# FUTURE SEMANTIC OF BANKING ARCHITECTURE

Abstract

The Banking Industry is going through a transformational phase with driving factors like Legacy Modernization, Cloud Adoption, Open Banking, Regulatory Compliances, Rise of FinTech's and Digital Banks. This also brings the challenges in terms of Architecture Standardization, Customization, Partner Integrations, Change Management and API Management. The Banking Industry Architecture Network (BIAN) a nonprofit consortium formed by leading banks and tech partners has the potential to help banks to deal with these challenges as its working towards simplifying overall banking architecture through service domain driven approach and standardization of APIs.

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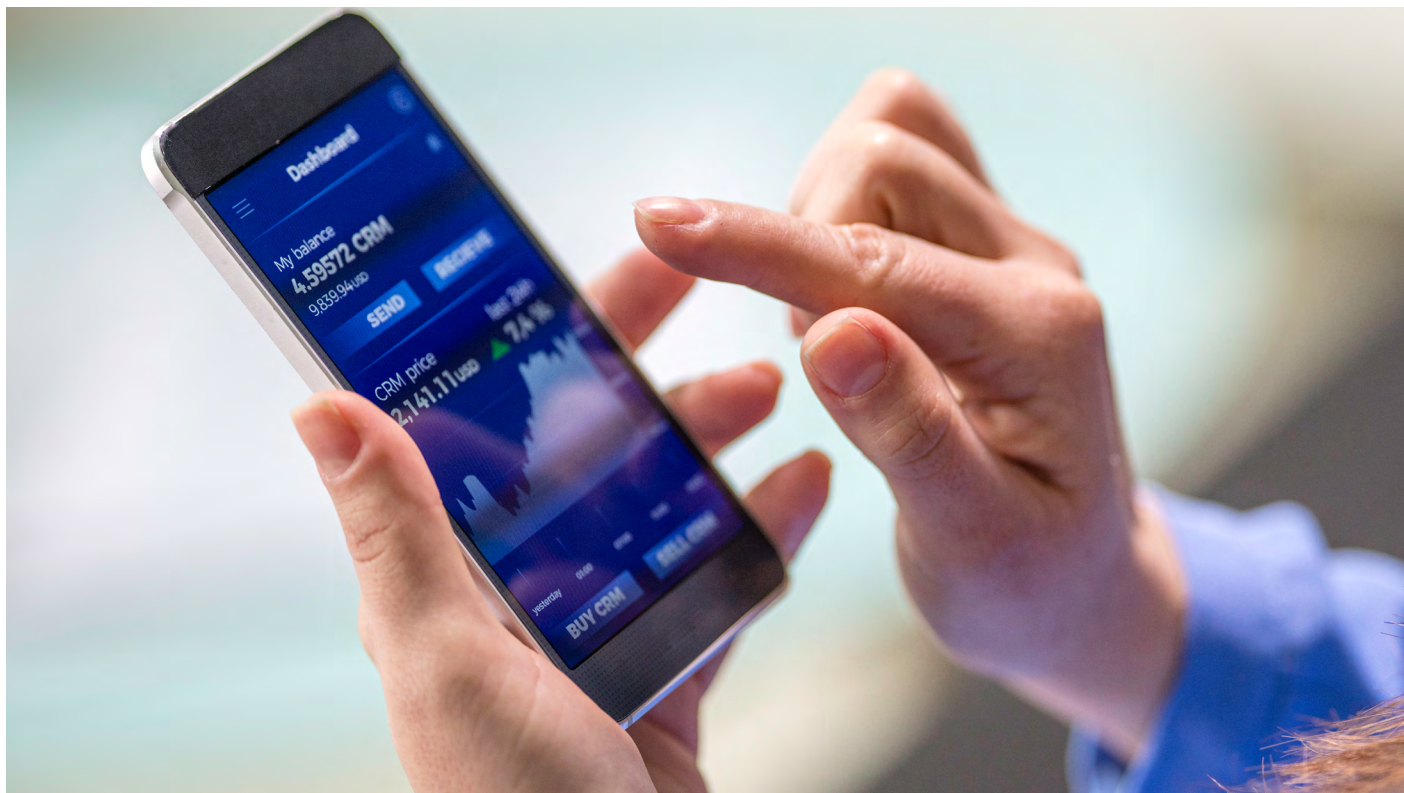
Legacy Modernization

Legacy modernization has been uphill task for banks especially with large and complex systems. Due to lack of supporting architecture it become even more challenging to achieve desired results and delivering value to customers.

Legacy modernization without proper approach or standard principles leads to additional efforts and cost, aAt the same time banks also need to stay updated with technological advancements and environmental changes which is challenging with legacy systems.

Open Banking & Regulatory Compliance

Open banking regulatory compliance across the geographical regions has forced the banks to share user's data through APIs with Fin Tech subject to user consent.

Publishing unstructured APIs from complex and tightly coupled systems resulted in extra operational overhead for banks. API management from legacy or monolithic system is even more challenging from technical feasibility and designing aspect.

Growth of FinTech's & Neo Banks

Rise of Fin Tech and Neo Banks in recent times has created lot of disruption in market as they are offering end to end digital experiences with innovative financial services and solutions. Absence of legacy system has given undue advantage to these fintech's as they can leverage the benefits of cloud native applications and various advance tech innovations.

With coreless banking and composable architecture these digital banks can provide innovative products and solutions to their customers with minimum efforts.

Partner & Third-Party Integrations

Integration with various partners though legacy systems is challenging due to complex systems along with various protocols for communication within components. This adds additional scope of work in terms of protocol conversion and time for delivering values to customers.

API Standardization & Management

API standardization is the key for any system which wants to evolve in partner ecosystem to solve customer problem with rapid pace. API management plays a crucial role to deal with large volume of APIs and versioning.

Consistent User Experience

Providing consistent user experience is essential for financial institutes to reach out to users through digital channels. Well-defined business scenarios which cover all use cases can help banks to create better user digital experience.

Customization

Customization is difficult feat to achieve with enterprise scale, complex and tightly coupled system. In the era of digitization and technological advancements, customization is need of hour for banks to modernize their products and offerings. It's now really taking center stage with rise of Fintech FinTech and Neo Banks.

BIAN Overview

Banking Industry Architecture Network (BIAN) is non-profit consortium created by leading banks, technology providers, and academics institutions for collaboration and standardization. Together this group of professionals is dedicated to reducing the cost of banking and increasing the speed to innovation in the industry. Industry leaders leveraging their industry expertise to define a revolutionary banking architecture framework that standardizes, organizes, and simplifies core banking architecture, which can resolve transformational challenges faced by the banking industry.

Designed with service domain driven architecture principles, the holistic framework provides a future ready solution for banks that endorses industry collaboration. This modular approach of banking architecture defines distinct functional building blocks that can be clubbed to support the business requirements of customization and innovation.

BIAN Service Landscape

Service Landscape contains Business Areas like Customers, Products, Channels, Business Management, Operations at high level, Business Domains like Product Categories, Customer Management, Operations Categories, etc. at mid-level and Service Domains at low level. As per latest update there are approx. 325 Service Domains, building blocks for composable and service domain driven architecture.

Service Domain

A BIAN Service Domain is defined to manage the implementation of one control pattern to instances of just one type of asset. The Service Domain handles this from start to end for the complete life cycle, as often as required by the business. In architecture aspect each service domain can be managed with a dedicated micro service.

BIAN Business Scenarios

Business scenario represents use cases for end users like opening account, updating account details, and closing the account or deposit.
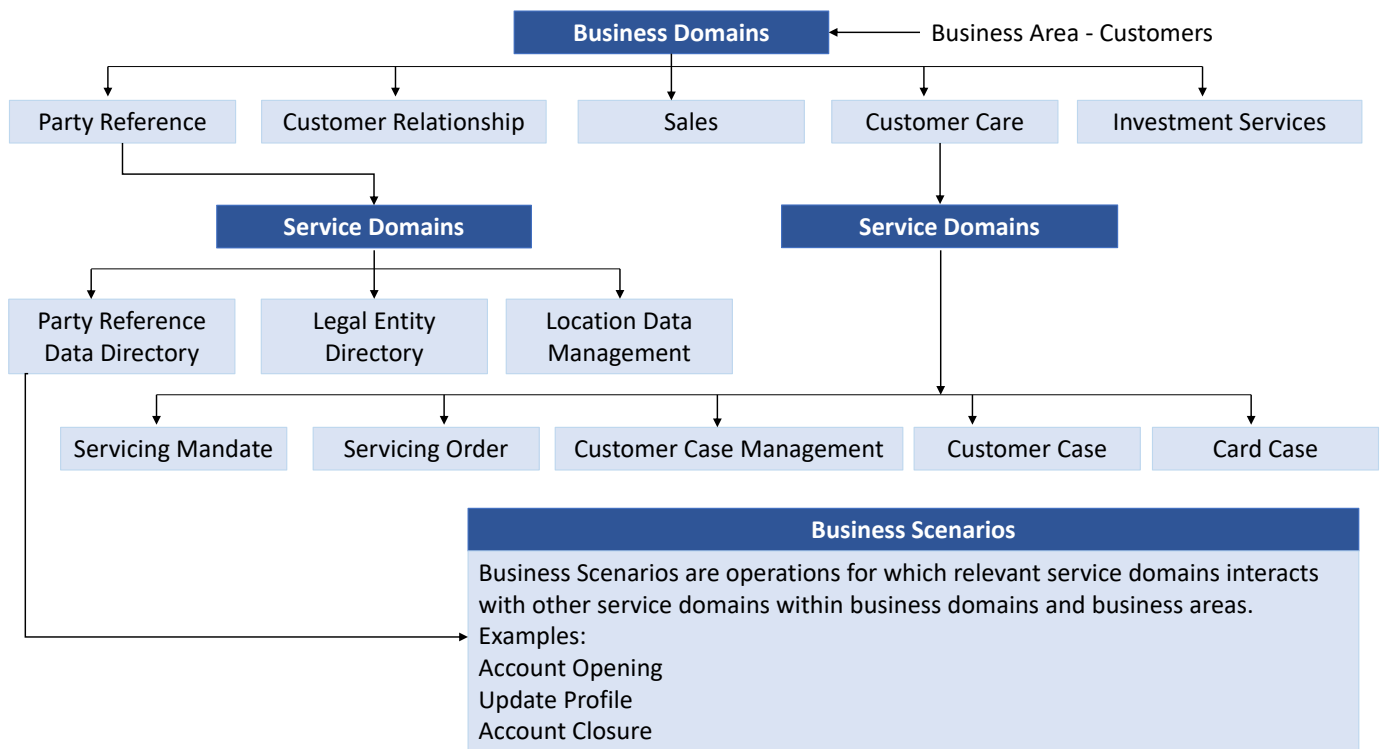
To handle particular use cases, service domains either performs operations at service domain level or interacts with other service domains across business domains to complete the flow.

Semantic APIs

BIAN Semantic APIs provides guideline for implementation so adopting party have liberty to customize the implementation. To define BIAN Semantic APIs each default Service Domain operation is matched to a REST API endpoint. Semantic APIs are structed with key components like Control Record (Savings Account Facility), Behaviors Qualifiers (Interest, Fees, Payments) and Action Terms (Retrieve, Update).
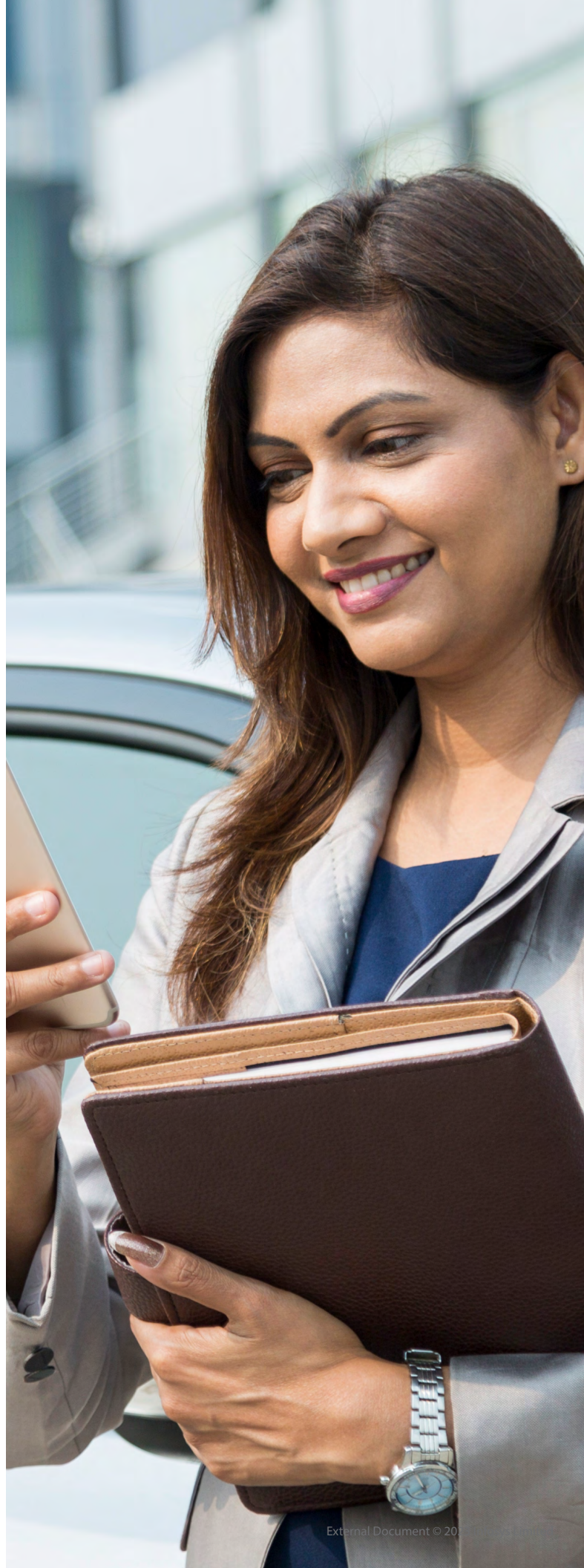
Customers - Business Area, Business Domain, and Service Domain Structure Illustrative

Business Domains ← Business Area - Customers

- Party Reference
- Customer Relationship
- Sales
- Customer Care
- Investment Services

Service Domains
- Party Reference Data Directory
- Legal Entity Directory
- Location Data Management

Service Domains

- Servicing Mandate
- Servicing Order
- Customer Case Management
- Customer Case
- Card Case

Business Scenarios

Business Scenarios are operations for which relevant service domains interacts with other service domains within business domains and business areas.
Examples:
Account Opening
Update Profile
Account Closure

Why BIAN will be the Future Semantic of Banking Architecture

Framework with Complete Banking Landscape

It provides framework to the banks that covers entire landscape of banking along with business capabilities at a high level.

Business Area covers Channels, Customers, Products, Operations, Business Management, Business Development, Finance and Risk Management with all Banking Services from Customer Onboarding to Closure.

Entire landscape is aligned with modern banking trends like digital and cloud native as member organizations are updating the framework regularly. It becomes the first choice for Banks who are working on modernization journey.

Standardization & Interoperability

Standardization of architecture ensures improved Interoperability with external system partners and reduces the learning curve for integrations. Standards oriented development approach will reduce the dependency on resources.

Service Oriented Architecture

Each Service Domain contains business information and logic to handle complete life cycle of business function. It can be implemented as an independent service or microservice with all inter service domain communication handled through service operations.

Service domains-oriented architecture covers key design aspects like operational re-use, segregation, and specialization which also aligns with micro services architecture and domain driven design as well.

Improved User Experience

BIAN service landscape has provided well defined bBusiness scenarios for each service domain. These scenario covers end to end interaction among service domains for user operations like opening accounts, transactions, contracts update etc.

For example, business scenario for opening savings account interacts with various serviced domains across business areas like channels, customers, products, and operations.

Ease of Customization with Service Domains

Service domain driven component-based architecture comes with advantage of ease of customization as all functionalities are distributed strategically and logically.

BIAN standards give liberty to isolate the service domain as an individual module which can be outsourced to reduce the development cost and dependency on other modules. Overall impact of this architecture reduces the operational and maintenance cost as well.
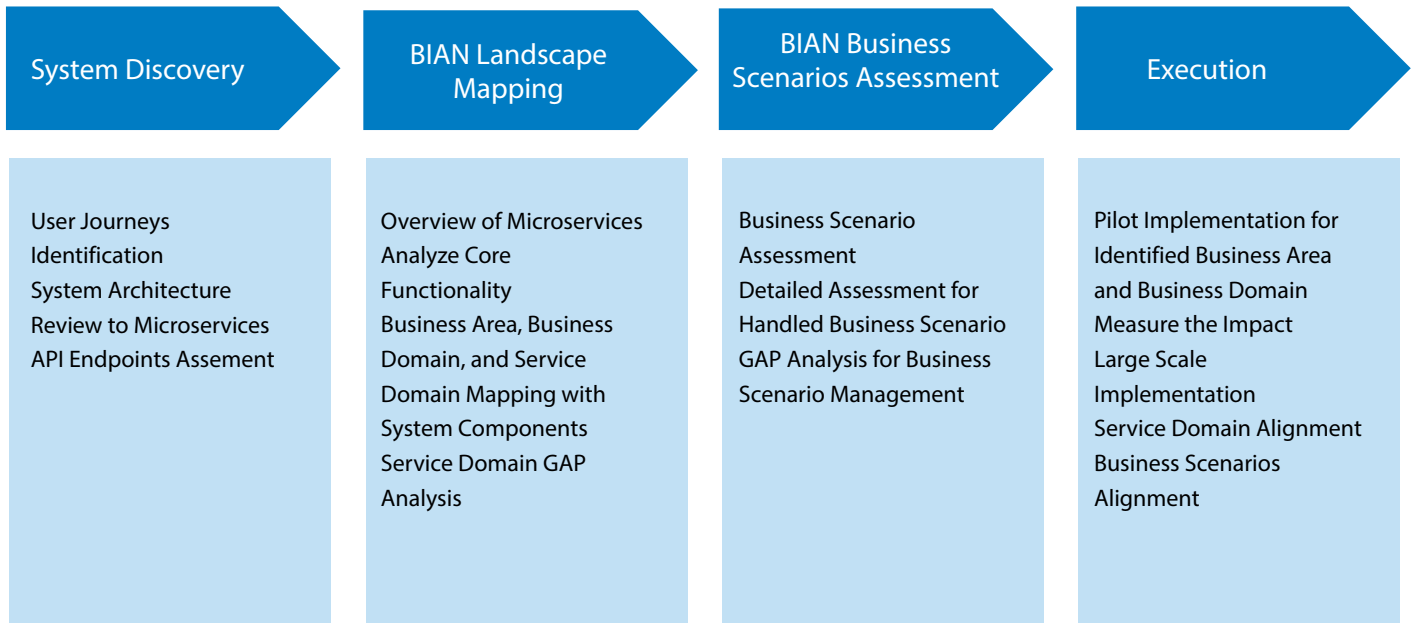
Semantic APIs & Regulatory Compliance

BIAN framework provides Semantic APIs are well defined and effectively structured. It provided standardization with structured approach and flexibility with semantic definitions of APIs. APIs are designed with context of Service Domain's functionality and actions which eases the management of AP which also enables Banks to expose the APIs keeping regulatory compliance in mind.

Cost Effective

Due to service domain driven and building blocks kind of approach overall operational cost is significantly reduced. Development of individual service domains can be outsourced to vendors or partners with competitive pricing which can result into cost reduction as well.

Approach to Adopt Future Semantic of Banking Architecture

Banks need to adopt gradual approach for BIAN alignment as It's very important to do detailed GAP analysis along with system discovery and prepare plan for execution. BIAN also recommends adoption through pilot implementation and impact measurement before doing it on large scale.

System Discovery	BIAN Landscape Mapping	BIAN Business Scenarios Assessment	Execution
User Journeys Identification System Architecture Review to Microservices API Endpoints Assement	Overview of Microservices Analyze Core Functionality Business Area, Business Domain, and Service Domain Mapping with System Components Service Domain GAP Analysis	Business Scenario Assessment Detailed Assessment for Handled Business Scenario GAP Analysis for Business Scenario Management	Pilot Implementation for Identified Business Area and Business Domain Measure the Impact Large Scale Implementation Service Domain Alignment Business Scenarios Alignment

BIAN Adoption Approach

Conclusion

In the longer run all banks will opt for BIAN due to its well-structured architecture and standard APIs which is built considering the entire banking landscape from customer channels, onboarding, products, mortgages, operations, payments, risk & compliance, business, and product management. Effective change management with building blocks architecture will be the major driving factors for banks to adopt the BIAN.

BIAN consortium is strengthening as leading banks and technology partners are joining hands for innovation and standardization. Its heading in the direction to make BIAN as de facto standard for doing business and collaborations which would bring assurance of quality and faster time to market.

BIAN focuses on API standardization which complements Open banking compliances very well. BIAN covers the complete banking landscape so it can provide very strong base for Open Finance initiative focusing on open API approach for all the areas like banking, insurance, lending, mortgage, and retirement products.

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Acknowledgments:

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3. Integrating the TOGAF ® Standard with the BIAN Service Landscape

4. BIAN Service Landscape

Glossary:

BIAN – Banking Industry Architecture Network

API – Application Programming Interface

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