**Beauty Abandoned Checkout Recovery - Automation Analysis**

**Project Overview**

This n8n automation workflow creates an intelligent, AI-powered abandoned checkout recovery system specifically designed for beauty and cosmetics e-commerce. The system generates personalized messages using customer data analysis and AI evaluation to maximize conversion while maintaining brand authenticity.

**Workflow Architecture**

**Core Components**

* Trigger: Webhook-based abandoned checkout detection
* Data Processing: Customer validation, enrichment, and analysis
* AI Engine: GPT-4 powered message generation and quality evaluation
* Integration: Klaviyo event tracking and customer engagement
* Quality Control: Multi-criteria message evaluation system

**Detailed Node Analysis**

1. Webhook Trigger

* **Function**: Receives abandoned checkout events from Shopify
* **Endpoint**: /abandoned-checkout (POST)
* **Input**: Raw checkout data from e-commerce platform
* **Response Mode**: Asynchronous processing with response node

**2. Smart Delay Calculation**

* **Purpose**: Implements intelligent timing strategy
* **Logic**:
  + Standard customers: 15 minutes delay
  + High-value carts (>$100): 30 minutes delay
  + VIP customers: 45 minutes delay
* **Output**: Scheduled send time with customer tier analysis

**3. Data Validation**

* **Validation Criteria**:
  + Valid email address present
  + Customer ID exists
  + Cart contains products
  + Checkout is genuinely abandoned
  + Cart value > $0
* **Error Handling**: Comprehensive validation logging and failure routing
* **Output**: Validated customer ID and checkout status

**4. Customer Data Retrieval**

* **Source**: Shopify Admin API
* **Authentication**: Shopify Access Token API
* **Data Retrieved**: Complete customer profile including purchase history
* **Endpoint**: /admin/api/customers/{id}.json

**5. Advanced Data Enrichment**

* **Customer Analytics**:
  + Total spending calculation
  + Order count and average order value
  + Loyalty tier assignment (New, Returning, Valued, VIP)
  + Engagement level assessment
* **Beauty Profile Creation**:
  + Seasonal context determination
  + Geographic location analysis
  + Product preference mapping
* **Cart Analysis**:
  + Product categorization and pricing
  + Cart value vs. customer average comparison
  + Urgency indicators identification
* **Personalization Metadata**:
  + Profile completeness scoring
  + Opportunity identification for targeting

**6. AI Prompt Engineering**

* **Dynamic Prompt Construction**:
  + Customer relationship acknowledgment
  + Purchase history integration
  + Product-specific beauty advice
  + Seasonal and geographic context
  + Loyalty tier appropriate messaging
* **Prompt Guidelines**:
  + 150-200 word target length
  + Expert beauty advisor tone
  + Natural conversation style
  + Product education focus
  + Gentle purchase motivation

**7. AI Message Generation (GPT-4)**

* **Model**: GPT-4 with specialized beauty advisor persona
* **System Prompt**: 15+ years beauty consultation expertise
* **Parameters**:
  + Max Tokens: 300
  + Temperature: 0.7 (balanced creativity/consistency)
* **Persona**: Sofia - certified lifestyle and product advisor
* **Expertise Areas**:
  + Beauty & skincare ingredients and application
  + Product recommendations and synergies
  + Seasonal beauty advice
  + Premium brand positioning

**8. Evaluation Prompt Preparation**

* **Comprehensive Assessment Framework**:
  + Customer context integration
  + Message quality analysis preparation
  + Scoring criteria establishment
  + Performance benchmark setting
* **Evaluation Dimensions**:
  + Personalization depth
  + Emotional connection strength
  + Beauty expertise demonstration
  + Urgency balance assessment
  + Call-to-action effectiveness
  + Brand voice consistency
  + Advisory tone quality

**9. AI Quality Evaluation**

* **Evaluation Model**: GPT-4 with marketing expertise persona
* **Scoring System**: 1-10 scale across 7 dimensions
* **Response Format**: Structured JSON with detailed metrics
* **Assessment Criteria**:
  + **Personalization Score**: Generic template vs. hyper-personalized
  + **Emotional Connection**: Transactional vs. emotionally resonant
  + **Beauty Expertise**: Basic mention vs. expert advisor level
  + **Urgency Balance**: No urgency vs. perfect balance
  + **CTA Strength**: Weak/missing vs. compelling
  + **Brand Consistency**: Off-brand vs. perfect alignment
  + **Tone Quality**: Very salesy vs. expert consultant

**10. Advanced Quality Gate**

* **Decision Logic**:
  + **Send Immediately**: Overall score ≥ 8.0
  + **Send with Confidence**: Overall score 7.5-7.9
  + **Regenerate Improved**: Overall score 6.5-7.4
  + **Regenerate Completely**: Overall score < 6.5
* **Critical Issue Detection**:
  + Personalization score < 6.0
  + Expertise level < 6.0
  + Tone quality < 6.0
* **Error Handling**: JSON parsing failures and fallback mechanisms

**11. Klaviyo Integration Preparation**

* **Event Structure**: Standardized Klaviyo API format
* **Data Minimization**: Essential fields only for performance
* **Included Data**:
  + Customer profile (email, name)
  + Generated message content
  + Complete AI evaluation scores
  + Technical metadata
  + Processing timestamps
* **API Version**: 2024-10-15 revision

**12. Klaviyo Event Transmission**

* **Endpoint**: https://a.klaviyo.com/api/events
* **Authentication**: Klaviyo API Key
* **Content Type**: application/vnd.api+json
* **Method**: POST with full event payload

**13. Webhook Response**

* **Format**: JSON response to original webhook caller
* **Status**: Processing completion confirmation
* **Data**: Workflow execution summary