1 Introduction: The Business Problem

1.1 Why A/B Testing Matters in E-Commerce

E-commerce companies face a fundamental challenge: **How do we know if changing our website will increase revenue?**

Traditional approaches rely on:

- **HiPPO**: Highest Paid Person's Opinion
- **Gut Feelings**: "I think users will like this"
- **Observational Analysis**: Comparing before/after metrics (confounded by seasonality, trends, external events)

All of these fail to establish **causality**. A/B testing provides the scientific, data-driven alternative.

Note

What is A/B Testing?
A/B testing (also called randomized controlled trials or controlled experiments) is the gold standard for measuring causal effects in digital products. The process:

1. **Randomly assign** users to either:
   - **Control (A)**: Current experience
   - **Treatment (B)**: New experience with ONE change
2. **Measure** business metrics (revenue, conversion, engagement)
3. **Compare** groups to estimate the **causal effect** of the change

Key Principle: Randomization ensures groups are identical except for the change, so observed differences can be attributed to the change itself.

1.2 Our Case Study: Croatian E-Commerce Platform

Business Problem: An online retailer wanted to test whether simplifying their checkout process would increase conversion rates without negatively impacting average order value. This case study demonstrates the complete A/B testing workflow from hypothesis formulation through validation checks, statistical analysis, and business decision-making.

Study Context:

- **Platform**: Major Croatian e-commerce company
- **Timeline**: March–June 2021 (Q1–Q2)
- **Sample Size**: 102,000+ user sessions
- **Geography**: Zagreb, Split, Rijeka, Osijek
- **Devices**: Mobile (60%), Desktop (35%), Tablet (5%)

Five Experiments Tested: