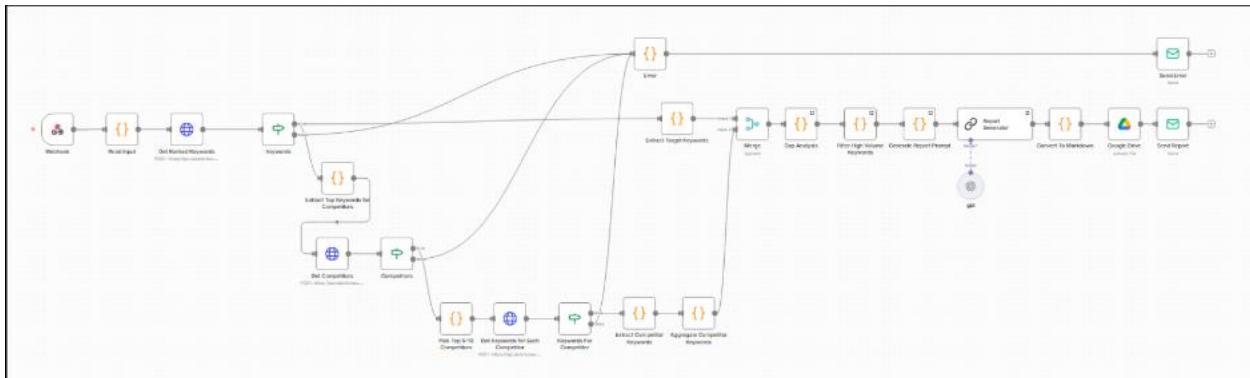
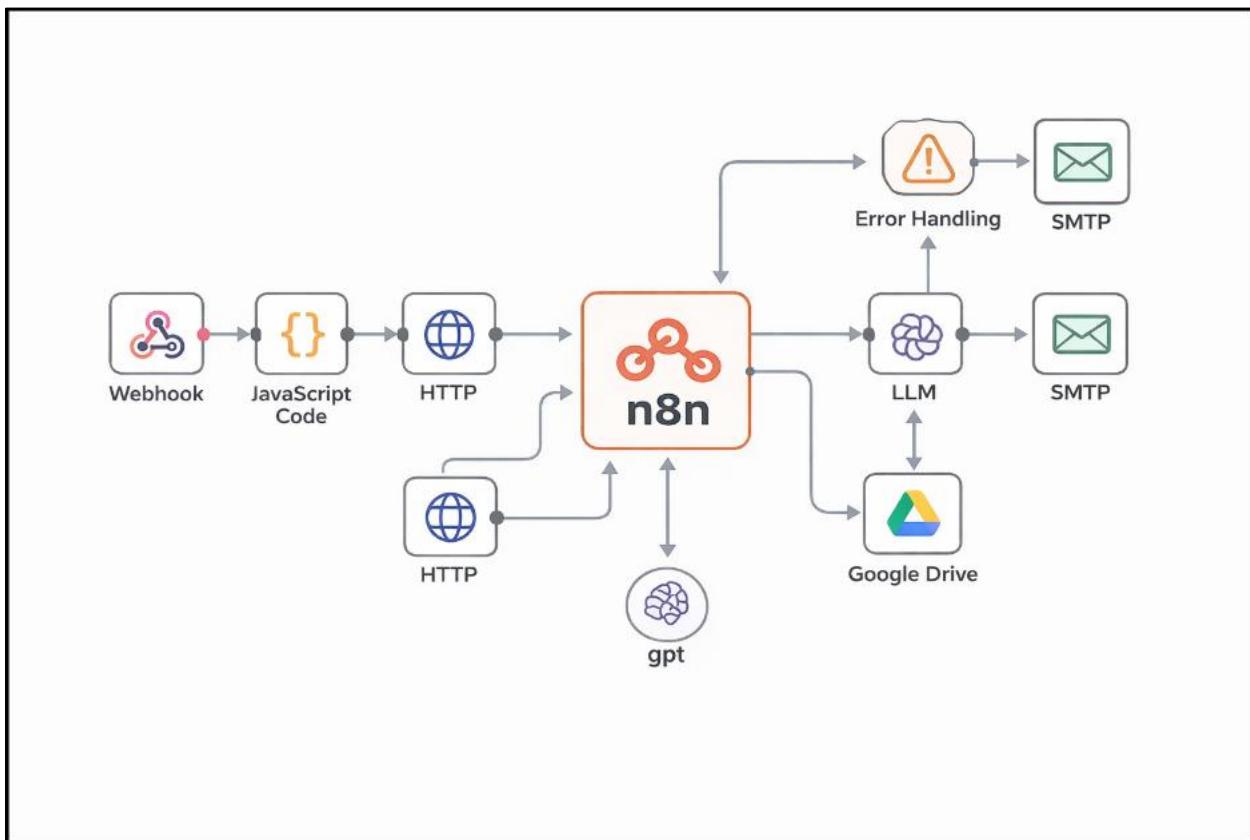


User Manual - Automated Competitor & Keyword Research Tool

Workflow



Workflow Architecture



Summary

The Automated Competitor & Keyword Research Tool is an end-to-end n8n workflow that automates competitor keyword research and reporting from a single input. A user submits a website URL and email (via webhook or web form), and the workflow first normalizes the domain and pulls its ranked keywords from DataForSEO. It then uses the strongest of these keywords to discover top organic competitors and fetches up to 1000 keywords for each competitor, aggregating and deduplicating all results. Next, it performs a keyword gap analysis to find high-value opportunities where competitors rank but the target site does not, applying filters around search volume and rank to keep only the most promising terms. This structured dataset is passed to OpenAI (gpt-4.1-mini), which generates a clear, client-ready Markdown SEO gap report with key stats, keyword tables, and recommended next steps. Finally, the report is saved as a markdown file in Google Drive and a branded email is sent via SMTP to the user with a direct link to the file, supported by robust error handling throughout the workflow.

Prerequisites

- **n8n instance:** Cloud or self-hosted n8n up and running with access to create workflows and credentials.
- **DataForSEO account:** Active DataForSEO Labs subscription with valid username/password and sufficient balance/limits.
- **OpenAI API access:** OpenAI account with an API key that can use gpt-4.1-mini (or compatible model).
- **Google account:** Google Drive enabled, with permission to create files and folders.
- **SMTP email server:** Working SMTP credentials (host, port, user, password, TLS/SSL) for sending emails.
- **Public HTTPS endpoint:** Your n8n webhook must be reachable from the internet (for the web form or external API calls).
- **Supported domains:** Target websites should be publicly accessible and indexed so DataForSEO can return keyword data.
- Basic admin access: Ability to modify Automated Competitor & Keyword Research Tool.json, index.html, and n8n workflow settings.

Initial Setup

- In n8n, go to Workflows → Import from File and import Automated Competitor & Keyword Research Tool.json.
- Add HTTP Basic Auth credential named (e.g.) DataForSeo and attach it to Get Ranked Keywords, Get Competitors, and Get Keywords for Each Competitor.
- Add OpenAI API credential with your API key and Report Generator node.
- Add Google Drive OAuth2 credential and assign it to the Google Drive node.
- Add SMTP credential and attach it to both Send Report and Send Error nodes.
- In the Google Drive node, set the correct Drive and Folder ID where markdown reports will be stored.
- In Send Report and Send Error, set the fromEmail and confirm it is allowed on your SMTP server.
- Activate workflow: Once configuration is validated, toggle the workflow to Active so the webhook endpoint becomes live.

Required Changes

- Update webhook URL in index.html to match your n8n domain if it differs from <https://n8n.programmx.com>.
- Set Google Drive folder ID in the Google Drive node to your chosen reports folder.
- Replace all placeholder credentials (DataForSEO, OpenAI, Google Drive, SMTP) with your own production credentials.
- Adjust default location/language constants in index.html if your primary market is not the United Kingdom / English.
- Tune filter thresholds (MIN_SEARCH_VOLUME, MAX_RANK) in Filter High Volume Keywords to fit your SEO strategy.
- Customize email templates in Send Report and Send Error to match your brand voice and visual style.
- Verify “fromEmail” addresses match allowed senders on your SMTP provider (or domain SPF/DKIM settings).
- Optional: rebrand UI by editing logo, colors, and copy in index.html for your own company or clients.

Testing Setup

- ❑ **Use a staging environment:** If possible, duplicate the workflow and credentials in a test n8n instance before going to production.
- ❑ **Prepare test accounts:** Have at least one working email inbox, a Google Drive test folder, and a small DataForSEO and OpenAI budget for trial runs.
- ❑ **Select test domains:** Choose 1–3 real websites with known organic traffic so DataForSEO returns meaningful data.
- ❑ **Check timeouts and limits:** Ensure your n8n instance timeout and memory limits are sufficient for API calls and GPT processing.
- ❑ **Enable execution logging:** In n8n, keep execution logs on (at least temporarily) to inspect inputs/outputs during testing.
- ❑ **Plan negative tests:** Intentionally use invalid URLs or wrong credentials once to verify error handling and error emails.
- ❑ **Document expected results:** Note what a “successful” run should produce (Drive file, email, execution status) before testing.

1. Test Individual Components

- Send a simple POST request (e.g., via Postman or curl) to the webhook endpoint with a basic JSON body and verify that n8n records a new execution.
- Manually run Get Ranked Keywords with a known domain and confirm you receive ranked keywords and status_code === 20000.
- Run Extract Top Keywords for Competitors → Get Competitors and verify competitors are returned with no tasks_error.
- Execute Pick Top 5–10 Competitors → Get Keywords for Each Competitor → Extract Competitor Keywords and inspect that up to 1000 keywords per competitor are produced.
- Run Extract Target Keywords, Aggregate Competitor Keywords, Merge, Gap Analysis, and Filter High Volume Keywords alone and confirm that:
 - Gap keywords exclude the target’s own keywords,
 - Filtering respects your volume and rank thresholds.
- Execute Generate Report Prompt and check that llm_prompt includes structured JSON and clear instructions without leaking any secrets.
- Run Report Generator and Convert To Markdown to confirm a well-formatted Markdown string and correctly named .md filename are generated.
- Test Google Drive and Send Report with a sample markdown to ensure the file is uploaded and the email link works.

2. Test Full Workflow

- Send a full payload to the webhook (valid target_url and email, plus location/language if desired) and wait for the execution to complete; verify report file and email.
- Open index.html in a browser, submit a valid domain and email, confirm UI shows success message and that the same full workflow runs correctly in n8n.
- Temporarily break a DataForSEO credential (e.g., wrong password) and run again to ensure Send Error triggers and sends a clear diagnostic email.
- Submit an obviously invalid or non-indexed URL and confirm the workflow handles “no keywords found” gracefully (no crashes; reasonable report or early exit).
- Run several executions back-to-back with different domains and confirm execution time stays under ~1 minute and no rate-limit errors appear.
- Inspect several generated reports to ensure GPT consistently follows structure and uses the available metrics correctly.
- Review n8n execution logs for a complete successful run and verify that all key nodes execute without warnings or unexpected empty outputs.

Requirements

1. Functional:

- Ability to trigger the workflow via webhook or web form with at least target_url and email.
- Automatic retrieval of target and competitor keywords from DataForSEO.
- Robust gap analysis and filtering logic producing non-empty, relevant keyword opportunities.
- AI-generated Markdown report that summarizes findings and recommends SEO next steps.

2. Technical:

- Stable connectivity to DataForSEO, OpenAI, Google Drive, and SMTP endpoints over HTTPS/TLS.
- Correct n8n credentials and node configurations for all external services.
- Adequate execution timeouts, memory, and concurrency settings in n8n for typical workloads.

Deliverables

- Configured n8n workflow:** Automated Competitor & Keyword Research Tool fully set up, activated, and tested in your n8n environment.
- Working API endpoint:** Live webhook URL ready to accept JSON requests from tools, backends, or external systems.
- Branded web form:** index.html deployed or embedded, allowing non-technical users to start research with a simple form.
- Google Drive reports folder:** Organized folder containing generated Markdown reports named SEO Keyword Gap Report_<website>_<date>.md.
- Email notification system:** Successful report emails (with Drive links) and error alert emails (on failures) reliably delivered via SMTP.
- User documentation:** Short internal guide (and/or this user manual) explaining how to trigger the workflow, expected inputs, and how to read the report.
- Test logs and validation results:** At least one documented successful end-to-end test run, plus at least one documented error-path test.