

1.0 Executive Summary: From Manual Bottlenecks to Digital Velocity

StratCol operates at the heart of the Southern African payments infrastructure, processing PASA-approved debit order mandates across four nations. However, the current client onboarding process is a manual-intensive linear chain—relying on sequential hand-offs between Account Executives, Administrative staff (AE), and Risk Managers.

This architecture blueprint outlines the technical strategy to replace this “16-step manual chain” with an **Event-Driven Onboarding Engine**. By leveraging **Inngest** for durable orchestration and **Vercel AI SDK 6** for intelligent FICA analysis, we will transform onboarding from a reactive administrative burden into a proactive, 24/7 automated funnel that integrates directly with the V24 core.

2.0 The Core Architectural Principle: The “V24 Sidecar.”

The new Next.js application will act as an intelligent “sidecar” to the existing V24 system. It does not replace V24’s core ledger functionality; rather, it handles the messy, asynchronous reality of client data gathering, FICA verification, and risk assessment *before* cleanly injecting the approved client into V24.

The Tech Stack:

- **Orchestration (Inngest):** Manages the long-running state of an application (e.g., waiting 3 days for a client to upload bank statements) without timing out.
- **Intelligence (Vercel AI SDK 6):** Standardises the analysis of unstructured FICA documents (Bank Statements, Accountant Letters) into structured JSON data for risk scoring.

3.0 The Automated StratCol Workflow

The architecture maps directly to StratCol’s 4-Stage “To-Be” process.

3.1 Stage 1: The “Zero-Entry” Application (Lead Engagement)

Instead of sending a blank PDF, the Account Executive (AE) enters the Registration Number and Mandate Type into the Next.js Control Tower.

- **Automation:** An Inngest function triggers. It fetches publicly available company data (CIPC lookup) and pre-fills the **Facility Application**.
- **Output:** The client receives a pre-filled digital envelope (via DocuSign/HelloSign) for signature.

3.2 Stage 2: The “Paperwork Cascade” (Contracting)

The return of the signed Facility Application is the “Trigger Event.”

- **Auto-ITC:** Inngest immediately triggers a serverless function to run an ITC Credit Check using the credentials from the signed app.
- **Dynamic Quotation:** Simultaneously, the system generates the Quotation based on

the selected Mandate volume.

- **The Contract:** Once the Quote is signed, Inngest generates the Final Contract and requests specific FICA documents (3 months' bank statements and an Accountant Letter).
- **Value:** No data re-keying. The "Company Name" typed in Stage 1 is the same string used in the Final Contract.

3.3 Stage 3: The "Digital Forensic Lab" (Risk & FICA)

This is the core replacement for the manual "AE Review."

- **Ingestion:** The client uploads documents to the secure portal.
- **AI Verification (Vercel AI SDK):**
 - **Bank Statements:** The AI scans for "dishonoured payments," "cash flow consistency," and matches the Account Number to the Facility App.
 - **Accountant Letter:** Verifies the letterhead authenticity and the standing of the business.
- **The Risk Manager (Human-in-the-Loop):** If the AI Risk Score is low (Green), the application might fast-track. If Medium/High (Amber/Red), Inngest pauses the workflow and alerts the Risk Manager. The Risk Manager sees the AI's highlighted concerns side-by-side with the document in the Next.js Dashboard.

3.4 Stage 4: Activation & V24 Injection

Upon final approval:

- **V24 Sync:** A Node.js worker executes a **CREATE_CLIENT** transaction into the V24 SQL database/API.
- If a client requires two weeks to upload their FICA documents, the Inngest workflow will pause and remain dormant, consuming no server resources during this waiting period.
- **Welcome Pack:** The client automatically receives credentials and links to the training scheduler.

4.0 Technical Implementation Strategy

To achieve this without legacy iPaaS tools, we use the **Inngest + Next.js** pattern.

Requirement	Implementation Strategy
Durability	If a client requires two weeks to upload their FICA documents, the Inngest workflow will pause and remain dormant, consuming no server resources during this waiting period.

ITC Checks	Wrapped in Inngest “Retries.” If the ITC bureau API is down, the system retries automatically for 4 hours before alerting an AE.
FICA Review	Vercel AI SDK <code>generateObject</code> . We enforce a Zod schema to extract { <code>averageDailyBalance: number, dishonours: number</code> } from PDF dumps.
Audit Trail	Every step (Quote Sent, ITC Passed, Risk Approved) is logged as an Inngest Event, providing a compliant audit trail for PASA/FICA.