**Reusable Packaging System: Pilot Program Results**

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**Sustainability Innovation & Consumer Insights Teams**  
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**Executive Summary**

From September 2023 to March 2024, our company piloted a reusable packaging system for premium personal care products in three metropolitan markets. The initiative aimed to reduce single-use packaging waste while maintaining product quality and enhancing brand loyalty. The pilot demonstrated strong consumer interest and environmental benefits but revealed significant operational challenges. This report outlines key findings, challenges, and recommendations for system refinement before broader implementation.

**Pilot Program Overview**

**Program Structure**

* **Products**: Premium shampoo, conditioner, and body wash
* **Packaging Format**: Durable, reusable HDPE containers with silicone sleeve
* **Markets**: Portland, OR; Minneapolis, MN; Austin, TX
* **Retail Partners**: 12 specialty retailers and 8 conventional grocery stores
* **Return Mechanism**: In-store collection points and mail-back option
* **Incentive Structure**: $2 product credit per returned container
* **Duration**: 6 months (September 2023 - March 2024)

**Key Metrics**

* **Units Distributed**: 42,500 across all products
* **Consumer Participants**: 16,738
* **Return Rate**: 68% overall (varying by market and channel)
* **Repeat Purchase Rate**: 72% for participants vs. 46% for non-participants
* **Net Promoter Score**: 76 for program participants vs. 65 for control group

**Technical System Performance**

**Container Performance**

| **Metric** | **Target** | **Actual** | **Variance** |
| --- | --- | --- | --- |
| Average Cycle Count | 10 uses | 8.2 uses | -18% |
| Product Protection | 100% | 98.7% | -1.3% |
| Cleaning Efficiency | 95% | 92.4% | -2.6% |
| Visual Appeal After Reprocessing | 90% | 82% | -8% |
| Manufacturing Cost Amortization | $0.32/use | $0.46/use | +43.8% |

**Return Logistics Performance**

| **Metric** | **Target** | **Actual** | **Variance** |
| --- | --- | --- | --- |
| In-Store Return Rate | 70% | 63% | -7% |
| Mail-Back Return Rate | 30% | 37% | +7% |
| Collection Frequency Adherence | 95% | 87% | -8% |
| Container Contamination Rate | <5% | 12% | +7% |
| Scanning Accuracy | 98% | 93.8% | -4.2% |
| Processing Time | 48 hours | 76 hours | +58% |

**Consumer Insights**

**Participation Patterns**

* **High Adopters Profile**: Urban millennials (28-42), higher income ($100k+), values-driven shoppers
* **Moderate Adopters Profile**: Suburban families, environmentally concerned but convenience-sensitive
* **Low Adopters Profile**: Price-sensitive shoppers, older demographics (55+), rural locations

**Motivating Factors**

1. **Environmental Impact** - 72% cited waste reduction as primary motivation
2. **Financial Incentive** - 58% mentioned rebate as important factor
3. **Product Quality** - 43% perceived products in reusable packaging as higher quality
4. **Brand Loyalty** - 38% reported increased brand affinity due to sustainability initiative

**Friction Points**

1. **Convenience Barriers**:
   * 65% reported inconvenience of returning containers as primary challenge
   * 42% forgot to bring containers during shopping trips
   * 37% found mail-back process cumbersome
2. **Program Understanding**:
   * 28% were confused about return process
   * 22% unclear about eligibility for incentives
   * 18% unaware of cleaning requirements before return
3. **Product Experience**:
   * 31% noted difficulty in dispensing product when nearly empty
   * 25% reported closure mechanism degradation after multiple uses
   * 14% mentioned aesthetic concerns with wear after multiple cycles

**Verbatim Insights**

**Positive**:

* "I love that I'm not throwing away plastic every month." - Female, 34, Portland
* "The containers feel much more premium than disposable ones." - Male, 29, Austin
* "The discount makes me feel rewarded for doing the right thing." - Female, 42, Minneapolis

**Negative**:

* "I kept forgetting to bring them back and ended up with a cabinet full." - Male, 37, Austin
* "The return process was confusing - different stores had different rules." - Female, 45, Portland
* "The pump stopped working properly after a few months." - Female, 32, Minneapolis

**Operational Challenges**

**Retail Execution**

1. **Staff Training**:
   * Inconsistent knowledge of program details across store associates
   * Varied adherence to collection protocols
   * Limited ability to troubleshoot consumer questions
2. **Space Constraints**:
   * Collection bins competed for valuable retail floor space
   * Some locations relegated bins to low-visibility areas
   * Overflow during peak periods created visual merchandising issues
3. **System Integration**:
   * Point-of-sale integration varied by retailer
   * Manual tracking processes in 30% of locations
   * Redemption verification challenges

**Reverse Logistics**

1. **Collection Efficiency**:
   * Route optimization challenges with variable container volumes
   * Higher than projected transportation costs (+32%)
   * Last-mile inefficiencies for low-volume stores
2. **Processing Capacity**:
   * Cleaning facility throughput lower than projected
   * Manual inspection requirements higher than anticipated
   * Quality control rejection rate of 18% (vs. projected 8%)
3. **Inventory Management**:
   * Mismatches between returned containers and production needs
   * Color-specific container sorting increased handling time
   * Tracking system accuracy issues

**Financial Assessment**

**Program Economics**

| **Category** | **Projected** | **Actual** | **Variance** |
| --- | --- | --- | --- |
| Container Production Cost | $3.85/unit | $4.12/unit | +7% |
| Processing Cost/Cycle | $0.58/unit | $0.87/unit | +50% |
| Logistics Cost/Cycle | $0.42/unit | $0.73/unit | +74% |
| Consumer Incentive | $2.00/unit | $2.00/unit | 0% |
| Total Cost/Cycle | $3.00/unit | $3.60/unit | +20% |
| Single-Use Packaging Cost | $0.72/unit | $0.72/unit | 0% |
| Break-Even Point | 5.2 cycles | 7.4 cycles | +42% |

**Business Impact**

* **Revenue Impact**: +4.7% for participating products in pilot markets
* **Margin Impact**: -2.3% during pilot phase (projected to neutral by cycle 10)
* **Customer Acquisition Cost**: 18% lower for program participants vs. traditional acquisition channels
* **Consumer Lifetime Value**: Projected 27% increase for program participants

**Environmental Impact**

**Measurable Benefits**

* **Plastic Waste Reduction**: 3.2 metric tons avoided during pilot
* **Carbon Footprint**: 19% reduction compared to single-use packaging (third-party verified)
* **Water Usage**: 12% increase due to cleaning processes
* **Energy Consumption**: 28% increase in manufacturing phase, offset by 35% reduction over full lifecycle

**Life Cycle Assessment**

| **Impact Category** | **Single-Use** | **Reusable** | **Net Benefit** | **Break-Even Point** |
| --- | --- | --- | --- | --- |
| Global Warming | 82 g CO₂e | 67 g CO₂e | -18% | 5 uses |
| Water Consumption | 1.8 L | 2.1 L | +17% | N/A |
| Primary Energy | 1.2 MJ | 0.9 MJ | -25% | 4 uses |
| Plastic Waste | 45 g | 5.5 g | -88% | 1 use |

**Key Learnings & Improvement Opportunities**

1. **Container Design**:
   * Improve pump mechanism durability for extended use cycles
   * Enhance surface treatments for better appearance retention
   * Simplify design to improve cleaning efficiency
2. **Return Process**:
   * Develop mobile app for streamlined returns and tracking
   * Standardize collection protocols across retail partners
   * Increase collection frequency in high-volume locations
3. **Consumer Engagement**:
   * Simplify messaging around program benefits and process
   * Enhance visibility of environmental impact through digital tracking
   * Develop reminder system for container returns
4. **Operational Efficiency**:
   * Invest in automated cleaning and inspection technology
   * Optimize reverse logistics with dedicated routes
   * Implement RFID tracking for improved inventory management

**Recommendations**

1. **Phased Expansion**:
   * Refine system based on pilot learnings before geographic expansion
   * Focus next phase on high-performing urban markets with strong sustainability ethos
   * Target additional product categories with compatible packaging requirements
2. **System Refinements**:
   * Redesign containers to address durability and aesthetic issues
   * Develop centralized processing hubs for regional efficiency
   * Create standardized retailer implementation toolkit
3. **Consumer Experience**:
   * Launch mobile application for digital engagement and return tracking
   * Implement tiered rewards program for consistent participation
   * Develop in-home storage solution for empty containers
4. **Business Model Evolution**:
   * Explore subscription model to increase predictability
   * Test deposit-based system in select markets
   * Develop B2B channel for bulk users (salons, hotels, fitness centers)

**Next Steps**

| **Action** | **Responsible Team** | **Timeline** |
| --- | --- | --- |
| Container redesign project | Packaging Engineering | Q2-Q3 2024 |
| Mobile app development | Digital Experience | Q3 2024 |
| Processing facility optimization | Operations | Q2 2024 |
| Retailer toolkit creation | Trade Marketing | Q2 2024 |
| Phase 2 market selection | Strategy & Sustainability | Q2 2024 |
| Business model testing | Finance & Marketing | Q3-Q4 2024 |

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