

# Tusshar Kalra

Lead Solution Architect · AI & Agentic Systems · Banking Transformation

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## PROFESSIONAL SUMMARY

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Lead Solution Architect with 26 years in banking technology across Europe and Asia, specialising in lending, credit origination, KYC, and anti-financial crime at Tier 1 banks. Sole architect for the Lending domain at Länsförsäkringar Bank since 2023, owning the end-to-end architecture of the NOVA Credit Origination System on Appian - 200,000 annual transactions across seven lending products under DORA, EBA, GDPR and PCI-DSS. Previously Senior Solutions Architect in Swedbank's Anti-Financial Crime unit on the Next Generation KYC programme, including the integration architecture connecting case orchestration to transaction monitoring, sanctions screening and customer risk classification. Founder of Swedbank's PEGA Centre of Excellence. Earlier Tier 1 programme delivery across Lloyds Banking Group, ANZ, BNP Paribas and HSBC.

Beyond day-to-day banking architecture, I have independently designed, built and operate Nexus - a production multi-agent AI system running 24/7 on self-managed infrastructure. Five specialist agents across five foundation-model families with two-deep cross-provider fallback, eight scheduled workflows, an 18-layer security posture across five concentric trust zones, and an autonomous closed-loop upgrade pipeline that completed its first live production upgrade in May 2026. Four regulator-anchored case studies published at tussharkalra.com map to DORA Article 28, AMLR Article 42, PSD3 and AI Act Annex III. The combination of senior banking domain depth with hands-on production agentic AI is the profile banks and consultancies are hiring for in 2026 AI transformation seats.

## AGENTIC AI PORTFOLIO - NEXUS

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*Production multi-agent system designed, built and operated solo on self-managed infrastructure since 2025. Live at tussharkalra.com.*

- Five-agent multi-tier orchestration coordinated by Nexus as Tier 1 supervisor with intent classifier and capability-typed dispatch - Newton (swarm-capable research with parallel verifier children), George (coding), Hermes (trading intelligence), Leonardo (creative plus deterministic render), with Claude Code integrated via Agent Communication Protocol. Five distinct foundation-model families at primary tier (Qwen, Kimi, DeepSeek, Mistral/Devstral, Gemma) with two-deep cross-provider fallback - zero single-vendor lock-in.
- Eight scheduled workflows running unattended - morning briefing, research sweeps, market monitoring, nightly backtests, weekly digests - coordinated by a 19-category nightly maintenance regime spanning task hygiene, database maintenance, agent health, credentials, MCP health, browser stack, cost tracking, VPS OS, and a meta-monitor watching the regime itself. Cron LLM hygiene refactor split Tier 1 work into composer plus cheap-model narrator plus assembler pattern, reclaiming approximately 132,000 LLM-seconds per week.
- Built an autonomous closed-loop auto-upgrade pipeline: nightly detection → seven-gate preflight → sandbox boot test → snapshot → install → gateway restart with health wait → three-tier regression battery → six-hour post-upgrade observation watcher with two-strike auto-rollback. Atomic rollback at every sub-step. Force-fail validated across snapshot, install, restart, regression and watcher paths. First real-world live production upgrade completed clean in May 2026 - the platform's first autonomous closed-loop subsystem.
- Eighteen security controls across five concentric trust zones - UFW deny-incoming with fail2ban and SSH key-only at perimeter; loopback-only gateway bind, token auth, prompt-injection detection, Telegram allowlist and DM-only enforcement at gateway; per-agent session-state isolation with denied-tool policies for small models at application; mode-600 secrets, no hardcoded credentials, nightly integrity checks at state; paid-API fallback discipline plus observer-based daily spend hard cap at agent layer. Documented as a public case study with a bank-LLM deployment translation table.
- Fallback watcher with 429-versus-idle classifier preventing false-recovery flapping when cloud models throttle. Six audit tables capturing agent health, model failovers, cron runs, upgrade history, active tasks and retry attempts. Balance poller for paid-provider spend drift. Concurrency manager honouring the three-slot Ollama Cloud Pro ceiling via semaphore on the active-task table.
- MCP-native integrations across Tavily, Firecrawl, Notion direct API, SuperMemory, Groq Whisper, Gmail and Calendar OAuth. Browser stack for SPA-gated regulatory and careers portals - Playwright MCP plus system Chrome plus patchright stealth, per-agent profile isolation, accessibility-tree-first snapshots. Brand-consistent PDF delivery via WeasyPrint (deterministic Python, zero LLM in render path) for research reports, sweep digests and outbound documents.

- Four published regulator-anchored case studies at tussharkalra.com mapped to live Tier 1 regulatory drivers - Telegram gateway security as the operational pattern for internal bank LLM deployments, multi-model orchestration under DORA Article 28 (ICT third-party concentration risk), agentic KYC under AMLR Article 42 with BORIS beneficial-ownership-register integration, and agentic lending under PSD3 plus AI Act Annex III plus CCD2.

## PROFESSIONAL EXPERIENCE

### Lead Solution Architect - Lending

Apr 2023 – Present

*Länsförsäkringar Bank, Stockholm · Loan Modernization Programme · Appian BPM*

- Sole architect for the Lending domain, accountable for the end-to-end architecture of NOVA - the bank's new Credit Origination System replacing a 1998-era legacy platform (KRE). NOVA is the first application on LF Bank's strategic BPM platform and the architectural blueprint for every future process application in the bank. Delivered MLR3 (Mortgage Loans + Loan Commitment product lines) and MLR4 (Villa/Vacation Home mortgage plus volume expansion) to production; currently leading remediation and stabilisation across performance, scalability, maintainability and technical debt.
- Authored v2.0 of the NOVA Non-Functional Requirements specification (September 2025) - a 28-page ISO/IEC 25010-aligned architectural standard covering performance, reliability, zero-trust security, maintainability and compliance with GDPR, PCI-DSS, DORA, NIST Cybersecurity Framework and EBA guidelines. Platform sized for 200,000 annual transactions across seven lending products - Villa/Vacation Home mortgages, Tenant-Owned mortgages, loan commitments, unsecured loans, credit cards, overdrafts.
- Owned the integration architecture connecting BPM Bank to the bank's core ecosystem - BaNCs core banking (TCS), DSL Bank services (Tieto/Evry), GEMI authentication, APIP API platform, CSP Customer Service Platform, UC credit bureau scoring, LMV, Capitek KALP affordability. Defined API contracts, authentication flows, latency budgets and data shapes across all of them, including the architectural pattern by which credit-bureau and affordability outputs feed the NOVA decisioning flow.
- Drove the zero-trust authorisation architecture for BPM Bank (JWT/OAuth for customer APIs, SAML SSO with ticket-based role authentication for internal officers, proxy authentication with user-ID traceability for downstream calls); led the architectural response to the Truesec penetration test of NOVA - remediation prioritisation, input sanitisation, context-specific output encoding, file-upload whitelist controls, OWASP Top 10 alignment. Architecting the platform migration from on-premise Appian 25.3 to Kubernetes (first target) with cloud AKS/EKS as strategic target - environment topology across Dev-SIT-ACC-REL-PROD, zero-downtime rollover, regulatory evidence preservation.

### Senior Solutions Architect - Anti-Financial Crime

Aug 2020 – Apr 2023

*Swedbank, Stockholm · Next Generation KYC Programme (NGKYC) · PEGA CLM/KYC*

- Architect for Swedbank's Next Generation KYC platform in the Anti-Financial Crime unit, established in 2019 to rebuild the bank's KYC, AML and sanctions capabilities across retail, private and corporate segments following the Baltic AML investigations. Owned the integration architecture connecting NGKYC to the broader AFC stack - customer master, core banking, sanctions screening, transaction monitoring engines and document archive - and designed the contract between the case orchestration layer and the streaming detection layer: what TM needed to detect cleanly, what case management needed to action a finding.
- Architected the end-to-end PEGA CLM/KYC solution - client onboarding, periodic review, risk classification, customer due diligence, enhanced due diligence for high-risk segments, and continuous monitoring - covering both corporate and private customer journeys. Translated regulatory requirements (4AMLD, 5AMLD, 6AMLD, FATCA, CRS, sanctions screening, PEP/RCA handling) into platform-configurable rules with a governance model that let compliance and legal update regulatory changes without development cycles.
- Delivered the corporate KYC solution to production in 2021; led architecture definition for the private customer KYC solution through its inception phase - case orchestration patterns, ownership-structure handling for complex corporate entities (nominee directors, foundations, cross-jurisdictional veils), workflow routing, segregation-of-duties controls, and audit trails for regulatory examination. Internally recognised as the PEGA architecture authority for the programme.

### PEGA Centre of Excellence Founder & Product Owner

Aug 2018 – Aug 2020

*Swedbank, Stockholm · Enterprise PEGA Platform · SAFe delivery*

- Founded Swedbank's PEGA Centre of Excellence in 2018 - the bank had no prior CoE for PEGA-based initiatives. Stood up the enterprise governance body from zero, built and led a team of 5-10, established the charter, operating model and authority model for architectural standards and reuse governance. Became the internal escalation point for PEGA design decisions across delivery programmes and mentored Lead System Architects across teams.

- Designed and introduced the enterprise Situational Layer Cake architecture for Swedbank - the shared class structure enabling PEGA applications across the bank to reuse data definitions, integrations and business rules while remaining independently deployable. Eliminated duplication across delivery streams and enabled cross-application communication between new PEGA applications and legacy systems. Defined the reuse strategy - shared integration services, reusable components for correspondence, document handling, case routing, audit - reducing per-project development cost.
- Architected Swedbank's PEGA Cloud migration strategy - target architecture, migration patterns, environment topology, security posture, cost model - establishing the blueprint for moving the PEGA estate off on-premise infrastructure. Ran the CoE as Product Owner, owning the CoE backlog, prioritising capability investments by business value, facilitating SAFe ceremonies and representing the CoE to executive sponsors. Certified SAFe POPM.

## PEGA Delivery Lead

Mar 2016 – Aug 2018

Capgemini (on-site at Swedbank), Stockholm · Future Lending Platform · PEGA PRPC

- Delivery Lead for Swedbank's Future Lending Platform programme - the PEGA-based Credit Origination System replacing legacy lending workflows across the bank's unsecured consumer lending and mortgage products. Accountable for end-to-end delivery from requirements through production handover as the primary Capgemini delivery point to Swedbank stakeholders. Established and led Capgemini's offshore PEGA development centre in Kolkata supporting the Swedbank programme, scaled to approximately 50 seats.
- Delivered FLP to production for Blanco, Swedbank's unsecured consumer loan product, as the programme's first go-live - publicly reported by Swedbank and Pega as achieving over 80% reduction in end-to-end processing time with 65% of consumer loans receiving an instant response. Continued leading delivery of mortgage product lines (Mortgage MVP, Mortgage More, Mortgage New) in active development at point of role transition; introduced build standards, peer and lead code review gates, PEGA Best Practices checklists, and guardrail enforcement.

## EARLIER CAREER

- **Delivery Manager** · Wipro Technologies, Bangalore · Jul 2013 – Mar 2016 - End-to-end delivery of two parallel Tier 1 PEGA engagements - Lloyds TSB's Integrated Credit Risk System (UK) and ANZ Bank's customer and account service workflow platform across APAC.
- **BPM Project Manager** · Virtusa Consulting, Hyderabad · Sep 2012 – Apr 2013 - PEGA PRPC engagements from Hyderabad offshore - BNP Paribas PEMSAs payment exceptions and Corner Banca (Switzerland) case and workflow management.
- **IT Project Manager** · HSBC Software Development India, Pune · Oct 2007 – Aug 2012 - PEGA-based workflow and case management for HSBC Global Banking & Markets trade finance - Supplier Invoice Finance, Receivables Finance, Loan Application - plus enterprise operational workflows.

## CORE SKILLS

**Architecture & Banking Domain** Appian BPM · PEGA PRPC and CLM/KYC · Kubernetes (OpenShift, AKS, EKS) · Cloud migration · Lending and credit origination · KYC, AML, CDD/EDD · Digital onboarding · Sanctions and PEP/RCA screening · Core banking (BaNCs, DSL Bank)

**AI, Decisioning & Agentic Systems** Multi-agent orchestration · LLM integration (Claude, Qwen, Kimi, DeepSeek, Gemma, GLM, MiniMax) · MCP-native tooling · Agent Communication Protocol (ACP) · Capability-typed dispatch · Production agent hardening · Architect-level integration into ML scoring and transaction monitoring engines

**Security & Compliance** Zero-trust architecture · OAuth/JWT · SAML SSO · GDPR · PCI-DSS · DORA (Articles 8, 28) · EBA · NIST CSF · ISO/IEC 25010 · OWASP Top 10 · AMLR · PSD3 · CCD2 · AI Act (Annex III) · Penetration-test remediation

**Delivery & Leadership** SAFe · Agile/Scrum · Product Ownership · Centre of Excellence founding · Multi-vendor programme coordination · Stakeholder management at C-suite and Chief Architect level

**Technical** Python and Node.js (daily, Nexus build) · SQL · Unix/Linux · Docker · Nginx · REST/OpenAPI · CI/CD · Git · systemd · Cloudflare Workers · Architectural fluency in Java, Kotlin and Scala (not daily-coder level)

**Certifications** SAFe POPM (Scaled Agile Product Owner / Product Manager) · PEGA PRPC Certified System Architect · Diploma in Computer Software Technology (ET&T, Govt. of India) · CADRe E-Commerce (Radiant Software) · Brain Bench JAVA 2.0 / HTML 4.0 / ASP 3.0 · AI for Everyone (DeepLearning.AI)

**Training & Courses** Microsoft Azure Fundamentals · Microsoft Azure Solutions Architect Expert · PEGA PRPC Business Architect Essentials 7.1 · PEGA PRPC Foundation 7.1 · SAFe for Architects (ARCH)

**Education** Bachelor of Commerce - Nagpur University, India (2000)

**Languages** English (fluent, native professional) · Hindi (native)

**Work Authorisation** Swedish citizen · EU/EEA work rights · Available for roles in Sweden, the Nordics, EU, UK and selected international markets