BIAN Banking Architecture Foundation
Courseware – 2nd edition

Colophon

Publisher about the Courseware

The Courseware was created by experts from the industry who served as the author(s) for this publication. The input for the material is based on existing publications and the experience and expertise of the author(s). The material has been revised by trainers who also have experience working with the material. Close attention was also paid to the key learning points to ensure what needs to be mastered.

The objective of the courseware is to provide maximum support to the trainer and to the student, during his or her training. The material has a modular structure and according to the author(s) has the highest success rate should the student opt for examination. The Courseware is also accredited for this reason, wherever applicable.

In order to satisfy the requirements for accreditation the material must meet certain quality standards. The structure, the use of certain terms, diagrams and references are all part of this accreditation. Additionally, the material must be made available to each student in order to obtain full accreditation. To optimally support the trainer and the participant of the training assignments, practice exams and results are provided with the material.

Direct reference to advised literature is also regularly covered in the sheets so that students can find additional information concerning a particular topic. The decision to leave out notes pages from the Courseware was to encourage students to take notes throughout the material.

Although the courseware is complete, the possibility that the trainer deviates from the structure of the sheets or chooses to not refer to all the sheets or commands does exist. The student always has the possibility to cover these topics and go through them on their own time. It is recommended to follow the structure of the courseware and publications for maximum exam preparation.

The courseware and the recommended literature are the perfect combination to learn and understand the theory.

-- Van Haren Publishing

Other publications by Van Haren Publishing

Van Haren Publishing (VHP) specializes in titles on Best Practices, methods and standards within four domains:

- IT and IT Management
- Architecture (Enterprise and IT)
- Business Management and
- Project Management

Van Haren Publishing is also publishing on behalf of leading organizations and companies: ASLBiSL Foundation, BRMI, CA, Centre Henri Tudor, Gaming Works, IACCM, IAOP, IFDC, Innovation Value Institute, IPMA-NL, ITSqc, NAF, KNVI, PMI-NL, PON, The Open Group, The SOX Institute.

Topics are (per domain):

IT and IT Management	Enterprise Architecture	Project Management
ABC of ICT	ArchiMate®	A4-Projectmanagement
ASL®	GEA®	DSDM/Atern
CATS CM®	Novius Architectuur	ICB / NCB
CMMI®	Methode	ISO 21500
COBIT®	TOGAF®	MINCE®
e-CF		M_o_R®
ISO/IEC 20000	**Business Management**	MSP®
ISO/IEC 27001/27002	*BABOK® Guide*	P3O®
ISPL	BiSL® and BiSL® Next	*PMBOK® Guide*
IT4IT®	BRMBOK™	Praxis®
IT-CMF™	BTF	PRINCE2®
IT Service CMM	EFQM	
ITIL®	eSCM	
MOF	IACCM	
MSF	ISA-95	
SABSA	ISO 9000/9001	
SAF	OPBOK	
SIAM™	SixSigma	
TRIM	SOX	
VeriSM™	SqEME®	

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Table of Content

Self-Reflection of understanding Diagram

'What you do not measure, you cannot control.'' – Tom Peters

Fill in this diagram to self-evaluate your understanding of the material. This is an evaluation of how well you know the material and how well you understand it. In order to pass the exam successfully you should be aiming to reach the higher end of Level 3. If you really want to become a pro, then you should be aiming for Level 4. Your overall level of understanding will naturally follow the learning curve. So, it's important to keep track of where you are at each point of the training and address any areas of difficulty.

Based on where you are within the Self-Reflection of Understanding diagram you can evaluate the progress of your own training.

Level of Understanding	Before Training (Pre-knowledge)	Training Part 1 (1st Half)	Training Part 2 (2nd Half)	After studying / reading the book	After exercises and the Practice exam
Level 4 I can explain the content and apply it .					
Level 3 I get it! I am right where I am supposed to be.					Ready for the exam!
Level 2 I almost have it but could use more practice.					
Level 1 I am learning but don't quite get it yet.					

(Self-Reflection of Understanding Diagram)

Write down the problem areas that you are still having difficulty with so that you can consolidate them yourself, or with your trainer. After you have had a look at these, then you should evaluate to see if you now have a better understanding of where you actually are on the learning curve.

Troubleshooting

	Problem areas:	*Topic:*
Part 1		
Part 2		
You have gone through the book and studied.		
You have answered the questions and done the practice exam.		

Timetable

Day 1

Introduction

PART I   1. Introducing BIAN and its Framework

2. Explaining the BIAN Architecture

- BIAN Metamodel

- BIAN Service Landscape

- BIAN Service Domain

- BIAN Control Record and Information Profile

- BIAN Business Object Model

- BIAN Service Operation and Semantic API

- BIAN Business Scenario and Wireframe

- BIAN Business Capability

Day 2

PART II   3. Introductory concepts

4. General abilities

5. BIAN for a Holistic view on the enterprise

6. BIAN for the Business Layer

7. BIAN for the Application Layer

8. BIAN for Information and Data

9. BIAN for Interoperability

PART III   10. BIAN and TOGAF

11. BIAN and other Standard Bodies

BIAN
Banking Architecture Foundation

Certification Course

COURSEWARE

Van Haren
PUBLISHING

Welcome!

Practical info:

Day 1

• Introduction

PART I

1. Introducing BIAN and its Framework

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PART III
10. BIAN and TOGAF
11. BIAN and other standards bodies

Interaction please!!!

This is your training!

Feel free to ask, tell, yell, signal, wave.....

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TRAINEE INTRODUCTION

Name

Background

Architectural & modeling experience

Course objectives / expectations:

1. Points of improvement on the banking processes & ICT structures.
2. Pitfalls of banks and the role of businesses and ICT over the last two decades.
3. How do you expect BIAN can help?

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COURSE OBJECTIVES

- Understanding the BIAN theory and terminology
  - Have a common understanding of the goals and objectives of BIAN and what the BIAN Framework offers to achieve them
  - Understand the principles/way of thinking according to which the BIAN Reference Architecture for the financial services industry is elaborated
  - Understand the BIAN Metamodel, have a working knowledge of the terminology and understand the pattern-based approach
  - Have a working knowledge of the model elements and artifacts of the BIAN Reference Architecture
  - Be able to exploit BIAN's digital repository
- Understanding the different usages of the BIAN Reference Architecture
  - Understand the different ways in which BIAN's deliverables can be applied
  - Be inspired to apply the BIAN Reference Architecture in your own organization and field of expertise
  - Understand the synergy of applying BIAN in different fields of expertise and viewpoints on the enterprise
- Understanding the synergy between BIAN and other standards
- Becoming BIAN certified

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COURSE OVERVIEW

Active knowledge of the BIAN theory and terminology

PART I Introducing BIAN and its Reference Architecture for the financial industry

    1. Introducing BIAN and its Framework

    2. Explaining the BIAN Architecture

PART II Applying BIAN's Reference Architecture for the financial industry

    3. Introductory concepts

    4. General abilities

    5. BIAN for a holistic view on the enterprise

    6. BIAN for the business layer

    7. BIAN for the application layer

    8. BIAN for information and data

    9. BIAN for interoperability

Understanding the different usages of the BIAN Reference Architecture; Being inspired; Consolidating the theory

PART III BIAN and other standards

    10. BIAN and TOGAF

    11. BIAN and other standards bodies

Understanding the synergy between BIAN and other standards; Consolidating the understanding of the usage of BIAN

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PURPOSE OF THE BIAN CERTIFICATION

General benefits of the BIAN certification

- It enables professionals and financial service providers to leverage the benefits of BIAN.
- It creates a baseline of knowledge needed to effectively use BIAN.
- It increases the amount of BIAN knowledge for owners and ambassadors in the market and thereby supports the general usage and adoption of BIAN.

Benefits for professionals

- It enables professionals to leverage the benefits of BIAN.
- It helps in the authentication of banking professionals and banking architects and supports their credibility.
- It increases the knowledge and general skills of professionals regarding financial services providers and enables the creation of more transparent IT systems within.
- It provides professionals and their organizations with a competitive advantage.

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CERTIFICATION EXAM AND LITERATURE

About the exam

Number of questions: 60 multiple choice questions
Duration of exam: 60 minutes
Pass mark: 70%
Type: Closed-book exam

Literature
BIAN 2nd Edition

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PREPARING FOR THE CERTIFICATION EXAM

During the training, we will test your understanding of each chapter with three multiple-choice questions.

Before taking the actual exam, you are able to take one or more trial exams. This is strongly advised.

After the exam

you receive the title:
BIAN Certified Banking Architect

(You can share your performance on LinkedIn)
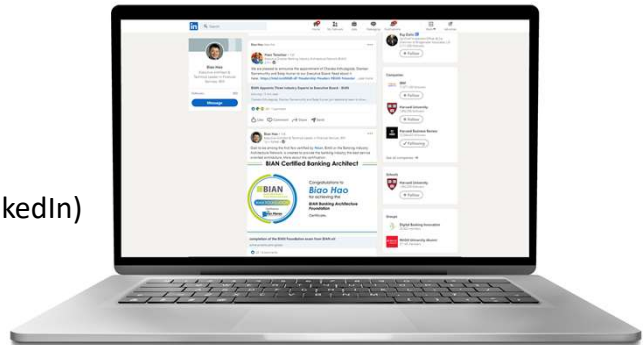
CONTENTS AND WEIGHTINGS OF EXAM

Exam specification	Weight %	Training module	Book chapter / section
Introducing BIAN and its Framework	10%	1.1 11	Chapter 1, except for section 1.2; Chapter 11
BIAN: Principles and approach	10%	1.2	Section 1.2
Explaining the BIAN Architecture	35%	2	Chapter 2
How to apply the BIAN standard, general abilities	15%	4	Chapter 4
How to apply the BIAN standard, applied to layers and transversal views	25%	5 to 9	Chapters 5 to 9
BIAN and TOGAF	5%	10	Chapter 10

AGENDA

Day 1

- Introduction

PART I

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2. Explaining the BIAN Architecture
- BIAN Metamodel
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PART III

10. BIAN and TOGAF
11. BIAN and other standards bodies

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COURSE APPROACH

Theory: Ex cathedra

Supported by examples

Interspersed with exercises

And your questions and remarks

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ABOUT THIS COURSEWARE

Case study

Exercise

Practice question

Literature reference
This courseware is based on "BIAN 2nd edition, a framework for the financial services industry".
The structure of the book and this training correspond almost completely. For each chapter of this training, the corresponding chapter or section of the book is mentioned.

PART I
INTRODUCING BIAN AND ITS REFERENCE ARCHITECTURE FOR THE FINANCIAL INDUSTRY

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1. INTRODUCING BIAN AND ITS FRAMEWORK

KEY LEARNING OBJECTIVES

By completing this chapter, you will have gained:

- Knowledge of BIAN's mission, vision and objectives.

- Understanding of the philosophy upon which BIAN's Reference Architecture for the Financial Industry is based.

- Insight into the "constructs" (techniques and organization) used to create BIAN's Reference Architecture for the Financial Industry.

- Insight and working knowledge of what BIAN has to offer to facilitate the adoption of its architecture and standard.

1.1 Why BIAN?

THE FINANCIAL INDUSTRY IN MOVEMENT

- Advancements in technology enable accessible and convenient solutions that meet consumer's banking needs.
- Regulations are changing the playing field dramatically. They force financial institutions to disclose financial information to Third Party Providers (TPPs), provide access to financial services for new players and facilitate the competition of FinTechs and RegTechs in the financial playing field.
- Boosted by COVID19, regulations, RegTechs and FinTechs, the interoperability of financial data and services via "Open Linked Data" and "Open Banking APIs", are rapidly becoming an indispensable requirement for creating innovative financial services.
- Financial institutions need to partner with other ecosystem players, offering services that will extend beyond banking. The financial industry will provide services in a hyper networked service-oriented "Open API economy", where multiple ecosystem players participate in collaboratively fulfilling the financial needs of the customer.
- Quick responses to opportunities and changes are required.

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THE FINANCIAL SERVICES INDUSTRY SUFFERS FROM A "HEADSTART HANDICAP"

- Financial institutions were among the first to automate their business and are now among the most digitalized service providers. They have pervasive but often complex legacy ICT platforms.

    - Duplication of functionality and data, monolithic systems, stovepipe systems, laboriously interacting through point-to-point connections with numerous interfaces.

- These legacy systems are a barrier for reacting timely and cost effectively to market and ecosystem changes.

    - Their complexity results in inflexible/unresponsive systems, inflated enhancement, increasing maintenance and operational costs, inability to rapidly leverage advanced solutions, technologies, approaches and business models.

- To survive in an industry with high investments in digitalization and low margins, financial institutions are searching for ways to lower the integration and interoperability costs, while being able to respond very quickly to change.

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1.2 BIAN
The Banking Industry Architecture Network

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BIAN, The Banking Industry Architecture Network

The Banking Industry Architecture Network (BIAN) is a global, not-for profit association of banks, solution providers, consultancy companies, integrators and academic partners with the shared aim of defining a semantic standard for the banking industry covering almost all the well-known architectural layers.

The Banking Industry Architecture Network was formed in 2008 by a group of banks and solution providers with the shared aim of defining a semantic service operation standard for the financial services industry.

At a later stage other standards bodies, along with some academic partners, joined.

The BIAN Association strives to enhance the flexibility and agility of financial services systems by improving the integration of these with an architecture that is based on services.

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BIAN & Financial Institutions

BIAN & Partners

accenture | ADVANCE BANKING SOLUTION | GRUPO AULLOX | asseco CENTRAL EUROPE | ATCE HOLDINGS | BEC

bynar | IST BML | CeleritiFinTech | CGI | Cognizant | COMARCH | DELL | DXC.technology | DA | OLYMPIC BANKING SYSTEM by ERI

eNVIZION | epiphany | EVRY | EY Building a better working world | FINASTRA | Finxact | fiserv. | FIS | IBM | identitii

ifb | Infosys | integration | works | knowis | Linedata | LTI Let's Solve | Microsoft | ORACLE | SAP | publicis sapient

s|ngular it can be done. | SIX | SOAINT | SWIFT | TCS BaNCS | TEMENOS | VERIPARK | virtusa | wipro | ZAFIN

BIAN & Academic and Training Partners

Carnegie Mellon Heinz School | SMU SINGAPORE MANAGEMENT UNIVERSITY | IDRBT | BEI sourcing competence center | West Virginia University

C C and C Solutions | eNVIZION | Mundo Cognito | Wakaru.

1.3 BIAN's vision, mission, goals

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BIAN's vision and mission

BIAN's **vision** and expectation is that a standard definition of business functions, service interactions and business objects that describe the general construct of any bank will be of significant benefit to the industry.

BIAN's **mission** is to provide the world with the best banking architecture framework and banking standard. BIAN provides a trusted roadmap for constant innovation.

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BIAN'S GOALS

The goal of the BIAN Association is to develop the most important content, concepts and methods in interoperability, supporting the aim of lower integration costs in the financial services industry and facilitating business innovation and agility by:

- **Providing an architecture framework** with all of the necessary elements, tools and methodologies for a sustainable operational model through the adoption of, and alignment with, available market standards;

- Focusing on the definition of semantic services and/or API-definitions to improve the semantic integration of the financial services landscapes;

- Enabling the financial services industry to develop and run a loosely coupled environment successfully;

- **Gaining acceptance** from the members of the BIAN Association and the industry of the way the requirements will be implemented by both financial institutions and solution suppliers, resulting in the defined services becoming the **de-facto-standard** in the financial services industry.

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Benefits of BIAN's Reference Architecture for the financial industry

|			
Created by industry experts from around the globe.	Regular updates following the market developments and industry needs.	It enables the more efficient and effective development and integration of software solutions within the bank and between banks.	It significantly lowers the overall integration costs.
It improves the operational efficiency within and between banks and provides the opportunity for greater solution and capability re-use within and among banks.	It supports the current need for more industry integration and collaboration through the usage of (open) APIs.	It supports the adoption of more flexible business service sourcing models and enhances the evolution and adoption of shared third-party business services.	It supports FinTechs and RegTechs in gaining an easy insight in the complex financial services industry structure.

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1.4 BIAN: Principles and approach
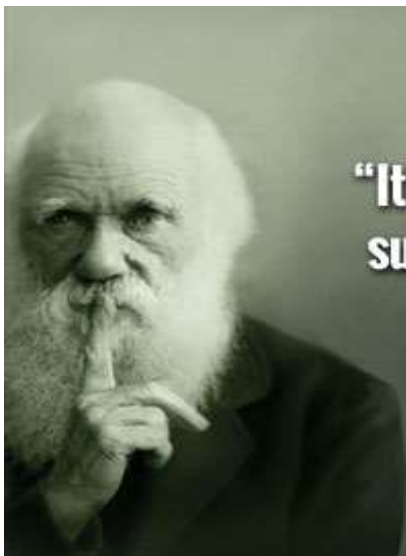
"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change"

- Charles Darwin

This quote it is often, but without real evidence, attributed to Charles Darwin

PRINCIPLES OF BIAN'S REFERENCE ARCHITECTURE FOR THE FINANCIAL INDUSTRY

"Agility is a **persistent behavior** or ability of an entity that exhibits **flexibility** to accommodate expected or unexpected **changes** rapidly, follows the **shortest time span**, and uses **economical, simple, and quality instruments** in a **dynamic environment"**

Qumer & Henderson-Sellers, 2008.

In order to be adaptive in rapidly changing circumstances, financial institutions need an **agile banking architecture** on an enterprise level.

BIAN supports financial institutions in system agility, through an agile enterprise architecture. Together with a bank's process agility, this enables the required business agility.

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AGILE PRINCIPLES

- Separation of concerns
- Loose coupling
- Reusability
- Encapsulation
- Interoperability
- Service orientation
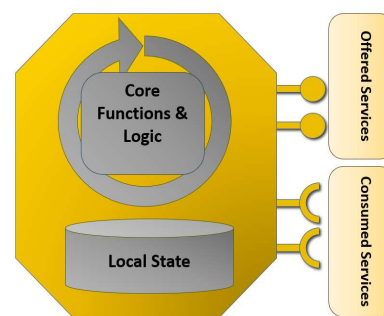
SERVICE DOMAIN

Lead to the definition of elemental capabilities, building blocks for an agile architecture.

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AGILE PRINCIPLES LEAD TO SIMPLICITY

- Simplicity

The Frame of Reference provided by BIAN:
  - Enables insight into the complexity of the "as-is" situation;
  - Reduces change risk;
  - Supports the manageability of decision taking;
  - Enables a gradual, controlled migration to the desired - simple, agile – state.

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CHANGING ARCHITECTURE THINKING

From "process-oriented design" to "capability-oriented design"

CITY PLANNING

'INGREDIENTS'
- ◆ Types of buildings
- ◆ Parks & squares
- ◆ Transportation
- ◆ Utilities
- ◆ etc…

The ingredients are selected and configured to support anticipated behaviors in a "town plan"

'BEHAVIORS'
- ◆ Living
- ◆ Work & education
- ◆ Entertainment & sports
- ◆ Shopping
- ◆ Health and services
- ◆ etc…

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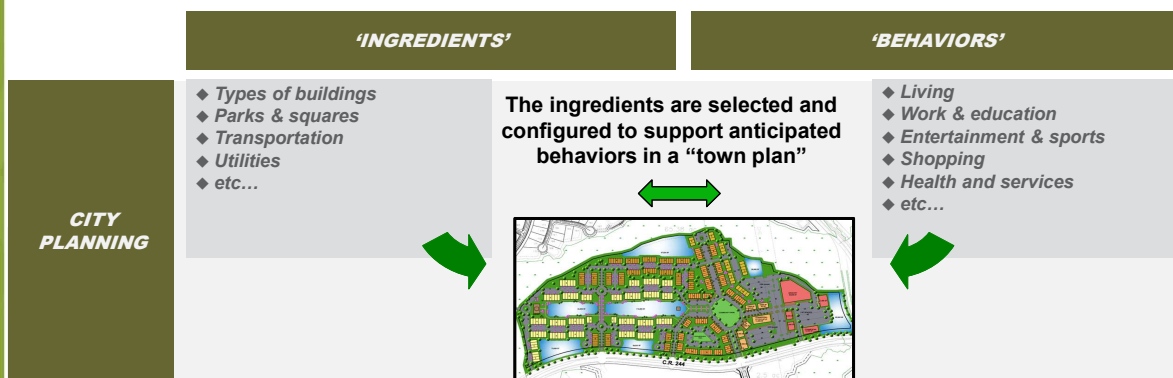
One static view of the city is a map of the general city layout:
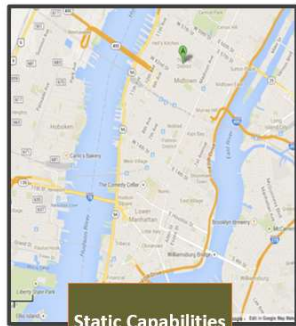
A dynamic view captures any possible journey through the city:

Static Capabilities

Day in the Life 'Journey'

Dynamic Behaviors

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'INGREDIENTS'

'BEHAVIORS'

CITY PLANNING

- ◆ *Types of buildings*
- ◆ *Parks & squares*
- ◆ *Transportation*
- ◆ *Utilities*
- ◆ *etc…*

The ingredients are selected and configured to support anticipated behaviors in a 'town plan'

- ◆ *Living*
- ◆ *Work & education*
- ◆ *Entertainment & sports*
- ◆ *Shopping*
- ◆ *Health and services*
- ◆ *etc….*

BUSINESS PLANNING

- ◆*Employees, Partners, Customers*
- ◆*Liquid Assets & Financing*
- ◆*Buildings & Equipment*
- ◆*Knowledge/Knowhow*
- ◆*etc…*

With no standard 'ingredients' to link with the behaviors there is no equivalent 'enterprise plan'

- ◆ *Business Processes*

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MIGRATING TO A WELL ARCHITECTED APPLICATION MAP

The Vision   *The Reality*   *The Future*

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BIAN's Service Landscape   *The Periodic Table of Elements*
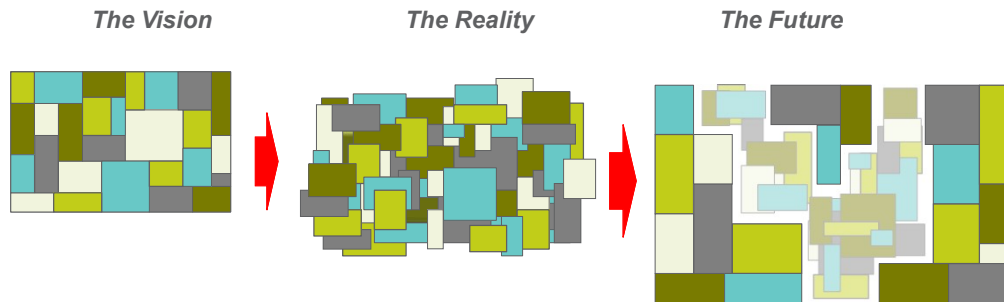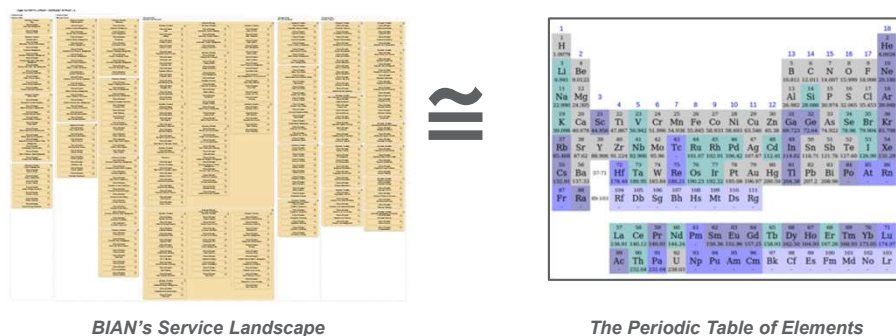
BIAN defines elementary, MECE building blocks

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1.5 Positioning BIAN in the "standards landscape"

A framework for the
financial services industry

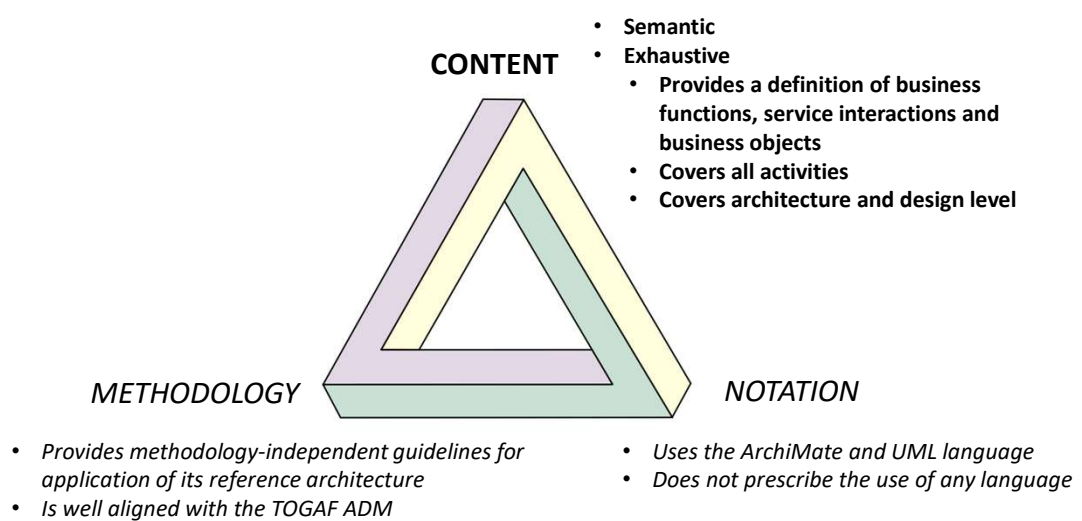COURSEWARE

POSITIONING THE BIAN STANDARD

CONTENT

- • Semantic
- • Exhaustive
  - • **Provides a definition of business functions, service interactions and business objects**
  - • **Covers all activities**
  - • **Covers architecture and design level**

METHODOLOGY

NOTATION

- • *Provides methodology-independent guidelines for application of its reference architecture*
- • *Is well aligned with the TOGAF ADM*

- • *Uses the ArchiMate and UML language*
- • *Does not prescribe the use of any language*

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POSITIONING THE BIAN STANDARDS

CONTENT
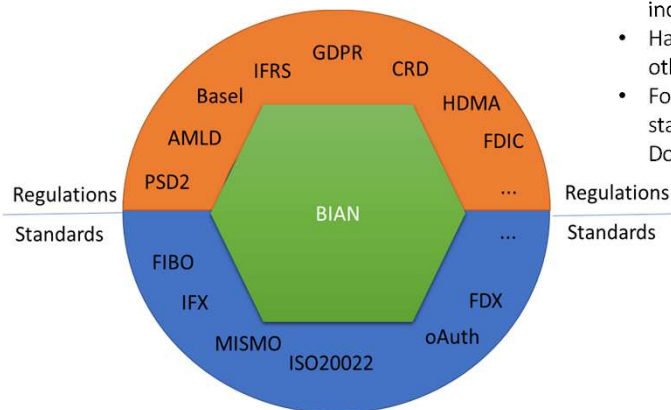
- Wants to be accepted as a world leading standard, that can act as a "connecting hub" between other standards for the financial industry as well as regulations for that industry.
- Has a strong working relationship with many other standard bodies.
- For each Service Domain, alignment with the standards that fit best for that Service Domain is sought.

GDPR
IFRS   CRD
Basel   HDMA
AMLD   FDIC
PSD2   ...
Regulations   Regulations
Standards   Standards
FIBO
IFX   FDX
MISMO   oAuth
ISO20022

BIAN

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1.6 How BIAN evolves

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