

Team Details

Team name- code4life

Theme- SAR Narrative Generator with Audit Trail



1 Pranay Jain

2 Arya Singh Vishen

3 Anshuman Jaiswal

4 Riya Maheshwari

5 Manya Sinha

PROBLEM STATEMENT



Financial institutions face a growing compliance crisis driven by increasing transaction volumes, stricter anti-money laundering (AML) regulations, and limited compliance resources. Analysts are required to file Suspicious Activity Reports (SARs) for potentially fraudulent or money-laundering transactions. However, drafting a single SAR narrative typically takes 5–6 hours, as analysts must manually gather data from multiple systems, interpret complex transaction patterns, align findings with regulatory requirements, and write clear, regulator-approved narratives.

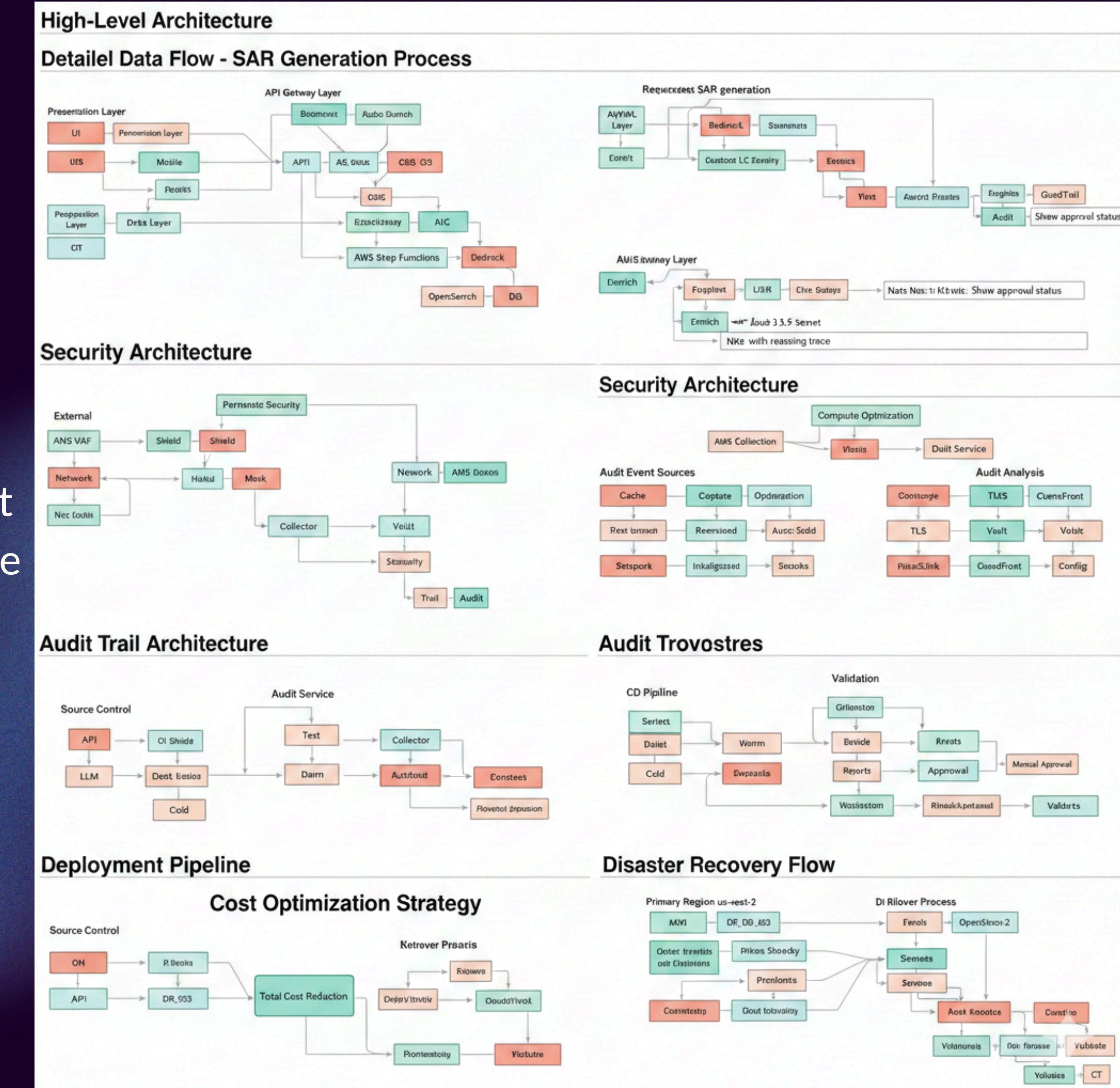
This manual, repetitive, and high-stakes process creates operational bottlenecks, reporting delays, and inconsistent narrative quality. Poorly written SARs can lead to regulatory scrutiny, follow-up investigations, financial penalties, and reputational damage. At scale, large financial institutions file thousands of SARs annually, resulting in tens of thousands of analyst hours spent on documentation rather than investigation.

Existing automation attempts either rely on rigid templates that lack contextual intelligence or employ black-box AI systems that fail to meet regulatory explainability standards. Regulators require complete traceability, source data, and defensible reasoning to back every statement.

There is a critical need for a transparent, explainable, and human-augmented AI system that reduces SAR drafting time, ensures regulatory compliance, maintains full audit trails, and enhances analyst productivity without compromising accountability.

SYSTEM ARCHITECTURE DIAGRAM

This diagram represents our complete enterprise architecture for SAR generation. It shows how user requests flow through secure API gateways into AI-powered processing layers, orchestrated through workflow engines, stored securely, audited for compliance, and deployed using automated CI/CD pipelines. Additionally, the system includes strong security controls and a disaster recovery mechanism to ensure high availability and regulatory compliance.



OUR SOLUTION



Explainable AI SAR Generator

◆ What We Built

- AI-powered SAR Narrative Generator
- Retrieval-Augmented Generation (RAG) for contextual accuracy
- Full audit trail & reasoning trace
- Human-in-the-loop review system

◆ How It Works

1. Ingests transaction, KYC & case data
2. Retrieves relevant SAR templates & regulations
3. Generates structured, regulator-ready narrative
4. Tracks data lineage + explainability
5. Analyst reviews, edits & approves

◆ Key Differentiation

- Explainable AI (not a black box)
- Regulatory-grounded output
- Faster SAR drafting with analyst control

IMPACT, TECH STACK & SCALABILITY



Impact Metrics

- 80% time reduction (5–6 hrs → ~1 hr per SAR)
- 8× increase in SAR handling capacity
- <2% regulatory rejection target
- Improved narrative consistency & compliance quality
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Tech Stack

- LLM: Bedrock / Llama
- Framework: LangChain (RAG pipeline)
- Vector Database: OpenSearch
- Audit Logs: PostgreSQL
- Frontend: React UI + RBAC Security

Scalability & Implementation

- Cloud-native & API-first architecture
- Phased rollout: POC → Pilot → Production
- Auto-scalable & regulator-ready infrastructure

METHODOLOGY

CONCEPT

Combine Large Language Models + Retrieval-Augmented Generation (RAG) + Structured Audit Logging to automate SAR drafting with full transparency and compliance control.

WORKFLOW

- Alert Triggered
- Data Retrieval
- Context Enrichment (RAG Layer)
- Narrative Generation
- Audit Logging & Traceability
- Analyst Review
- Final Submission

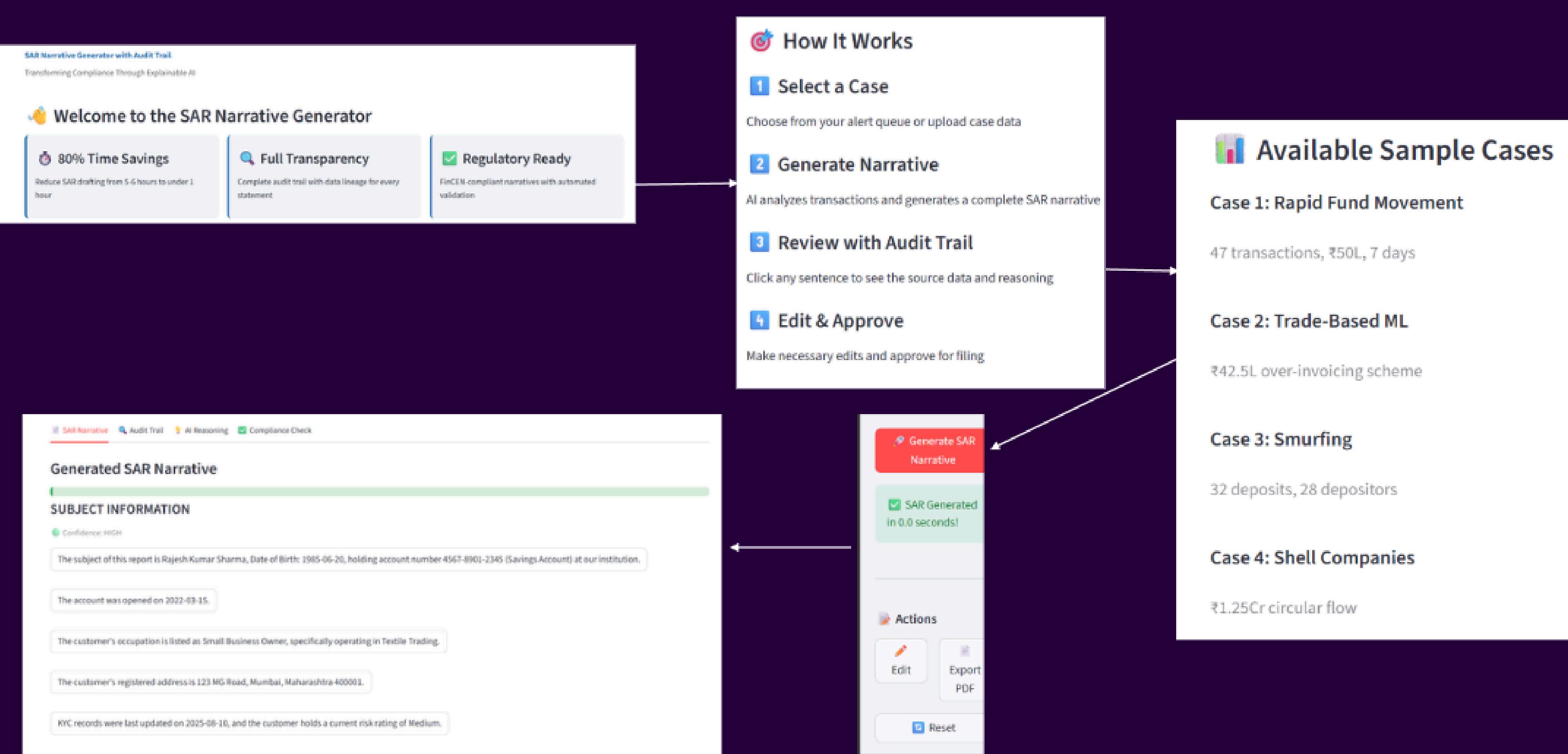
CORE PRINCIPLES

- Transparency-first AI
- Human-in-the-loop validation
- Compliance-by-design
- Secure & scalable architecture

FUTURE SCOPE

- Predictive Risk Scoring - ML models score alerts by fraud likelihood, helping analysts prioritize high-risk cases first
- Network Graph Visualization - Interactive maps revealing hidden shell company networks and circular transaction patterns
- Multi-Jurisdiction Support - Expand to UK (NCA), EU (AMLA), India (FIU-IND) and Singapore (MAS) regulatory formats
- Continuous Learning - System improves with every analyst correction, reducing edit rates over time
- Blockchain Audit Trail - Immutable, tamper-proof audit logs for maximum regulatory defensibility
- Cross-Institution Intelligence - Federated learning enables anonymized fraud pattern sharing across banks without exposing customer data
- Direct Regulatory Filing - Auto-submit approved SARs to FinCEN, FIU-IND and other portals, eliminating manual re-entry
- Mobile Approval Workflow - Review, annotate and approve SARs on-the-go with biometric authentication
- Outcome Tracking - Track post-filing results to continuously improve detection accuracy and measure compliance ROI

IMPLEMENTATION



ANY OTHER COMMENTS SOLUTIONS

Differentiation statement – Most AI SAR tools generate text but offer no transparency. Explicitly state that your interactive audit trail (click any sentence → see source data) is a first-of-its-kind feature in compliance automation.

Human-in-the-loop emphasis – Regulators are skeptical of full automation. Stress that your system augments analysts rather than replacing them. The AI drafts, the human approves. This framing is critical for regulatory acceptance.

ROI numbers – Include these on the slide:

- Time per SAR: 5.5 hrs → 50 mins (80% reduction)
- Annual saving for large bank: ₹1.08 crore net
- Payback period: 4-5 months
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Risk mitigation callout – Mention that hallucination risk (AI making up facts) is addressed by mandatory human review and confidence scoring that flags uncertain statements. This proactively answers a question judges will definitely ask.

Demo Video link:- <https://youtu.be/fm3OLIW1log>

THANK YOU