Online Geo-Experiments at scale: Measuring IKEA's marketing impact

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Problem Statement

Why?
IKEA invests millions in digital marketing every year to drive website traffic, brand equity, and ultimately business growth across the entire product portfolio.

What?
Measuring the impact of digital campaigns in a timely manner is key for IKEA to optimize budget allocation.

How?
The main goal of this project is to develop an experimentation platform that **improves** and a**utomates** IKEA's media experimentation at scale.

Incrementality Testing

Methodology

- **Select Hypothesis**
- **Group Selection**
- **Activate Treatment**
- **Monitor/Analysis**

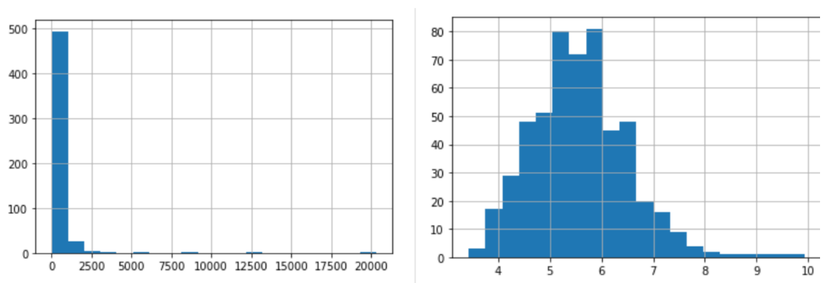
Test Types
Budget boost of a campaign
Budget decrease of a campaign
Turn on add expend
Turn off add expend

Selecting Best Experimental Designs

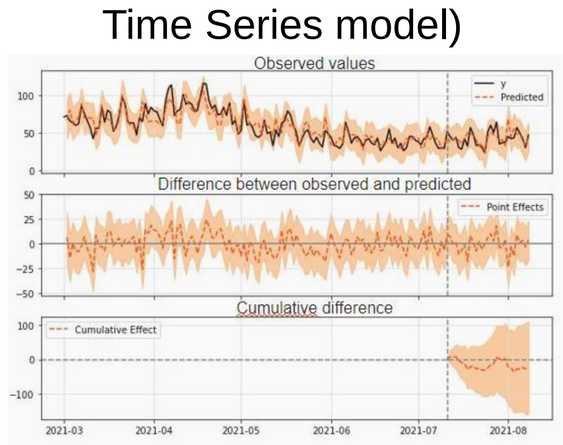
We assessed four experiment designs: **Experimental Synthetic Control, Permutation, Trimmed Match and Randomization (t-test).** Moreover, we evaluated techniques of variance reduction as Controlled-experiment Using Pre-Existing Data **(CUPED).**

Randomized-based Design
With log transformation and CUPED

Typical distribution of a KPI across cities in a country before and after applying log transformation



Experimental Synthetic Control
Using a Bayesian Structural Time Series model)

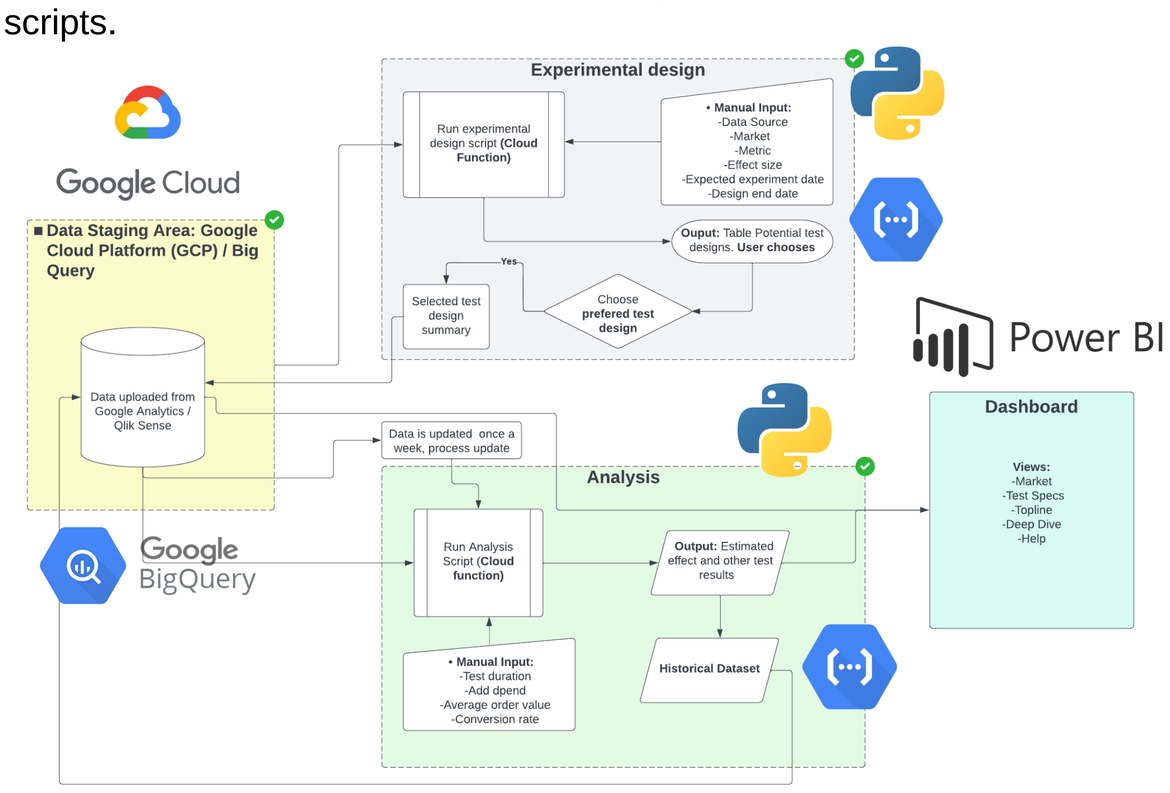


Power Analysis/MDE:

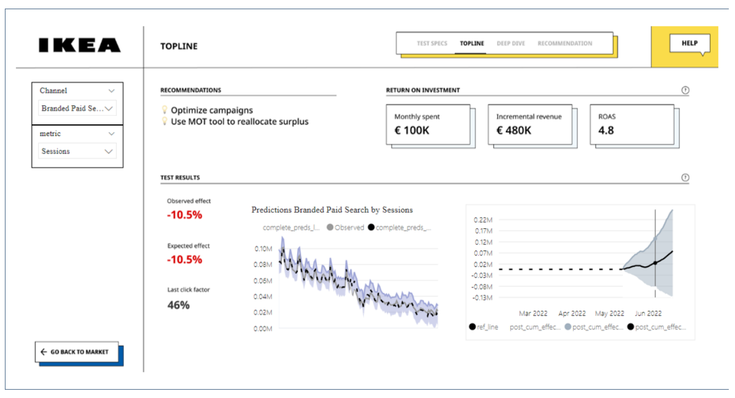
Power analysis is a calculation that helps determine the **minimum effect** your experimental **design will be able to detect**, also known as **MDE**.

Platform Design (Backend/Frontend)

Backend **architecture design** in three phases: **Data Staging, Experiment Design and Analysis.** Using cloud functions and Python scripts.



The dashboard has 6 views: **Tests Specifications, Top Line, Deep Dive, Recommendations, Market and Help.**
The dashboard was designed with the User Experience (UX) team and the input of IKEA's final users.



Topline: Follow-up of main KPIs and the global effect of the test

Deep Dive: Analysis of the experiment effect at different Level of disaggregation.

Business Value

Drivers

Conducting better tests by: Improving Minimum Detectable Effects and detecting False Positives

Automation

Robust solution with the inclusion of randomized-based methods

Results

A total increment of 70 experiments per year, that translates in **$98 M USD/year** or **0.13% of IKEA's revenue**

Improvement	Percentage increase
Detect accurately the MDE and ability to identify Type I errors (false positives)	**50%**
Automated platform	100%
Total	**200%**