

Shopify Automation Workflows Documentation

Workflow 1: Supplier Invoice Data Extraction to Google Sheets

Problem Statement

Manual Invoice Processing Challenges:

- Time-consuming manual data entry from supplier invoices
- High risk of human error in transcribing invoice details
- Disorganized invoice storage across multiple email threads
- Delayed accounts payable processing
- Difficulty in tracking and analyzing supplier expenses

Solution Overview

An automated workflow that:

1. Monitors a dedicated Gmail label for supplier invoices
2. Extracts text from PDF attachments
3. Uses AI to parse structured invoice data
4. Appends data to Google Sheets for centralized record-keeping

Detailed Workflow

Node 1: Receive Invoice Emails

- Trigger: Gmail trigger monitoring emails with label
- Frequency: Checks every minute
- Action: Downloads attachments automatically
- Output: Email data with attached PDF files

Node 2: Workflow Configuration

- Type: Set node for configuration management
- Parameters:
 - `sheetId`: Google Sheets document ID
 - `sheetName`: "Supplier Invoices" tab name
- Purpose: Centralizes configuration for easy updates

Node 3: Extract Invoice Data

- Action: Extracts text content from PDF attachments
- Output: Raw text from invoice documents

Node 4: Parse Invoice Fields (AI Agent)

- AI Model: Google Gemini
- System Prompt: Specialized invoice extraction assistant
- Extraction Fields:
 - Invoice numbers
 - Dates (YYYY-MM-DD format)
 - Amounts (numeric, no currency symbols)
 - Supplier names (full legal names)
 - Line items (description, quantity, unit price, total)
- Fallback: Uses `null` for missing fields

Node 5: Invoice Schema Parser

- Type: Structured output parser
- Schema: Defines JSON structure for consistent data formatting
- Validation: Ensures data integrity before sheet insertion

Node 6: Save to Google Sheets

- Operation: Append or update records
- Matching Column: Invoice Number (prevents duplicates)
- Columns Mapped:
 1. Invoice Number
 2. Supplier Name
 3. Customer Name
 4. Invoice Date
 5. Subtotal
 6. Tax Amount

7. Total Amount

Time Savings Analysis

Manual Process (Before Automation):

Task	Time per Invoice	Monthly (50 invoices)
Download & open PDF	1 minute	50 minutes
Manual data entry	5-7 minutes	250-350 minutes
Verification	2 minutes	100 minutes
Total	8-10 minutes	400-500 minutes

Automated Process (After):

Task	Time per Invoice	Monthly (50 invoices)
Initial setup	5 minutes	5 minutes
Manual review	1 minute	50 minutes
Total	1 minute	55 minutes

Net Time Savings: 345-445 minutes/month (5.75-7.4 hours)

Cost Estimation

Development Costs:

- Initial development: 8-12 hours
- Testing & refinement: 4-6 hours
- Total Development: 12-18 hours

Operational Costs (Monthly):

- n8n cloud hosting (Professional Tier): \$20/month
- Google Gemini API (estimated 50 invoices × 5K tokens): \$2-5/month
- Total Monthly: \$22-25

ROI Calculation:

- Labor Cost Saved: 7 hours × \$25/hour = \$175/month
 - Monthly Savings: \$175 - \$25 = \$150/month
 - Payback Period: (18 hours × \$50/hour) ÷ \$150 = 6 months
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Workflow 2: Shopify Customer Support Chatbot

Problem Statement

Customer Support Challenges:

- High volume of repetitive customer inquiries
- Long response times for order status queries
- Support staff spending time on routine information lookups
- Inconsistent information provided to customers
- Difficulty scaling support during peak periods

Solution Overview

An AI-powered chatbot that:

1. Provides 24/7 automated customer support
2. Integrates directly with Shopify APIs
3. Handles common inquiries autonomously
4. Escalates complex issues to human agents

Detailed Workflow

Node 1: Chat Trigger

- Type: Webhook-based chat interface
- Access: Public-facing endpoint
- Input: Customer messages via chat interface

Node 2: Customer Support Agent (AI Agent)

- AI Model: Google Gemini
- System Prompt: Comprehensive customer support guidelines
- Capabilities:
 - Answer product, order, shipping, and return questions
 - Track order status using Shopify APIs
 - Provide detailed order information
 - Handle return requests
 - Escalate to support when needed

Node 3: Conversation Memory

- Type: Buffer window memory
- Context: Maintains last 10 messages
- Purpose: Enables coherent multi-turn conversations

Node 4: Shopify Product Lookup

- Tool: Direct Shopify API integration
- Access: Product catalog with access token
- Function: Searches products by name or keywords

Node 5: Shopify Order API Search

- Tool: Custom HTTP request to Shopify Orders API
- Endpoint:
`https://nr1jse-uj.myshopify.com/admin/api/2024-07/orders.json`
- Authentication: Shopify access token
- Search: By order number (with or without # symbol)

Node 6: Google Gemini Chat Model

- AI Engine: Powers the conversational agent
- Integration: Connected to tools and memory

Node 7: Format Reply

- Action: Structures final response
- Output: Clean, formatted reply to customer

Order Lookup Process (AI Logic)

1. Request Order Number: Ask customer if not provided
2. API Call: Search Shopify with order number
3. Success Path: Extract and present:
 - Order number and status
 - Payment status
 - Items ordered with quantities
 - Shipping address
 - Tracking numbers and carrier
 - Estimated delivery
4. No Results Path: Politely inform and suggest:
 - Double-check order number
 - Check email confirmation
 - Contact fahaad@gmail.com

Time Savings Analysis

Manual Support Process:

Inquiry Type	Avg. Handling Time	Monthly Volume	Total Time
Order Status	5-7 minutes	100 inquiries	500-700 min
Product Info	3-5 minutes	50 inquiries	150-250 min
Basic FAQs	2-3 minutes	50 inquiries	100-150 min

Total	200 inquiries	750-1100 min
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Automated Chatbot Handling:

Task	Time	Monthly (200 inquiries)
Initial setup	2 hours	120 minutes
Manual escalation (10%)	5 minutes each	100 minutes
Total		220 minutes

Net Time Savings: 530-880 minutes/month (8.8-14.7 hours)

Cost Estimation

Development Costs:

- Chatbot development: 10-15 hours
- API integrations: 5-8 hours
- Testing & training: 6-10 hours
- Total Development: 21-33 hours

Operational Costs (Monthly):

- n8n cloud hosting: Included in Workflow 1 cost
- Google Gemini API (estimated 200 conv × 10K tokens): \$10-20/month
- Total Monthly: \$10-20

ROI Calculation:

- Support Cost Saved: 12 hours × \$25/hour = \$300/month
- Monthly Savings: \$300 - \$20 = \$280/month
- Payback Period: (27 hours × \$50/hour) ÷ \$280 = 4.8 months

Combined Benefits & Strategic Impact

Operational Efficiency:

1. Reduced Manual Work: 14-22 hours saved monthly
2. 24/7 Availability: Customer support always accessible
3. Error Reduction: Automated data extraction minimizes human errors
4. Scalability: Handle increased volume without proportional staff increase

Data Management:

1. Centralized Records: All invoices in Google Sheets
2. Real-time Updates: Immediate data availability
3. Searchable History: Easy tracking and analysis

Customer Experience:

1. Instant Responses: Reduced wait times
2. Consistent Information: Standardized responses
3. Order Transparency: Real-time status updates

Total Financial Impact:

- Monthly Labor Savings: \$475 (\$175 + \$300)
- Monthly Operational Cost: \$32-45
- Net Monthly Savings: \$430-443
- Annual Savings: \$5,160-5,316
- Combined Payback Period: ~5.5 months

Implementation Requirements

Technical Prerequisites:

1. n8n Instance: Cloud or self-hosted
2. Google Account: For Gmail and Sheets integration
3. Shopify Store: With admin API access
4. Google Gemini API Key: For AI capabilities

Configuration Steps:

1. Set up Gmail label for supplier invoices
2. Configure Google Sheets with proper columns
3. Set up Shopify API access tokens
4. Deploy n8n workflows and test thoroughly
5. Train staff on manual review processes

Maintenance Considerations:

- Monthly API cost monitoring
 - Regular accuracy checks for invoice parsing
 - Periodic updates to AI prompts
 - Backup of configuration settings
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Risk Mitigation

Data Accuracy:

- Implement manual review for high-value invoices
- Regular audit of Google Sheets data
- Validation rules for critical fields

System Reliability:

- Monitor n8n execution logs
- Set up alerts for failed workflows
- Maintain backup of workflow configurations

Customer Experience:

- Clear escalation paths for complex issues
 - Regular testing of chatbot responses
 - Customer feedback collection mechanism
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Future Enhancements

Short-term (1-2 months):

1. Add email notifications for processed invoices
2. Implement approval workflows for large invoices
3. Add multi-language support for chatbot

Medium-term (2-4 months):

1. Integrate with accounting software (QuickBooks/Xero)
2. Add sentiment analysis for customer support
3. Implement advanced analytics dashboard

Long-term (4-6 months):

1. Predictive analytics for supplier spending
 2. AI-powered customer satisfaction analysis
 3. Automated return processing integration
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