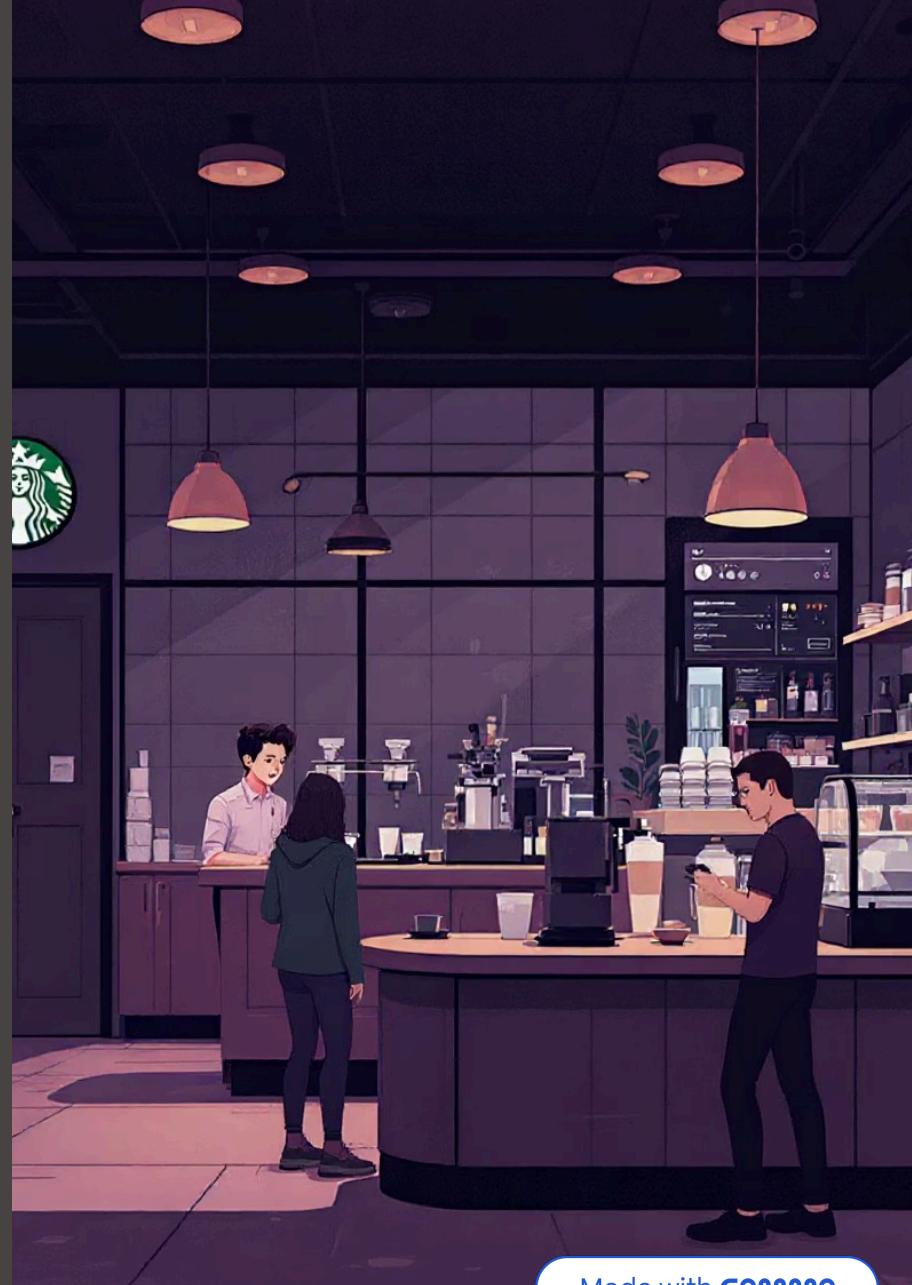


# Process Reengineering using Data Analytics

Starbucks Coffee Serving Setup

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# Objective

Reengineer Starbucks' coffee-serving process to **minimize human resource dependency** and **reduce operational costs** using minimal new technology.

The goal: selectively integrate lightweight, cost-effective digital tools that streamline key bottlenecks at cashier and order management stages.

Enable digital ordering, automated payments, and real-time inventory updates through existing infrastructure—achieving efficiency without compromising service quality.

12-15

Minutes

Current service time per customer

6-7

Minutes

Target service time after reengineering

# Current Process Analysis (As-Is)

The current process involves three key roles—customer, cashier, and barista—supported by manual inventory. The workflow begins when customers enter and queue, often waiting several minutes during busy hours.



## Customer Entry

Joins queue and waits to reach counter

## Order & Payment

Cashier takes order, enters into POS, processes payment

## Preparation

Barista receives order and prepares beverage

## Pickup & Exit

Customer collects drink and leaves

**AS-IS**



# Key Observations & Current KPIs

## Observations

### Service Time

12-15 minutes per customer from entry to exit; increases during peak hours

### Waiting Time

5-7 minutes before reaching cashier; longer queues during rush periods

### Bottlenecks

Longest delays during queueing and drink preparation, especially for customized orders

### Manual Processes

Data entry slows cashier-barista communication; inventory updates lack automation

## Current KPIs

- Average waiting time per customer
- Total transaction time
- Number of staff on duty per shift
- Average queue length during peak hours



# KPI Reframing

To align with reengineering goals of reducing staff and costs through technology, we shift focus toward KPIs capturing **efficiency, automation, and resource optimization**.

## Customer Turnover Rate

Measures customers served per hour—higher values indicate better flow and reduced bottlenecks

## Staff Utilization Rate

Evaluates how effectively employees' active time is used, minimizing idle time

## Automation Efficiency Index

Tracks proportion of automated tasks, reflecting reduced manual effort

## Cost Per Transaction

Assesses cost-effectiveness by combining labor, equipment, and process expenses per order

# Technology Impact Analysis

The redesigned process integrates digital ordering, automatic payment, and real-time inventory updates to streamline operations.



## Digital Ordering App

**Impact:** Customers order and pay remotely, reducing cashier dependency

**Improves:** Waiting time, total process time

*Challenge: Development & maintenance costs*



## Automated Payment Gateway

**Impact:** Processes transactions instantly, eliminating manual handling

**Improves:** Staff efficiency

*Challenge: Transaction fees, security compliance*



## Smart Inventory Sync

**Impact:** Automatically updates stock levels when ingredients are used

**Improves:** Inventory turnover

*Challenge: Integration cost with POS system*

## Data Analytics Dashboard

Monitors peak hours, customer flow, and resource usage

## AI Demand Prediction

Predicts sales and adjusts staffing/inventory dynamically

# To-Be Process Analysis



Customer Entry

Opens the app and checks menu

Order & Payment Online

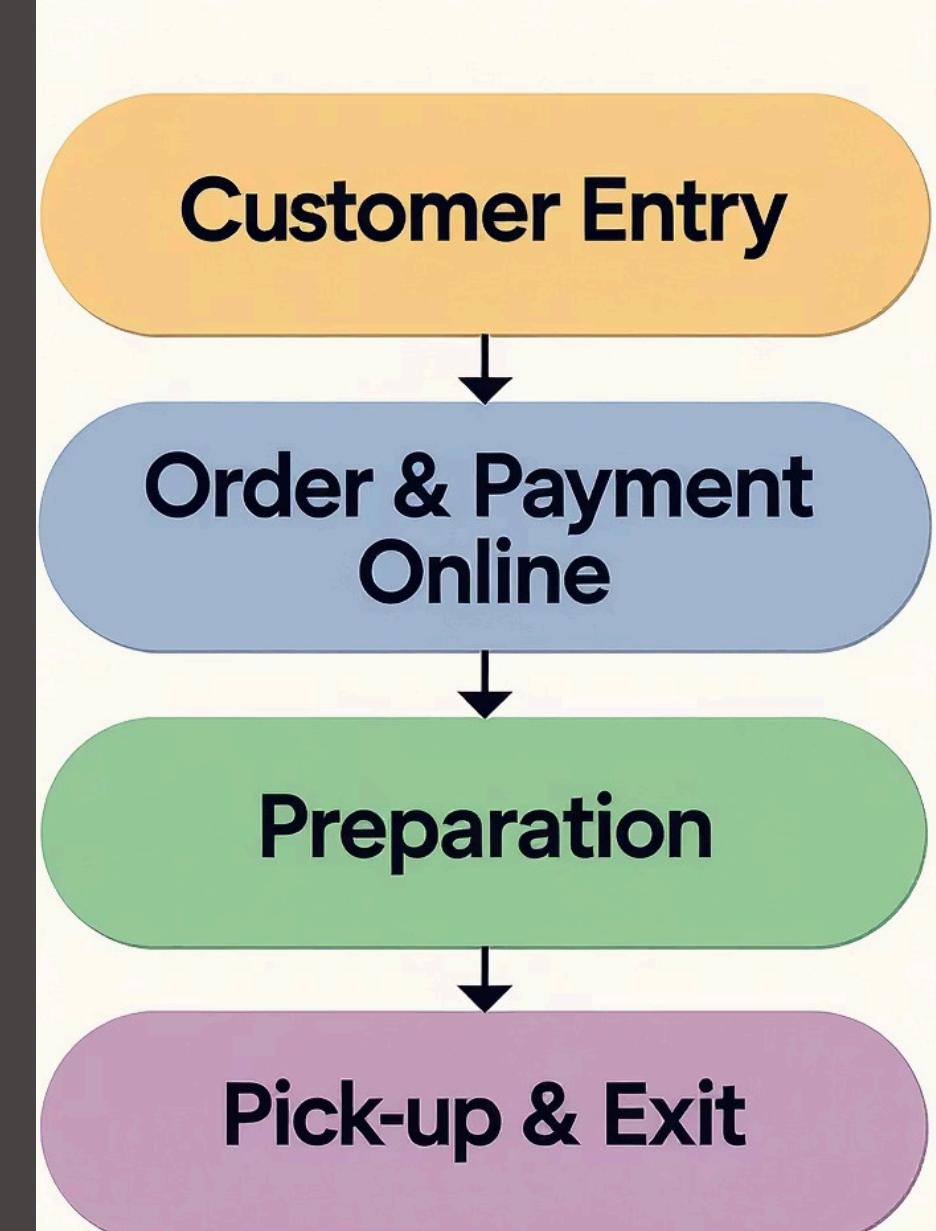
Places an order and make payment online

Preparation

Barista starts preparing the order

Pick-up & Exit

Customer comes to the counter and picks up the order



# Justification for Minimal Technology



## Why Mobile App Over Kiosks?

The reengineering approach deliberately prioritizes a **low-cost digital app** over hardware-heavy alternatives like self-service kiosks.

Kiosks involve significant upfront and maintenance costs, including physical installation, space allocation, and periodic servicing.

## The Smart Alternative

A mobile app leverages customers' **existing devices**, requiring no additional hardware, store modifications, or long-term servicing expenses.

Achieves same HR and efficiency benefits with greater scalability, lower overhead, and faster implementation.

- **Result:** By using a digital app for ordering and payment, Starbucks can eliminate the cashier role, automate order transmission to barista systems, and maintain real-time inventory updates—all with minimal operational disruption and far lower capital cost.