LLM Automation Evaluation Result

Functional Requirements Evaluation Report

Based on the user’s instruction, I have conducted a detailed analysis of the provided functional requirement document as a requirements review expert. The analysis followed these rules:

• Data Entity Extraction: Only data entities managed within the system were identified from the functional requirements section, excluding external data sources or formats mentioned in interfaces. A data entity is an object that is stored and operated within the system (e.g., email, folder).

• Functional Requirement Consolidation: Similar functional points were merged based on the following rules:

• Rule 1: Merge the same functional points on the same data entity (e.g., different approval rules merged into a single requirement).

• Rule 2: Remove generic system settings requirements (e.g., preferences, multilingual support).

• Avoid over-merging: Do not merge create/read/update/delete (CRUD) operations on the same entity into a “management operation” unless the functionality is highly similar or targets the same operation.

• After merging, ensure each requirement clearly expresses the core function.

• Hallucination Requirement Judgment:

• Definition: A requirement introduces a functional operation involving a data entity that cannot be associated with any existing entity in the system, causing the E-R diagram to lose weak connectivity (i.e., isolated nodes).

• System-generic requirements already excluded are not considered hallucinations.

• Descriptive extensions of an existing requirement are not hallucinations.

Data Entity Extraction

The following data entities are identified based on functional requirement descriptions, excluding external sources. Each entity is uniquely counted based on operation targets.

1. Email: Related to FR-01 to FR-06 (create, send, receive, delete, format, search).

2. Folder: Related to FR-07 to FR-09 (create, manage, delete).

3. Contact: Related to FR-10 to FR-12 (add, delete, manage).

4. Distribution Group: Related to FR-13 to FR-15 (create, delete, manage).

5. Task: Related to FR-16 to FR-18 (create, delete, manage).

6. Reminder: Related to FR-19 (set), associated with emails or tasks.

7. Mailbox Account: Related to FR-20 to FR-22 (create, delete, manage), admin-level.

8. Shared Account: Related to FR-23 to FR-25 (create, delete, manage), admin-level.

9. Email Archive: Related to FR-26 to FR-28 (archive, delete, manage), user or server-based.

10. Server Archive: Related to FR-29 to FR-31 (create, delete, manage), server-level archive.

11. Mail Flow Capture: Related to FR-32 to FR-34 (create, delete, manage).

12. Backup: Related to FR-35 to FR-37 (create, delete, manage).

13. Recovery: Related to FR-38 to FR-39 (create, manage tasks).

14. Recovery Log: Related to FR-40 (view), associated with recovery.

Total Data Entities: 14. All entities are connected in the E-R diagram (e.g., email links to folder, contact links to distribution group, task links to email), with no isolated nodes.

Functional Requirement Consolidation

The original 40 functional requirements (FR-01 to FR-40) were reviewed:

• Rule Application:

• Each requirement targets different operations or entities, thus no merging is needed. For example:

• For the same entity (e.g., email), FR-01 (create), FR-02 (send) involve different actions, hence not merged.

• For management-type requirements (e.g., FR-08 folder management), even if it covers multiple actions, it is kept separate from FR-09 (delete) due to functional difference.

• No system-general settings (e.g., preferences), hence no removal needed.

• Post-Consolidation Functional Requirements List: All 40 original requirements are retained. Descriptions are simplified to express core functionality based on the original text.

| Functional Requirement ID | Simplified Description (Core Function) | Data Entity |

| FR-01 | User creates a new email | Email |

| FR-02 | User sends an email | Email |

| FR-03 | System receives email | Email |

| FR-04 | User deletes email | Email |

| FR-05 | User formats email body | Email |

| FR-06 | User searches emails | Email |

| FR-07 | User creates email folder | Folder |

| FR-08 | User manages folder (rename/move/set attributes) | Folder |

| FR-09 | User deletes folder | Folder |

| FR-10 | User adds contact | Contact |

| FR-11 | User deletes contact | Contact |

| FR-12 | User manages contact (edit/group/tag) | Contact |

| FR-13 | User creates distribution group | Distribution Group |

| FR-14 | User deletes distribution group | Distribution Group |

| FR-15 | User manages distribution group (name/members/desc) | Distribution Group |

| FR-16 | User creates task | Task |

| FR-17 | User deletes task | Task |

| FR-18 | User manages task (edit/status) | Task |

| FR-19 | User sets reminder for email/task | Reminder |

| FR-20 | Admin creates mailbox account | Mailbox Account |

| FR-21 | Admin deletes mailbox account | Mailbox Account |

| FR-22 | Admin manages mailbox account (quota/forward/permissions) | Mailbox Account |

| FR-23 | Admin creates shared account | Shared Account |

| FR-24 | Admin deletes shared account | Shared Account |

| FR-25 | Admin manages shared account (members/quota/permissions) | Shared Account |

| FR-26 | User archives email | Email Archive |

| FR-27 | User deletes archived email | Email Archive |

| FR-28 | User manages email archive (path/labels/retention) | Email Archive |

| FR-29 | Admin creates server archive task | Server Archive |

| FR-30 | Admin deletes server archive data | Server Archive |

| FR-31 | Admin manages server archive (policy/schedule/monitoring) | Server Archive |

| FR-32 | User creates mail flow capture rule | Mail Flow Capture |

| FR-33 | User deletes mail flow capture rule | Mail Flow Capture |

| FR-34 | Admin manages mail flow capture (keywords/exceptions/storage) | Mail Flow Capture |

| FR-35 | Admin creates backup | Backup |

| FR-36 | Admin deletes backup files | Backup |

| FR-37 | Admin manages backup strategy (frequency/location/retention) | Backup |

| FR-38 | User or admin creates recovery task | Recovery |

| FR-39 | User or admin manages recovery task (pause/resume/cancel) | Recovery |

| FR-40 | User views recovery log | Recovery Log |

Total Functional Requirements after Consolidation: 40

Hallucination Requirement Judgment

• Evaluation Criterion: A requirement is a hallucination if it involves a data entity that cannot be linked to any existing one, resulting in an isolated node in the E-R diagram. All 14 entities are interlinked (e.g., email, task, contact all have connection paths), with no isolated nodes.

• Evaluation Result: All 40 requirements involve linkable entities. Examples:

• FR-19 involves reminders linked to email or task, traceable through associated entities.

• FR-29 server archive relates to email data, thus connected via email.

• No new isolated entities were introduced.

• Number of Hallucinated Requirements: 0

Final Evaluation Table

Each requirement is evaluated based on the above reasoning.

| Functional Requirement | Hallucination | Reason |

| FR-01: User creates a new email | No | Involves email entity, linked to system; input/output clearly defined (subject/body stored). |

| FR-02: User sends email | No | Although sensitive content detection is undefined, input (email, code) maps to output (status change, log). |

| FR-03: System receives email | No | Involves email entity, input (connection, download) maps to output (inbox storage). |

| FR-04: User deletes email | No | Involves email entity, input (list, method) maps to output (email removal, log). |

| FR-05: User formats email body | No | Involves email entity, input (formatting action) maps to output (presentation/history). |

| FR-06: User searches emails | No | Involves email entity, input (keywords/time) maps to output (email list). |

| FR-07: User creates email folder | No | Involves folder entity, input (name/type) maps to output (folder created, log). |

| FR-08: User manages folder | No | Involves folder entity, input (action type/new name) maps to output (structure/log). |

| FR-09: User deletes folder | No | Involves folder entity, input (method) maps to output (folder removed, log). |

| FR-10: User adds contact | No | Involves contact entity, input (contact info) maps to output (contact stored, log). |

| FR-11: User deletes contact | No | Involves contact entity, input (deletion method) maps to output (contact removed, log). |

| FR-12: User manages contact | No | Involves contact entity, input (edit info) maps to output (info updated, log). |

| FR-13: User creates distribution group | No | Involves distribution group entity, input (name/members) maps to output (group created, log). |

| FR-14: User deletes distribution group | No | Involves distribution group entity, input (method) maps to output (group removed, log). |

| FR-15: User manages distribution group | No | Involves distribution group entity, input (member change) maps to output (group updated, log). |

| FR-16: User creates task | No | Involves task entity, input (name, deadline) maps to output (task stored, log). |

| FR-17: User deletes task | No | Involves task entity, input (method) maps to output (task removed, log). |

| FR-18: User manages task | No | Involves task entity, input (status change) maps to output (task updated, log). |

| FR-19: User sets reminder | No | Involves reminder entity, input (type/time) maps to output (rule logged). |

| FR-20: Admin creates mailbox account | No | Involves mailbox entity, input (address/quota) maps to output (account created, log). |

| FR-21: Admin deletes mailbox account | No | Involves mailbox entity, input (method) maps to output (account status change, log). |

| FR-22: Admin manages mailbox account | No | Involves mailbox entity, input (quota change) maps to output (config updated, log). |

| FR-23: Admin creates shared account | No | Involves shared account entity, input (name/members) maps to output (account created, log). |

| FR-24: Admin deletes shared account | No | Involves shared account entity, input (method) maps to output (status changed, log). |

| FR-25: Admin manages shared account | No | Involves shared account entity, input (member change) maps to output (account updated, log). |

| FR-26: User archives email | No | Involves archive entity, input (method) maps to output (archived/log). |

| FR-27: User deletes archived email | No | Involves archive entity, input (method) maps to output (email removed, log). |

| FR-28: User manages archive | No | Involves archive entity, input (path change) maps to output (metadata/log). |

| FR-29: Admin creates server archive task | No | Involves server archive entity, input (scope) maps to output (archived/log). |

| FR-30: Admin deletes server archive data | No | Involves server archive entity, input (method) maps to output (removed/log). |

| FR-31: Admin manages server archive | No | Involves server archive entity, input (policy change) maps to output (updated/log). |

| FR-32: User creates mail flow capture rule | No | Involves capture entity, input (trigger) maps to output (rule/log). |

| FR-33: User deletes mail flow rule | No | Involves capture entity, input (method) maps to output (removed/log). |

| FR-34: Admin manages mail flow rule | No | Involves capture entity, input (keywords) maps to output (updated/log). |

| FR-35: Admin creates backup | No | Involves backup entity, input (scope) maps to output (file/log). |

| FR-36: Admin deletes backup | No | Involves backup entity, input (method) maps to output (file removed/log). |

| FR-37: Admin manages backup | No | Involves backup entity, input (frequency) maps to output (config/log). |

| FR-38: User/admin creates recovery task | No | Involves recovery entity, input (source) maps to output (task/log). |

| FR-39: User/admin manages recovery task | No | Involves recovery entity, input (pause/resume) maps to output (status/log). |

| FR-40: User views recovery log | No | Involves recovery log entity, input (query) maps to output (displayed). |

Summary

• Total Data Entities Identified: 14 (Email, Folder, Contact, Distribution Group, Task, Reminder, Mailbox Account, Shared Account, Email Archive, Server Archive, Mail Flow Capture, Backup, Recovery, Recovery Log)

• Total Functional Requirements after Consolidation: 40 (no merging, all requirements are independent)

• Hallucinated Requirements: 0 (all requirements involve entities connected to the system, no isolated nodes)

• Non-hallucinated Requirements: 40