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# TeamAI 4

PRESENTS

**FLX Genie**

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**"WHERE INTELLIGENCE TAKES FLIGHT"**

# Introducing

## FLX Genie

### Your Personalized Enterprise Intelligence



## PROBLEM STATEMENT

The airline retailing ecosystem, powered by NDC APIs and evolving IATA standards, has grown increasingly complex, fragmented, and airline-specific. While it promises modern retailing capabilities, it introduces significant operational, technical, and organizational challenges across the enterprise.

Today, there is no intelligent, adaptive, context-aware system capable of interpreting evolving NDC schemas, debugging complex offer/order/reshop/exchange flows, or contextualizing large XML/JSON payloads across airline-specific implementations.

This gap is not just technical.

Across the organization, every function is impacted by the complexity of NDC integrations. Business Analysts struggle to translate evolving schemas into clear requirements, while QA and Developers spend excessive time debugging large, brittle payloads without contextual intelligence. Solution Architects face uncertainty in designing scalable, cross-version integrations, and Presales teams lack clarity when committing timelines to partners. Meanwhile, Operations teams deal with slow incident resolution due to manual root cause analysis. Together, this creates delays, inefficiencies, and heavy dependence on tribal knowledge across the enterprise.



## SOLUTION

FLXGenie is an LLM-native enterprise intelligence layer purpose-built for airline retailing and NDC operations. It combines Accelya-trained LLMs and SLMs with private inference on Amazon SageMaker, RAG over NDC schemas and airline-specific customizations, and LangChain-based orchestration to deliver contextual, real-time understanding of complex XML/JSON payloads and retailing flows. Instead of static documentation and manual debugging, FLXGenie provides intelligent payload interpretation, exchange/reshop flow analysis, schema deviation detection, and role-based AI copilots for BAs, QAs, Developers, Architects, Presales, and Operations.

Designed on AWS Well-Architected principles, the platform ensures private, secure, and observable AI adoption with defense-in-depth security, multi-region resilience, and cost-optimized scalability. By embedding AI directly into onboarding, SIT/UAT, integration design, and production support workflows, FLXGenie reduces debugging time, accelerates airline onboarding, lowers MTTR, and transforms fragmented institutional knowledge into a scalable, enterprise-wide retailing intelligence capability.

Think of it as:

"A private ChatGPT for your organization, trained on your internal knowledge, processes, and systems — available 24/7, globally, at a predictable cost."



## AIMS AND OBJECTIVES

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FLXGenie aims to establish a secure, enterprise-grade intelligence layer that transforms how airline organizations access, interpret, and act on their own data. It is designed to embed AI at the core of daily operations—enabling employees to retrieve accurate insights instantly, streamline knowledge access across departments, and accelerate decision-making in modern airline retail environments. The platform ensures that this intelligence operates entirely within the organization's controlled infrastructure, maintaining full data sovereignty and compliance.

# WHERE ENTERPRISE KNOWLEDGE COMES ALIVE."

The objective of FLXGenie is to reduce operational friction and unlock productivity by automating repetitive knowledge work, minimizing dependency on emails and manual coordination, and enabling natural-language interaction with enterprise systems. By positioning the LLM as the operational engine rather than a standalone feature, FLXGenie creates a scalable AI ecosystem where infrastructure, agents, tools, and workflows align around intelligent automation—driving efficiency, agility, and measurable business impact across the airline enterprise.

## Transform How Your Enterprise Thinks, Works, and Delivers

FLXGenie is an enterprise AI platform designed to unlock the full potential of your organization's knowledge.

It empowers employees to:

- Ask questions in natural language
- Get instant, accurate answers from company-specific data
- Automate repetitive knowledge work
- Reduce dependency on emails, tickets, and meetings
- Operate faster – without your data ever leaving your control

**This is not another chatbot.**

**This is enterprise intelligence – operationalized**

Airline retail is evolving — from ticketing systems to dynamic offers, intelligent order management, and real-time settlement.

FLXGenie supports this transformation by:

- Unlocking institutional knowledge trapped in systems and silos
- Enabling faster decision-making across commercial, finance, operations, and retail teams
- Reducing turnaround time for analysis, reporting, and cross-team coordination
- Creating an AI-powered layer across your retail ecosystem

From Offer to Order to Revenue Optimization — intelligence becomes embedded in every step.



# UNIQUE SELLING POINT (USP)

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FLXGenie's core differentiation lies in its domain-trained, multimodal LLM purpose-built for airline retailing. Unlike generic AI systems, it is trained to understand the language, workflows, data structures, and commercial logic of modern airline commerce – including Offers, Orders, Revenue Accounting, Settlement, and NDC-based distribution. It does not merely process text; it understands airline retail context, API schemas, commercial rules, and operational nuances. This deep specialization enables it to deliver precise, context-aware insights that align directly with airline business models.

Beyond intelligence, FLXGenie acts as an orchestration layer. It does not function as a standalone chatbot but as the central operating system of an extensible AI ecosystem. Around the LLM, a dynamic environment of agents and tools emerges – capable of querying NDC APIs, analyzing revenue flows, generating reports, validating configurations, and automating structured workflows. This orchestration capability transforms the platform from a knowledge assistant into an operational engine that can execute tasks, coordinate systems, and streamline retail processes in real time.



We're offering a secure, private AI assistant for our employees that dramatically reduces time spent searching for information, answering repetitive questions, and onboarding new hires. At a cost of under 15\$ per employee per year, we unlock productivity worth several crores annually, while keeping all our data fully private and compliant. This is a foundational AI capability we can build multiple use cases on top of."

This product:

- Pays for itself almost immediately
- Improves employee experience
- Reduces operational drag
- Positions the organization as AI-forward
- Does not compromise security or compliance

If you were buying this, the real question is not:  
"Can we afford this?"

It's:

"Can we afford not to do this?"

# USE CASES

## CODE & DEBUG INTELLIGENCE ASSISTANT



Domain-Aware Code & Debug Intelligence Assistant is an AI-powered debugging solution purpose-built for airline retail systems, combining deep knowledge of NDC schemas (17.2, 21.3, 24.1), Accelya platform logic, trace categorizations, and commercial retail flows with strong hands-on expertise across multiple coding languages and backend architectures. Unlike generic coding assistants, it moves beyond syntax correction to perform semantic and business-aware validation, understanding Offers, Orders, passenger types, fare structures, ancillaries, tax logic, and settlement flows as interconnected retail constructs.



Leveraging fine-tuned large language models with retrieval-augmented generation (RAG) over schemas, trace data, and institutional documentation, the system analyzes code snippets, XML payloads, and error traces to identify root causes, ensure schema compliance, detect commercial inconsistencies, and generate optimized, production-ready corrections aligned with best practices. Designed for seamless integration into IDEs or enterprise portals within a secure architecture, the prototype reduces debugging cycles, minimizes SME dependency, captures tribal knowledge into institutional intelligence, and significantly improves engineering productivity, release velocity, and overall retail system reliability.

### Prompt Example:

Below is the current code/XML snippet that is failing.

Analyze it from both a technical and business logic perspective (including schema compliance and retail flow correctness). Identify the root cause, explain the issue clearly, and provide a corrected, production-ready version aligned with best practices.

# MULTIMODAL QA AGENT



Multimodal QA Intelligence Agent is an AI-driven quality assurance solution designed specifically for airline retail and NDC ecosystems, combining domain-trained retail intelligence with multimodal capabilities to analyze XML payloads, trace logs, API responses, and even screenshots from tools like Postman or SoapUI.

Unlike traditional QA processes that rely heavily on manual validation and repetitive test case creation, this prototype interprets Offer and Order flows, passenger mappings, fare and tax structures, ancillaries, and schema constraints contextually, ensuring both technical compliance and commercial correctness.

Leveraging fine-tuned language models integrated with retrieval-augmented generation (RAG) over schema documentation and historical defect data, it can detect inconsistencies, generate automated test cases, create validation scripts, suggest assertion logic, and identify regression risks proactively.

Unlike traditional QA processes that rely heavily on manual validation and repetitive test case creation, this prototype interprets Offer and Order flows, passenger mappings, fare and tax structures, ancillaries, and schema constraints contextually, ensuring both technical compliance and commercial correctness.

Seamlessly integrating into QA workflows and enterprise environments, the solution reduces manual testing effort, accelerates regression cycles, improves defect detection accuracy, and transforms quality assurance from reactive validation into intelligent, retail-aware automation at scale.

**Prompt:** Analyze the provided OrderViewRS response and identify the booked cabin type (e.g., Economy, Premium Economy, Business, or First). Extract the relevant cabin information from the appropriate XML elements and clearly display which cabin class has been booked for the itinerary.

# ARCHITECTS & BUSINESS CONSULTANTS COMPANION



Business Consultant & Solution Architect Companion is an AI-powered strategic co-pilot designed to support business consultants, solution architects, and product leaders across the full solution lifecycle. Trained on enterprise solutioning frameworks, software architecture principles, AWS services, data analysis methodologies, and product documentation standards, this companion goes beyond generic assistance to deliver structured, industry-aligned outputs.

It can draft BRDs and PRDs, translate business requirements into technical specifications, design HLDs, recommend scalable AWS architectures, generate solution diagrams, support wireframing concepts, and perform data-driven impact analysis. By combining contextual reasoning with architectural best practices and cloud-native design patterns, it bridges the gap between business intent and technical execution. Integrated into consulting and delivery workflows, this prototype accelerates solution discovery, improves documentation quality, enhances architectural rigor, and ensures that ideas move from concept to production-ready design with clarity, scalability, and strategic alignment.

## Prompt Example:

**Act as a Business Consultant and Solution Architect. Convert the following business requirement into a complete solution blueprint including BRD inputs, PRD structure, HLD, AWS architecture recommendations, data flow, and implementation roadmap.**



# BrowserUse SPRK Agent

Browser Automation AI Agent is an intelligent, task-driven automation companion designed to execute complex web-based workflows with human-like reasoning and precision. This AI-powered agent understands context, dynamically adapts to UI changes, handles forms, dropdowns, pop-ups, validations, and session behaviors and process data across web applications.

It generates resilient automation scripts (e.g., Selenium or Playwright logic), and proactively identifies edge cases and failure scenarios. By combining AI reasoning with browser control capabilities, this prototype enhances QA automation, operational workflows, data validation, and repetitive web tasks—reducing manual effort for SPRK UI, improving reliability, and accelerating execution across enterprise environments.



## REQUEST BUILDER

Request Builder Intelligence Agent is a domain-trained AI system designed to convert natural language travel requirements into fully structured, schema-compliant NDC requests with commercial and technical accuracy. Unlike manual request construction, which is complex and error-prone, this agent understands airline retail constructs such as passenger type mapping (ADT, CNN, INF), cabin classes, segment references, fare components, ancillaries, and Offer/Order relationships across NDC versions (17.2, 21.3, 24.1).

It ensures correct element referencing (OfferID, OfferItemID, PaxID, SegmentID), validates schema compliance, and proactively detects logical inconsistencies before execution. By embedding retail intelligence into request generation, the prototype reduces integration errors, accelerates development and onboarding cycles, and transforms NDC request building from a manual technical task into an intelligent, production-ready automation capability.

# OTHER CAPABILITIES

## KEY FEATURES:

Participants will develop and enhance Architecture design recommendations based on historical patterns

Intelligent API contract validation before deployment

Automated test case generation from schema changes

Smart diff engine for release-to-release comparison

Auto-generated solution narratives for proposals

Timeline prediction based on airline complexity index

Centralized knowledge graph of defects, schema changes, and solutions

Multi-airline benchmarking intelligence

## SHOWCASING POTENTIAL:

Highlighting the innovation potential.

## INTELLECTUAL PROPERTY CREATION:

Developing new technologies, products, or services.

FLXGenie becomes a collaborative AI backbone that aligns business intent, technical implementation, quality validation, and operational stability—reducing friction and increasing organizational agility

## NDC ADVANCEMENT:

Predictive impact analysis for NDC version upgrades (e.g., 17.2 → 21.3+)

Pre-integration risk scoring for new airline onboarding.

Effort estimation models for new airline integrations

## FOSTERED INNOVATION:

Cross-team dependency impact mapping  
Support for One Order and future IATA retailing evolution

## STRATEGIC & LONG-TERM CAPABILITIES:

Multi-airline benchmarking intelligence

Retailing maturity scoring model

Continuous learning from production patterns

Support for One Order and future IATA retailing evolution

# HIGH LEVEL DIAGRAM



## HIGH LEVEL EXPLANATION

FLXGenie is deployed within a secure AWS VPC using a defense-in-depth architecture. User traffic first passes through AWS WAF and CloudFront for edge security and content optimization, then reaches an Application Load Balancer that routes requests to a FastAPI backend running in a private subnet. The backend leverages LangChain orchestration to coordinate AI workflows, invoking private LLM inference endpoints hosted on Amazon SageMaker for secure, enterprise-grade AI reasoning.

For contextual intelligence, the system uses an embedding model to convert documents and payload knowledge into vectors, stored in a vector database such as OpenSearch or Pinecone. Supporting documents reside securely in Amazon S3, encrypted using AWS KMS. Secrets Manager handles credentials, IAM enforces role-based access control, and Cognito manages authentication. Observability is achieved through CloudWatch and X-Ray, while a multi-region disaster recovery strategy ensures resilience, scalability, compliance readiness, and high availability aligned with AWS Well-Architected principles.

# STATISTICS

70% LOWER DEBUGGING TIME 01.

100% KNOWLEDGE RETENTION 02.

3X CROSS-FUNCTIONAL PRODUCTIVITY 03.

A STRONG FOUNDATION FOR AI IMPROVEMENTS 04.

ENTERPRISE-GRADE SCALABILITY 05.

AI-DRIVEN RETAILING TRANSFORMATION 06.

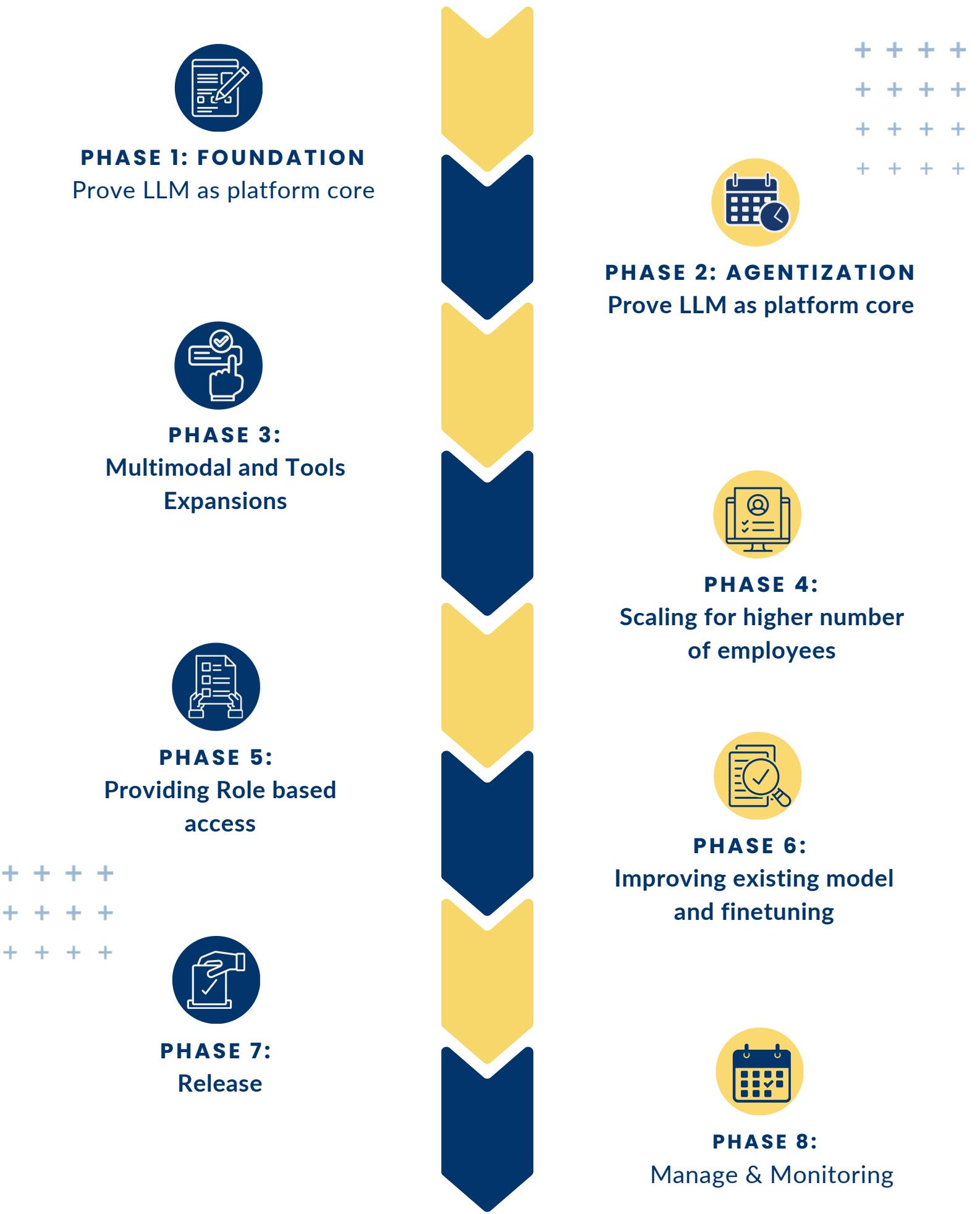
50% EFFICIENCY IN SIT/UAT CYCLES 07.

AUTOMATION SCALING 08.

COST EFFECTIVE 09.



# TIMELINE



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