Politecnico di Torino

BUSINESS GAME
END-OF-PROJECT REPORT
Blue team, Universe 5

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Section 1, point 1

In region 1, we did not excel in low-cost production. The reason behind that can be found in the scarce investments made in plant capacity; consequently, we faced challenges in meeting the entirety of the demand. However, the situation in Region 2 presented a more favorable scenario.

The majority of the orders were fulfilled due to the attractiveness of our competitive pricing to customers. The achievement of lower costs was made possible by economies of scale resulting from substantial investments in plant capacity within this region.

Regarding our family line, our strategies for both region 1 and 2 were quite similar. Recognizing the maturity and proximity to decline of these markets, we consciously refrained from investing in additional capacity. Nevertheless, we consistently satisfied nearly 100% of the orders in these regions. This remarkable accomplishment can be attributed to the heightened engineering appeal of our vehicles and the significant investments we made in marketing efforts.

Conversely, we opted to concentrate our investments on the eco-friendly line. Notably, we managed to double the capacity of our plant. During the initial phases, our primary focus was also on reducing CO_2 emissions. By focusing on the quality of our car manufacturing process, we were able to garner a considerable number of orders in Region 2. In this region, we prioritized exports over further investments in plant capacity, as it proved to be a more profitable strategy.

With regards to our image cars, we adopted a similar investment strategy as employed for the eco-friendly line. The attractiveness of our vehicles enabled us to fulfill our customers' demands effectively. Following our merger with the Chinese market, we observed a significant appreciation of our cars among consumers. Consequently, we decided to engage in exports from Region 1 to Region 2, primarily due to this favorable response.

As previously mentioned, our advantage in Region 2, particularly concerning the low-cost line, was due to lower production costs, that allowed us to obtain higher marginal returns. As emphasized earlier, our strategies were largely consistent between the two regions concerning the family production chain. However, the key distinction between Region 1 and Region 2 in terms of the eco-friendly and image car lines was that we prioritized investments in plant capacity in Region 1, while focusing on exports in Region 2.

In the following table, we will elucidate the strengths and weaknesses exhibited by all teams during period 7.

Subsequently, we will provide a brief description of their evolution until the conclusion of the competition.

	Strengths	Weaknesses	Perceived strategy
Red	Highest ARE	High investment in engineering appeal	Increase capital employed.
Blue	Share value	Cost reduction of low cost and family lines	Increase sales revenue through investments in plant capacity and marketing.
Orange	Growth demand	Employee moral	Increase market share.
Yellow	CO2 emissions	Share value	Be a sustainable carmaker.
Green	Sales revenues growth	CO2 emissions	Attract customers through investments in engineering and marketing.
Purple	Cost advantage	Employee moral	Be a cost leader in every market.
Actions to take	We invested into every segment, but especially into the eco-friendly and image segments to gain a good market share. We should have invested more in HR & Quality and into capacity of all segments to exploit scale economies. we should have better understood the customer needs in the family		

The red team maintained the lowest Average Revenue per Employee (ARE) for the three periods following period 7. However, in the final two periods, they were overtaken by the purple team. Unfortunately, the red team was unable to improve their already high investments in engineering appeal and remained in the same position until period eleven.

In contrast, the blue team's second-place share value position declined starting from period eight. There was a slight increase in period eleven compared to the previous slots. The blue team did not employ as strategy to exploit economies of scale, and the production costs of their low-cost and family lines did not decrease in the subsequent periods. Additionally, no significant investments were made by the blue team.

The orange team experienced a decline in growth demand in period eight. However, an upward trend was observed in periods nine, ten, and eleven, albeit with slow growth. Furthermore, their employee morale was low in period seven and continued to be so in the following periods. Surprisingly, employee morale improved in period ten and even further in the next period, surpassing all other teams except the winning team.

The yellow team initially held the first position in minimizing CO_2 emissions for several periods. However, they were eventually surpassed by the red team. Their share value was low until period eight, but it increased in the subsequent period. In period ten, they achieved the second-place position. Unfortunately, in period eleven, the purple and orange teams outperformed the yellow team.

The green team achieved peak sales revenues in period seven, likely due to profitable investments in engineering and marketing appeal. They set higher prices for their family and eco-friendly production lines compared to some other teams, capturing half of the market demand. However, their CO2 emissions were the highest in period seven and did not improve in the following periods, making them the worst team in terms of CO2 emissions.

The purple team demonstrated an indisputable cost advantage strategy throughout all five periods, starting from period seven. They were also a smart team that turned their weakness into a strength in terms of employee morale, ultimately winning over all the other teams.

Now we will focus our analysis on the profitability and availability of cash of all the teams during the competition.

Regarding the Red Team, their cash availability in Region 1 decreased over time. One reason for this was their decision to repay their creditors, in addition to the fact that in the last two periods, they didn't require a loan anymore. Their profitability remained stable for the most part, except for periods nine and eleven, where they were able to significantly increase it. In Region 2, they performed well in terms of profitability, except for period eight, where they experienced a negative EBIT.

On the other hand, the Purple Team made a remarkable improvement in their EBIT, starting from period seven, when they had the lowest value. This led to continuous growth in cash availability and profitability. Additionally, in the later periods, they didn't require additional cash. They achieved great results in Region 2 as well. This strategy ultimately led the Purple Team to victory.

The Orange Team also had a slight increase in cash availability over time. They did even better than the previous team in repaying their creditors. Their profitability significantly improved, especially towards the end of the competition. Even though they had negative EBIT in most periods, they managed to turn it positive in the last three periods. In Region 2, they consistently made positive profits that remained stable over time.

The Green Team, unfortunately, experienced worsened profitability throughout the competition, with negative profits for most of the periods. Their cash availability followed a similar trend. However, they achieved notable results in Region 2, with profitability starting to increase after period eight.

Finally, the Yellow Team didn't follow a consistent trend. They were able to improve profitability only in the last three periods, with a slight decrease in the final period. Their cash availability vaguely decreased over time, but compared to other teams, their profits were not sufficient to sustain the competition. and compared to other teams, their profits were not sufficient to sustain the competition. They only repaid part of their debts in the last period. Their profitability in Region 2 was also extremely low, which certainly impacted on their final result.

Compared to the most successful teams, especially in Region 1, our profitability was not as rewarding. We experienced ups and downs, but from period eight to eleven, we were able to improve our situation. The other teams' investment in capacity allowed them to leverage scale economies, resulting in higher returns and increased cash availability. In Region 2, we were only able to flip our profitability in the last two periods.

Section 1, point 2

Unfortunately, we cannot identify path dependencies with the period 7 because it has been an outlier in our overall performance. In fact, we have been able to sell more cars than our competitors thanks to the inventory accumulated from the previous periods. This has allowed us to reach the first position with really high values of Sales Revenues, employee morale, share value, ARE and ROCE. However, in the following periods, this positive effect has vanished. This, joined with investment choices too much conservative in the period 8, led us to be in disadvantage with respect to our competitors.

In fact, we were already having a smaller plant for the low cost in region 1 before the merger with China. This, joined with the wrong decisions of the following periods, precluded us from exploiting scale economies on this car in the last periods.

Also regarding the family, we can identify some recurring issues: we have never been able to reach an engineering and marketing appeal higher than what we spent. For this reason, we have always had a lower marker share with respect to our competitors and this brought to have always some inventory. We haven't been able also to use this car as cash cows.

We had a similar problem also with the eco-friendly, were we had to invest more than our competitors to reach levels of engineering appeal closer to their ones. This, joined with some lack of capacity caused principally by cash constraints, has caused a negative EBIT for almost all the duration of the business game, even if our demand was high enough to cover the costs.

Regarding the image, we have been able to understand what the customers considered more valuable and so we have been able to extract some positive earnings from this car.

Section 1 point 3

The merger in Period 8 has generated significant disruption in our strategy, as we have made some wrong choices that have penalized us a lot in the long term.

We have not considered the inevitable increase in CO2 levels due to exports and imports. We also badly managed the entrance into the market of eco-friendly and image because in the first period, characterized by the launch of these lines, we invested an excessively low figure in the marketing section allowing others to grab more orders immediately. With our minimal investments in region two we have created positive externalities for the general image and eco-friendly market without however bringing considerable advantage to our team. The export of machines from Region 1 to Region 2 has involved an inevitable lowering in our offer of eco and image machines in 1 making us lose a lot of market share.

We believe that one of the main reasons for the victory of the purple team is the great investment in capacity that they made in the early periods that was very profitable. The winning team also requested fewer loans than we did; in this way we would made a higher periodic profit by not having to repay the interest periodically. Moreover, their choice not to export to region 2 eco-friendly and family cars has allowed him to keep low levels of co2.

Section 2

Analysing deeply our strategy we first noticed some errors related to an incorrect analysis of the competitive environment and of the market business trends.

Our first idea was to invest gradually in marketing of eco-friendly and image lines and therefore not to start immediately investing values equal to those of the same models in the region 1. This error caused us a serious loss at the beginning of exports to China, in fact because of the low investments in marketing the number of requests was much lower than that of our competitors.

Another significant mistake was not to exploit from the beginning the graphs that compared our engineering and marketing appeal expenses with what was perceived by the customer. This data was in fact very useful to understand in depth which were the parameters that most influenced the requests for each machine model.

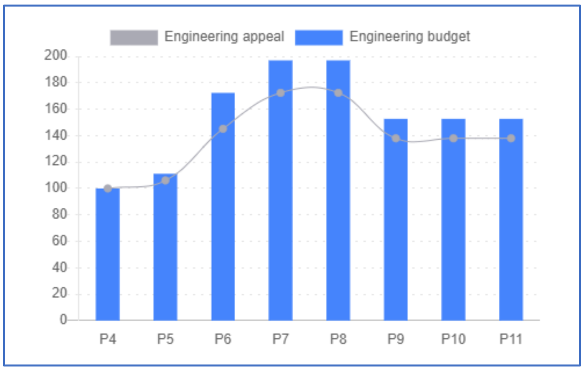

Figure 1
Difference between engineering appeal and engineering budget

Remaining within the parameters that most influenced the demands of consumers we can say that we did not understand from the first decision what was the relevance that buyers gave to the number of models proposed for each type of machine. We had in fact thought of saving in the production of more models especially for image and eco-friendly machine lines to focus more on the performance of the single model both in terms of machine power and in terms of reduced consumption. This choice certainly gave us an advantage in the first period, making us the most sustainable team, but it did not have the same impact on the attractiveness of our lines.

The main business trend our team faced was the recession. Based on the onset of recession in region 1, our team chose to invest less in this region in order to concentrate more investment in region 2 that could bring more demand and consequently more profit for the company. We chose to minimize low-cost machine capacity investments in region 1, hoping to invest much more in the same line in China. The unit cost of low costs in region 1 has increased by a great deal and this has made it difficult for us to remain competitive in prices. The recession has led us to think that in the last period the prices of our competitors would be lowered. Our choice was therefore to lower our prices. The lowering of the prices has made us very attractive in fact we have not had leftovers, but our competitors have proved more stable with the prices also in the last period and this has allowed them to have higher returns from the sale of the single machines.

The analysis of the market and of our competitors has been fundamental for our decisions. We have observed in every decision what are the investments in marketing and engineering of other teams and what are the consumer requests for machines with these parameters. This has allowed us to align ourselves more and more in creating a product that would meet customer requirements. We rarely focused on what was the amount of loans requested by the other teams and on what were their investments for the capacities of each line.

In our universe there has never been a team that has long prevailed over other teams. Analysing, however, the period of best performance of our team we can say that surely what allowed us to prevail were the high investments in capacity made in the previous year. This combined with the high demands of customers and our choice of a competitive price-quality ratio has allowed us to have high profits in period 7.

We can identify uncertainty and process complexity as the main causes of our errors. In order to make a useful prediction for decision making we analyzed the strategies of our competitors, which then did not always prove to be in line with our predictions. Praticularly in the recession period we expected a considerable lowering of prices, which then did not materialize.

In addition, regarding the market in region 1, we expected that sales during the last recessionary periods would drop more and instead would increase more in region 2 for eco-friendly and image lines. This led us to export many machines from region 1 to region 2 increasing our co2 level significantly without giving us more profit. We also miscalibrated the marketing expenses related to the market entrance in region 2 for eco-friendly and image machines, considering worthwhile starting with a more gradual and not too drastic investment. This caused us to lose a lot of market share and then earn little profit, which resulted in us not having much cash to invest in the following period and having to take out additional loans, which in the long run burdened our profits.

We also encountered difficulties in the management of family and eco-friendly cars in which we could not fully understand what our customers wanted, as can be seen in the analysis of the difference between engineering appeal and engineering budget (*Figure 1*), which is a clear indicator that our customers did not fully perceive the value we were trying to give the car with our improvements. This also led us in the case of the family, where we had in doubts even in setting prices, led us very often to have inventory.

Section 3

The principal tasks of our strategy were:

- Set the marketing and engineering parameters in the first stage of the competition
- Check that the values set in the previous period were aligned with the expenses of our competitors in order to identify the key aspects of each type of car and try to differentiate from them and to create value
- Check that the value perceived from our clients were at least equal to our expenses and eventually try to have a perceived value greater than the one of our expenses
- Decide the level of investment in capacity and HR & Quality
- Check that the EBIT forecast were at least greater than 0

Before the merger with China our team was organised in two sub-groups. One was responsible for the Business Lines and the other for the Corporate section. After the merger, we divided again the first group in two, one for each Region.

We decided to not adopt a vertical hierarchy, seen that there wasn't someone with a higher level of expertise. We believed, in fact, that every idea was valuable and so we decided that the proposal with most votes would be the one adopted by the whole team.

To this purpose, to coordinate the teams we adopted the coordination mechanism of mutual adjustment. In this way, everyone had the possibility to challenge the decisions undertaken by the sub-groups and to ask for clarifications.

Hence, we divided the team horizontally, with two sub-groups which performed almost the same tasks and a third one differentiated for the task but placed on the same hierarchical level.

Regarding the level of formalisation, we decided to not adopt a lot of strict rules. The principals were that:

- We had to complete the decisions for the next period at least 5 hours before the deadline, to allow everyone to eventually perform a double check.
- The decisions had to be approved by the majority of the group

All the members of our group were located in the same area, so we had the possibility to undertake almost every decision with a face-to-face discussion. Only a few meetings have been online, but these haven't played a role in the team organisation or in the assignment of the tasks.

An organisational routine that brought good results has been the following: every time the business game was run, a member of the team had the duty to compare our decisions with the ones of our competitors in order to highlight possible issues.

On the other hand, an organisational routine that hasn't brought the expected result has been the following: in the first periods the decisions undertaken by the various sub-groups were communicated to the other team members in a second time and everyone had to check them on his/her own and to communicate the doubts. This has negatively influenced the coordination and communication between the various sub-groups. Eventually, we solved this problem adding the revision of the decision to the face-to-face meetings.