

# 360° Customer Profile & Predictive Personalization

## 1. Problem Statement

Modern marketing teams collect vast amounts of customer data—browsing behavior, purchases, campaign interactions, support history—but this information lives in disconnected systems. Marketers struggle to translate this data into timely decisions that improve personalization, targeting, and campaign performance.

As a result:

- Personalized experiences are inconsistent.
- Recommendations lack context.
- High-value customers are not recognized quickly enough.
- Marketing teams must manually interpret data, slowing activation.

This is a widely felt and costly problem: fragmented customer understanding leads to missed revenue, poor engagement, and inefficient marketing workflows.

## 2. Why This is a Valuable Problem for Opal to Solve

This challenge directly aligns with Opal’s strengths—**context engineering, agent workflows, and tool integration**. Opal is uniquely positioned to consume multi-source customer signals, reason across them, and produce structured insight at scale.

Solving this with Opal creates:

- Real-time customer intelligence (vs. manual analysis).
- Unified profiles that can drive personalization across channels.
- Automated next-best-actions that align content, commerce, and experimentation.
- A repeatable framework applicable to any marketer with CDP + digital experience stack.

This is a high-impact, highly relatable marketing problem, and Opal’s agentic model enables a truly scalable solution.

## 3. Solution Overview

**360° Customer Profile & Predictive Personalization** is an Opal-powered solution that automatically analyzes a customer’s behavioral signals (e.g., browsing), transactional history, and past content interactions—then predicts the next-best action and updates their profile in Optimizely Data Platform (ODP).

The system uses:

- **One Opal Agent** – *Profile Maker*
- **Two Custom Opal Tools** – *ODP Browser and Profile Update*
- Optimizely Data Platform (ODP) as the primary data source
- Agent workflows to chain insight → action

## **Key Components**

### **1. ODP Browser Tool Fetches Customer Signals**

The custom ODP Browser tool retrieves

- Web browsing behavior
- Purchase and order history
- Product affinities
- Email engagement
- Any existing profile attributes.

### **2. Profile Maker Agent Generates Insights & Predicts Actions**

Using the consolidated data, the agent:

- Creates a unified customer profile summary
- Identify behavioral archetypes
- Infers interests and intent
- Predicts the customer's likely next action

The agent then classifies the outcome into one or more of these categories:

- Product Recommendations
- Content Recommendations
- Customer Interests / Attribute Enrichment
- Educational Content Recommendations

### **3. Profile Update Tool Writes Back to ODP**

Integrates naturally into a marketer's existing workflow (CMS, ODP, commerce, email).

## **4. Process to Build the Outcome**

- Defined the end-to-end marketing workflow and identified the exact decision points where Opal agents can replace manual effort.

- Designed two custom Opal tools:
  - **ODP Browser Tool:** fetches customer behavioral and purchase data.
  - **Profile Update Tool:** writes updated attributes to ODP.
- Built the workflow agents with intentionally minimal token usage and refined context windows.
- Chained the agents using an Opal workflow so the system autonomously moves from data → insight → action.
- Tested with sample ODP profiles to confirm valid updates and accurate summarization.
- Created a demo script and UI view showing real-time profile transformation and downstream personalization triggers.

## 5. Transferability & Reusability

This solution can be implemented for any Optimizely customer using ODP or any CDP with available APIs.

It is industry-agnostic and easily adapted for: Retail, B2B, Media, Manufacturing, Subscription businesses. Only the mapping schema and recommendation rules vary—agents and tools remain consistent.

## 6. Supporting Materials

- [ZIP file containing:](#)
  - Agent definitions JSONs
    - [Agent - Retrieve profiles for a given Segment from ODP.json](#)
    - [Agent - Predict action based on customer profile data.json](#)
    - [Agent - Update profile based on the data from profile maker.json](#)
  - Workflow JSON
    - [Agent Workflow - Predict customer actions.json](#)
- Tool code/instructions
  - <https://github.com/SujitSenapati/ProfileMaker/>
- Tool discovery endpoint URLs
  - <https://profilemaker-geefb8anbebraghf.eastus-01.azurewebsites.net/discovery>
- [Architecture diagram](#)
- Video presentation link (5-minute demo): <https://youtu.be/NHaMReYkBiw>