Legacy IVR System Analysis and Integration Requirement Study

(ASL Project – Infosys Springboard Internship)

1. Introduction

In today's digital enterprise environment, customer interaction systems play a critical role in delivering efficient and seamless service experiences. One of the most widely used customer interaction technologies is the Interactive Voice Response (IVR) system. Many organizations still rely on legacy IVR systems built using Voice XML (VXML), which were designed during earlier stages of enterprise telecommunication development.

However, with the rapid evolution of cloud computing, API-based integrations, AI-driven automation, and scalable enterprise platforms, legacy IVR systems face several limitations. These systems often lack flexibility, scalability, and compatibility with modern enterprise service platforms.

The primary objective of this project is to analyze an existing legacy VXML-based IVR system and define the technical and functional requirements necessary to integrate it with modern enterprise platforms such as ACS and BAP.

2. Project Objectives

- Study the architecture of the existing VXML-based IVR system
- Analyze current call flow logic and backend connectivity
- Identify integration requirements for ACS and BAP platforms
- Evaluate system performance and scalability limitations
- Identify technical challenges and modernization opportunities
- Prepare structured integration documentation

3. Understanding Legacy IVR Systems

Legacy IVR systems are automated telephony systems that interact with callers using pre-recorded voice prompts and user input via keypad or voice commands. These systems are typically built using VXML (Voice Extensible Markup Language).

Key Components:

Telephony Interface – Handles incoming and outgoing calls

VXML Application Server – Controls call flow logic

Database Systems – Stores customer and transaction data

Middleware Integration Layer – Connects IVR with backend systems

4. Existing System Architecture Analysis

This phase involves analyzing call routing mechanisms, menu navigation, voice prompt execution logic, database connectivity, and backend integrations.

5. Integration with Modern Enterprise Platforms (ACS & BAP)

ACS Integration:

- API-based communication
- Real-time call data exchange
- Security and authentication implementation

BAP Integration:
- Business workflow automation
- Customer data synchronization
- Enterprise application connectivity

6. Data Flow Requirements
- Customer input from IVR to enterprise platforms
- Response data from backend systems to IVR
- Real-time transaction processing
- Logging and monitoring

7. Technical Challenges
- Outdated VXML versions
- Limited support for modern APIs
- Performance bottlenecks
- Scalability issues
- Security limitations

8. Gap Analysis
- Lack of cloud compatibility
- Absence of AI-based voice processing
- Limited real-time analytics
- Manual configuration dependencies

9. Modernization Recommendations
- Migration to API-based architecture
- Cloud telephony integration
- AI-based voice recognition and NLP
- Real-time monitoring dashboards
- Enhanced security frameworks

10. Project Deliverables
- System architecture analysis report
- Integration requirement documentation

- Gap and risk assessment report

- Modernization recommendation document

11. Business Impact

- Improved customer experience

- Faster processing

- Better scalability

- Reduced operational costs

- Enhanced security compliance

12. Learning Outcomes

- Enterprise system architecture analysis

- Integration architecture planning

- Requirement engineering

- Technical documentation preparation

13. Conclusion

This project focuses on analyzing legacy VXML-based IVR infrastructure and defining integration strategies for modern enterprise platforms like ACS and BAP. It helps improve enterprise communication efficiency and technology readiness.

Closing Statement:

This project demonstrates the ability to analyze legacy enterprise systems, identify integration requirements, and propose modernization strategies aligned with industry standards.