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0. Project Executive Context Summary

Dimension	Description (Derived Strictly from Project Context)
Project Name	AI Co-Worker Agent Solution for Account Opening
Business Domain	Wealth Management / Financial Services (Account Onboarding)
Problem Being Solved	Automate and coordinate high-volume account opening for new clients at NorthRock, ensuring accuracy, consistency, and full auditability throughout the onboarding workflow.
Primary Goal(s)	Deploy agentic automation for account opening; ensure consistent validation and preparation of onboarding packets; support human-in-the-loop review; maintain end-to-end auditability and transparency.
Desired Outcome(s)	Seamlessly handle ~7,000 new account openings; system-driven validation and packet assembly; ensure regulatory compliance and operational transparency; enable process improvement via workflow traceability.
In-Scope Data Consumers	AI Co-Worker Agent Team, Human Reviewers (during workflow), NorthRock operational/compliance staff, Salesforce/Edge (system write-back), Custodial Platforms (submission that is managed via workflow, but not a direct downstream data layer consumer).
Out-of-Scope Capabilities (Explicitly Excluded)	Analytics, BI, ML/AI beyond described agent team, reporting, data warehousing for analytics, vector databases, any general-purpose BI/ML/analytics/data science usage, external data sharing.
Non-Goals	General analytics/BI, non-onboarding-related automation, downstream consumer enablement outside onboarding, ad hoc data access, system extensibility outside the workflow, model training, customer reporting.
Key Constraints (Technical / Operational / Compliance)	All data processing and storage must comply with NorthRock IT security/infrastructure standards; data must not be handled or processed externally; all steps must be audit-ready; all stages must be explicitly modeled and monitored; some sources (e.g., Black Diamond) are optional.
Success Criteria	Automated onboarding that maintains packet accuracy and completeness; traceable/auditable workflow (via Subatomic Deep Lens); successful system write-back; explicit mapping of all data stages and human actions; no compliance or audit failures.

1. Layer Responsibility and System Inclusion (Context-Bound)

Layer	Why This Layer Exists in This Project	Included Systems / Platforms	Allowed Operations	Explicitly Excluded Operations	Notes
Bronze	Raw ingestion and preservation of all source data/artifacts for onboarding workflow and audit purposes.	All source systems: Salesforce/Edge, Formstack, Schwab, Fidelity, DocuSign, Black Diamond (optional), Subatomic Deep Lens, Client-Provided Statements	Ingest, persist raw, version, lineage metadata capture	Upstream or business logic transformations, field mapping, analytics, summarization	Must support heterogeneous data, both structured and unstructured.
Silver	Enable only the normalization, classification, association (to client/household), and validation/logging strictly for workflow ops.	Data platform(s) implementing transformations as per workflow requirements	Normalize, classify, entity association, validation, packet building, lineage logging	Enrichment not required by workflow, analytics, ML, outgoing BI/reporting	Only fields/records needed for workflow packet validation/assembly & audit.
Gold	Prepare finalized outputs for workflow packet build, review, signature, system write-back; make available for human review steps.	Staging area for outbound packets, DocuSign (envelope prep), Salesforce/Edge (write-back), Subatomic Deep Lens (audit log exposure)	Formatting for custodian packet, preparing review artifacts, assembling DocuSign envelopes, write-back to operational systems	Any shaping for analytics/BI, data science, persistent data mart	Gold data must map to validated, review-ready, and outbound write-back/post events.

2. Staging Layer Design (Only If Required by Context)

Staging Area Name	Associated Layer	Included Systems / Platforms	Purpose in This Project	Data Scope	Retention Policy	Notes
Packet Assembly Area	Gold	Data platform staging, packet prep system	Temporary preparation of completed custodian packets before human review and DocuSign step	Account opening packets (per submission)	Until finalized/reviewed	Needed only for transient assembly, not for long-term store.
Envelope Prep Area	Gold	DocuSign envelope prep staging	Prepare and stage account opening packets for signature after review	DocuSign envelope and documents	Until signature completed	Only present if signature routing required per workflow.
Write-Back Queue	Gold	Salesforce/Edge write-back queue	Ensure status updates and artifacts are properly staged for system write-back after approval	All status & data to Salesforce/Edge	Until successful write-back	Transient, queue semantics; cleared post-write-back.

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3. Bronze Layer Design (Raw Ingestion Scope)

Dataset / Domain	Source(s)	Included Systems / Platforms	Storage Type	Schema Handling	Partitioning / Versioning	Lineage Requirements	Notes
Client / Household Data	Salesforce / Edge	Data lake, file/object store	Structured files	Ingest as-is; preserve	By record, event date, and ID	Full record lineage	System of record, stable, ID-based versioning
Intake Forms	Formstack	File/object store, form storage	Structured forms	As delivered, per schema	By submission (ID/ timestamp)	Event/submission lineage	Schema may vary; forms preserved as submitted
Custodian Forms & Rules	Schwab, Fidelity custodial platforms	File/object store	Structured/ nested documents	Archive per version	By snapshot/ version/date	Snapshot lineage	May need snapshotting due to case-by-case form/ rule updates
Envelope Artifacts	DocuSign	File/object store	Envelope files, metadata	As delivered	By envelope/event	Envelope lineage	Captures for audit and routing
Statements	Black Diamond (optional), Client-Provided Statements	File/object store	Unstructured documents	As delivered	By upload/event/ file/statement ID	Upload/retrieval lineage	Highly variable, optional, not always present
Audit Logs / Traces	Subatomic Deep Lens	File/object store, event log storage	Structured logs/traces	Step-by-step entries	Ordered by event, workflow, timestamp	Event/step lineage	Capture all trace outputs for compliance and operational audit

4. Silver Layer Design (Only If Transformation Is Required)

Dataset / Domain	Input Layer	Included Systems / Platforms	Transformation Necessity (Required / Not Required)	Transformations Justified by Context	State Required	Notes
Intake Data (Forms & Docs)	Bronze	Processing/ETL platform	Required	Normalize, classify, and associate with client/ household; map form fields for workflow use	Yes (association & validation intermediate)	Only normalization strictly required for validation and workflow association
Account Opening Packet Assembly	Silver	Workflow execution/ packet assembly	Required	Aggregate, pre-fill, and format for custodian requirements	Yes (workflow packet state)	Only outputs relevant to packet assembly and validation are constructed
Validation & QC Outputs	Silver	Workflow execution/audit log system	Required	Apply validation rules, produce structured results, surface exceptions	Yes (validation state/log)	Provide explicit, traceable, and auditable validation results
Audit & Tracing Data	Bronze	Subatomic Deep Lens	Required	Structure trace log steps for operational/compliance review	Yes (ordered workflow event sequence)	Step-by-step tracking; no analytic/statistical summarization outside explicit audit needs, supports HCIL

5. Gold Layer Design (Consumer-Driven, Context-Only)

Data Product / Output	Input Layer	Included Systems / Platforms	Intended Consumer (As Stated)	Shaping Required	Refresh Strategy	Notes
Custodian Account Opening Packet	Silver	Packet assembly stage, file/object store	AI Co-Worker Agent Team, Human Reviewers	Formatted packet as required by custodian; completed forms, supporting documents	Per submission/ event	Must be ready for review and signature envelope, as needed
Review Artifacts	Silver	Workflow platform, packet staging	Human Reviewers	Exception-ready and traceable package for manual review	As-needed/ triggered	Produced only if exception, ambiguity, or conflict is present
DocuSign Envelope Output (if routed)	Staging	DocuSign, envelope prep area	DocuSign (for signature), workflow system	Envelope and attachments prepared per review instructions	Per submission/ event	Only used if DocuSign step invoked in workflow
Status/Artifact Write-Back	Staging	Salesforce/Edge (write-back queue/ staging)	Salesforce/Edge system of record	Update entity lifecycle, attach generated artifacts, update workflow state	Post-approval/ trigger	Must deliver final state/ outputs to system of record appropriately
Audit Log for Compliance/Ops Review	Silver	Subatomic Deep Lens	Operational and Compliance Staff	Audit-structured trace log, validation and lineage outputs only as per auditability goals	Event-driven	Only for operational and compliance audit as specified

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6. Serving Stores and Specialized Layers (Only If Explicitly Needed)

Serving Layer Type	Backing Layer	Included Systems / Platforms	Why This Store Is Needed for This Project	Access Pattern	Notes
Packet/ Envelope Staging	Gold	Packet assembly staging, DocuSign prep area	Transient staging before human review/signature step	Per packet/event	Not a persistent data mart—exists only to support workflow 'handoff' and compliance sign-off steps
Write-Back Queue/Store	Gold	Salesforce/Edge write-back staging	Buffer status/data before system write-back post-approval	Queue/ transactional	Short-lived, strictly to ensure atomic write-back, cleared after successful update
Audit Log Exposure	Silver	Subatomic Deep Lens	Structured, traceable audit log required for compliance/ operational review	Query by event/ workflow	Only needed for trace review, not for analytics/BI

7. End-to-End Data Flow (Context-Constrained)

Flow Step	From Layer / System	To Layer / System	Trigger / Condition	Data State	Transformations Applied	Alignment to Project Goal	Notes
Raw Data Ingestion	Source systems/File intake (Bronze)	Bronze	Intake/ submission events, schedulers	Raw, as-is	None	Preserves original data for future trace; supports auditability	All sources ingested in original format
Intake Processing	Bronze	Silver	Intake event/ arrival in Bronze layer	Incoming, unclassified	Normalize, classify, entity association	Required for workflow intake and further processing	Only data needed for onboarding and audit processed
Validation/ QC	Silver	Silver	On normalized intake	Normalized entity/packet	Apply validation, field checks, rule/ consistency checks	Ensures all onboarding packets meet completeness/ consistency criteria	Explicit validation outcomes logged
Packet Assembly	Silver	Gold/Packet Assembly Area	After QC passes	Validated, complete packets	Aggregate, pre-populate forms, assemble per custodian rules	Prepares for review and submission	Only executes required custodian logic
Human Review	Gold/Packet Assembly Area	Gold/Review Artifacts	Exception/ ambiguity/ conflict detected	Packet + decision context	Surface/mark exceptions, package for manual review	Enables controlled human-in-the-loop approval/rejection	All manual actions logged for audit
Envelope/ Submission	Gold/Packet (approved)	Gold/DocuSign Envelope Prep	If signature required	Ready-to-sign docs/ envelopes	Prepare/signature envelope as per workflow instructions	Completes workflow handoff for signature, supports full trace	Only if signature required
Write-Back	Gold/Packet/ Envelope	Gold/Write-Back Queue / Salesforce/ Edge	After approval/ signature	Finalized workflow artifacts	Format for write-back, atomically update entity lifecycle	Synchs account state, ensures one-copy guarantee with audit trail	Transactionally updates system of record; only workflow-relevant data
Audit/Trace Writing	All stages (Bronze, Silver, Gold)	Silver/ Subatomic Deep Lens audit exposure	On each workflow/ activity event	Event/trace logs	Structure/sequence events for operational/ compliance review	Guarantees end-to-end traceability	No summarization, only structured trace for audit