throughout the intensive three weeks of Business in Practice, I encountered various team dysfunctions and gained valuable insights for my future, both professionally and personally. In this section of the dissertation, two critical incidents will be analyzed as well as the invaluable lessons derived from them. Firstly, I will explore the deterioration in team dynamics due to the team's struggle to cope with failure. Secondly, I will describe and analyze the turning point when our team regrouped and began functioning effectively. Throughout the analysis, I will reflect on my emotions and actions during these incidents, outline the learnings I acquired, and discuss how I would approach similar situations differently. Lastly, I will examine how my reactions to these events influenced the peer evaluation, specifically, how my teammates perceived my contributions to the team.

Critical Incident 1 – Dealing with a sharp decline in the overall scoreboard

The event

During the initial stages of the simulation, our team formed a strong bond and performed well in the practice rounds. Effective communication and collaboration allowed us to formulate a strategy for a successful start. As the finance director, I actively contributed ideas and participated in brainstorming sessions. The team's early success in securing the top position on the scoreboard by the end of year one further reinforced my belief in the power of communication and problem-solving within the team.

However, by the end of year 2 the situation took a turn for the worse when our team dropped to last place. Problems such as lack of accountability, and diminishing trust among team members emerged. Instead of collectively analyzing areas for improvement, blame was shifted onto others, leading to a relatively tense atmosphere. Despite my efforts to revisit and analyze the initial strategy, benchmark with other teams, and find practical solutions, it seemed that the team was more focused on promoting personal viewpoints and engaging in fruitless debates. Feeling unheard and frustrated by the team's inability to grasp my perspective, I decided to take a break and go for a walk, a coping mechanism I continued to utilize until year three when the team clinics were held.

Personal Response and Behavior Analysis

I find this critical event particularly significant as it shed light on my tendency to avoid conflict when confronted with challenging situations within the team. Despite being fully engaged and aware that it was a business simulation where sharing ideas and points of view were key to success in a learning environment, I found myself instinctively evading

confrontation, as if it were a real-life scenario. In this section, I will, therefore, analyze my response in the context of team dynamics, delving into the triggers and stressors that led to my avoidance of conflict, identifying valuable insights, and proposing future actions to address this behavior effectively.

Conflict Avoidance

Unfortunately, my avoidance of conflict only exacerbated the problem instead of resolving it in a healthier manner. At first I should have instead engaged with the team in structured debates, as constructive conflict fosters respectful discussions and often leads to mutually agreed-upon solutions that surpass individuals' initial proposals (Barsoux 2016). My attempt to evade confrontation led to decisions I did not agree with being made without my input. While considering alternative perspectives can be beneficial, in this scenario, I was regularly leaving discussions, fearing that my insights would only lead to more unproductive debates. This avoidance of conflict aligns with Patrick Lencioni's portrayal of the second dysfunction in a team (Lencioni 2002). According to Lencioni's framework, fear of conflict arises from a lack of trust within the team. It is crucial to differentiate between productive ideological conflict focused on concepts and ideas, and destructive interpersonal battles or political maneuvering (Lencioni 2002).

Recognizing the significance of open and constructive conflict, teams can overcome the fear of disagreement and work towards finding the best solutions. This entails fostering an environment where team members feel safe to express their opinions and engage in respectful

debates. Embracing ideological conflict rather than personal attacks and blame games allows for the exploration of diverse perspectives and ultimately leads to more robust decision-making processes.

Lack of Vulnerability

I adopted a defensive approach by withdrawing from the discussions and leaving the room. By avoiding confrontation, I failed to contribute fully to the team's collective problem-solving process. This behavior hindered the team's ability to engage in constructive debates and explore diverse perspectives, ultimately impacting the quality of our decisions. Developing vulnerability trust in high-performance teams fosters an environment where team members can openly share their thoughts and feelings without fear of judgment (Moldjord 2015). My failure to exhibit vulnerability hindered the team's ability to tap into the full potential of our diverse backgrounds and limited the range of perspectives considered in our decision-making processes.

Takeaways and Potential for Improvement

Only through conflict can a team excel

In retrospect, I understand the importance of addressing conflicts directly, ensuring that my viewpoints are effectively communicated and understood. By avoiding conflict, I was not only evading negative conflict but also productive conflict, leaving the team to decide on critical issues without hearing my inputs and without benefiting from my structured approach to

problem-solving. Furthermore, I acknowledge that sticking with the team in joint brainstorming sessions could have helped boost team morale and cooperation (Hadley & Mortensen 2022).

Understanding my personality to foster positive reactions

According to *The Insights Group* and their product "*Insights Discovery*," which employs a four-color model to facilitate individuals' comprehension of their style, strengths, and contributions to a team (Insights n.d.), my predominant traits align with the red color profile. As described by The Insights Group, individuals with red color profiles tend to demonstrate impulsiveness and a drive to achieve results efficiently. These characteristics manifested in my approach to the challenges discussed earlier. However, the absence of healthy conflict within the team led to the emergence of the third dysfunction, as the lack of commitment prevented me from actively engaging in productive discussions (Lencioni 2002). Growing frustration from feeling unheard led to a fear of providing feedback constructively and instead resulted in destructive blame. Subsequently, the fourth and fifth dysfunctions materialized within the team, as the inclination to shift blame for poor outcomes transformed into a fear of holding one another accountable for the team's failures. Ultimately, this transitioned into a state where I struggled to discern the essential elements necessary for the team's success, leading to a diminished focus on achieving results.mIt is evident that my predominant red color profile influenced my decision-making style and behaviors within the team. By acknowledging these dynamics and the impact they had on team functioning, I have gained valuable insights into the dysfunctions that arose and their implications for achieving desirable outcomes. Moving

forward, I recognize the importance of fostering healthy conflict and embracing vulnerability, commitment, accountability, and a results-oriented focus as integral aspects of effective teamwork.

Critical Incident 2 – Understanding the importance of small victories

The event

The team environment did not start improving until the end of year three. The constant negative results were only pushing the team's mood to an even worse place, something that was reflected in the quality of our decisions. It is now clear that team mood can directly affect how targets are perceived and how our strategy was being changed inconsistently (Schwarz 2012). Looking back to our team dynamics, I can surely state that we were lacking a key enabling condition to allow our diverse team to succeed. The constant micromanaging and my need to verify what everyone was doing was providing a lack of supportive context, which pushed my teammates to further stop sharing relevant insights that could help the team make solid and grounded decisions on how we wanted to conduct decision making moving forward (Mortensen, 2016). Furthermore, the blame started shifting to the lack of realistic outcomes we faced in the simulation, which went against our initial outlined strategy, leading to me holding the simulation itself accountable for our lack of effective decision-making in our team and my behavior in the team context, instead of perceiving my attitudes and impulsive actions were also contributing to the team's lack of success (Richardson 1995).

The SIM clinics at the end of year three played a crucial role in unlocking the full potential of our team's diverse backgrounds. Professor Miguel, our team's coach, played an important role by asking key questions that triggered the same responses I was having in a decision-making context. Not only was I trying to answer all the questions, but also leaving no room for my colleagues to express how they felt regarding my feedback on their work.

Personal Response and Behavior Analysis

It was clear that I was taking advantage of the session to state how I felt about the team, something I was not doing earlier, as I was constantly leaving the room when conflict started appearing in our discussions. Moreover, I was very surprised when after only a few minutes of discussion, I was also keen on saying that the team was making positive progress. Results were starting to be aligned with our objectives, and the team mood instantly raised. I was holding back from celebrating the small victories we achieved every quarter, still focused on our failures in the early years. This was a turning point in how I approached my team, as I stopped leaving things unsaid and started sticking to the team in the problem-solving decisions while being assertive, comprehensive, and steering the team when the problem-solving sessions deviated from the original purpose outlined for them.

It is not over until it is over

Getting the team back on track and realigning our priorities brought me back to my full potential. Ideas started flowing better in a team context, and we still had three years to prove ourselves and regain our position. We decided to work on our dysfunctions and climb up

Lencioni's pyramid (Lencioni 2002). Firstly, regaining trust in my teammates and leveraging the full potential of each other allowed me to understand that our diverse backgrounds could be our main advantage moving forward. The team agreed to meet in a more informal setting after work, and I made an effort to get to know my teammates outside the work environment, something I should have done earlier.

Creating an healthy business ecosystem by solving dysfunctions

During one of several meetings in an informal setting I learned that one of the directors had a background in biology, and we discussed for hours how managing a company has more similarities with an ecosystem than I could ever imagine. It was at that point that I realized our team was also an ecosystem of its own, as each director oversaw a certain perspective. Just like in an ecosystem where the disappearance of the bottom line of the food chain affects the survival of apex predators, our team could not thrive if our decisions were not perfectly aligned. "The ultimate purpose of an ecosystem is the materialization of a joint value proposition by several players that cannot be achieved by any one of these players in isolation" (Lingens 2021).

Once the first dysfunction was addressed, it was only a matter of time for productive conflict to take place and for the team to start sharing ideas more efficiently. I decided it was worth sharing my findings from the research on the topic I mentioned above and explained to the team that we needed to commit and hold each other accountable if we wanted our ecosystem to thrive. The next year, positive results emerged significantly. My efforts to hold the team to higher standards and embrace our diversity paid off, and by year four, I saw notable changes in

my team's dynamics. I held my team to much higher standards than I did in the beginning. The differences in our backgrounds and the fact that each of us would not have probably known each other if it were not for the simulation were what made us a strong team (Duhigg 2016).

Takeaways and Potential for Improvement

The three weeks of business in practice allowed me to explore self-leadership and my communication skills to an extent I had never experienced before. Although I have been working in teams since I can remember, I had never put myself in a position where I relied so much on trust and shared leadership to succeed. I am now sure that shared leadership surely improves performance and plays a crucial role in success (Newman 2021). In my future career, I rarely will be faced with a situation where my decisions will not be influenced by the thoughts of others, and after this immersive experience, I am confident that I will be able to tackle the challenges ahead, being a better communicator, and finding mechanisms to cope with disagreement. Moreover, I deeply believe now that conflict is key to fostering creativity and innovation (Papke 2016).

Conclusion

These incidents have led me to the realization that, despite considering myself a competent team player, there are still several aspects of my personality that I need to develop to become a more effective leader and collaborator in future endeavors. The results of the peer evaluation echoed this sentiment, showing that while my teammates recognized my relevant knowledge, skills, and abilities, there were discrepancies in how I perceived my own

contributions and interactions with peers (*Fig 27*). My response to conflict and negativity had a significant impact on the team's dynamics and mood, contributing to the team's deterioration.

The intensive three-week journey of Business in Practice has imparted an invaluable lesson in leadership: I must consistently evaluate the impact of my attitudes on others and strive to improve my interactions. Embracing and valuing differences and diverse working styles within a team is crucial, as it is the amalgamation of unique perspectives that elevates teams beyond individual capabilities.

In conclusion, the critical incidents have provided profound insights into my team dynamics and individual performance. Moving forward, I am committed to cultivating a stronger willingness to embrace healthy conflicts, be more open to vulnerability, and foster an environment of trust and mutual accountability. By continually developing these skills, I aim to become a more adept and impactful team player and leader in my future endeavors.

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Exhibits

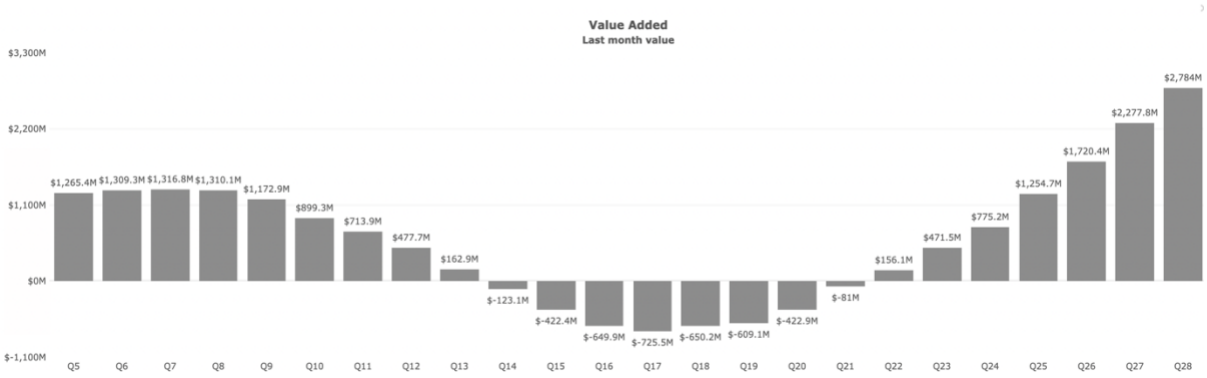


Fig 1 – Value added by Pantheon throughout the 6 years simulated

Source - BiP Industry Master's Simulation. 2023

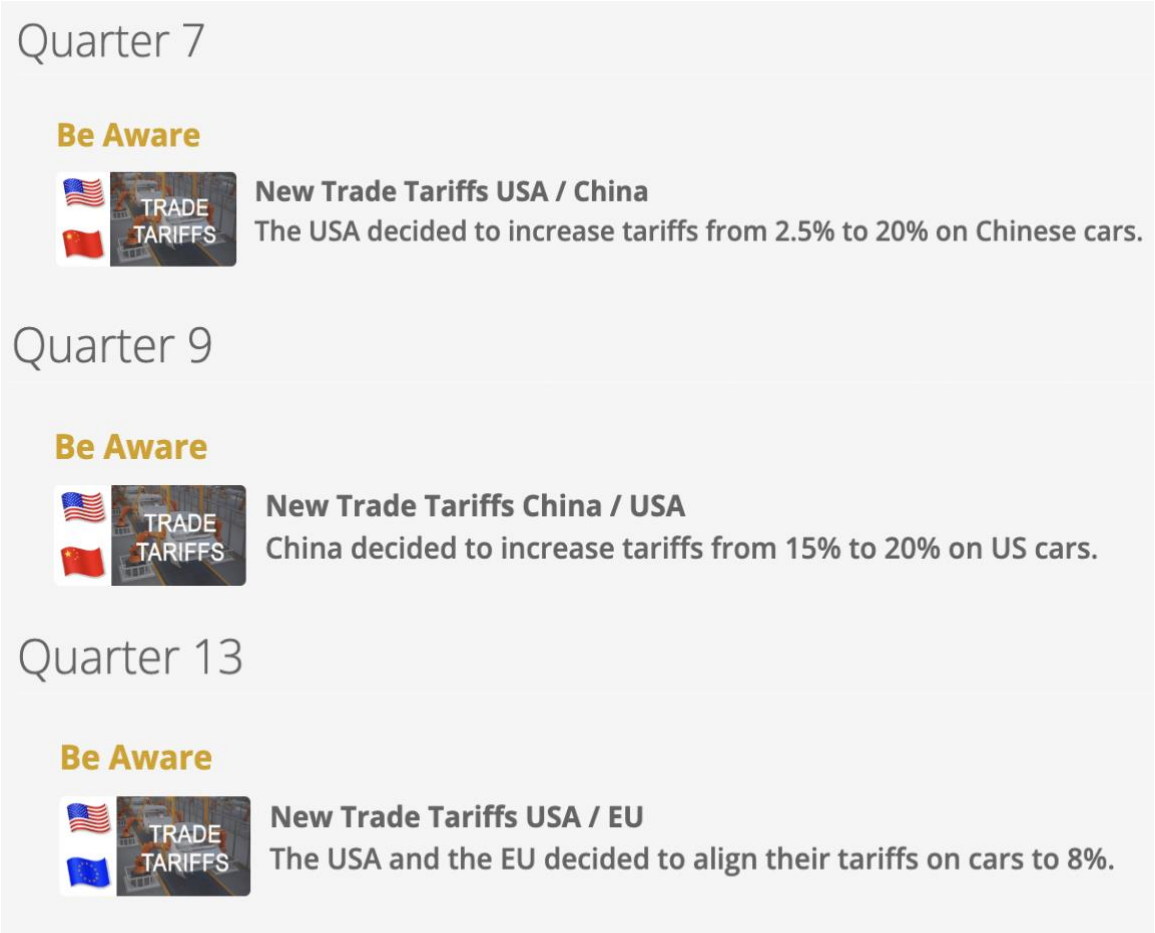


Fig 2 – Trade Disputes in Simulation

Source - BiP Industry Master's Simulation. 2023

Segment Sales Player - Pantheon

	Total Sales	Total Revenue	Player Sales	Player Revenue	Segment Market Share
Americas	160,717	$6,933M	49,054	$2,331M	33.6%
Europe	140,351	$5,637M	48,849	$2,039M	36.2%
Asia	202,768	$7,908M	59,703	$2,608M	33.0%

	Buyers	Monthly Income	Market Potential	Supply Level
Americas	9126.83K	$5,500	$7,667M	90.4%
Europe	8281.01K	$4,500	$6,459M	87.3%
Asia	12771.11K	$3,500	$9,195M	86.0%

Fig 3 – Sales Segmentation and Market Potential

Source - BiP Industry Master's Simulation. 2023

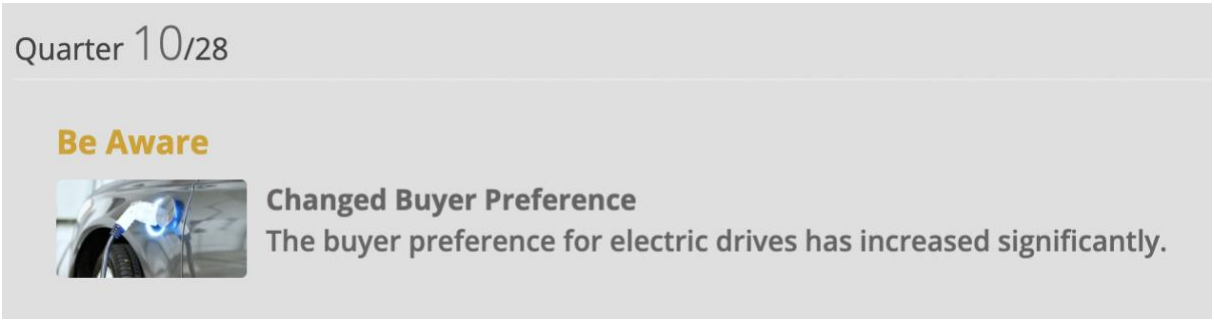


Fig 4 – Changed Buyer Preferences

Source - BiP Industry Master's Simulation. 2023

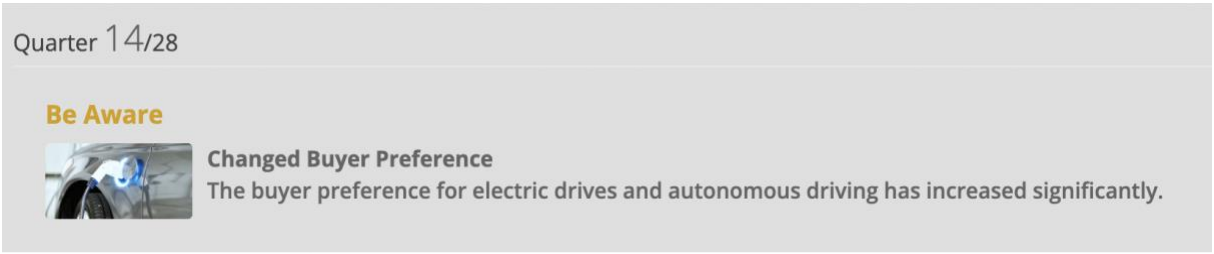


Fig 5 – Shift in Buyer Preferences

Source - BiP Industry Master's Simulation. 2023

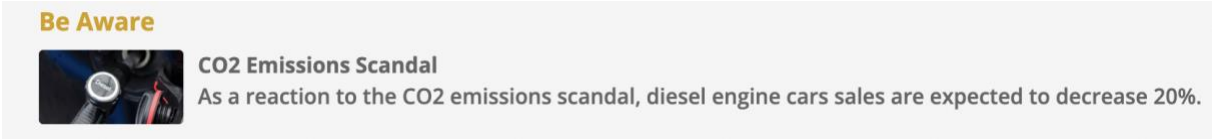


Fig 6 – CO2 Emissions Scandal

Source - BiP Industry Master's Simulation. 2023

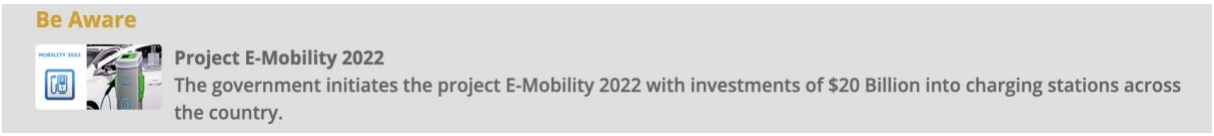


Fig 7 – Project E-Mobility 2022 Announcement

Source - BiP Industry Master's Simulation. 2023

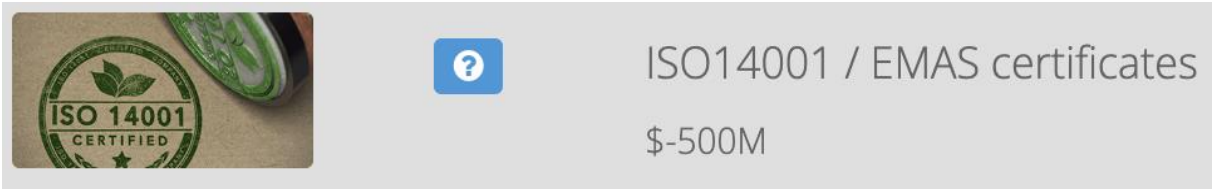
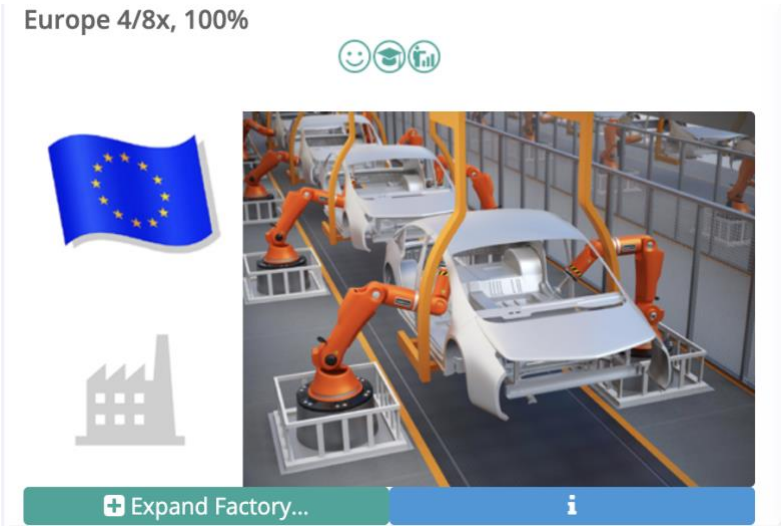


Fig 8 – ISO14001 / EMAS Certificates

Source - BiP Industry Master's Simulation. 2023



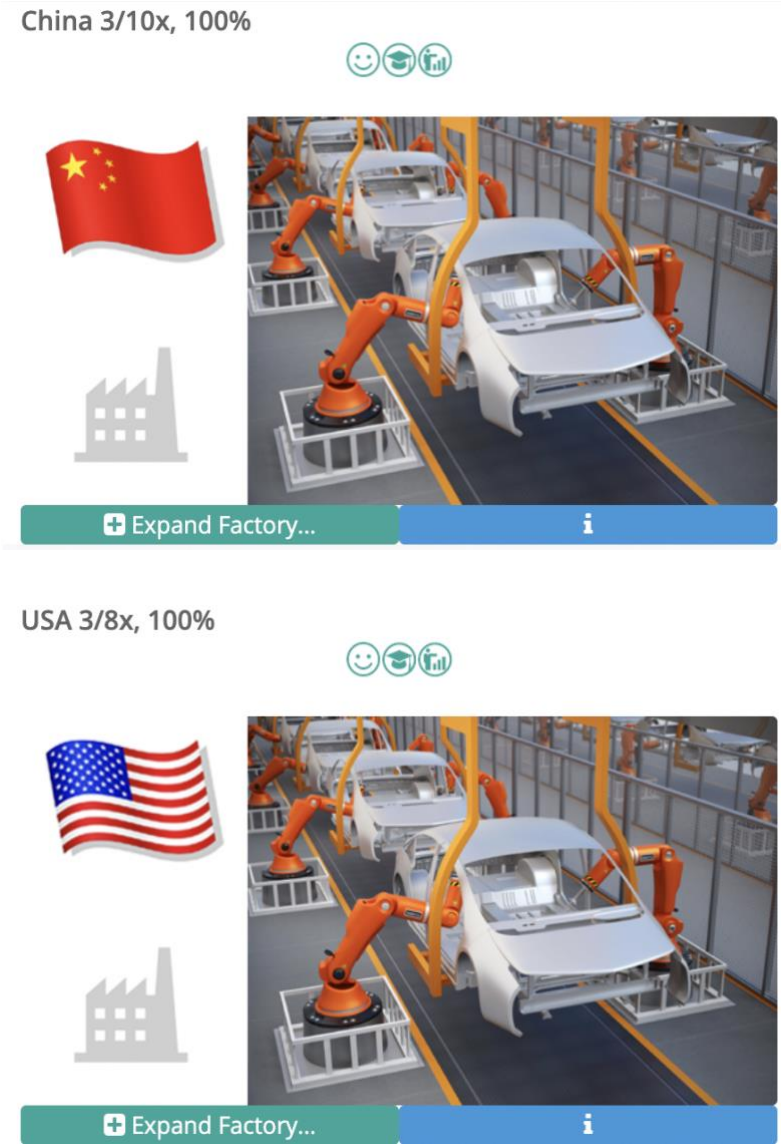


Fig 9 – Factory Utilization Q27

Source - BiP Industry Master's Simulation. 2023

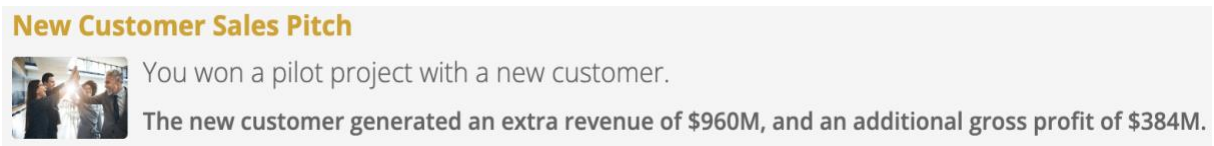


Fig 10 – Pilot Project Certificate

Source - BiP Industry Master's Simulation. 2023

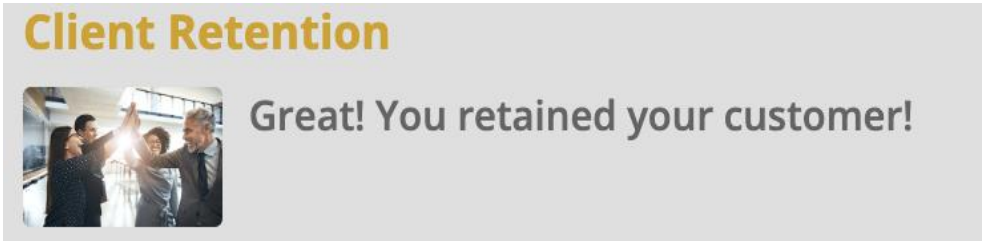


Fig 11 – Client Retention Certificate

Source - BiP Industry Master's Simulation. 2023

OPERATIONAL INVESTMENTS

Technology	Cost ($M)	Year 0				Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
Water Consumption Reduction	200					200																							
Waste Reduction	400							400																					
ISO14001 / EMAS Certificates	500																	500											
Energy Efficiency Investment	150									150																			
Install Solar Panels	250															250													
Energy Management System	10																	10											
Offset Suppliers CO2	-					17,3																							
Choose Sustainable Supplier	10					10																							
Co-Invest with Supplier	50									50																			
Total Expenditure	1570					227,3		400		200						250		510											

OPERATIONAL EXPENDITURES

EXPANSION	Cost ($M)	Year 0				Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
EUROPE	800																												
CHINA	800																												
USA	800								800																				
Total Expenditure	2400																												

Fig 12 – Operational Investments Plan

Source – Self-made. Data from BiP Industry Master's Simulation. 2023

1.	46.20	IXOR (Team 14029 3) [Round 1/1, tick 84]
2.	45.90	Curro cars (Team 14029 1) [Round 1/1, tick 84]
3.	45.60	Pantheon (Team 14029 7) [Round 1/1, tick 84]
4.	44.30	Humba Motors (Team 14029 12) [Round 1/1, tick 84]
5.	44.10	Car Cavelos (Team 14029 10) [Round 1/1, tick 84]
6.	43.70	Enigma Motors (Team 14029 9) [Round 1/1, tick 84]
7.	43.40	Zeno (Team 14029 11) [Round 1/1, tick 84]
8.	42.00	Quattro Motors (Team 14029 4) [Round 1/1, tick 84]
9.	42.00	8Tron (Team 14029 8) [Round 1/1, tick 84]
10.	41.90	Leaf Tech (Team 14029 6) [Round 1/1, tick 84]

1.	100.00	Pantheon (Team 14029 7) [Round 1/1, tick 84]
2.	99.90	IXOR (Team 14029 3) [Round 1/1, tick 84]
3.	99.80	Car Cavelos (Team 14029 10) [Round 1/1, tick 84]
4.	99.60	Leaf Tech (Team 14029 6) [Round 1/1, tick 84]
5.	99.50	8Tron (Team 14029 8) [Round 1/1, tick 84]
6.	98.60	Enigma Motors (Team 14029 9) [Round 1/1, tick 84]
7.	97.60	Quattro Motors (Team 14029 4) [Round 1/1, tick 84]
8.	95.80	Volta (Team 14029 5) [Round 1/1, tick 84]
9.	92.80	Zen Motors (Team 14029 2) [Round 1/1, tick 84]
10.	92.60	Curro cars (Team 14029 1) [Round 1/1, tick 84]

Fig 13 – Diversity and Employee Satisfaction Ratios

Source - BiP Industry Master's Simulation. 2023

Technology	Cost ($M)
E-Drive Modules	600
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
Total Expenditure	3310

Fig 14 – R&D Total Expenditure

Source – Self-Made. Data from BiP Industry Master's Simulation. 2023

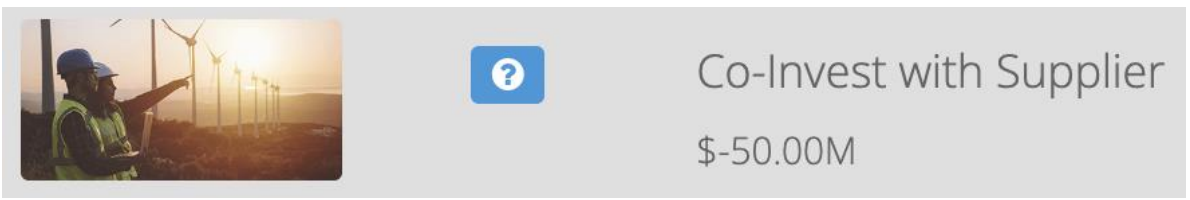


Fig 15 – Co-Invest with Supplier Investment

Source - BiP Industry Master's Simulation. 2023

Fig 16 – EBIT Margin

Source - BiP Industry Master's Simulation. 2023

1.	33.20	Zeno (Team 14029 11) [Round 1/1, tick 84]
2.	32.50	Pantheon (Team 14029 7) [Round 1/1, tick 84]
3.	31.90	Quattro Motors (Team 14029 4) [Round 1/1, tick 84]
4.	31.80	Volta (Team 14029 5) [Round 1/1, tick 84]
5.	28.60	Zen Motors (Team 14029 2) [Round 1/1, tick 84]
6.	27.30	Humba Motors (Team 14029 12) [Round 1/1, tick 84]
7.	27.00	IXOR (Team 14029 3) [Round 1/1, tick 84]
8.	25.30	Enigma Motors (Team 14029 9) [Round 1/1, tick 84]
9.	24.60	8Tron (Team 14029 8) [Round 1/1, tick 84]
10.	24.50	Car Cavelos (Team 14029 10) [Round 1/1, tick 84]

Fig 17 – Return on Net Assets

Source - BiP Industry Master's Simulation. 2023

INNOVATION

RESEARCH & DEVELOPMENT

Technology	Cost ($M)	Year 0				Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
E-Drive Modules	600																												
Home Charging Stations	300																												
High Power Charging (HPC)	200																200												
Connectivity Technology	250				250																								
Infotainment Services	160					160																							
Big Data	150							150																					
Cross-Platform Technology	200																200												
Automated Parking	500						500																						
Driver Assistance	250								250																				
Cloud Connection	300															300													
Secure Infrastructure	400																	400											
Total Expenditure	3310				250	160	500	450																					

Fig 18 – Pantheon's R&D Investment Schedule

Source –Self-made. Data from BiP Industry Master's Simulation. 2023

INNOVATION

MODEL	Cost ($M)	Year 0				Year 1				
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Compact Athena					520					
Convertible Apollo							695			
Executive Zeus									595	
Luxury Afrodite Elec										
MICRO										

Fig 19 – Pantheon's Product Launch Plan

Source – Self-made. Data from BiP Industry Master's Simulation. 2023.

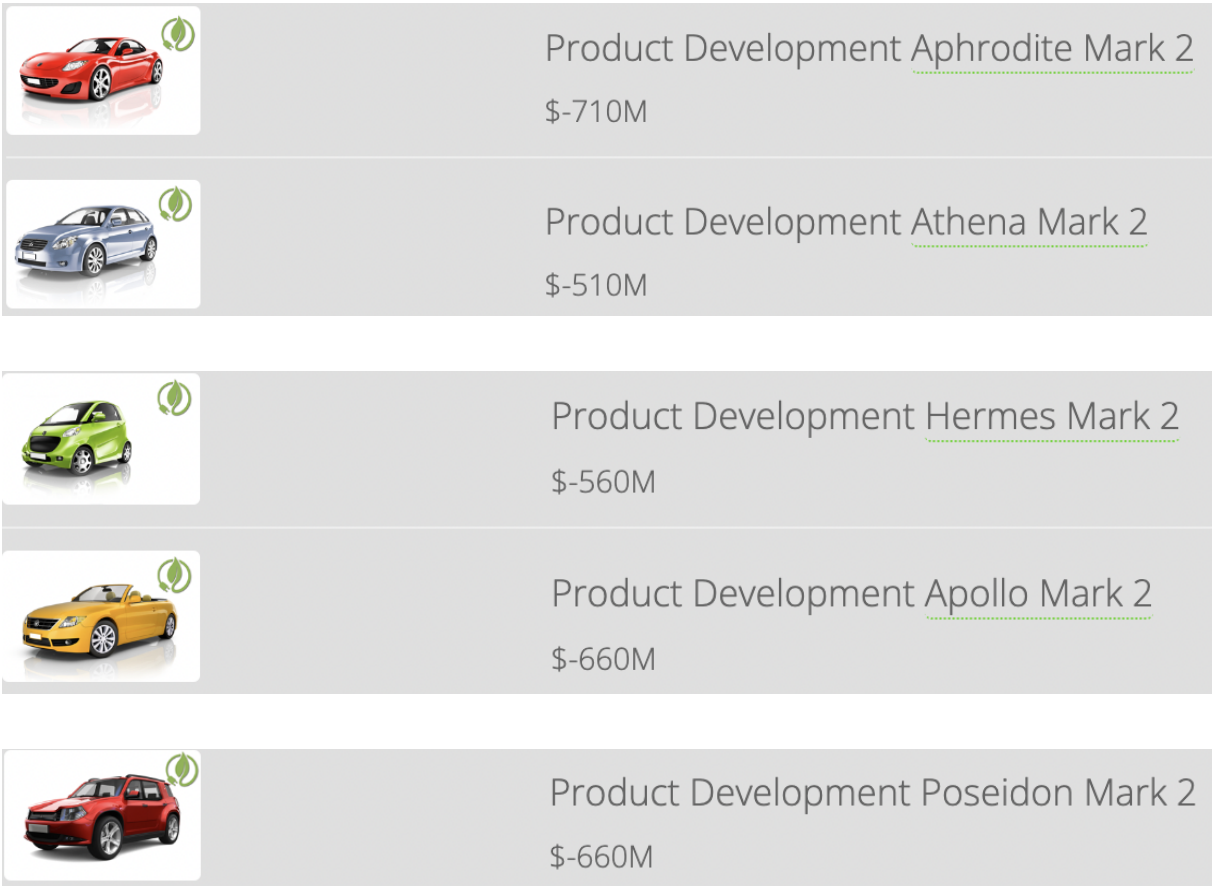


Fig 20 – Pantheon's Mark 2 Series Launch

Source - BiP Industry Master's Simulation. 2023.

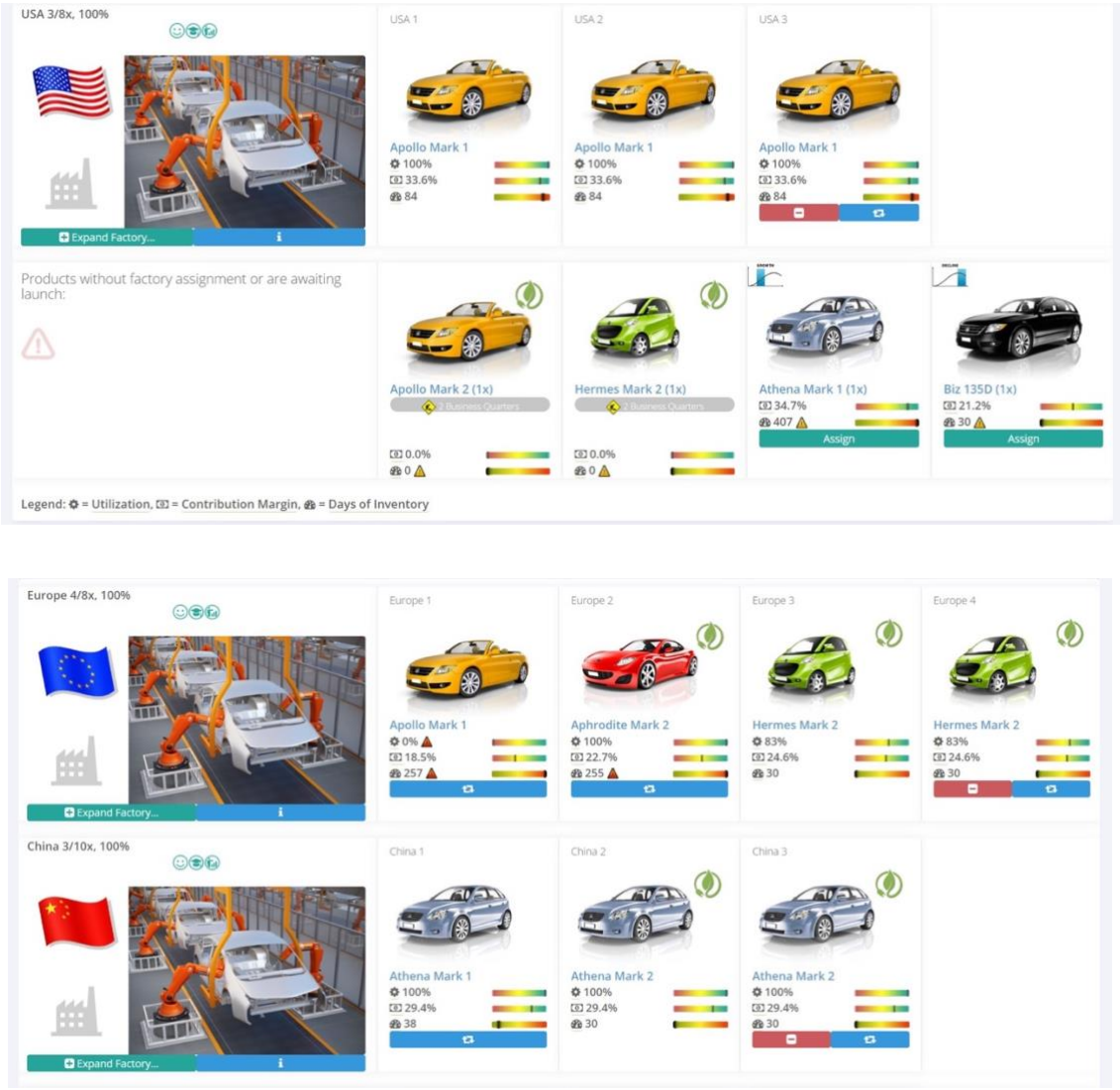
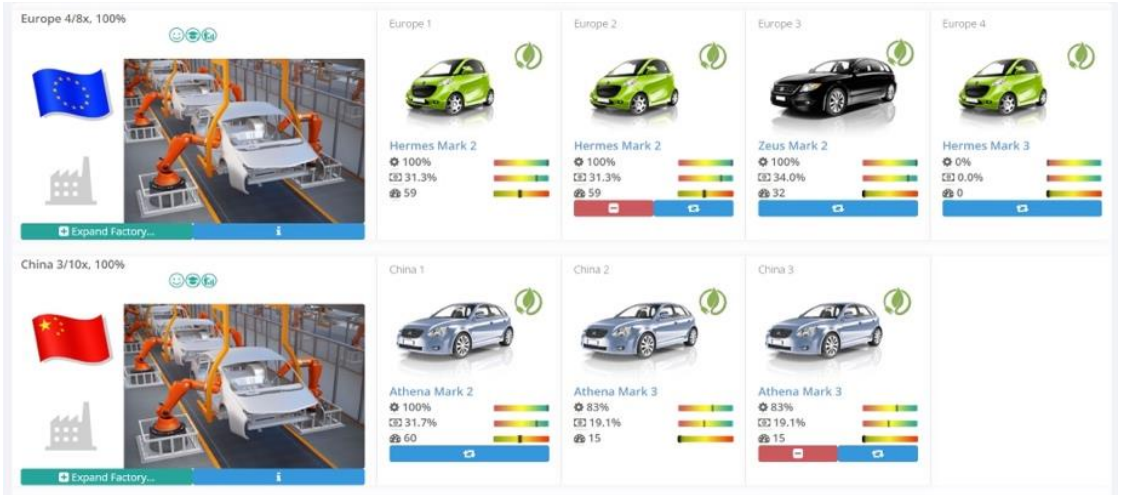


Fig 21 – Pantheon's Q12 Factory Layout

Source - BiP Industry Master's Simulation. 2023.



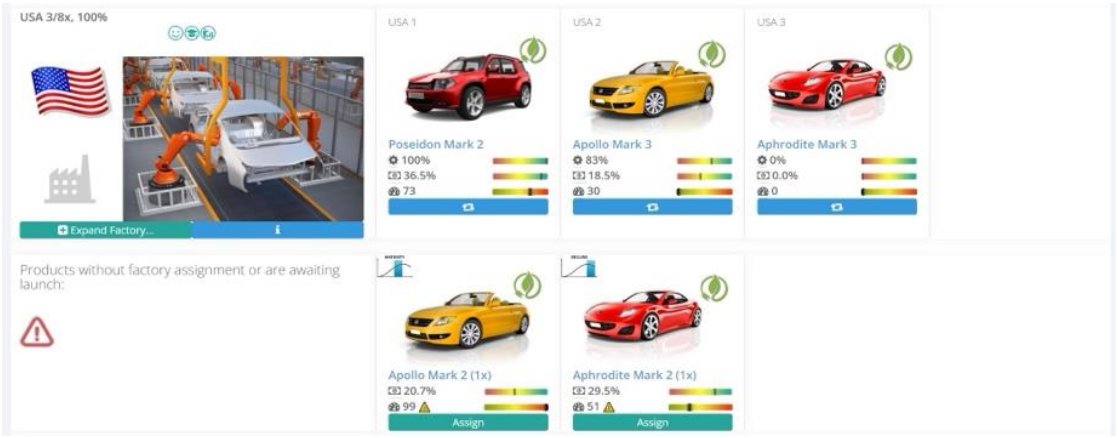


Fig 22 – Pantheon's Q23 Factory Layout

Source - BiP Industry Master's Simulation. 2023.

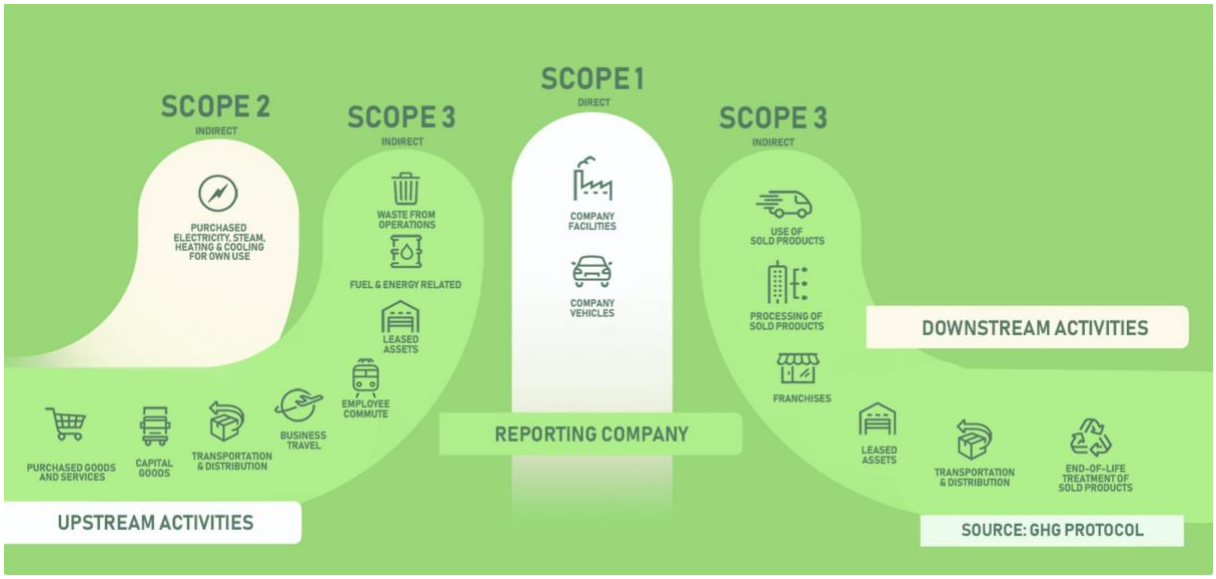


Fig 23 – Emission's Scopes

Source - BiP Industry Master's Simulation. 2023.

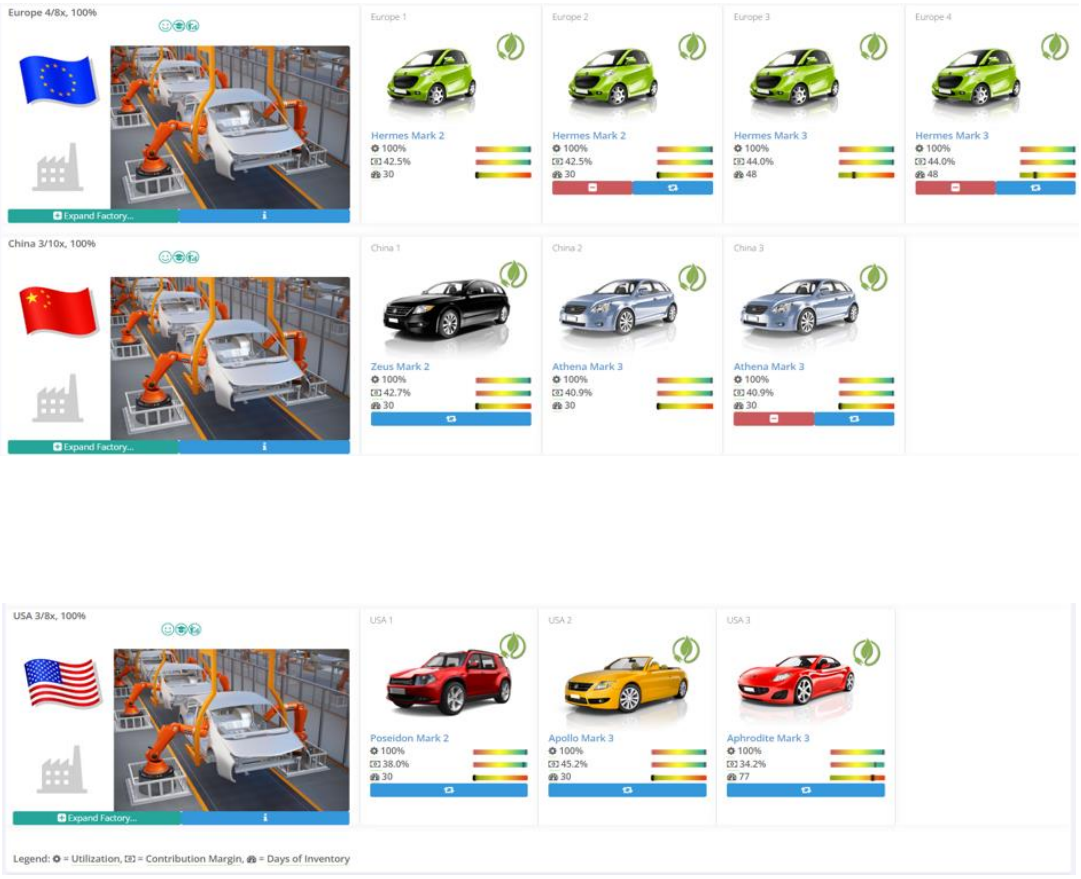


Fig 24 – Pantheon's Q27 Factory Layout

Source – BiP Industry Master's Simulation. 2023.

Pantheon

Unleashing the Power of Purpose: Our Mission, Vision and Values

Vision

Driving Sustainable Excellence for a better future.

Mission

Consistently drive sustainable excellence by designing, manufacturing, and delivering high-quality vehicles that surpass customer expectations, that will lead towards sustainability, in a sustained way.

Synergy

Our constant collaboration among Innovation, Finance, Marketing, Operations, and Human Resources allows us to create cutting-edge, environmentally conscious vehicles. We integrate sustainability into our financial decision-making, effectively communicate our practices to inspire stakeholders, prioritize efficiency in our operations, and empower employees to contribute to our sustainability goals.
Together, we forge a path towards a more sustainable future, making a lasting positive impact on the environment and society, in a sustained way.

At Pantheon, we embody our commitment to sustainability and environmental stewardship by dedicating quarterly moments to review, discuss, and strategically plan our Sustainable Growth and Environmental (SGE) initiatives, aligning our actions with our vision, values and purposeful mission.

Values

Innovation | Social Responsibility | Customer-centration | Integrity | Sustainability | Continuous Improvement

Resource Management (Scope 1)

Initiatives in our company's material efficiency, water reduction, and recycling.

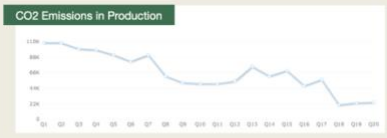
Material Efficiency, Water Reduction & Recycling

- 200M$ Investment into **water-saving techniques,** which enables us to reduce the amount of energy used, divert less water in rivers and save money
- 400M$ Investment allocated towards **minimizing waste** in the workplace

We follow and comply with SASB Standards for Material Efficiency, Water Reduction & Recycling

SASB STANDARDS

CO2 Emissions in Production



Our initiatives in our company's **material efficiency, water reduction, and recycling** were rewarded, as seen in the graph on the left. We were able to **reduce CO2 emissions** in our production from 110K to 24K. As of Q7, waste reduction was implemented. Furthermore, in Q17, the company was **certified ISO14001 / EMAS** which has had an impact on our overall environmental management system allowing us to **evaluate, report, and improve** our environmental performance.

Obtaining the **ISO14001 / EMAS certificates** has had several effects on our company, such as:
- Improving our **image** and **credibility** regarding company facilities
- Enabling quicker **improvement of processes**
- Helping us comply with **legal requirements**

Our company is dedicated to **enhancing our environmental performance** and reducing scope 1 emissions. We will focus on **renewable energy** adoption, **optimizing production** processes, and fostering a **culture of sustainability**. Collaborating with suppliers and advocating for sustainable policies, we strive to lead the way in **emissions reduction** and create a lasting positive impact. Together, we will build a greener future for our company and the planet.

Resource Management (Scope 2)

Ambitious Investments in Energy Efficiency allowed for a Sustained Electrification our fleet.

Fuel economy of vehicles sold during the reported period, by region	For quarter 20, with a full electrification of our fleet, **0 g/mile of CO2.**
Number of zero emission vehicles (ZE) sold during the reported period	Estimation of 144K units sold in quarter 20
Strategy for Managing Fleet Fuel Economy and Emissions Risks and Opportunities	Investment in **energy efficiency** - 150M$ Installment of **solar panels** - 250M$ Investment in **energy management system** - 10M$

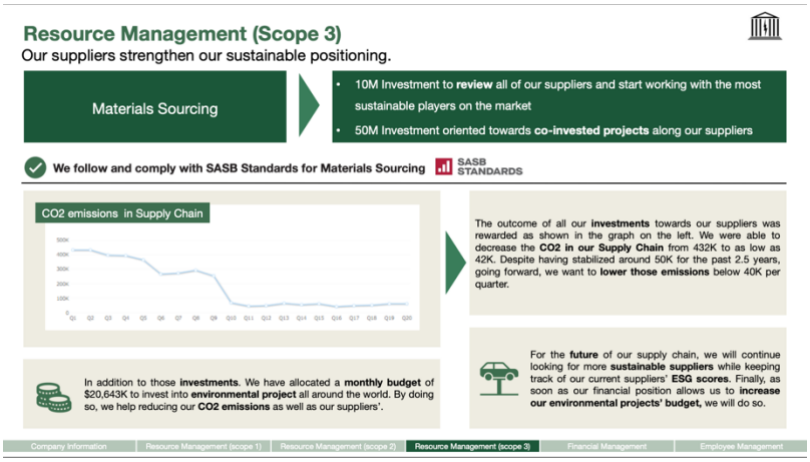
We follow and comply with SASB Standards for Materials Sourcing

SASB STANDARDS

CO2 in Energy

CO2 Fleet Emissions (g/mile)

Complementary metrics that showcase Pantheon's commitment to affordable and clean energy in our fleet and operations.



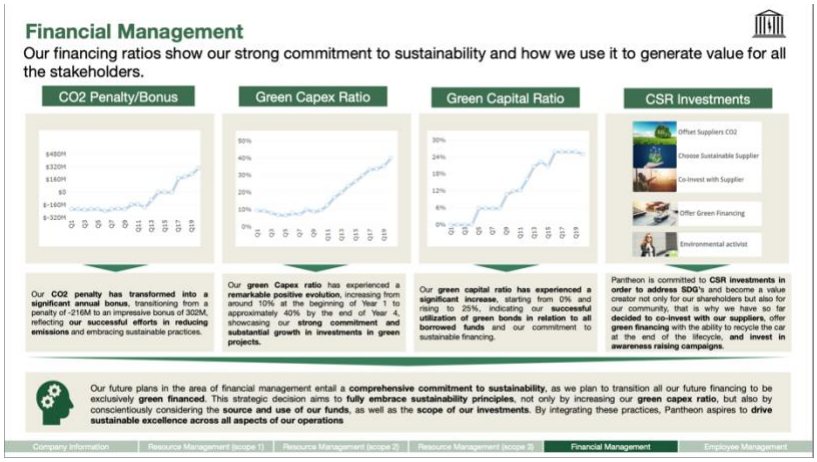
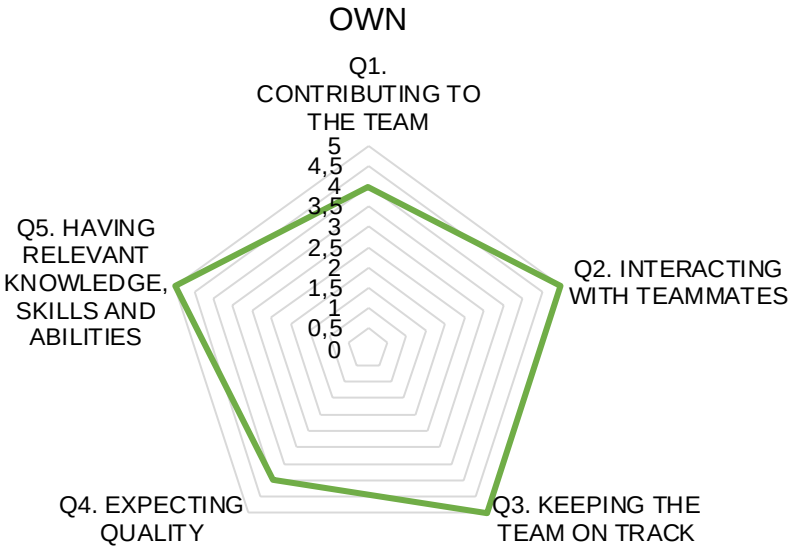


Fig 25 – Pantheon's ESG Report

Source – Pantheon's Board of Directors

Fig 26 – The Five Dysfunctions of a Team

Source – Lencioni, Patrick, and Charles Stransky. 2002. *The five dysfunctions of a team*. NY: Random House, Inc.



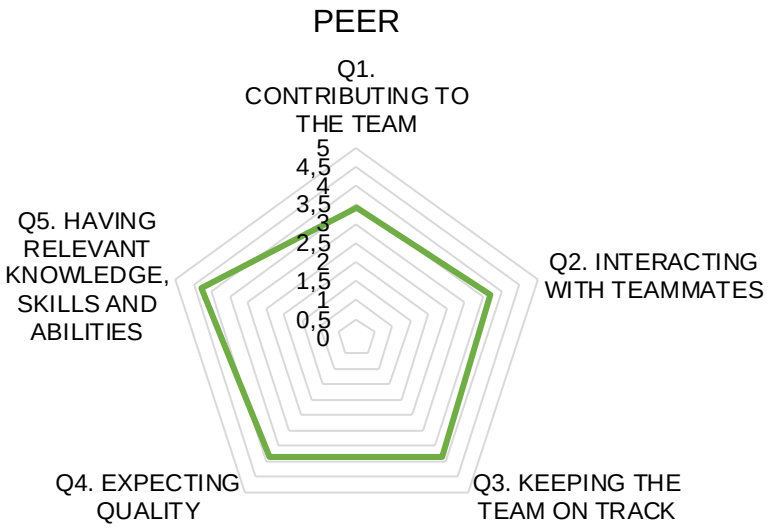


Fig 27 – Business in Practice Own and Peer Assessment

Source – BiP Industry Master's Simulation – Peer Feedback 2023