


Building the future of banking services





Introduction

Steven Van Wyk

Executive Vice President, Head of Technology and Operations, PNC Financial Services Group and Chairman of the BIAN board.

The pace of change in financial services has never been greater. Emerging technologies are opening doors for banks to deliver differentiated and truly futuristic services. However, this future will remain a pipedream if the industry fails to rethink business approaches.

At BIAN, we believe that the banking industry wastes over a billion dollars each year due to the complexity of core technologies and timeworn integration approaches. This has become one of the primary reason banks are not getting the anticipated benefits from digital transformation projects. The industry must rid itself of its anchors – the proprietary core banking solution that will soon become tomorrow's legacy technologies – if it is to evolve.

We need to stop trying to predict the future but as an industry start taking responsibility to define a much more efficient and effective approach. This is where BIAN comes in. It has worked for over a decade to create an open framework that allows banks to migrate from outdated systems to a fully digital model underpinned by industry standards. The model virtually eliminates integration costs and levels the services playing field for banks, giving them a way to rapidly deploy interchangeable micro services from any recognised developers, based on requirements from the customer and business.

PNC Financial, where I head up technology and operations, is well aware of the drive towards digital banking. Today over 60% of its customers rely on non-branch channels - a clear signal that a digital strategy is required to keep pace with their demands. The organisation has been a BIAN member since its inception, precisely because it has provided the foundation to support our digital future.

Speaking as Chairman of the BIAN Board and Head of Technology at PNC Financial, I'm excited to continue welcoming new members to our growing global network. The organisation is uniquely placed to offer partners, competitors and customers an opportunity to play an active role shaping the future of banking.



We want to provide
the world with the
best banking service
oriented architecture.

Facing the future:

The challenge

For banks:

The financial services industry is more competitive than ever before – new entrants and advancements in consumer technology are boosting customer expectations for streamlined, instant services, delivered through frictionless technology platforms. Meanwhile, many banks are still battling with expensive, archaic, legacy technology, developed in a pre-internet era and struggling to keep up with the pace of innovation as a result.

For FinTech providers:

FinTech enterprises are built on flexible cloud-based architectures, and as such, are in many cases leading the charge of banking digitisation. But without access to core infrastructure, it's often impossible to operate directly without the support of an existing bank's IT network.

The industry is now opening up to enable and encourage collaboration between banks and FinTech providers, particularly through the integration of banking APIs and the adoption of cloud. But all the while there is a lack of standardisation across APIs, collaboration is limited.

For technology software vendors and service providers:

Despite the level of expertise and innovation offered up by technology developers and providers, a disproportionate amount of a bank's IT budget is still spent on the sheer cost of IT integration. Gartner predicts that this will soon surpass 50% of a bank's budget for new large systems.

Without this resource burden, banks would have the scope to realise the full potential of the solutions that they invest in and implement. Technology vendors and service providers need to help reduce the cost of integration and align banks to a longer-term technology roadmap and vision.

The solution

Work together to future-proof the financial services industry

The banking industry has changed almost beyond recognition in recent years, but the digital transformation that we have experienced so far is just a fraction of the shift that is to come. At BIAN we fundamentally believe that by collaborating effectively across the global financial services field – from established banks and FinTech providers, to technology vendors and consultants, we can navigate this period of change together. Through industry collaboration, we can embrace the digitisation of banking for what it is: an exciting opportunity to introduce genuine change to the industry and open the door to new business models, rather than an unconquerable challenge that threatens the future of financial services.

Building the model

Members combine their industry expertise to define a usable banking technology framework that standardises and simplifies core banking architecture across the entire financial services ecosystem. Based on service-oriented architecture principles, the comprehensive model is being adopted by banks across the globe, as a means to streamline convoluted enterprise architecture. **(See page 23 for the model in full, or page 11 and following, for examples of the BIAN model in practice)**

Who are the BIAN members?

An ecosystem committed to knowledge sharing:

BIAN is made up of the world's leading corporations from all areas of the financial industry. It is the support of these industry front-runners and the knowledge and passion of individual experts within those enterprises that drives the ecosystem forward. To be a member of BIAN is to put a stake in the ground as an industry leader and make a commitment to shaping the future of the financial services industry.

Today we have over 70 members including:



Coreless Banking powered by BIAN

Banking without barriers

Our vision:

We want to be the
banking technology
standard.

Using the model: BIAN in practice



Steven Van Wyk, Executive Vice President, Head of Technology and Operations, PNC Financial Services Group explains the benefits of aligning the bank's enterprise architecture to the BIAN model.

The BIAN model fits perfectly in line with how we view enterprise architecture (EA) at PNC. One of the first steps we took as an organisation was to bring a business perspective to enterprise architecture. To us, technology is not just a collection of servers and software, but rather a set of technical solutions that are aligned to specific business capabilities and functions.



1) Adding the business view

To begin, we looked at every application that existed in our portfolio and mapped it to the aligned BIAN service domains (specific business functions) in our EA management tool.

This gave us a clear view of systems that were providing similar or overlapping capabilities, which could be optimised, while also creating a consistent and replicable way to evaluate proposed new solutions for our application portfolio.

2) Creating a bank on a page

This allowed us to create a business driven "bank on a page" heat map, using BIAN's M4 model on pages 25-26, to show what areas were suffering from obsolescence and compliance issues. As we move forward, we can align our risk and project portfolio views to the same bank on a page overview.

Using BIAN's framework, we can move our core platforms into a componentised framework, which allows us to manage our transformation in logical steps that are aligned with the overall business strategy.

3) Positioning for disruptive industry change

Defining our technology into capabilities in this way also sets us up for future innovation. The proliferation of FinTech is setting new expectations with new business models that sometimes compete directly with banks. We are evolving our core banking capabilities into a componentised framework that will allow us to embrace evolving business expectations and customer demands. The search for innovation partnerships becomes easier when you are no longer tied to the past era's monolithic application approaches. We are exploring open banking APIs, for example, in a collaborative project with BIAN and Carnegie Mellon University. By aligning to the BIAN framework we are assured that our enterprise architecture can continuously adapt to new market and technology demands.

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Using the model: BIAN in practice

Cognizant

Cognizant Technology Solutions, led by Sanghosh Bhalla, Niloy Sengupta and Akshaya Bhargava from the firm's Banking and Financial Services Consulting practice, recently helped a top three North American bank, adopt BIAN and optimize their enterprise portfolio of applications that support business functions across all of its business units.

This "universal bank" is a market leader in the US in several market segments including retail and commercial banking, lending and mortgages, wealth management and capital markets, and over several decades have amassed an enormous portfolio of ~6000 applications. It commissioned an enterprise-wide Application Portfolio Rationalization program to support some strategic business drivers such as reduction of TCO of apps by eliminating redundancies, increased governance and controls, ensure standardization for better risk and regulatory compliance, simplification and application modernization including increased cloud adoption, enabling additional growth of business opportunities and improving user-experience. The program had a target to reduce the application portfolio size by at least 15% within three years.

Cognizant joined the program and drove the adoption of BIAN 5.0 Service Landscape as the framework to compare apps based on the functional overlaps. BIAN proved useful to the program objectives in the following ways:

1) Provided the enterprise view of business capabilities:

The bank needed a framework that could provide a single unified view of its business capabilities at a high level. While it had several capability models at the line of business levels, they were inadequate to provide the enterprise view that was critical for this program.

2) Developed Capability based Overlap Analytics:

Each application was mapped to BIAN Service Domains and then clustered based on overlaps. Subsequently, the application health & wellness metrics, were applied to individual clusters, and each app was scored based on those metrics. The applications that scored low in the wellness tests became candidates for retirement in that cluster. Subsequently, the program team started discussions with the business and technology leaders to decommission those apps. BIAN based overlap analytics was critical in these negotiations to educate the stakeholders that such decommissioning would not hinder their day-to-day business operations, as they had alternatives.

3) Sustained an Optimal portfolio of applications:

Beyond rationalizing the existing portfolio, it was essential to ensure that the proliferation of applications with overlapping capabilities does not happen in the future. Therefore two new checkpoints, based on BIAN based

capability analytics, were implemented in the New Application Development process. The first is during the Concept Review stage during Ideation, before funding approvals. This checkpoint ensures that the bank will not fund any new apps that have a potential to overlap with those that are already deployed and will not be retired in the near-term. The second checkpoint is during the New Application Onboarding stage, where the Enterprise Architects will review and validate that a new app that is being built or bought does not have any capability overlaps with any existing apps in production.

4) Established Portfolio Health KPIs:

We drove the creation of several application health & wellness metrics to score apps. These metrics looked into the fitment of applications to current and future business strategy; the criticality of the apps to business functions; the degree of alignment of apps to enterprise technology standards; the degree of aging; the degree of compliance of apps to risk and regulatory compliance parameters and the total cost of ownership.

5) Adoption of BIAN as the Enterprise Business Capability Model:

Increased participation from client's Architect community in BIAN Working Groups and set the stage for Domain Driven Design and Microservices architecture leading to agile and component-driven enterprise architecture.

Using the model: BIAN in practice



Aleksandar Milosevic, Chief Software Architect at banking software provider Asseco SEE explains the business benefits of working with BIAN to define standardised APIs.

Using standard interfaces to consolidate and modernise portfolio

As a vendor that grew through acquisitions, we inherited a rich collection of applications that have their application specific interfaces. Applications that had similar scope ended up having their specific interfaces for essentially the same responsibilities. One of our strategic goals was to cut integration time and cost and over time achieve plug-and-play interoperability between different applications in our portfolio. Another goal was to hide any application or platform specifics behind the interfaces so we can gradually modernise individual applications without disturbing the others. Last but not least, our goal was to enable easier consumption of our interfaces from customers and partners. As we were already using BIAN as a map for application portfolio tracking and optimisation we decided to go a step further with BIAN – to define standard A2A interfaces aligned with BIAN and retire legacy application specific interfaces.

Asseco Reference REST APIs

We formed working groups from domain experts and gave them the charter to standardise REST APIs for Asseco SEE banking applications. One of the biggest challenges when defining a large set of consistent APIs is the alignment of their responsibilities and boundaries. Through our experience with BIAN we learned that we could utilise the landscape for functional decomposition of APIs in which each service domain becomes a candidate boundary for an API definition. Having clear rules for establishing service domains reduced the risk of unclear boundaries and increased the productivity of our working groups.

30 APIs and counting

Since the beginning of 2016, our working groups were able to define 30 APIs and our many product teams implemented those APIs as both consumers and providers. Working on standard APIs had an integral impact on our development organisation and helped broaden the perspectives outside organisational and application siloes. With three banks already using REST APIs and many more in the pipeline, APIs and their alignment with BIAN is a hot topic in almost any discussion that we have with banks today.



How to get involved

Networking and knowledge sharing opportunities include:

Global and local events	Featuring world leading banking and technology speakers. Or work with us to host your own event and grow your network
Collaborative Working Groups	Designed to collaboratively build the core banking model of the future
Hands-on projects	Engage with partner projects, such as Carnegie Mellon University's work on open APIs
Accredited courses	Become a BIAN-certified architect
Case Studies	Learn how others are putting the BIAN model into practice and share your experiences
How-to guides and webinars	Benefit from ongoing education and knowledge sharing
Collaborative media opportunities	Raise your company's profile as a leading innovator in the industry

“With a strong heritage in financial services, we are committed to helping the industry shape the emerging BIAN standards which will support banks in reducing their IT costs and delivering greater flexibility to the business. Becoming a member of BIAN provides us with the unique opportunity to work alongside our peers, customers and other industry players to jointly define, build and implement next-generation banking platforms based on a common architectural framework.”

*Mohit Joshi, President, World Economic Forum (WEF) Young Global Leader
Infosys*

Interested in joining the BIAN network, but want to see more first?

Non-members are encouraged to attend our events and webinars completely free of charge. See full details of our latest engagements on our website <https://bian.org/>.

What our members say

“ TCS has always been committed to adopting standards and influencing them where possible. We believe BIAN offers the potential for further standardisation and gives banks the tools to rationalise and simplify their businesses. We see BIAN as a vehicle to contribute to help deliver these open business standards in a collaborative manner, for the benefit of all financial institutions. ”

R. Vivekanand

*Vice President & Global Head – Product Delivery
TCS Financial Solutions*

“ BIAN’s collaboration with industry groups such as Object Management Group (OMG) and SWIFT demonstrates its commitment to making its banking models more valuable to its members. Through the BIAN community, IBM will continue working to address the requirements of financial institutions through solutions based on open standards. ”

Chae An

*Vice President and CTO Financial Services Solutions
IBM*

“ SWIFT’s mission is to drive efficiencies in the financial industry by enabling automation. To achieve this, SWIFT’s standardization efforts focus on the content and usage of messages exchanged between institutions. Because BIAN’s interest is in standardizing the IT landscape within institutions, BIAN is fully aligned with SWIFT’s goal of increasing efficiency, but complementary in its approach. SWIFT supports and contributes to BIAN to ensure that BIAN and SWIFT/ISO standards work well together and deliver maximum efficiency benefits for the industry. ”

Patrik Neutjens

*Head of Partner Management SWIFT
SWIFT*



“ Based on our ‘IT-strategy 2020’ plan, KfW has decided to significantly redesign part of our current IT landscape. As part of this transition process the clear focus is on standardisation. Using the BIAN community and materials we strongly believe that BIAN will help us meet our IT objectives. What’s more, as one of the largest development banks worldwide we hope our membership will attract other development banks to join BIAN and help promote standardisation across our market. ”

Michael Strauss

*Head of IT Strategy and Architecture
KfW Bankengruppe*

“ We view standardisation across the industry – amongst both financial institutions and vendors – as the key to realising the promise of SOA and simplifying the integration effort of major projects. We are impressed with BIAN’s existing membership and are delighted to be part of this visionary organisation. We hope this forum will provide real business value in the years ahead. ”

Ian Guy Gillard

*Executive Vice President,
Bangkok Bank*

“ The implementation of an enterprise architecture, enriched by internal and external communities, is one of the projects Société Générale is currently investing in. We are convinced that the nature of the common work and shared information about the architecture vision will speed up our current tasks on the same topics, and continue to support our customer-oriented spirit. ”

Alain Benoist

*Global head of transformation, processes and information systems
Société Générale*



The Service Landscape

The BIAN model is based on a service-oriented architecture that defines the standard business capabilities that make up a bank – such as payments, loan offerings or trading facilities. These are defined by Service Domains. By identifying the information dependencies (known as Service Operations) between these standard business capabilities, BIAN is building a simplified, yet comprehensive solution to overcome legacy banking technology issues.

How to join

The BIAN membership is open to all parties in the financial services industry who are willing to collaborate and share knowledge to move the whole industry forwards.

Visit <https://bian.org/membership/join-us/> or email your application to info@bian.org

The Service Landscape in detail

Reference Data	Sales & Service		Operations & Execution			Risk & Compliance	Business Support		
Reference Data	Channel Specific	Marketing	Product Specific Fulfilment			Bank Portfolio & Treasury	IT Mngmt.	Finance	
Party Data Mngmt. Customer Profile	Branch Location Mngmt. Contact Centre Mngmt. Branch Network Mngmt. E-Branch Mngmt. Adv. Voice Services Mngmt. ATM Network Mngmt. Contact Centre Operations Branch Location Operations E-Branch Operations Adv. Voice Services Operat. ATM Network Operations Branch Currency Mngmt. Branch Currency Distribution Prod. Inventory Item Mngmt. Prod. Inventory Distribution	Business Development Brand Mngmt. Advertising Promotional Events Prospect Campaign Mngmt. Prospect Campaign Design Customer Campaign Mngmt. Customer Campaign Design Customer Surveys	Loans & Deposits	Investment Mngmt.	Trade Banking	Corporate Treasury Analysis Corporate Treasury Asset Securitization Asset & Liability Mngmt. Bank Portfolio Analysis Bank Portfolio Administration Stock Lending/Repos	IT Systems Direction IT Stds & Guidelines Systems Administration Development Environment System Development Production Release System Deployment Systems Operations Platform Operations Systems Help Desk Systems Assurance Internal Network Operation	Financial Statements Financial Control Financial Compliance Enterprise Tax Administration	
External Agency			Loan Leasing Current Account Deposit Account Corporate Current Account Consumer Loan Corporate Loan Corporate Lease Merchandising Loan Mortgage Fiduciary Agreement Savings Account	Investm. Portfolio Planning Investm. Portfolio Analysis Investm. Portfolio Mngmt. eTrading Workbench	Letter of Credit Bank Guarantee Trade Finance Credit Mngmt. Credit Facility Project Finance Limit & Exposure Mngmt. Syndicated Loan Cash Mngmt. & Account Services Direct Debit Mandate Direct Debit Cheque Lock Box Factoring				
Information Provider Admin Syndicate Mngmt. Interbank Relationship Mngmt. Correspondent Bank Relationship Mngmt. Correspondent Bank Data Mngmt. Sub Custodian Agreement Product Service Agency Product Broker Agreement Contractor/Supplier Agreement				Wholesale Trading		Models		Human Resource Mngmt.	
				Trading Book Oversight Trading Models Dealer Workbench Quote Mngmt. Suitability Checking Credit Risk Operations Market Making ECM / DCM Program Trading Traded Position Mngmt. Market Order Market Order Execution				Human Resources Direction Employee Assignment Employee Data Management Employee/Contractor Contract Employee Certification Employee Evaluation Employee Payroll and Incentives Travel and Expenses Employee Access Employee Benefits Workforce Training Recruitment	
Market Data	Cross Channel		Cards		Corp. Financing & Advisory Services		Non IT & HR Enterprise Services	Knowledge & IP Mngmt.	
Information Provider Operation Market Information Mngmt. Financial Market Analysis Financial Market Research Quant Model Market Data Switch Admin Market Data Switch Ops Financial Instr. Ref Data Mngmt. Counterparty Administration Public Reference Data Mngmt. Location Data Mngmt.	Party Authentication Transaction Authorization Point of Service Servicing Event History Servicing Activity Analysis Contact Routing Contact Dialogue Interactive Help Contact Handler Customer Workbench		Credit/Charge Card Card Authorization Card Capture Card Billing & Payments Merchant Relations		Corporate Finance M&A Advisory Corp. Tax Advisory Public Offering Private Placement		Legal Compliance Internal Audit Security Advisory Security Assurance Approved Supplier Directory Procurement Company Billing & Payments Fixed Asset Register	Mngmt. Manual Intellectual Property Portfolio Knowledge Exchange	
Product Management		Customer Mngmt.	Customer Services	Market Operations		Business Analysis	Buildings, Equipment and Facilities	Corporate Relations	
Product Design Product Deployment Product Training Product Quality Assurance Discount Pricing Product Directory Special Pricing Conditions		Customer Relationship Mngmt. Customer Prod./Service Eligibility Customer Agreement Sales Product Agreement Customer Access Entitlement Customer Behavioural Insights Customer Credit Rating Account Recovery Customer Event History Customer Reference Data Mgmt. Customer Precedents Customer Proposition	Corporate Trust Services Remittance Currency Exchange Bank Drafts & Trvl. Checks Brokered Product Consumer Investments Customer Tax Handling Consumer Advisory Services Trust Services Service Product	Mutual Fund Admin. Hedge Fund Admin. Unit Trust Admin. Trade Confirmation Matching Order Allocation Settlement Obligation Mngmt. Securities Dlrvy & Receipt Mngmt. Securities Fails Processing Trade/Price Reporting. Custody Administration Corporate Events Financial Instrument Valuation		Segment Direction Product Portfolio Customer Portfolio Branch Portfolio Channel Portfolio Competitor Analysis Market Research Market Analysis Contribution Analysis	Property Portfolio Site Operations Site Administration Equipment Administration Equipment Maintenance Utilities Administration Building Maintenance	Corporate Communications Corporate Alliance/Stakeholder Corporate Relationship Regulatory and Legal Authority Investor Relations	
			Cross Product Operations				Business Command & Control	Business Direction	
		Servicing	Payments	Account Mngmt.	Operational Services	Regulations & Compliance		Document Mngmt. & Archive	
		Servicing Issue Customer Case Mngmt. Case Root Cause Analysis Customer Case Card Case Customer Order Payment Order	Payments Execution Financial Message Analysis Financial Gateway Correspondent Bank Cheque Processing Central Cash Handling ACH Fulfilment	Position Keeping Reward Points Account Accounts Receivable Account Reconciliation Counterparty Risk Position Mngmt. Fraud Detection Transaction Engine Product Combination Customer Position	Issued Device Admin Issued Device Tracking Disbursement Open Item Mngmt. Leasing Item Administration Dunning Customer Billing Rewards Points Awards & Red. Channel Activity Analysis Channel Activity History	Guideline Compliance Regulatory Compliance Compliance Reporting Regulatory Reporting Fraud/AML Resolution Financial Accounting	Organization Direction Business Unit Financial Analysis Business Unit Financial Operations Business Unit Accounting Business Unit Direction Business Unit Management	Corporate Strategy Corporate Policies Product & Services Direction Business Architecture Continuity Planning	
			Collateral Administration					Document Services Archive Services Correspondence	
			Payments Execution Financial Message Analysis Financial Gateway Correspondent Bank Cheque Processing Central Cash Handling ACH Fulfilment						

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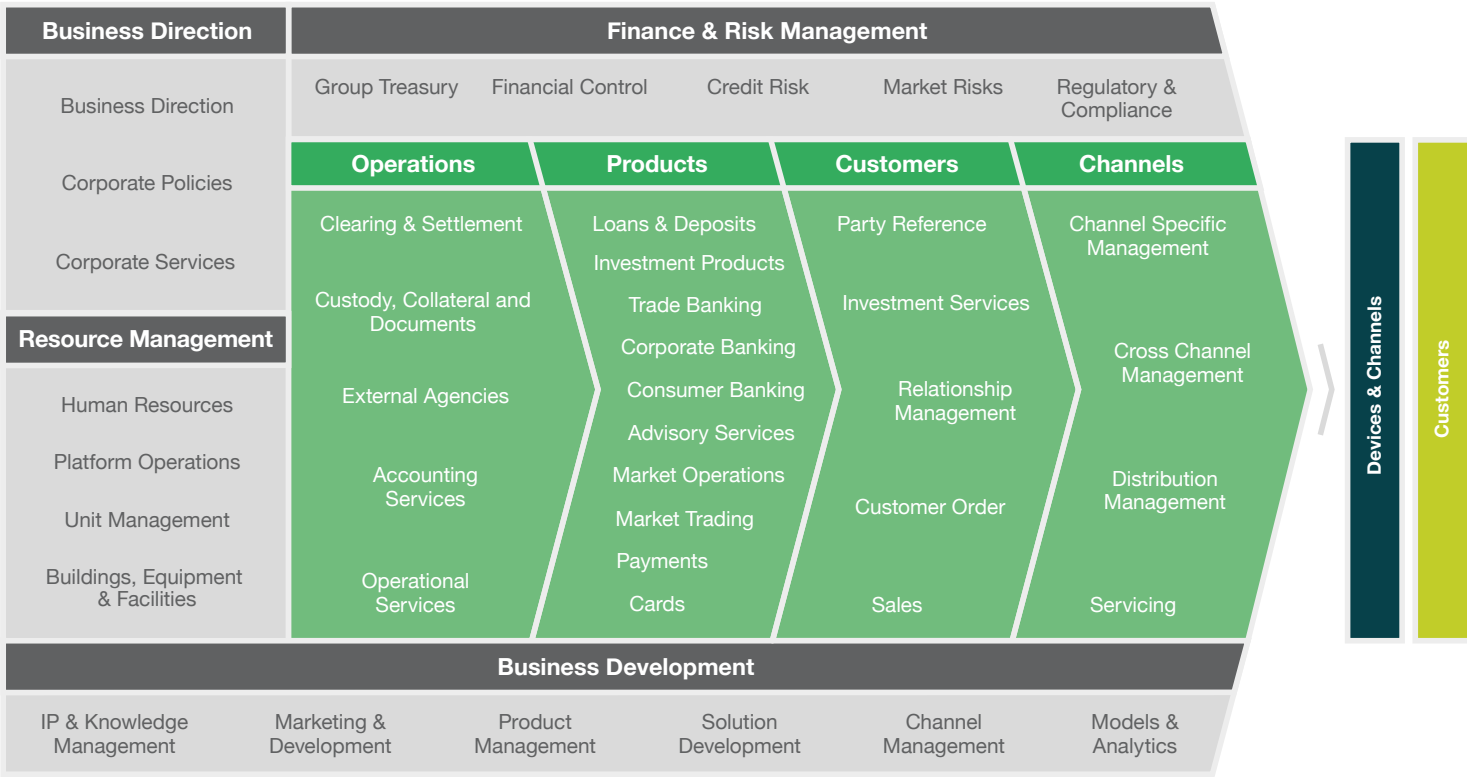
The M4 Model, the Bank on a page

For the creation of the enterprise blueprint, a different layout of the Service Landscape has been developed. This layout better reflects some of the typical structure and flows/connections in a bank and, consequently, is a better format for assembling the blueprint. It does not change the nature or content of the Service Domains themselves, it is simply an arrangement of the Service Domains.

This alternative layout is called the ‘value chain’ view as it includes structures that align loosely to the value chain in service delivery.

The M4Bank is a worked example where the BIAN designs have been used to define a representative organization ‘blueprint’. The M4Bank blueprint is assembled using BIAN Service Domains and represents a generic financial services value chain. It has four ‘dimensions of complexity’ (hence the name):

- 1. Multiple products** - the enterprise supports a range of products and services.
- 2. Multiple channels** - products and services are accessed through many channels and devices.
- 3. Multiple lines of business** - the enterprise spans business segments/markets.
- 4. Multiple levels of management** - the enterprise has global, regional and local management levels.



- Business Management:** The scope of BIAN models
- The Factory:** The capabilities that are directly involved in the delivery of services and products to customers
- Devices & Channels:** This includes all outside devices & channels like Facebook, email, smartphone, ATM's, POS, branches
- Customers:** Customer segments include Multinational, Corporate, SMB, Consumer

A closing statement from BIAN's Executive Director – Hans Tesselaar

It's time for financial services providers to stop firefighting external challenges and technology developments and start taking control of their own destiny.

That doesn't mean taking on the full burden of core banking transformation as an individual enterprise, assuming it as a competition point – but instead working together with the wider industry to build a standardised model. From there, financial enterprises will be empowered to compete in the areas that matter – namely, the service and products they offer to customers.

I've been in the financial services industry for over 30 years and am excited to see that the smartest players in the business are more open to collaboration than ever before. By working together, we can realise the limitless opportunities emerging in our sector.

I look forward to hearing from you.



