

# **n8n Workflow Breakdown Bots**



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# Introduction

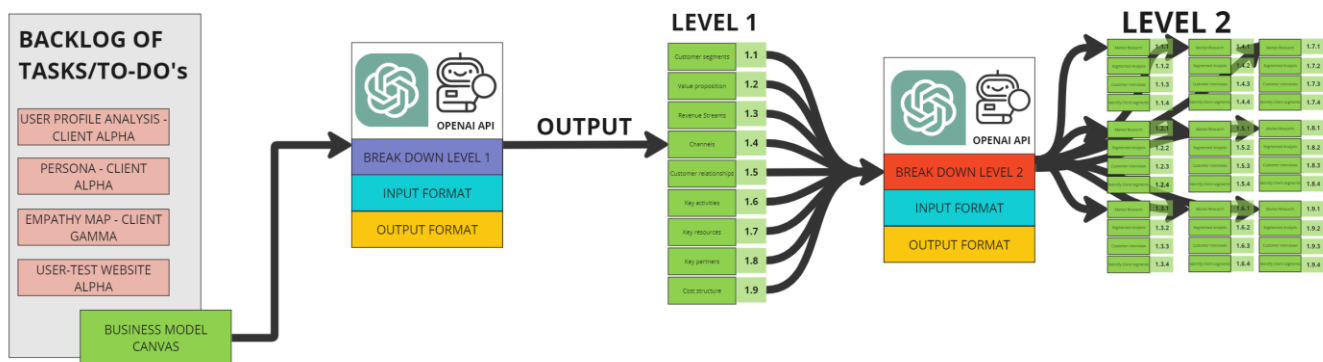
This document explains how the proof of concept system, built using n8n, Notion, and OpenAI assistants, functions and the benefits it offers. The goal of this system is to automate the breakdown of projects into actionable tasks, thereby enhancing efficiency and clarity in project management. By utilizing the low-code automation capabilities of n8n, the robust database management features of Notion, and the advanced AI of OpenAI, this system aims to streamline workflows and improve productivity. This document will guide you through the setup, usage, and benefits of the system, with specific examples of how it can be applied to real-world scenarios.

## Workflow Overview

The system comprises two primary levels of task breakdown:

1. **Level 1 Breakdown:** This initial breakdown converts high-level project objectives into major actionable tasks.
2. **Level 2 Breakdown:** This further refines the Level 1 tasks into detailed sub-tasks.

The diagram below illustrates the entire workflow, showing how tasks are broken down through two levels using OpenAI's API and subsequently organized in Notion.

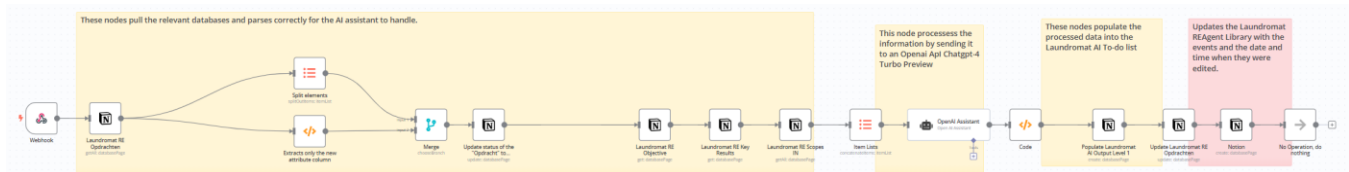


- **Efficiency:** Automate the decomposition of projects into actionable tasks.
- **Clarity:** Ensure tasks are clear and manageable.
- **Integration:** Seamlessly connect different tools for a streamlined workflow.
- **Scalability:** Design a system that can be expanded and adapted to various project needs.



## Workflow Steps

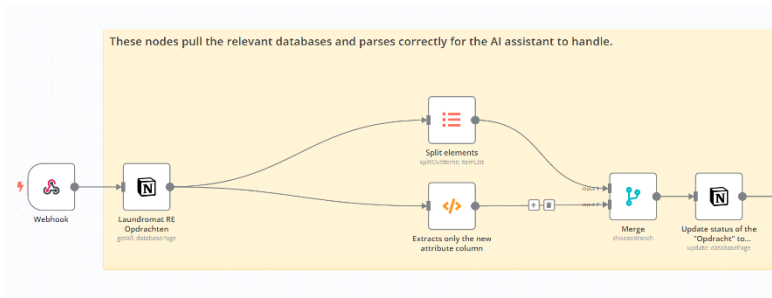
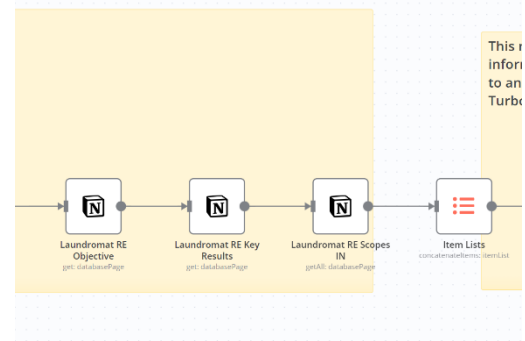
The workflow begins with a webhook that triggers the process when specific conditions are met. This webhook acts as the starting point for the entire automation, listening for events that indicate a new project or task needs processing.



Once triggered, the system retrieves information from various Notion databases:

### Data Retrieval:

The first node fetches tasks marked as **"ready for processing"** from a Notion database. Additional nodes retrieve related data such as **project objectives, key results, and scopes**.



After gathering the necessary information, the workflow **processes and consolidates** this data into a **single item** list using the "Item Lists" node. This step ensures that all relevant details are formatted correctly for further processing.

In The **"Split elements"** node extracts the IDs of related entries in order to get passed through the workflow nodes. This way, each piece of data retains its connection to the original task, allowing for accurate updates and processing.

*\*Due to the low-code nature of n8n, some items cannot be retrieved after a certain point.*

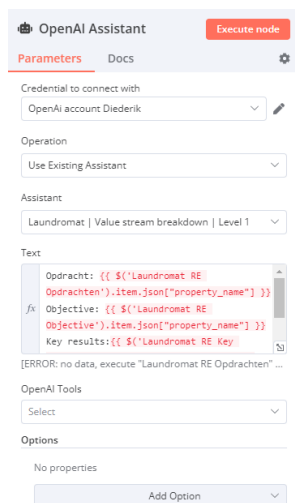
## Prepare the data for the Openai API Node

A custom "Code" node refines and **prepares the data structure**, making it suitable for analysis by the OpenAI API.

The code extracts and cleans a JSON string from markdown syntax, then parses it into a JavaScript object. It processes an array of steps within the JSON object, mapping each step to a new formatted object for further use in the workflow.



```
1 // Extracts only the new attribute column
2
3 Parameters Docs
4
5 Mode
6 Run Once for All Items
7
8 Language
9 JavaScript
10
11 JavaScript
12
13 // Check if the first item and its "data" property exist
14 if (items[0].data.length > 0 && items[0].data) {
15   // Extract the array to hold the extracted data
16   let data = [];
17
18   // Loop through the items and extract the data
19   for (let i = 0; i < items.length; i++) {
20     // Extracting "data" values and adding them to the data array
21     const jsonData = items[i].data;
22     if (jsonData) {
23       // Extracting the JSON string from the markdown block
24       const jsonString = jsonData.match(/```json(.*?)```/);
25       if (jsonString) {
26         // Cleaning the JSON string
27         const cleanedJsonString = jsonString[1].trim();
28         // Parsing the cleaned JSON string into a JavaScript object
29         const parsedJson = JSON.parse(cleanedJsonString);
30         // Mapping the parsed JSON object to a new format
31         const formattedObject = {
32           step: i,
33           data: parsedJson,
34         };
35         data.push(formattedObject);
36       }
37     }
38   }
39
40   // Returning the array of formatted objects
41   return data;
42 }
43
44 // If no data is found, return an empty array
45 return [];
```



OpenAI Assistant

Execute node

Parameters Docs

Credential to connect with  
OpenAI account Diederik

Operation  
Use Existing Assistant

Assistant  
Laundromat | Value stream breakdown | Level 1

Text  
Opdracht: {{ \$('Laundromat RE Opdrachten').item.json["property\_name"] }}  
Objective: {{ \$('Laundromat RE Objective').item.json["property\_name"] }}  
Key results: {{ \$('Laundromat RE Key results').item.json["property\_name"] }}

[ERROR: no data, execute "Laundromat RE Opdrachten" ...]

OpenAI Tools  
Select

Options  
No properties  
Add Option

## OpenAI API

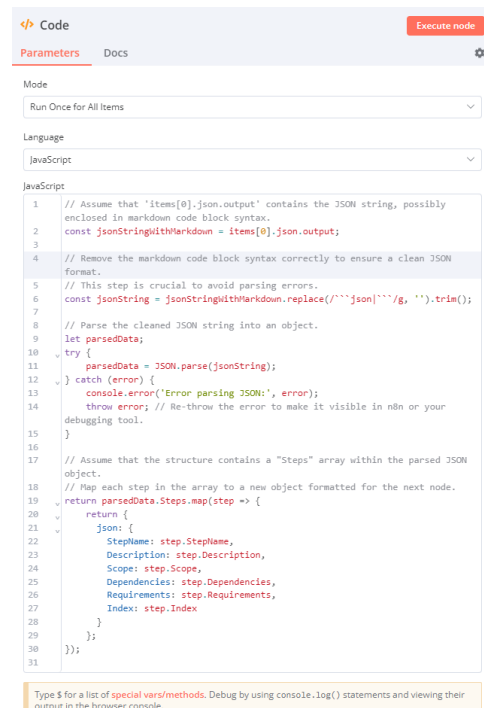
The prepared data is then sent to the **"OpenAI Assistant"** node, where a preconfigured assistant analyzes it. The OpenAI API processes the information, breaking it down into detailed, manageable tasks in JSON format. This step leverages the power of AI to automate the task breakdown, ensuring consistency and accuracy.

Once the AI has processed the data, the workflow updates Notion databases with the new task details

## Turn output into separated items.

Once the AI has processed the data, it passes through a custom "Code" node. This node refines the data structure, ensuring it is properly formatted for the subsequent steps. The code node parses the JSON response from OpenAI and structures it into a format suitable for updating Notion.

The code extracts and cleans a JSON string from markdown syntax, then parses it into a JavaScript object. It processes an array of steps within the JSON object, mapping each step to a new formatted object for further use in the workflow.



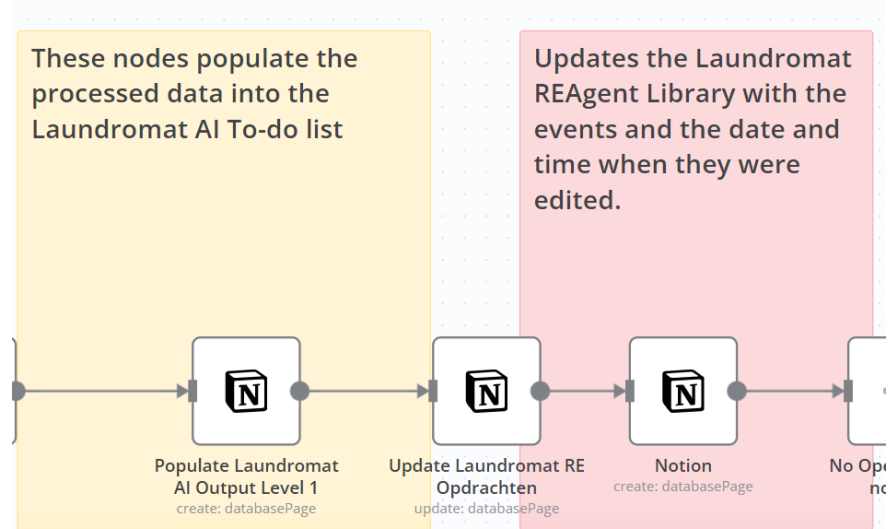
```
1 // Assume that 'items[0].json.output' contains the JSON string, possibly
2 // enclosed in markdown code block syntax.
3 const jsonStringWithMarkdown = items[0].json.output;
4
5 // Remove the markdown code block syntax correctly to ensure a clean JSON
6 // format.
7 // This step is crucial to avoid parsing errors.
8 const jsonString = jsonStringWithMarkdown.replace(/```json(.*?)```/g, '').trim();
9
10 // Parse the cleaned JSON string into an object.
11 let parsedData;
12 try {
13   parsedData = JSON.parse(jsonString);
14 } catch (error) {
15   console.error("Error parsing JSON:", error);
16   throw error; // Re-throw the error to make it visible in n8n or your
17   // debugging tool.
18 }
19
20 // Assume that the structure contains a "Steps" array within the parsed JSON
21 // object.
22 // Map each step in the array to a new object formatted for the next node.
23 return parsedData.Steps.map(step => {
24   return {
25     step: step,
26     description: step.Description,
27     scope: step.Scope,
28     dependencies: step.Dependencies,
29     requirements: step.Requirements,
30     index: step.Index
31   };
32 });
```

## Updating Notion:

The "Populate Output Level 1" node creates new entries in the Notion database, reflecting the detailed task breakdown.

The "Update RE Assignments" node updates the status of the original tasks, indicating their progression through the workflow.

Throughout the process, status updates are crucial. Nodes such as "Update status of the 'Opdracht' to Processing" change task statuses in Notion to reflect the current state of processing. This keeps users informed about what is happening at each stage of the workflow.

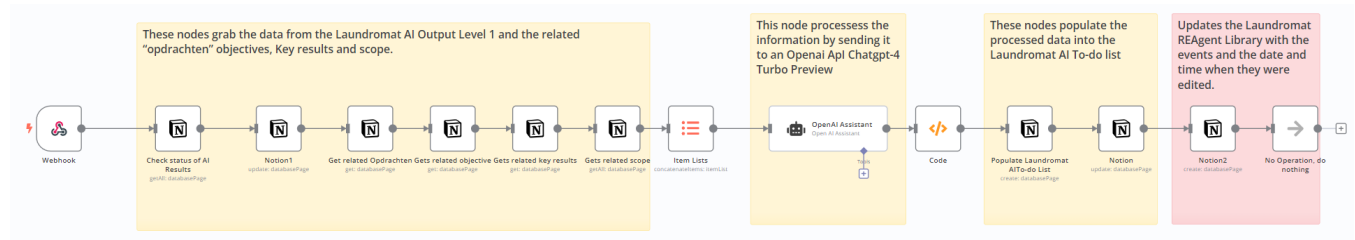


In summary, this n8n workflow seamlessly integrates with Notion and OpenAI to automate the breakdown of projects into manageable tasks. Starting from a webhook trigger, it retrieves relevant data from Notion, processes it with the OpenAI API, and updates Notion with the results, all while keeping users informed with status updates. This setup not only saves time but also enhances the accuracy and efficiency of project management.



## Second Breakdown Bot Explanation

This section explains the workflow of the second n8n bot. Unlike the first bot, this bot is designed to be loopable, allowing continuous processing of tasks until they are fully broken down. The key nodes and their functions are highlighted below.



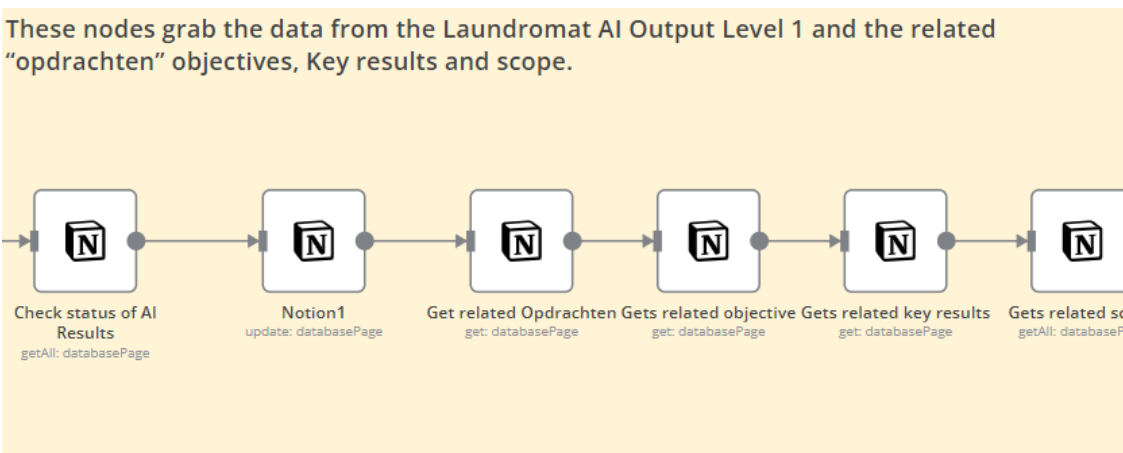
### Workflow Steps

The workflow begins with a webhook that triggers the process under specific conditions. This webhook initiates the task breakdown process when new tasks are added or existing tasks need further refinement.

Once triggered, the workflow **checks the status** of tasks in the Notion database:

- Check Status of AI Results: This node retrieves tasks from the "AI Output Level 1" database that are marked as "Not started" and sorts them by the "Index" field to prioritize processing.

The workflow then gathers **related information** from other Notion databases to **provide context** for each task:



- Get Related Assignment, Objective, Scope and Keyresults.

After gathering the necessary information, the workflow **processes and consolidates** this data into a single item list using the "Item Lists" node, ensuring all relevant details are formatted correctly for further processing.

The prepared data is then sent to the "OpenAI Assistant" node, where a preconfigured assistant analyzes it. The OpenAI API processes the information, breaking it down into detailed, manageable subtasks in JSON format. This step leverages AI to ensure consistent and accurate task breakdown.

A custom "Code" node refines the data structure, ensuring it is correctly formatted for subsequent steps. This node processes the JSON response from OpenAI and structures it into a format suitable for updating Notion.

- **Populate AI To-do List:** This node creates new entries in the Notion database for the detailed subtasks generated by the OpenAI assistant.
- **Update Status:** This node updates the status of the original tasks in the Notion database, marking them as "Done" to indicate their completion in the current breakdown phase.

Finally, the workflow includes a mechanism to ensure that the task breakdown process can be looped by the user. Users can keep pressing the button to trigger the webhook until the tasks are broken down enough for their needs:

- **No Operation, Do Nothing:** This node serves as a placeholder to complete the loop and ensure the workflow does not get stuck or overloop.

#### Detailed Node Functions

1. **Webhook:** Triggers the workflow based on specific conditions.
2. **Check Status of AI Results:** Retrieves tasks from Notion that are ready for processing.
3. **Get Related Assignments:** Fetches related tasks or assignments.
4. **Gets Related Objective:** Retrieves the objectives associated with the tasks.
5. **Gets Related Key Results:** Pulls key results related to the objectives.
6. **Gets Related Scope:** Obtains the scope of the tasks.
7. **Item Lists:** Consolidates data into a single list for processing.
8. **OpenAI Assistant:** Uses AI to break down tasks into detailed subtasks.

9. **Code:** Refines the JSON response from OpenAI for further use.
10. **Populate AI To-do List:** Updates Notion with new task details.
11. **Update Status:** Marks original tasks as complete.
12. **No Operation, Do Nothing:** Ensures workflow completion without overlooping.

This setup ensures that tasks are continuously broken down into manageable pieces, leveraging the power of AI for accuracy and consistency, and keeping the user informed **with status updates in** Notion. The loopable nature allows users to control the breakdown process, ensuring tasks are refined to their satisfaction.

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## Results of the First Breakdown Bot

The image shows the output in Notion from the first breakdown bot, detailing how a project is dissected into manageable tasks. The table titled "**AI Output Level 1**" includes several columns that categorize the breakdown as follows:

- **Name:** This column lists the specific tasks generated by the breakdown bot. Examples include "Identificeren van Sleutelpartners" (Identify Key Partners) and "Opstellen van Kostenstructuur" (Establish Cost Structure).
- **Index:** This column shows the sequence or order of tasks, indicating their priority or logical progression. For example, "Identificeren van Sleutelpartners" is task 1.9, while "Opstellen van Kostenstructuur" is task 1.8.
- **Status:** This column indicates the current status of each task. In the image, all tasks are marked as "Not started."
- **Description:** This column provides a detailed description of each task, explaining the specific actions required. For example, the description for "Identificeren van Sleutelpartners" is "Identificeer kritische partners en leveranciers die bijdragen aan het bedrijfsmodel en de waardepropositie."
- **Requirements:** This column lists the necessary skills or knowledge needed to complete each task. For example, "Netwerkvaardigheden" (Networking Skills) and "Onderhandelingsvaardigheden" (Negotiation Skills) are requirements for identifying key partners.

- **Scope:** This column outlines the scope of each task, detailing what is included within the task's boundaries. For instance, the scope for "Opstellen van Kostenstructuur" includes identifying fixed and variable costs.
- **RE Opdrachten:** This column shows the relation to the original project or task set in Notion. Each task is linked back to the overarching project or specific assignment.

### Laundromat AI Output Level 1 ...

Aa Name	Index	Status	Description	Requirements	Scope	Laundi
Identificeren van Sleutelpartners	1.9	● Not st...	Identificeer kritische partners en leveranciers die bijdragen aan het bedrijfsmodel en de waardepropositie.	Netwerkvaard... Onderhandeli... Kennis van co...	Omvat strategische allianties, leverancierspartnerschappen en outsourcingsovereenkomsten.	Ik wil voor een i
Opstellen van Kostenstructuur	1.8	● Not st...	Analyseer en bepaal de kostenstructuur van het bedrijf, met de focus op de sleutelactiviteiten en -middelen.	Kennis van bo... Analytische va... Begrip van ko...	Omvat de identificatie van vaste en variabele kosten verbonden aan bedrijfsprocessen.	Ik wil voor een i
Definiëren van Sleutelbronnen	1.7	● Not st...	Identificeer de middelen en assets die essentieel zijn voor het bedrijf om zijn waardepropositie te leveren.	Resource man... Kennis van as... Strategische p...	Omvat zowel fysieke, intellectuele, menselijke als financiële middelen.	Ik wil voor een i
Identificeren van Sleutelactiviteiten	1.6	● Not st...	Bepaal de kernactiviteiten die nodig zijn om de waardeproposities te leveren.	Projectmanag... Vaardigheden... Kennis van de...	Omvat activiteiten als marktonderzoek, contentcreatie, en klantenservice.	Ik wil voor een i
Definiëren van Inkomstenstromen	1.5	● Not st...	Identificeer hoe het marketingbedrijf waarde monetariseert en inkomsten genereert van elk klantsegment.	Financieel inzi... Creatief denken Kennis van pri...	Omvat de diversificatie van inkomstenmodellen, zoals directe verkoop, abonnementen, en commissies.	Ik wil voor een i
Ontwikkelen van Klantrelaties	1.4	● Not st...	Ontwikkel strategieën voor het opbouwen en onderhouden van langetermijnrelaties met elk klantsegment.	Communicati... CRM-kennis Empathie voo...	Omvat zowel persoonlijke als geautomatiseerde klantrelatie benaderingen.	Ik wil voor een i
Identificeren van Kanalen	1.3	● Not st...	Bepaal de communicatie- en distributiekkanalen voor het benaderen van elk klantsegment.	Kennis van dis... Analytische va... Kennis van di...	Omvat zowel directe als indirecte kanalen, inclusief online en offline communicatiemethoden.	Ik wil voor een i
Vaststellen van Waardeproposities	1.2	● Not st...	Creëer een duidelijke waardepropositie die past bij elk klantsegment.	Kennis van de... Creatief denken Strategische p...	Omvat het definiëren van unieke voordelen en de waarde die het marketingbedrijf biedt.	Ik wil voor een i
Definiëren van Klantsegmenten	1.1	● Not st...	Identificeer en definieer de verschillende klantsegmenten die het marketingbedrijf bedient.	Marktonderzo... Analytische va... Kennis van de...	Omvat onderzoek naar de doelgroep, analyse van marktbehoeften en segmentering.	Ik wil voor een i

+ New

This breakdown illustrates how the first bot effectively dissects a project into detailed, actionable tasks, providing clear descriptions, requirements, and scopes for each task. This structured approach ensures that all aspects of the project are covered comprehensively, making it easier to manage and execute.



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# Results of the Second Breakdown Bot

The image shows the output in Notion from the second breakdown bot, further dissecting the tasks generated by the first bot. This breakdown provides a more granular level of detail, focusing on specific, actionable subtasks within each broader task. Here's a detailed explanation of the table:

## Breakdown Explanation

- **Table Title: Laundromat AI Output Level 2:** This signifies that the tasks are at the second level of breakdown, providing finer details compared to Level 1.
- **Name:** This column lists the specific subtasks created by the second breakdown bot. Examples include "Selectie van Doelgroep" (Selection of Target Group), "Segmentatie van de Markt" (Market Segmentation), and "Uitvoeren van Marktanalyse" (Conduct Market Analysis).
- **Index:** The index column indicates the hierarchical order of the tasks within the broader project scope. For instance, "Selectie van Doelgroep" is indexed as 1.1.3, showing it is a subtask under the first major task from Level 1. Similarly, "Segmentatie van de Markt" and "Uitvoeren van Marktanalyse" are indexed as 1.1.2 and 1.1.1, respectively.
- **Description:** This column provides detailed descriptions of each subtask. For example, "Selectie van Doelgroep" involves selecting the most valuable customer segments based on market segmentation analysis, assessing segment size, accessibility, growth potential, and profitability.
- **Scope:** This column outlines what is included within the task's boundaries. For "Selectie van Doelgroep," the scope includes evaluating segment size and potential but excludes directly approaching customers within selected segments.

- **Requirements:** This column lists the necessary skills or tools needed to complete each subtask. For example, "Selectie van Doelgroep" requires skills like market insights, analysis tools, and potential analysis.

Laundromat AI Output Level 2 \*\*\*

Aa Name	☰ Index	☰ Description	☰ Scope	☰ Requirements
Selectie van Doelgroep	1.1.3	Selecteren van de meest waardevolle klantsegmenten voor het marketingbedrijf op basis van de uitgevoerde segmentatie en analyse. Dit omvat het beoordelen van de omvang van de segmenten, de toegankelijkheid en de potentie voor groei en winstgevendheid.	Inclusief de beoordeling van segmentgrootte en -potentieel. Exclusief het direct benaderen van klanten binnen geselecteerde segmenten.	Analyse tools Marktinzichten Potentieel analyse
Segmentatie van de Markt	1.1.2	Opdelen van de markt in duidelijk onderscheidbare segmenten gebaseerd op variabelen zoals demografie, geografie, psychografie en gedrag, om de meest relevante klantsegmenten voor de marketingdiensten te identificeren.	Inclusief het gebruik van marktsegmentatietools en -technieken. Exclusief de creatie van nieuwe marktsegmentatiemodellen.	Segmentatietools Demografische gegevens Gedragsgegevens
Uitvoeren van Marktanalyse	1.1.1	Verzamelen en analyseren van marktgegevens om inzicht te krijgen in de huidige markttrends, de behoeften van potentiële klanten en de positie van concurrenten, als basis voor het identificeren van relevante klantsegmenten.	Inclusief data verzamelen uit industrieraapporten, sociale media en klantenfeedback. Exclusief diepgaande concurrentieanalyse buiten de scope van marketingdiensten.	Industrieraapporten Toegang tot sociale media Klantenfeedback

Summary of the Breakdown

This table demonstrates how the second bot effectively segments broader tasks into specific, actionable items. Each task from the first breakdown (Level 1) is further refined into more detailed subtasks (Level 2), ensuring clarity and specificity in execution. The database structure in Notion includes columns for task names, indices, descriptions, scopes, and requirements, providing comprehensive information to manage and execute each subtask efficiently. This structured approach enhances the granularity and manageability of project tasks, facilitating better tracking and execution.