Performance Analysis and Strategy Formulation of a Team in CAPSIM Business Simulation

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ABSTRACT

This study presents the analysis and results of one group from the Strategic Financial Management class as we participated in the CAPSIM Business Simulation over eight competitive rounds. The simulation required the group to perform key managerial functions such as planning, organizing, leading and controlling while making integrated decisions across R&D, Marketing, Operations and Finance. Throughout the rounds, the team experienced both improvements and challenges that included forecasting inaccuracies, liquidity pressures, heavy dependence on the low technology product and delayed investment in the high technology segment. Through collaborative teamwork, data driven evaluations and continuous learning, the group achieved significant performance growth, clearer strategic alignment and stronger decision-making capabilities. The findings demonstrate the value of experiential learning in developing practical business skills.

Keywords: Business Simulation, Gamification, Experiential Learning, Strategic Decision Making, Team Performance, Business Education.

INTRODUCTION

It is widely accepted that teamwork plays a crucial role in modern organizations. Businesses increasingly depend on teams as essential structures that enable them to respond and manage growing environmental complexity (Pereira, 2025). Rubin (2017) stated that students are often taught about teamwork in theory (knowing) but have fewer opportunities to learn how to work effectively within a team (doing). To bridge this knowing-doing gap, educators frequently adopt peer-evaluation tools that emphasize self and teammate assessment. However, in practice, these tools rarely provide the meaningful, actionable insights students need to adjust their teamwork behaviours particularly because effective improvement requires both individual-level and team-level feedback. This is where business simulations fill the gap. Business simulations have become an essential tool in business education because they allow students to experience real-world decision-making in a controlled environment (Schmuck, 2021).

CAPSIM Foundation simulation provides a platform for students to manage a virtual company and make cross-functional decisions in R&D, Marketing, Operations, and Finance. Throughout eight competitive rounds, the simulation introduced changing market conditions, evolving customer preferences, and competitor actions, pushing participants to analyse results and adjust strategies accordingly. The study focuses on one group that worked collaboratively sharing a single laptop, coordinating decisions under a 30-minute time limit, and applying experiential learning to improve performance round by round, as reflected in the FastTrack reports and Balanced Scorecard outcomes.

Although strong financial performance could be demonstrated across several rounds in a simulated business environment, including high contribution margins, positive net profits, and improvements in cash reserves, multiple challenges could still emerge that threaten overall competitiveness. These included difficulties in demand forecasting, inconsistent marketing strategy, overreliance on the low-tech product, underinvestment in

the fast-growing high-tech segment, and occasional liquidity issues leading to emergency loans. Role misalignment, reactive marketing decisions, and production-demand mismatches could further affect efficiency. These recurring gaps highlight the need to understand how decision-making processes, teamwork dynamics, and strategic planning influence performance in simulation-based learning environments. Hence, the purpose of this study is to analyse the group's performance across eight rounds of the CAPSIM simulation and examine how decision-making, teamwork coordination, and cross-functional strategies contributed to both achievements and performance gaps. By interpreting financial and operational results, including profitability, inventory levels, contribution margin, and market share, the study aims to identify what worked, what did not, and how strategic improvements could enhance future outcomes. The study seeks to answer the following questions:

1. How did the group perform financially and operationally across the eight simulation rounds?
2. What strategies can be recommended to improve future simulation performance and enhance learning outcomes?

Respectively, this study is guided by the following objectives:

1. To describe the group's performance across all eight rounds of the CAPSIM business simulation.
2. To propose improvement strategies that can enhance learning outcomes and decision-making effectiveness in future simulations.

This study is significant from both educational and practical perspectives. Firstly, it contributes insights into how experiential learning through simulations assists students understand real-world business interactions, trade-offs, and cross-functional dependencies. Secondly, it highlights how teamwork, communication, and data-driven decision-making influence results and valuable lessons for students preparing for managerial roles. In addition to that, it identifies the group's performance gaps, such as liquidity issues, forecasting errors, and role misalignment, offers practical recommendations that can improve the effectiveness in using CAPSIM for future cohorts. Educators may also benefit from the findings by refining instructional strategies to better support simulation-based learning. Ultimately, the study demonstrates how structured reflection on simulation outcomes can strengthen business acumen and strategic thinking.

LITERATURE REVIEW

CAPSIM Business Simulation offers students a hands-on experience in managing a company, while also supporting classroom learning. It requires them to perform key management functions such as planning, organizing, leading, and controlling. Because the simulation is designed to resemble an actual business organization, students must apply these functions when making decisions. As a result, they need to create strategies that help the company remain competitive and achieve its vision, mission, and goals. The simulation's emphasis on analysis, preparation, experimentation, and strategic thinking in developing student's skills that are essential for success in real business environments (Hussin, 2022).

Experiential learning theory posits that students learn most effectively through active participation, reflection, and iterative practice (Inguva et al., 2021). Business simulations such as CAPSIM operationalize this theory by placing learners in realistic decision-making environments where they must analyse data, respond to market conditions, and evaluate outcomes. Research shows that simulations enhance critical thinking, strategic analysis, and the ability to link theory to practice (Deitz et al., 2021). Simulations also provide safe environments for trial-and-error learning, allowing students to observe the consequences of decisions without real-world risk (Munch et al., 2025). In the CAPSIM context, participants analysed FastTrack reports, contribution margins, market share, and Balanced Scorecard metrics after each round, which aligns with the experiential cycle of reflection, learning, and adjustment.

Team-based learning environments emphasize the importance of effective collaboration, communication, and coordination. Although students often learn about teamwork conceptually, they are rarely taught how to apply teamwork skills in practice (Rubin, 2017). The knowing-doing gap arises because theoretical knowledge of teamwork does not automatically translate into effective team behaviour (Rubin, 2017). Effective teamwork

requires shared understanding, information exchange, and alignment of goals (Arora et al., 2023). Peer interaction and role differentiation significantly shape team performance, especially under constraints such as time pressure or limited resources (Salas et al., 2018). In our CAPSIM team, decisions were made collaboratively, with members contributing across all roles (Marketing, Finance, R&D, Operations). This is consistent with the research by Huang et al. (2014), stating that cross-functional engagement improves team learning but may also create coordination challenges if roles are unclear. Diagram 1 shows the framework that illustrates how the team's internal processes and decision strategies in driving the team performance across the simulation.

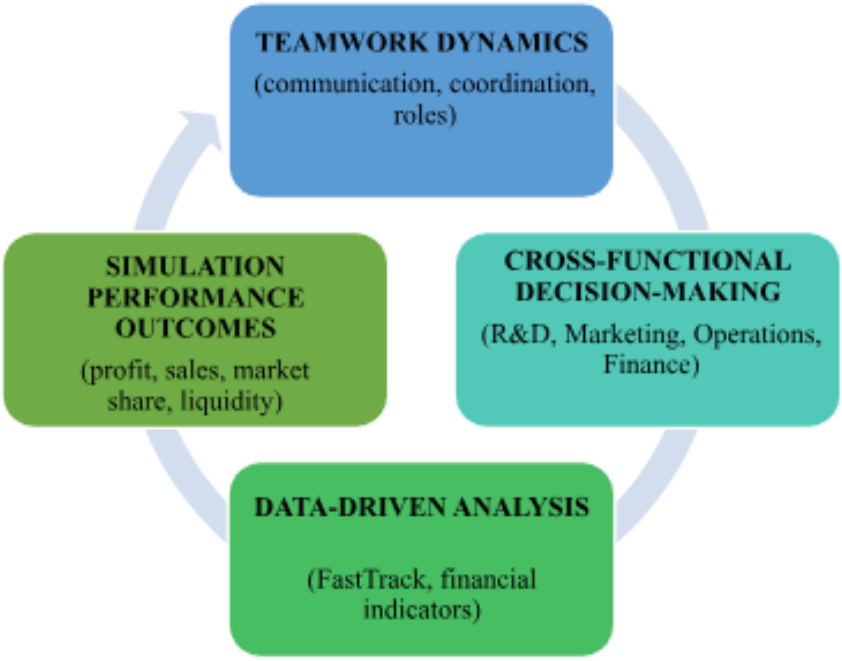

Diagram 1: The Team's Internal Processes and Decision-Making Strategies

RESEARCH METHODOLOGY

Research Design

This study adopted a single-case descriptive research design that focuses on one group participating in the CAPSIM business simulation. Although several groups were involved in the course, this study examines only the performance and learning experience of a single team. The simulation provided a structured platform for participants to make decisions across different functional areas such as marketing, finance, operations, and overall strategy. The design aims to understand how the group functioned throughout the eight rounds and how decisions made in one department influenced other areas. The simulation also exposed participants to changes in market conditions, customer buying criteria, and competitive dynamics, allowing them to observe the consequences of each decision.

This approach aligns with experiential learning, where knowledge is developed through active participation and reflection. After each round, participants reviewed the FastTrack reports, analysed the outcomes, and identified areas for improvement. Through this continuous cycle, the group learned how certain actions affected performance and how strategic adjustments were required to remain competitive in the simulated market.

Participants

The participants of this study consisted of one group, comprising four students and one supervisor from the course of Strategic Financial Management that used the CAPSIM business simulation. Although roles such as R&D, Marketing, Finance, Operations, and CEO were assigned at the beginning, the group did not operate strictly based on these divisions. Instead, the team adopted a highly collaborative approach where every member

contributed ideas across all functional areas. Decisions were not made individually but were discussed in details, and final actions were taken only when the majority of the members had agreed.

Even though a group leader was appointed to help coordinate discussions, the decision-making process was strongly collective. Members actively shared opinions, questioned assumptions, and provided input beyond their assigned roles. For example, participants who were more familiar with Marketing or Production still contributed to Finance or R&D discussions, and those handling Finance also gave suggestions for pricing, forecasting, and product improvements. This cross-functional involvement allowed the team to understand how each department influenced another and helped maintain alignment throughout the eight rounds.

The group also demonstrated a high level of cooperation in managing technical challenges. Three members worked face-to-face using a single shared laptop, while one member joined through Webex via the breakout room provided by the lecturer. Screen sharing ensured that all members could follow the decision-making process in real time. Due to the strict 30-minute time limit for each round, one participant monitored the countdown closely, and the team worked together under pressure to finalise decisions. This intense collaborative effort allowed the group to function as a unified team, where every member's input was valued and incorporated into the final strategy.

Simulation Platform

This study used the CAPSIM Foundation business simulation platform as the main system for analysing group performance. CAPSIM provides a computer-based environment where participants manage a virtual company and make decisions across functional areas such as R&D, Marketing, Finance, and Operations. The platform updates market conditions, customer preferences, and competitor behaviour in each round, creating a dynamic and competitive decision-making environment.

Before the competitive rounds began, the platform provided several guided tutorials to help participants understand the system. These included the Introductory Lesson Quiz, a Rehearsal Tutorial, and a Situation Analysis module. Additional advanced tutorials, such as the Advanced HR Module and Advanced TQM Module, were also available to further support learning. These tutorials helped participants familiarise themselves with key concepts, system navigation, and decision-making features prior to entering Round 1.

The platform also generated comprehensive performance reports after each round, including the FastTrack report, financial statements, contribution margin analysis, production and inventory summaries, and Balanced Scorecard results. These outputs allowed participants to observe how their decisions influenced outcomes and to identify areas that needed adjustment for the following round. CAPSIM functioned as an experiential learning tool that mimicked real business operations and allowed participants to practise cross-functional decision-making within a controlled and interactive environment.

Procedure

The simulation was conducted over eight competitive rounds, and each round followed a similar cycle of review, discussion, decision-making, and evaluation. At the start of each round, participants reviewed the FastTrack report to observe changes in customer demand, product performance, competitor pricing, and market conditions. Particular attention was given to inventory levels, sales volume, and competitor strategies, especially when planning for high-tech product development. Typically, the group began with decisions in R&D and gradually shifted focus to Production and Marketing as the round progressed to the next round. Production decisions were often made first to check the feasible output based on capacity and automation levels. Marketing decisions such as pricing and forecasting were adjusted afterwards based on the expected production numbers. Although this approach was not always optimal, it was the method the group found manageable under time pressure.

Decisions were entered using one laptop, while the team discussed the options together via the hybrid mode, three members in person in a location face to face meeting, one member and a supervisor appearing through Webex online. One participant monitored the time limit to ensure the group stayed within the 30-minute submission window. After submitting decisions, participants analysed the simulation results, including profitability, inventory outcomes, demand accuracy, and accessibility scores. This evaluation helped the group

identify issues such as stockouts, low awareness, negative cash flow, or misalignment between production and demand. The same process repeated for all eight rounds, forming a continuous cycle of planning, adjusting, and responding to the simulation's outcomes.

Data Collection

Data for this study was collected directly from the CAPSIM simulation system. After each round, the platform generated several reports that contained detailed information about the company's performance. The main source of data was the FastTrack report, which provided updates on market share, customer demand, pricing, contribution margin, product performance, marketing outcomes, production figures, and financial results.

Additionally, the system-generated documents, such as financial statements, production and inventory summaries, and the Balanced Scorecard, were also used to support the analysis. These reports included metrics such as revenue, profit, cost structure, capacity utilisation, cash flow, and competitive positioning. All data used in this study was secondary data extracted from the simulation platform, and no external data collection was required. The information generated by CAPSIM served as the basis for examining trends, identifying performance gaps, and understanding how the group's decisions influenced the outcomes across the eight rounds.

Data Analysis

The analysis relied on descriptive interpretation of the key performance indicators generated by the CAPSIM simulation. The group paid particular attention to inventory levels, sales volume, and contribution margin, as these indicators reflected how effectively the products were performing in the market. Market share and competitor activity were also observed to understand whether the company was positioned competitively.

Some indicators were more challenging to interpret, such as accessibility, productivity, and customer buying criteria, which sometimes did not change as expected even when promotional spending was increased. Balancing capacity and production levels was also difficult, especially when demand forecasts were inaccurate.

Certain outcomes triggered strong reactions among participants, especially in earlier rounds. For example, the first round resulted in negative cash flow, and this became a turning point that pushed the group to be more cautious with financial decisions. Another major incident occurred when a second product was accidentally created with similar characteristics to the existing low-tech product, which led to confusion and the eventual decision to freeze the new product. Overall, the data analysis focused on observing how decisions influenced outcomes across the eight rounds, identifying errors, and understanding which factors contributed most to performance changes.

RESULTS AND DISCUSSION

Overall Performance of the Group

Overall, our team has two products, Able and Able H1, with a total cumulative profit across 8 rounds nearing $40 million. The Able product, which is a low-tech product, contributes more than half of this total profit. From a financial position perspective, our team is strong, as indicated by positive net cash from financing activities. In the last round, we had cash reserves of approximately $9 million. Operationally, our plant focuses heavily on fully utilising the low-tech product Able. However, by concentrating too much on the low-tech product, our team has overlooked the high-tech product segment, where demand has been increasing each round. Given our high contribution margin and cash reserves of around RM9 million, our team should have invested more in the new high-tech product. This lack of investment likely contributed to our market share being second to the Baldwin team, as well as a lower market capitalization. The strategic oversight in neglecting the growing high-tech segment has affected competitive standing despite strong financial fundamentals. This highlights the importance of balancing product focus by leveraging available cash and margin strength to invest strategically in emerging high-demand areas such as high-tech products to sustain and grow market position.

Round-by-Round Analysis

For the Round 1, our group recorded sales of approximately 41.2 million with an EBIT of 118 thousand and a net profit of 493 thousand, reflecting a challenging start with a small profit margin of 0.7%. Return on Assets (ROA) and Return on Equity (ROE) were negative, indicating inefficiencies in asset use and equity returns at this point. The company maintained a cash position of 6.3 million and invested 6.3 million in plant improvements. In production, our group focused on the low-tech product Able, selling 1,374 units with a high plant utilization rate of 161%, signifying strong operational capacity use. We spent almost $5 million or 12% of sales in R&D, Promo, Sales and admin. Market share for Our group was around 17% in the low-tech segment. Contribution margin stood at 16.1%, impacted by high variable costs amounting to nearly 84% of sales, including labour and material costs. While the company had no emergency loans, short-term and long-term debts were managed to support operations alongside equity funding. Investment in marketing and sales promotions accounted for about 9.8% of sales, aimed at supporting brand awareness and demand. Overall, our group showed potential through strong capacity utilization and market share distribution, but profitability and asset returns need improvement. Efficient cost management and strategic investments will be essential to enhance financial health in subsequent rounds.

In Round 2, sales increased to approximately 52.6 million, with earnings before interest and taxes (EBIT) rising significantly to about 9.6 million. Net profit grew to over 5.6 million, reflecting improved profitability with return on equity (ROE) reaching 28.8% and return on assets (ROA) at 19.1%, indicating efficient use of resources. We maintained a solid balance sheet with total assets of around

29.4 million, and equity constituting two-thirds of total financing. Our group held no emergency loans and demonstrated effective management of current and long-term debt. Operationally, our group still focused production on the low-tech product Able, with 1,524 units sold and an impressive plant utilization of 146%. Contribution margin improved to 32%, balancing higher variable costs that accounted for roughly 68% of sales including labor, materials, and inventory carrying costs. Selling, general, and administrative expenses (SGA) were reduced to 10.3% of sales, supported by targeted promotional, sales, and administrative spending that implied less spending than round 1. Market share data indicate that we captured about 18.3% of the low-tech segment and 13.1% in the high-tech segment, maintaining competitive positioning. Cash flow from operations showed a positive increase, supporting investing activities that included 6.8 million in plant improvements. Financing activities involved modest debt repayments and limited new borrowing, contributing to a cleaner financial structure.

For Round 3, sales were steady at about 52.1 million with a robust EBIT of 8.4 million and net profit of nearly 4.9 million. Despite slightly lower profitability compared to the previous round, we sustained a healthy return on equity (20.3%) and return on assets (15.0%), maintaining efficient asset use with reduced leverage of 1.3. The company held a substantial cash position of 3.7 million and increased inventory to support sales. Total assets rose to approximately 32.7 million backed by equity of 24.3 million and moderate liabilities, highlighting a strong balance sheet without the need for emergency loans. Operationally, we sold 1,509 units of its core low-tech product Able, achieving solid capacity utilization of 127%. The contribution margin improved further to over 40%, benefiting from effective control of variable costs which accounted for roughly 60% of sales. Selling, general, and administrative expenses rose somewhat to 13.5% of sales, reflecting increased marketing and administrative efforts. Cash flows from operations remained positive, supporting continued investment in plant improvements and strategic initiatives. Market share remained competitive with a strong presence in the low-tech segment.

For Round 4, we posted sales of approximately 40.4 million, with EBIT at around 6.1 million and net profit at 3.5 million, demonstrating a slight decline in sales and profitability compared to the previous round but maintaining healthy margins. Return on equity stood at 11.8% and return on assets at 9.7%, reflecting efficient but reduced asset and equity utilization. The company's financial structure remained robust with total assets of 36.3 million predominantly financed through equity (82.2%), and no reliance on emergency loans. Cash reserves increased significantly to nearly 15 million, underscoring strong liquidity.

Operationally, the focus remained on the low-tech product Able, with 1,225 units sold and a plant utilization of

79%, a notable drop indicating fewer intensive operations compared to prior rounds. Contribution margin held strong at 40.7%, aided by effective management of variable costs, which comprised about 59.3% of sales. Selling, general, and administrative expenses were well-controlled at 11.7% of sales, with targeted expenditures on promotions and selling to sustain market presence.

Market share data showed We holding about 13.9% of the low-tech segment and 4.4% in the high-tech segment, indicating a steady but conservative market position. The company's cash flow from operations supported minimal investing activities in plant improvements and modest financing activities, helping maintain a clean balance sheet.

In the following Round 5, we reported sales of approximately 43.1 million for the period ending December 31, 2030, with an EBIT of 6.5 million and a net profit of about 4 million, indicating solid profitability. The company demonstrated efficient asset management with a return on assets (ROA) of 12.3% and a return on equity (ROE) of 14.1%, supported by an asset turnover ratio of 1.32 and leverage of 1.2. Its financial position remained strong, with total assets of 32.6 million largely financed by equity (86.9%), and no need for emergency loans, reflecting robust financial stability and liquidity with cash reserves standing at 9.1 million. Operational performance highlighted the product Able in the low-tech segment, which sold 1,287 units with a contribution margin of 42.6%, backed by well-managed variable costs accounting for 57.4% of sales. Selling, general, and administrative expenses were controlled at 13.3%. In this round we were start producing high tech product Able H1. Production efficiency was maintained with consistent plant utilization and capacity investments. Market share in the industry segments remained competitive with significant presence.

In Round 6, we exhibited robust financial and operational performance marked by sales of approximately 69 million and an EBIT of around 11.4 million. Net profit reached 7.1 million, reflecting significant growth compared to the previous period. The company's return on sales (ROS) improved to 10.3%, signifying enhanced operational efficiency. Asset turnover was strong at 1.73, and return on assets (ROA) and return on equity (ROE) rose to 17.8% and 20.7%, respectively, indicating excellent asset and equity utilization. We maintained a conservative leverage ratio of 1.2 and continued to operate without reliance on emergency loans, underlining a solid financial footing with total assets of nearly 40 million, primarily financed through equity (86.3%). Operationally, we focused on the low-tech product segment, highlighting sales of 1,287 units for the product Able, paired with a contribution margin of 44.3%, supported by prudent variable cost management which accounted for 55.7% of sales. The company effectively controlled its selling, general, and administrative expenses at 12.1%. Significant investments in plant improvements totaling 11 million were made to support capacity expansion and efficiency gains. Human resource metrics reflected a stable workforce with 275 employees, low turnover, and continued investments in training and quality management programs to boost productivity and operational excellence. In the high-tech segment for Round 6, we reported unit sales of 583 for the product AbleH1, which contributed significantly to the company’s total sales volume and revenue. This product achieved a contribution margin of approximately 35%, supported by effective cost control in both material and labor expenses. The AbleH1 product positioned itself well within the high-tech market, aligning with customer expectations for performance and size while maintaining competitive pricing. Market share analysis showed that we held a respectable presence within both low-tech and high-tech segments, reinforcing its competitive positioning. Cash flow from operations was strong at over 8 million, supporting investing activities and modest financing, resulting in a positive cash balance at period-end.

In Round 7, we experienced a mixed financial and operational performance. The company recorded sales of approximately 73 million, reflecting growth from prior rounds, though return on sales (ROS) dropped to 4.3%, indicating margin pressures. Earnings before interest and taxes (EBIT) were nearly 7 million, and net profit fell to just over 3.1 million, return on assets (ROA) declined to 4.7%, and return on equity (ROE) was 8.0%, highlighting challenges with profitability and asset utilization. The financial structure showed increased leverage at 1.7, and for the first time, there was reliance on an emergency loan of about 1.6 million, signaling some liquidity stress. Total assets almost doubled from prior rounds to 66.5 million, mainly driven by a significant increase in plant and equipment investments. Operationally, our low-tech product Able sold 1,337 units with a contribution margin of 46.5%, supported by disciplined management of variable costs, which comprised 53.5% of sales. Simultaneously, the high-tech product AbleH1 maintained sales of 626 units with a 44% contribution margin. The company invested heavily in plant improvements, totalling 28 million, aiming to expand capacity

and improve operational efficiency. However, the company faced growing inventory levels and accounts receivable, which contributed to cash flow challenges, evident in net cash from operations dropping sharply to 131 thousand. Human resources remained stable with 334 employees and low turnover, alongside continued spending on training and quality management programs to enhance productivity. Market presence remained competitive but reflected some softness in profitability metrics and operational cash flow stability.

In Round 8, we demonstrated strong growth and improved financial performance despite some liquidity challenges. Sales surged to approximately 93.9 million, nearly doubling compared to earlier rounds, while EBIT reached 18.7 million, reflecting improved operational efficiency. Net profit rose impressively to 9.7 million, contributing to a return on sales (ROS) of 10.3%, return on assets (ROA) of 11.2%, and a return on equity (ROE) of 20.1%. However, the company recorded an emergency loan of about 8.8 million, indicating ongoing cash flow pressures despite positive net income. Total assets expanded significantly to nearly 87 million, primarily due to substantial investments in plant and equipment valued at over 79 million.

Operationally, the company's low-tech product Able saw notable sales growth to 1,416 units with a solid contribution margin of 45%. High-tech product AbleH1 also performed strongly, with sales of 1,144 units and a contribution margin approximating 45%. Variable costs comprised about 55% of sales, while period costs, including depreciation and administrative expenses, remained well-managed to support profitability. The company faced increased inventories and accounts receivable, which contributed to tight cash flow despite strong operational earnings. Human resources metrics showed workforce expansion to 468 employees with low turnover and consistent investment in training and quality initiatives to sustain productivity gains. Market share in both low-tech and high-tech segments remained competitive, supported by strategic product positioning and investment in promotional activities. The following Diagram 2 shows the balance score card for all the eight rounds.

Diagram 2: Snapshot of the Balance Scorecard for the Eight Rounds from the CAPSIM Foundation

Overall, the team demonstrated strong and steady improvement throughout the eight rounds of the CAPSIM business simulation. Beginning with a modest profit margin and growing operational challenges, the team effectively applied strategic decision-making and role specialization to enhance overall performance. By the final rounds, the group achieved substantial sales growth nearing 94 million and net profits exceeding 9.7 million, reflecting sound financial health and operational efficiency. The team's core low tech product, Able, consistently delivered high contribution margins, while the later introduction and development of the high-tech product AbleH1 showed promising growth despite initial underinvestment. This balance of product focus underscored the importance of adapting to market demands and leveraging financial reserves for strategic investments.

CONCLUSION AND RECOMMENDATIONS

The CAPSIM business simulation journey of the team through the eight rounds revealed an achievement of cumulative profits near 40 million primarily from the low-tech Able product, while facing challenges in high tech expansion, role coordination, and demand forecasting. Strong financials of 9 million cash reserves in the final round contrasted with the missed opportunities in the growing high-tech segment, resulting at the second place in market share. These insights underscore the need for balanced strategies to elevate future performance from solid to industry leading.

From the simulation, we learned that role coordination played a critical part in the team's progression. The CEO provided vision and direction, though better alignment and communication across Marketing, Finance, and Operations roles were necessary to optimize decision making. Marketing efforts improved brand awareness and market reach over time, while financial leadership, controlled costs and planned budgets more effectively in the mid rounds. Operational management achieved high plant utilization and production efficiency, albeit with occasional overproduction, highlighting the need for enhanced demand forecasting. These insights revealed that teamwork dynamics and information sharing are pivotal in managing complex, competitive business environments.

Despite achievements, several areas for improvement were identified. The team faced liquidity pressures in later rounds, indicated by emergency loans tied to heavy investment in plant capacity and inventory buildup. More consistent cross functional role integration, data driven forecasting, and agile budget management could mitigate these risks moving forward. Furthermore, role rotation in future simulations could deepen understanding of interdepartmental dependencies and enrich collaborative strategy formulation.

Overall, this simulation experience validated the value of gamification in business education by exposing students to real world challenges such as trade-offs in product investment, financial planning, and teamwork. The iterative decision-making process fostered critical thinking and adapted learning, equipping participants with practical business acumen. While the findings stem from one group and thus could not be generalized broadly, they still offer meaningful lessons for enhancing students' skill sets and guiding performance in competitive business gamification-based learning settings.

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