BearingPoint

The right tool(s) for the problem

Optimisation – Simulation – Machine Learning

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Agenda

1 Introduction to BearingPoint

2 Picking the right tools

3 Short case study

4 Lessons learned

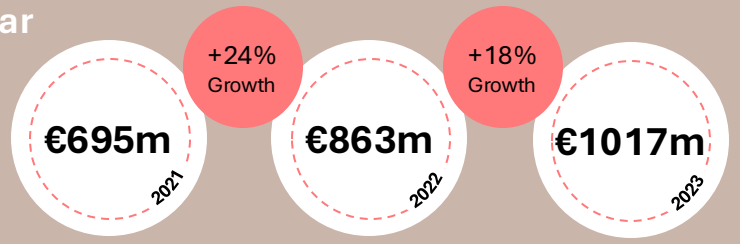
1

Introduction to BearingPoint

BearingPoint is an independent management and technology consultancy with European roots and global reach

BearingPoint in numbers 2024

Revenue growth year-on-year



24
Countries with BearingPoint offices

47
BearingPoint offices

€1,069m
Total revenue (2024)

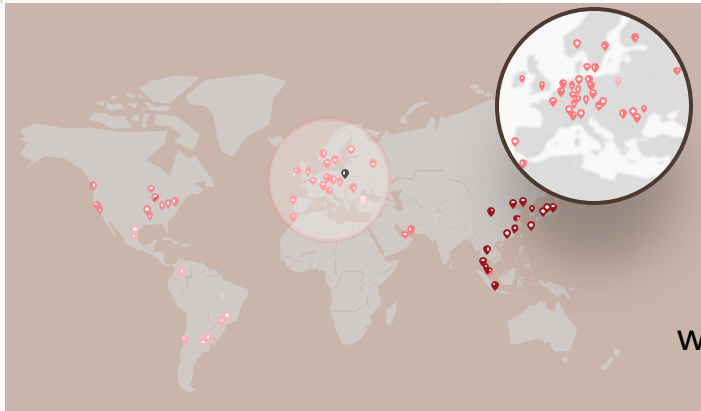
Certified B Corporation

6,055
BearingPoint people (+15%)

1,800+
projects delivered

ABeam Consulting®

Global consulting partner



78
Global alliance locations with worldwide presence

17,200
Alliance people in the business

32
countries in which we delivered projects

Supply Chain Centre of Excellence

UK based team with legacy in data analytics, operations and business

Extensive operational experience

Ranging from retail and manufacturing to 3PL logistics, we have experience of the deployment of Lean, Process Engineering, Continuous Improvements, Site Optimisation through to Automation Implementations into new facilities.

UK Supply Chain Centre of Excellence

The blend of detailed analytics, end-to-end supply chain knowledge, consulting, and hands-on project experience enable us to deliver the level of support required to help our clients find the right solution.

Diverse businesses our people come from

TESCO, M&S, ocado, amazon, UNIPART GROUP, GXO Logistics at full potential, SWISSLOG, NEW LOOK, innocent, Nestlé, halfords

Comprehensive knowledge base

We combine data-driven insights, supply chain expertise, a deep understanding of business requirements, industry knowledge, and automation experience with our operational excellence to define the right solution for your needs.

2

Picking the right tools

Data science, Operational Research, Statistics, Mathematics…

These communities almost live in isolation, pretending they are unique in what they do and how they do it

In reality, there is a huge overlaps in what they do and how they do it: take data, use the data to better understand the problem and model what the future could look like

In the meantime, the customer of all this typically doesn't understand what we do, doesn't really care (as long as it is done properly) and only really wants the output

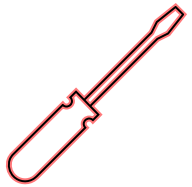
Data > Information > Knowledge > Decision

Keep the focus on the objective

Simulation

Great for scenario testing, uncertainty

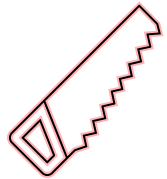
Best when the system is known (typically complex), but inputs are variable



Optimisation

Great for finding the best option with defined constraints

Best when explainability is important and complex model



Machine Learning

Great for predictive insights and adaptability to new data

Best when looking at large data sets with unknown relationships between variables

Decision

Ultimately, all these tools can be useful to make the **best decision** for a particular problem

Time & Outcome

3

Short case study

Case study – Retail Store Optimisation

Problem statement:

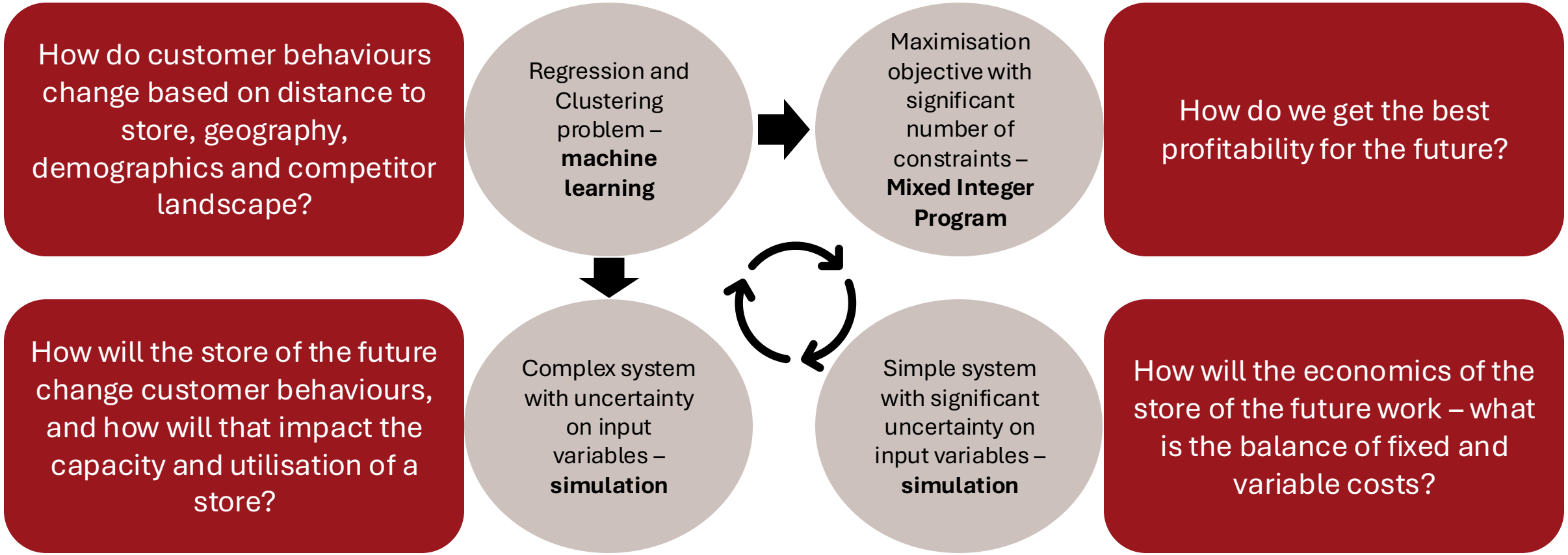
“We would like to know how the number of stores will be impacted by changing customer habits”

This involved:

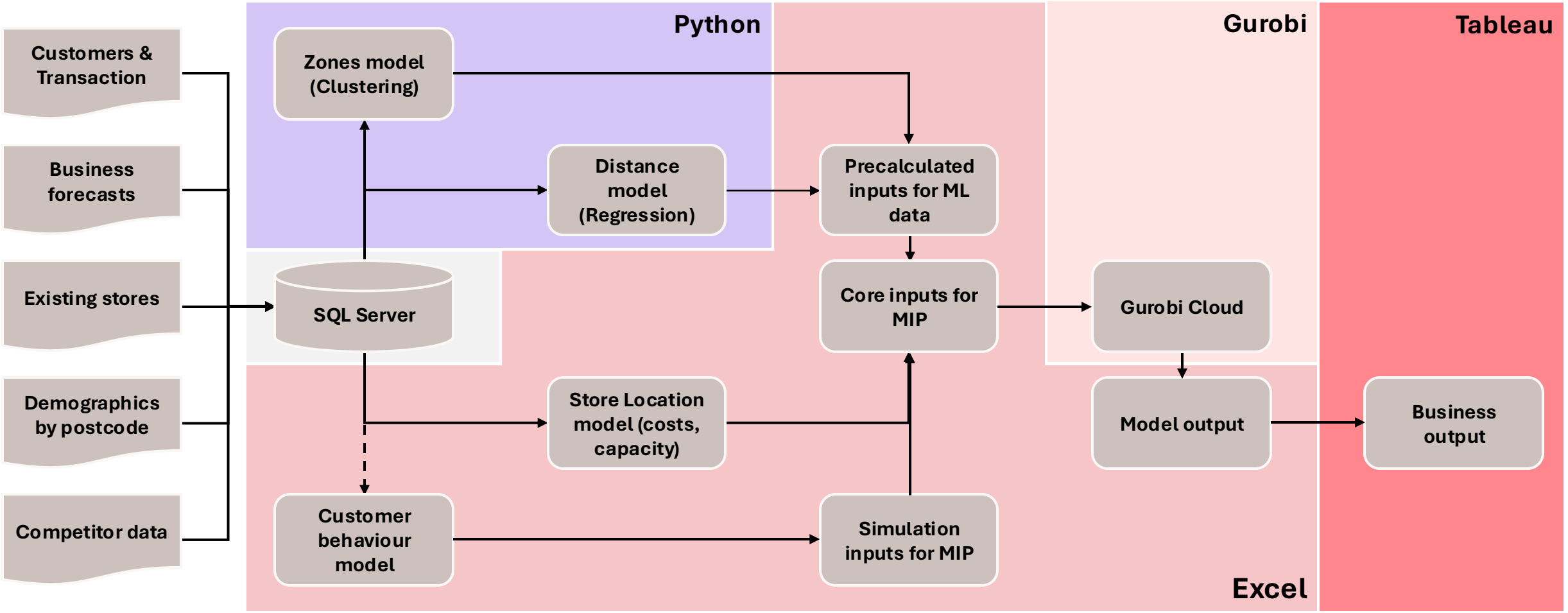
- Understanding the changing habits of customer – why do they go to a store, how will this change?
- Understanding the implications of the decision to open/close a store – what is the impact of the store location on the customer behaviour?
- Understanding the economics – revenues and (fixed and variable) costs?
- Understanding the store operations – what is the current / future capacity of a store?
- Understand the overall impact – what happens with profit?

This is a complex system, with a mixture of known and unknown data, known and unknown correlations and potentially high impact of getting this wrong

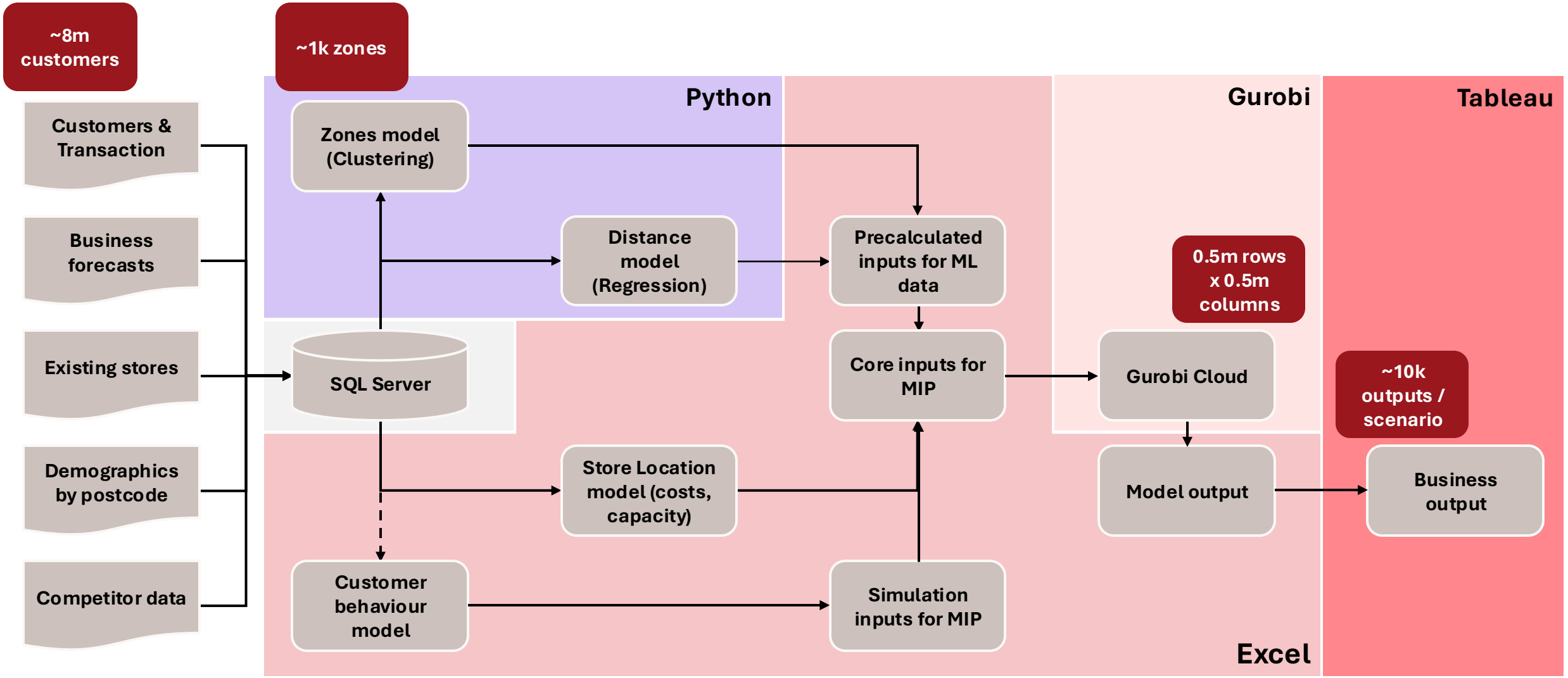
Using a blend of simulation, optimisation and machine learning



Overall modelling approach (simplified diagram)



Overall modelling approach (scale of model)



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Lessons learned

Lessons learned

1. Bringing structured analytical content made it much easier to reach conclusions and make decisions that all stakeholders agreed
2. Real life problems don’t fit nicely into academic frameworks, but the frameworks create a great structure
3. The tools don’t matter to the stakeholders, the application really matters
4. Picking the right tool for each element of the problem is critical
5. Blending the best capabilities enabled the results to be achieved
6. The power of Gurobi to run very complex models is fantastic!

BearingPoint

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