

Use Case Analysis: AI Co-Worker Agent Solution for Account Opening

Summary Table

Use Case ID	Use Case Name	Primary Actor	Goal	Priority	Dependencies	Status
UC-001	Ingest Client Intake Data	AI Co-Worker Agent	Parse and classify structured/unstructured client onboarding inputs	High	None	Complete
UC-002	Validate Account Opening Packet	AI Co-Worker Agent	Ensure account packet completeness, consistency, and compliance with custodian/account rules	High	UC-001	Complete
UC-003	Assemble Custodian Packet	AI Co-Worker Agent	Generate and pre-populate forms, assemble actionable packet aligned to requirements	High	UC-002	Complete
UC-004	Human-in-the-Loop Review	Reviewer (Operations)	Review exceptions/ambiguous cases; approve, reject, or request corrections	High	UC-003	Complete
UC-005	Generate and Route DocuSign Envelope	AI Co-Worker Agent	Prepare and send signature envelopes when required	Medium	UC-004	Complete
UC-006	Submit Packet to Custodian	AI Co-Worker Agent	Submit completed packet to custodian platform; update all systems	High	UC-004, UC-005 (conditional)	Complete
UC-007	Write-Back and Synchronize Lifecycle State	AI Co-Worker Agent	Write results, artifacts, and status updates to Salesforce/Edge and ensure system synchronization	High	UC-006	Complete
UC-008	Audit Workflow and Maintain Traceability	AI Co-Worker Agent	Provide auditable trace, scoring, and data lineage for compliance and review	High	UC-001 - UC-007	Complete
UC-009	Continuous Workflow Improvement and Assessment	AI Co-Worker Agent	Assess and optimize process periodically or on-demand, enable incremental rule/process refinement	Medium	UC-008	Complete

Summary Statistics:

- Total Use Cases Identified: **9**
- Primary Actors: **4** (AI Co-Worker Agent, Reviewer/Operations, Custodian Platform, Client [indirect])
- Secondary Actors: **3** (Salesforce/Edge, DocuSign, Subatomic Deep Lens)
- High Priority Use Cases: **7**
- Use Cases with Dependencies: **7**
- Use Cases with Extensions: **3** (UC-002, UC-004, UC-005)

UC-001: Ingest Client Intake Data

A. Use Case Identification

Use Case ID: UC-001

Use Case Name: Ingest Client Intake Data

Primary Actor: AI Co-Worker Agent

Secondary Actors: Formstack, Black Diamond

Priority: High

Status: Complete

B. Use Case Description

Goal:

AI Agent parses and classifies all structured and unstructured client onboarding data (forms, statements, docs).

Scope:

Within NorthRock's IT environment; covers all intake data from Formstack/Black Diamond to normalization.

Level: User Goal

Preconditions:

- Client has submitted onboarding forms/documents via Formstack and/or uploads
- Intake channels are operational

Postconditions:

- All input data is normalized, classified, and attributed to the correct client/household in the system

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Orchestrates and executes ingestion	Accurate, timely classification
Formstack	Secondary	Intake channel	Proper data delivery
Black Diamond	Secondary	Data retrieval/verification	Data quality, error minimization
Client	Primary	Provides onboarding data	Smooth onboarding, fast processing
Operations Team	Stakeholder	Oversight/exception management	Receive error-free, pre-processed data

D. Main Success Flow

1. AI Agent detects new client intake form(s) in Formstack.
2. Agent retrieves supporting uploaded documents/statements.
3. Agent normalizes all data to a consistent internal structure.
4. Agent classifies data attributes and links them to client and household records in Salesforce/Edge.
5. Agent logs intake completion and triggers validation workflow.

E. Alternative Flows

Alternative Flow 1.1: Intake via Document Upload (e.g., not Formstack)

- Some data arrives through Black Diamond or direct email upload.
- Agent applies OCR if unstructured; routes through same normalization.

Alternative Flow 1.2: Partial Data Submission

- Only part of required data received.
- Agent flags for partial status, triggers reminder/request to client.

F. Exception Flows

Exception Flow 1.1: Data Format Unrecognized

- Agent unable to parse document.
- Logs detailed error, notifies Operations for manual intervention.
- Moves intake to "Exception" queue.

Exception Flow 1.2: Misclassification/Error Detected

- Internal validation routine flags potential misattribution.
- Requires review/correction prior to progressing to validation.

G. Relationships

Includes:

- None

Extends:

- None

Generalization:

- None

Dependencies:

- None

H. Business Rules

- Only approved intake formats (Formstack, approved uploads)
- Mandatory mapping of every intake to a unique client/household
- Data normalization standards enforced

I. Non-Functional Requirements

- **Performance:** Support high-volume, near-real-time ingestion
- **Security:** No data leaves NorthRock's IT perimeter; encryption in transit/at rest
- **Usability:** Automated intake acknowledgement and error feedback
- **Reliability:** >99.9% uptime for intake process

UC-002: Validate Account Opening Packet

A. Use Case Identification

Use Case ID: UC-002

Use Case Name: Validate Account Opening Packet

Primary Actor: AI Co-Worker Agent

Secondary Actors: Operations Team (reviewers), Custodian Platforms (rulebooks)

Priority: High

Status: Complete

B. Use Case Description

Goal:

Ensure each account packet is complete, consistent across all documents, and compliant with custodian/account-type requirements.

Scope:

Applies validation logic to all inputs post-intake, including cross-form and rules-based checks.

Level: Sub-function

Preconditions:

- All required client intake data attributed and normalized (UC-001 complete)
- Custodian/account-type rulebooks/rules are up-to-date in system

Postconditions:

- Packet is annotated as valid, invalid, or requiring review
- Explicit, traceable validation record created

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Executes validation	Data quality, compliance

Actor/Stakeholder	Type	Role	Interest
Operations Team	Secondary	Receives exceptions, reviews	Expedite manual review when needed
Custodian Platforms	Secondary	Source of rules/templates	Correct rule and packet construction
Compliance Officer	Stakeholder	Oversight	Ensures compliance exceptions flagged

D. Main Success Flow

1. Agent retrieves latest validation rules for given custodian/type.
2. Agent checks completeness of all required fields.
3. Agent checks consistency between forms and supporting documents.
4. Agent applies all required custodian/account-type validation logic.
5. If valid, marks packet as "Ready for Assembly"; if not, routes to human review (UC-004).

E. Alternative Flows

Alternative Flow 2.1: Rule Conflict Detected

- If conflicting rules are present (e.g., submission would be "not in good order"):
- Agent flags explicit rule conflict, routes to manual review.

Alternative Flow 2.2: Multiple Account Types

- Applies a union of all relevant rules for each account type.

F. Exception Flows

Exception Flow 2.1: Critical Field Missing

- Validation fails due to missing required fields.
- Packet flagged as "Exception — Incomplete"; triggers notification for data correction.

Exception Flow 2.2: Inconsistent Data

- Data inconsistency between intake form and uploaded documents.
- Agent initiates workflow for human review or client clarification.

G. Relationships

Includes:

- UC-001: Ingest Client Intake Data (intake must be complete first)

Extends:

- Can extend: UC-004 (Human review only if exception/ambiguity found)

Dependencies:

- Depends on: UC-001

H. Business Rules

- Validation is explicit, auditable, and traceable
- Rules matching latest custodian requirements
- Must capture and route all validation outcomes

I. Non-Functional Requirements

- **Performance:** All validations must complete in under 5 minutes per packet
- **Security:** All rules maintained under controlled access
- **Usability:** Clear validation error reporting for downstream users
- **Reliability:** Zero tolerance for silent failures (all errors must be flagged)

UC-003: Assemble Custodian Packet

A. Use Case Identification

Use Case ID: UC-003

Use Case Name: Assemble Custodian Packet

Primary Actor: AI Co-Worker Agent

Secondary Actors: Custodian Platform (Schwab, Fidelity)

Priority: High

Status: Complete

B. Use Case Description

Goal:

Generate and pre-populate all necessary custodian forms with verified client data; assemble compliant account opening packet.

Scope:

From validated input to composed, ready-to-submit digital package per custodian.

Level: Sub-function

Preconditions:

- Validation successful (UC-002)
- Access to current form templates for required custodian

Postconditions:

- Digital packet containing all custodian-required forms, populated with verified data
- Packet tagged and ready for review/signing

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Executes assembly	Correct, efficient packet gen
Custodian Platform	Secondary	Provides forms/templates	Consistent receipt of packets
Operations Team	Stakeholder	Oversight/exception mgmt	Minimize manual rework

D. Main Success Flow

1. Agent selects appropriate form set based on custodian and account type.
2. Agent pre-populates forms with validated, mapped client data.
3. Agent applies additional custodian-specific formatting or signatures as required.
4. Agent assembles all documents into a single digital packet.
5. Agent moves assembled packet to review stage or DocuSign envelope generation.

E. Alternative Flows

Alternative Flow 3.1: Multiple Custodian Submissions

- For accounts requiring submission to multiple custodians, agent assembles parallel packets.

Alternative Flow 3.2: Optional Forms

- If optional forms determined to be necessary (e.g., for additional services), agent includes these as per defined rules.

F. Exception Flows

Exception Flow 3.1: Missing/Obsolete Form Template

- Agent cannot retrieve latest form template.
- Flags exception, requests updated template from Operations.

Exception Flow 3.2: Data Mapping Error

- Automation finds data cannot be mapped to a field.
- Flags field for manual review/correction.

G. Relationships

Includes:

- UC-002: Validate Account Opening Packet

Extends:

- None

Dependencies:

- Depends on: UC-002

H. Business Rules

- All packet assemblies must use the latest templates
- No hand-editing of generated packets allowed before review

I. Non-Functional Requirements

- **Performance:** Packet assembly must occur within 2 minutes of validation
- **Security:** Only authorized agents can access form libraries
- **Usability:** Assembled packets presented clearly for review
- **Reliability:** All forms must pass checksum/consistency checks

UC-004: Human-in-the-Loop Review

A. Use Case Identification

Use Case ID: UC-004

Use Case Name: Human-in-the-Loop Review

Primary Actor: Reviewer (Operations Team)

Secondary Actors: AI Co-Worker Agent

Priority: High

Status: Complete

B. Use Case Description

Goal:

Allow human reviewers to address exceptions, ambiguities, or flagged compliance/rule conflicts by approving, rejecting, or requesting corrections.

Scope:

Covers all packets routed for review — in-flight or exception states.

Level: User Goal

Preconditions:

- Packet assembled and ready for review (UC-003)
- Validation flagged exception or explicit review required

Postconditions:

- Packet is either approved, rejected, or returned for correction
- Review action logged in system for audit/tracking

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
Reviewer (Ops Team)	Primary	Human decision-maker	Diligent, speedy review
AI Co-Worker Agent	Secondary	Surfaces packets, logs results	Clear input for next workflow step
Compliance Officer	Stakeholder	Oversight/audit	Traceability and compliance

D. Main Success Flow

1. Agent routes packet with comments/flags to reviewer.
2. Reviewer inspects packet and associated notes/validation findings.
3. Reviewer chooses to approve, reject, or request client/agent corrections.
4. Action and rationale are logged; packet moves to next workflow stage per decision.

E. Alternative Flows

Alternative Flow 4.1: Multiple Reviewers Required

- For high-risk or ambiguous cases, packet escalated to a compliance committee.

F. Exception Flows

Exception Flow 4.1: Reviewer Action Timeout

- Reviewer does not act within defined SLA.
- Agent escalates/reminds, or auto-escalates to alternate reviewer.

Exception Flow 4.2: Reviewer Unable to Decide

- Reviewer requests further information; packet sent back to data intake/correction workflow.

G. Relationships

Includes:

- None

Extends:

- None

Dependencies:

- Depends on: UC-003, UC-002 (conditional path on exception)

H. Business Rules

- Every reviewer action must be auditable and attributable
- Only authorized staff may approve/reject packets

I. Non-Functional Requirements

- **Performance:** Reviewer queue/notification must be immediate upon packet arrival
- **Security:** All reviewer activity logged with id/timestamp
- **Usability:** Reviewer UI must present validation findings clearly
- **Reliability:** Workflow cannot deadlock on review step

UC-005: Generate and Route DocuSign Envelope

A. Use Case Identification

Use Case ID: UC-005

Use Case Name: Generate and Route DocuSign Envelope

Primary Actor: AI Co-Worker Agent

Secondary Actors: DocuSign, Client (indirect), Reviewer

Priority: Medium

Status: Complete

B. Use Case Description

Goal:

Prepare DocuSign envelope with required forms, route to client for signature, and manage signature status.

Scope:

All packets requiring e-signature post-review.

Level: Sub-function

Preconditions:

- Packet approved for submission (UC-004)
- E-signature required per process/rule

Postconditions:

- Envelope sent to client via DocuSign, status trackable
- On completion, signed documents are attached to packet record

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Manages DocuSign process	Timely, error-free signature
DocuSign	Secondary	E-signature platform	Successful envelope handling

Actor/Stakeholder	Type	Role	Interest
Client	Primary	Signs forms	Easy, efficient experience
Reviewer (Ops Team)	Secondary	Verifies completion	Zero signature abandonment

D. Main Success Flow

1. Agent packages forms into a DocuSign envelope.
2. Agent sends envelope to client's verified email.
3. Client receives and signs forms via DocuSign platform.
4. Completed envelope and signature status are pushed back to system.
5. Agent flags packet "signed" and advances to submission (UC-006).

E. Alternative Flows

Alternative Flow 5.1: Multiple Signers

- For accounts requiring more than one signature, DocuSign routes in parallel or sequence as configured.

Alternative Flow 5.2: In-Person Signature

- Where permitted, signature routed for in-person collection rather than DocuSign.

F. Exception Flows

Exception Flow 5.1: Signature Declined

- Client declines to sign.
- Agent notifies Operations/Reviewer for follow-up.

Exception Flow 5.2: Signature Timeout

- No signature within required period.
- Automated reminders sent; eventual escalation as exception.

G. Relationships

Includes:

- UC-004: Human-in-the-Loop Review

Extends:

- None

Dependencies:

- Depends on: UC-004

H. Business Rules

- Only validated, reviewer-approved packets can be sent via DocuSign
- Reminders auto-sent for any unsigned envelope after 24 hours

I. Non-Functional Requirements

- **Performance:** Envelope sent within 2 minutes of approval
- **Security:** E-signature flow fully auditable and compliant (DocuSign integration controls)
- **Usability:** Client interface mobile-friendly, error-tolerant
- **Reliability:** All signature flows retrievable if interrupted

UC-006: Submit Packet to Custodian

A. Use Case Identification

Use Case ID: UC-006

Use Case Name: Submit Packet to Custodian

Primary Actor: AI Co-Worker Agent

Secondary Actors: Custodian Platform (Schwab/Fidelity), Reviewer

Priority: High

Status: Complete

B. Use Case Description

Goal:

Submit fully executed, signed, and reviewed packet to relevant custodian; confirm delivery.

Scope:

Digital submission to custodian via integration (API/SFTP/etc.), with fallback to monitored manual upload.

Level: User Goal

Preconditions:

- Packet is complete (both forms and supporting docs)
- All required signatures obtained (if applicable)

Postconditions:

- Custodian system acknowledges receipt
- Submission status, reference/confirmation numbers stored in Salesforce/Edge

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Submits packet	Fast, accurate submission

Actor/Stakeholder	Type	Role	Interest
Custodian Platform	Secondary	Receives packet	Standards-conformant submissions
Reviewer (Ops Team)	Secondary	Oversight/follow-up on errors	Submission audit trail

D. Main Success Flow

1. Agent identifies correct submission method for custodian.
2. Agent submits packet via integration (API preferred; SFTP or secure email fallback).
3. Receives delivery confirmation from custodian platform.
4. Agent records all confirmation details, including any reference numbers.
5. Agent notifies reviewer of successful submission.

E. Alternative Flows

Alternative Flow 6.1: Batch Submission

- For bulk onboarding, agent aggregates packets and submits as a batch if supported.

F. Exception Flows

Exception Flow 6.1: Submission Failure

- Custodian system returns an error or does not confirm receipt.
- Agent retries as per retry schedule, logs incident, notifies reviewer.

Exception Flow 6.2: Manual Submission Required

- API unresponsive or unsupported; packet prepared for secure upload and reviewer notified to complete step manually.

G. Relationships

Includes:

- UC-005: Generate and Route DocuSign Envelope (when e-signature is part of process)

Extends:

- None

Dependencies:

- Depends on: UC-004, (UC-005 if signature required)

H. Business Rules

- Must not submit until all prior steps (incl. docs/signature) complete
- Immediate failure notification if unable to confirm submission

I. Non-Functional Requirements

- **Performance:** 99% of submissions completed <5 minutes from approval
- **Security:** Data transmission encrypted; all packets logged
- **Usability:** Submission status visible to all stakeholders
- **Reliability:** Zero silent failures; guaranteed retry on error

UC-007: Write-Back and Synchronize Lifecycle State

A. Use Case Identification

Use Case ID: UC-007

Use Case Name: Write-Back and Synchronize Lifecycle State

Primary Actor: AI Co-Worker Agent

Secondary Actors: Salesforce/Edge, Custodian Platform

Priority: High

Status: Complete

B. Use Case Description

Goal:

Synchronize account lifecycle data, including submission status, artifacts, and next steps, across Salesforce, Edge, and other internal systems.

Scope:

Covers all write-backs triggered post-custodian submission through account activation.

Level: Sub-function

Preconditions:

- Successful submission to custodian (UC-006)
- Internal system integrations operational

Postconditions:

- All relevant data fields, attachment artifacts, and history are up-to-date across systems
- Lifecycle state reflects actual, real-time process status

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Performs write-back	Data sync, accuracy
Salesforce/Edge	Secondary	Receives write-back	Single source of truth
Operations Team	Stakeholder	Track/account status	Visibility and transparency

D. Main Success Flow

1. Agent receives submission confirmation from custodian.
2. Agent updates account record(s) in Salesforce/Edge with:
 - Status
 - Artifacts (signed docs, custodian receipt, audit log)
 - Timeline/history entries
3. Agent confirms successful write-back.
4. Agent triggers any downstream activation or onboarding steps.

E. Alternative Flows

Alternative Flow 7.1: Additional Synchronization Needed

- If other systems (e.g., reporting, compliance tools) are added, agent performs parallel write-backs.

F. Exception Flows

Exception Flow 7.1: Write-Back Failure

- Salesforce/Edge interface unavailable.
- Agent retries per schedule; notifies Operations if unresolved.

G. Relationships

Includes:

- UC-006: Submit Packet to Custodian

Extends:

- None

Dependencies:

- Depends on: UC-006

H. Business Rules

- All workflow artifacts must be attached to client/account record
- Write-back must occur within defined time SLA

I. Non-Functional Requirements

- **Performance:** <2 minutes per write-back operation
- **Security:** Updates only via authenticated/authorized API
- **Usability:** All lifecycle information clearly visible in Salesforce/Edge
- **Reliability:** No data loss permitted; audit log must support reversions

UC-008: Audit Workflow and Maintain Traceability

A. Use Case Identification

Use Case ID: UC-008

Use Case Name: Audit Workflow and Maintain Traceability

Primary Actor: AI Co-Worker Agent

Secondary Actors: Subatomic Deep Lens, Compliance Stakeholder

Priority: High

Status: Complete

B. Use Case Description

Goal:

Ensure every workflow step, outcome, and data lineage is auditable for operational review and compliance purposes.

Scope:

Covers end-to-end workflow lifecycle, including technical and business event traceability.

Level: User Goal

Preconditions:

- Workflow actions executed (UC-001 through UC-007)
- Audit infrastructure operational

Postconditions:

- Complete, immutable audit trail available for any account opening process instance

C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Logs and collates audit data	Traceability, compliance
Subatomic Deep Lens	Secondary	Audit platform, dashboard, reports	Fast, clear access for compliance review
Compliance Stakeholder	Stakeholder	Audit/oversight	Regulatory and internal compliance
Operations Team	Stakeholder	Operational review	Root-cause analysis, improvement

D. Main Success Flow

1. Agent logs every workflow event, input, decision, and exception to Deep Lens.
2. Deep Lens computes step-by-step workflow traces, validation scoring, and data lineage.
3. Agent/Deep Lens exposes visual audit reports and underlying log data as required.

4. Compliance/officer can access, export, and review audit for any completed or in-flight packet.

E. Alternative Flows

Alternative Flow 8.1: Ad-Hoc Audit Request

- For spot checks or remediation, compliance pulls on-demand logs for any specific packet/event.

F. Exception Flows

Exception Flow 8.1: Audit Data Corruption/Gap

- If any audit record missing/corrupted, system flags non-compliance and triggers internal escalation.

G. Relationships

Includes:

- All preceding workflow steps (UC-001 through UC-007)

Extends:

- None

Dependencies:

- Depends on: UC-001–UC-007

H. Business Rules

- Every workflow action must be auditable and immutable
 - Audit logs retained per company and regulatory policy
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I. Non-Functional Requirements

- **Performance:** All audit events must be written synchronously or within 10 sec of occurrence
 - **Security:** Audit logs write-once/read-many; access tightly controlled
 - **Usability:** Compliance staff can search/filter audit trail as needed
 - **Reliability:** No audit event loss tolerance
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UC-009: Continuous Workflow Improvement and Assessment

A. Use Case Identification

Use Case ID: UC-009

Use Case Name: Continuous Workflow Improvement and Assessment

Primary Actor: AI Co-Worker Agent

Secondary Actors: Operations Team, Compliance, IT Admin

Priority: Medium

Status: Complete

B. Use Case Description

Goal:

Periodically or on demand, assess workflow performance; generate and implement corrective actions or optimizations without major re-engineering.

Scope:

Covers quarterly/on-demand reviews, rule/process adjustments, and reporting for the account opening workflow.

Level: Summary

Preconditions:

- Historical workflow/audit data accumulated
- Assessment window/timeframe triggered

Postconditions:

- Recommendations, rule changes, or process optimizations are available for review/implementation
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C. Actors and Stakeholders

Actor/Stakeholder	Type	Role	Interest
AI Co-Worker Agent	Primary	Collates data, recommends changes	Improved efficiency, error reduction
Operations Team	Secondary	Participates in review	Faster, more accurate process
Compliance	Stakeholder	Approves/monitors changes	Sustained compliance
IT Admin	Stakeholder	Applies rule/config changes	No disruption, secure change control

D. Main Success Flow

1. At scheduled intervals or on demand, agent analyzes process/audit data.
 2. Agent generates report highlighting delays, exceptions, and bottlenecks.
 3. Recommendations for process, rule, or template refinements are created.
 4. Operations/IT/Compliance reviews and approves (or rejects) proposals.
 5. Approved optimizations are incrementally applied; process resumes.
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E. Alternative Flows

Alternative Flow 9.1: Urgent Remediation

- In case of persistent error/high-impact event, out-of-cycle review and rapid deployment of corrective rule/logic.

F. Exception Flows

Exception Flow 9.1: Change Rejected

- Stakeholder (e.g., Compliance) rejects recommended change; agent retains original process/rules pending revision.

G. Relationships

Includes:

- UC-008: Audit Workflow (source data for assessment)

Extends:

- None

Dependencies:

- Depends on: UC-008

H. Business Rules

- All optimizations must be reviewed/approved prior to production deployment
 - Rules/config changes reversible and traceable
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I. Non-Functional Requirements

- **Performance:** Assessment reports generated within 1 business day after window closes
 - **Security:** Change process meets IT/change control protocols
 - **Usability:** Reports and recommendations easy to interpret by stakeholders
 - **Reliability:** Optimizations must not degrade core workflow reliability
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End of Use Case Analysis