

# In-store Analytics Technologies Project

Migros Ticaret A.Ş. has total of 2,337 stores in 81 provinces in Turkey, including 2,273 Migros and 64 Macrocenters, with a closed area of 2,577,082 m<sup>2</sup>. Considering the developing retail industry standards, Migros has adopted the philosophy of continuous innovation as a principle and offers its customers different shopping experiences with its practices that improve industry standards.

## Requirements

Retailers are leveraging the vast amount of data collected through interactions to increase operational efficiency. The use of IoT sensors to track the in-store consumer's path improves the merchandise placement strategy. Following the consumer path helps retailers to manage the placement of premium products in high-traffic areas.

Connected products and devices create ample opportunities for retailers to optimize store operations such as supply chain, logistics and inventory management. Connected platforms offer retailers a direct channel to generate potential information on utility usage, consumption trends and consumer behavior.



Beacon Data



Basket Data



Traffic Data



Connected Devices

## In Project;

With the expertise of Migros and Obase, the data collected through the beacons on the shopping carts are processed, analyzed and matched with the cash register data to determine its relation with sales; It is aimed to provide a better customer experience and increase in sales by analyzing the customers' in-store journey, the time they spend in the aisles and their relationship with sales.

# Data Preparation & Preprocessing Steps

Processing of unstructured IoT data

Matching with vault data

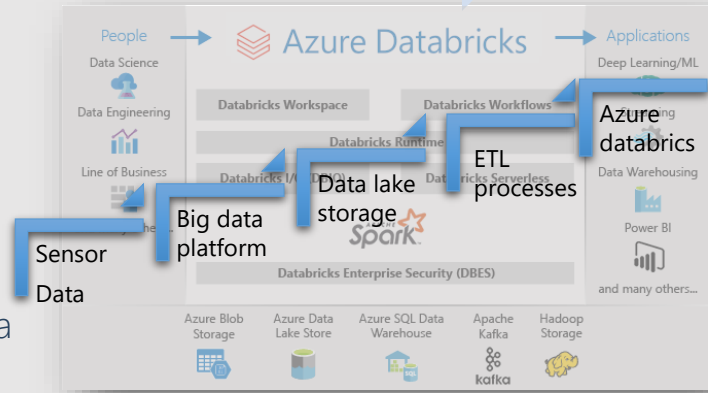
Reflecting the factors originating from in-store placement to the data with rules

Elimination of outliers and mismatches

Creation of new variables to shed light on analysis and models.

Microsoft Azure Databricks was used in data analysis and modeling processes in the project. It has been observed to be quite successful in terms of flexibility. It differentiates in the following areas:

- ✓ Ability to use different programming languages such as R, Python, Scala
- ✓ Auto upscale/downscale feature of cluster capacity according to workload
- ✓ Ability to work simultaneously with teammates
- ✓ Notebook sharing and export
- ✓ Automatic shutdown after inactive for a certain period of time



## Analyzes

Customer-based Overviews

Overview in Section Breakdown

Department Visit and Sales Relationship

Departmental Association Analysis

Network Analysis

## Outputs

Aisles visited with/ without basket

Product category-based time spent

Time & buying relationship

Aisles network analysis

Basket association analysis

IoT applications in retail can create inputs for projects such as forward forecasting, physical store optimization, measuring the performance of technical equipment, 360' customer experience management.