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Enterprise AI & Agentic Systems Architect

Forward-Deployed AI | Enterprise Architecture | Multi-Agent Platforms | Regulated Banking | AWS, Google Cloud & Azure

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Executive Profile

I am an Enterprise AI and Agentic Systems Architect whose career spans distributed systems, AI/ML and regulated-banking transformation. I work forward-deployed with executives, product owners and engineering teams, taking ambiguous problems from discovery through executable vertical slices, design authority, production release and service operation.

My current responsibility spans a shared Agent Platform, Knowledge and Context Layer, and six AI transformation programmes at a Tier-1 UK bank. Earlier production delivery includes agent platforms and enterprise operations for Australian banking on AWS and Google Cloud, together with an Azure-native enterprise knowledge platform.

I define agent topology, decision authority, context and data boundaries, identity, evaluation, release controls and operational ownership. Where an outcome must be reproducible, policy rules, calculations and classical ML retain decision authority; models support extraction and synthesis while consequential decisions remain with accountable people.

Architecture and Domain Scope

- **Enterprise AI Architecture:** Business and technology architecture, target-state and transition design, platform operating models, architecture decisions, investment cases and value realisation.
- **Forward-Deployed Delivery:** Executive and user discovery, executable vertical slices, systems integration, production assurance and service operation.
- **Agent Systems:** Agent topology and orchestration, tool and service contracts, replayable case state, memory and retrieval, and bounded retry, fallback and escalation.
- **Regulated Banking:** Commercial credit, financial crime, fraud and scams, trade surveillance, operational risk, Risk and Control Self-Assessment (RCSA), SOX/ICFR, audit, payments, legal and servicing.
- **Risk and Control:** Model risk, human decision rights, identity and data boundaries, privacy and security testing, rollback, incident response and operational resilience.
- **Multi-Cloud Platforms:** Architecture and operating controls across AWS, Google Cloud and Microsoft Azure, spanning platform, data, security, integration and reliability.

Hands-on Delivery

- **Reference Implementation:** Build Python/FastAPI reference services when executable proof is the fastest way to retire architecture risk. REST/OpenAPI, Model Context Protocol (MCP) and Agent2Agent (A2A) adapters propagate source entitlements and workload identity and return explicit no-result, conflict, timeout and error outcomes.
- **Executable Proofs:** Convert uncertain decisions into thin, production-relevant vertical slices using representative data and real interface contracts, then hand them into delivery with acceptance criteria, dependencies and named owners.
- **Production Readiness:** Define release criteria, canary and rollback controls, idempotency, unknown-outcome handling, execution receipts, independent postcondition verification, telemetry, incident response and human decision boundaries.

Technology and Delivery Depth

Agent and Cloud Platforms: Google Cloud Vertex AI and Agent Development Kit (ADK); AWS Bedrock and SageMaker; Azure OpenAI; LangGraph; MCP; A2A.
Knowledge and Data: BigQuery; Azure AI Search; GraphRAG; Neo4j; Kafka; vector search; enterprise data lineage.
Platform Engineering: Kubernetes; Terraform; REST/OpenAPI; Git; CI/CD; private networking; service observability.
Security and Reliability: IAM and workload identity; mTLS and encryption; prompt-injection testing; golden, negative and adversarial evaluation; canary, rollback and incident response.

Architecture, Evaluation and Operating-Control Deliverables

Architecture Decision Set: Trade-offs, system boundaries, non-functional requirements, acceptance criteria, owners, dependencies and review conditions.
Agent and Tool Contract Pack: Schemas, actor/subject/purpose binding, freshness, idempotency, timeout, unknown outcomes, receipts, verification and compensation.
Evaluation and Release Pack: Golden, negative, adversarial and trajectory tests; thresholds, regression, canary, rollback and risk-based human review.
Operating-Control Pack: Decision rights, model registry and risk assessment, privacy, cybersecurity and compliance reviews, input/output guardrails, risk-based human review, service levels, incident response and emergency disablement or kill switch.

Selected Flagship Delivery

Selected programmes were delivered through cross-functional platform and programme teams; each Role statement describes my direct responsibility.

Enterprise Platforms, Knowledge and Relationship Banking

1. Relationship Manager Assist | Path to Production | Commercial Banking | Google Cloud and Microsoft 365

Role: Designed and authored the orchestration, identity, connector, evidence, evaluation and failure-handling decisions through design-authority review, executable vertical slices and path-to-production planning.

Architecture: A bank-owned root orchestrator built with Google ADK invokes CRM, performance, risk, Microsoft 365 and public-company services. Subject and workload identities remain separate; source entitlements are enforced before context assembly; outputs include citations, freshness, gaps and explicit no-result or conflict outcomes.

Impact: Designed to produce a cited relationship-manager brief in under 15 seconds and return one to two hours of capacity per relationship manager each week.

2. Enterprise Agent Fabrics | Production in Australia | Path to Production in the UK | AWS and Google Cloud

Role: Led platform architecture and production delivery across retail and commercial banking, operational risk, fraud and scams, legal, strategy, marketing, payments and customer operations.

Architecture: Separated shared platform services, reusable domain capabilities and journey orchestrators through versioned interfaces, scoped identities, common evaluation and independent release ownership across AWS and Google Cloud.

Impact: Measured programme reuse exceeded 90% at the foundation layer, was approximately 70% at domain level and 40-60% at process level.

3. Enterprise Knowledge and Context Layer | Path to Production | Shared Platform | Google Cloud

Role: Led the multi-criteria option assessment and sensitivity analysis, defined publication and retrieval boundaries, and took the selected design through a six-week executable vertical slice.

Architecture: A federated graph, vector, structured and live-source design publishes governed knowledge objects before purpose-bound context assembly. Ownership, entitlement, quality, provenance, freshness and effective dates are validated at publication rather than inferred during retrieval.

Impact: The vertical slice validated publication, identity and retrieval contracts end to end; shared services are designed to shorten new-use-case onboarding by 25-40%.

Credit, Lending and Financial Crime

4. Commercial Credit Memo Automation | Production | Commercial Credit | AWS

Role: Led architecture and productionisation, defined structured evidence and exception interfaces, and aligned private access, reviewer queues and operating controls with the credit process.

Architecture: 21 specialist agent and service components are organised into five families covering extraction, financial spreading, benchmarking, risk analysis and memo drafting. Arithmetic, cross-footing and reconciliation checks quarantine rejected tables before narrative generation; credit approval remains human-owned.

Impact: Comparable production benchmark: similar implementations reduced initial draft preparation from 6-8 hours to 2-3 hours, a 60-65% reduction, across several hundred memos per month.

5. Credit Underwriting and Refer-Back | Path to Production | Credit | Google Cloud

Role: Defined the model-versus-policy boundary, evidence and connector interfaces, abstention behaviour, reviewer gate and release criteria.

Architecture: The deterministic credit engine remains authoritative; a smaller language model handles residual evidence synthesis only. The service follows a gather-normalise-ground-propose-review-gate flow with private connectivity, abstention and independent review before the underwriter decides.

Impact: Release criteria set evidence assembly at under one minute; capacity modelling indicates more than 100 underwriter hours can be released per month.

6. KYC Document Verification and Scoring | Production | KYC Operations | AWS

Role: Productised the service pattern, defined API and output interfaces, validation and acceptance gates, and the human QA workflow required for production registration.

Architecture: An AWS-hosted service combines OCR/ICR, page and token classification, scoring APIs, deterministic output checks and human quality assurance. Low-confidence or inconsistent results route to review rather than straight-through processing.

Impact: Following a 10,000-document PoC, the operating design was sized for straight-through verification of 60% of matched IDs against an estimated 8% manual-QA error baseline.

Selected Flagship Delivery, Continued

Credit, Lending and Financial Crime

7. Cross-Border Due Diligence | Production | KYC, AML and Sanctions | Multi-Cloud

Role: Led the reusable specialist-capability and reviewer-workbench design, including effective-date handling, evidence retention, conflict routing and explicit human disposition.

Architecture: A specialist workbench combines KYC, AML, sanctions, PEP and adverse-media checks through entity and ownership graphs, jurisdiction and source provenance, list-version controls and a replayable investigation case state.

Impact: The operating design anticipates 30-50% faster case assembly while preserving independent analyst sign-off for every potential match and final disposition.

Risk, Controls, Audit and Assurance

8. Assisted Risk and Control Self-Assessment (RCSA) | Pilot | Operational Risk | Enterprise Platform

Role: Defined the agent workflow, source and tool interfaces, evidence synthesis, reviewer boundaries and pilot outputs using current ratings and controls with open issues, active indicators and recent incidents.

Architecture: Risk, rating, control, issue, indicator and incident services assemble a risk-exposure report, evidence appendix and guided 5-by-5 rating proposal without replacing first- or second-line interpretation and acceptance authority.

Impact: The pilot business case indicates 50-70% less evidence and report preparation effort during the annual assessment cycle.

9. Regulatory Change Intelligence | PoC | Regulatory Change and Second-Line Compliance | Enterprise Platform

Role: Designed the comparison and obligation-mapping workflow, source-to-change traceability, exception handling and second-line review boundary; Compliance retains interpretation, applicability and implementation authority.

Architecture: A source-linked, line-by-line comparison detects additions, edits and deletions. The taxonomy is Mandates, Sub-Mandates and Obligations; each source change is mapped to an impact candidate and marked-up workbook.

Impact: The prototype is designed to reduce first-pass comparison and artefact-preparation effort by 50-70%, with traceability from each source change to its proposed control impact.

10. Continuous Cloud Control Assurance | PoC | Cloud Security and Audit | Google Cloud

Role: Defined benchmark ingestion, control-to-test mapping, execution, evidence and reporting, including least-privilege identities, version control, exception routing and reusable policy-as-code boundaries.

Architecture: Approved CIS Google Cloud Foundation Benchmark controls are converted into versioned, sandboxed checks without write access over cloud inventory and security findings. Outputs include evidence-linked workpapers, judgement queues and auditor sign-off for cases requiring judgement.

Impact: Designed to provide continuous coverage of automatable controls while judgement-based controls remain in governed review queues.

11. Internal Control over Financial Reporting (ICFR) and Audit Intelligence | Production Scale-Up | Finance, Controls and Internal Audit | Multi-Cloud

Role: Defined evidence interfaces, reviewer queues, decision boundaries and release controls across the first, second and third lines of defence, keeping design adequacy, evidence sufficiency, exceptions and audit judgement human-owned.

Architecture: A common evidence model separates document extraction, deterministic control checks and drafting for SOX/ICFR. A reproducible audit workbench adds anomaly detection, explainability and model-bias testing with cited workpapers and stable feature pipelines.

Impact: Production scope covers more than 300 audits annually; the business case estimates 40-60% less control documentation effort and approximately 40% lower fieldwork time for suitable procedures.

Data, Software Engineering and Migration

12. Agentic Test Migration Factory | Production | Software Engineering | Google Cloud

Role: Led production-path architecture, specialist topology, conversion and quality interfaces, repository gates, acceptance criteria and operating controls for a migration that could not be treated as bulk code generation.

Architecture: Specialist services analyse dependencies, convert Tricentis Tosca tests to Playwright and score quality. Deterministic code and repository checks run before pull request; CI telemetry and quarantine are applied; human approval remains mandatory before merge.

Impact: Across a production scope of 55,000+ tests, the operating model is sized for 60-70% first-pass conversion and 35-50% lower migration effort.

Selected Flagship Delivery, Continued

Data, Software Engineering and Migration

13. Pipeline Pulse, TestGenie and Data Knowledge Navigator | Production | Cloud Migration, Data Quality and Lineage | AWS

Role: Built the first Pipeline Pulse and TestGenie vertical slices in roughly two to three weeks, demonstrated them to programme leadership and led productisation with Data Knowledge Navigator.

Architecture: Pipeline Pulse provides migration diagnosis and cutover evidence without write access. TestGenie converts S2T specifications into SQL/PySpark tests with static, sandbox and CI gates. Data Knowledge Navigator exposes catalogue, lineage and impact operations with entitlement, owner, provenance, freshness and explicit gap handling.

Impact: Supported a 61,000+ pipeline programme; operating ranges indicate 25-40% faster diagnosis, 50-70% less manual test authoring and 30-50% faster discovery and impact analysis.

Documents, Legal, Payments and Customer Operations

14. Trust-Deed Investigation and Legal Case Pack | Controlled Production Pilot | Legal and Credit Risk | AWS

Role: Led case-state, extraction, reconciliation and human-review architecture, aligned AWS retrieval and model-routing services with legal-review controls, and kept pilot cases outside lending decisions.

Architecture: A ServiceNow-embedded workbench extracts and reconciles parties, powers, restrictions, dates and inconsistencies across documents into a source-linked legal case pack. Confidence routing, encryption, tracing and identity controls precede mandatory legal review.

Impact: Annual scope covers 6,000+ investigations, with a five-minute response design and a business-case estimate of up to AUD 1.4 million plus AUD 0.2 million in annual savings at scale.

15. Authorised Transaction Disputes and Compliance Monitoring | Production | Payments and Conduct | AWS

Role: Shaped the controlled production release, risk-routing and review boundaries, validation criteria, operational dashboards and rollback path so automated monitoring prioritises rather than replaces compliance judgement.

Architecture: Transaction-dispute interactions are scored for conduct and compliance risk with privacy and identifier scrubbing, explicit customer notice, model validation, transcript labelling, adversarial tests and rollback gates. Interactions with elevated risk route to human QA within T+1.

Impact: The scale-up design anticipates 30-50% less manual sampling while concentrating reviewer capacity on interactions with elevated risk.

Reusable Architecture Patterns

1. **Layered Agent Fabric:** Shared platform primitives, domain capabilities and journey orchestrators use separate interfaces, evaluation packs and release ownership.
2. **Deterministic Decision Authority:** Policy rules, calculations and approved classical ML remain authoritative where decisions must be reproducible; foundation models cannot overrule policy verdicts.
3. **Minimal Replayable Case State:** Bounded state is reconstructed from authoritative events rather than accumulated conversation history, preserving replay, expiry and auditability.
4. **Independent Trajectory Evaluation:** An evaluator isolated from self-assessment tests tool choice, state transitions, stop conditions, escalation, evidence and policy compliance across the execution path.
5. **Least-Privilege Tool Contracts:** Every tool call binds actor, subject, purpose and short-lived permissions; timeout, unknown-outcome handling, idempotency, receipts and compensation are explicit.
6. **Evidence-Linked Generation:** Material claims include citation, provenance, freshness, gaps and conflicts; unsupported content is blocked and consequential actions require human approval.
7. **Independent Postcondition Verification:** After consequential execution, the resulting state is verified through an independent read path before success is declared.

Broader Domain Portfolio at a Glance

1. Platforms & Knowledge | 2 Additional Use Cases

Azure Knowledge and Learning (Production, Microsoft Azure); **Microsoft 365 Enterprise Copilot** (PoC, Microsoft Azure)

2. Credit & Lending | 8 Additional Use Cases

Mortgage Processing (PoC, AWS); **Annual Review and Covenants** (PoC, Google Cloud); **Financial Coach** (PoC, AWS); **Collections Prevention and Treatment** (Pilot, AWS); **Spending Intelligence** (PoC, Google Cloud); **Credit Bureau Hybrid RAG** (PoC, Google Cloud); **Lending Origination and Credit Assist** (Path to Production, AWS); **Vehicle Finance and Remarketing Journey** (Pilot, AWS)

3. Financial Crime & Surveillance | 6 Additional Use Cases

PEP Identity Investigation (Pilot, Google Cloud); **Fraud and APP Scam Detection** (PoC, AWS); **Perpetual KYC, AML and Sanctions** (PoC, Multi-Cloud); **Trade Surveillance** (Pilot, Google Cloud); **Conduct Investigations** (PoC, Google Cloud); **ScamCheck Messaging Detection** (Path to Production, AWS)

4. Risk, Controls, Audit & Trust | 11 Additional Use Cases

Control Evidence and Outcome Testing (PoC, Multi-Cloud); **Identity and Privileged-Activity Assurance** (PoC, Enterprise Platform); **Regulatory Obligation-to-Control** (PoC, Enterprise Platform); **AgentOps and AI Governance** (PoC, Multi-Cloud); **Consent and Preference Evidence** (PoC, Multi-Cloud); **Privacy Regulation-to-Policy** (PoC, Multi-Cloud); **ESG and Climate Risk Intelligence** (PoC, Microsoft Azure); **Incident Management and Incident-to-Risk** (Pilot, AWS); **Continuous Third-Party Risk Monitoring** (PoC, Enterprise Platform); **Regulated Advice Boundary Guardrail** (Pilot, Enterprise Platform); **AI Model Risk and Mitigation Profiler** (PoC, Enterprise Platform)

5. Data & Engineering | 5 Additional Use Cases

Data Product, Lineage and Quality Studio (PoC, Google Cloud); **Enterprise Document Intelligence** (Production, Multi-Cloud); **Cloud Migration Assurance** (Production, AWS); **Conversational Agentic BI** (PoC, Google Cloud); **AI Transaction Reconciliation** (PoC, AWS)

6. Customer & Operations | 7 Additional Use Cases

Customer Financial Coaching (Path to Production, Google Cloud); **Investment Support Assistant** (Pilot, Google Cloud); **Customer 360 and Colleague AI** (Pilot, Multi-Cloud); **Chargeback Evidence Automation** (Production, Multi-Cloud); **Bereavement Servicing** (Production, Multi-Cloud); **Customer Journey KPI Command Centre** (Production, Enterprise Platform); **Customer Interaction Summarisation and Guardrail Review** (Pilot, AWS)

7. Document & Legal | 3 Additional Use Cases

Fund and Sponsor Document Intelligence (PoC, AWS); **Legal Contract Intelligence** (PoC, Microsoft Azure); **Credit Agreement Review** (Pilot, Multi-Cloud)

Professional Experience

Enterprise Architect, Agentic AI | Lead, Elite Engineering | HCLTech, Bengaluru | Apr 2024-Present

- Lead enterprise architecture and delivery shaping on Google Cloud for six AI transformation programmes at a Tier-1 UK bank, from discovery and executable vertical slices through design-authority approval and path to production.
- Author architecture decisions approved by the bank's CTO design authority for the shared Agent Platform, Knowledge and Context Layer, development lifecycle, evaluation, security and cross-cloud integration.
- Earlier in the role, led production agent-platform delivery for Tier-1 Australian banking clients on AWS and Google Cloud, taking shared foundations and domain capabilities into retail, commercial and enterprise operations.
- Provide practice leadership for a 100+ engineer community across agent platforms, data engineering, evaluation and production assurance, including capability development, solution assurance, staffing and delivery governance.
- Partner with executive and senior functional leaders across technology, finance, AI, model risk, compliance, security and engineering to sequence investment, close control dependencies and govern release decisions.

Doctoral Researcher | Management Development Institute, Gurgaon | 2019-Present

Manager, AI/ML & Enterprise Analytics | TeamLease Digital, Bengaluru | 2018-2019

- Established AI/ML and enterprise-analytics capability for predictive hiring, attrition forecasting and workforce planning, working across data-science and engineering delivery.

Summer Associate, AI/ML & Advanced Analytics | Genpact, Gurgaon | 2017

- Developed predictive models and ML pipelines for financial-services and insurance use cases, including customer segmentation and risk scoring.

Lead Engineer, Enterprise Systems & Architecture | HCL Technologies, China and APAC | 2010-2014

- Designed and delivered distributed enterprise systems, APIs and high-throughput transaction-processing platforms for banking, telecom and manufacturing clients across China and APAC.

Education

Doctoral Programme: Management Development Institute, Gurgaon | 2019-Present
MBA: XLRI, Xavier School of Management, Jamshedpur | 2016-2018
B.Tech, Information Technology: KIIT University, Bhubaneswar | 2006-2010