

The challenge of using Artificial Intelligence for Assortment Optimisation

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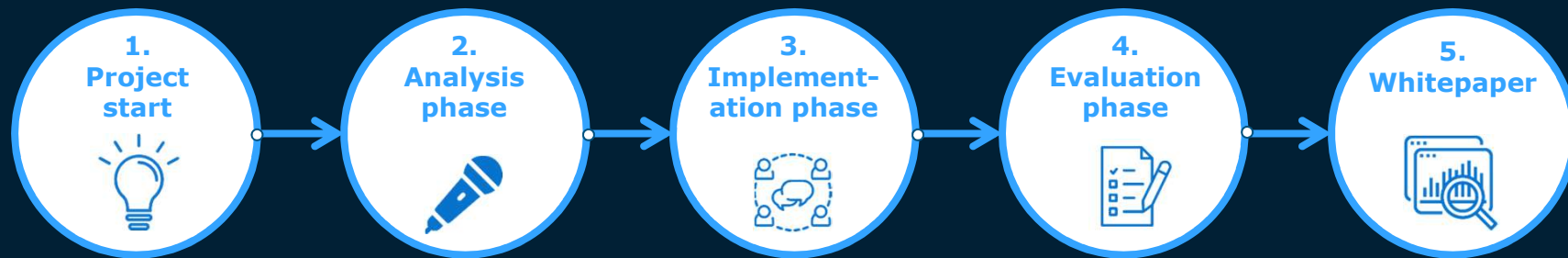


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The challenge of using Artificial Intelligence for Assortment Optimisation



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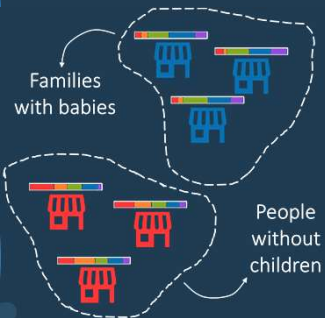


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Analytical methods used

2

Demand Clustering



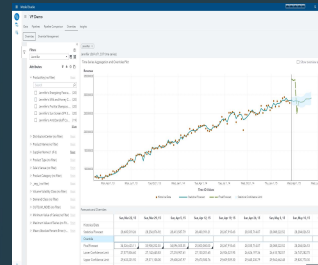
3a

Units of Need (UoN)



3b

Forecasting Potential



4a

Optimisation & Recommendation



1

4b

AB-Test



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2 Demand Clusters based
on demand for *Chocolate*
products total

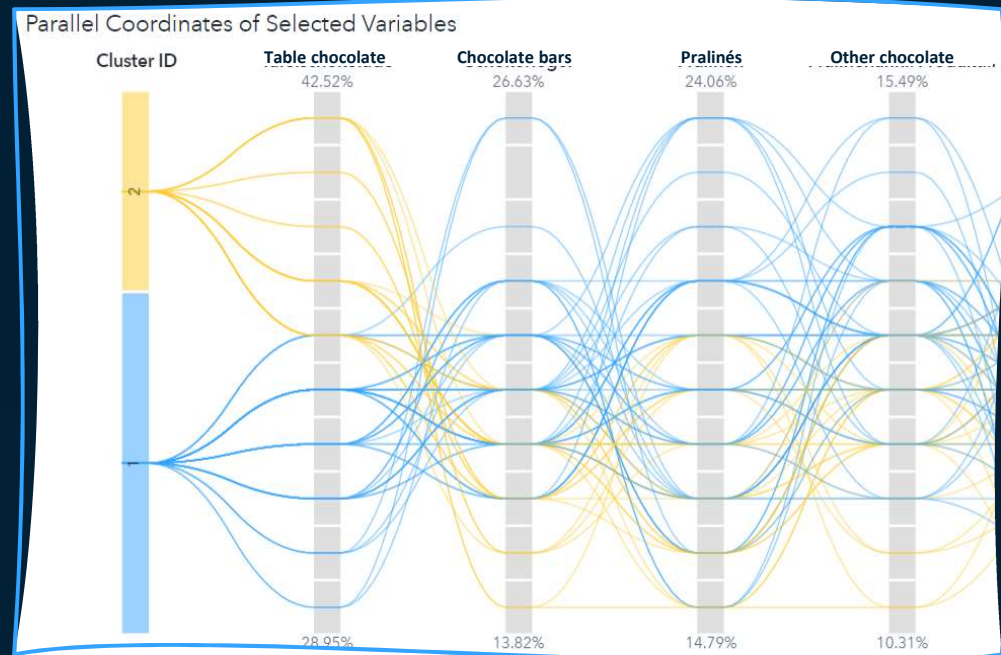
27
stores

46
stores

1
AB-Test

2
Demand
Clustering

The biggest difference in demand in these categories comes from
the following categories:



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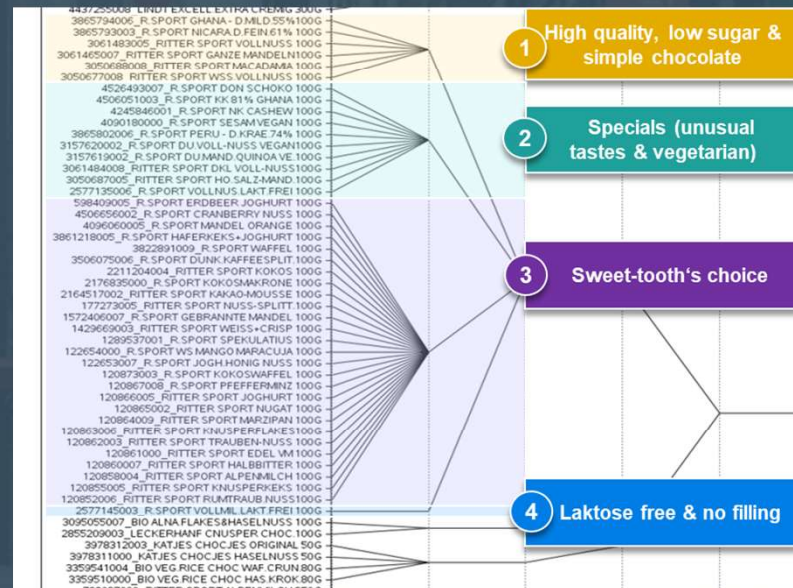


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3a

Units of
Need (UoN)

- For each demand cluster separately we created a Customer Decision Tree (CDT).
- The lowest level of that tree is represented by a set of product groups (UoNs), where each group unites substitute products.



- Customers of different demand clusters may see distribution of products into UoN differently.



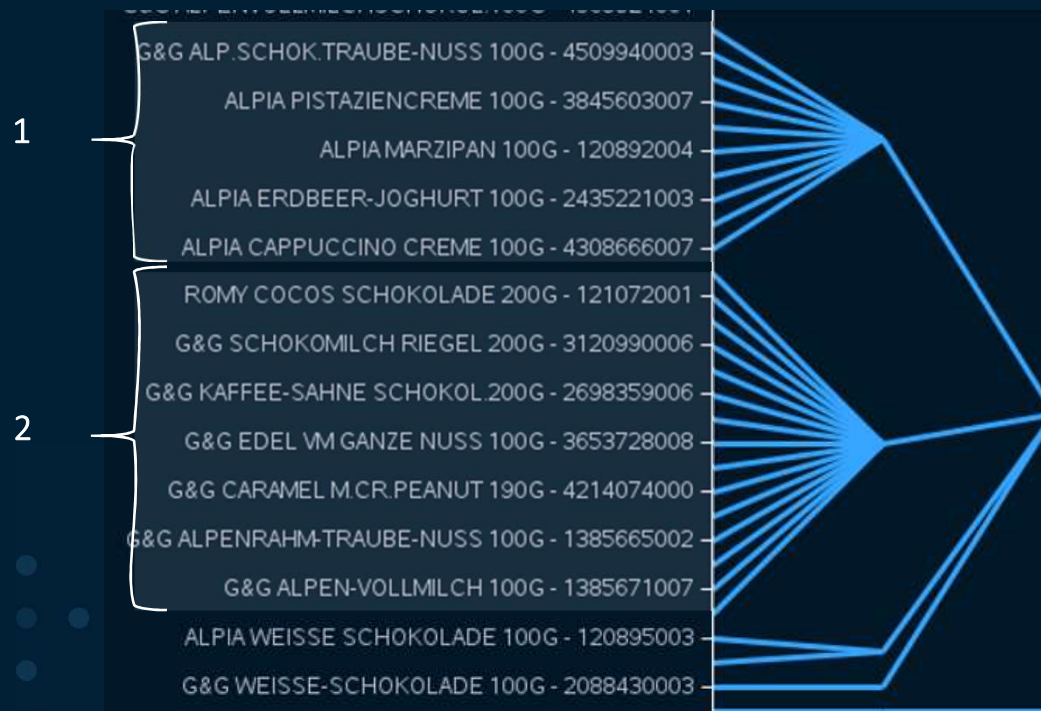
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Unit of Needs: Example Demand Cluster 1

Example UoNs



2244
Units of Need
for Chocolate
TOTAL

3,3
Average size
of UoN

67
Max size of
UoN



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3b

Forecasting Potential

Sales potential was forecasted for new & existing products for each store based on:



previous sale patterns



demand clusters of stores



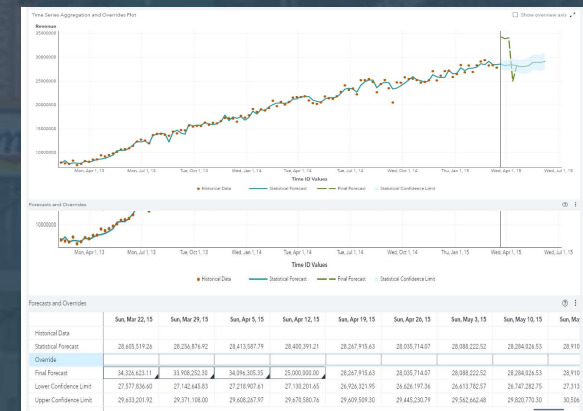
units of need



product attributes (external & internal)



store attributes (external & internal)



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Limitations for assortment optimisation

All stores

→ only director's stores

New articles

→ Edeka assortment + IRI

Number of new items in the assortment

→ same number in total; category segments may vary

Optimisation potential

Entire chocolate category

→ same scope

→ category segments share may vary

Listing & distribution

→ Warehouse vs. direct delivery

Private label

→ mandatory



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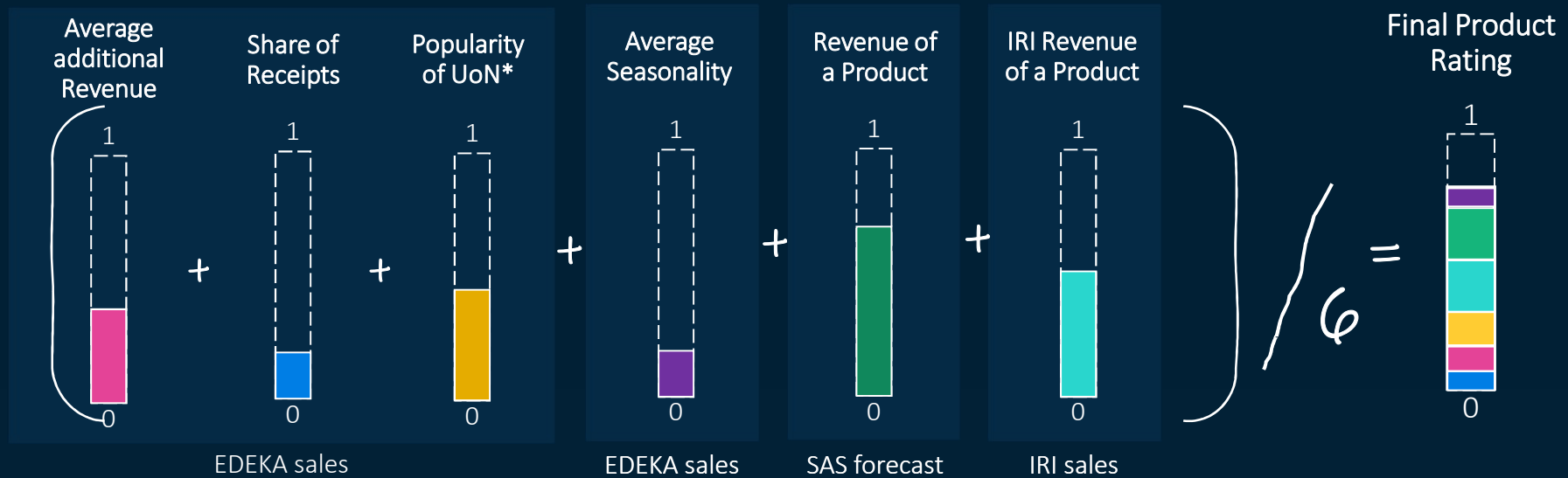


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Calculation of Product Rating

4 chocolate segments



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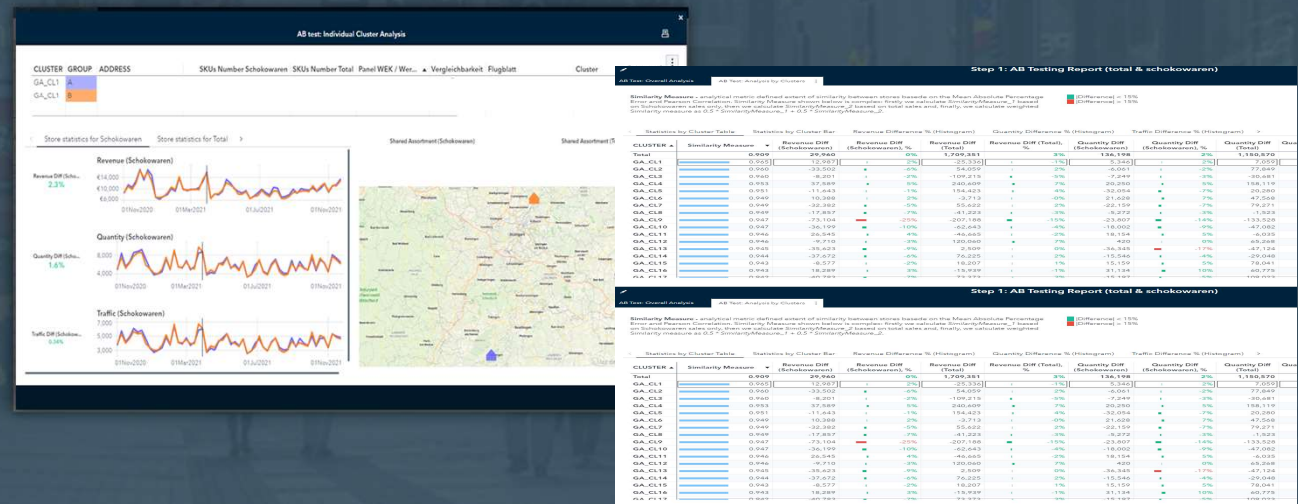
4b

AB-Test

The final step is about showing that the optimisation really improves business KPIs, and we will be able to assess it fairly.

It is about deciding:

- In which stores do we change assortment to our recommended one (test stores)? Which stores are untouched (control stores)?
- In which stores will the probability to see convincing effect be bigger?



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Outlook

Next steps

- **Derivation of a placement recommendation** based on the new assortment on existing space for a market test
- **Application of the optimized assortment and placement as part of a market test**
- Preparation of a public project documentation (**whitepaper**)

Lessons Learned

- ✓ Use AI first time means **ongoing improvement of the models**: refinement of the rules/algorithms, also beyond assortment optimization
- ✓ **Highest importance of data quality and availability**: The length of the analysis phase is also based on the enormous effort required for the data provision, transfer and backup
- ✓ **Adjust expectations**: it needs artificial and human intelligence that means hybrid intelligence: combination of Data, Knowledge, AI and human intelligence
- ✓ **Do not underestimate the initial effort**: data provision rather complex, partly high manual effort

Benefit description

1. Gaining knowledge about the use of AI/ Advanced Analytics in assortment planning and optimisation
2. Higher alignment of the category with regard to EDEKA SW shoppers
3. Higher alignment of placement with regard to EDEKA SW shoppers
4. Testing of the assortment and placement under real conditions;
Increase in turnover/sales volumes; Gaining knowledge for possible roll-out (after the end of the project)
5. Summary of project results and learnings for the CM community

THANK YOU

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