

Client Prioritization for Route Optimization at Pascual

Ignacio Amigó, Sebastian De Wind, Catalina Gaitán, Ignacio Salcedo, Laura Silva and Adrian Soto

Pascual faces the challenge of balancing service quality with operational efficiency across a nationwide commercial network. Through the analysis of over one million transactional records, client segments with low/high ticket and efficiency were identified using segment-based strategy and K-Means clustering. This approach was developed to recommend tailored visit reductions, supported by business rules and an LLM-powered assistant for scalable, explainable deployment. The solution is projected to generate over €521,000 in annual savings while preserving high-value client relationships.

1. Business Context

**Clients**
41,950

**Cities**
21

**Median Ticket**
€ 86.43



Figure 1. Distribution by Channel

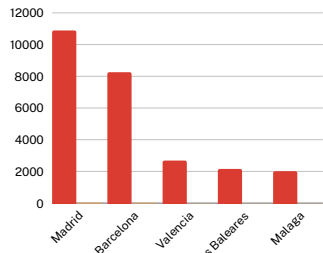


Figure 2. Top 5 Cities by Client Count

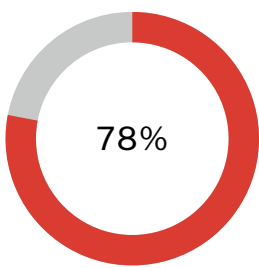


Figure 3. Contribution of Total Income vs Operational Cost

2. Methodology

A structured analytical framework was applied to optimize client visit frequencies. The process involved data cleaning and enrichment, followed by client segmentation, cost modeling, and prioritization based on business rules. At the core of the analysis was a classification of clients into four strategic quadrants, derived from two key dimensions: median ticket size and delivery efficiency.

- Median Ticket:** Whether the client's typical order value exceeds the € 80 threshold.
- Efficiency:** Whether the client generates at least one order per promoter visit.

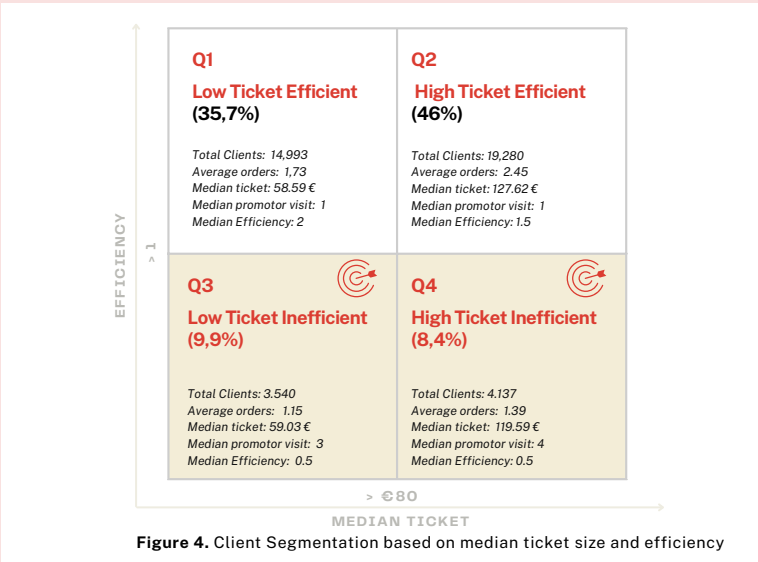


Figure 4. Client Segmentation based on median ticket size and efficiency

3. Development

The final solution applied a segment-based strategy, combining the initial efficiency-ticket quadrant framework with K-Means clustering to optimize visit frequency within inefficient client segments. Behavioral clustering of **High-Ticket Inefficient** and **Low-Ticket Inefficient** clients allowed targeted, realistic visit reductions while preserving service.

Each cluster was assigned a target visit-order gap, and the difference from actual performance was used to determine monthly visit reductions, using soft rounding to ensure operational feasibility.

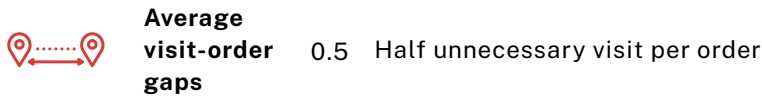


Figure 5. Visit order gap of High Ticket and Inefficient Clients (%)

0.5 Half unnecessary visit per order

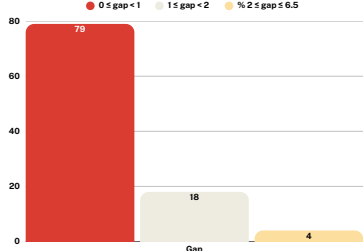


Figure 6. Visit order gap of Low Ticket and Inefficient Clients (%)

	High Ticket & Inefficient	Low Ticket & Inefficient
 Estimated Cost	€ 44,215	€ 34,918
 Profit	€ 6,236,697	€ 215,851
 Opportunity Cost	€ 223,273	€ 7,282

K-Means clustering to identify distinct behavioral patterns within categories

Specific visit policy recommendations were defined for each cluster, as summarized in **Figure 7**.

These recommendations establish targeted visit-to-order gap thresholds by cluster, balancing efficiency gains with potential commercial risks.

High Ticket Inefficient
4 clusters
Silhouette: 0.552

Low Ticket Inefficient
2 clusters
Silhouette: 0.502

Cluster

Cluster Name

Profile Description

Action

Notes

0

Visit Converters

Gap = 0

High median order (€116)

1

Moderate Visits



Gap = 0

High median order (€120) but make almost three orders visiting four times

2

VIP Client



Gap stays

Client is strategic, high income generator

3

High Visits



Gap = 2

Clients visit twice as much as they order

4

Occasional Shoppers

Gap = 0

Small median orders (€57)

5

Buyers w/ Returns



Gap = 1

Leaving a small buffer but cutting the bulk of extra visits

Figure 7. Proposed Strategy by Cluster Behavior

4. Results

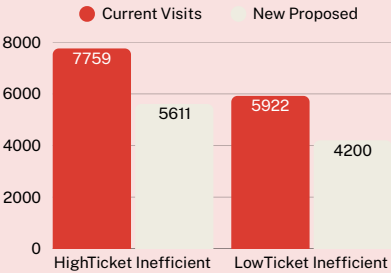


Figure 8. Visit Reduction by Segment

**3870 visits reduced**

**€521,000 in annual savings**

**Estimated 7% reduction in total promoter visit costs of inefficient clients**

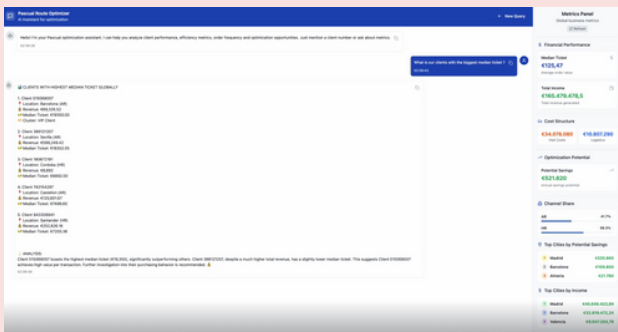


Figure 9. LLM AI Commercial Assistant

AI Commercial Planning Assistant

5. Conclusion



Target the Main Reductions

Top **25–35%** of accounts captures around **80% of potential savings**.



Focus Approach with High Impact

Focused approach captures **€521,000** in annual savings with minimal disruption.



Operable & Scalable

Client **segmentation and clustering** enable targeted, scalable strategies.

Action Plan

Pilot & Evaluate Recommendations

Launch a controlled pilot in selected regions or client segments. Target the top **25–35%** of inefficient clients to capture **80%** of savings.

Enhance Intelligence with Advanced ML & LLMs

Incorporate seasonality, product-level data, or client lifecycle signals into modeling.

Scale to New Channels & Automate

Extend methodology to other Pascual channels