Building the future of banking services

Applying the BIAN Standard in Bank Melli Iran

Sadad Informatics Corporation
New Product Development (NPD) Group
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- The fundamental organisation of a system embodied in its components, the relationship between these components and the environment and the principles governing its design and evolution.

What is Banking Architecture?

- The fundamental organisation of a BANKING SYSTEM, embodied in its components, the relationship between these components and the environment and the principles governing its design and evolution.

So what are these components?

- Business Architecture
- Application Architecture
- Technology Architecture
BIAN Organisation

- Founded in 2008, the Banking Industry Architecture Network (BIAN) is a global, not-for-profit organization that seeks to develop standard Service Landscape and Semantic IT Service (A2A) Definitions for the Banking industry. BIAN will enable the next generation of banking industry solutions developed either in-house or commercially:
  - By leading banks sharing their requirements for banking services
  - By leading software and services vendors to implement them based on standard semantics
Hype Cycle for Digital Banking Transformation, Gartner

As of July 2017
## Priority Matrix for Digital Banking Transformation

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<td>Biometric Mobile Banking Authentication</td>
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<td>Instant Low-Value Payment Systems</td>
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<td>Mobile Imaging for Bank Staff</td>
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<td>Mobile-Originated P2P Payment Solutions (for Mature Payment Markets)</td>
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<td>Roboadvisor 2.0</td>
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<td>Social Messaging</td>
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<td>Payment App Wallet</td>
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Part 1:

BIAN Architecture
Comparing Business & City Planning

**BUILDING ARCHITECTURE**
- Types of Buildings
- Parks & Squares
- Transportation
- Utilities
- etc...

Architects select the required ingredients and configure them to support anticipated behaviors to create a ‘town plan’

**BUSINESS ARCHITECTURE**
- Employees, Partners, Customers
- Liquid Assets & Financing
- Buildings & Equipment
- Knowledge/Knowhow
- etc...

With no easy way to capture and associate the ingredients with the anticipated behaviors there is no equivalent ‘enterprise plan’

**INGREDIENTS**

**BEHAVIORS**
- Work & Education
- Entertainment & Sports
- Shopping
- Health and Services
- etc...
Business Without a Plan

A city where new construction is not coordinated with a town plan...

An enterprise where application development is not coordinated with an enterprise plan...
Migration to a Well Architecture Application Map
BIAN Architecture Layers & Artifacts

Business Architecture
- Service Domain Definition
- Service landscape
- Business Scenario
- Business Capability Model
- Wireframe Model

Information Architecture
- Business Object Model
- Asset Decomposition Model
- Control Record

Application Architecture
- Application Capabilities
- Logical System
- Message Format
- Open API

Technology Architecture
- Service Protocol Standards
BIAN Artifact Samples
BIAN Contents

Service Landscape

‘Value Chain’ Layout - Internal

Business Scenarios

Service Operations

Reference Formats

Metamodel Guide

UML Based Repository & Tooling

ISO20022 based

HTML Service Landscape & Business Scenarios

Web-tool Business Scenarios & Wireframes

Excel Model Extract

How To Guides & Training Presentations
BIAN Deliverables

- Implementing BIAN Service Domains using the IFX Business Message Specification
- Banking Industry Architecture Network
- Skin the Financial Services Onion
  A capability-based model to explain the (r)evolution of the banking industry
- BIAN How-to Guide
  Applying the BIAN Standard
- Building the future of banking services
  Modelling future financial industry networks / ecosystems using an enhanced BIAN model
BIAN API Content Development Approach

1 - Wireframe
Scope Service Domains & External Boundaries

2 - Business Scenarios
Define business context for API access

3 - SD Expansion Templates
Add definition to Service Domains’ services, events and information

4 - Data Model
Define business terms (map to available data standards)

5 - BIAN API Specification

6 - Message Mapping (optional)
Map to any available message standards

ISO 20022 & OMG/FIBO (Augmented)
BIAN Service Landscape

- A BIAN Service Domain represents an ‘atomic’ logical design.
  - A BIAN Service Domain represents the smallest practical capability or functional partition that can be service-enabled as a discrete and unique business capability. (BIAN Metamodel V6.0)

- A BIAN Service Domain Combines an Asset, a Behaviour and a Use.
  - Asset refers to the tangible and intangible things/entities/objects.
  - Behaviour refers to General Artefact.
  - Use or Action refers to Functional Pattern.
  - The combination of BIAN Service Domain’s associated entity, behaviour and functional pattern is called a Control Record.

Control Record = Asset Type + Functional Pattern (incl. behaviour qualifiers) + Generic Artefact (behaviour)
Capabilities focus on business objects.

- Objects provide a capability focal point where any capability dependent on a given object for its existence is defined as a child under the parent capability based on that object.

A BIAN Service Domain is maintaining one principal Business Object.
Example:

Finance and Accounting
<<Business Capability>>

focused on

Account
<<Business Object>>

is maintaining

Position Keeping
<<Service Domain>>

FinancialPosition
<<Asset>>

Log
<<General Artefact>>

Track
<<Functional Pattern>>

FinancialPositionLog
<<Control Record>>

Example:
What are fundamental banking objects?
What is the difference between a Business Capability, a Service Domain and a Business Object?

Business Capability Model represents **WHAT a bank CAN DO** (abilities) to create value in its ecosystem.

- Serves as a baseline for Strategic Portfolio Planning (strategy management), Value Stream Analysis and Heatmapping

Service Domain Model (a.k.a Service Landscape) represents **WHAT SERVICES** a bank **CAN DELIVER** toward enabling interoperability.

- Serves as a baseline for SOA implementation, semantic APIs implementation, and Information Exchange Management

Business Object Model represents **WHAT a bank HAS/POSSESES** as tangible or intangible things to realize banking business capabilities and services.

- Serves as a baseline for Information/Data Management, Data Analytics, Enterprise Data Warehouse, Business Intelligence and Data Governance.
Design Foundation

Assets are identified using a “MECE” decomposition hierarchy

The Bank is made up of resources or “assets” that it can use...

...and functions it performs on those resources

Exacting value through use, or by maintaining/enhancing the asset to increase its value creating potential

18 standard functional patterns of behavior have been identified and refined in use

One Asset Type

One Pattern

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Design Foundation

A Service Domain combines an Asset Type with a Functional Behavior

A Service Domain is accessed through its offered service operations. A selection from a standard set of service operations is matched to the specific functional pattern.
Design Foundation

Each Functional Pattern was matched to a default set of Service Operations

This was then used to define ~2000 candidate service operations descriptions for all 280 BIAN Service Domains
Wireframes/First Order Connection

First Order connections for a Service Domain identify the known calling and called service operation connections....

The wireframe captures the service operation connections between a selection of Service Domains
Showing all identified ‘first order’ service connections to the associated Service Domain – and finally the delegated calls.
The wireframe shows the service operations, detailing the types of connection and action terms for each...

With this detail in the tool it is possible to quickly develop Business Scenarios...
Clustering Service Domains

Cluster showing Core/Utility/Proxy Roles

Key:
- **Core** = Service Domain wholly contained within cluster
- **Proxy** = Local instance synchronised with master
- **Utility** = Local instance, no need to synchronise
- **External** = First order service operation connections
- **Peripheral** = Second order dependencies – for reference
BIAN Information Model

BIAN Information Model

BIAN BOM
- Business Relationship
- Business Object
  - Business Attribute

ISO20022 Data Model
- Business Association
- Business Component
  - Business Element
- Message Component
  - Message Element

traces to
ISO 20022 Data Model

DATA DICTIONARY

Business Concepts
- Business Association
- Business Component
- Business Element
- Constraint
- Business Role

Data Types
- is of type
- is value of
- is based on
- Data Type Representation
- Code

Message Concepts
- Message Component
- Message Element
- Constraint

ISO 20022 (Messages)

All institutions have their own sets of data objects...

ISO standardizes common data objects...

...and groups them into ‘syntax-neutral’ models, which can be used in...

BIAN (SO’s)
Swift services (Open API’s)
**BIAN Business Object vs ISO20022 Business Component**

**Business Object** is a tangible or intangible thing which is 1) meaningful and active; and 2) influences the behavior of a banking system.

**Business Objects** are the most fundamental components of a banking system to deliver banking services.

**Business Objects** deliver banking services (e.g., payment services, loan services) to enable a bank in its ecosystem (to collaborate with others partners).

**Business Component** is a well-structured and reusable component which is usually characterised by a series of ‘business elements’.

**Business Component** drives a message component which is re-usable data structure used for assembling message definitions. In other word, a message component is derived from a business component by using one, some or all of its elements. The data defined in a message component is ‘traced’ back to the business components and business elements.

**BIAN BOM focused on business areas, business domains and service domains which results in Internally information management**

**ISO20022 BCM focused on business processes which result in externally observable flows**

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Example:

ISO20022 Payment Business Component: Payment information and processes required to transfer cash end to end from the debtor to the creditor.

ISO20022 Business Component Model can be used to manage the exchanged information between BIAN service domains through service operations.

BIAN Business Object Model can be used to manage the data of BIAN Service Domains defined in the context of BIAN Business Domains/Areas.

* BIAN SDs (e.g., Current Account SD, Saving Account SD, Payment Order Management SD, Payment Execution SD)
Way of Working in line with ISO20022

1. Focus on Service Domain

2. Create BIAN BOM

3. Adapt to ISO20022 BCM
Step 1. Focus on Service Domain _ Consumer Loan SD
Step 2. Create BIAN BOM

[Diagram showing the BIAN BOM with relationships and attributes for consumer loan agreement, consumer loan account, consumer loan instruction, consumer loan transaction, and other related entities.]
Step 3. Adapt to ISO20022 BCM
BIAN Is A Member Driven Organization
Part 2:

BIAN in BMI
حرکت به سمت BIAN در بانک ملی ایران

مرحله دوم: طراحی معماري سرويس گرا برای سیستم های بانک ملی

- مقایسه تطبیقی وضعیت موجود سیستم های بانک ملی با مدل مرجع BIAN
- طراحی معماري سرويس گرا بانک ملی
- تدوين نقشه راه پياده سازي معماري طراحی و استقرار نظام حاکميت معماري

مرحله اول: توليد دانشمنه فارسي مدل مرجع بانکي بيان (BIAN)

- تهيه محتوای آموزشي جامع فارسي كام به كام در سطوح مختلف بايه و پيشرفته
- استراتيژي برای آموزش بيان به تيم های مختلف بانک و شرکت سداد
- تعريف موارد متغير كاربرد (عملياتي سازي) بيان در بانک ملی
- راه اتماري داتش نامه و اتمنيم داخلي مدل مرجع بيان
چارچوب و مدل اجرای پروژه در بانک ملی ایران

酚ز ۱: بررسی تفصیلی مدل مرجع BIAN و تهیه دانشنامه جامع فارسی

酚ز ۲: مقایسه تطبیقی وضعيت موجود سيستم‌هاي بانک ملی يا مدل مرجع BIAN

酚ز ۳: طراحی معماري سيستم‌هاي سرويس‌گرا بانک ملی مبتنی بر مدل مرجع BIAN

酚ز ۴: تدوين نقشه راه (برنامه اجرایي)

酚ز ۵: طراحی و استقرار نظام حاکميت معماري سرويس‌گرا

استقرار نظام حاکميت معماري

برنامه اجرایي

معماري مطلوب سرويس‌گرا بانک

دانشنامه جامع BIAN فارسي

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ساختار تیم پروژه

مدیریت پروژه

مشاوران فنی و معماري

تیم تدوین متدولوژی و کنترل فنی نتایج

تیم تدوین نظام حاکیت معماري و مدل بلغ

تیم شناخت و طراحی معماري سیستم‌های پانکی

تیم آموزش و سفارشی سازی BIAN (BIAN)
خروجی های تهیه و ارائه شده در مرحله اول از پروژه
برخی از خروجی‌های ارائه شده یا در دست تهیه در مدل فازهای پروژه

- محتوای آموزشی BIAN (نسخه آخر)
- راهنمای سرویس‌های مدل BIAN
- BIAN Service Landscape
- آموزش و راهنمای BIAN در قالب یک سیستم مدیریت محتوا
- راهنمای نحوه ترکیب BIAN با سایر مدل‌های مرجع
- سندهایی در قالب BIAN در مدل‌های مرجع
- تطیف سیستم‌های موجود بانک ملی بر مبنای BIAN
- گزارش امکان‌سنجی بانک ملی بر مبنای BIAN
- جدول مقایسه تطیفی
- BIAN
- سندهای نیازمندی و انتخاب مولفه‌های BIAN
- طراحی معمول سیستم‌های اطلاعاتی BIAN مبتنی بر سرویس‌گرایی
- استخراج پروژه‌ها و اقدامات پیاده‌سازی
- استخراج پروژه‌ها و اقدامات پیاده‌سازی مبتنی بر سرویس‌گرایی
- استخراج نیازمندی و اجرا
- اولویت‌بندی پروژه‌ها
- تعیین منابع مورد نیاز

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Questions?