

# The challenge of using Artificial Intelligence for Assortment Optimisation

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# The challenge of using Artificial Intelligence for Assortment Optimisation

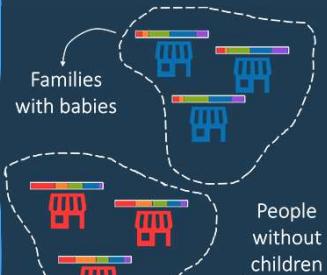


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# Analytical methods used

2

## Demand Clustering



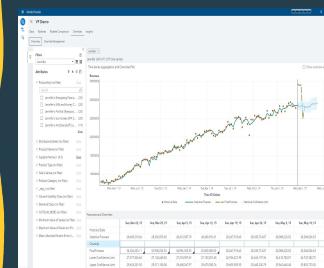
3a

## Units of Need (UoN)



3b

## Forecasting Potential



4a

## Optimisation & Recommendation

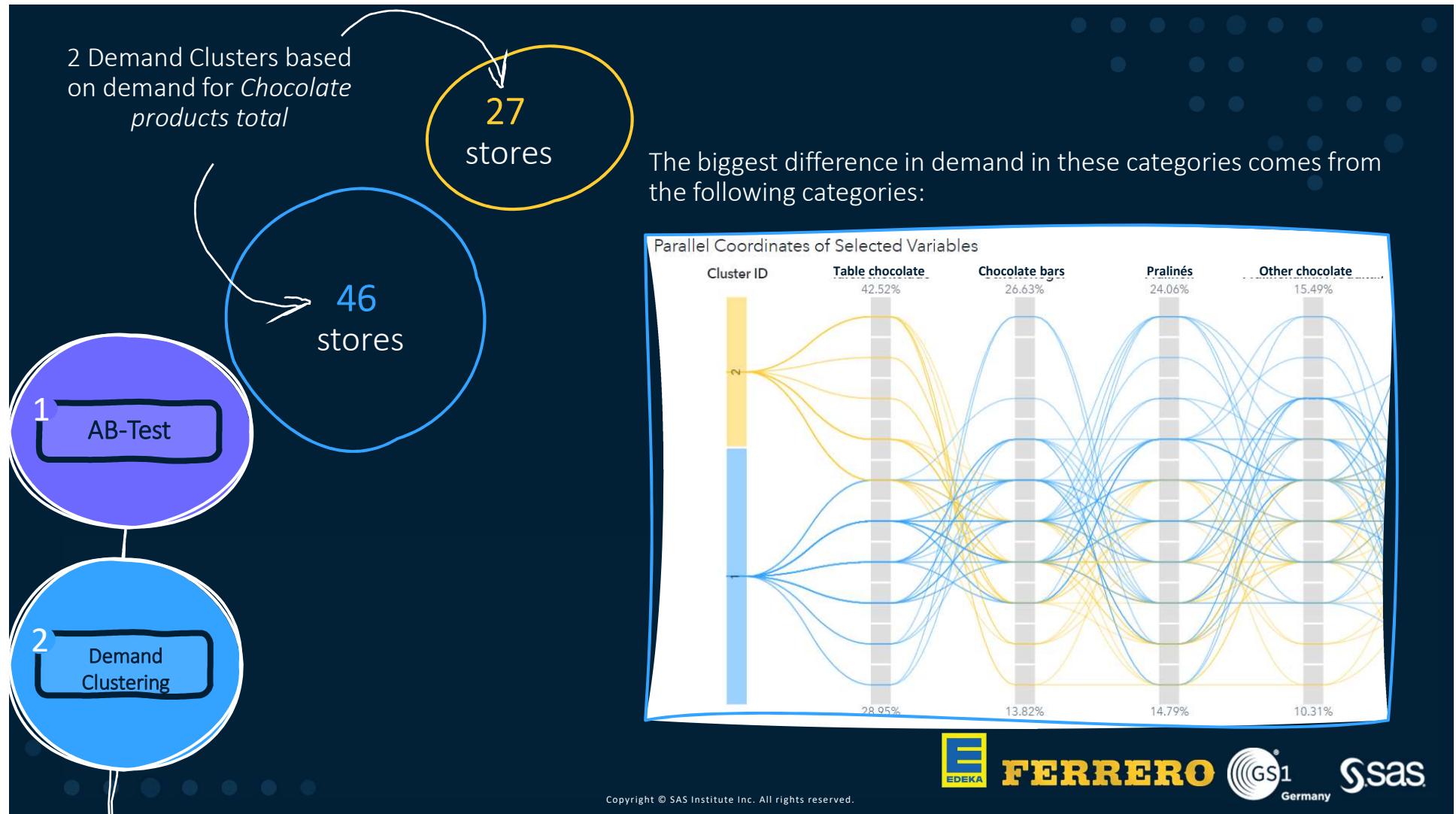


1

4b

## AB-Test

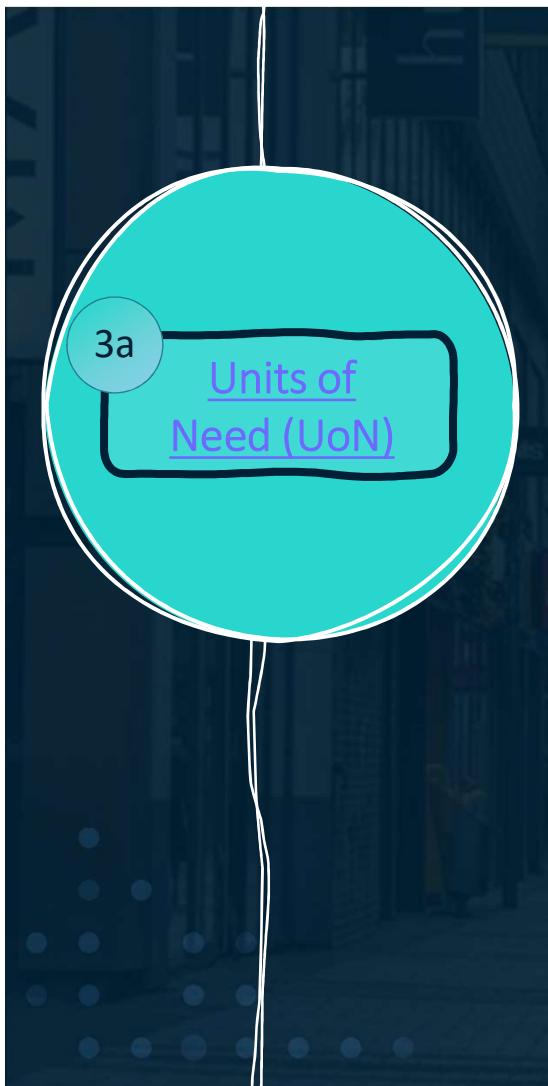




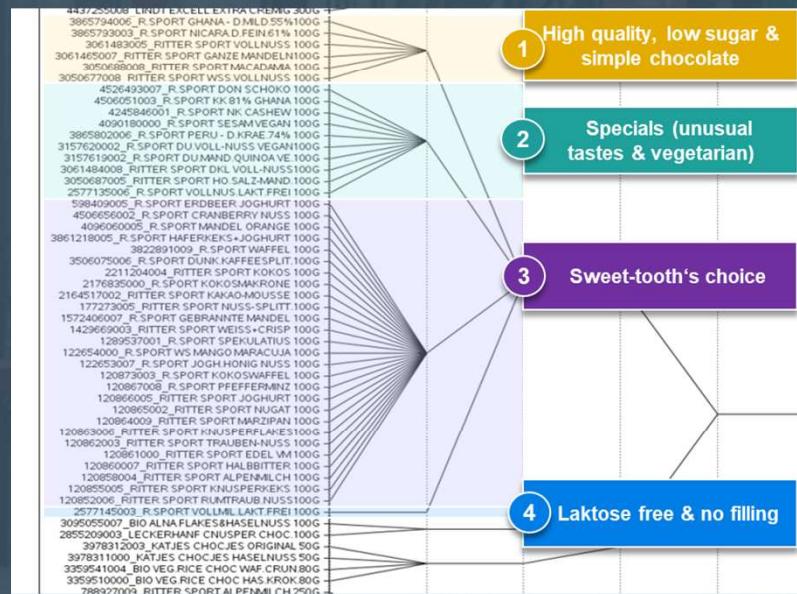
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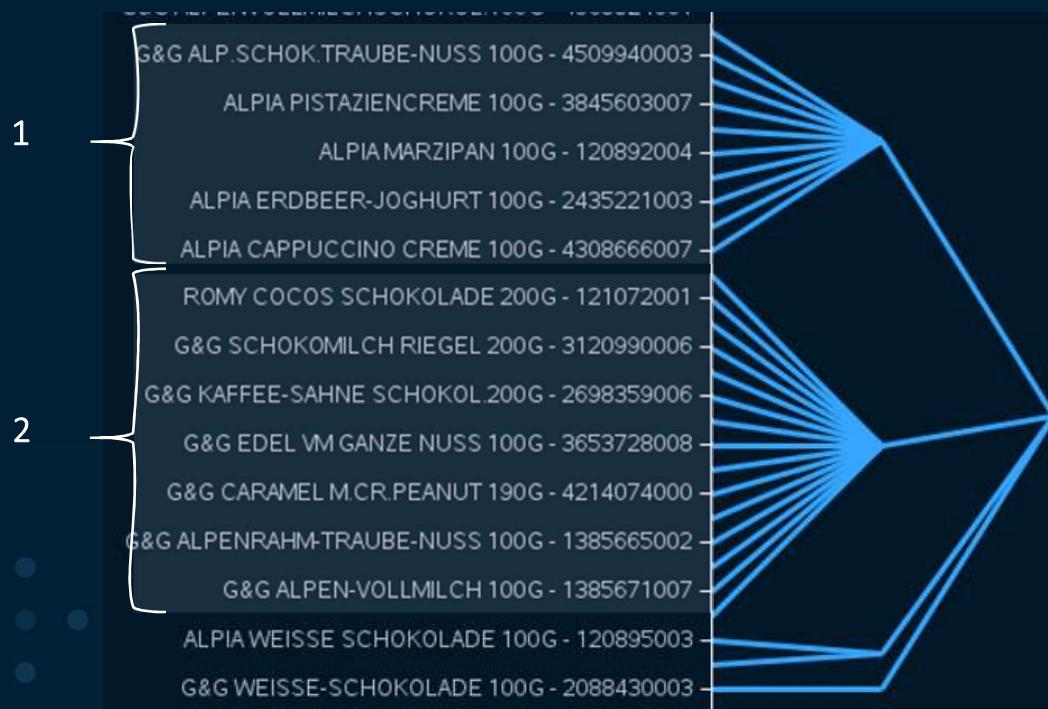
- For each demand cluster separately we created a *Customer Desicion Tree (CDT)*.
- The lowest level of that tree is represented by a set of product groups (*UoNs*), where each group unites substitute products.



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

## 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

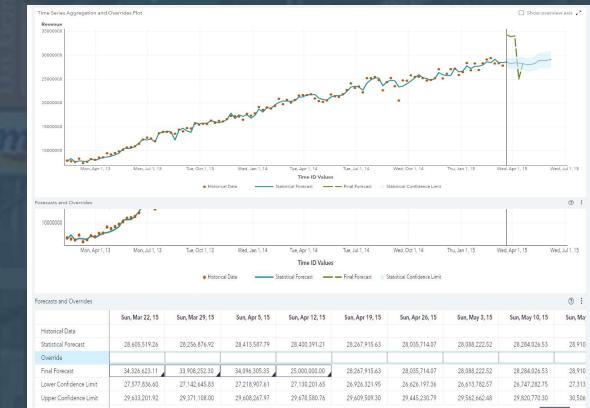
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3b

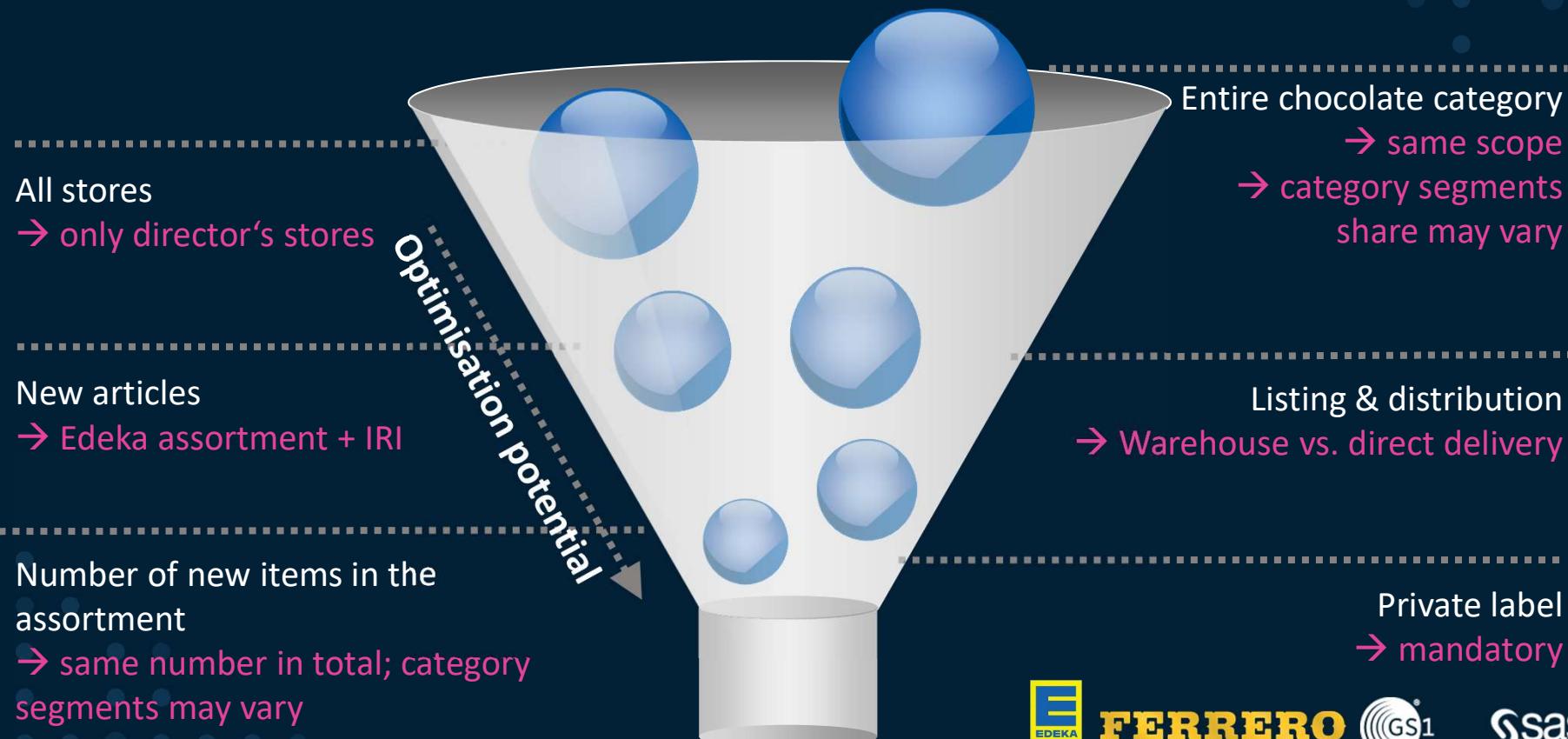
## Forecasting Potential

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)



# Limitations for assortment optimisation



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## Calculation of Product Rating

4 chocolate  
segments



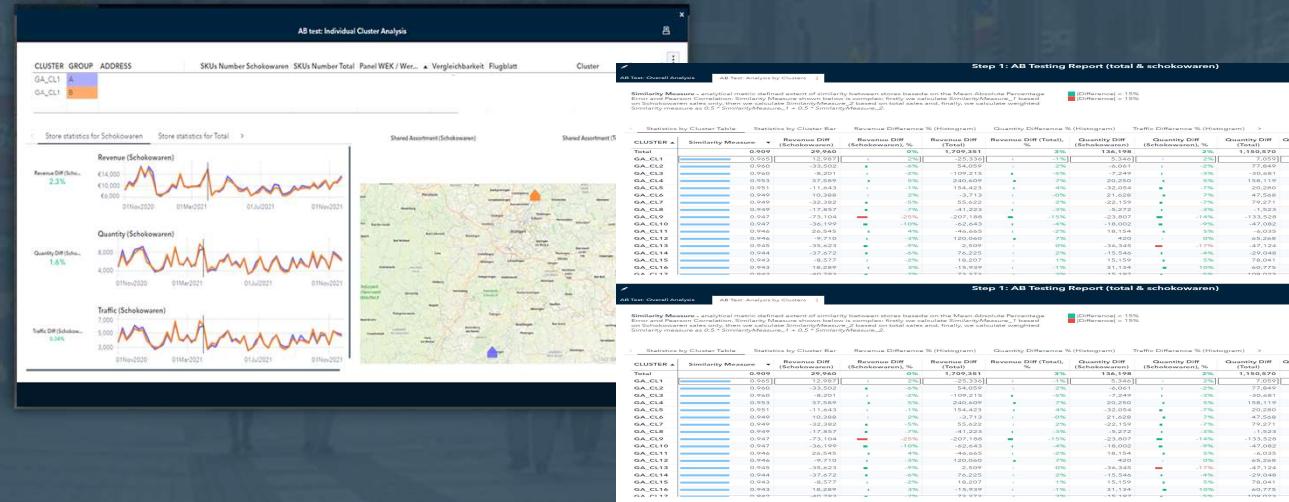
4b

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?



# 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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