# Requirements Documentation: Requirements Gathering Agent

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## 1. Introduction

This document outlines the requirements for the Requirements Gathering Agent (RGA) software project. The RGA is an AI-powered tool designed to automate the generation of comprehensive project management documentation conforming to PMBOK 7th Edition standards. This document details functional and non-functional requirements, stakeholder needs, business requirements, assumptions, constraints, prioritization, traceability, and approval information.

## 2. Project Goals and Objectives

The primary goal of the RGA project is to develop a robust and user-friendly tool that significantly reduces the time and effort required to create project management documentation while ensuring compliance with PMBOK standards. Specific objectives include:

* Automate the generation of at least 29 PMBOK-compliant documents.
* Integrate with multiple AI providers (Azure OpenAI, Google AI, GitHub AI, Ollama).
* Provide a command-line interface (CLI) for easy access and configuration.
* Support multiple export formats (Markdown, .docx, .pptx, JSON, YAML).
* Incorporate a comprehensive project analysis engine to discover and leverage all relevant project documentation.
* Implement a robust context management system to maximize AI model performance.
* Ensure high-quality output through automated validation and quality assessment.
* Deliver an enterprise-ready solution with professional formatting and metadata.

## 3. Functional Requirements

These requirements describe the specific functionalities the RGA must perform.

| Requirement ID | Description | Priority | Source |
| --- | --- | --- | --- |
| FR001 | Generate a PMBOK Project Charter. | High | Project Charter |
| FR002 | Generate a Stakeholder Register. | High | Project Charter |
| FR003 | Generate a Scope Management Plan. | High | Project Charter |
| FR004 | Generate a Risk Management Plan. | High | Project Charter |
| FR005 | Generate a Cost Management Plan. | High | Project Charter |
| FR006 | Generate a Quality Management Plan. | High | Project Charter |
| FR007 | Generate a Resource Management Plan. | High | Project Charter |
| FR008 | Generate a Communication Management Plan. | High | Project Charter |
| FR009 | Generate a Procurement Management Plan. | High | Project Charter |
| FR010 | Generate a Work Breakdown Structure (WBS). | High | Project Charter |
| FR011 | Generate a WBS Dictionary. | High | Project Charter |
| FR012 | Generate an Activity List and Estimates. | High | Project Charter |
| FR013 | Generate a Schedule Network Diagram. | High | Project Charter |
| FR014 | Generate a Milestone List. | High | Project Charter |
| FR015 | Generate a Stakeholder Engagement Plan. | High | Project Charter |
| FR016 | Generate a Stakeholder Analysis. | High | Project Charter |
| FR017 | Generate a Technology Stack Analysis. | High | Project Charter |
| FR018 | Generate Data Model Suggestions. | Medium | Project Charter |
| FR019 | Generate a Risk Analysis. | Medium | Project Charter |
| FR020 | Generate Acceptance Criteria. | Medium | Project Charter |
| FR021 | Generate Compliance Considerations. | Medium | Project Charter |
| FR022 | Generate UI/UX Considerations. | Medium | Project Charter |
| FR023 | Support multiple AI providers (Azure OpenAI, Google AI, GitHub AI, Ollama). | High | Technical Requirements |
| FR024 | Provide a command-line interface (CLI) for user interaction. | High | Technical Requirements |
| FR025 | Support export to Markdown, .docx, .pptx, JSON, and YAML formats. | High | Technical Requirements |
| FR026 | Perform comprehensive project analysis to discover relevant documentation. | High | Technical Requirements |
| FR027 | Implement a context management system to optimize AI model usage. | High | Technical Requirements |
| FR028 | Validate generated documents against PMBOK standards. | High | Quality Requirements |
| FR029 | Provide detailed quality scores and recommendations. | High | Quality Requirements |
| FR030 | Support custom output directory specification. | Medium | Technical Requirements |
| FR031 | Implement retry logic for failed API calls. | Medium | Technical Requirements |
| FR032 | Provide comprehensive logging and error handling. | High | Technical Requirements |

## 4. Non-Functional Requirements

These requirements specify the performance, security, and usability aspects of the RGA.

| Requirement ID | Description | Priority |
| --- | --- | --- |
| NFR001 | The system should generate documents within a reasonable timeframe (e.g., under 5 minutes for a typical project). | High |
| NFR002 | The system should be secure and protect sensitive project data. | High |
| NFR003 | The CLI should be user-friendly and intuitive. | High |
| NFR004 | The generated documents should be well-formatted and easy to read. | High |
| NFR005 | The system should be scalable to handle large projects and complex documentation. | Medium |
| NFR006 | The system should be reliable and handle errors gracefully. | High |
| NFR007 | The system should be maintainable and easy to update. | Medium |

## 5. Stakeholder Requirements

The key stakeholders for the RGA project and their requirements are:

* **Project Managers:** Need automated generation of PMBOK-compliant documents to save time and improve consistency.
* **Business Analysts:** Need a tool to easily generate requirements documentation and other artifacts.
* **Developers:** Need a reliable and scalable system that integrates with their existing workflows.
* **Compliance Officers:** Need assurance that the generated documents comply with PMBOK standards and relevant regulations.

## 6. Business Requirements

The RGA project is expected to deliver the following business benefits:

* Reduced time and cost associated with creating project management documentation.
* Improved consistency and accuracy of project documentation.
* Enhanced compliance with PMBOK standards and regulations.
* Improved stakeholder communication and collaboration.
* Increased efficiency and productivity for project teams.

## 7. Assumptions and Constraints

* **Availability of AI APIs:** The successful operation of the RGA depends on the continued availability and performance of the chosen AI APIs.
* **Data Quality:** The quality of the generated documents is dependent on the quality of the input data provided.
* **Budget:** The project budget may limit the scope and features of the RGA.
* **Timeline:** The project timeline may impact the delivery of certain features.

## 8. Requirements Prioritization

Requirements are prioritized based on their impact on project success and