

Archie

Origins & Validated Enterprise Use Cases — Enterprise Architecture & SDLC AI Case Study

Purpose of this case study

This document summarizes the development and validation of ideas that later evolved into the Archie product concept. It is intentionally generalized and does not reproduce former-employer internal links, screenshots, proprietary architecture, confidential business data, or internal program details.

1. Context

During 2025, while working as an Enterprise Architect at Adobe, I explored whether emerging document AI capabilities could make Enterprise Architecture and software-delivery knowledge more useful in day-to-day work. The recurring problem was not a shortage of documentation. It was fragmentation: requirements, architecture, process models, standards, test material, and operational knowledge existed in different repositories and formats, while the people making decisions had to reconstruct context manually.

The work began as practical experimentation rather than a product program. Individual proofs of concept were used to test whether AI could improve discovery, reasoning, traceability, architecture preparation, and generation of downstream artifacts without transferring decision accountability from people to a model.

2. Evolution of the Concept

Early 2025 — exploratory use

Applied document AI to real Enterprise Architecture and business-process material to test whether existing enterprise knowledge could be made queryable and analytically useful.

Mid/Late 2025 — validated use cases

Extended the experiments into architecture standards guidance, document-linked diagnosis, Build-versus-Buy support, architecture-review preparation, and generation of downstream SDLC artifacts.

December 2025 — production proposition

Documented a broader architecture-assistance concept intended to connect lifecycle documentation, standards, AI-assisted reasoning, traceability, and governance through a staged implementation.

2026 — generalized product definition

Reframed the underlying ideas independently as Archie: a vendor-neutral SDLC Knowledge & Documentation Assistant suitable for evaluation outside the original enterprise environment.

3. Validated Enterprise Use Cases

Architecture standards guidance

A proof of concept used existing Enterprise Architecture standards material to answer architecture questions, including API versioning and API-led design guidance. The value hypothesis was that standards become more useful when practitioners can interrogate them in the context of a design decision rather than manually locating and interpreting multiple reference pages.

Document-linked reasoning and business-process analysis

AI was applied to existing process documentation to locate relevant process flows, interpret diagrams, compare current and target-state flows, identify actors and business data objects, and answer practical questions posed by business stakeholders. This demonstrated that AI could help convert static architecture/process repositories into working organizational knowledge rather than simply search them.

Build-versus-Buy decision support

An Archie prototype was used to assist a Product Manager considering an internal-product-versus-buy decision. The experiment was not intended to delegate the decision to AI; it tested whether enterprise standards and contextual knowledge could be assembled quickly enough to improve the quality and consistency of the human decision process.

Architecture Review Board preparation

A proof of concept used existing architecture knowledge and a presentation template to generate material for an Architecture Review Board discussion involving agentic AI and MCP. The experiment tested whether AI could reduce the mechanics of review preparation while leaving architectural judgment, challenge, and approval with the review board.

Requirements-to-test artifact generation

A policy document was used as source material for a business requirements artifact, which in turn was used to generate a high-level user-acceptance-test artifact. The experiment tested traceable reuse of trusted upstream information across SDLC stages, reducing repetitive drafting while preserving human review.

4. What the Experiments Demonstrated

- Enterprise AI becomes more useful when it is grounded in governed organizational knowledge rather than treated as a standalone conversational tool.
- Architecture and process artifacts can become active sources of reasoning: users can ask questions, compare states, expose relationships, and derive downstream work products.
- AI can reduce the administrative mechanics surrounding architecture governance, allowing architects and reviewers to spend more time on judgment and trade-offs.
- Traceability to source material is essential for trust. Generated answers and artifacts should be reviewable against the enterprise content from which they were derived.
- Human accountability remains explicit. AI can advise, prepare, compare, and identify potential conformance issues; it should not silently become the approving authority.
- Incremental validation is preferable to a large speculative AI program: prove a useful workflow first, then automate ingestion, synchronization, and broader operational capabilities.

5. Architectural Principles Carried Forward into Archie

Knowledge before automation: Create reliable access to the relevant project and standards knowledge before attempting high-autonomy workflows.

Human accountability: Use AI to accelerate evidence gathering, analysis, conformance checking, and preparation; keep approval and accountability with responsible people.

Standards as living dependencies: Treat standards and reference material as changing sources whose updates can affect multiple projects.

Traceability by design: Preserve citations and lineage from generated output back to source material.

Security and model boundaries: Respect enterprise authorization and prevent protected enterprise content from becoming training material for external/shared models.

Progressive autonomy: Increase automation only after usefulness, technical feasibility, and governance controls have been demonstrated.

6. From Enterprise Experiments to an Independent Product Concept

The 2025 work suggested that the individual experiments shared a common architectural pattern: project knowledge, standards/reference knowledge, AI-assisted reasoning, traceability, and controlled generation of downstream artifacts. Archie is the independent product concept that generalizes that pattern.

The current specification proposes a project-oriented workspace in which SDLC artifacts and applicable standards can be queried together; changes to standards can be detected and surfaced; conformance findings remain advisory; generated artifacts retain traceability; and enterprise content is protected by explicit access, audit, and model-use controls.

Design intent

Archie is not intended to replace architects, engineers, product managers, testers, or governance bodies. Its purpose is to make the knowledge those people depend on easier to find, relate, validate, and reuse - and to automate the mechanics around good decisions without automating away responsibility for those decisions.

7. Current Status

Archie is presently an Openthinka product-definition concept informed by the 2025 experiments. The proposed development approach is deliberately staged: validate a representative workspace manually, introduce repeatable ingestion, add synchronization and change notification, and broaden availability only after value and technical feasibility have been demonstrated.