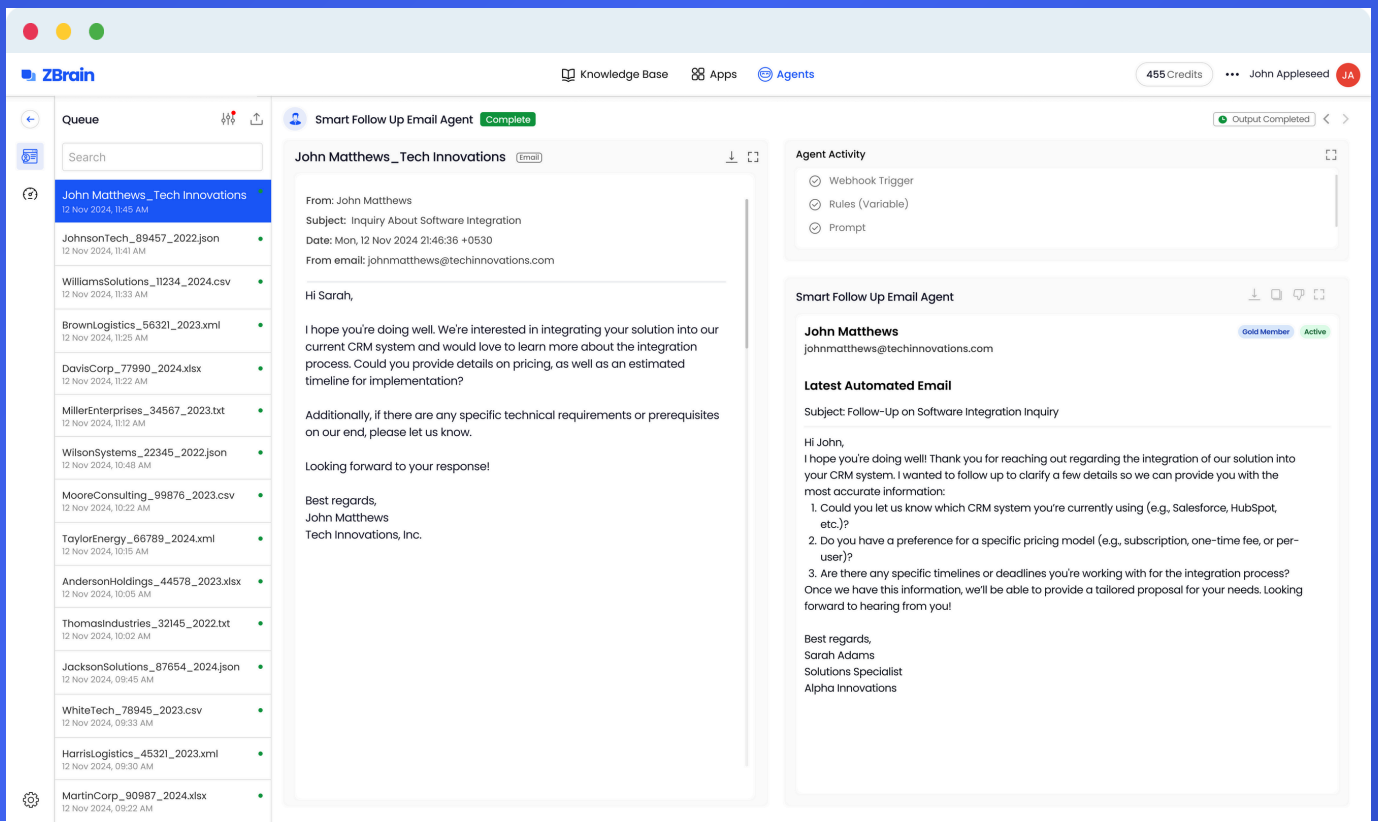
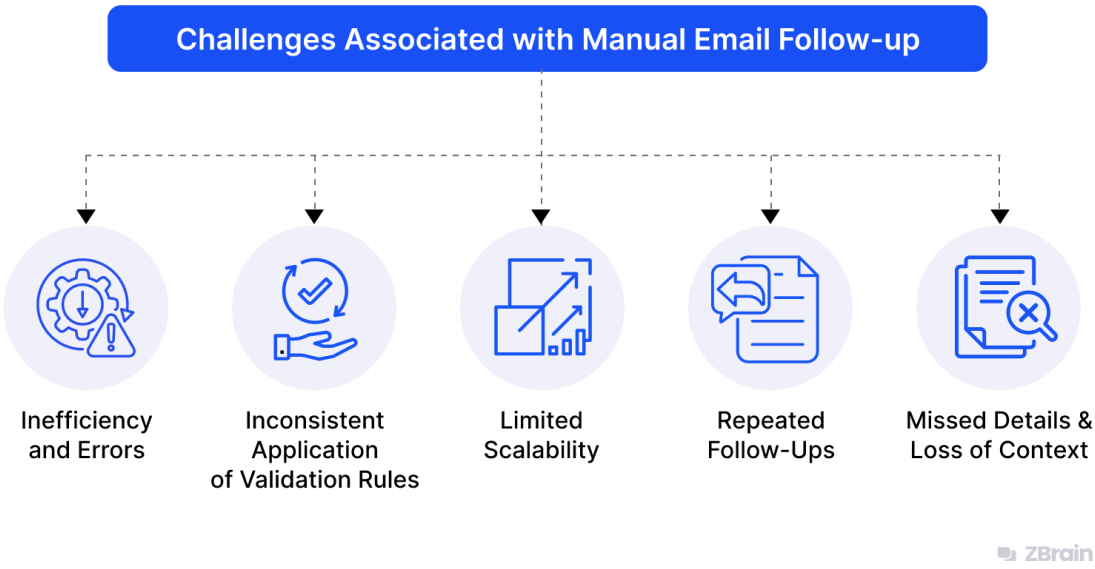



# Smart Follow-Up Email Agent Solution Document

# Problem Statement

Manual email processing remains a critical weak point in enterprise support operations. While dedicated inboxes are used for various business functions, e.g., Purchase Order (PO) management, handling these manually is inefficient and prone to error. Incoming emails often lack required information or attachments, triggering repeated follow-ups, processing delays, and missed business opportunities. Existing solutions, such as keyword filters or manual triage, fail to consistently enforce business rules and do not maintain the context of ongoing threads and attachments. As a result, critical details can be missed, and incomplete communications can stall critical workflows. There is no robust mechanism to validate emails against structured business rules, track correspondence history, and automate follow-ups for missing information. As organizations handle growing volumes of emails, the absence of such a system increases the risk of operational bottlenecks, inconsistent processing, and lost revenue. A scalable, automated solution is crucial for reducing manual intervention, maintaining operational continuity, and streamlining business-critical email processing.

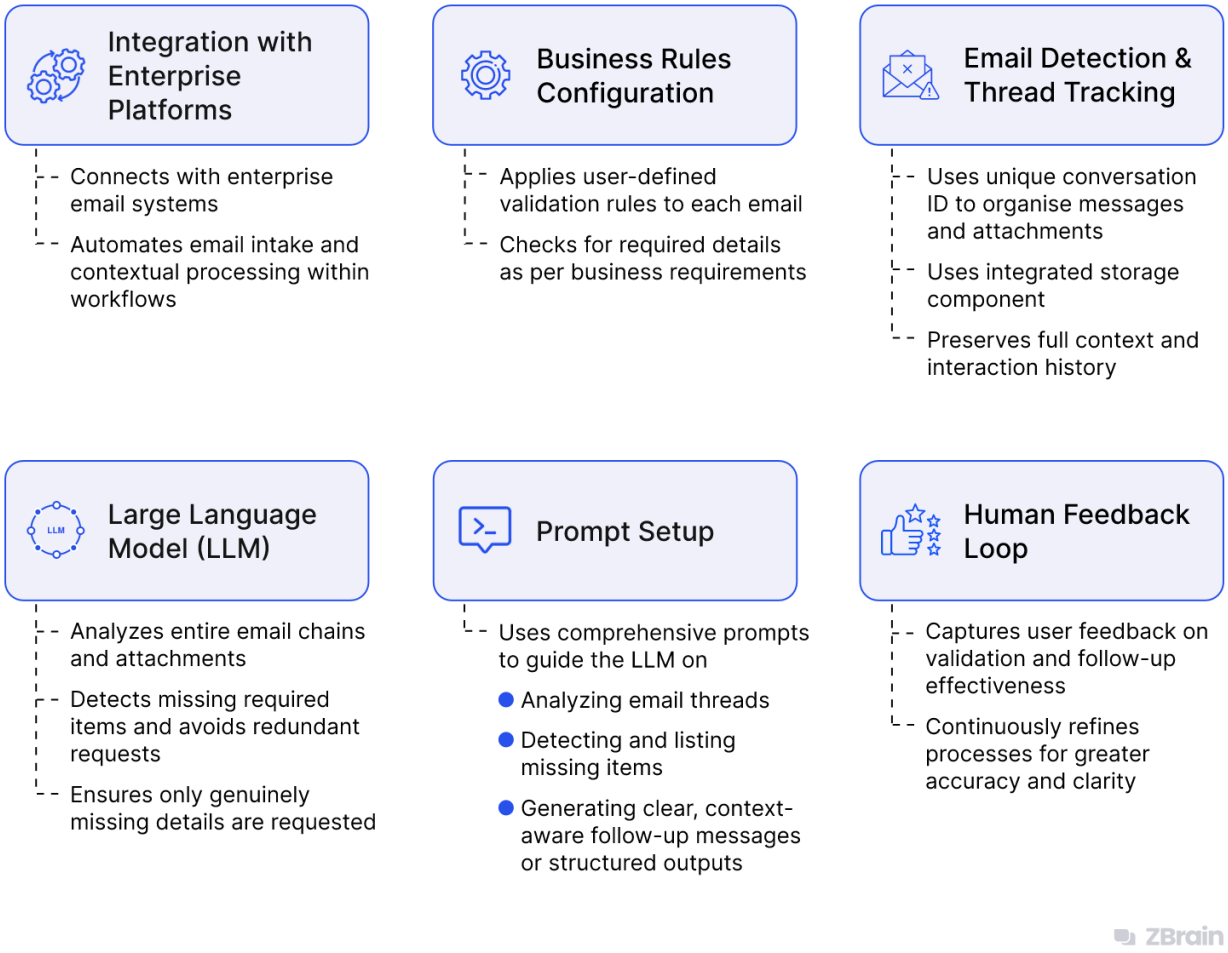



# Solution Statement

ZBrain smart email follow-up agent automates the validation and follow-up of emails received in designated inboxes. On receipt, the agent extracts sender, subject, message body, and all attachments, then evaluates the content against a predefined checklist of business rules. It analyzes the entire email chain, including previous messages and attachments, to maintain context and avoid requesting information that has already been provided. Using a Large Language Model (LLM), the agent precisely identifies any missing required items, without duplicating previous requests. If information is incomplete, it drafts a targeted, polite follow-up email asking only for the outstanding details. All attachments and correspondence are tracked by thread to maintain a complete communication history. This agent reduces manual workload, shortens response cycles, and ensures that every email interaction meets organizational requirements before progressing further.

# Agent Setup

ZBrain smart email follow-up agent includes the following components to automate validation and follow-up for emails:




## 1. Integration with Enterprise Platforms

- The agent seamlessly integrates with enterprise email systems (E.g., Gmail) and business process tools to automate the intake and contextual processing of emails within existing workflows.

# Agent Setup

### 2. Business Rules Configuration

- The agent uses user-defined validation rules to check each email for required details and automatically requests any missing information.

### 3. Email Detection & Thread Tracking

- The agent organizes messages and attachments by unique conversation ID. The integrated storage component ensures every interaction's full context and history are preserved and easily retrievable.

### 4. Large Language Model (LLM)

- The agent utilizes an LLM to analyze entire email chains, including previous correspondence and attachments, ensuring that required information is identified, redundant requests are avoided, and only missing details are requested.

### 5. Prompt Setup

- A comprehensive prompt guides the LLM to analyze entire email threads, detect only missing required items, and generate clear, context-aware follow-up messages or structured outputs as needed.

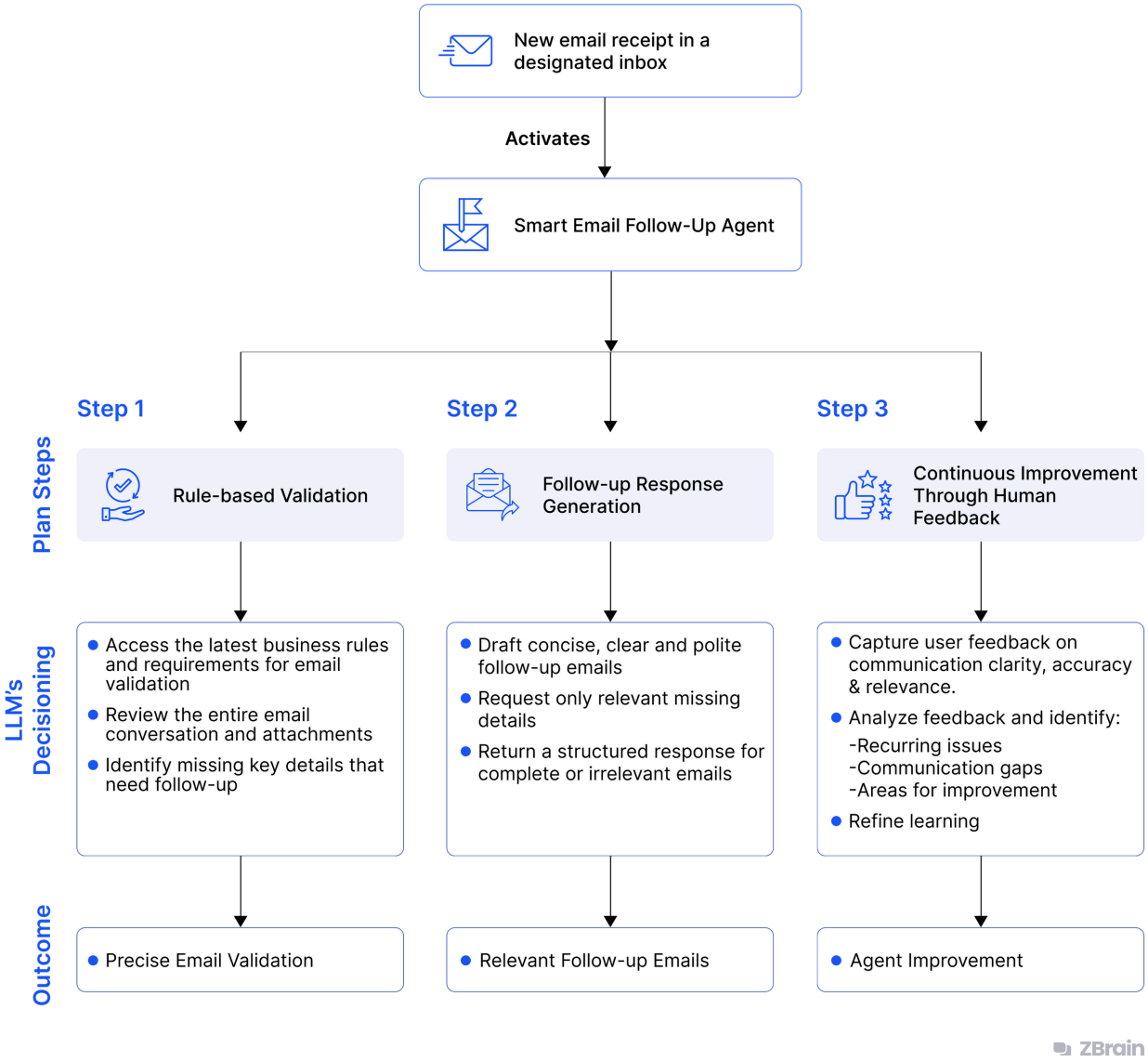
### 6. Human Feedback Loop

- Incorporates user feedback to continuously refine the agent's email validation and follow-up processes, improving accuracy, clarity, and relevance of communications while enhancing the overall user experience.

This structured setup ensures reliable, efficient, and transparent automation of organizational email processing, minimizing manual effort and accelerating operational workflows.

# How the Agent Works

ZBrain smart email follow-up agent streamlines the validation and follow-up process for organizational emails received in designated inboxes. The workflow consists of the following steps:



# How the Agent Works

### Step 1: Email Input and Thread Tracking

The smart follow-up email agent begins its workflow to manage and validate emails and related replies.

**Key Tasks:**

- **Automated Email Capture:** Triggers whenever a new email or a follow-up reply is received in the monitored inbox.
- **Data Extraction:** Extracts sender, subject, body, and all attachments from each incoming email.
- **Thread Organization:** Groups emails by conversation/thread ID and stores all related messages and attachments to maintain context and history.

**Outcome:**

**Comprehensive Email Thread Capture:** All emails and their attachments are captured, organized by thread, and context is preserved for accurate downstream validation.

### Step 2: Rule-based Validation

After each email is captured, the agent uses an LLM to validate its content against user-defined business rules and requirements.

**Key Tasks:**

- **Business Rule Retrieval:** Accesses the latest business rules and requirements, provided by users for comprehensive validation. For example, the agent uses the latest validation instructions specified by users—such as mandatory fields for unique identifiers, dates, and complete sender or recipient information (including names, addresses, etc.).
- **Detailed Email Thread Analysis:** Reviews the entire email conversation and all attachments to understand what information has already been submitted. For complete emails, further follow-up is not required.
- **Missing Item Detection:** Compares email content against required criteria, identifying exactly what information or documents are still outstanding and avoiding duplicate information requests.

**Outcome:**

**Accurate Validation:** Each email thread is systematically checked against specific criteria, and any missing or incomplete information, such as required identifiers, dates, or contact details, is precisely flagged for targeted follow-up.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# How the Agent Works

### Step 3: Follow-Up Response Generation

For each email thread, the agent initiates a context-aware follow-up process to ensure all required information is collected efficiently.

**Key Tasks:**

- **Follow-up Response Drafting:** If any information or documents are missing, the agent drafts a concise, polite follow-up email addressed to the original sender, requesting only the specific outstanding items using an LLM. The agent never repeats previously submitted items or lists all requirements unless necessary, keeping the message focused and user-friendly.
- **No Further Action Handling:** If everything is complete or the email is not relevant, the agent simply returns a clear reason, such as "No further information required" or "Irrelevant content", ensuring no unnecessary emails are sent.
- **Output Compliance:** All agent responses strictly adhere to the required JSON schema and formatting, ensuring compatibility with downstream processing.

**Outcome:**

**Relevant, Actionable Communication:** Follow-up emails are automatically generated only when needed, ensuring communications are focused, actionable, and never redundant.

### Step 4: Continuous Improvement Through Human Feedback

To keep the agent's follow-up emails helpful and accurate, user feedback is an essential part of the workflow

**Key Tasks:**

- **Feedback Collection:** Users can easily share feedback on the agent's follow-up messages, whether it's about clarity, accuracy, relevance, or if something could be improved for easier understanding.
- **Feedback Analysis:** The agent reviews this feedback to identify common issues, missed details, and ways to enhance rule-based validation or clarify instructions in future emails.

**Outcome:**

**Improved Performance:** By learning from user input, the agent continually refines its outputs, boosting clarity, relevance, contextual accuracy, and overall email follow-up processing.


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# Key Benefits

### Automated Validation

Ensures every email is checked against business rules, reducing manual review and the risk of missed requirements.

### Faster Cycle Times

Accelerates processing by quickly identifying missing information and sending focused, timely reminders, enabling faster resolutions and reducing bottlenecks.

### Improved Communication Experience

Ensures all communication is clear, polite, and relevant, making interactions smoother for internal teams, customers, partners, or other stakeholders.

### Consistent Compliance

Applies up-to-date validation rules to every workflow, minimizing compliance errors and standardizing intake and review processes.

### Seamless Context Management

Maintains a comprehensive thread and attachment history for each interaction, ensuring that no information is missed and redundant requests are avoided.

### Scalable and Reliable Operations

Handles high email volumes effortlessly, ensuring consistent processing quality as the business grows.

# Conclusion

ZBrain smart email follow-up agent empowers organizations to streamline email processing by automating validation, follow-up, and compliance checks. Leveraging LLM-driven logic, the agent analyzes entire email threads, identifies outstanding requirements, and generates focused, actionable communications—all while preserving complete conversation context and history. This approach reduces manual workload, minimizes turnaround times, and ensures all email communications consistently meet business standards. As volumes and complexity grow, the agent's ability to scale, learn from feedback, and integrate with enterprise workflows makes it an essential solution for any organization aiming to optimize operations, boost process reliability, and deliver a superior experience to internal teams and partners.