



POLITECNICO
MILANO 1863

MARKETING MIX MODELLING & BUDGET ALLOCATION RECOMMENDATIONS

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Agenda

- 1) Evolution of the Market Scenario
- 2) Addressing the Challenge
- 3) The Model: Optimal budget allocation for ROI optimization
- 4) Marketing Department Evolution

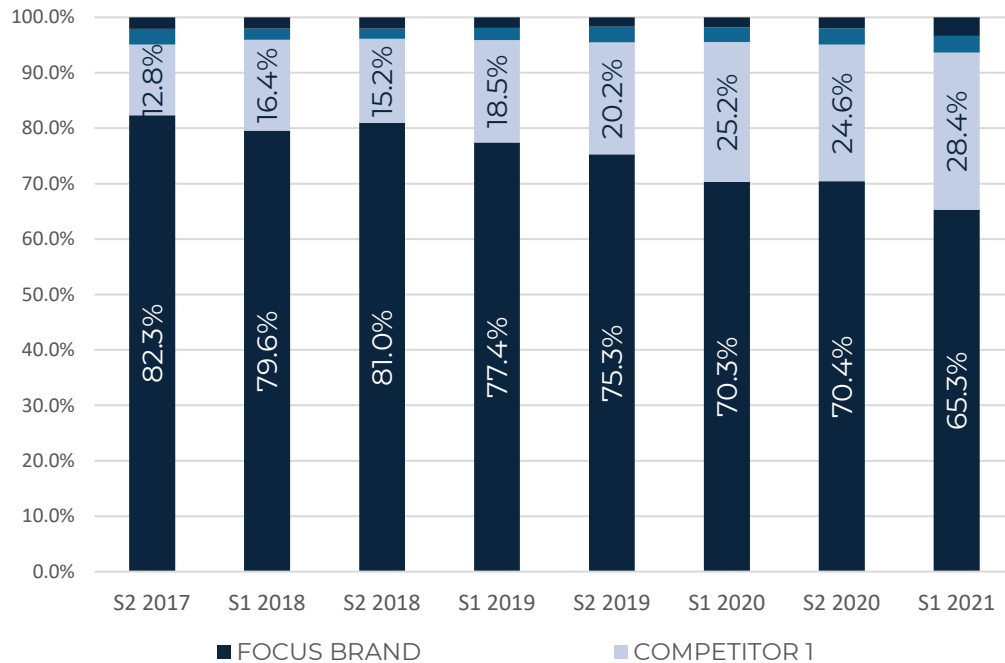
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The company has constantly been losing market share to Competitor 1.

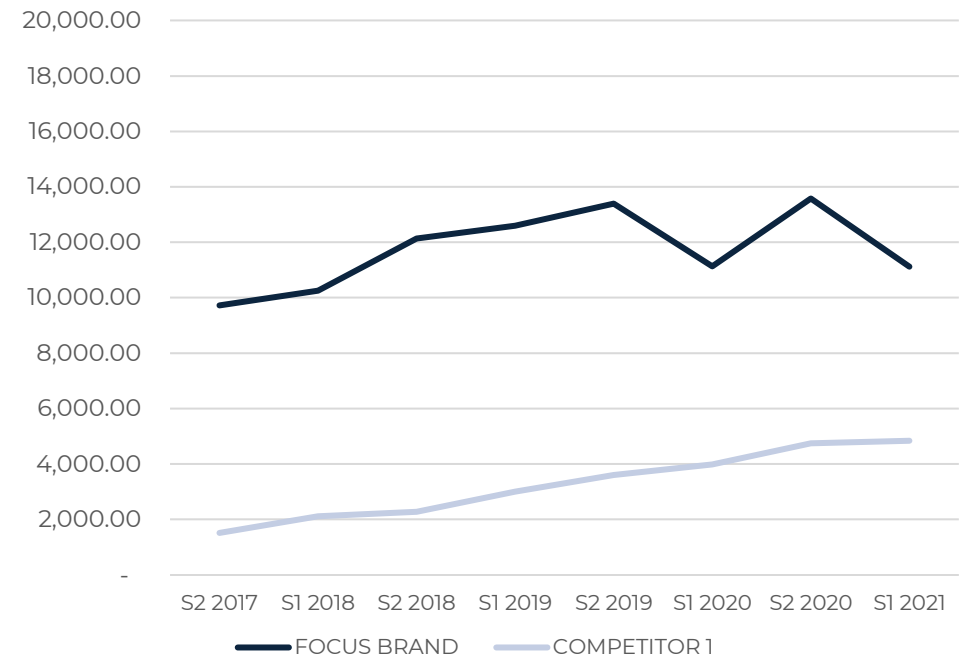
Market Share [%]

The Company's MS decreased by **-17% in less than 4 years**, with Competitor 1 absorbing almost all that slice of customers (Δ Market Share = 15.6%). The other brands' shares (Competitor 2 and minor brands) did not significantly change over time.



Revenues [k€]

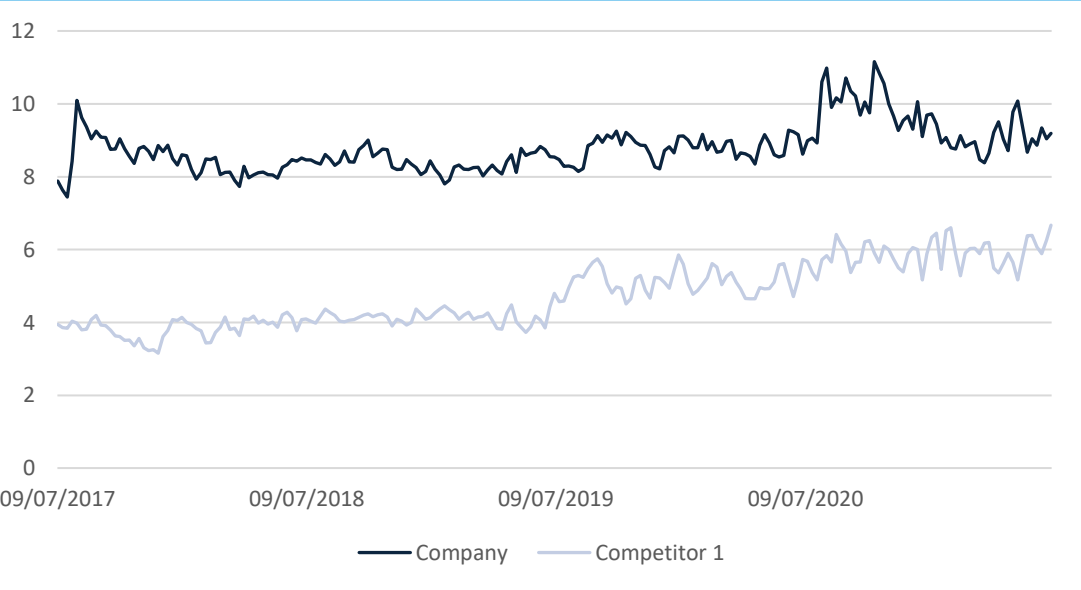
The Company's revenues **suffered the Covid-19 period** (S1 2020) and showed weakness in S1 2021 as well, while C1 showed a consistent y-o-y revenue increase since 2017 (28.5% CAGR).



Competitor 1 has changed its retail sales strategy over time, with its key drivers being product assortment and promotion mix.

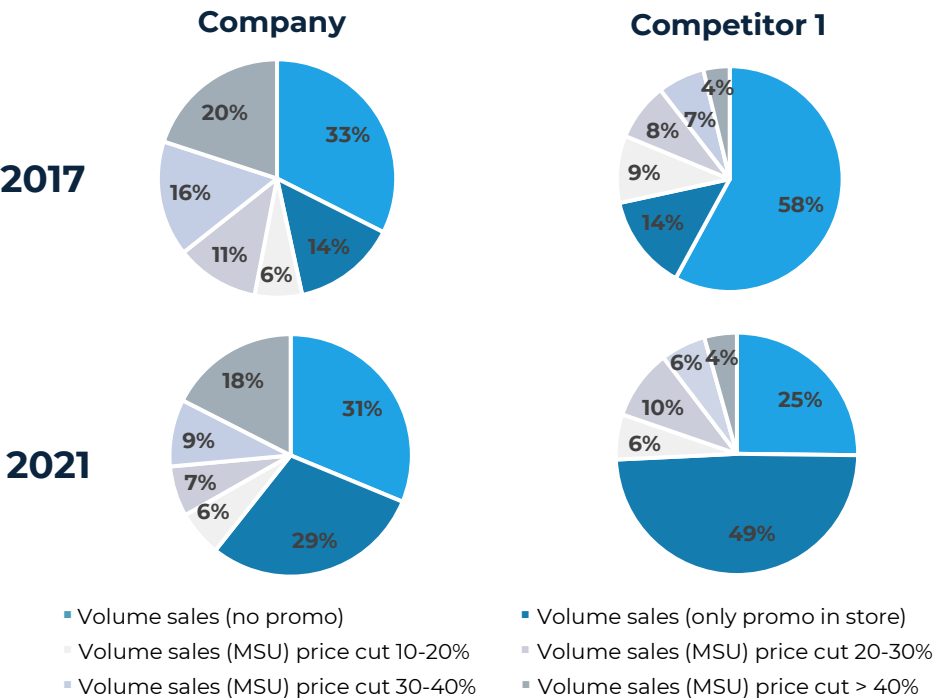
Product Assortment [Avg. #SKUs/Store]

While from 2017 to 2019 the product assortment of C1 was steady, in the last 2 years they reduced the assortment gap with the Company, who apart for a few weeks in 2020, has kept it stable over time. This increasing competition for the Company makes it harder to regain shares on products in which they lost customers.



Sales Share [%]

The strategy of C1 shifted from selling mostly without promotions in 2017 to most products sold in promo in 2021, and the Company's strategy has not evolved adequately to that change.



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The Marketing Director shall be supported by an AI-based tool capable of considering several variables at the same time to make decisions.



Fiercer Competition: the Company is suffering CI's sales strategy alignment in terms of promotions and assortment has not been able to react accordingly.



Higher complexity: many external and environmental variables need to be considered when making decisions (e.g., holiday periods, extraordinary events, customer preferences evolution).



High number of decision levers: the company has several levers to move to win the competition, both media-related (e.g., TV, online advertising) and non-media-related (e.g., in-store promotions). Next slides show that, even media variables, are used inefficiently.



Lack of an experimentation culture: the marketing team currently bases its decisions on experience, while a more scientific approach needs to be adopted, basing decisions on experimentation and analysis of results.

The solution: Marketing Mix Model for optimal Budget Allocation.

- ✓ Support from an **AI-based tool** is required to analyze and learn from consistent amounts of data and several different and unrelated variables.
- ✓ A constraint-based **optimization** can offer valuable **recommendations** to support the marketers' experience.
- ✓ The interplay between a digital culture and a powerful AI tool can bring to unmatched real-time insights from the market, to **quickly experiment** and **react to market changes**.

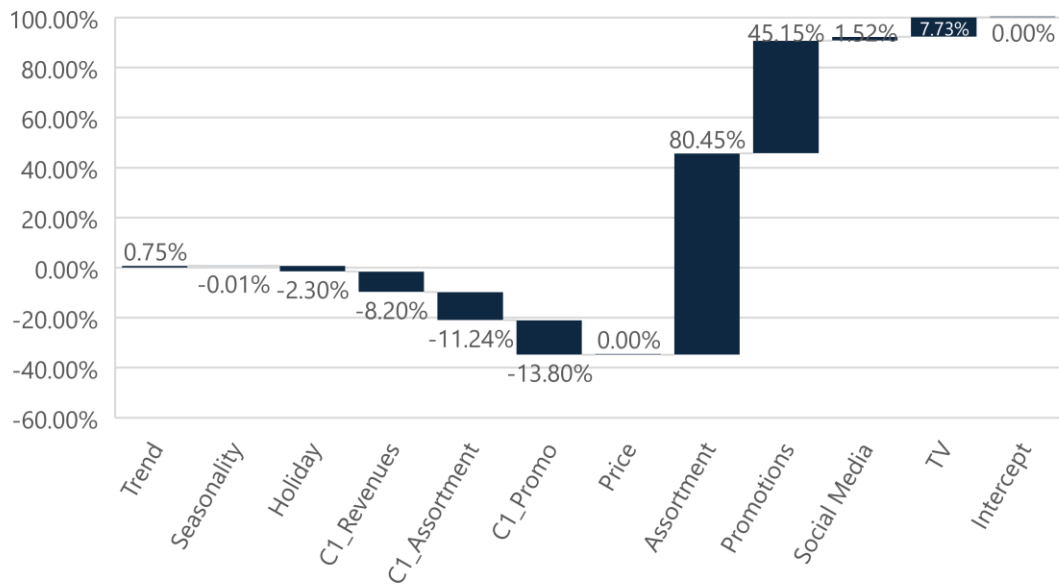
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This model allows to see the decomposition of sales according to each of its driver and to optimize the media budget to increase ROI.

Sales Decomposition [%]

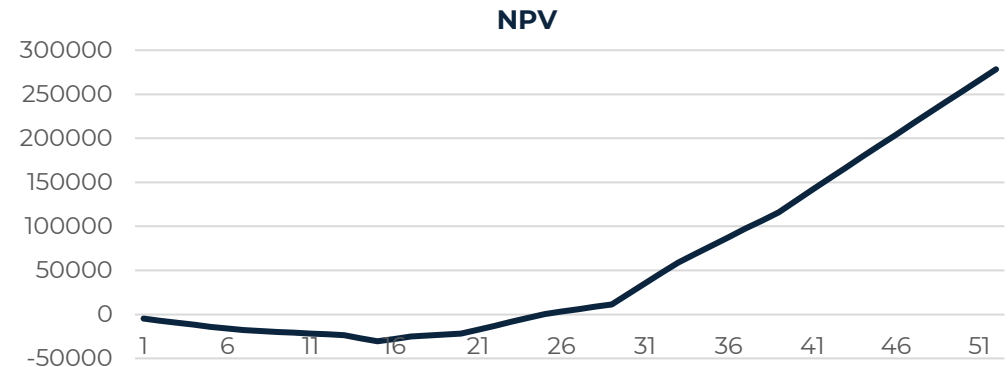
Sales are mainly driven from the **product assortment** and **promotions**, so non-media variables, while media and the market baseline have a much lower impact. Therefore, the marketing department must focus on understanding evolving customer preferences (NPD) and in-store promos.



Media Budget Optimization

Regarding media, based on the sales decomposition and on each media cost, the model provides **recommendations** on how to optimally allocate the budget. If this is followed, the Company can expect:

- $\Delta ROI_{\text{media}} = +32\%$
- $NPV_{Y1} = 278.7k\text{€} *$
- $PBT = 29.5 \text{ weeks} *$



* Considering the weighted average between a best-case scenario, worst-case scenario, and a more realistic scenario (weighted 4 times the others).

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The marketing department must evolve and include AI in its decision-making processes, in parallel with an analytical and experimental mindset.

Benefits of the Model:



Provide mid-term and long-term optimal budget allocation recommendations for **increasing marketing ROI**.



Bring **insights on what really drives sales** and, thus, tailor the marketing strategy according to what is more important for customers.



Quickly spot market changes and quickly **adapt the company media investment strategy** thanks to Machine Learning.



Allow quick and repeated **experimentation**.

Organizational Measures:



BPM: Include the model in the company processes, both at tactical and strategic level through business process management techniques.



Knowledge and Capabilities: Develop the capabilities to make the most out of it, with both data science and analysis skills.



Culture: Create an environment that empowers people to learn from mistakes and allows for experimentation.