

# Executive Summary: MegaMart Customer Segmentation Analysis

**Team Number:** 10

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MegaMart's analysis of 3,000 active customers revealed four distinct behavioral segments that collectively explain customer purchasing patterns and engagement levels. Using K-means clustering with silhouette score validation (0.32), we identified High-Value Loyalists (17.5%), Low-Engagement Browsers (31%), Growth-Potential Customers (14.4%), and Consistent Moderate Shoppers (37.1%). These segments differ significantly in transaction frequency, spending levels, email engagement, and return behavior. By implementing segment-specific marketing strategies, MegaMart can expect to increase email engagement by 40%, improve conversion rates by 20%, and reduce churn among high-value customers by 25%.

## 1 Business Problem

MegaMart currently operates with a one-size-fits-all marketing approach, treating all 3,000 active customers identically despite their vastly different behaviors and value contributions. This generic strategy leads to:

- Inefficient marketing spend with broad campaigns yielding low conversion rates
- High-value customers receiving the same treatment as occasional browsers
- Missed opportunities to nurture mid-tier customers into premium segments
- Inability to identify and address at-risk customer segments before churn occurs

**Project Objective:** Our team analyzed behavioral data across 9 key dimensions (transaction frequency, basket size, spending, session duration, email engagement, product views, return rates, tenure, and recency) to discover natural customer segments and develop targeted strategies for each group.

## 2 Discovered Customer Segments

Our analysis identified four distinct customer segments with clear behavioral patterns:

### 2.1 High-Value Loyalists (17.5% of customers)

**Customer Persona:** "Premium Patricia"

Premium Patricia represents MegaMart's most valuable customers. She shops almost weekly (14 transactions/month), maintains large basket sizes (\$22 average), and spends significantly above average (\$6,507 annually). She actively engages with email campaigns (58% open rate) and explores products extensively (43 views per visit). Most importantly, she rarely returns items (10% return rate), demonstrating satisfaction with purchases. With an average tenure of 26 months and recent activity (8 days since last purchase), she exhibits strong loyalty.

**Key Characteristics:**

- Monthly transactions: 14.0 (highest across all segments)
- Average basket size: \$22.0
- Annual spending: \$6,507

- Email open rate: 58% (highest engagement)
- Return rate: 9.9% (lowest)
- Customer tenure: 26 months (most loyal)

## 2.2 Low-Engagement Browsers (31% of customers)

### Customer Persona: "Window-Shopping William"

William spends considerable time browsing (52 minutes per session) and views many products (30 per visit), but rarely converts to purchases. He shops infrequently (1.7 transactions/month), maintains small baskets (\$3 average), and spends minimally (\$420 annually). His high return rate (27%) suggests dissatisfaction or buyer's remorse. Despite his browsing activity, his email engagement is low (37% open rate), and he hasn't visited recently (36 days).

#### Key Characteristics:

- Monthly transactions: 1.7 (lowest)
- Average basket size: \$3.1 (smallest)
- Annual spending: \$420 (lowest)
- Session duration: 52 minutes (highest, but low conversion)
- Return rate: 27% (highest)
- Recency: 36 days (least recent activity)

## 2.3 Growth-Potential Customers (14.4% of customers)

### Customer Persona: "Moderate Michelle"

Michelle represents customers with untapped potential. She shops occasionally (4 transactions/month) but maintains substantial basket sizes (\$18.2 average), resulting in respectable annual spending (\$3,876). Her moderate email engagement (45% open rate) and recent activity (20 days) suggest receptiveness to targeted outreach. However, her relatively high return rate (24%) indicates opportunities for product recommendation improvements.

#### Key Characteristics:

- Monthly transactions: 4.0
- Average basket size: \$18.2 (second highest)
- Annual spending: \$3,876
- Email open rate: 45%
- Return rate: 24%
- Customer tenure: 22 months

## 2.4 Consistent Moderate Shoppers (37.1% of customers)

### Customer Persona: "Regular Robert"

Robert represents MegaMart's backbone—consistent, reliable customers who shop regularly (6.6 transactions/month) with moderate spending (\$1,450 annually). He maintains smaller basket sizes (\$5.6) but compensates through frequency. His moderate email engagement (44% open rate) and low return rate (13%) indicate satisfaction and brand familiarity. Recent activity (15 days) demonstrates ongoing engagement.

#### Key Characteristics:

- Monthly transactions: 6.6
- Average basket size: \$5.6

- Annual spending: \$1,450
- Product views: 33 per visit
- Return rate: 13%
- Recency: 15 days (most frequent)

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## 3 Marketing Strategy Recommendations

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### 3.1 High-Value Loyalists: Retention & Exclusivity

**Priority Level:** Critical (represents highest revenue concentration)

1. **VIP Rewards Program:** Launch a premium tier offering exclusive early access to sales, personalized concierge service, and special birthday rewards. Expected impact: 25% reduction in churn risk.
2. **Personalized Product Recommendations:** Leverage their high product view rate to deliver AI-curated suggestions based on browsing history. Deploy via email and in-app notifications.
3. **Executive Account Management:** Assign dedicated customer success representatives for white-glove service and proactive outreach every 90 days.

### 3.2 Low-Engagement Browsers: Conversion Optimization

**Priority Level:** Medium (large segment requiring conversion improvement)

1. **Cart Abandonment Recovery:** Implement automated email sequences with dynamic discount codes (10-15%) triggered after 24 hours of inactivity. Target their high browsing-but-not-buying behavior.
2. **Product Review Integration:** Address high return rates by prominently displaying customer reviews and detailed product specifications to set proper expectations.
3. **First-Purchase Incentive:** Create compelling introductory offers (e.g., "\$10 off your first \$50 purchase") to overcome purchase hesitation and establish buying patterns.

### 3.3 Growth-Potential Customers: Frequency & Engagement

**Priority Level:** High (best ROI potential through upward migration)

1. **Frequency-Building Campaigns:** Deploy "Shop 3 times, get 20% off" promotions to increase transaction frequency from 4 to 6+ monthly visits.
2. **Bundle Recommendations:** Leverage their high basket size tendency by creating curated product bundles that increase basket value while reducing returns through better product pairing.
3. **Loyalty Status Acceleration:** Create a visible path to VIP status ("Only 2 more purchases to unlock premium benefits") to motivate increased engagement.

### 3.4 Consistent Moderate Shoppers: Value Optimization

**Priority Level:** Medium (maintain engagement while increasing value)

1. **Cross-Sell Campaigns:** Target their frequent visits with complementary product suggestions to increase basket size from \$5.6 to \$8-10 average.
2. **Seasonal Engagement:** Send weekly deal emails highlighting clearance items and bundle offers with free shipping thresholds to maintain purchase frequency.
3. **Category Expansion:** Analyze purchase history to identify unexplored product categories and deploy targeted campaigns to broaden shopping scope.

## 4 Expected Business Impact

### 4.1 Quantitative Projections

Based on our segmentation analysis and industry benchmarks, implementing segment-specific strategies will yield:

Metric	Baseline	Projected
Email Open Rate	44%	61% (+40%)
Conversion Rate	12%	14.4% (+20%)
High-Value Customer Churn	15%/year	11.25%/year (-25%)
Average Order Value	\$9.10	\$10.50 (+15%)
Customer Lifetime Value	\$2,109	\$2,530 (+20%)

Table 1: Expected Impact of Segmentation Strategy

### 4.2 Revenue Impact Analysis

- **High-Value Loyalists (525 customers):** Reducing churn by 25% saves approximately \$853,000 in annual revenue ( $525 \times \$6,507 \times 0.25$ ).
- **Growth-Potential Customers (432 customers):** Increasing transaction frequency from 4 to 6/month could generate \$1.68M in additional annual revenue.
- **Low-Engagement Browsers (930 customers):** Converting just 10% to active shoppers (similar to Moderate Shoppers) would add \$958,000 in annual revenue.
- **Total Projected Impact:** \$3.49M in additional annual revenue (approximately 17% increase over baseline).

### 4.3 Implementation Considerations

#### Resource Allocation:

- Allocate 40% of marketing budget to High-Value Loyalists (retention focus)
- Allocate 30% to Growth-Potential Customers (highest ROI opportunity)
- Allocate 20% to Low-Engagement Browsers (conversion optimization)
- Allocate 10% to Consistent Moderate Shoppers (maintenance and gradual uplift)

#### Trade-offs:

- Initial implementation requires 3-6 months for full deployment
- Personalization infrastructure investment: \$75,000-\$150,000
- Requires cross-functional collaboration between marketing, IT, and customer service
- May temporarily increase operational complexity during transition period

## 5 Next Steps & Recommendations

### 5.1 Immediate Actions (0-3 Months)

1. **CRM Integration:** Deploy segmentation model to production CRM system to enable real-time customer classification and automated campaign triggering.
2. **A/B Testing Framework:** Launch pilot campaigns for each segment with control groups to validate projected impact metrics before full rollout.
3. **Team Training:** Conduct workshops with marketing and customer service teams on segment characteristics and tailored approaches.

4. **Dashboard Development:** Create executive dashboard tracking segment-specific KPIs (conversion rates, LTV, churn risk) for ongoing monitoring.

## 5.2 Medium-Term Enhancements (3-6 Months)

1. **Predictive Modeling:** Develop early warning systems to identify customers at risk of downward segment migration (e.g., High-Value to Growth-Potential).
2. **Dynamic Segmentation:** Implement quarterly re-segmentation to track customer movement between segments and adjust strategies accordingly.
3. **Product Category Integration:** Enhance segmentation with product category preferences to enable hyper-personalized recommendations.
4. **Competitive Benchmarking:** Compare segment performance against industry standards to identify additional optimization opportunities.

## 5.3 Long-Term Vision (6-12 Months)

1. **Predictive Lifetime Value:** Build models forecasting individual customer LTV trajectories to prioritize acquisition and retention investments.
2. **Channel Optimization:** Analyze segment-specific channel preferences (email, SMS, push notifications, direct mail) to optimize communication mix.
3. **Geographic Expansion:** Apply segmentation framework to new market entries to accelerate customer acquisition and targeting efficiency.
4. **Omnichannel Integration:** Extend segmentation beyond digital channels to in-store experiences for unified customer journey optimization.

## 5.4 Success Metrics Dashboard

Monitor these KPIs monthly by segment:

- Transaction frequency and trend
- Average basket size and evolution
- Email engagement rates (open, click, conversion)
- Return rate changes
- Customer tenure progression
- Segment migration patterns
- Campaign ROI by segment