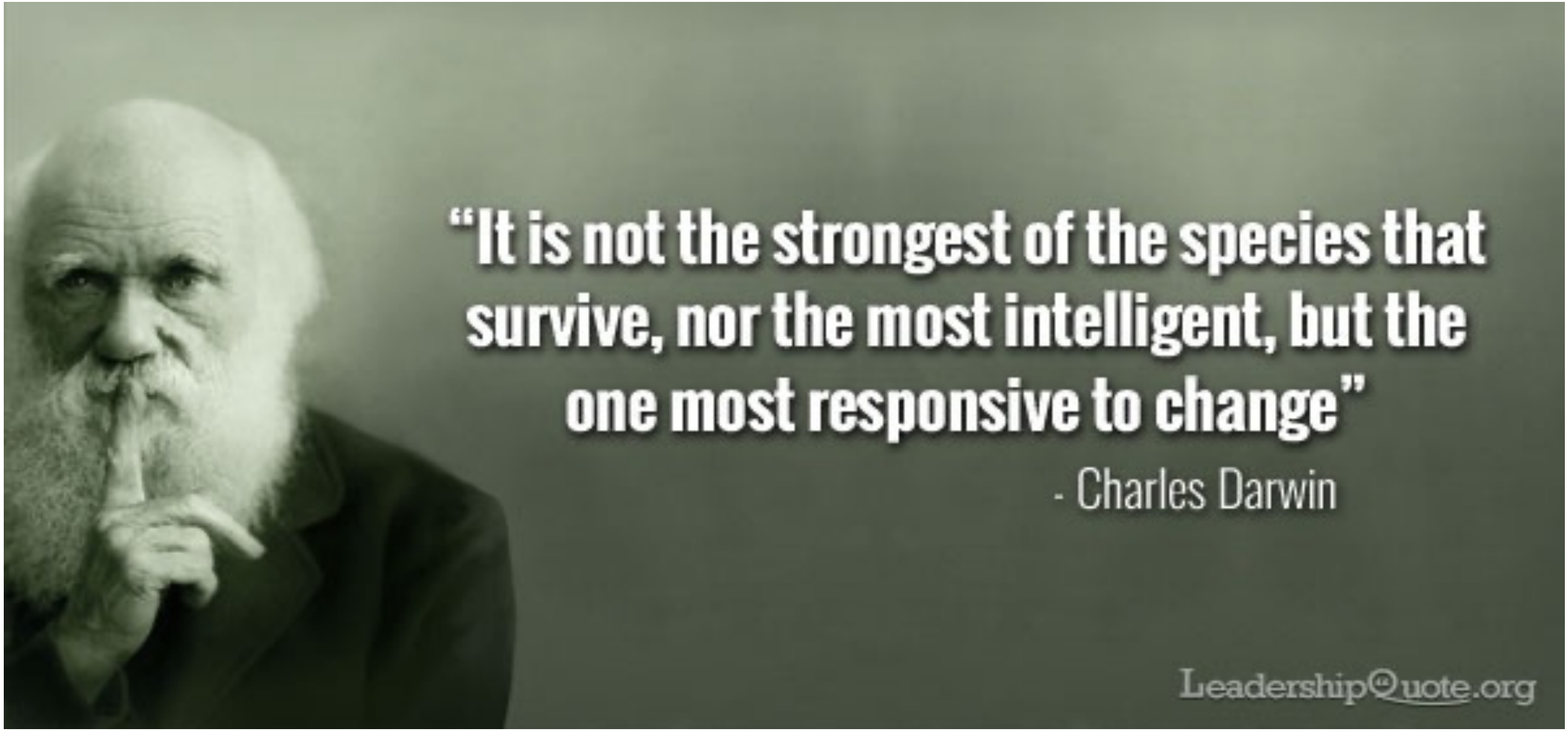
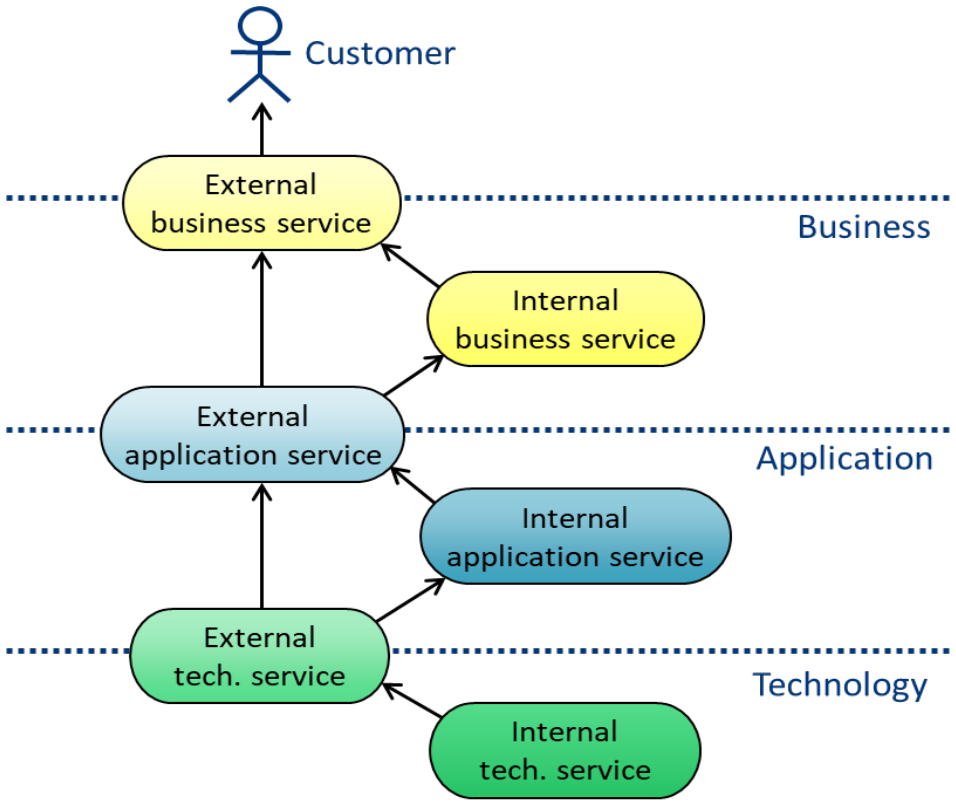
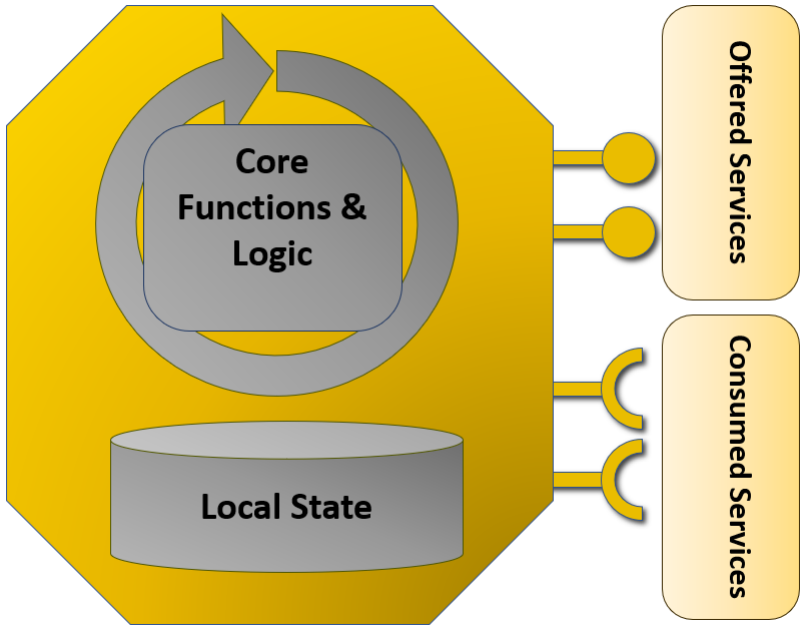
1.1 Darwin applies to the financial ecosystem too



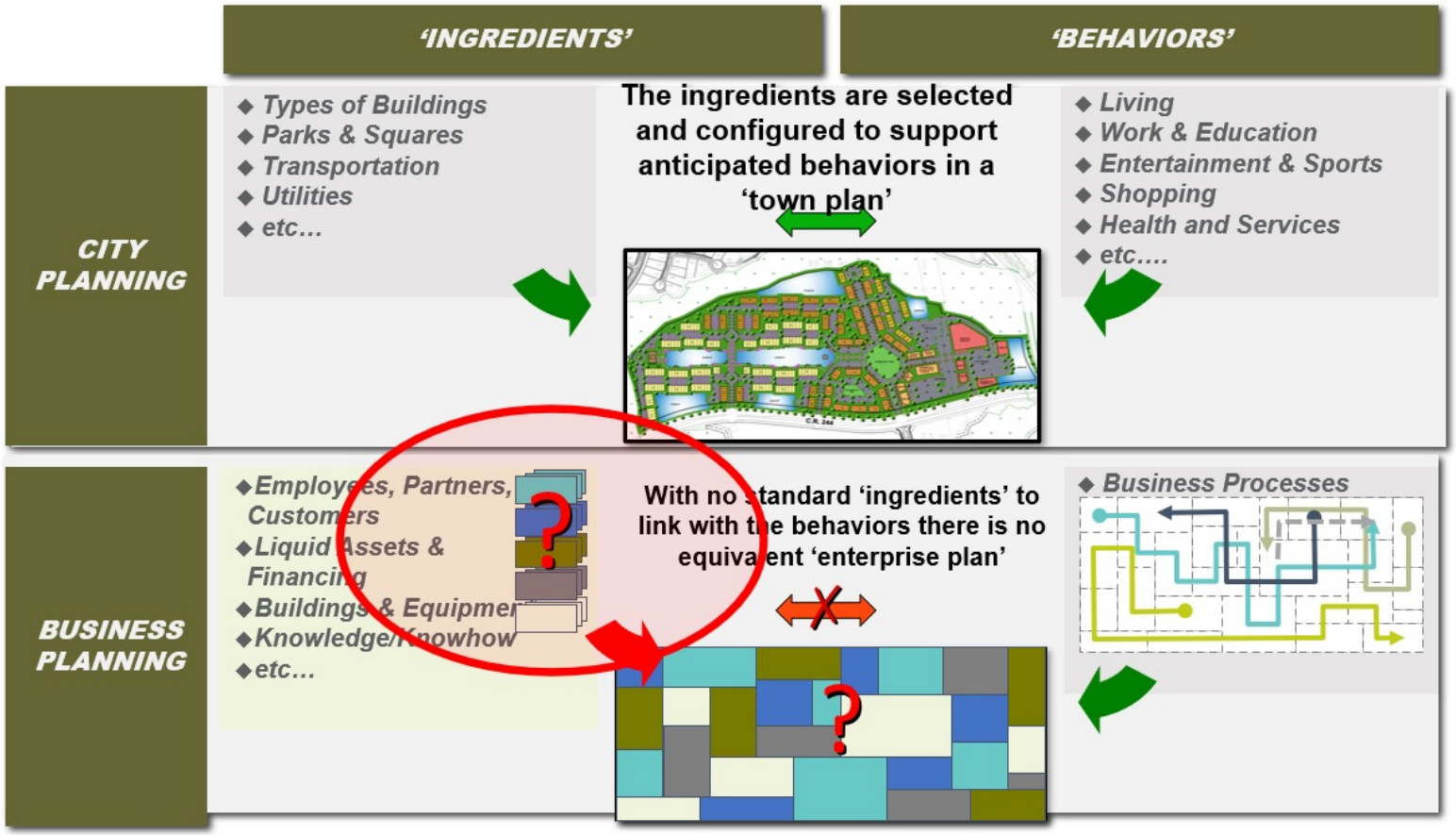
1.2 Service Orientation – Layered view



1.3 A BIAN Service Domain is a component for an agile architecture

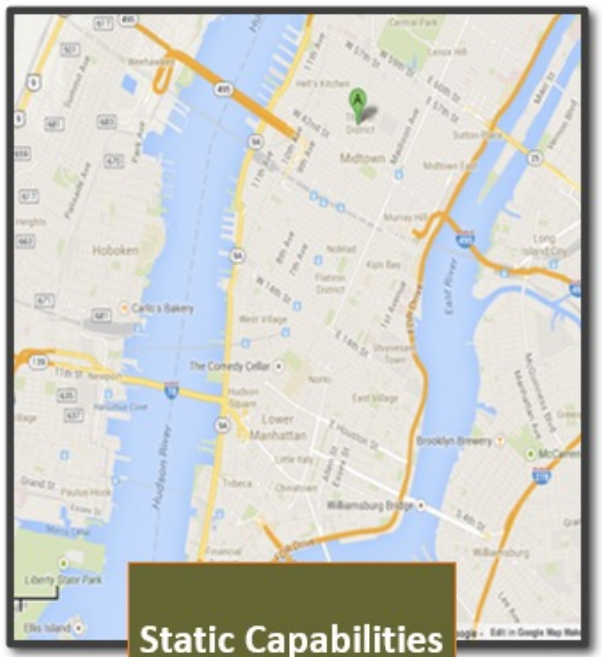


1.4 Comparing enterprise architecture and city planning

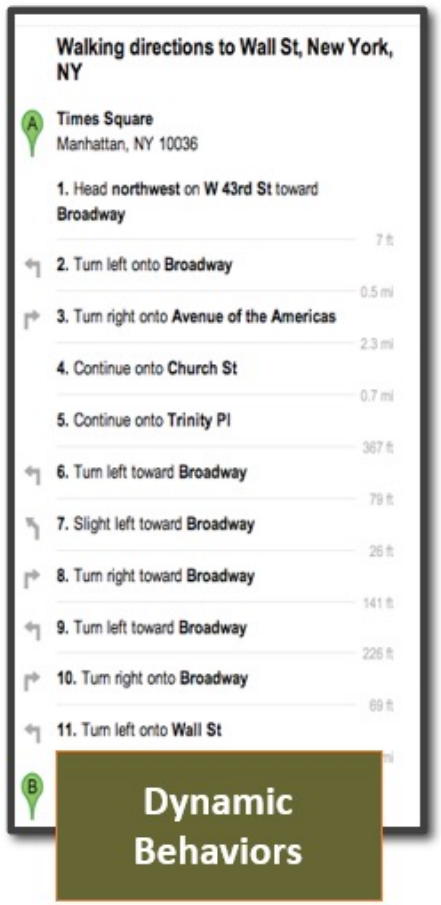


1.5 A well-designed city plan can support any journey

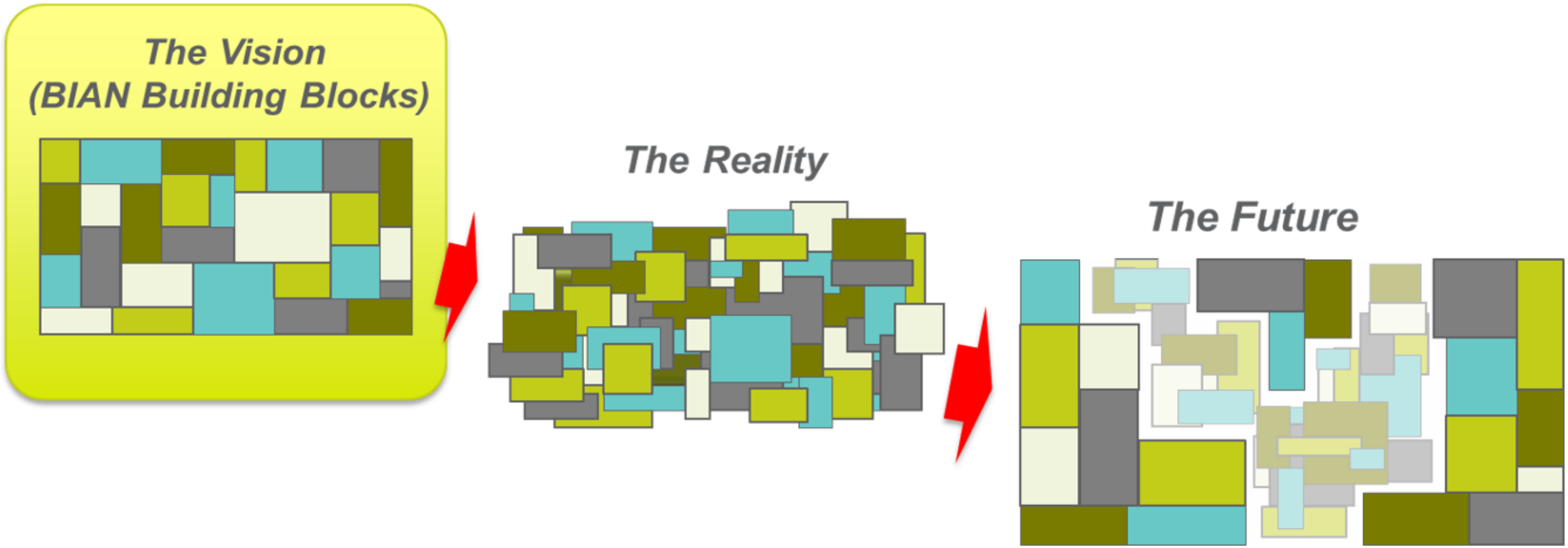
One static view of the city is a map of the general city layout:



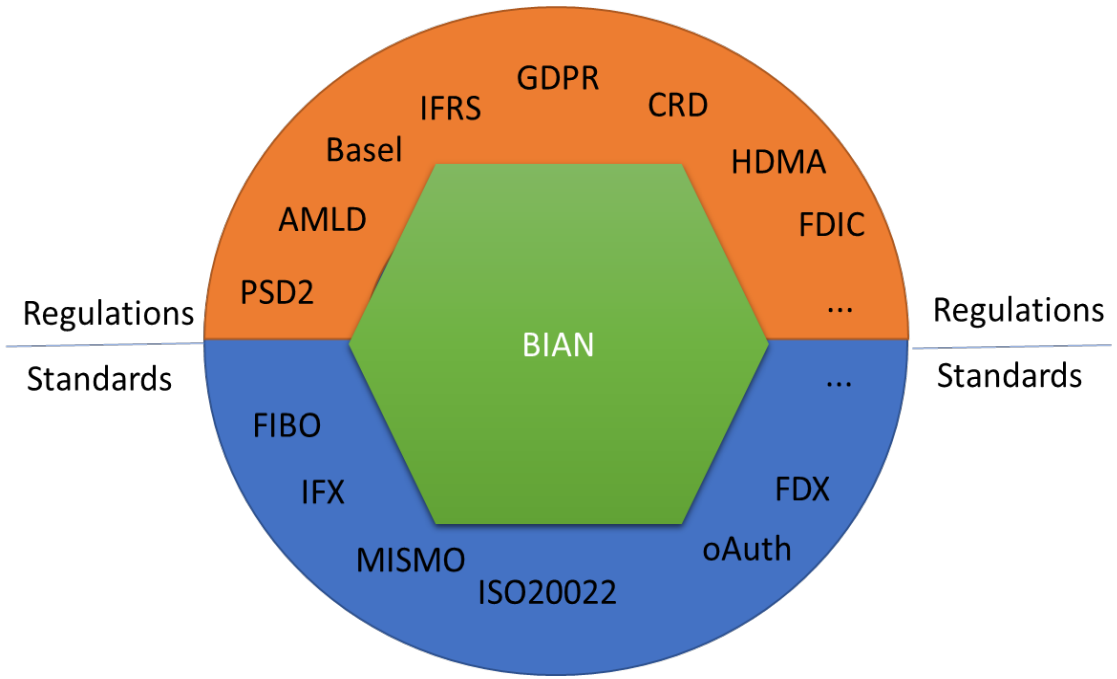
A dynamic view captures any possible journey through the city:



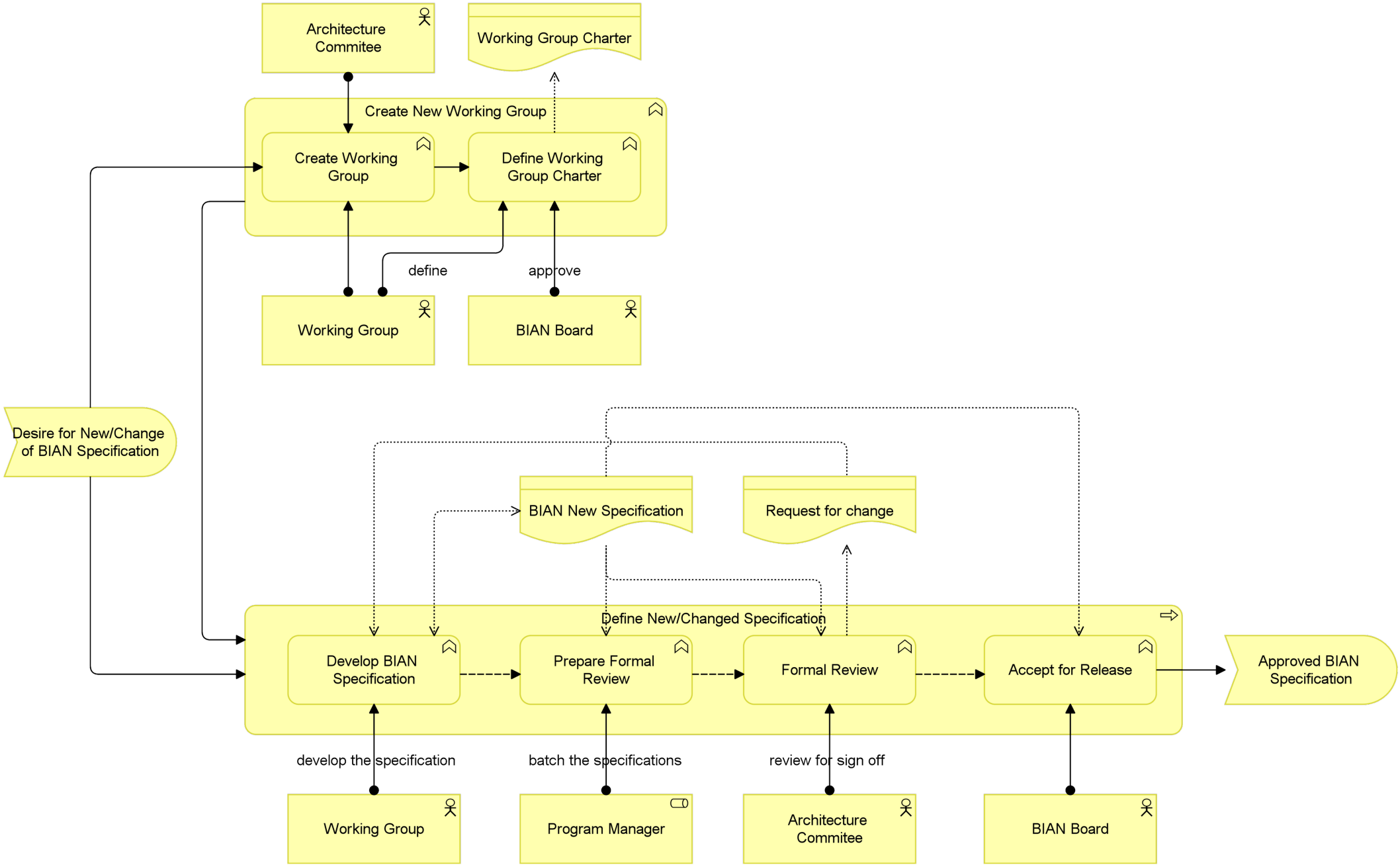
1.6 Migrating to a well-architected application landscape



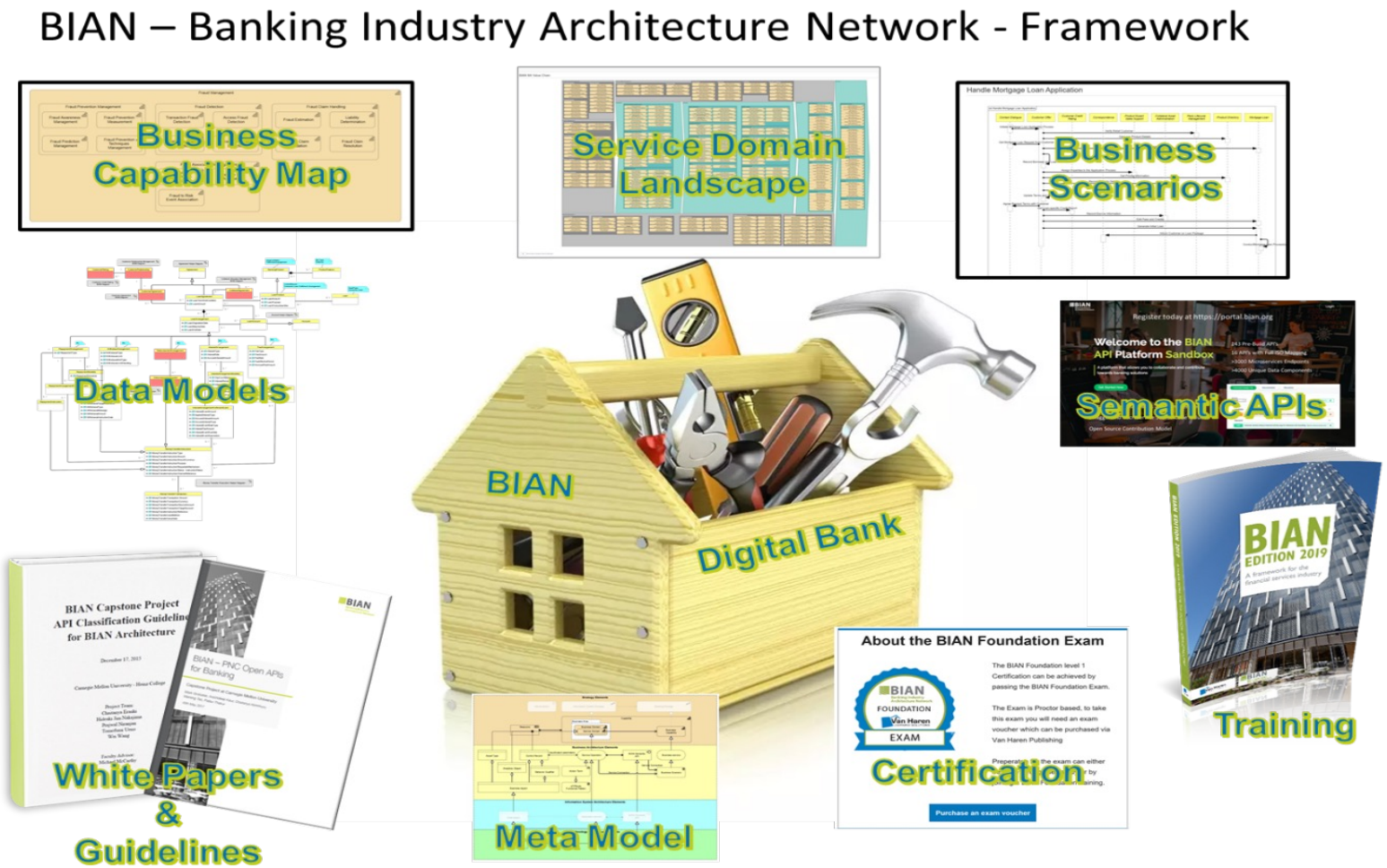
1.7 BIAN as ‘common language’ between other standards and regulations



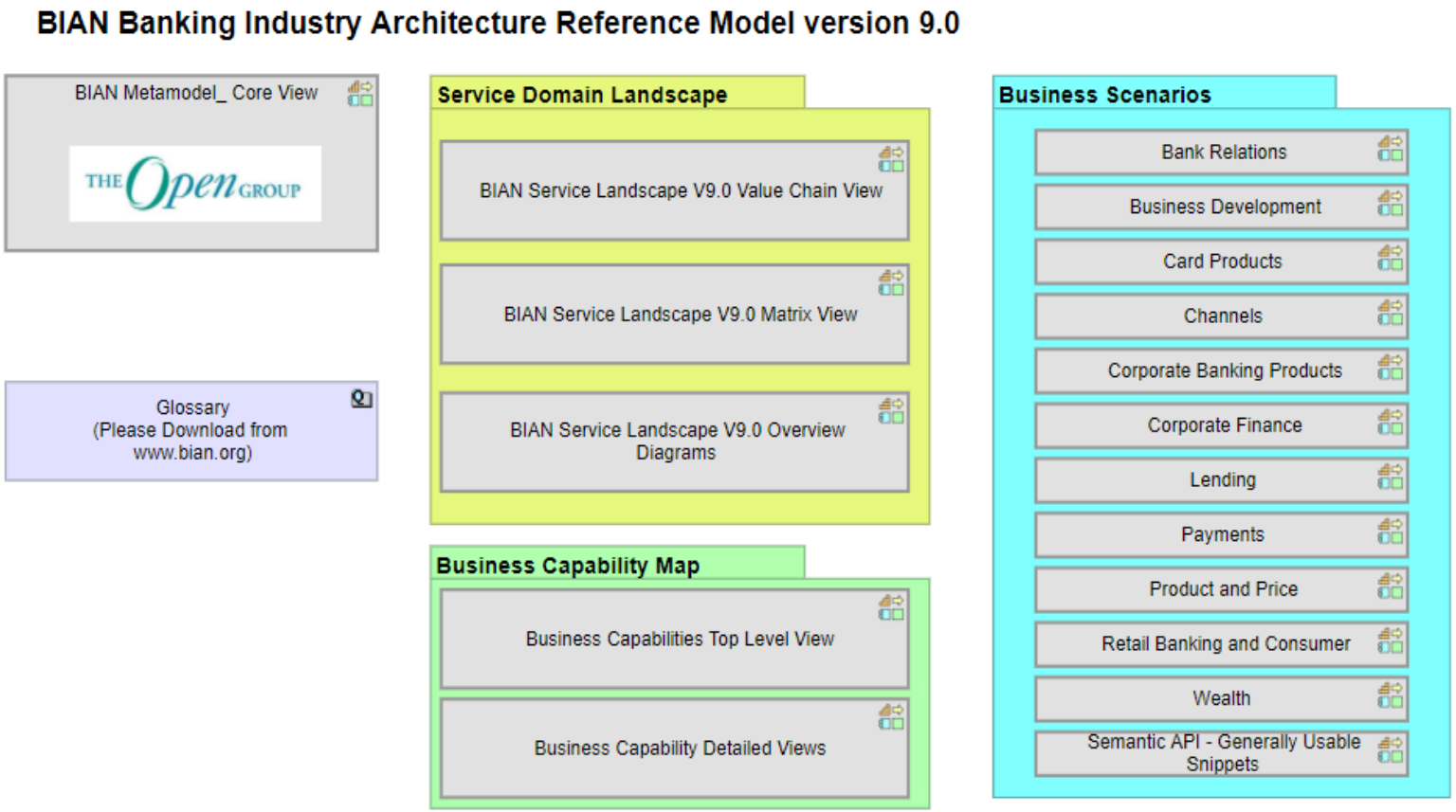
1.8 BIAN Validation Process



1.9 BIAN's toolbox to create an agile Banking Architecture

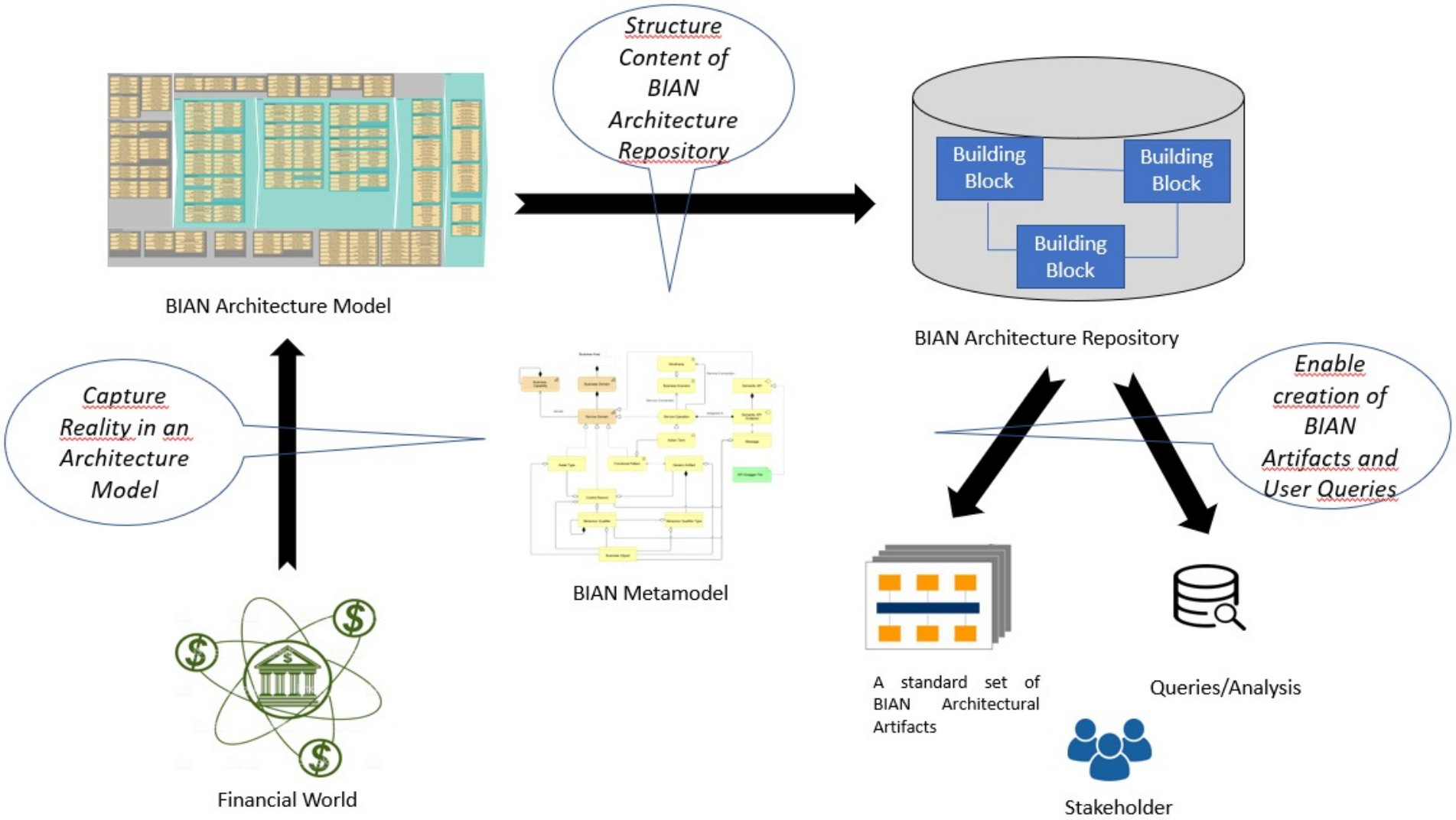


1.10 Landing page of the BIAN Digital Repository (version 9)

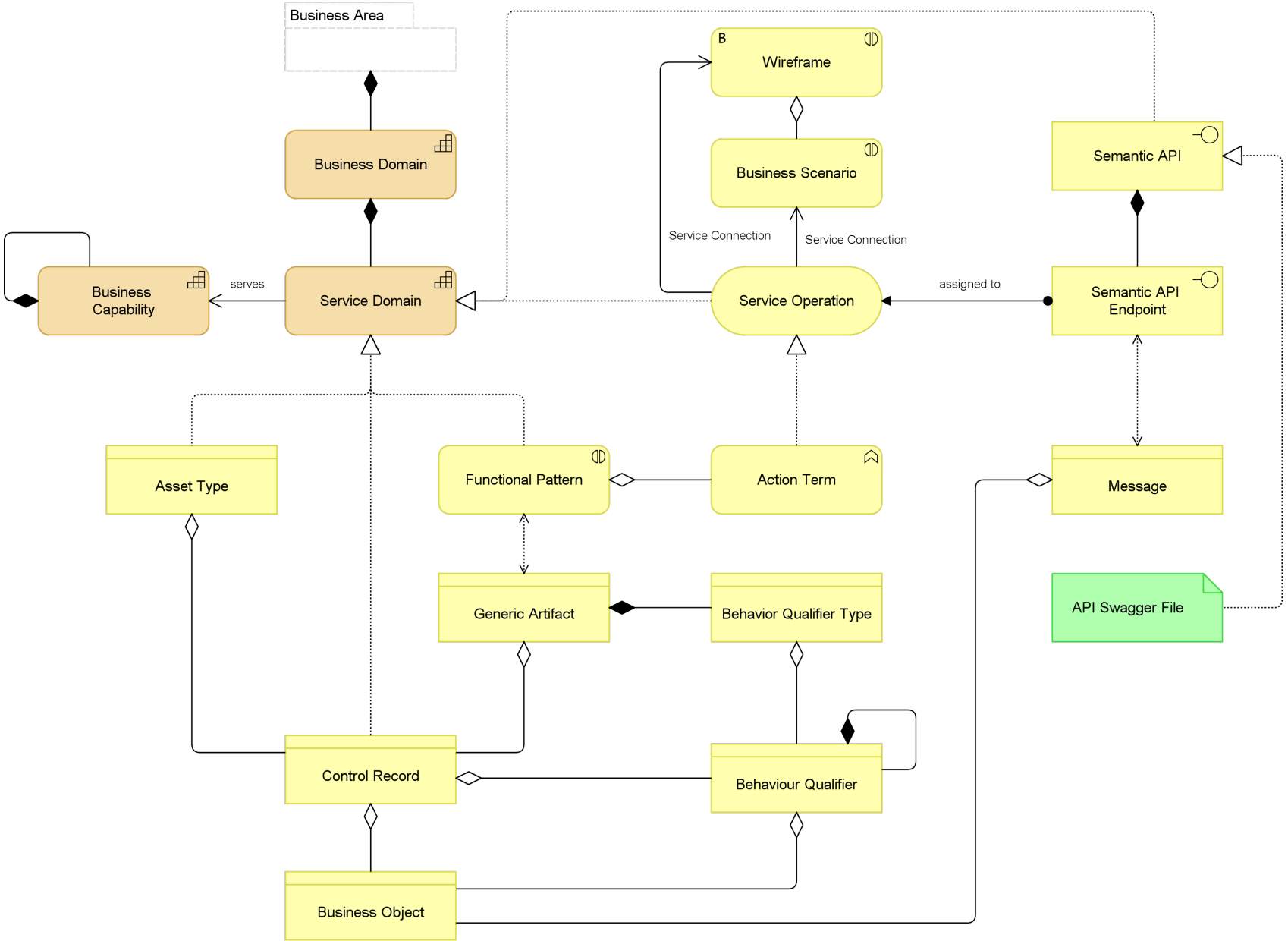


1.11 The BIAN adoption journey, overview

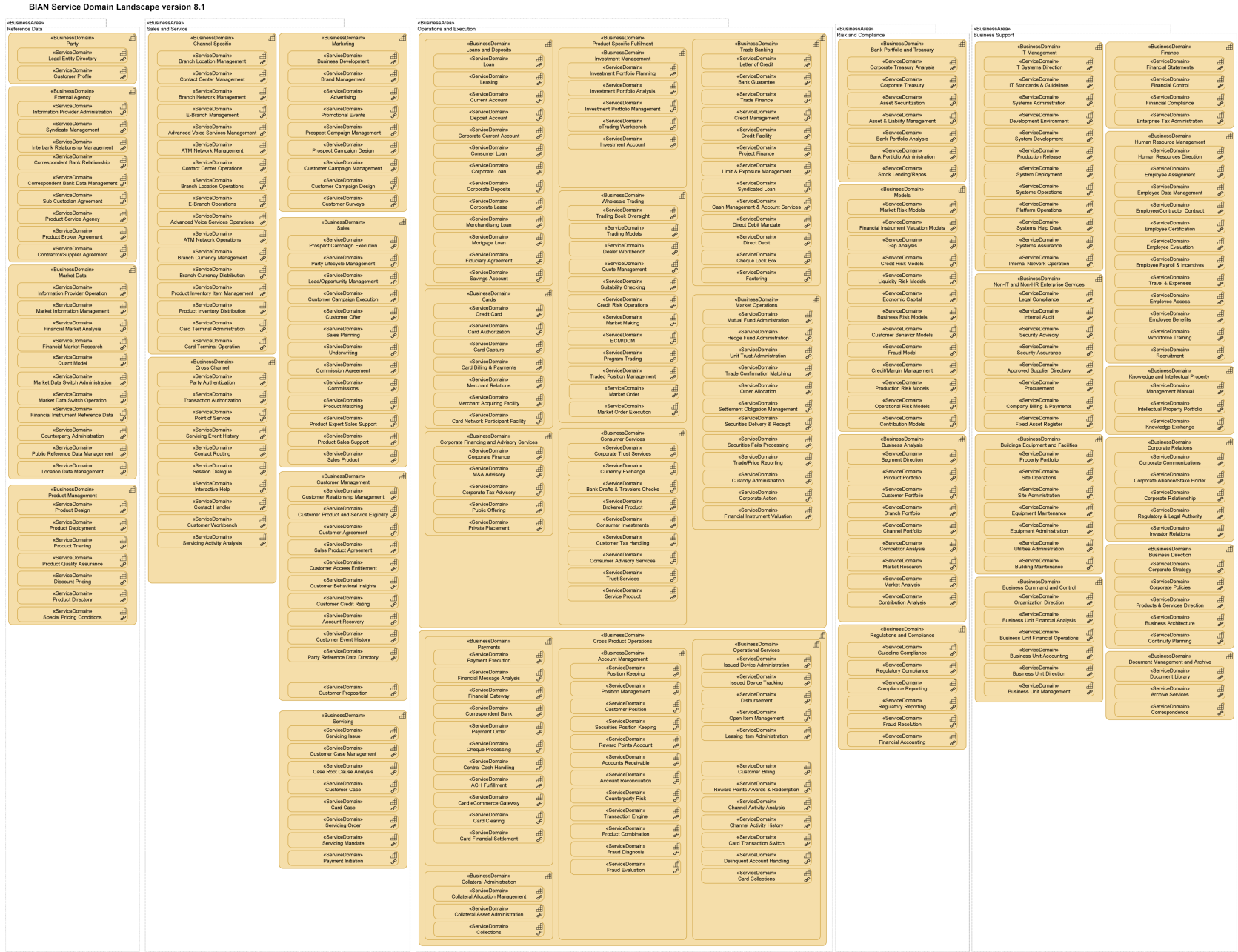
2.1 The role of the BIAN Metamodel



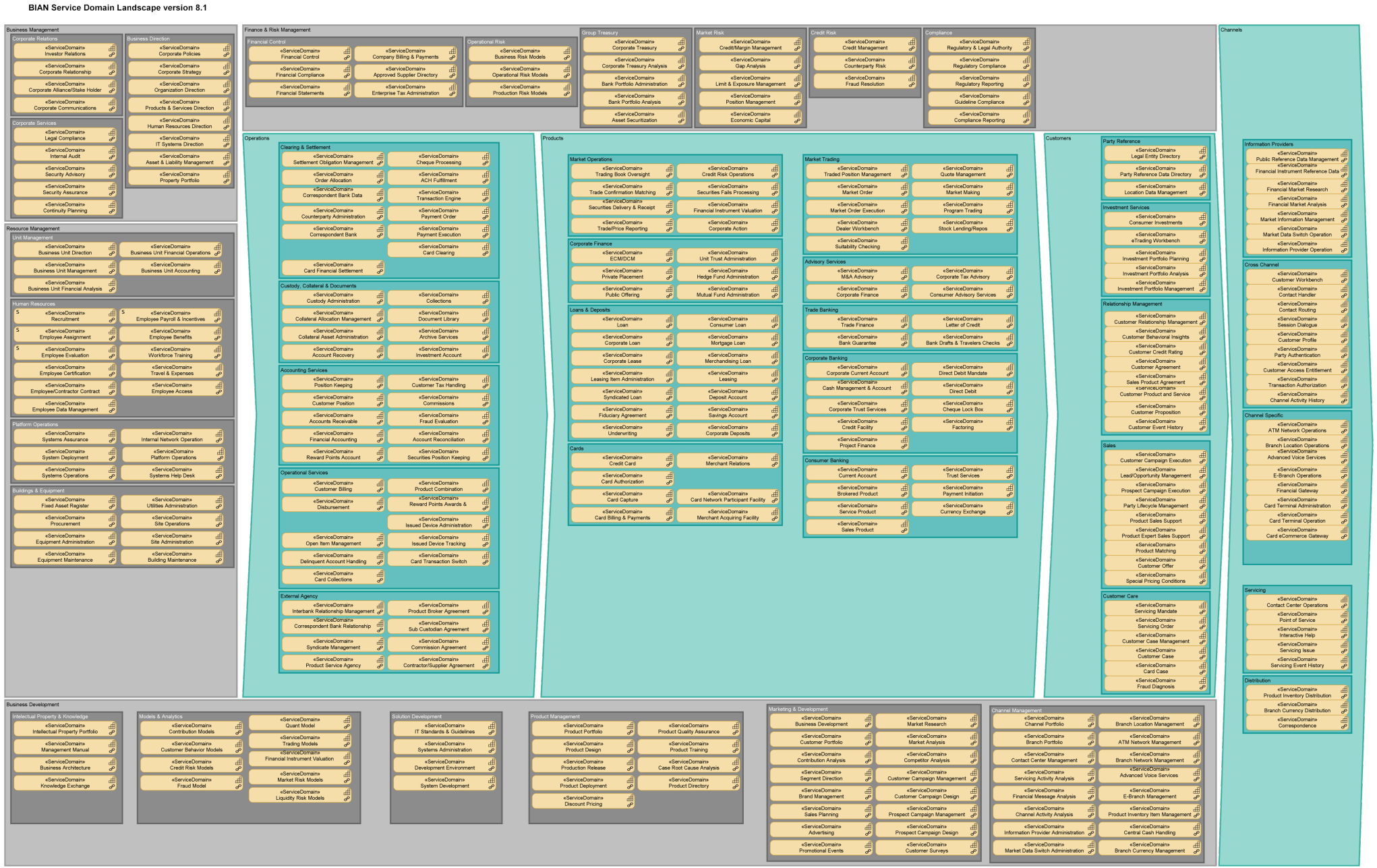
2.2 BIAN Metamodel, Overview



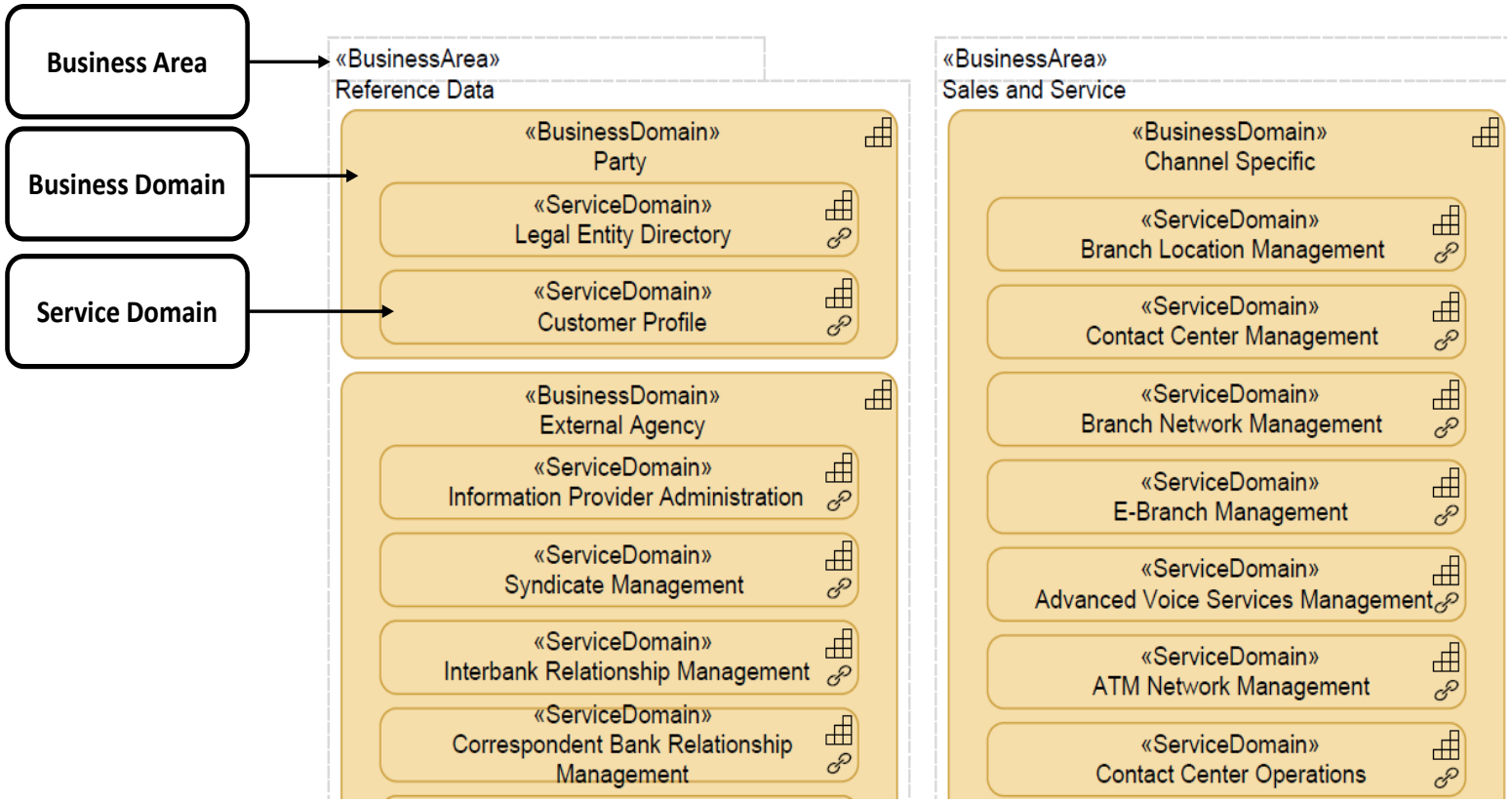
2.3 BIAN Service Landscape, Matrix View



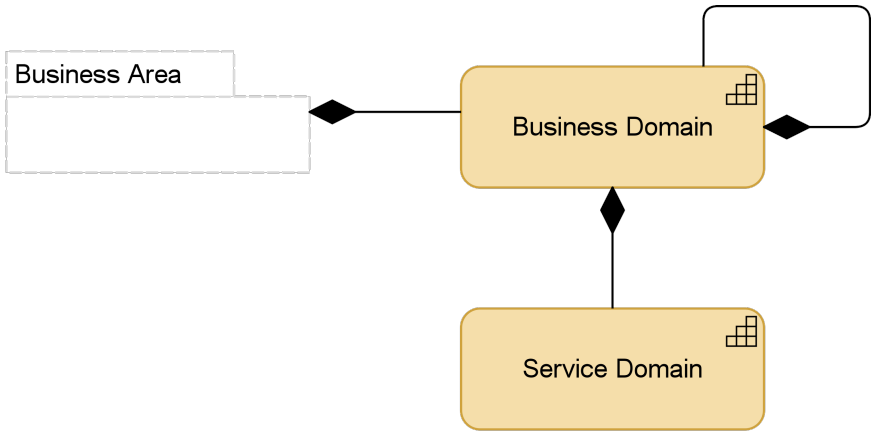
2.4 BIAN Service Landscape, Matrix View



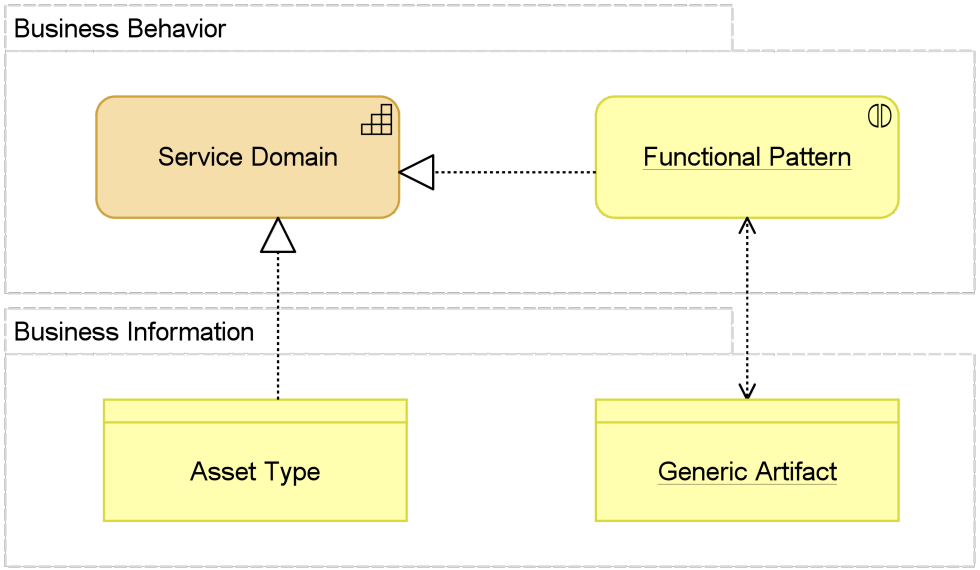
2.5 Three elements defining the structure of the BIAN Service Landscape



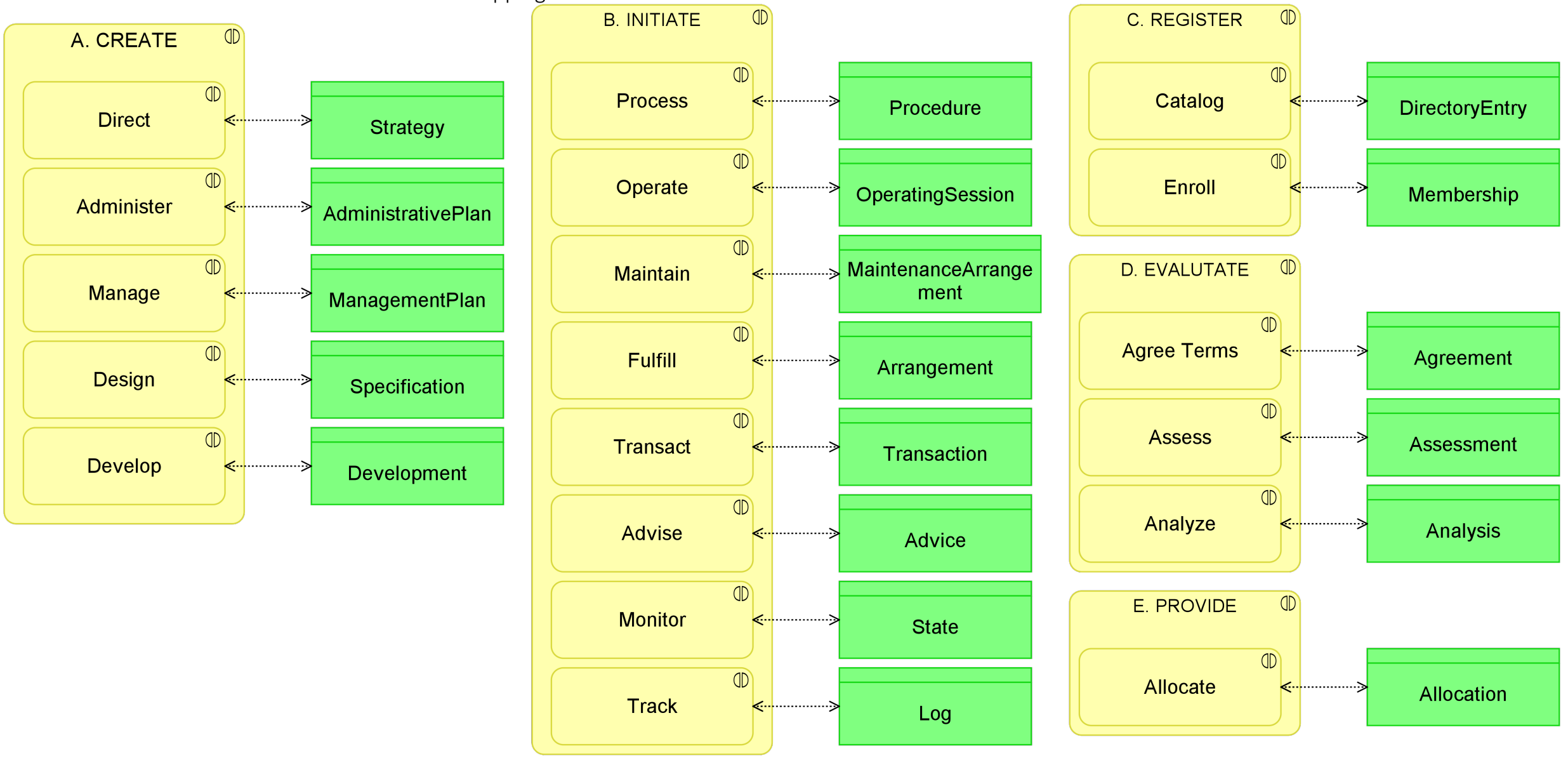
2.6 BIAN Metamodel, Service Landscape View



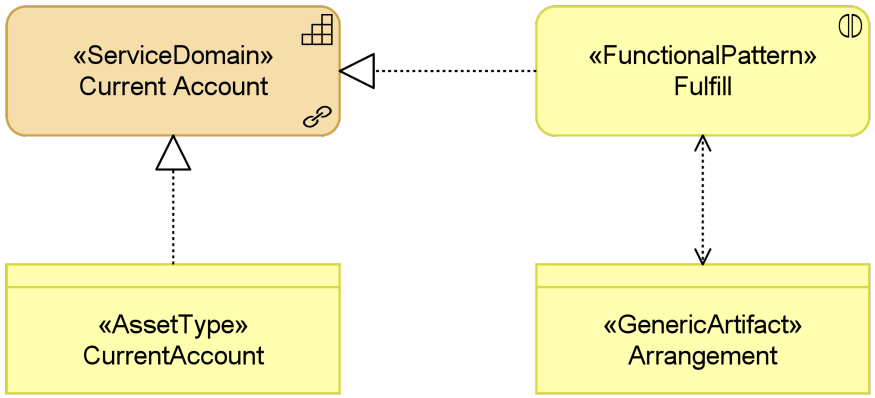
2.7 BIAN Metamodel, Service Domain View



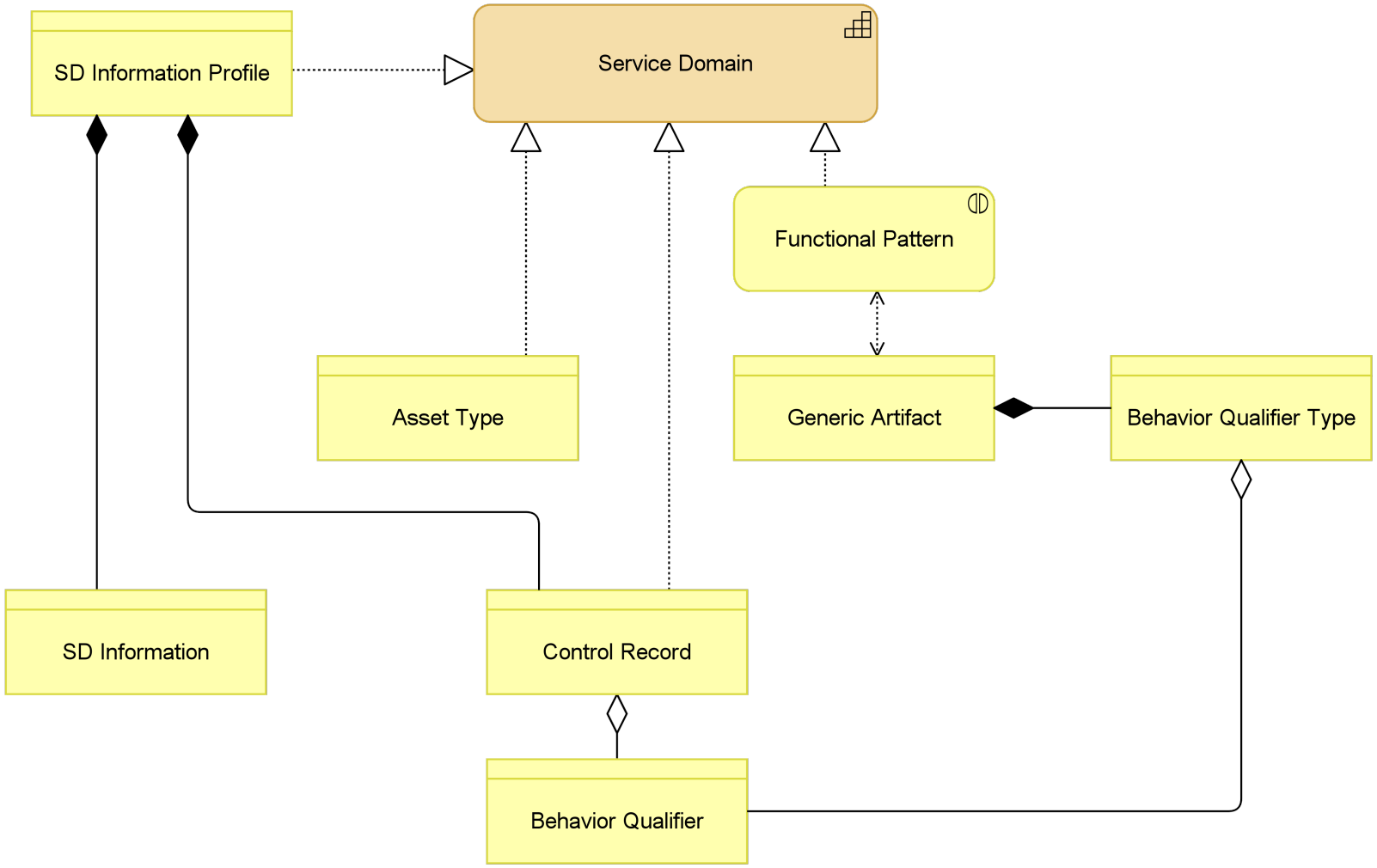
2.8 Functional Pattern – Generic Artifact Mapping



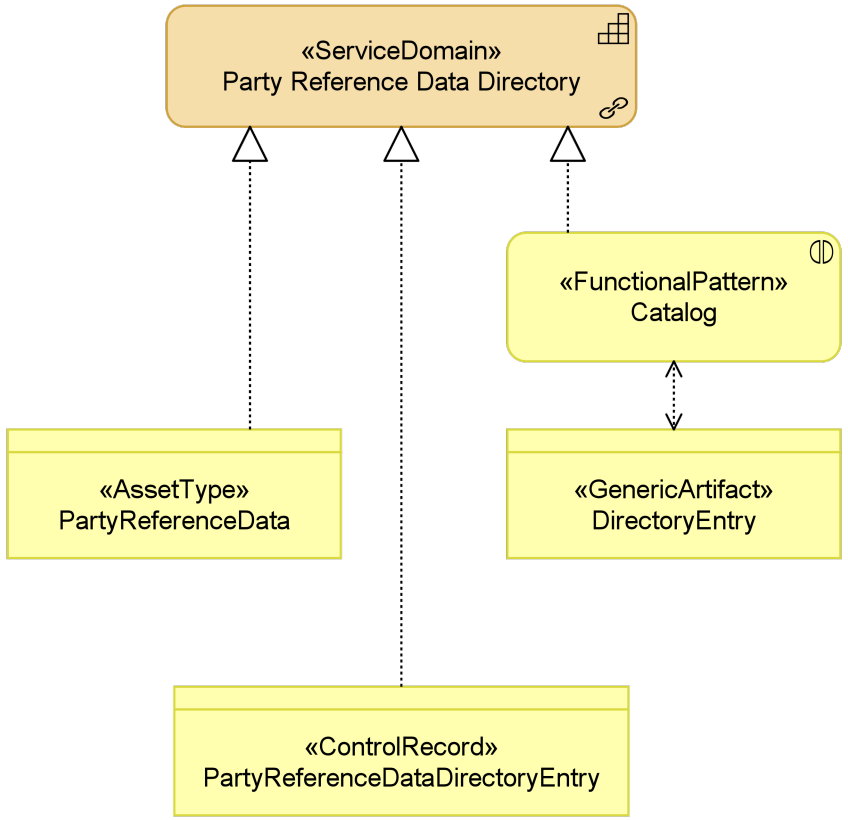
2.9 The Current Account Service Domain, its Asset Type, Functional Pattern and Generic Artifact



2.10 BIAN Metamodel, Control Record View



2.11 Party Reference Data Directory Entry Control Record



2.12 Party Reference Data Directory Entry Control Record & Behavior Qualifiers

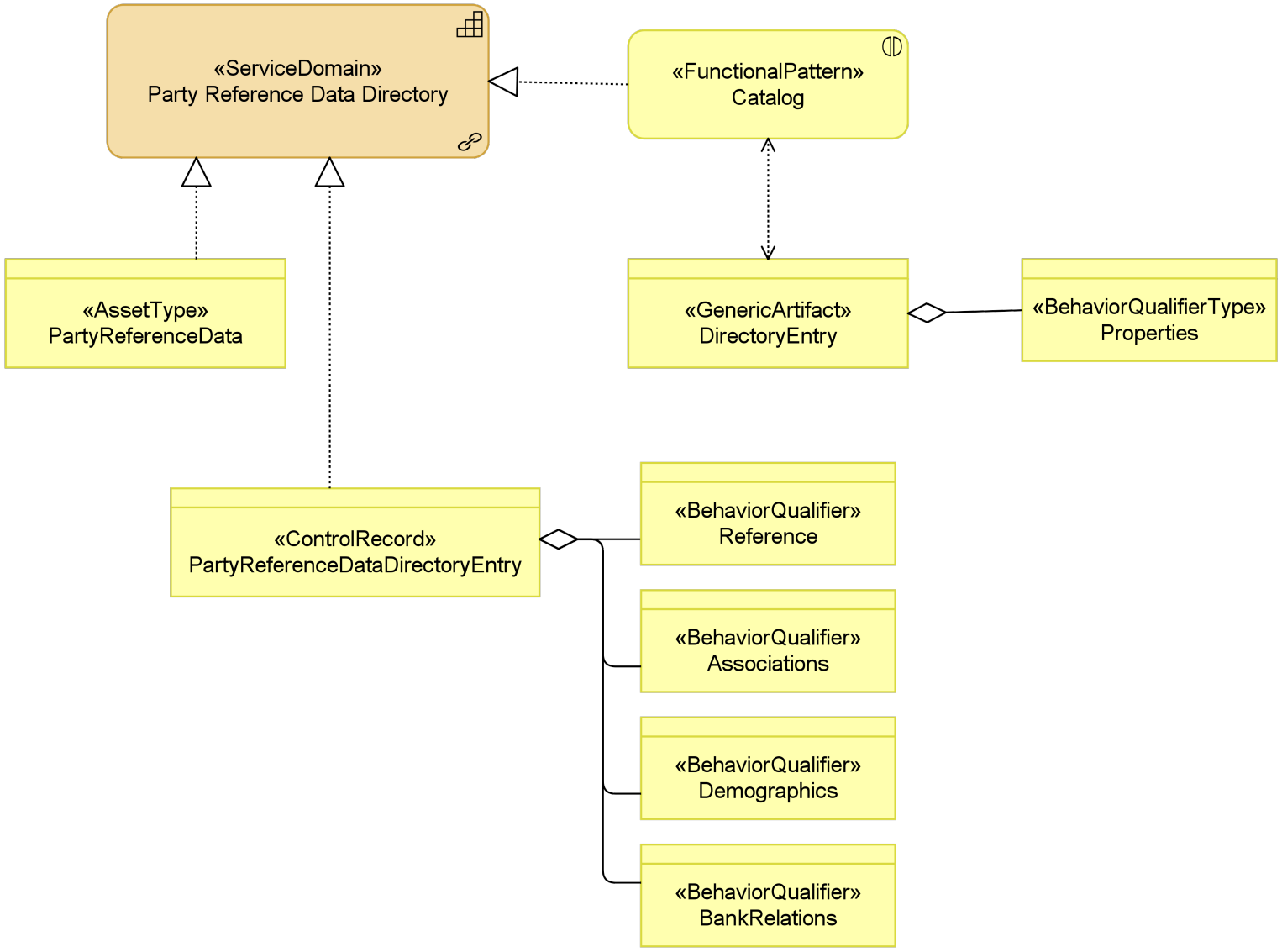
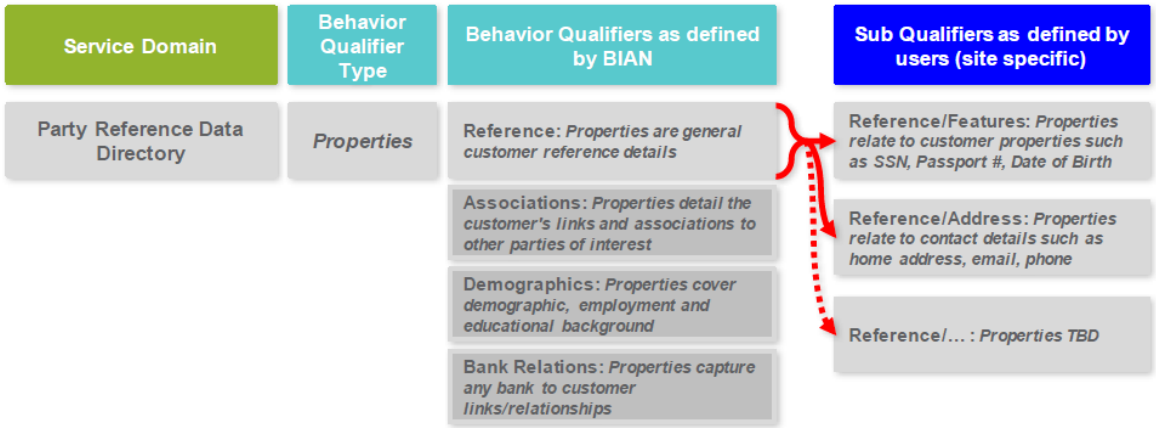


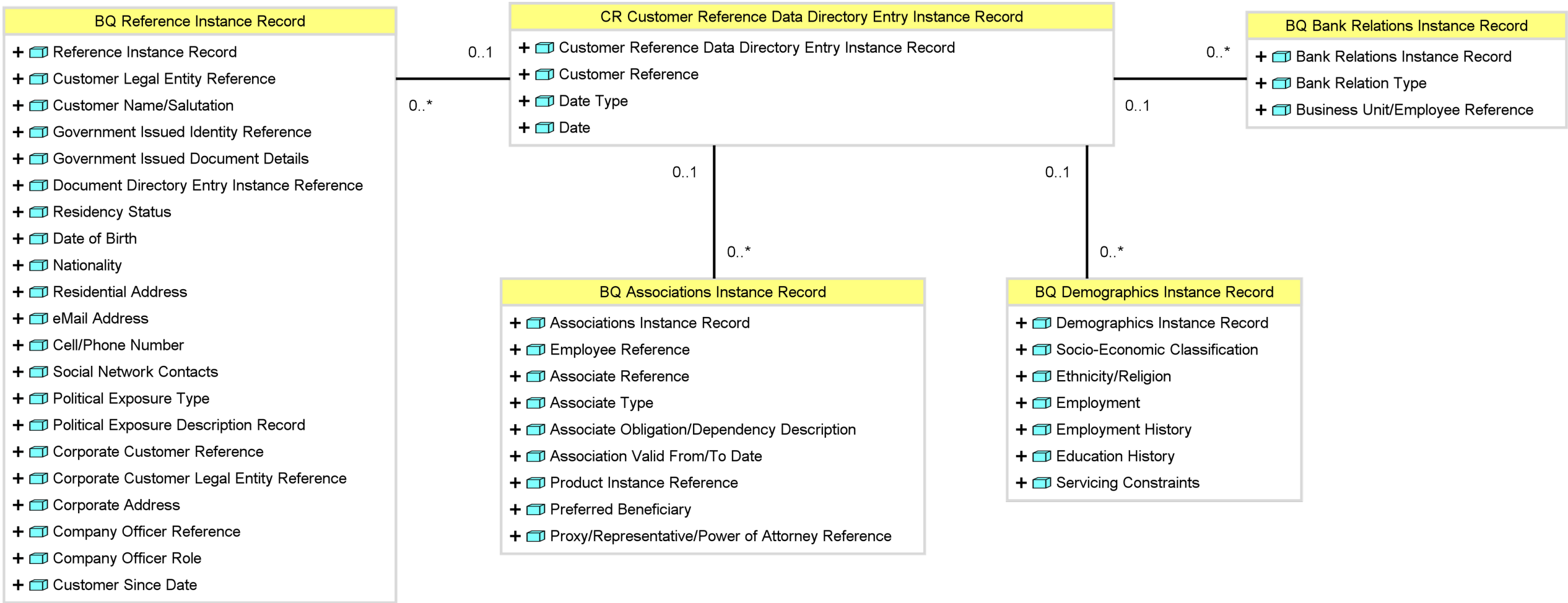
Table 2.4 Functional Pattern, Generic Artifact and Behavior Qualifier Types

Functional Pattern	Generic Artifact	Behavior Qualifier Type	Example
DIRECT	Strategy	Goals	Increase market share
MANAGE	Management Plan	Duties	Relationship development, Troubleshooting
ADMINISTER	Administrative Plan	Routines	Time-sheet recording
DESIGN	Specification	Aspects	Business requirements
DEVELOP	Development	Deliverables	Functional module specifiation
PROCESS	Procedure	Worksteps	Invoice generation
OPERATE	Operating Session	Functions	Message capture/routing
MAINTAIN	Maintenance Arrangement	Tasks	Preventive maintenance task
FULFILL	Arrangement	Features	Current account standing order
TRANSACT	Transaction	Tasks/Steps	FX pricing, market trade, clearing & settlement
ADVISE	Advice	Topics	Tax advice, Corporate finance
MONITOR	State	Measures	Composite position, Customer alert
TRACK	Log Record	Events	Customer life event, Servicing event
CATALOG	Directory Entry	Properties	Product pricing rules, Customer reference details
ENROLL	Membership	Clauses	Qualification/membership purpose
AGREE TERMS	Agreement	Terms & Conditions	Required disclosures,
ASSESS	Assessment	Tests	Password verification
ANALYSE	Analysis	Algorithms	Average balance calculation, Propensity to buy
ALLOCATE	Allocation	Criteria	Staff assignment, Facility allocation

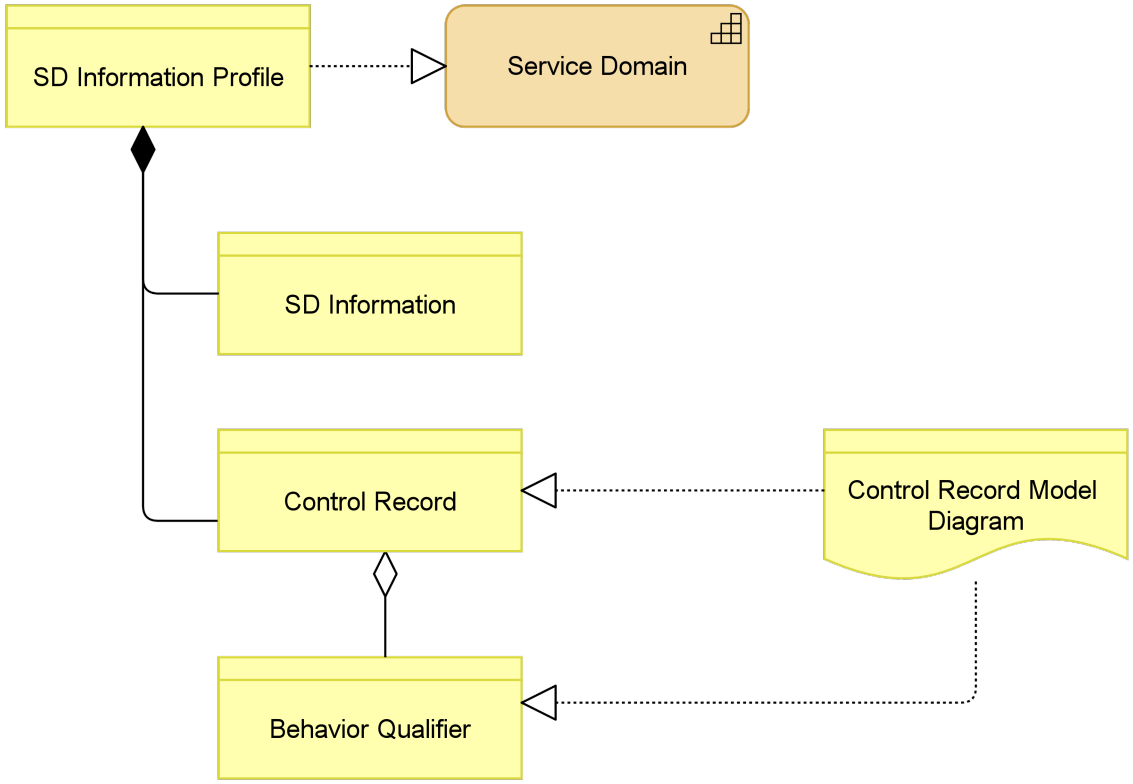
2.13 Break-down of a Control Record into Behavior Qualifiers and sub-qualifiers



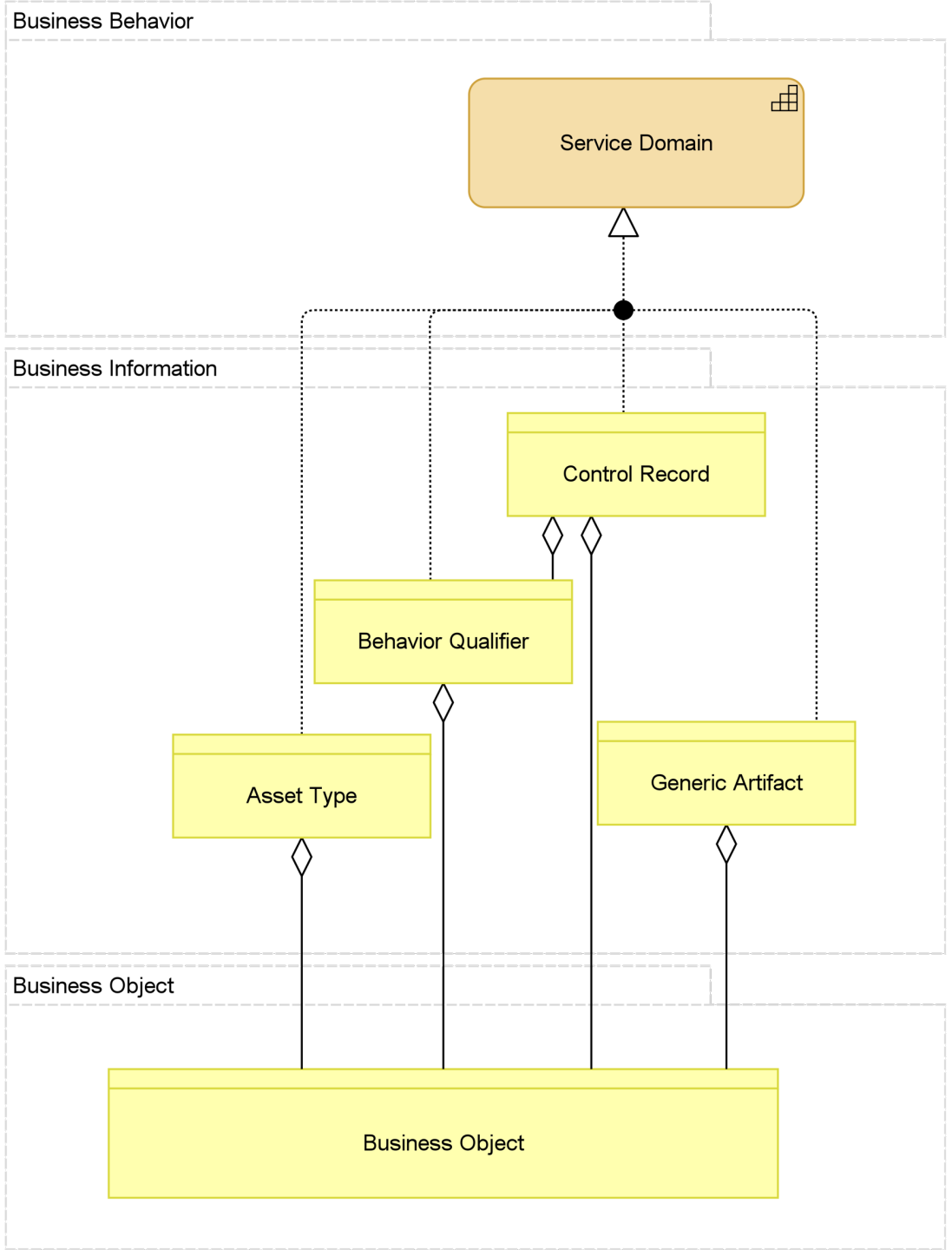
2.14 Party Reference Data Directory Control Record Diagram



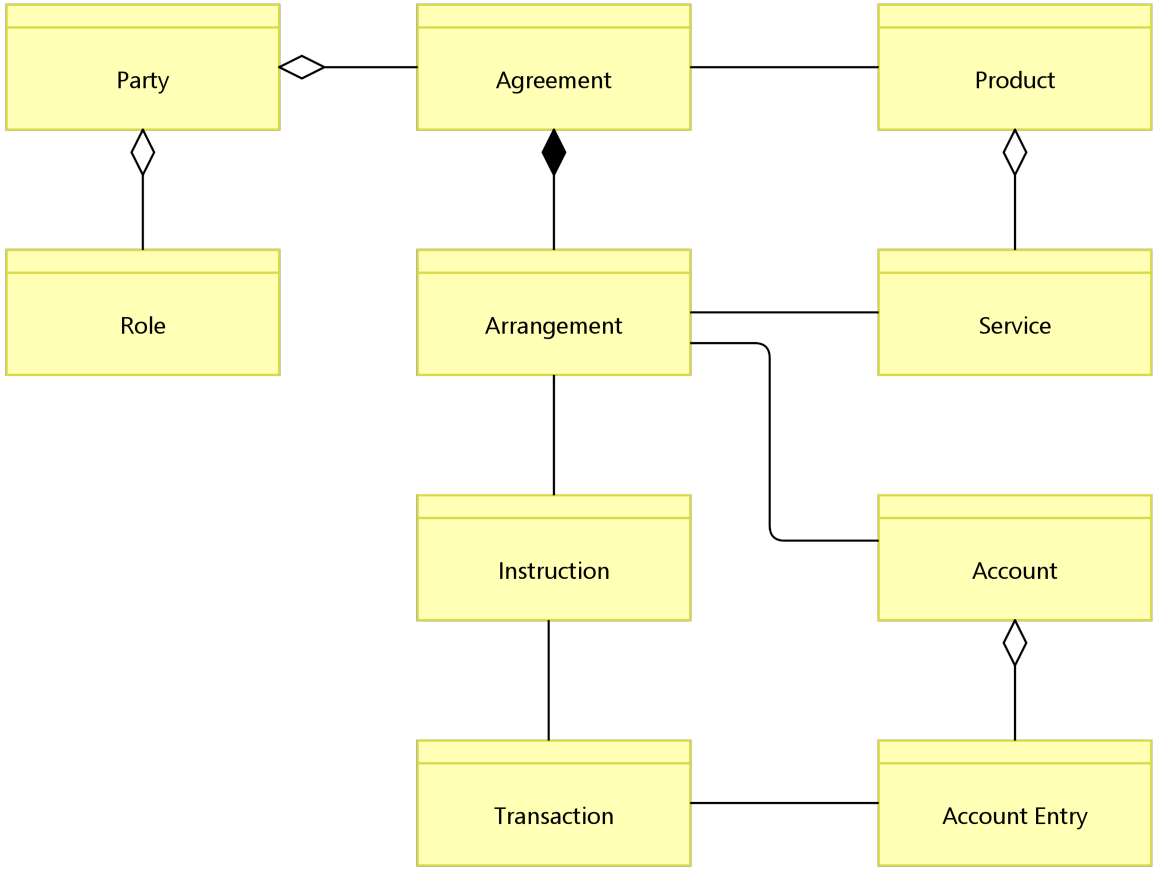
2.15 Metamodel for Control Record Model Diagram



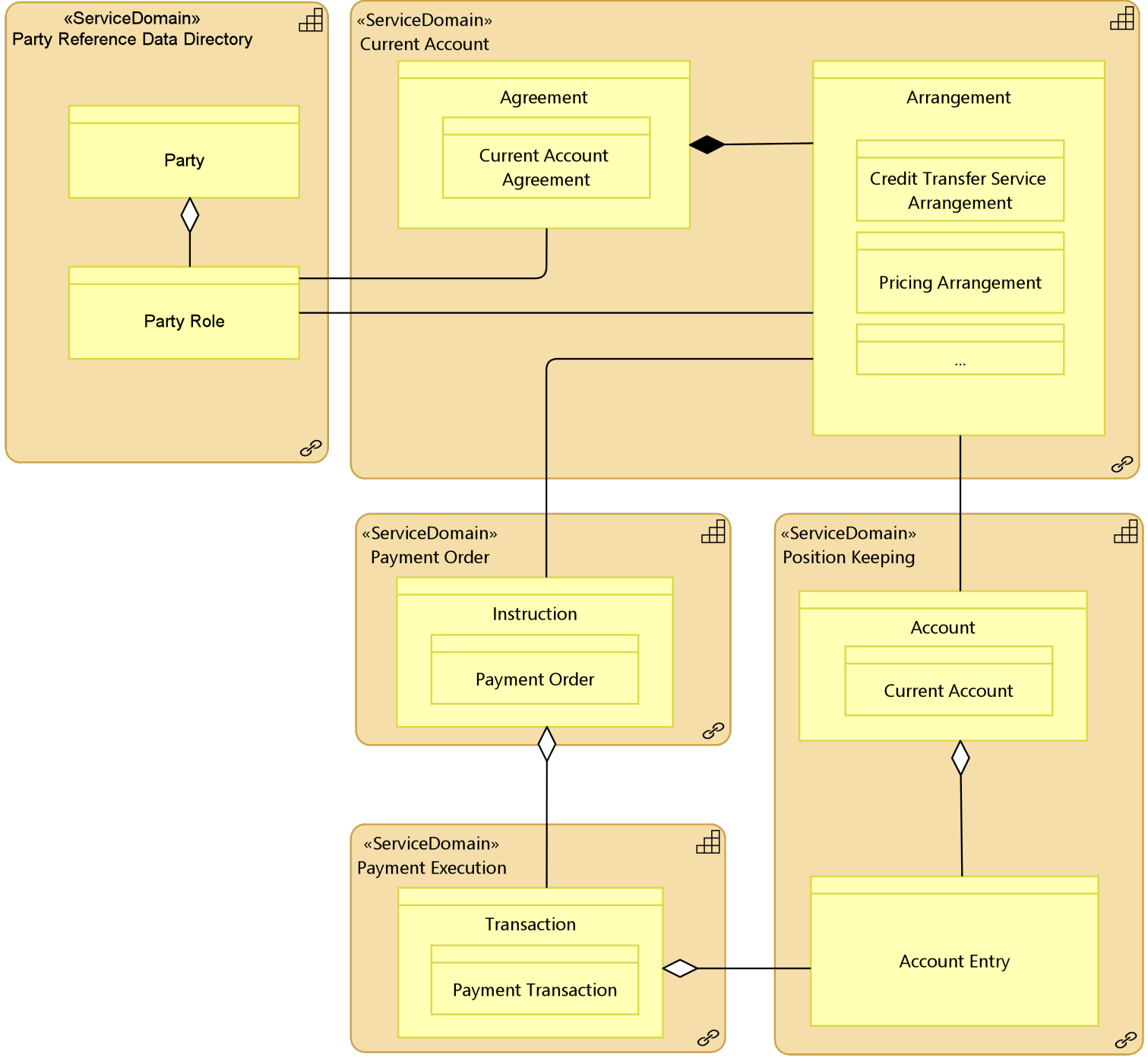
2.16 BIAN Metamodel, Business Object view



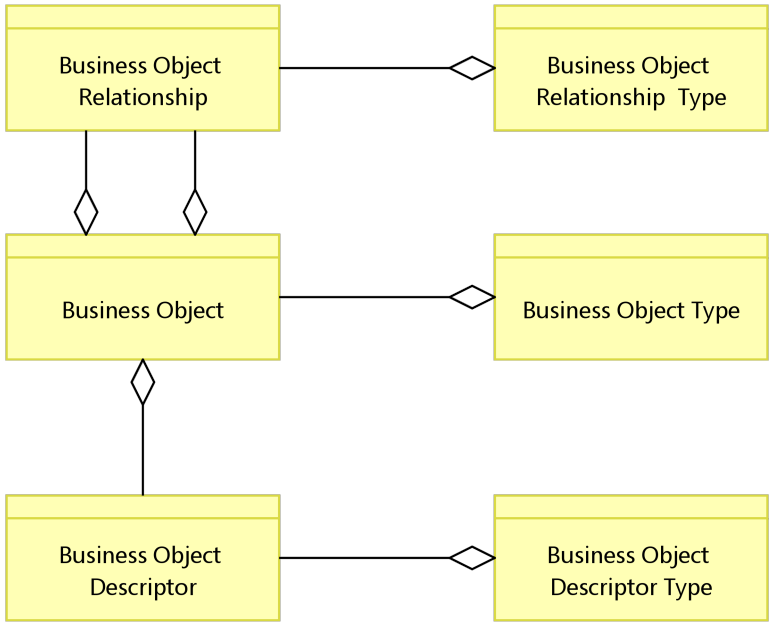
2.17 BIAN BOM content pattern



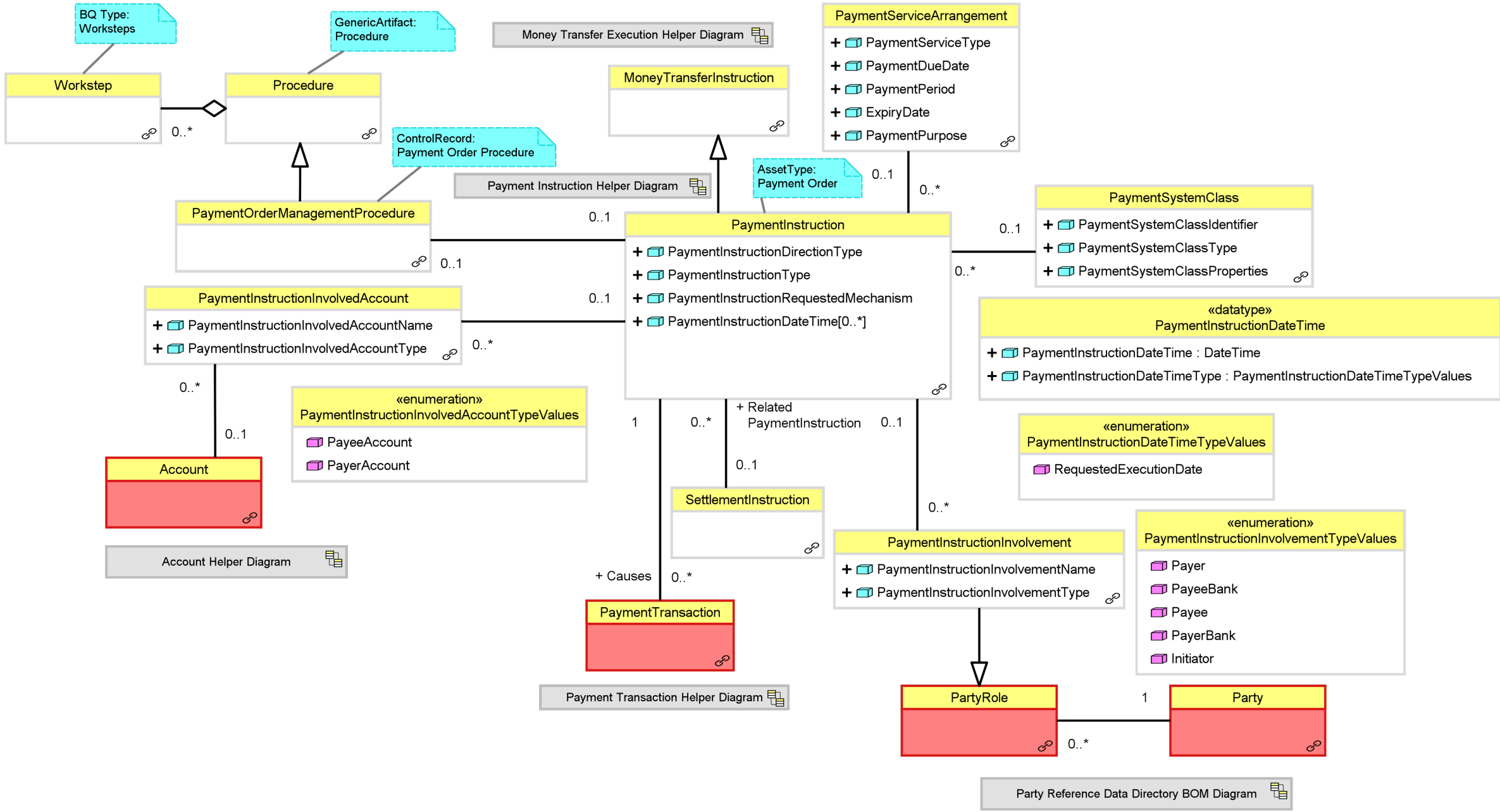
2.18 Applying the BIAN BOM in payments



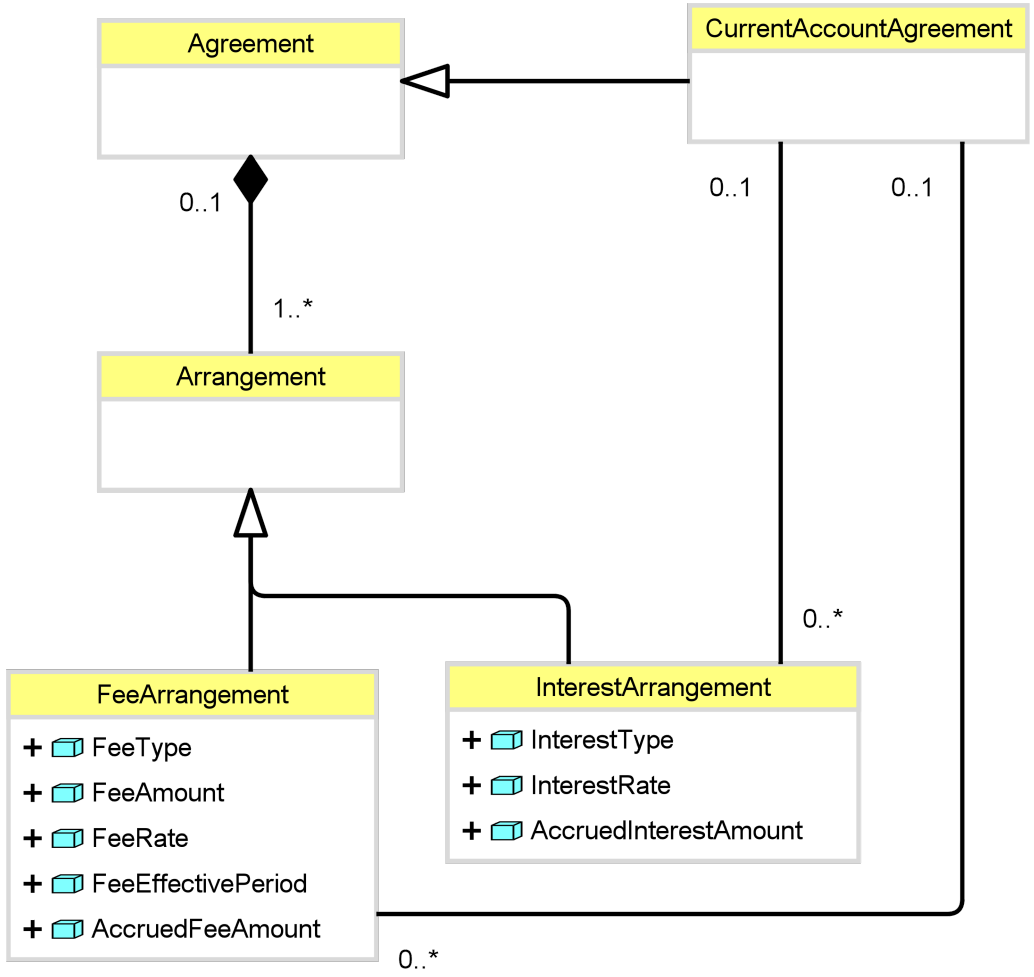
2.19 BIAN BOM Structure Pattern



2.20 Payment Order BOM Diagram

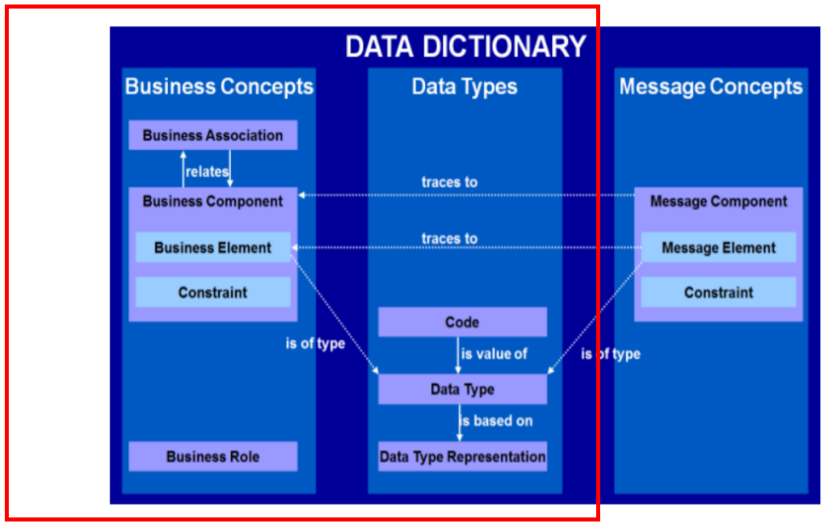


2.21 example of abstraction levels in the BIAN BOM

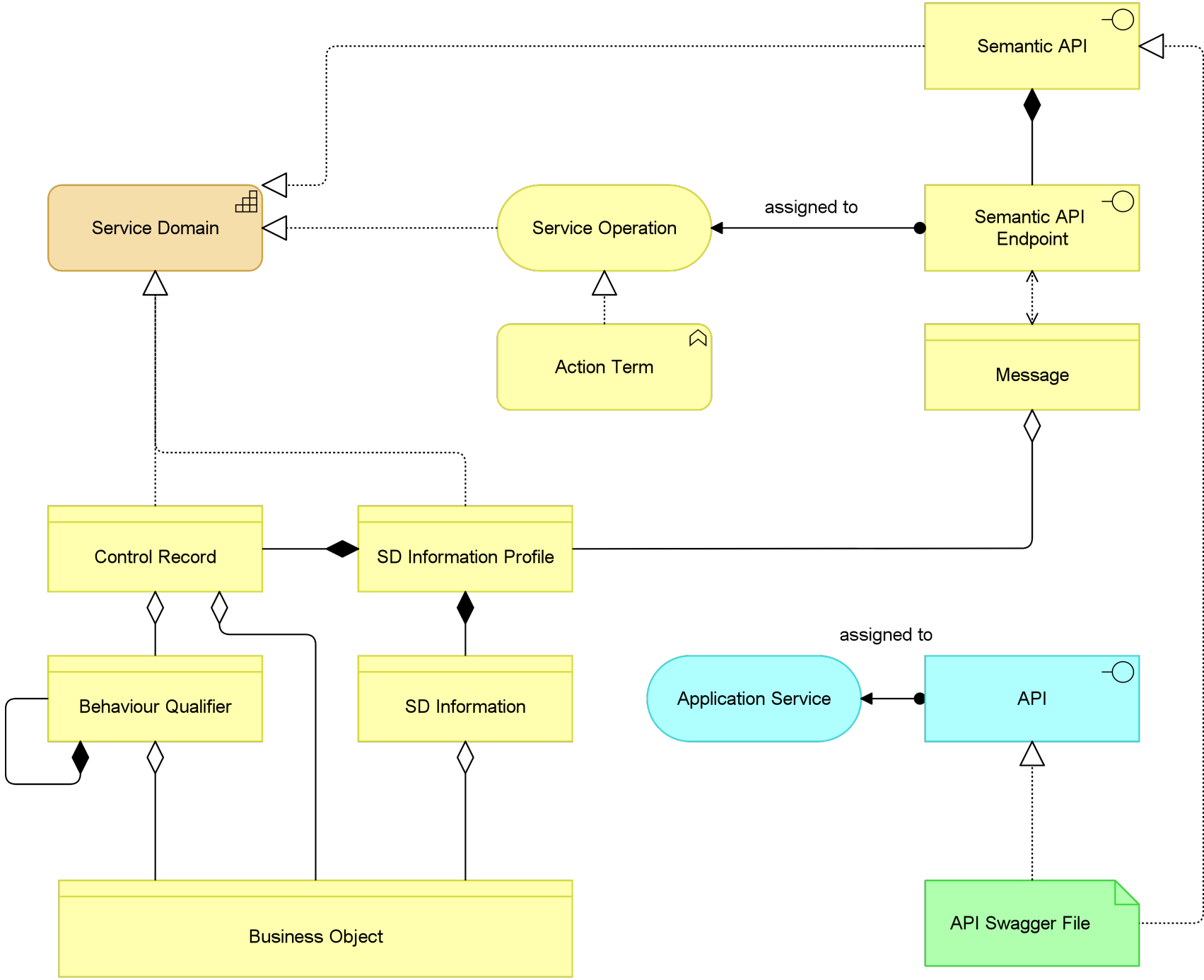


2.22 the scope of the ISO20022 Business Model

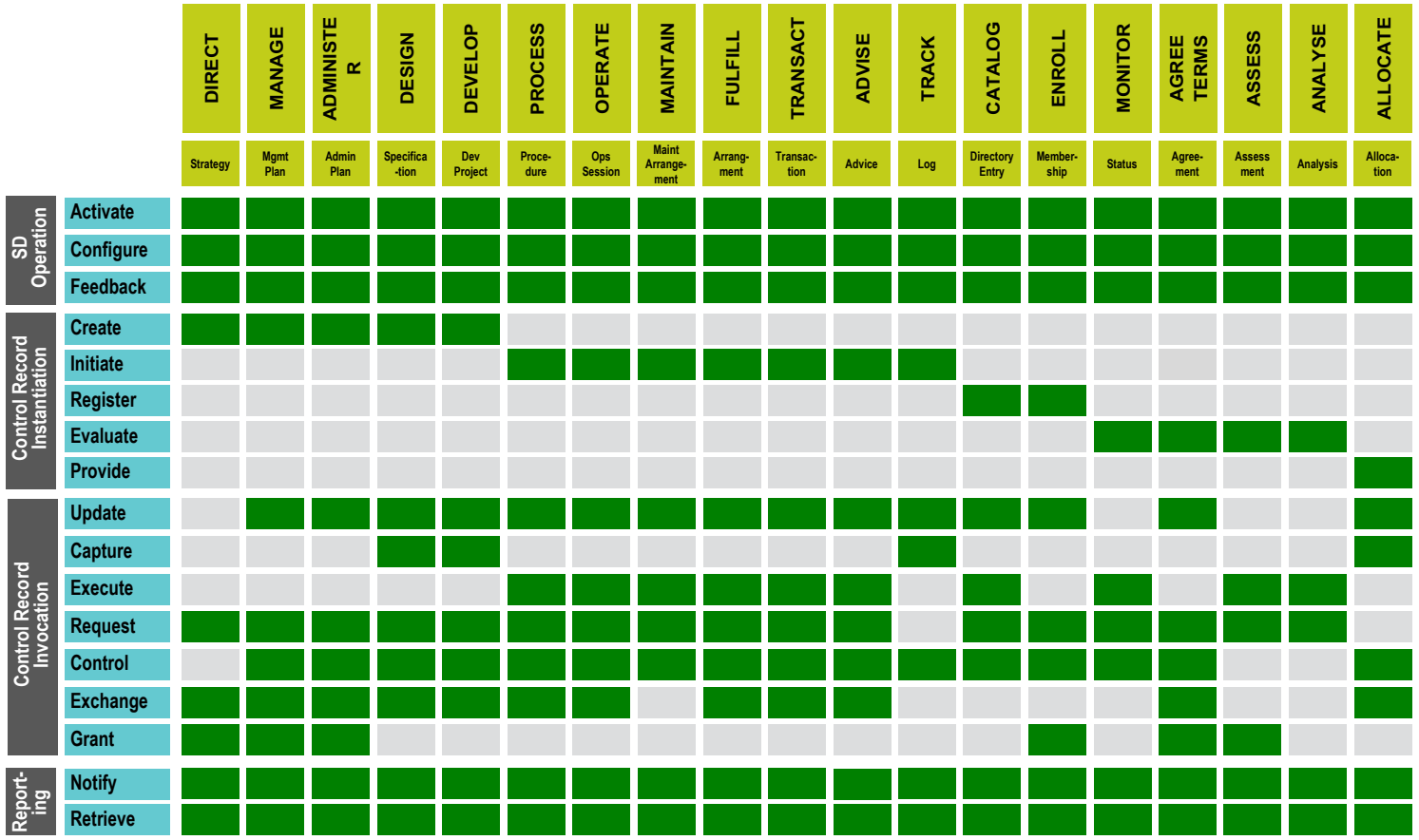
ISO20022 BM



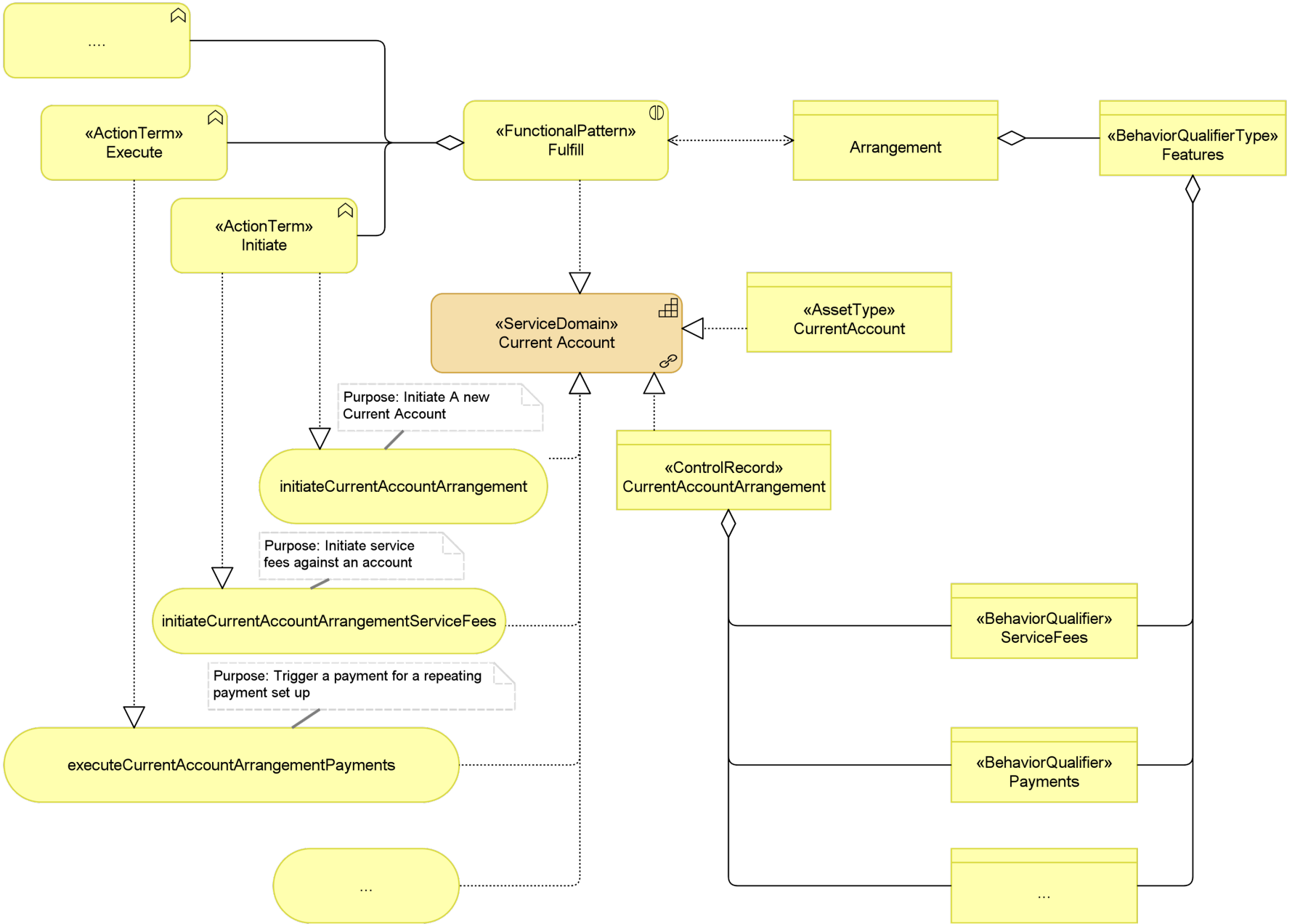
2.23 BIAN Metamodel, Service Operation View



2.24 Action Terms per Functional Pattern

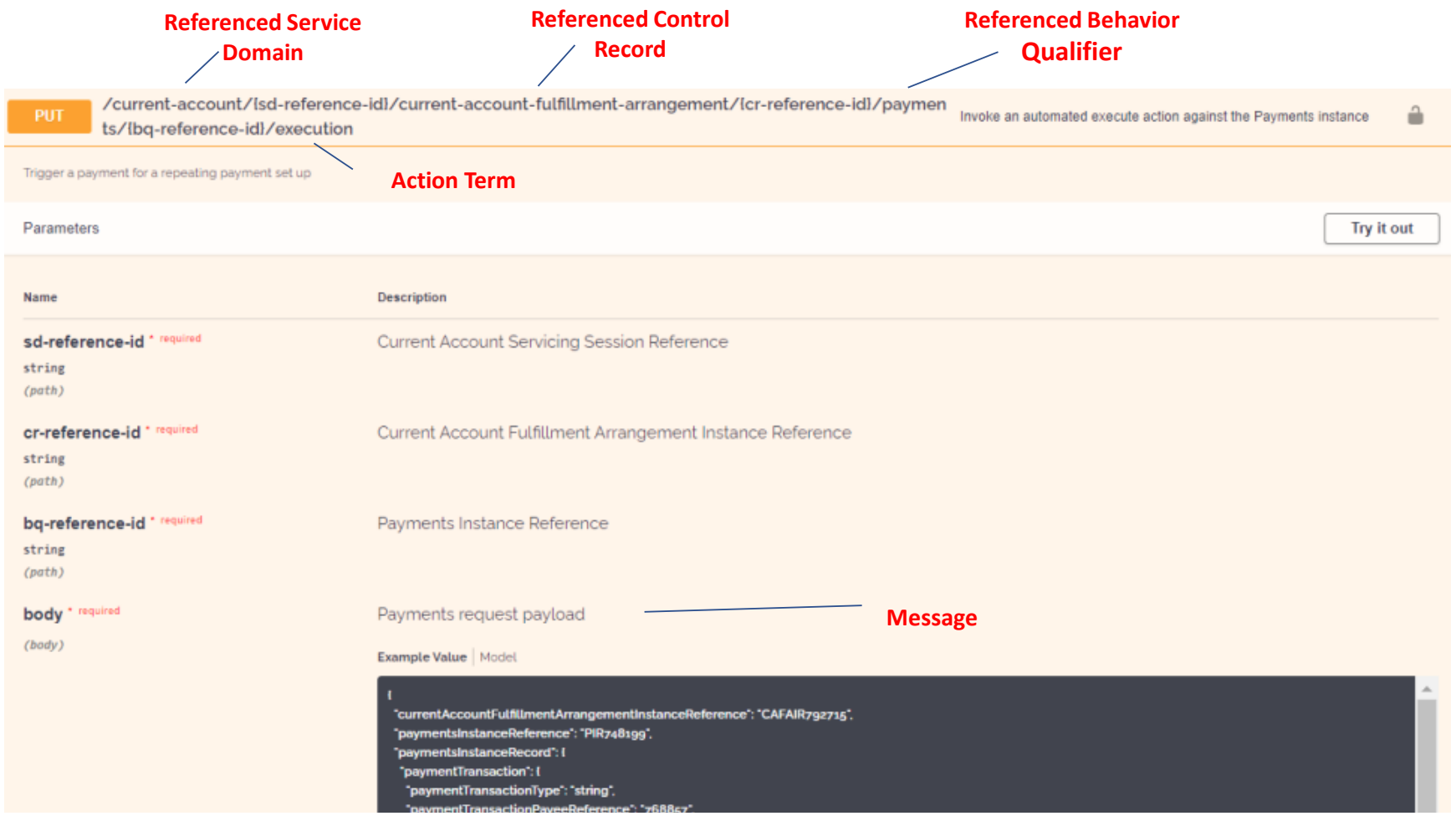


2.25 Current Account Service Operations work on different levels of the information profile

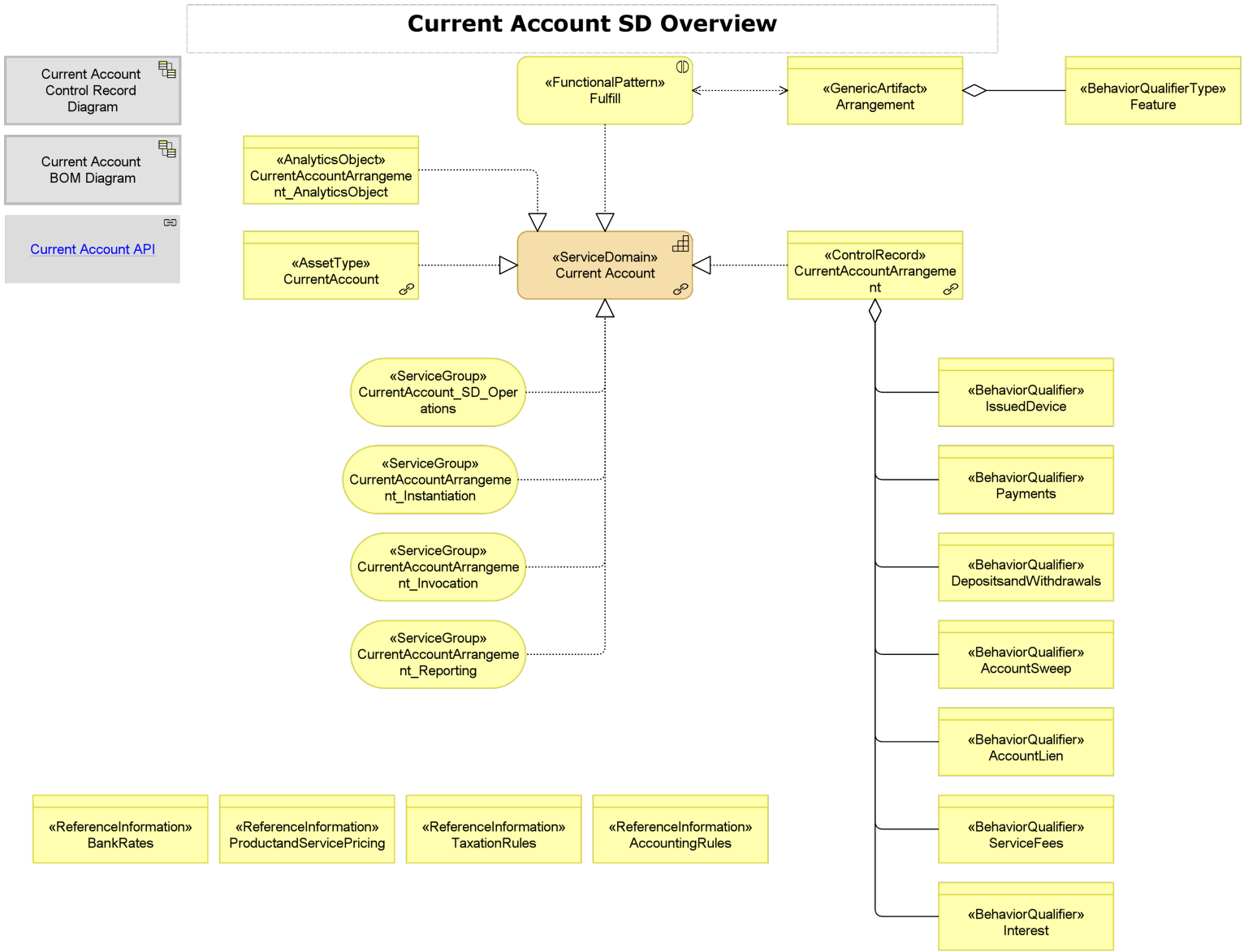


2.26 Current Account Semantic API and its Endpoints

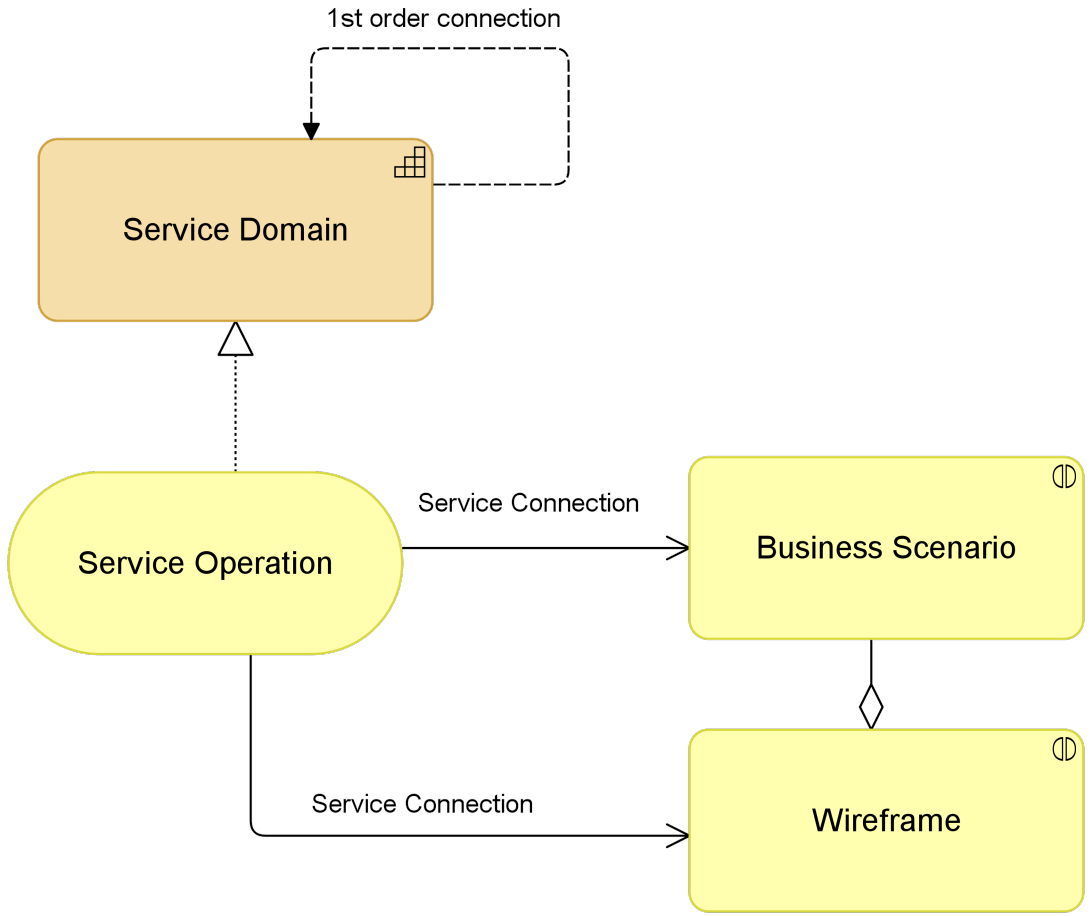
2.27 BIAN API Endpoint Format



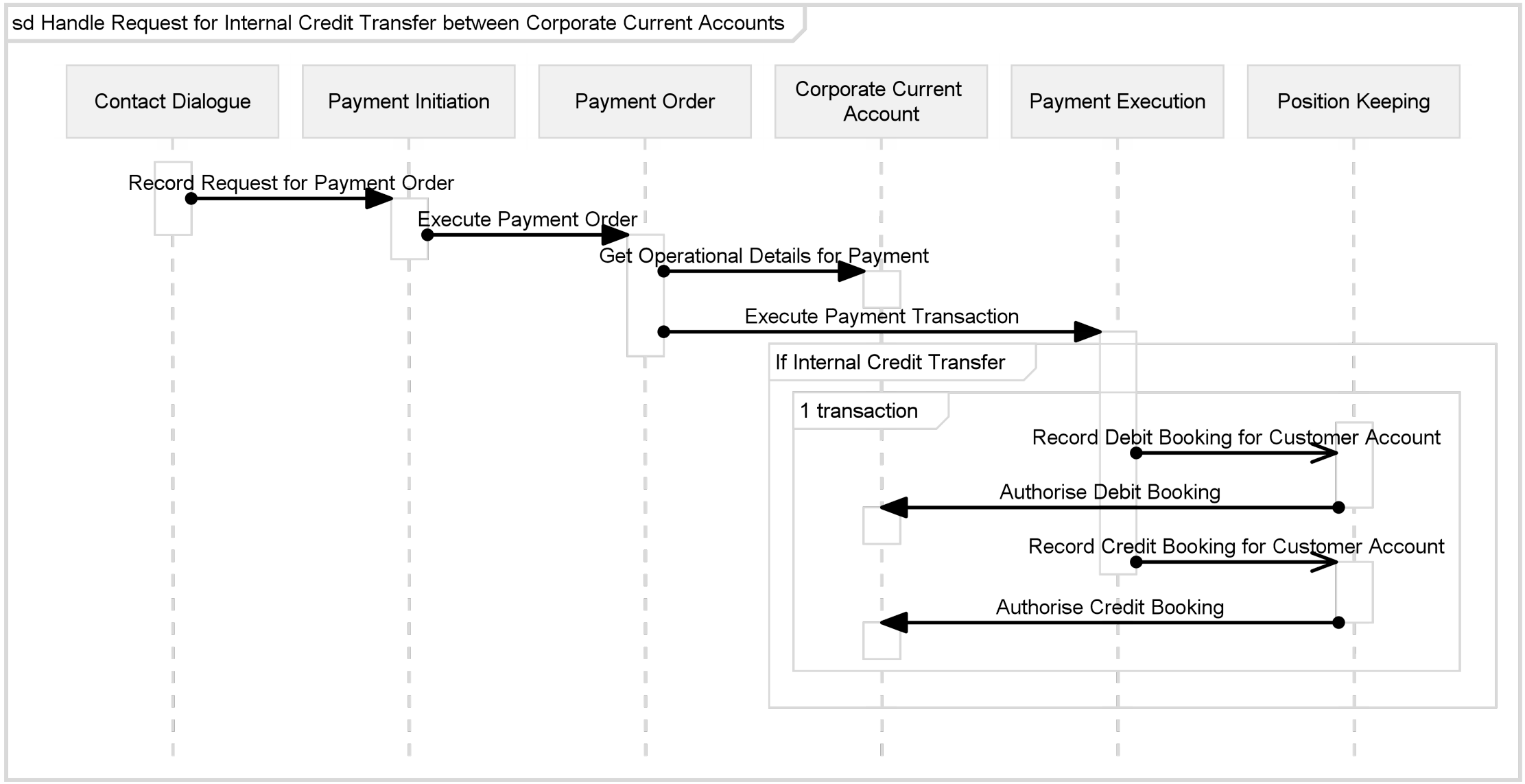
2.28 Current Account Service Domain Overview



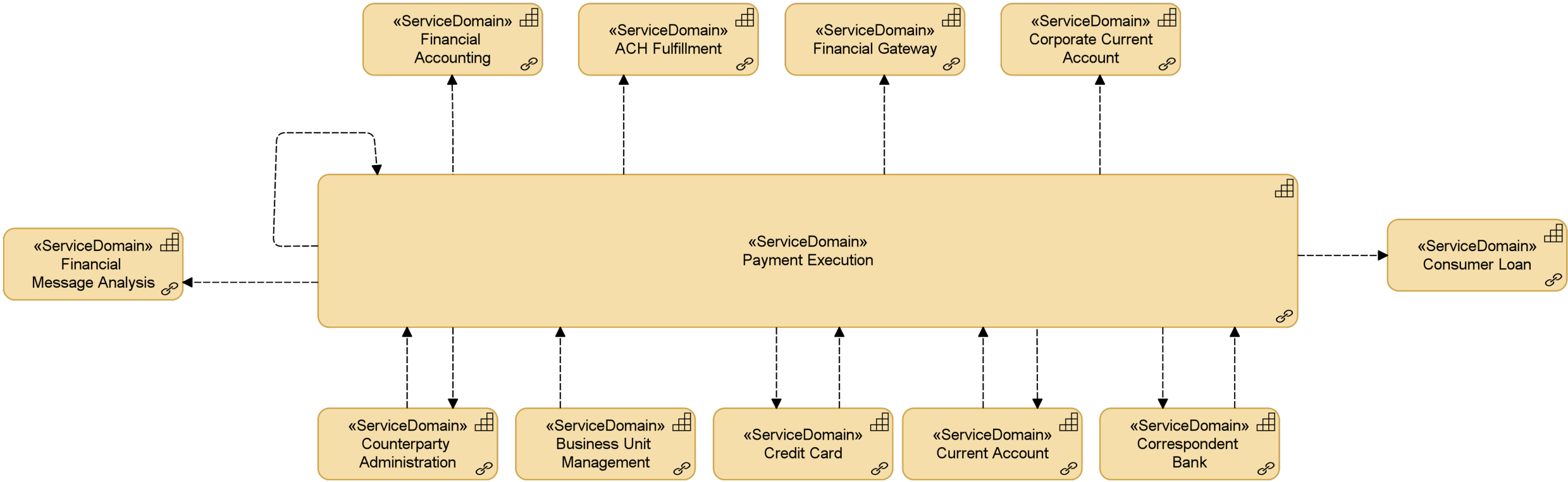
2.29 BIAN Metamodel, Business Scenarios and Wireframe View



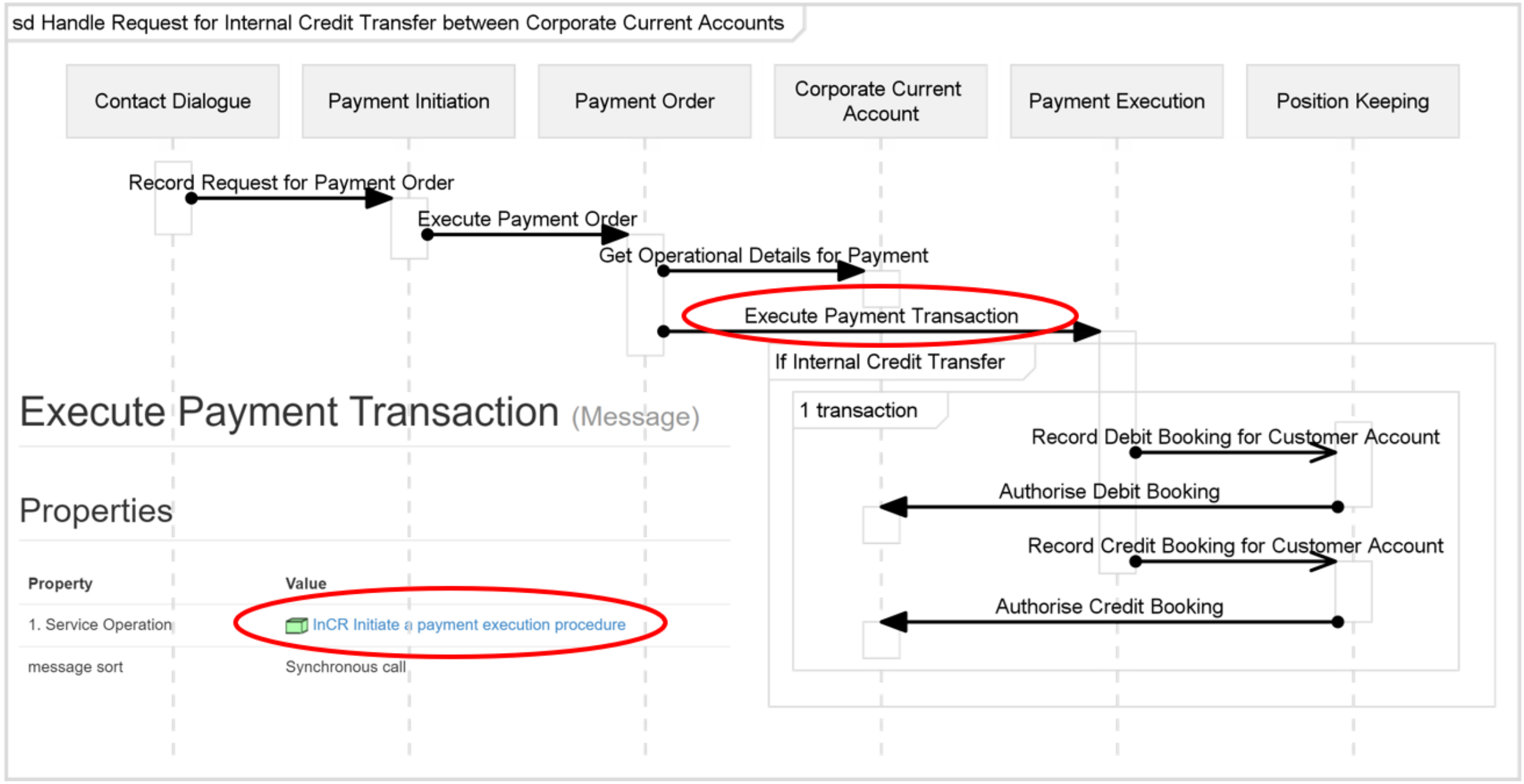
2.30 an example of a BIAN Business Scenario diagram



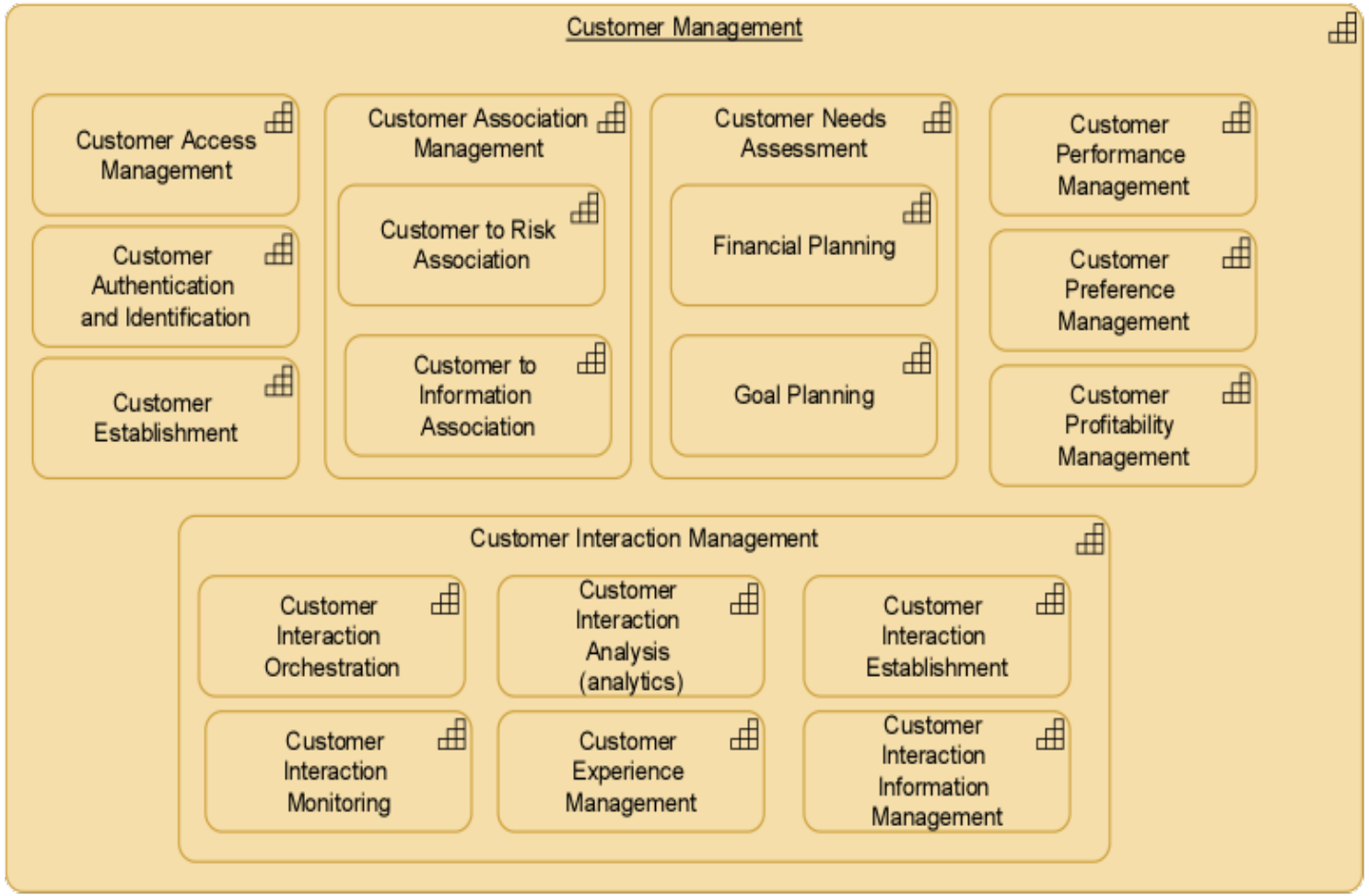
2.31 An example of a BIAN Wireframe diagram



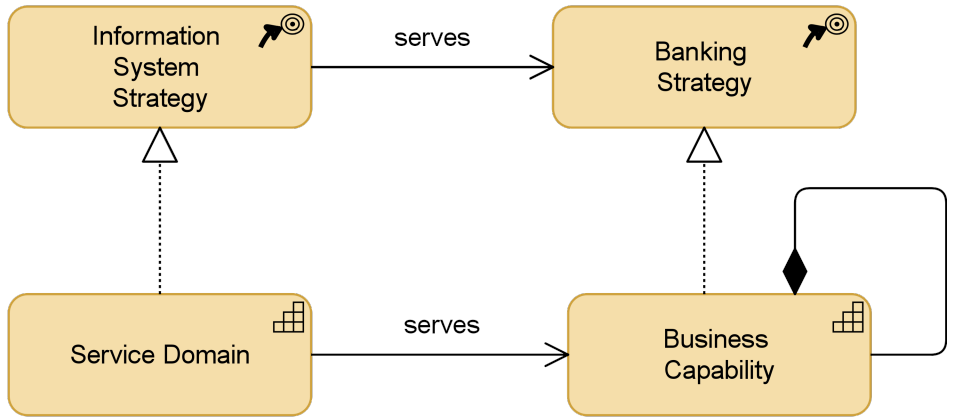
2.32 an example of a BIAN Service Connection. related to its Service Operation



2.33 Customer Management Business Capability Decomposition View

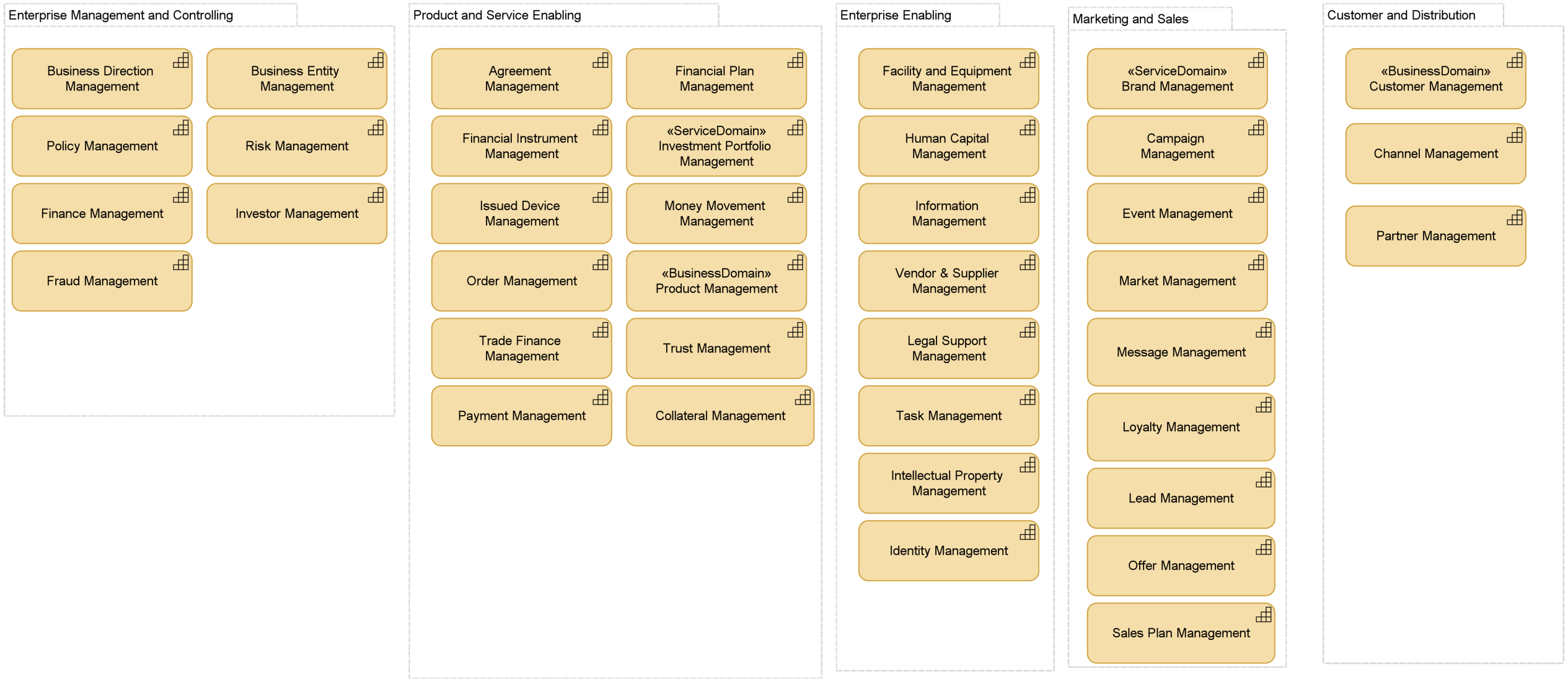


2.34 BIAN Metamodel, Business Capability View



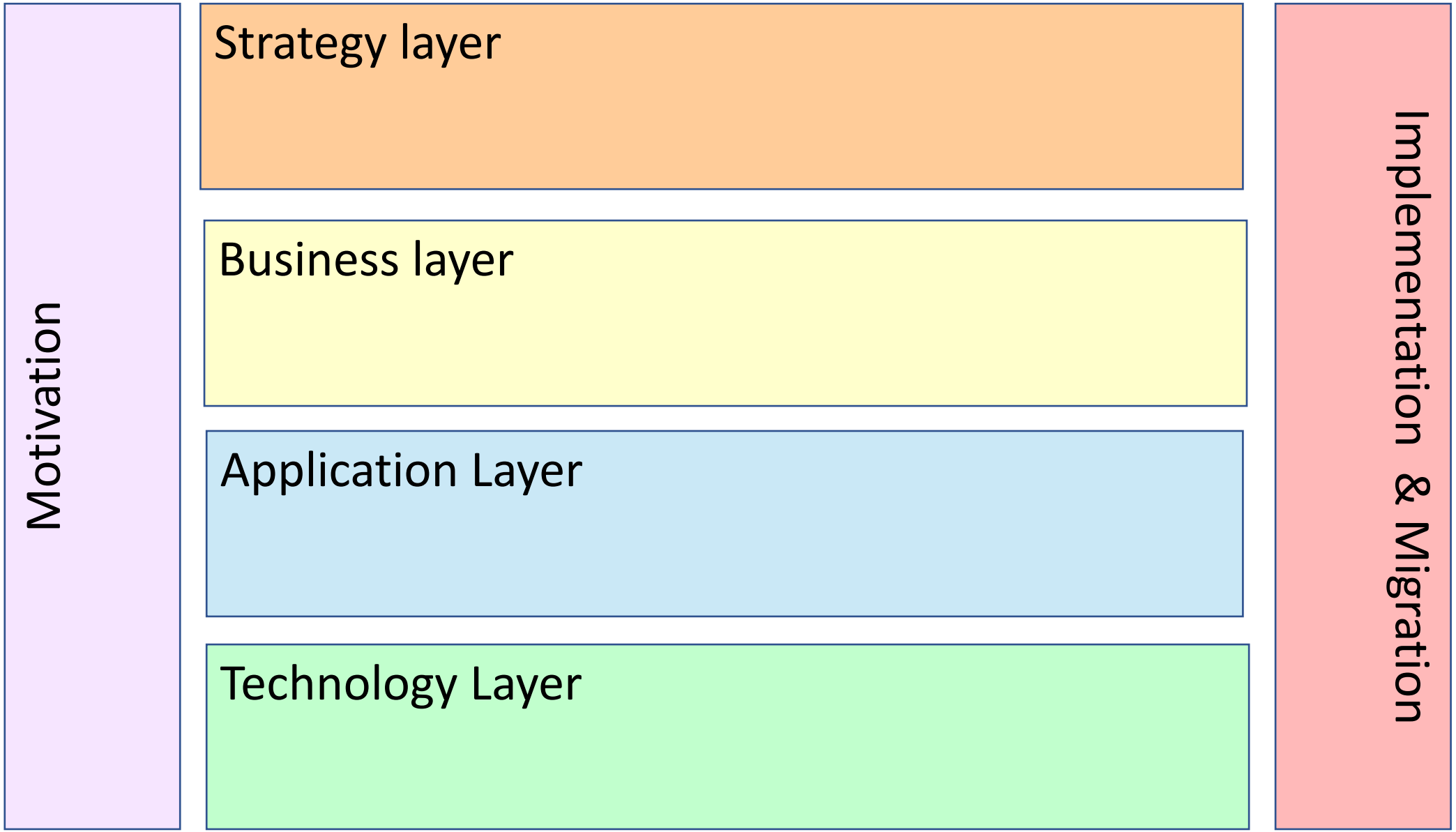
2.35 Business Capability Model, top level

BIAN Business Capability Landscape version 8.0



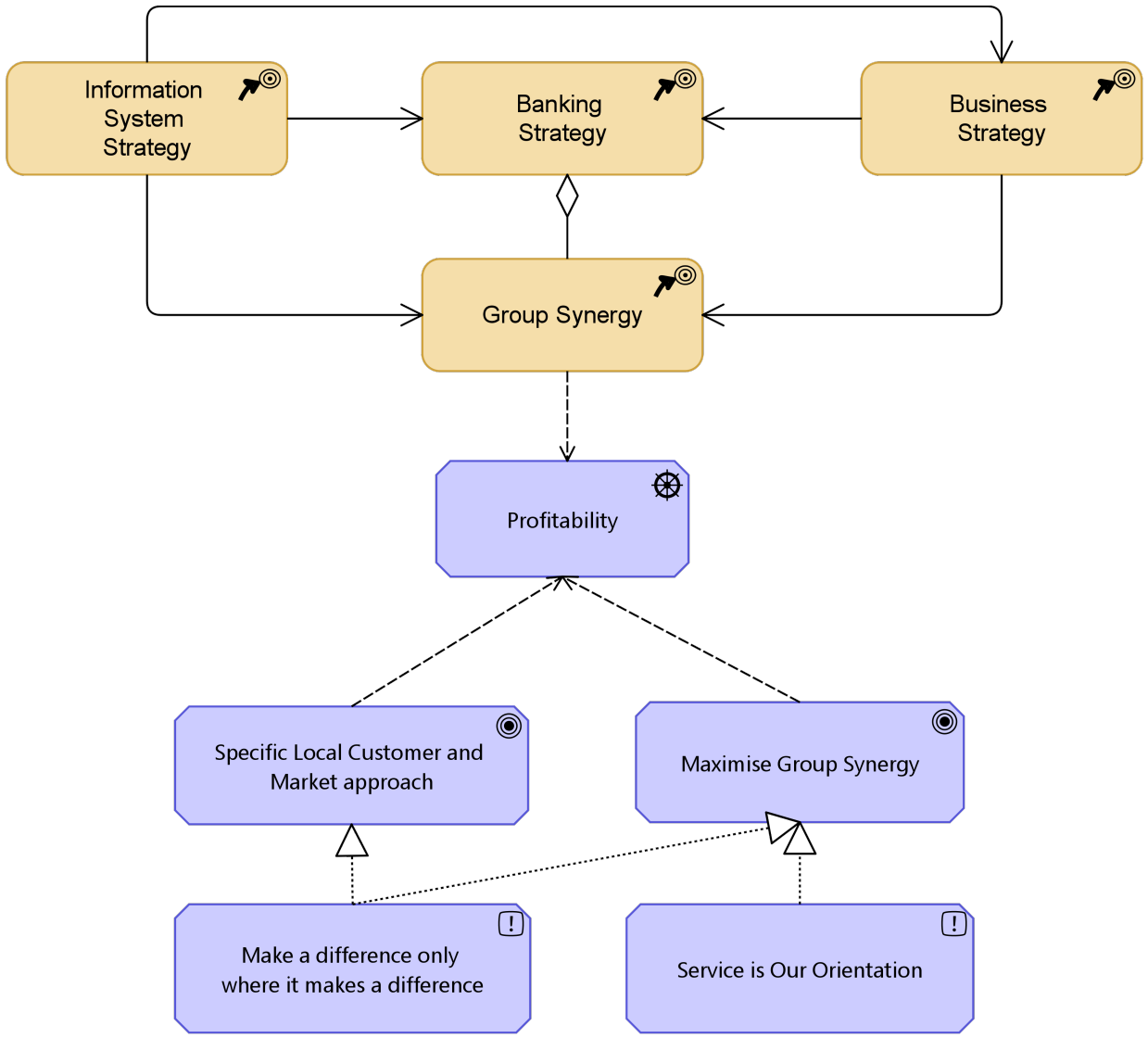
PART II

Applying BIAN

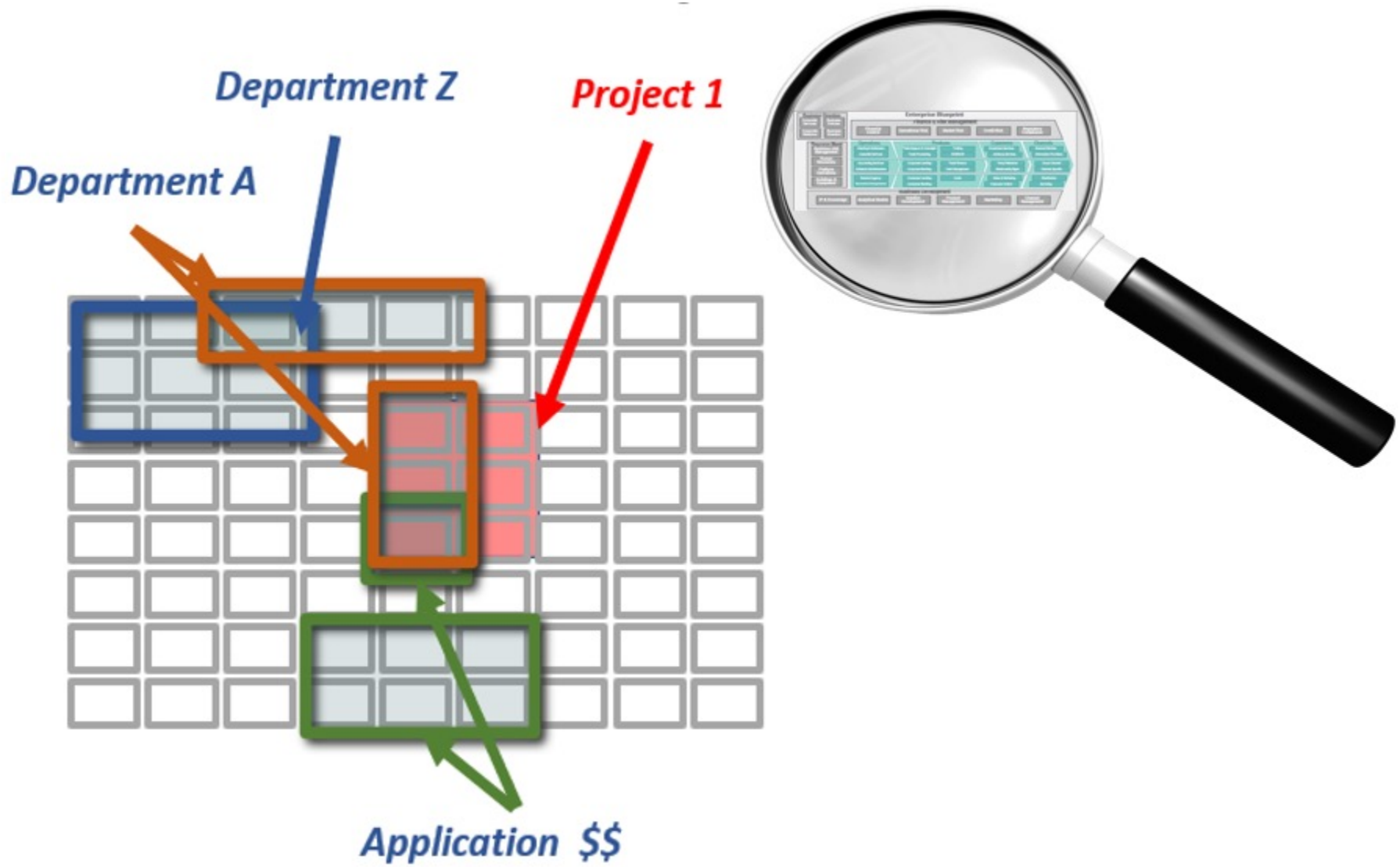

Motivation
Strategy layer
Business layer
Application Layer
Technology Layer
Implementation & Migration


M 5

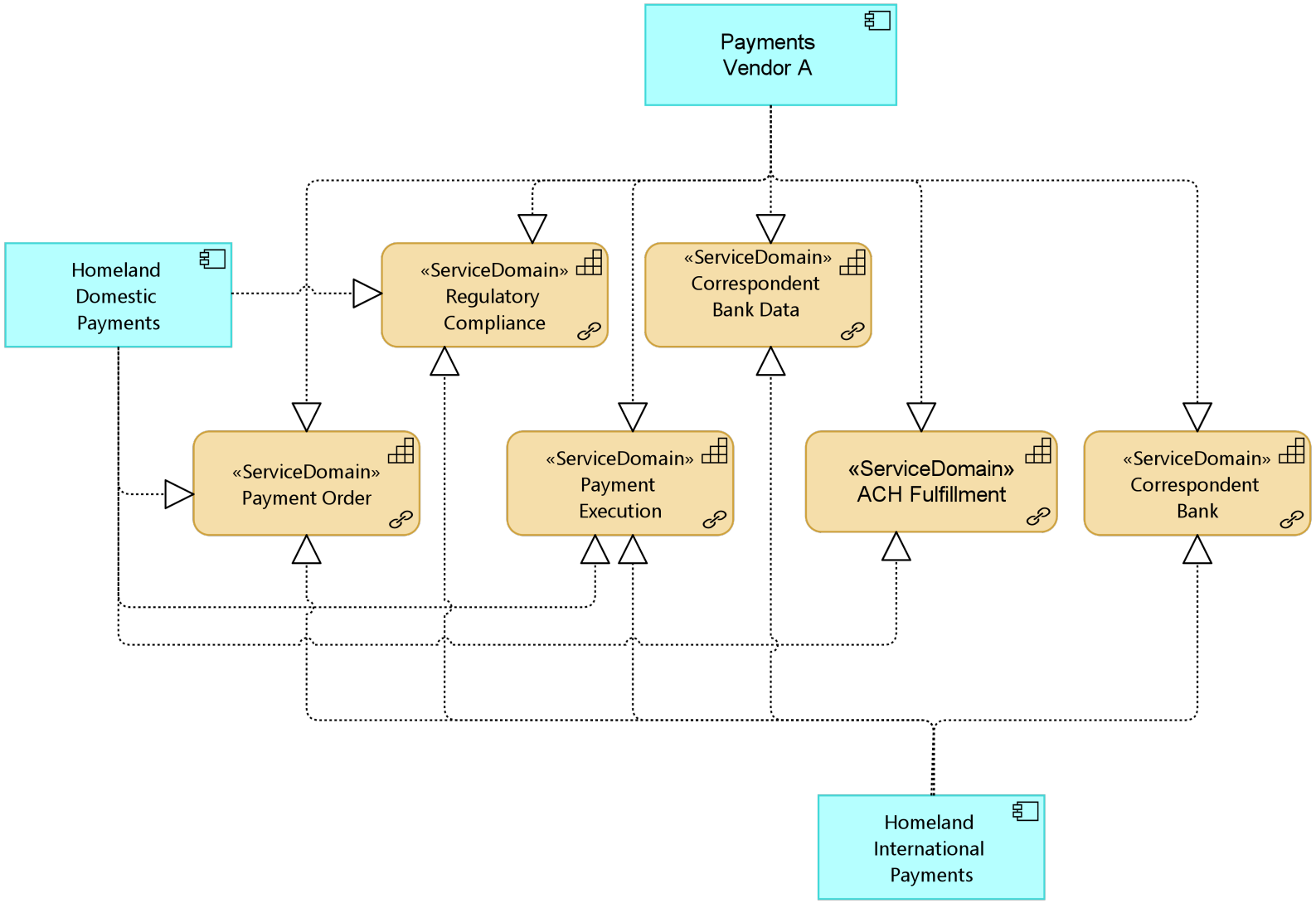
3.1 M5 Banking Group's Group Synergy strategy



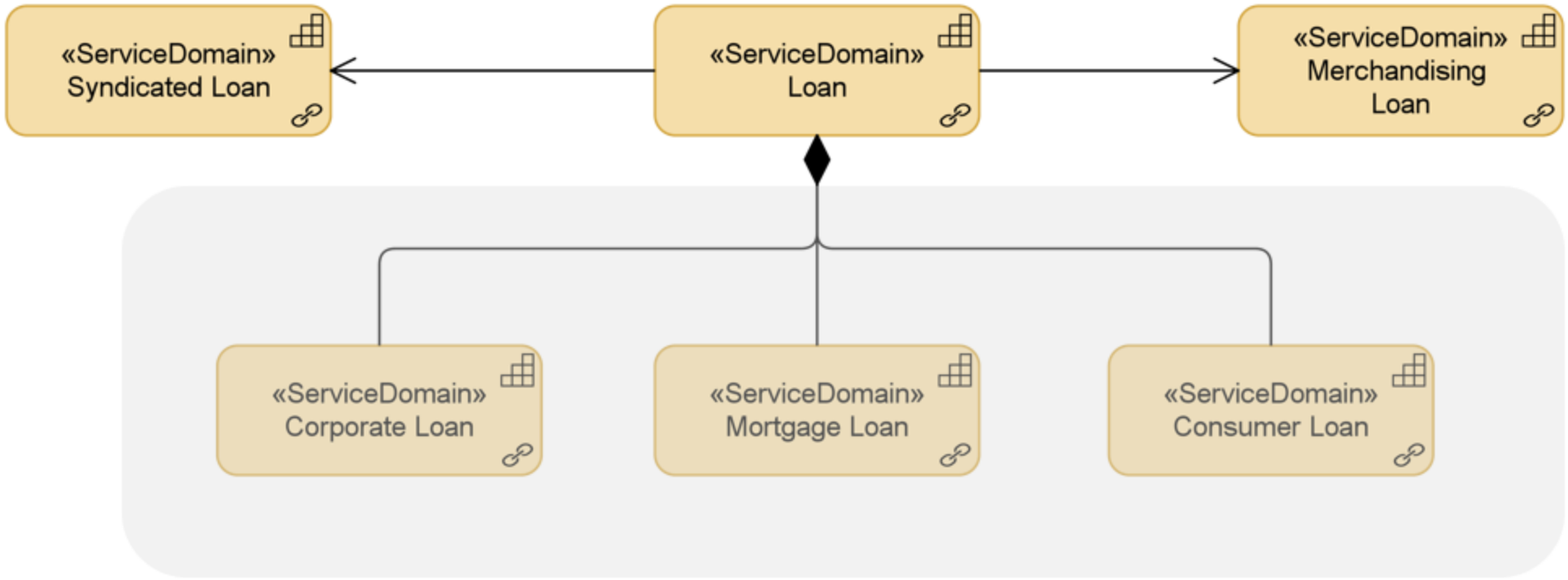
4.1 BIAN as common Frame of Reference



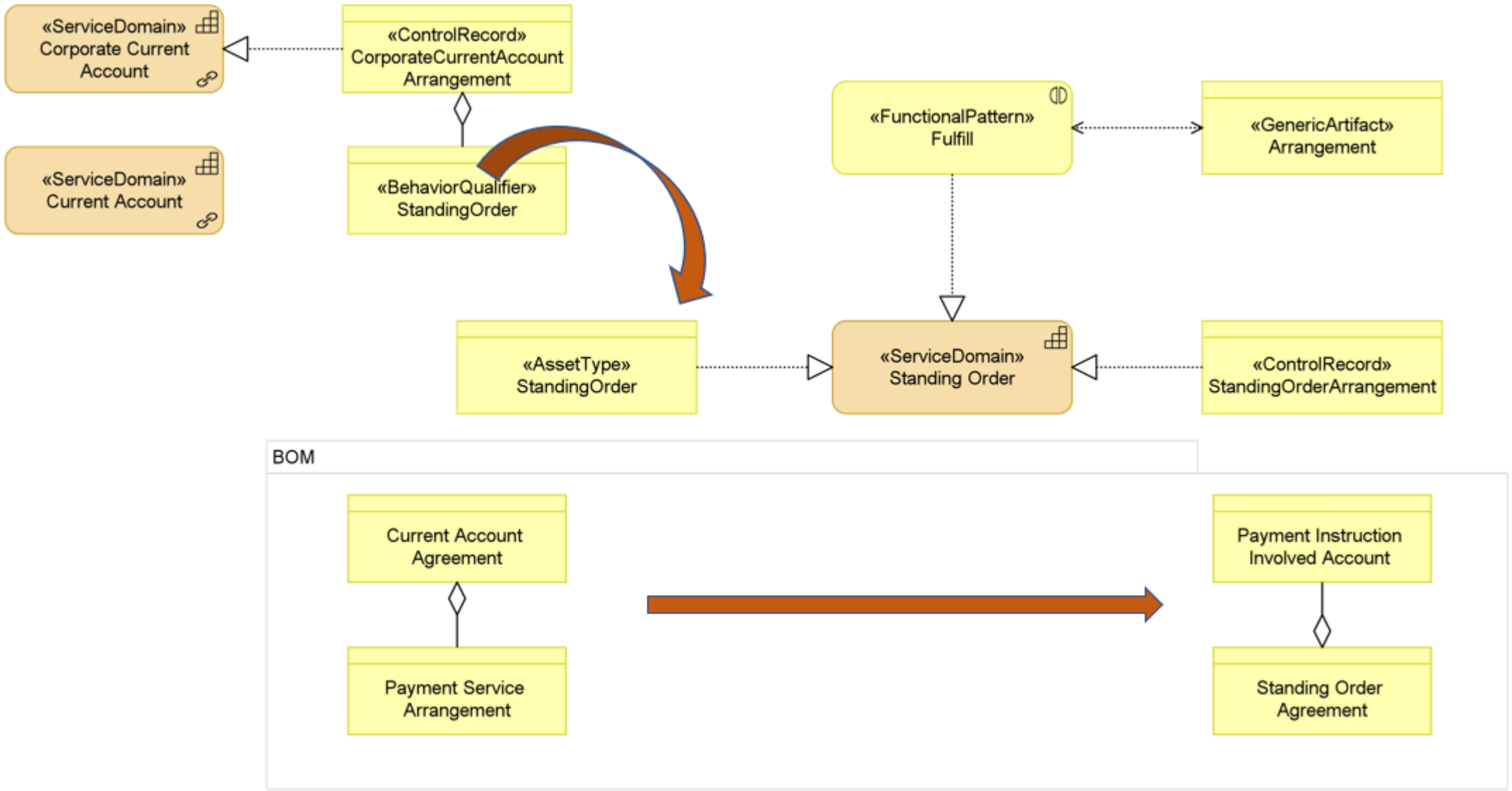
4.2 Using BIAN as Frame of Reference to find and compare candidate solutions



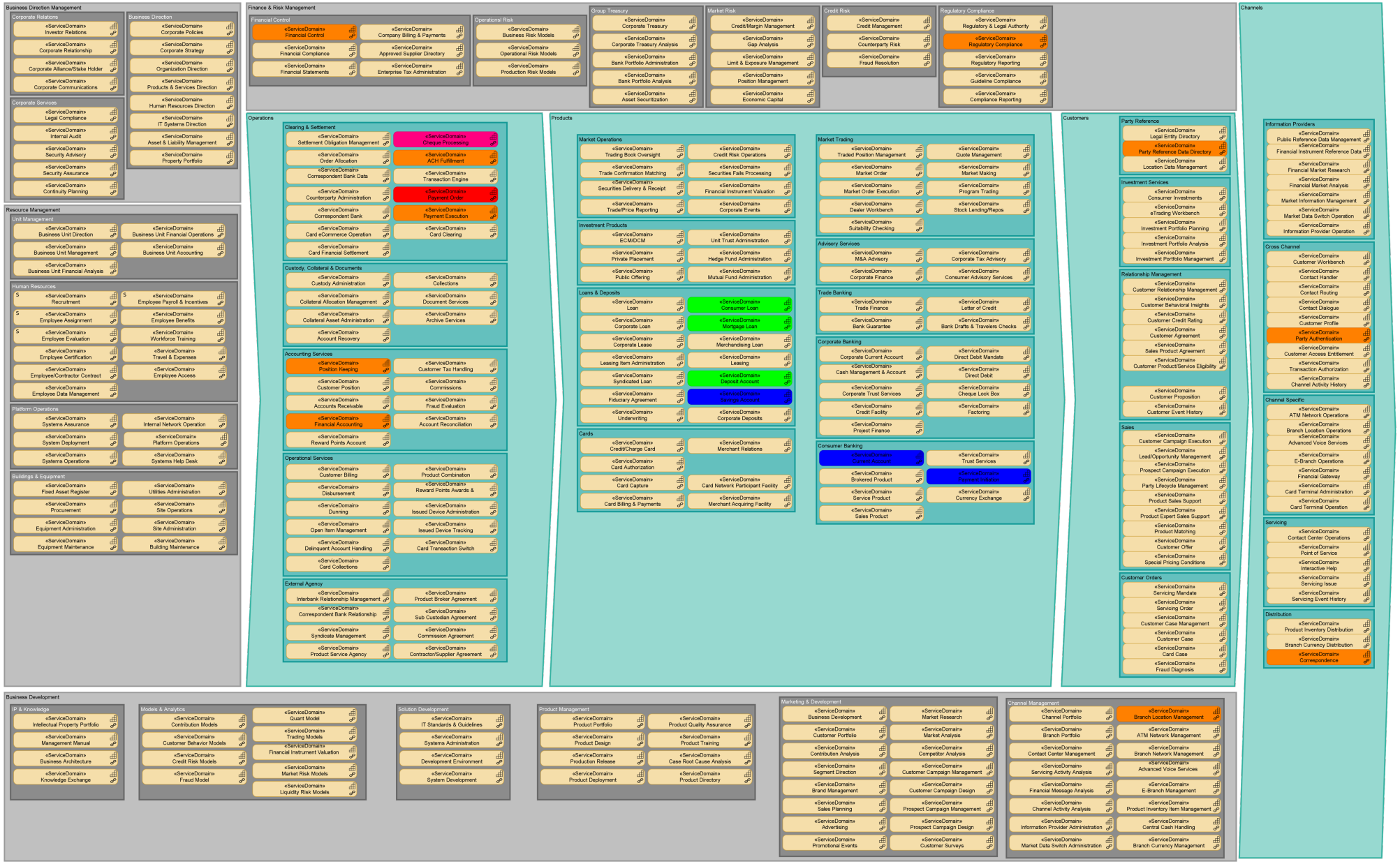
4.3 M5 Banking Group’s generalization of the Loan Product fulfillment Service Domains

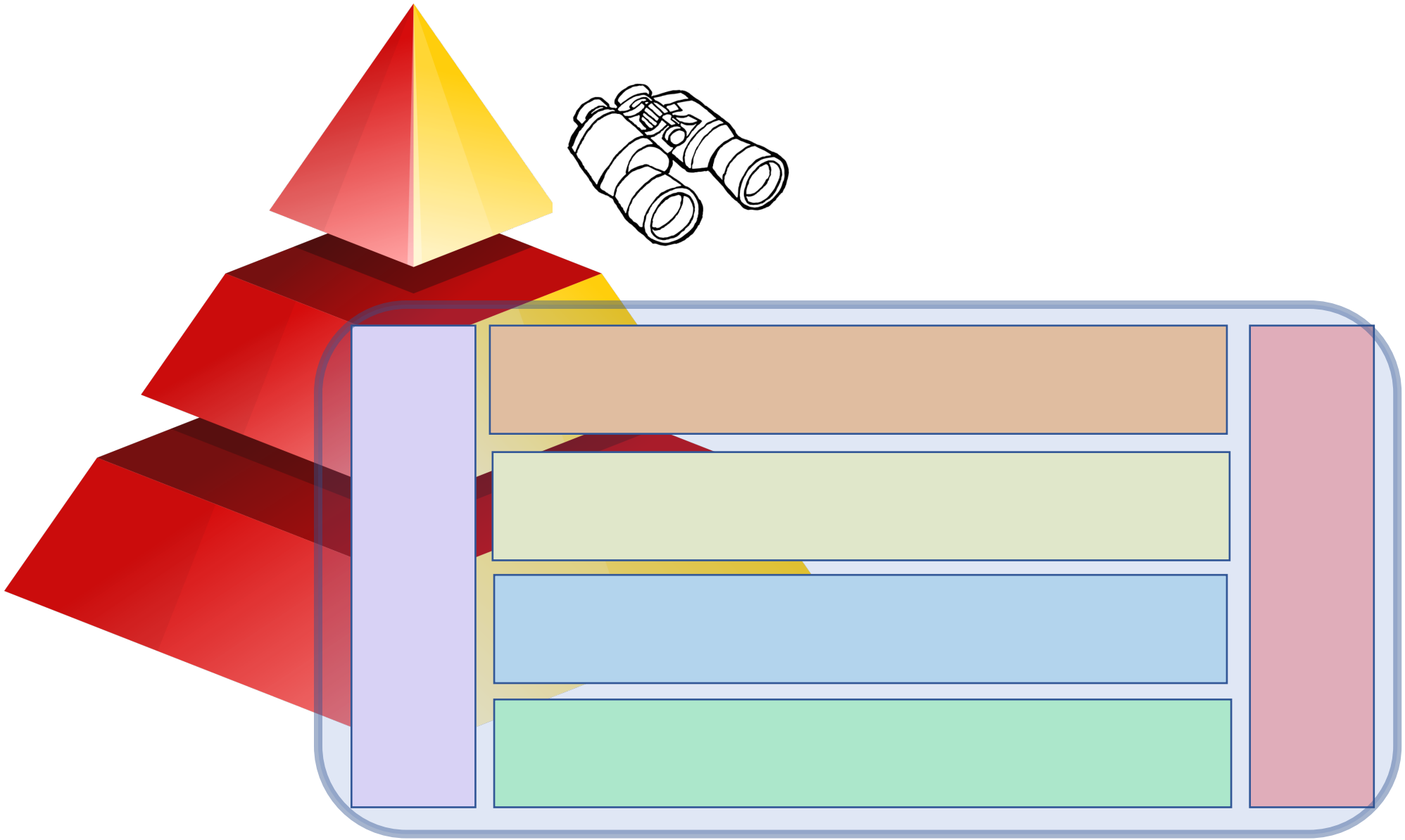


4.4 M5 Banking Group's very own Standing Order SD is split off the Current Account Service Domains

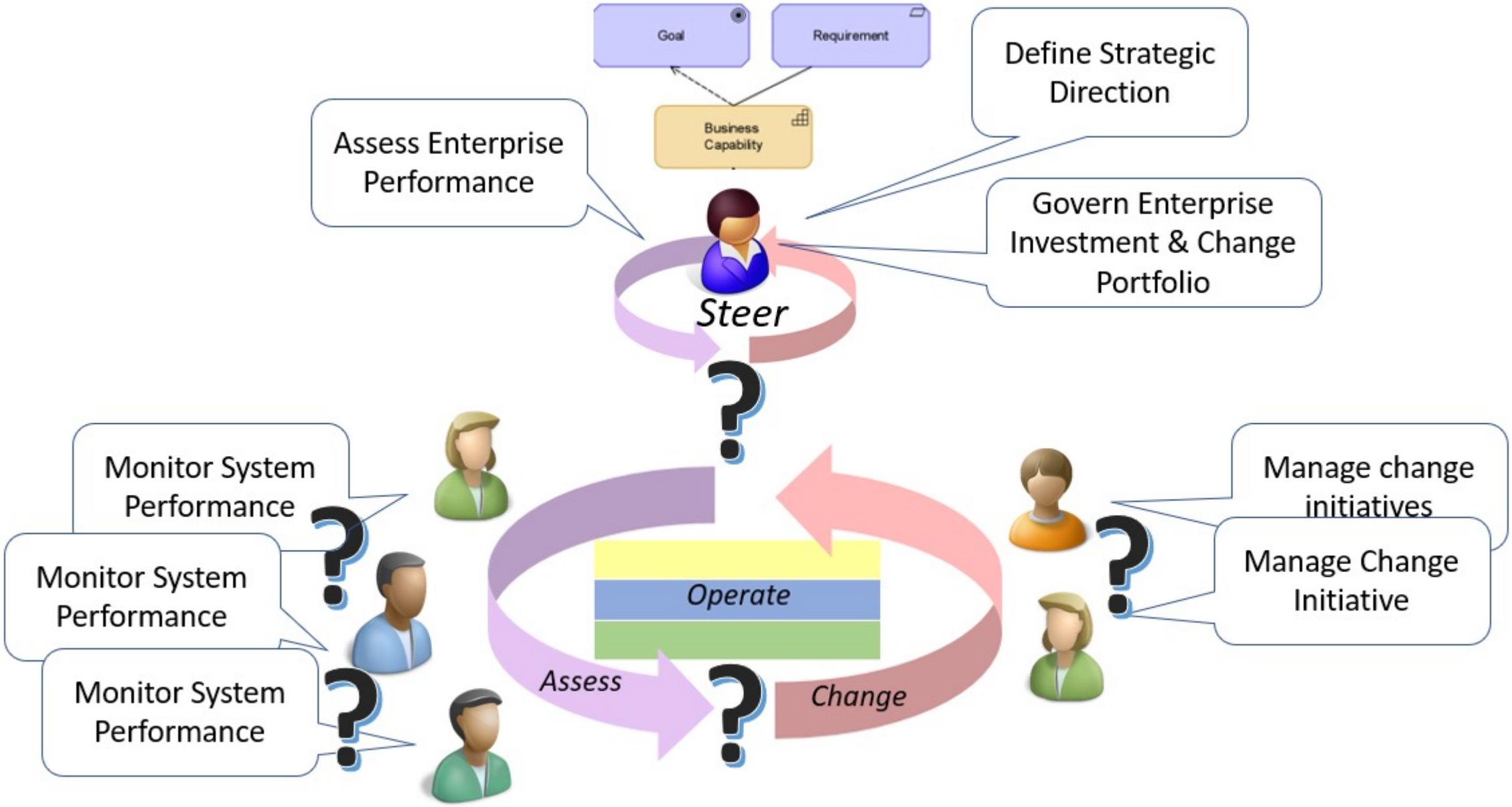


4.5 The first components of Mfour Bank's new application platform (late 9070-ties) mapped on the BIAN Service Landscape

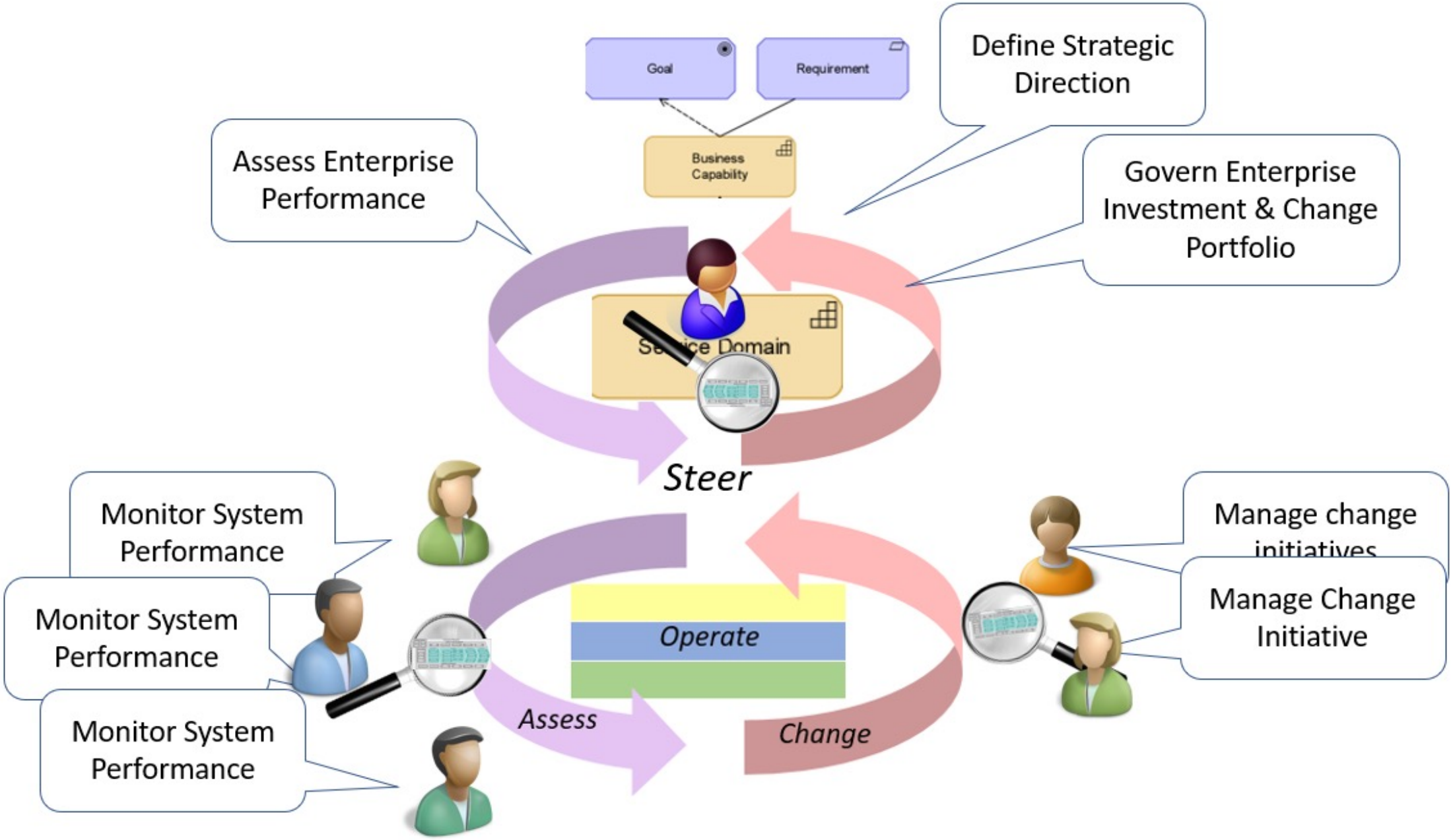


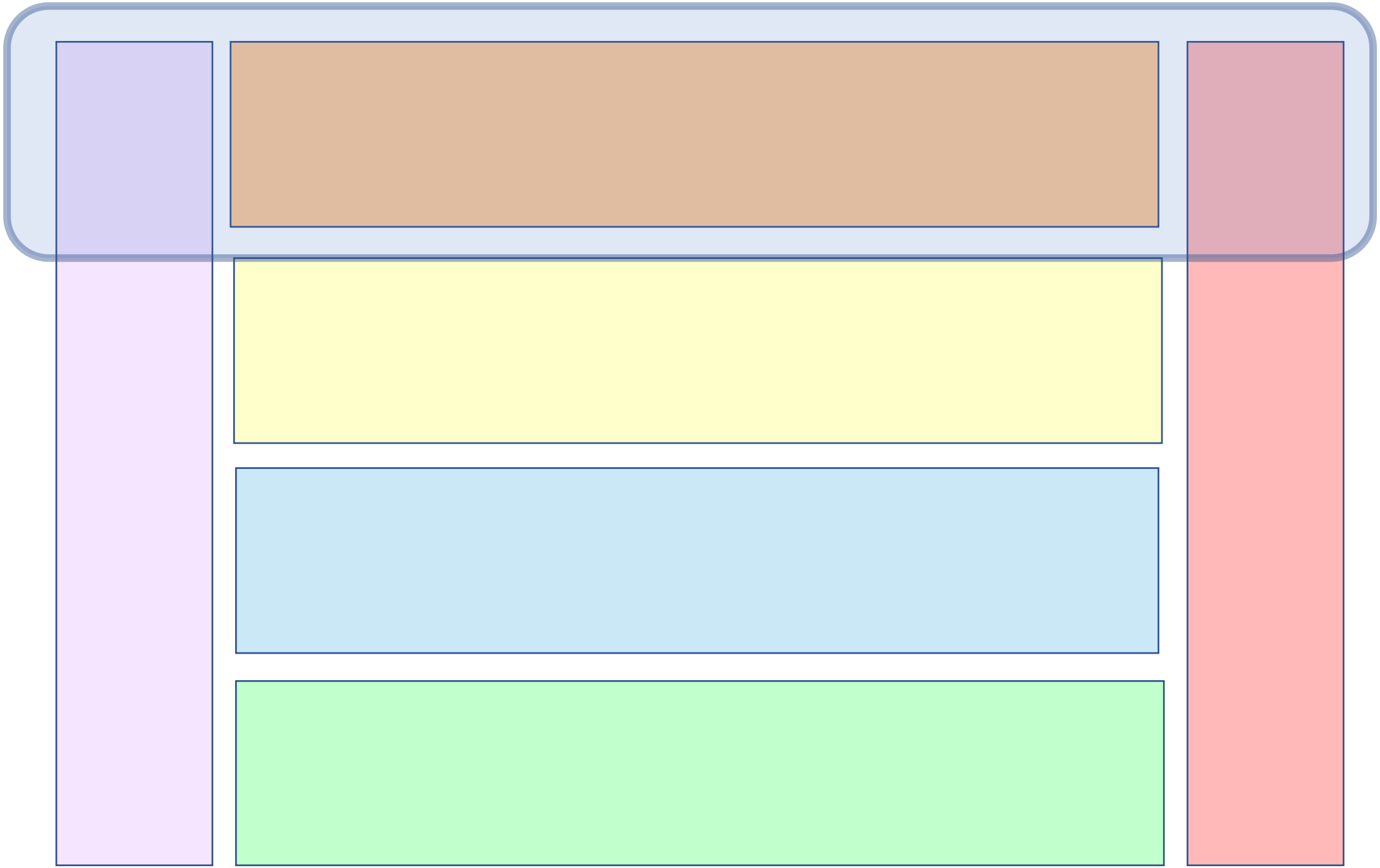


5.1 Different disciplines in search of a common language and Frame of Refernce

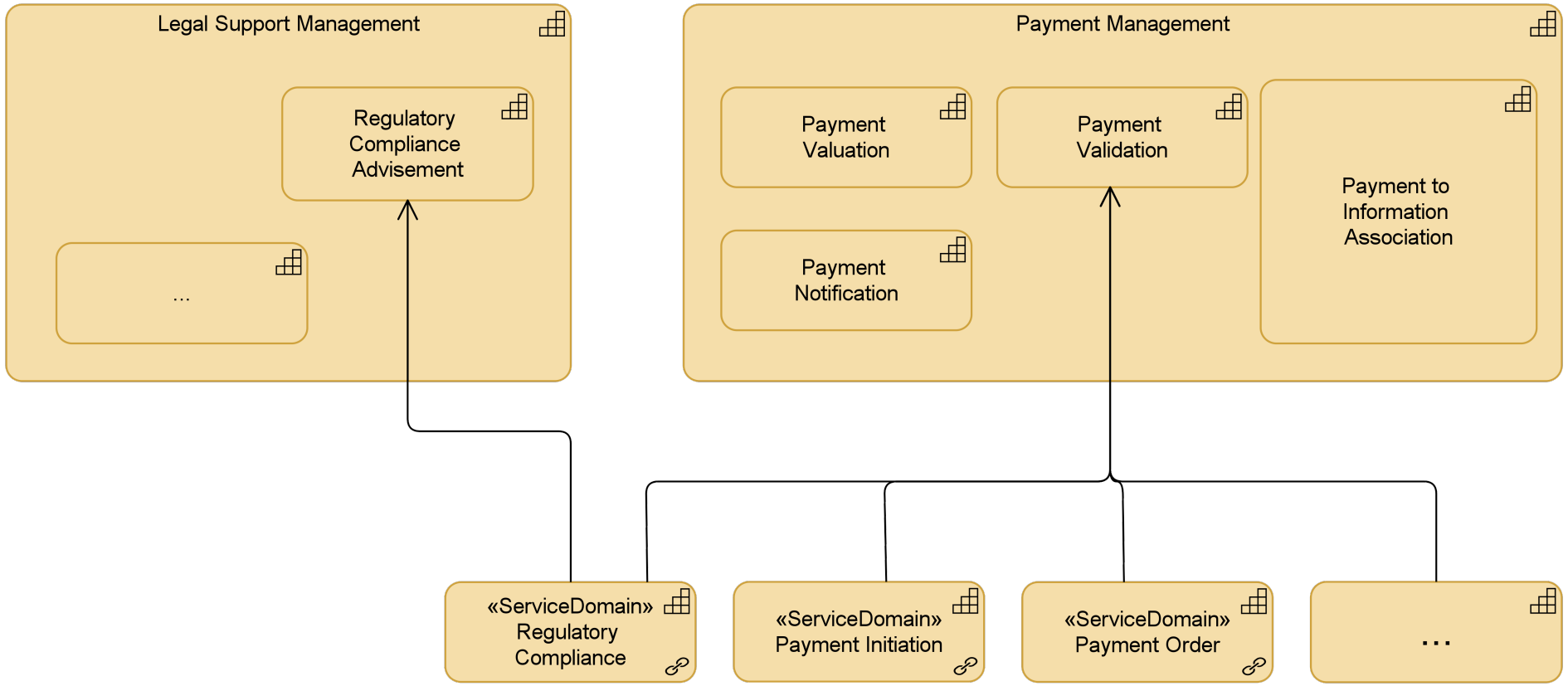


5.2 The common Frame of Reference provided by BIAN, enables a holistic Enterprise view

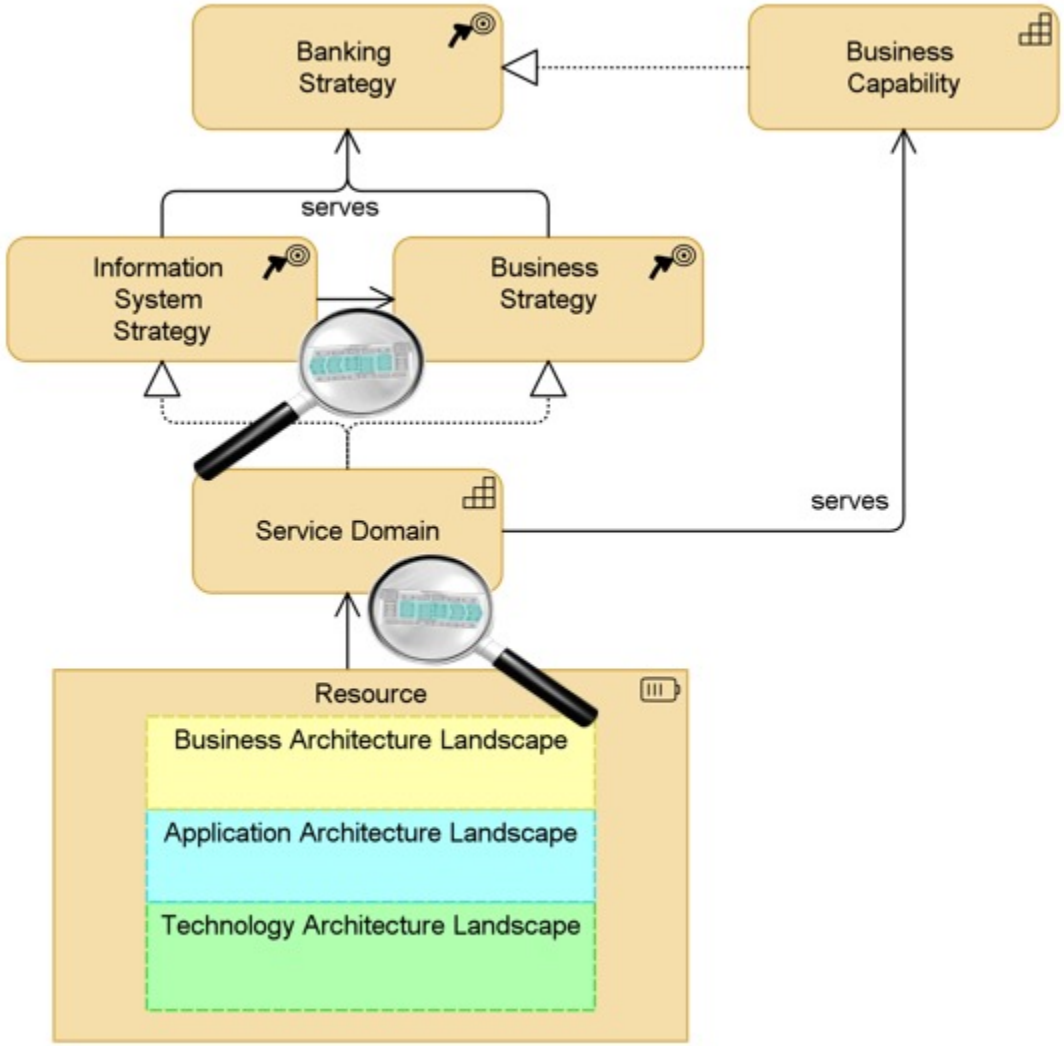




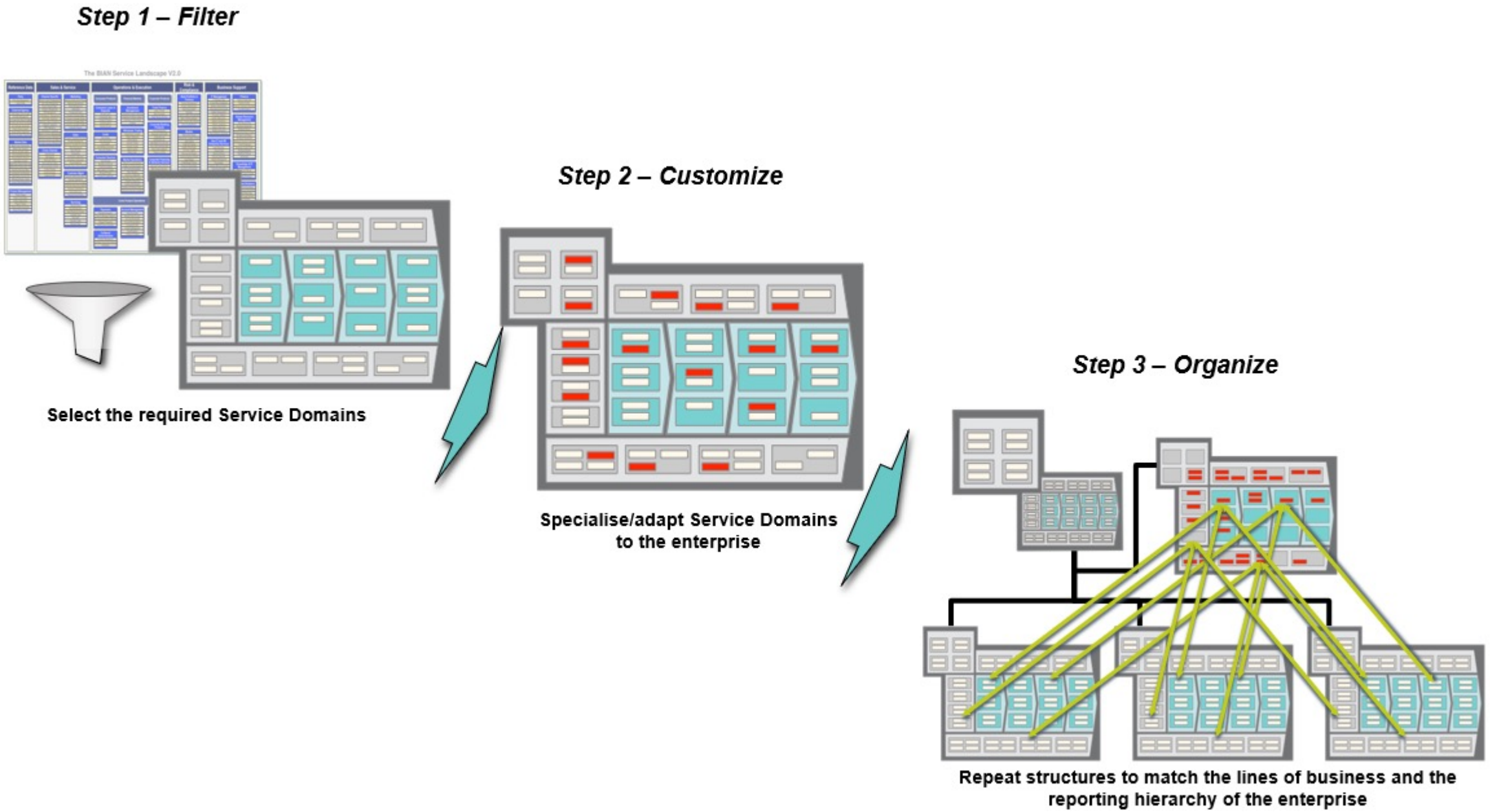
5.3 Business Capabilities are served by several Service Domains that can serve several Business Capabilities



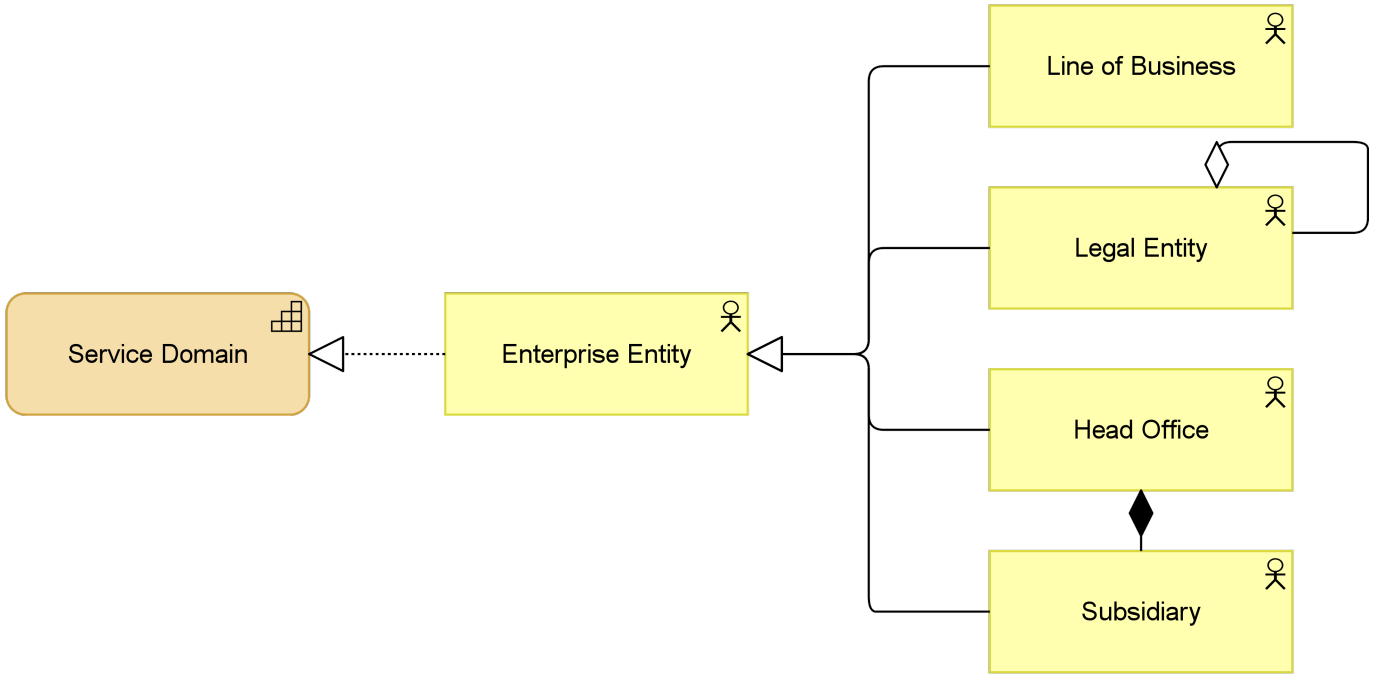
5.4 Service Domains are the linking pin between Strategic Business Capabilities and the Architecture that realizes them



5.5 Three steps in developing an enterprise blueprint

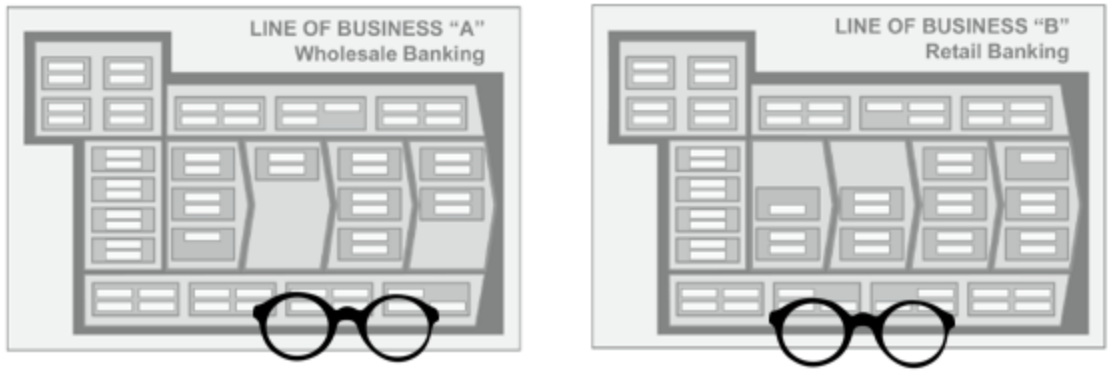


5.6 Assigning the responsibility for a SD in the Archimate Language

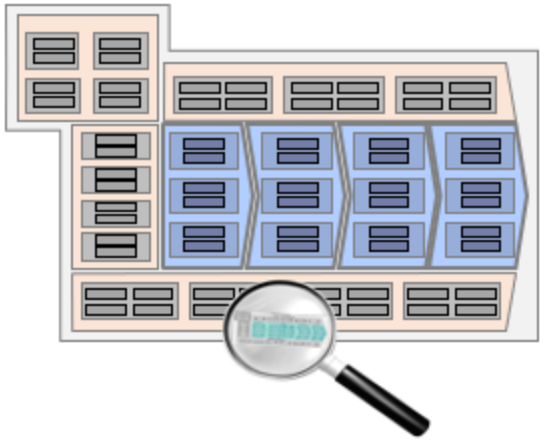



Enterprise Blueprint
Finance & Risk Management
Business Development

5.7 The Bank on a Page for a Line of Business is a view on the common Frame of Reference



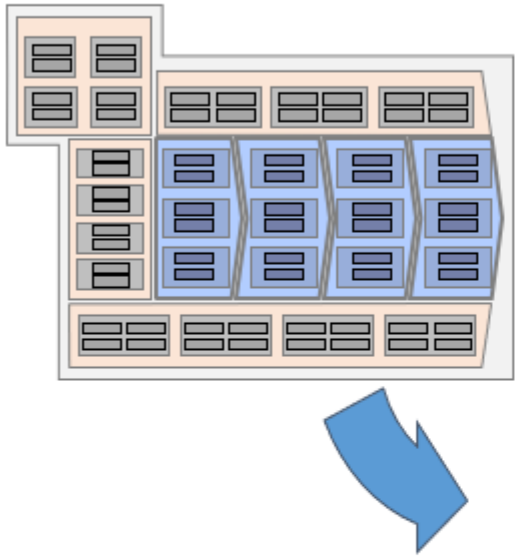
Each entities Blueprint is its management's view on



the common Service Domain Frame of Reference that provides a holistic view on

the multi-dimensional reality of the bank

5.8 Examples of Performance Measures



Different systems and business cost and performance measures can be associated with the Frame of Reference

SYSTEMS RELATED COSTS

- Development & deployment
- Training, support & assurance
- technology/platform operations
- Licensing/subscription/purchases

NON-SYSTEMS RELATED COSTS

- Workforce utilization
- Workforce training
- Location/equipment/utility/consumables
- Fixed capital allocation
- Fees/licensing/agenc
- Management overhead &support

Costs can be further analysed in terms including:

- Own Vs allocated
- Fixed/variable
- Book value/depreciating costs
- Repeating/ad hoc
- Volume discounts

SYSTEMS PERFORMANCE MEASURES

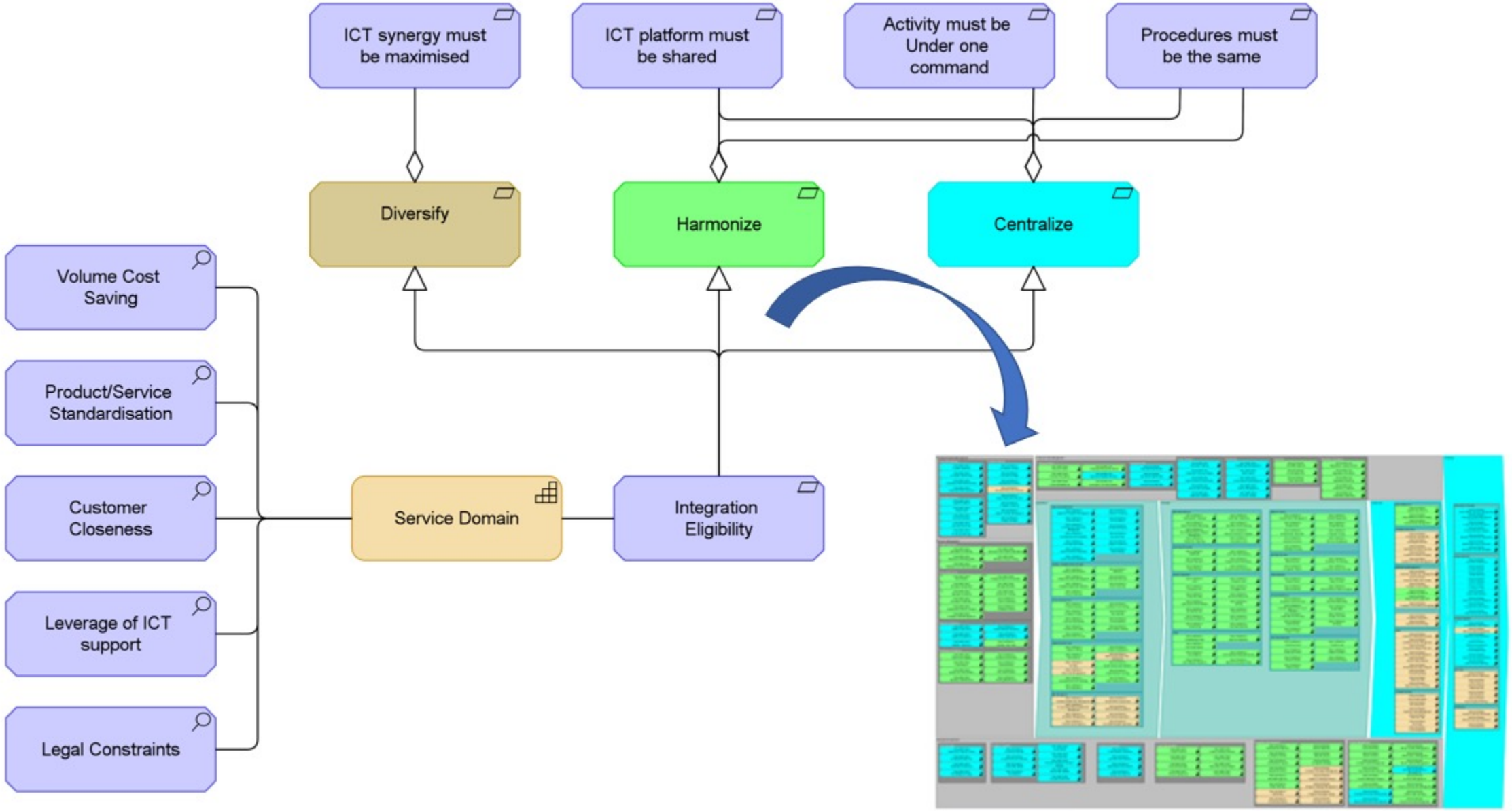
- Machine utilization
- Operating profile – schedule
- Security/resilience
- Performance profile
- User headcount, skill level & schedules
- Variability/configurability
- Advanced technology/practices

BUSINESS PERFORMANCE MEASURES

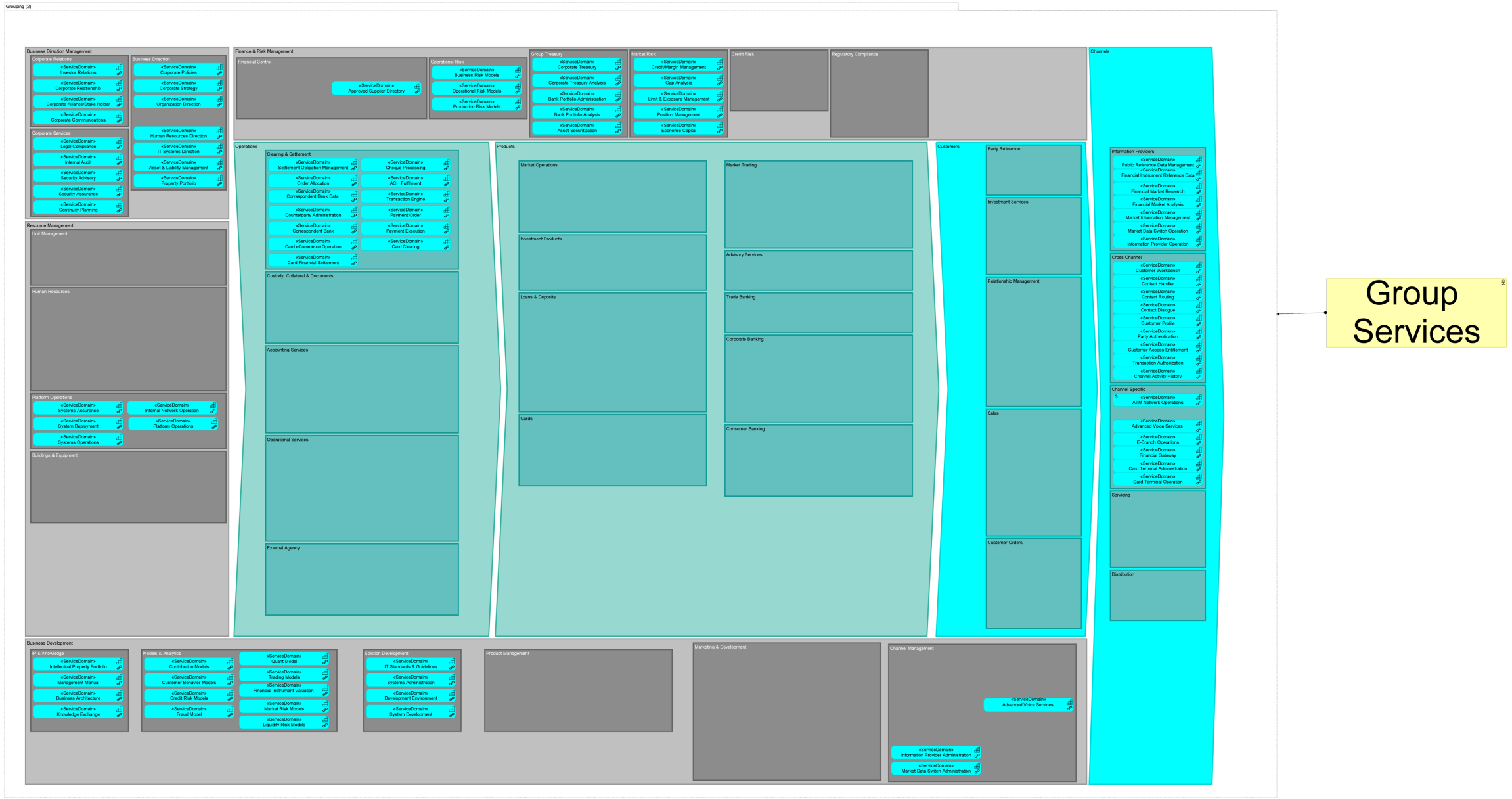
- Staff utilization/productivity
- Operating budgets
- User headcount/skills profile
- Working/commited capital
- Dusiness criticality/contribution
- Reputational/customer exposure/risk profile

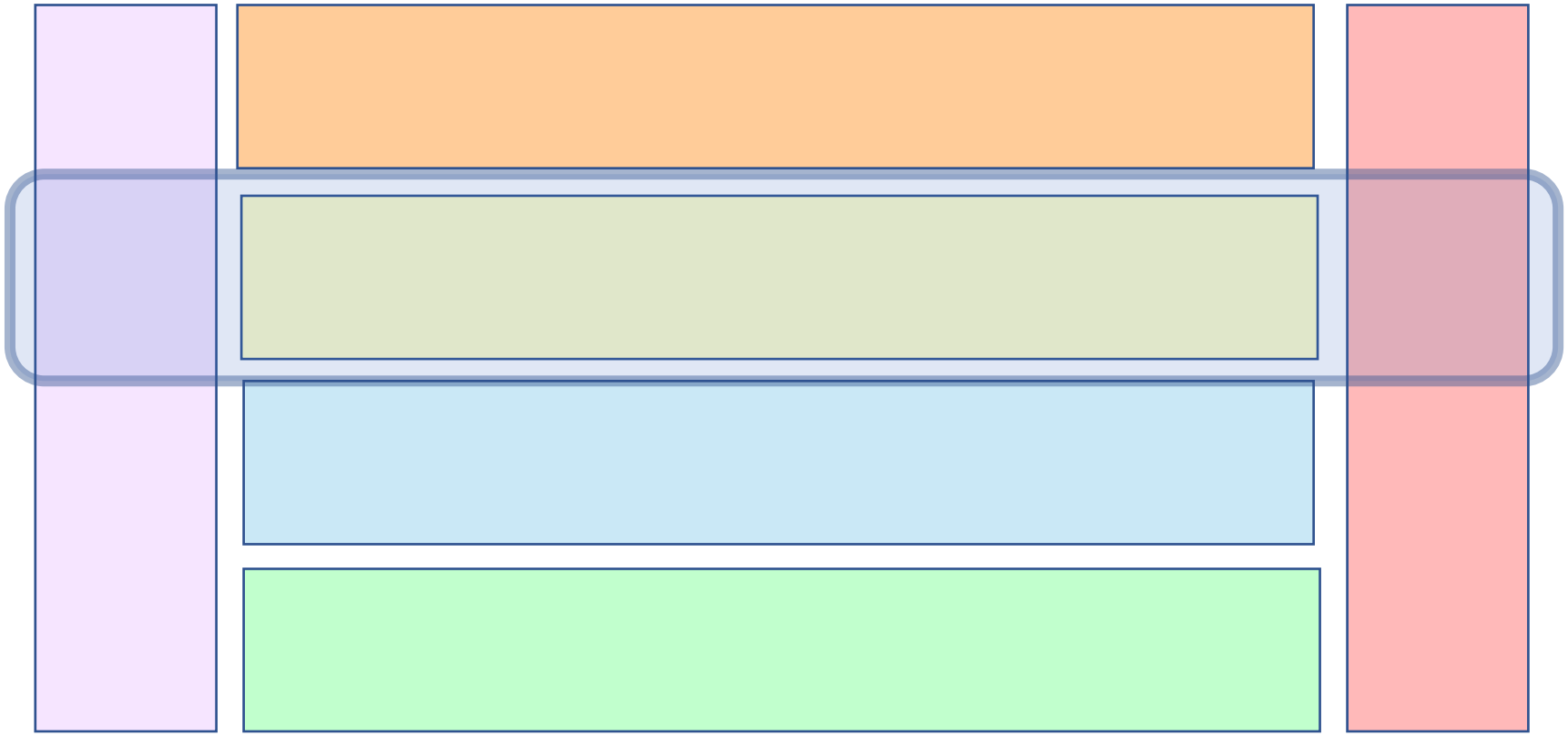
5.9 Using the Enterprise Blueprint as common Frame of reference for strategy, performance and change management

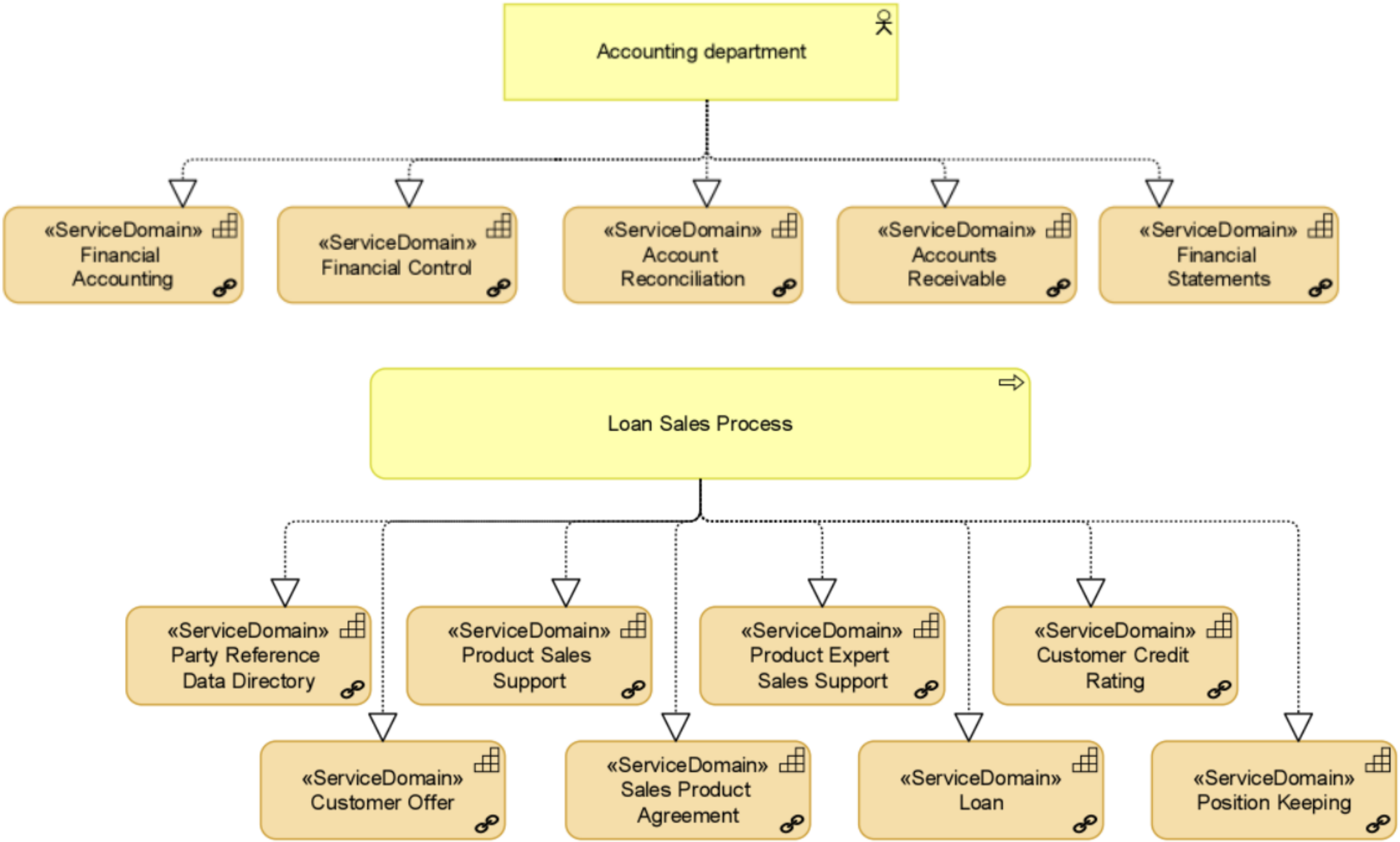
5.10 M5 Group's strategy: assessments lead to requirements, both attributed to SDs



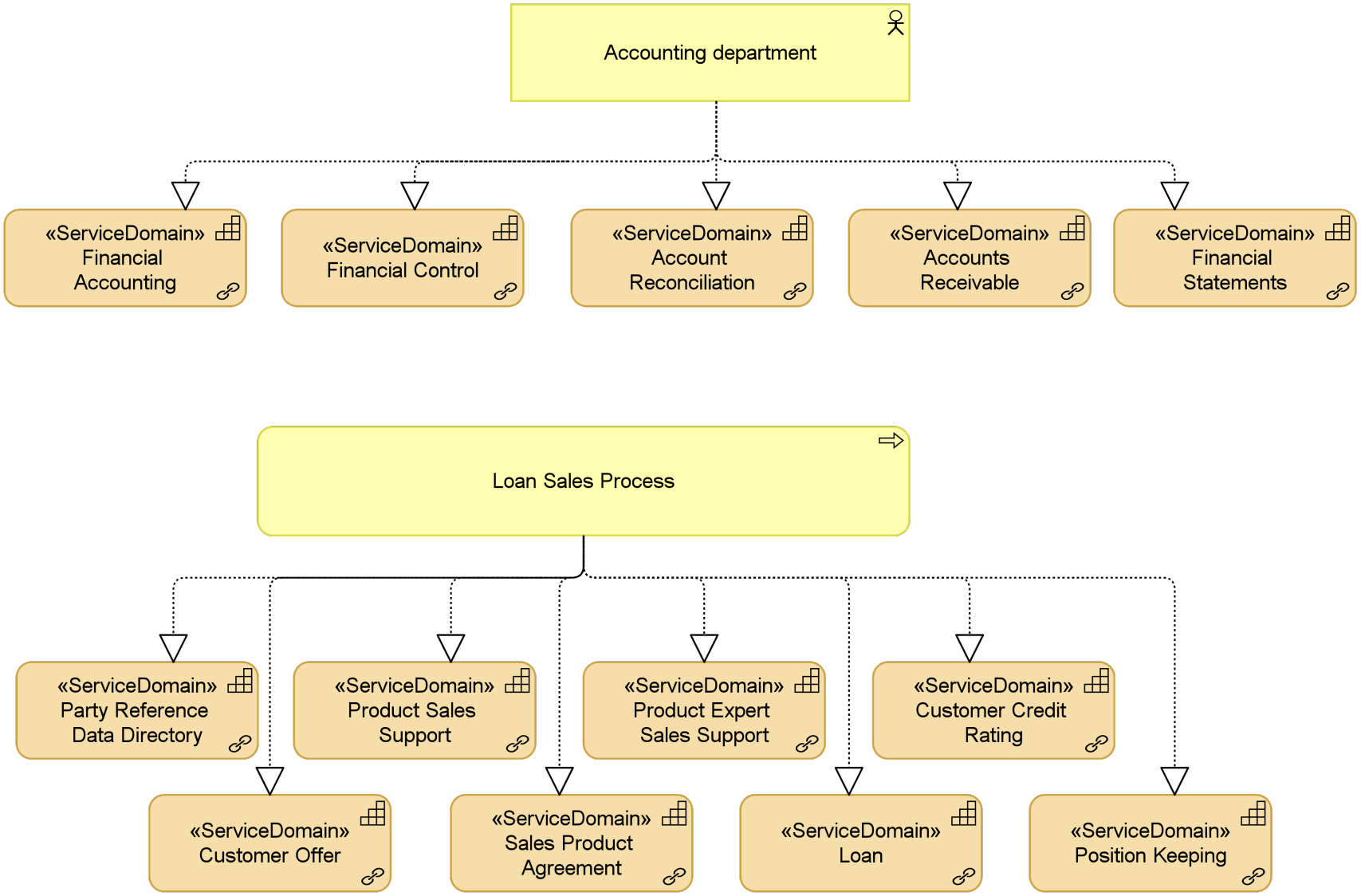
5.11 Blueprint of M5 Banking Group's Group Services entity, with assigned responsibilities






Accounting department
«ServiceDomain» Financial Accounting
«ServiceDomain» Financial Control
«ServiceDomain» Account Reconciliation
«ServiceDomain» Accounts Receivable
«ServiceDomain» Financial Statements
Loan Sales Process
«ServiceDomain» Party Reference Data Directory
«ServiceDomain» Product Sales Support
«ServiceDomain» Product Expert Sales Support
«ServiceDomain» Customer Credit Rating
«ServiceDomain» Customer Offer
«ServiceDomain» Sales Product Agreement
«ServiceDomain» Loan
«ServiceDomain» Position Keeping

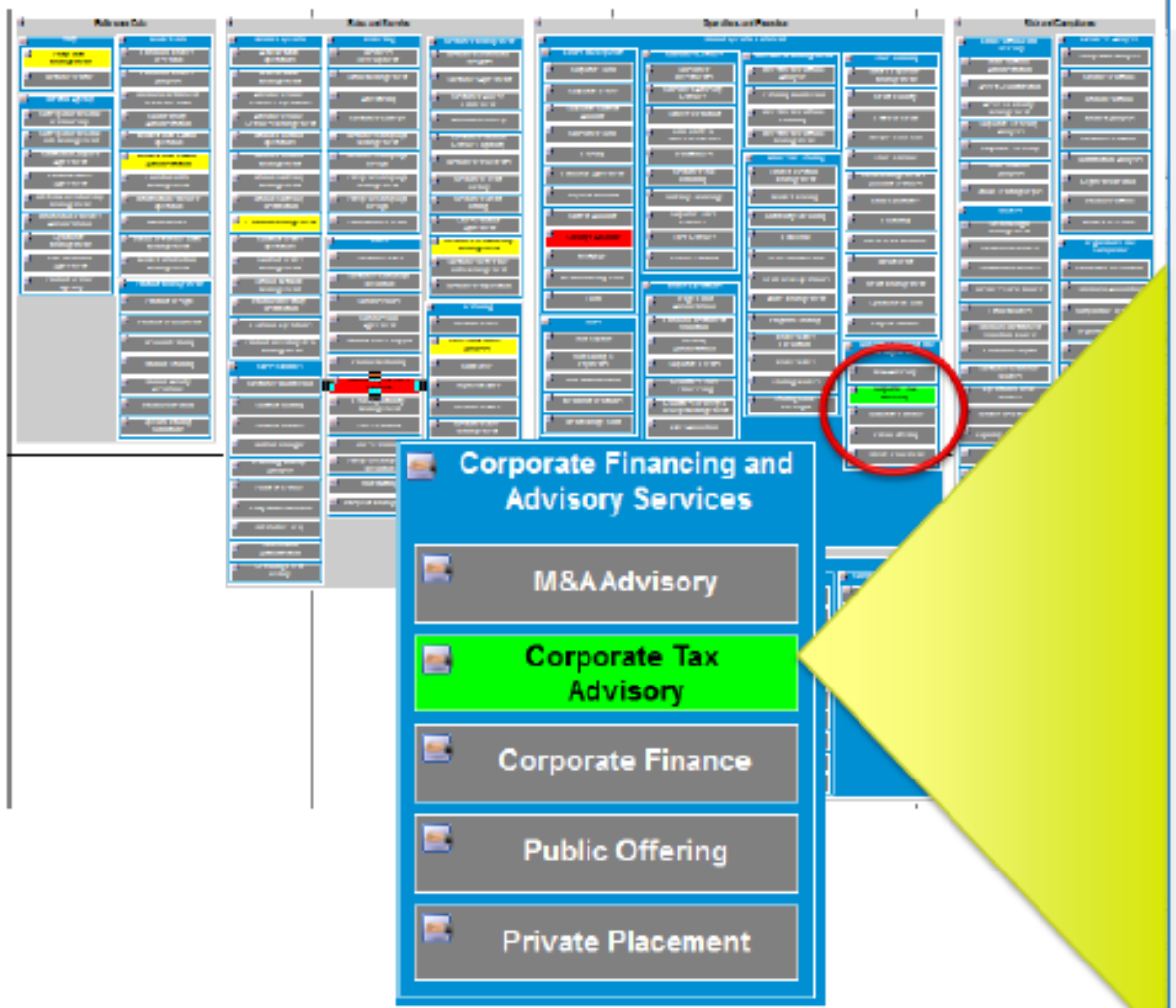
6.1 The responsibilities of an accounting department and a loan sales process clarified



6.2 Business pain-points visualized on the ‘bank on a page’ of a BIAN member

6.3 Goal contribution per Service Domain vizualized on the ‘bank on a page’ of a BIAN member

Maturity Rating in BIAN according to CMMI



MaturityLevelCM Properties - Corporate Tax Advisory_MaturityCM (Corporate_Tax_Advisory_M...

General | Definition

Identification

Name: Corporate Tax Advisory_MaturityCM

Comment:

Measurement

Architecture: Architecture L5

Architecture comment: Standardized, complete and well managed system architecture to support capability exists.
Systems are well integrated, functionally complete, support complete capabilities;
Technology is managed through baseline, transition state(s) and target architectures.

Change: Change L5

Change comment: Business change manages the capability.
Proactive changes management practices result in continuously improved capabilities;
Change management procedures are industry/market best practice.

Control: Control L3

Control comment: Business activity is documented and controlled.
Same task is performed in same ways with minimal exceptions;
Delivery of capability to customer is consistent.

Performance: Performance L4

Performance comment: Performance is consistently measured across the same process.
Baseline, transition state(s) and Target sets of metrics defined for capability;
A process for measuring and proactively improving performance exists and is adhered to.

Result: Result L4

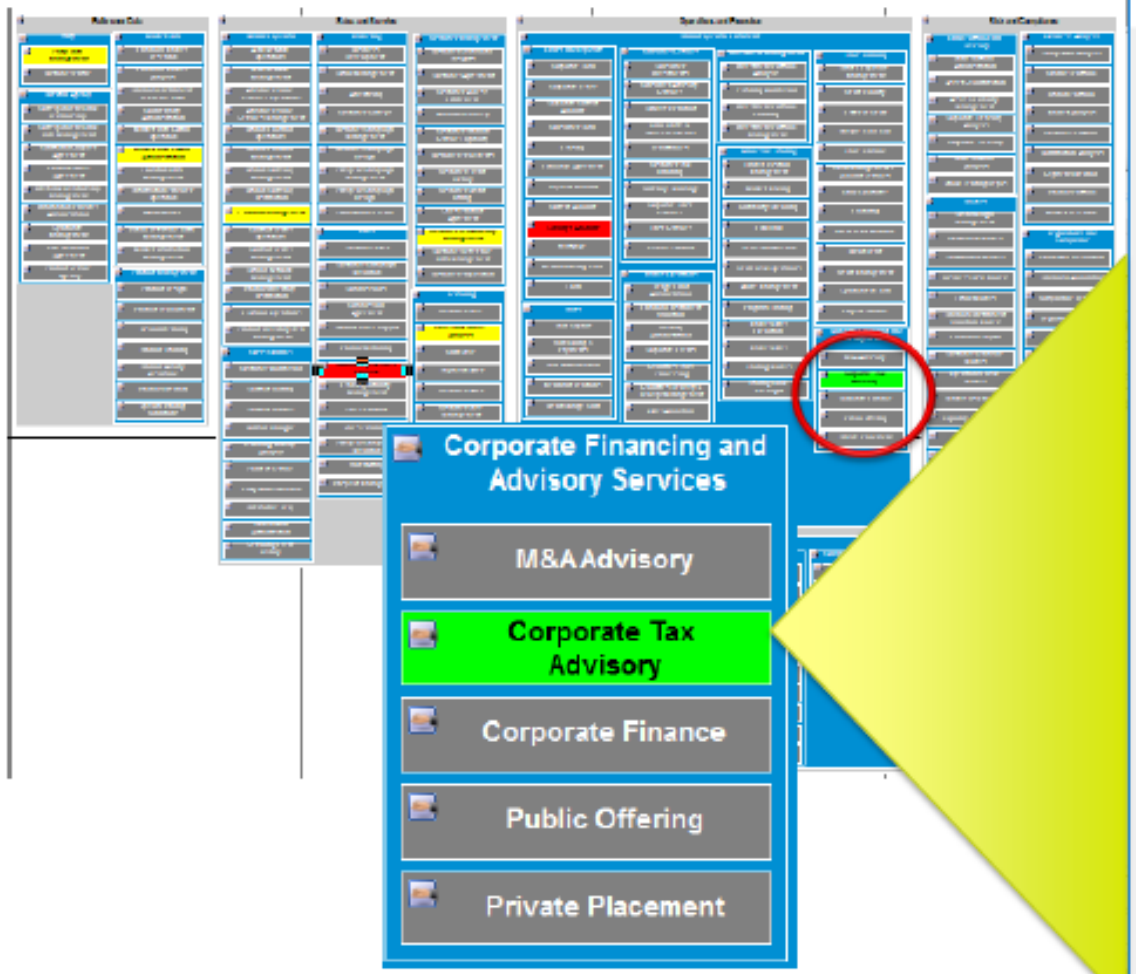
Result comment: Results are consistent.
- Results are predictable and every action has a defined, known resulting state.

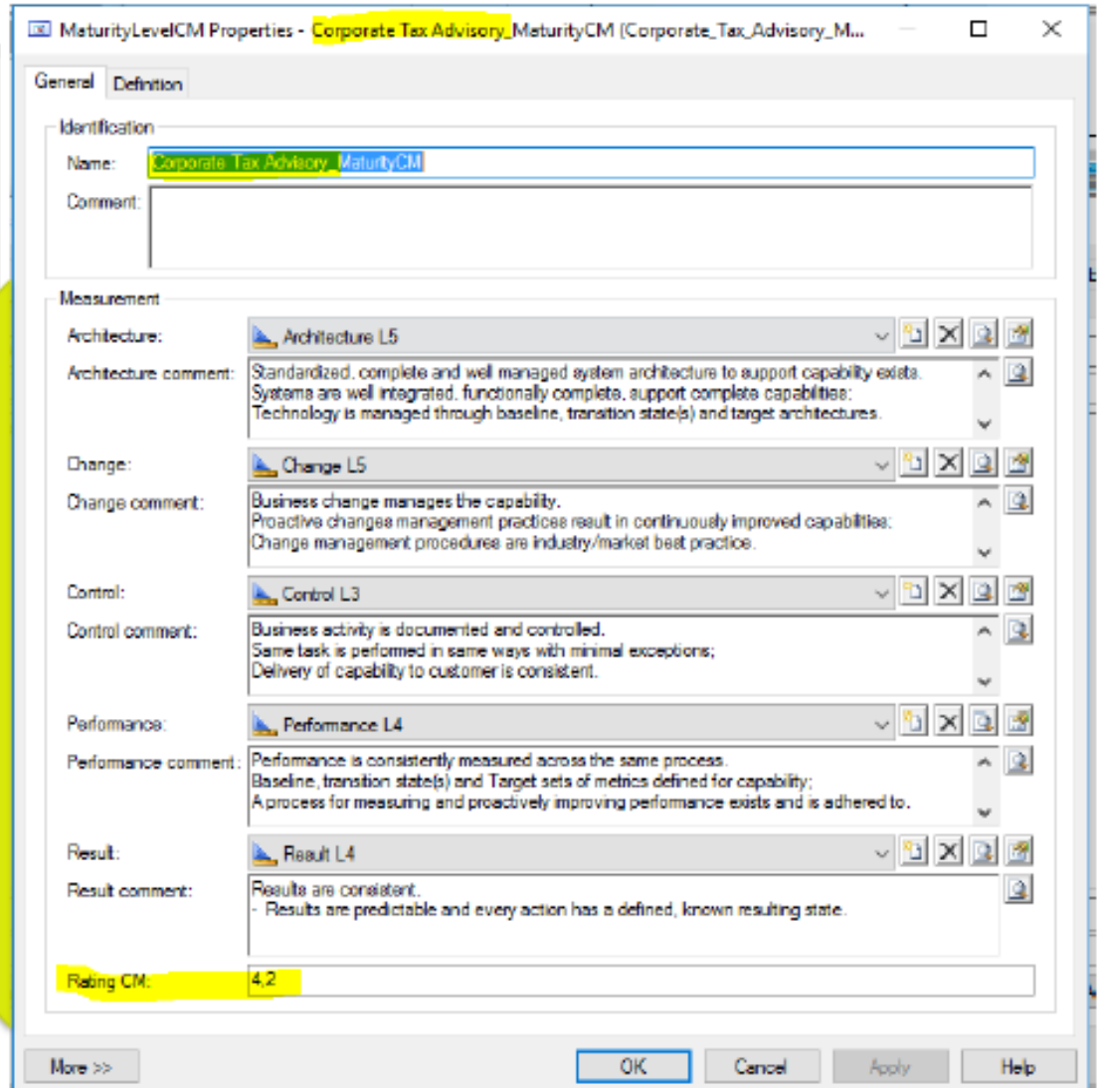
Rating CM: 4,2

More >> | OK | Cancel | Apply | Help

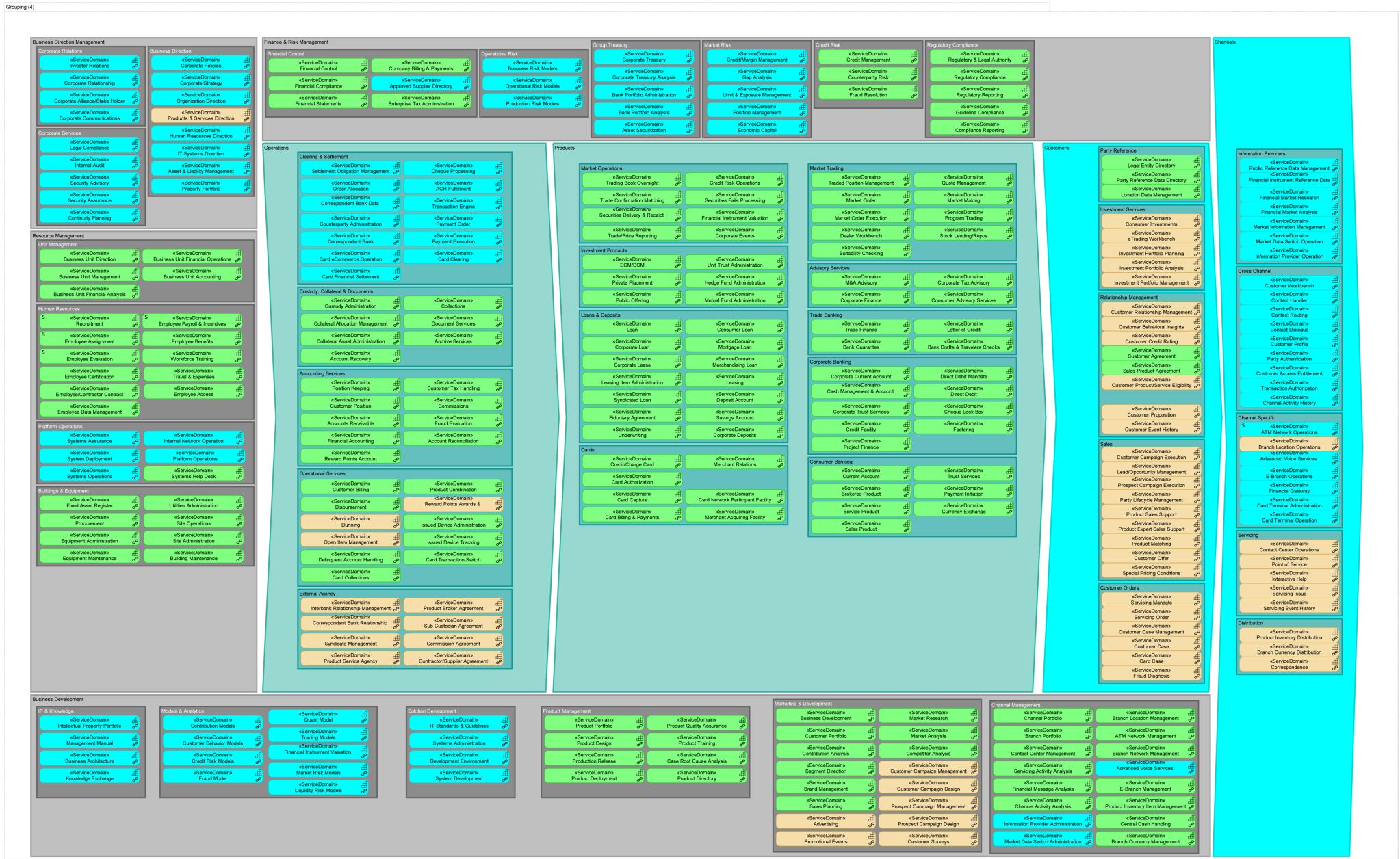
6.4 Maturity Rating per Service Domain on the bank on a page of a BIAN memeber

Maturity Rating in BIAN according to CMMI





6.5 Strategic Requirements per Service Domain represented as heat-map on the bank on a page of M5 Banking Group

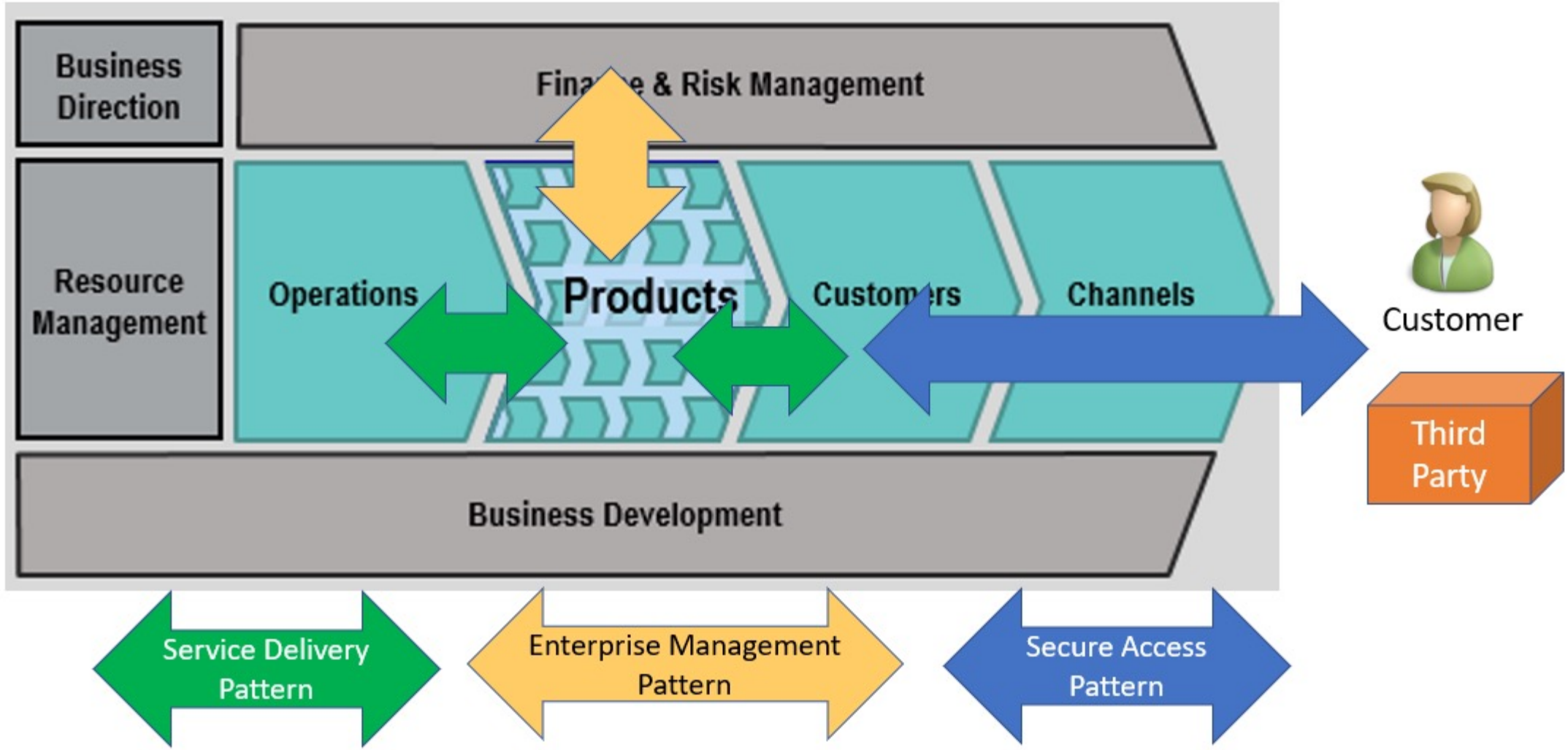


Diversify

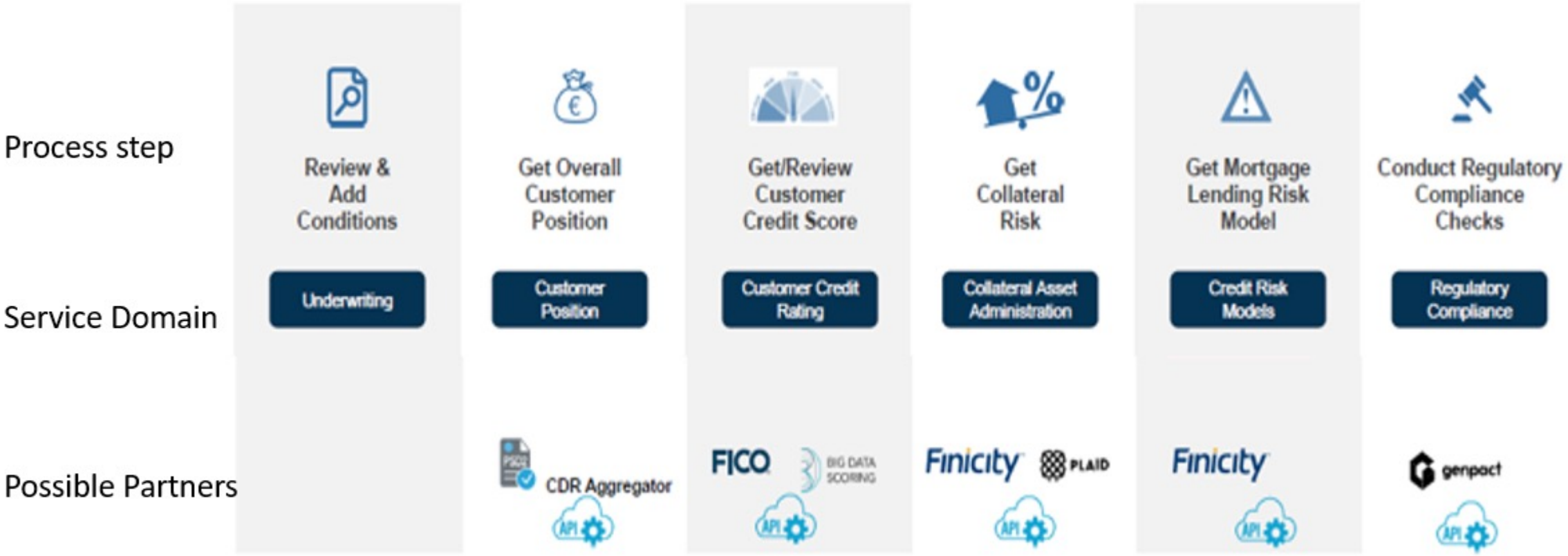
Harmonize

Centralize

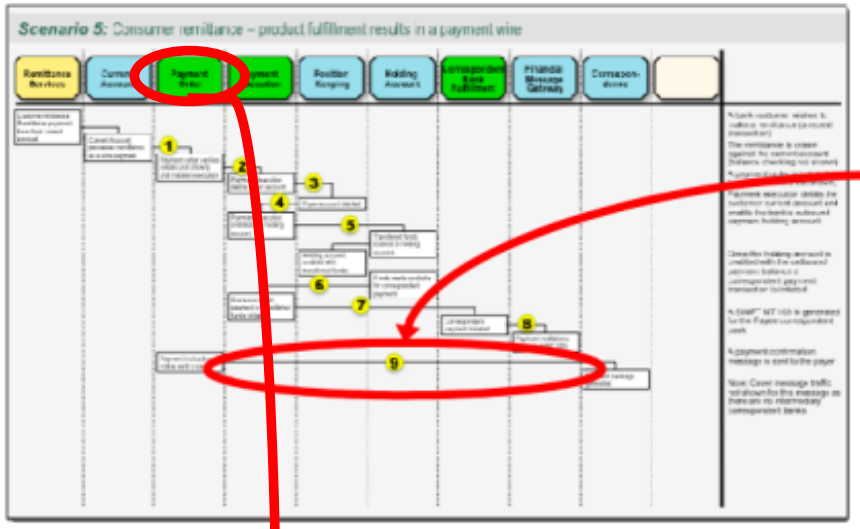
6.6 Service Domains cooperate in patterns, enabling a secure, controlled delivery of financial services



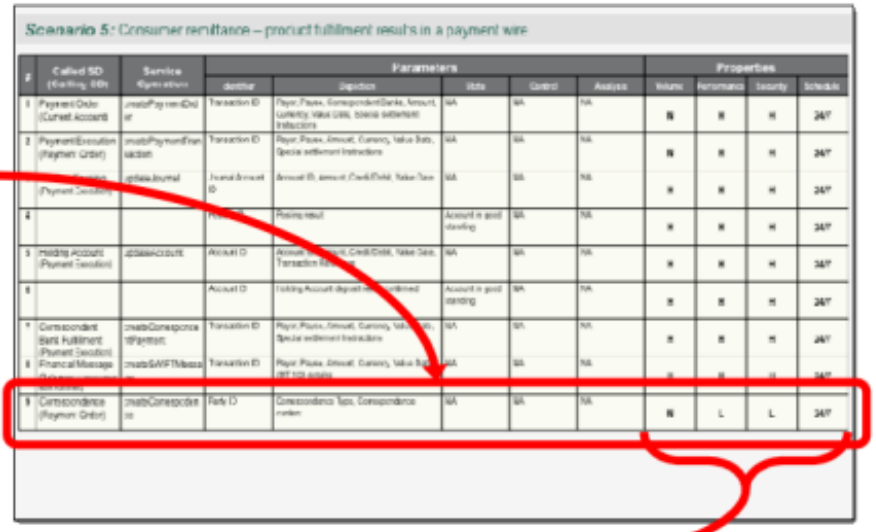
6.7 Process steps expressed as Service Domains facilitate the selection of business partners



6.8 The requirements for Service Domains and for their interactions are specified



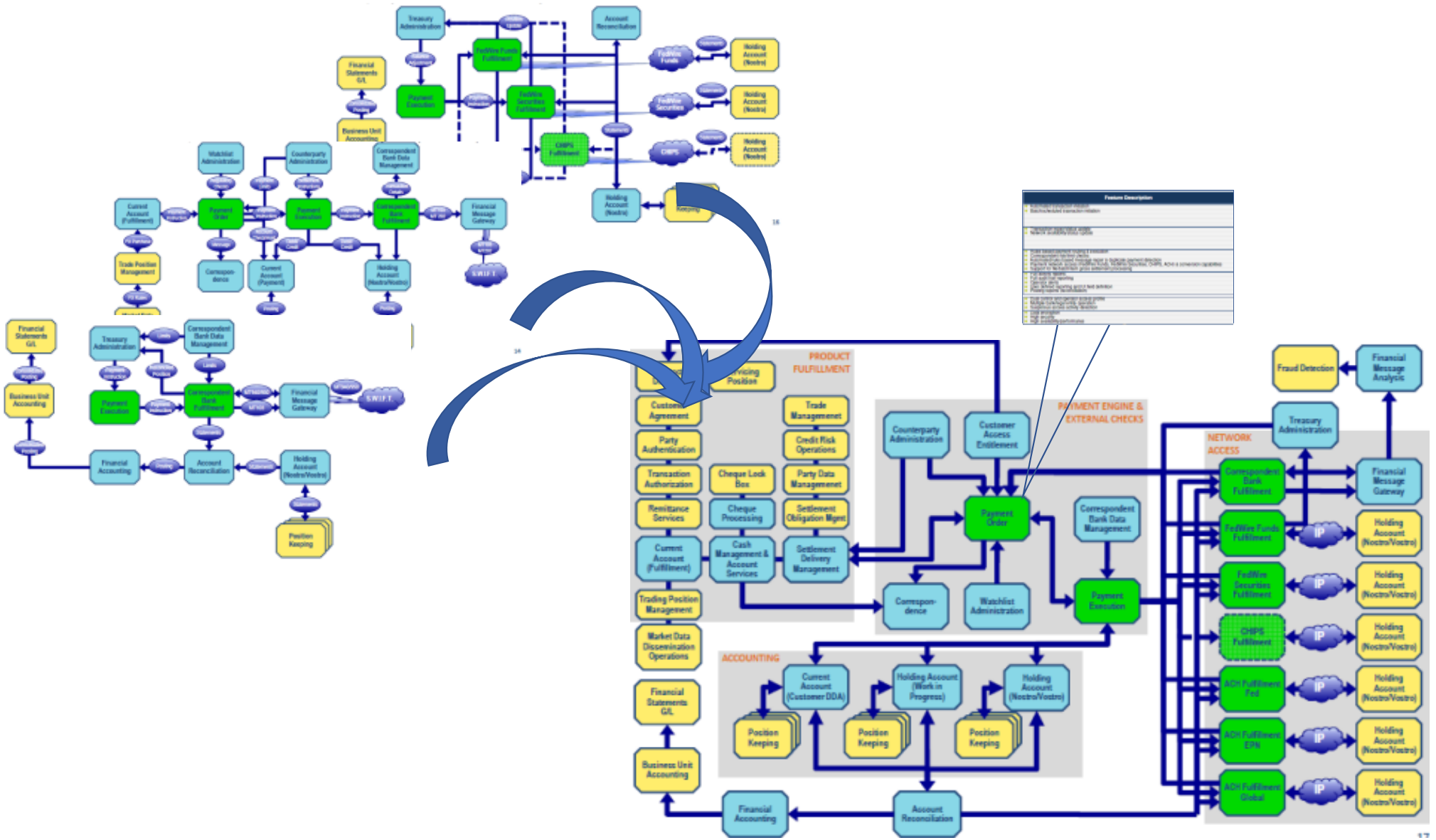
Service Domain Interactions are described in the associated table

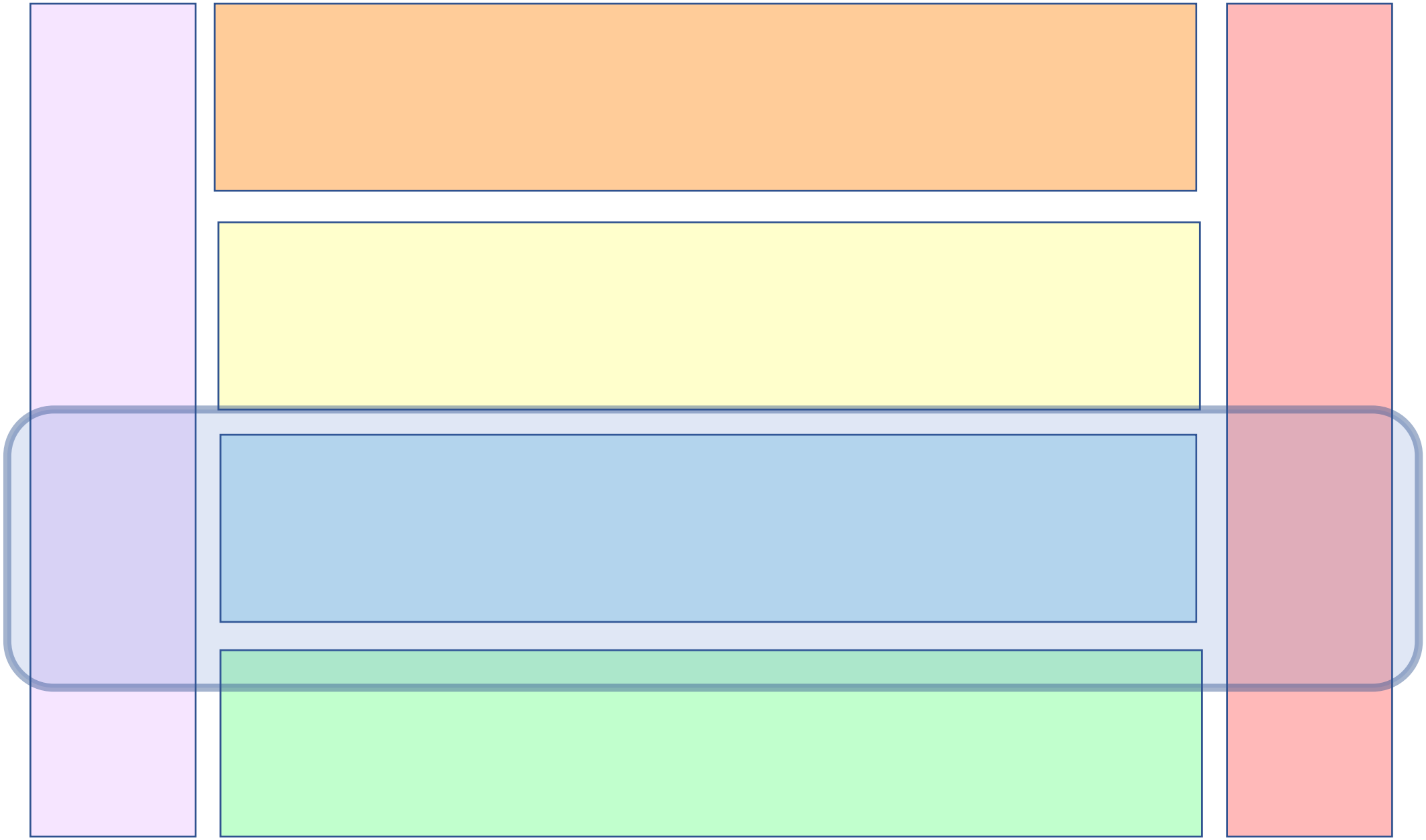


Feature Description
Automated transaction initiation Batch/scheduled trasnaction initiation
Transaction repair/status update Network availability/status update
Rules based payment routing & execution Correspondent risk/limit checks Automated/rules based message repair & duplicate payment detection Payment network access (FedWire Funds, FedWire Securities, CHIPS, ACH) & conversion capabilities Support for file/batch/item gross settlement processing
Full activity reports Full audit trail reporting Operator alerts User defined reporting and UI field definition Posting reports (reconciliation)
Dual control and operator access profile Multiple bank/legal entity operation Suspicious access activity detection
Data encryption High security High availability/performance

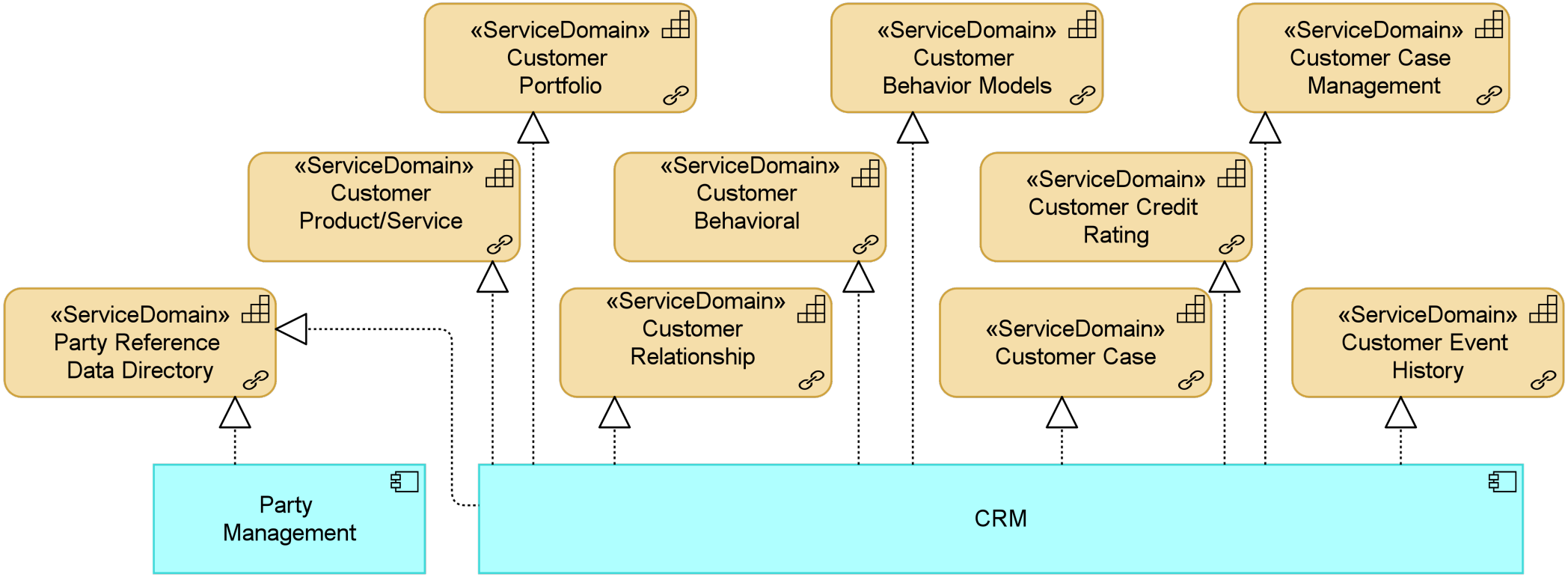
Service Operation Properties			
Volume	Performance	Security	Schedule
Transaction volume (peak loading)	On-line, fast response	Level of confidentiality, integrity	Access pattern – any time, scheduled

6.9 Business Scenarios are consolidated into a Wireframe, a holistic view on the requirements

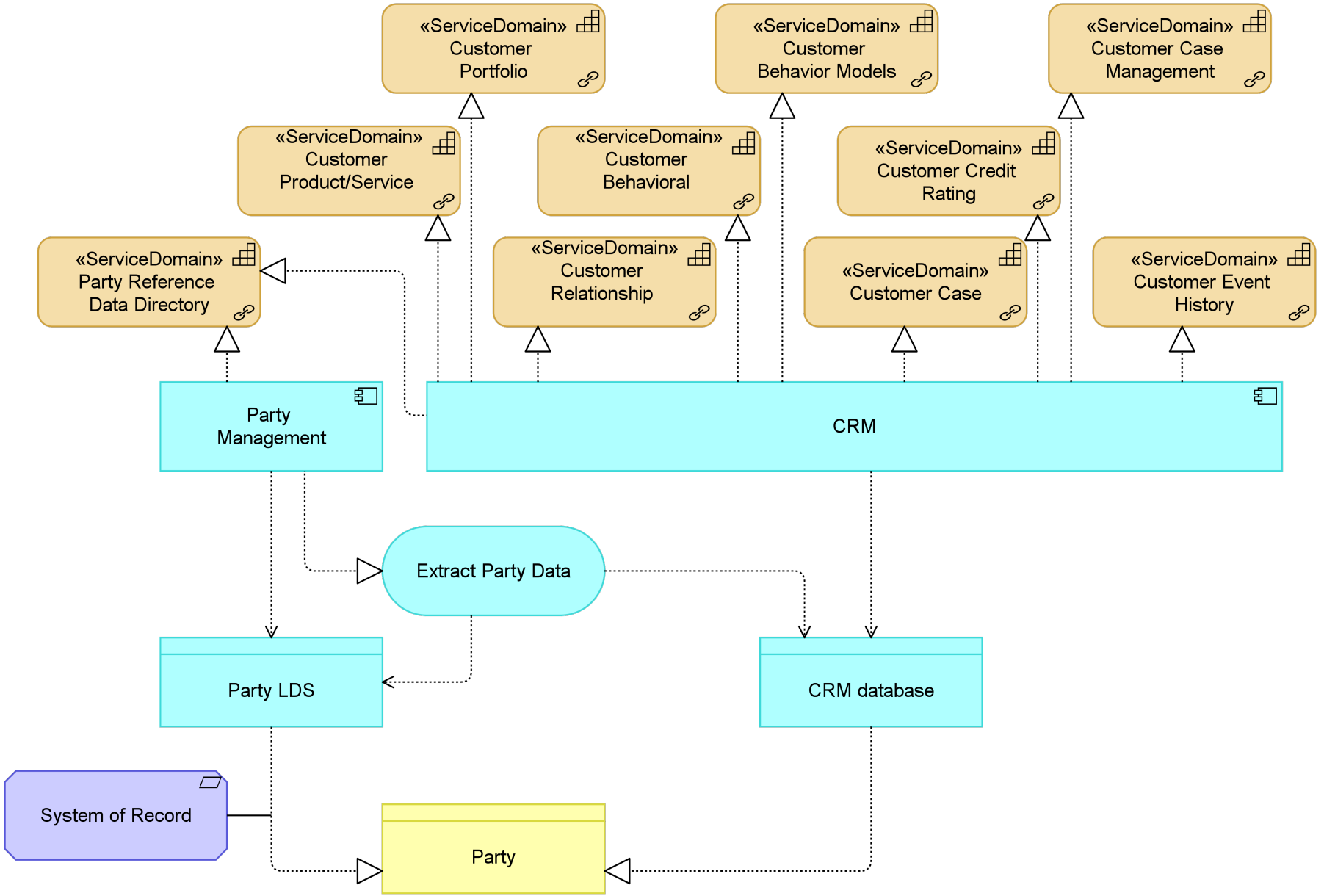




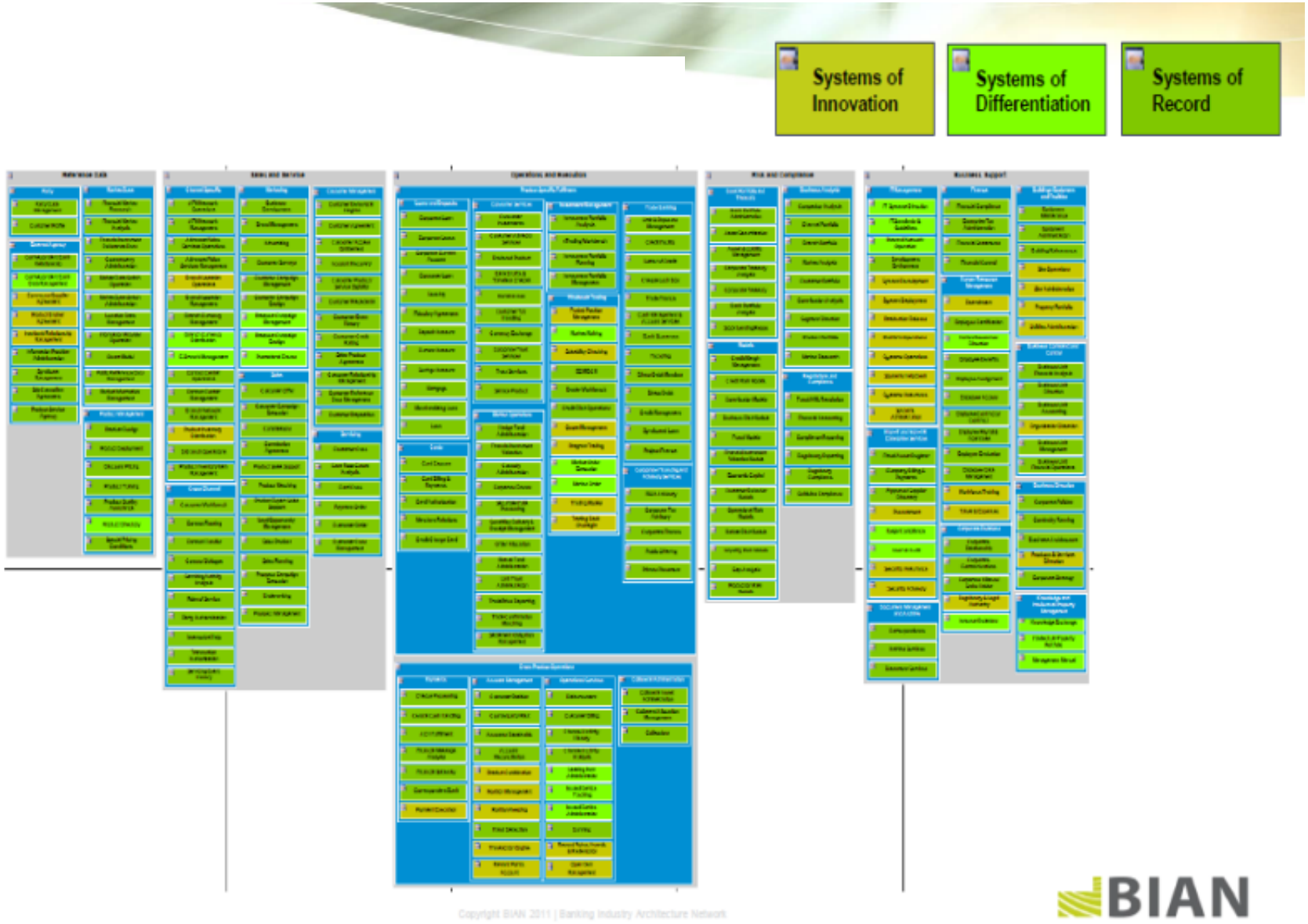
7.1 Mapping Service Domains on Application Components reveals th variety of business functionality they support and reveal duplicates



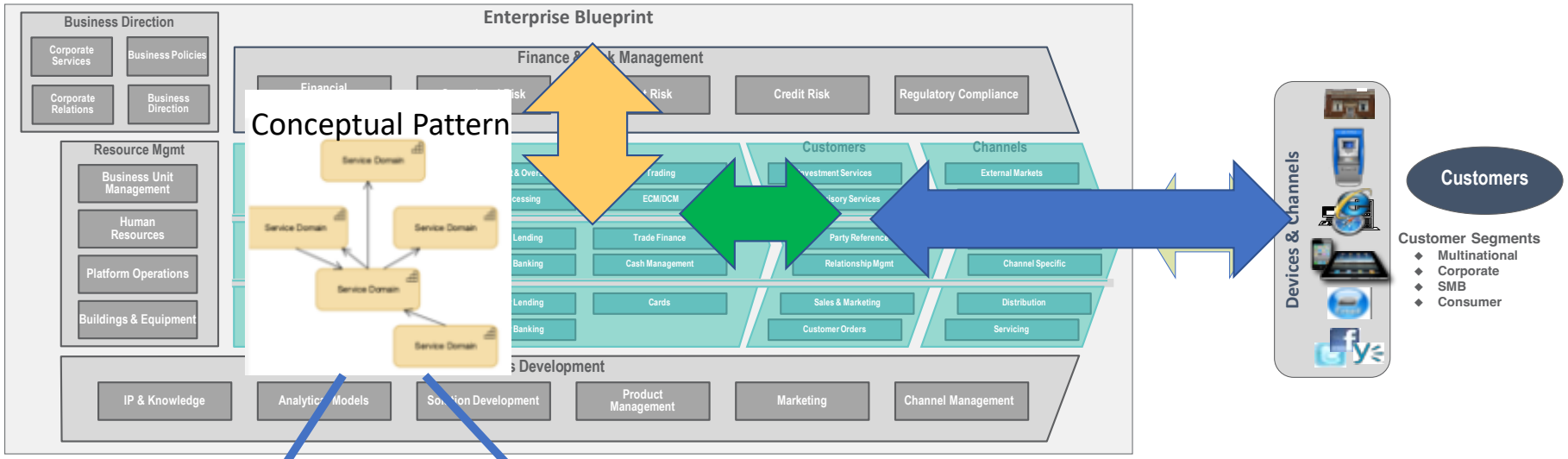
7.2 a Service Domain duplication issue is mitigated by the data integration architecture



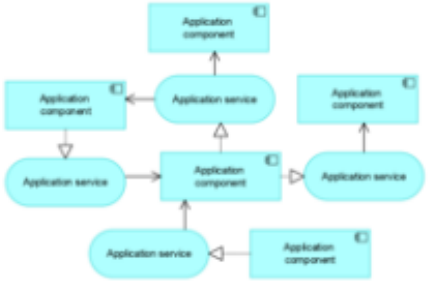
7.3The ‘bank on a page’ of a BIAN member being used to communicate an aspect of the application architecture strategy to management



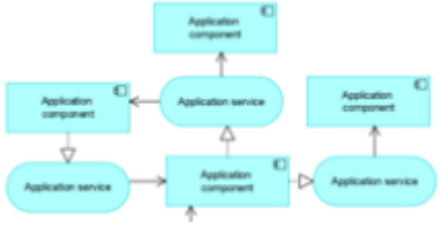
7.4 A Conceptual reference architecture pattern can result in standards per application platform



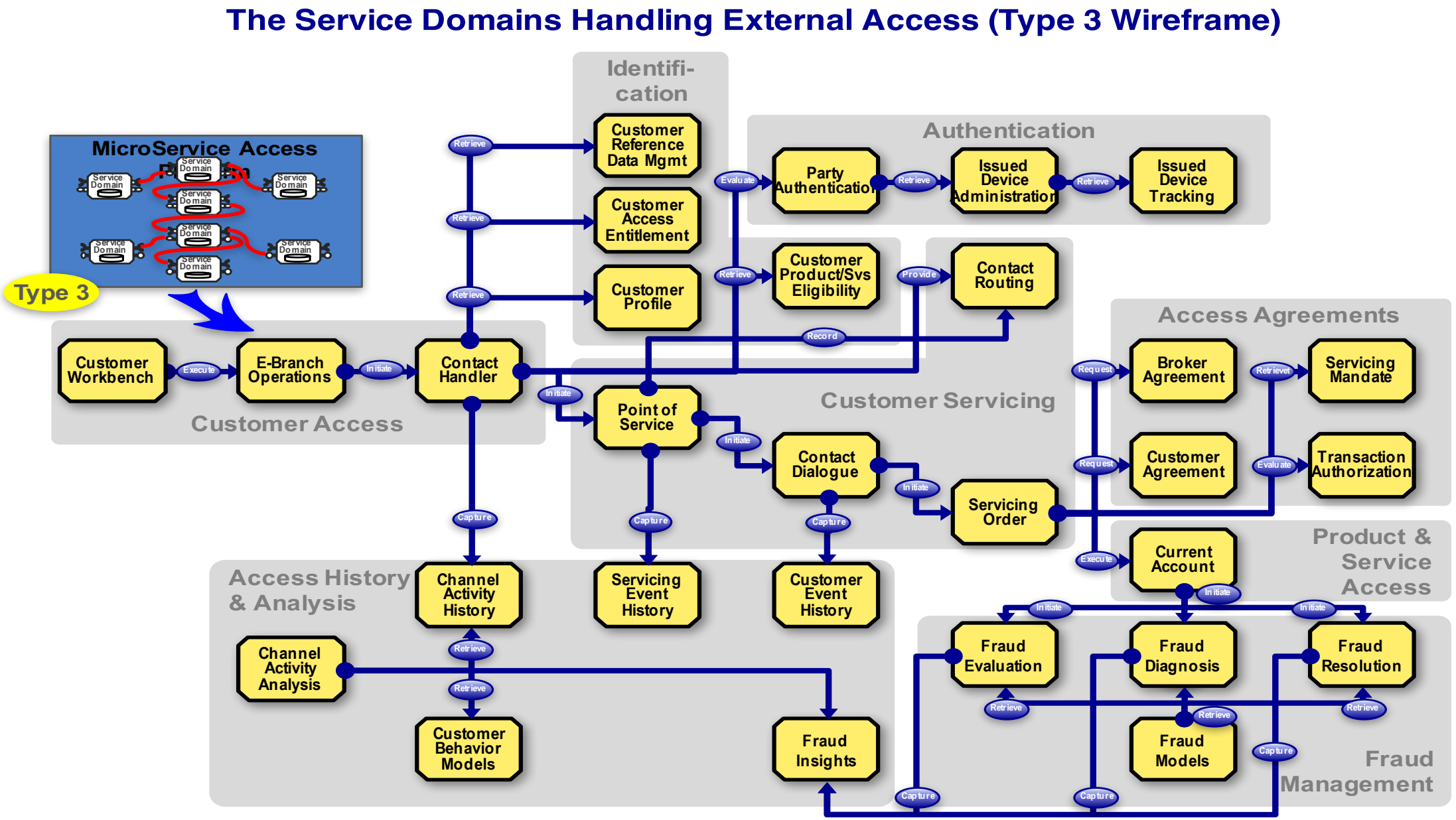
Standard Pattern for platform A



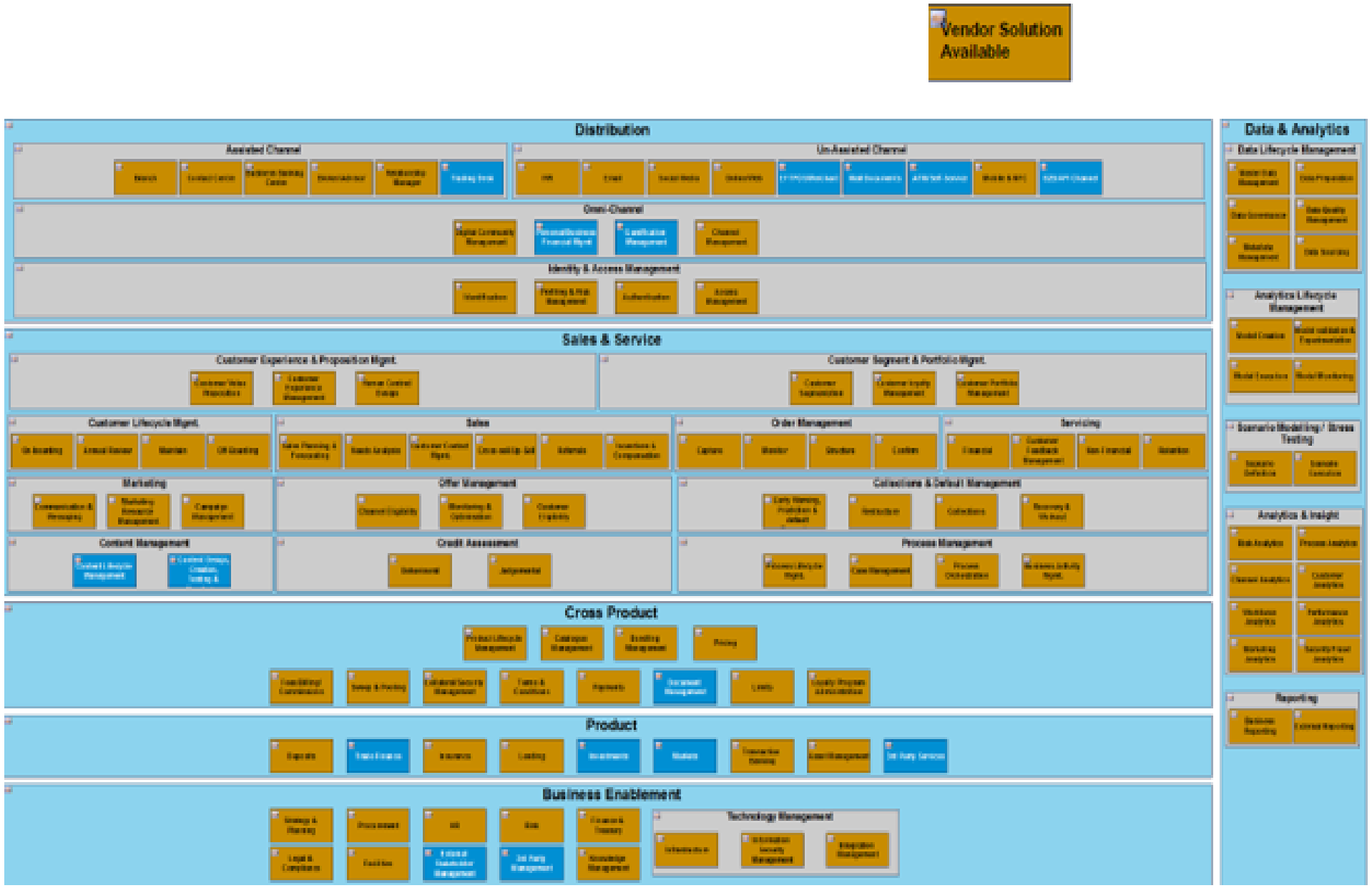
Standard Pattern for platform B



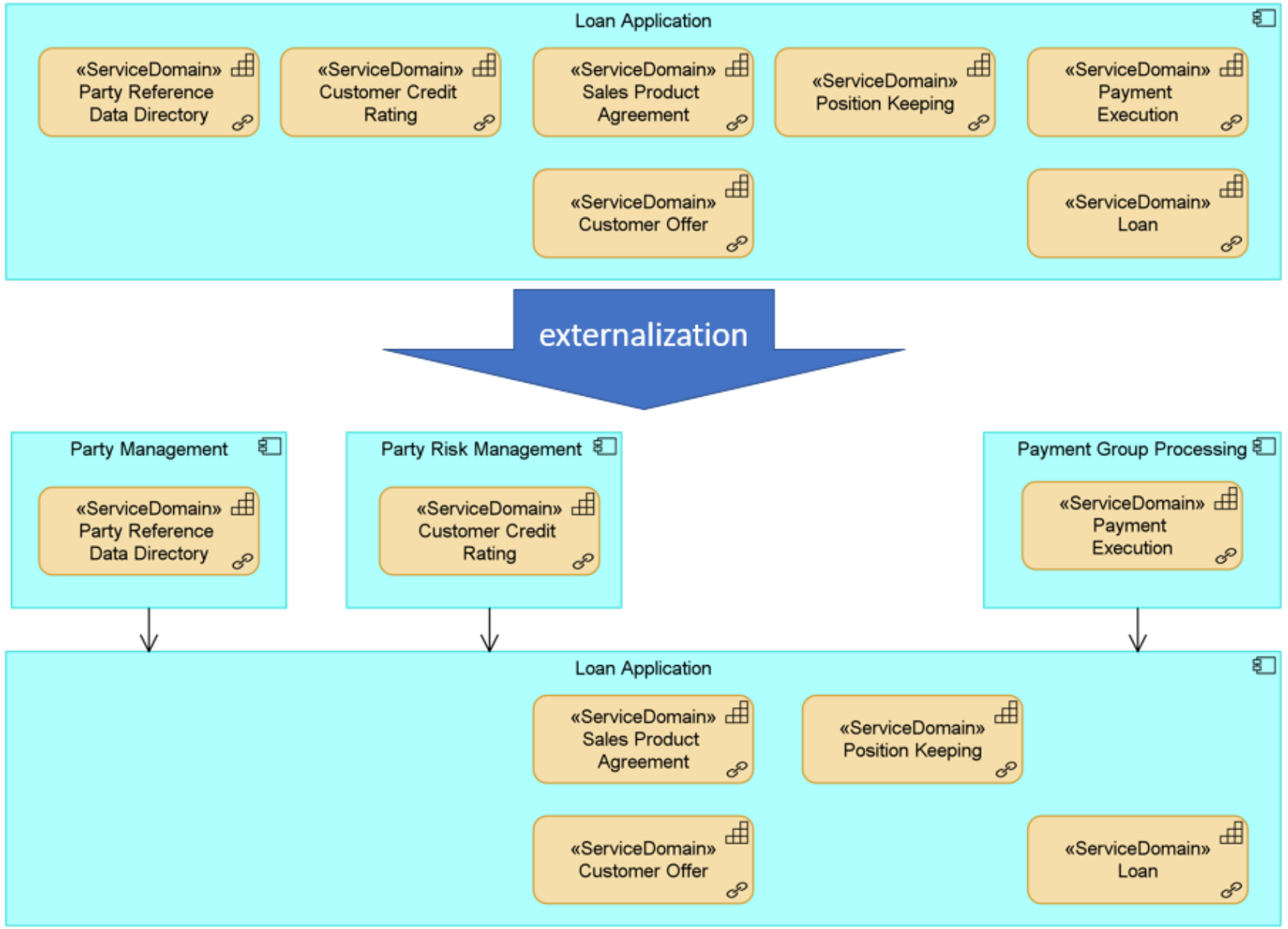
7.5 A Conceptual reference architecture pattern for secure customer access



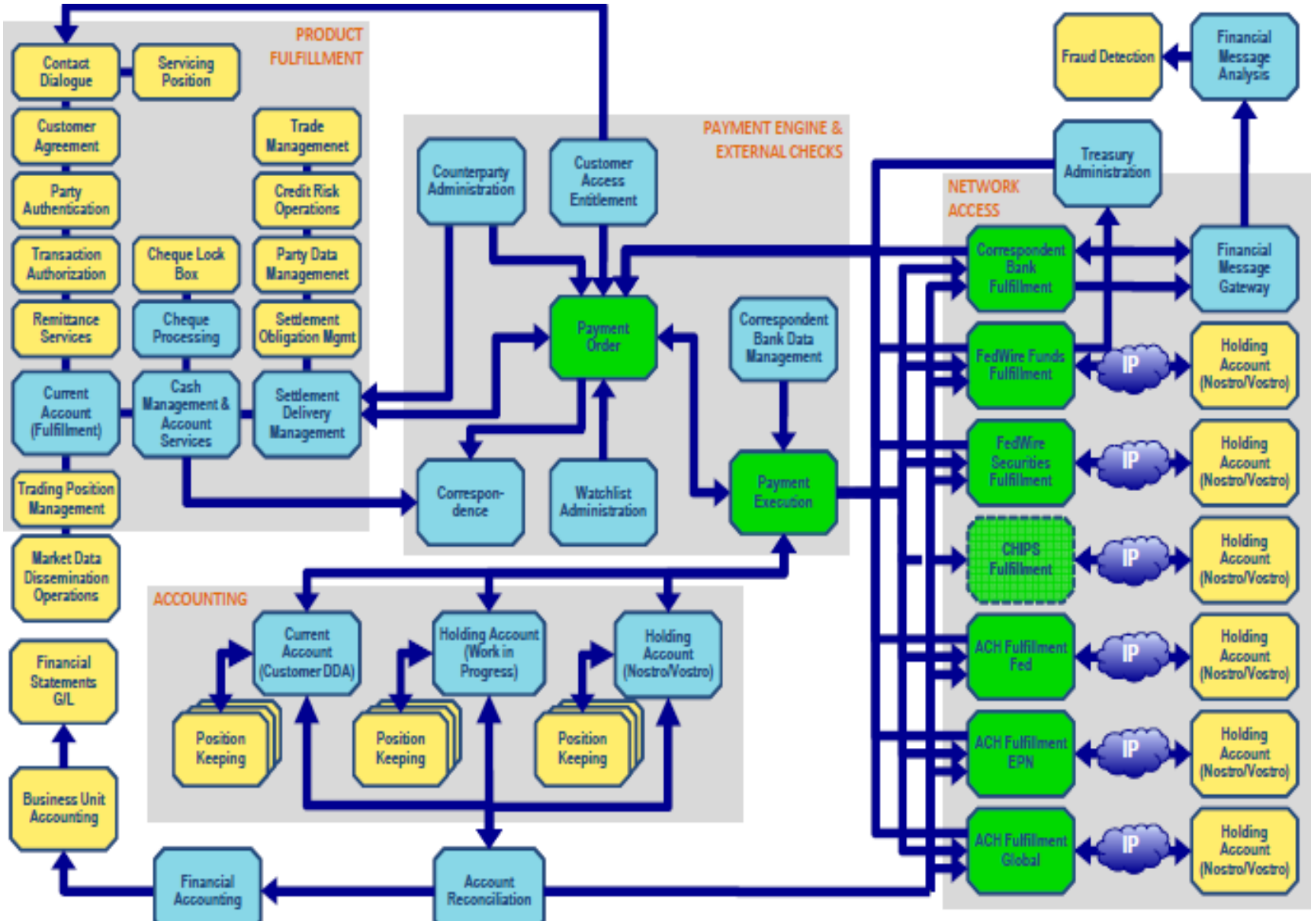
7.6 Vendor Platform evaluation heatmap of a BIAN member



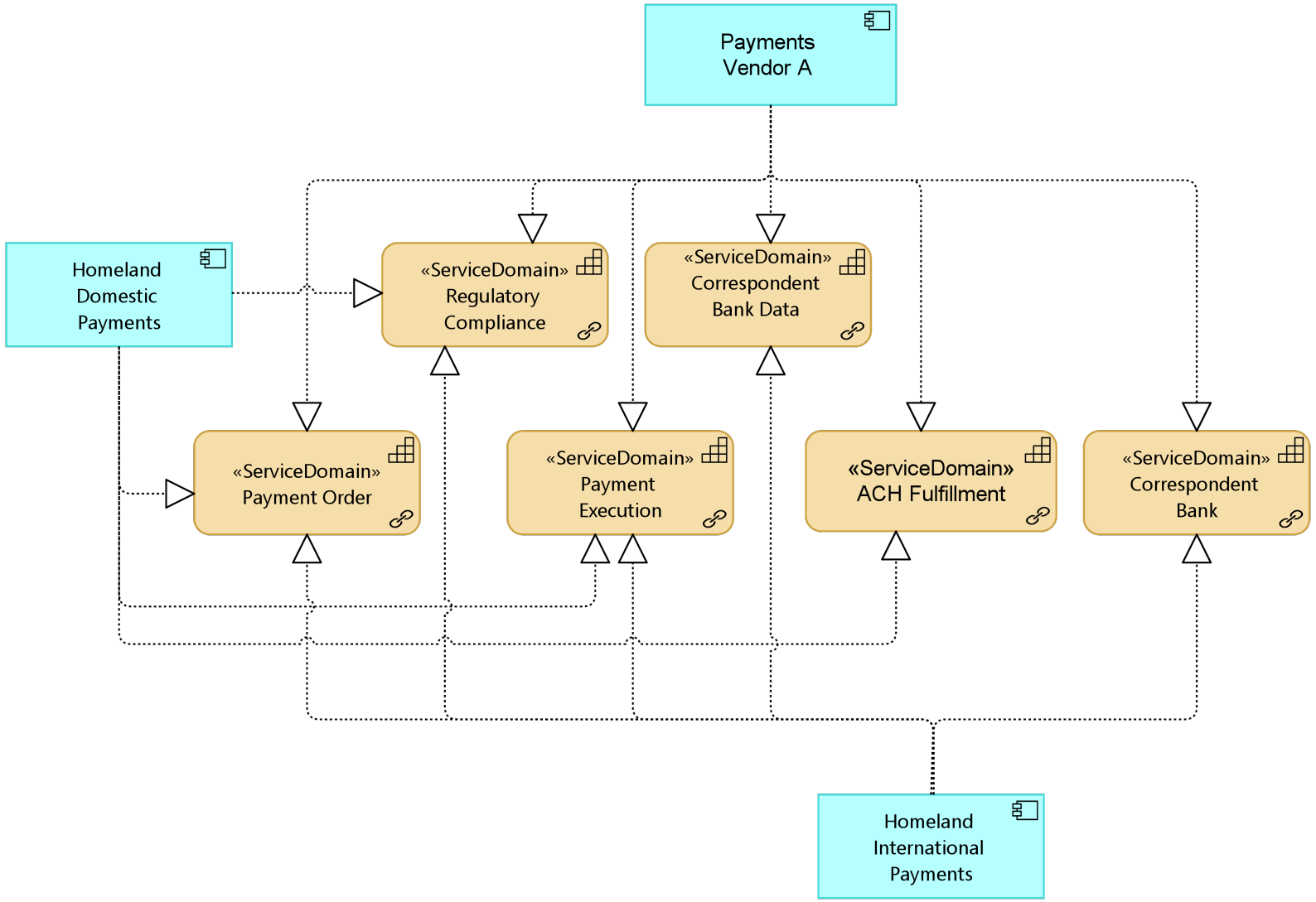
7.7 Mzero Bank's monolithic Loan application is decomposed step by step



7.8 Wireframe for the end-to-end embedding of a Payment solution



7.7 Mapping of the ‘ADAPT’ candidates and a vendor offer (‘BUY’) on the Service Domains required for the new Group Payment application



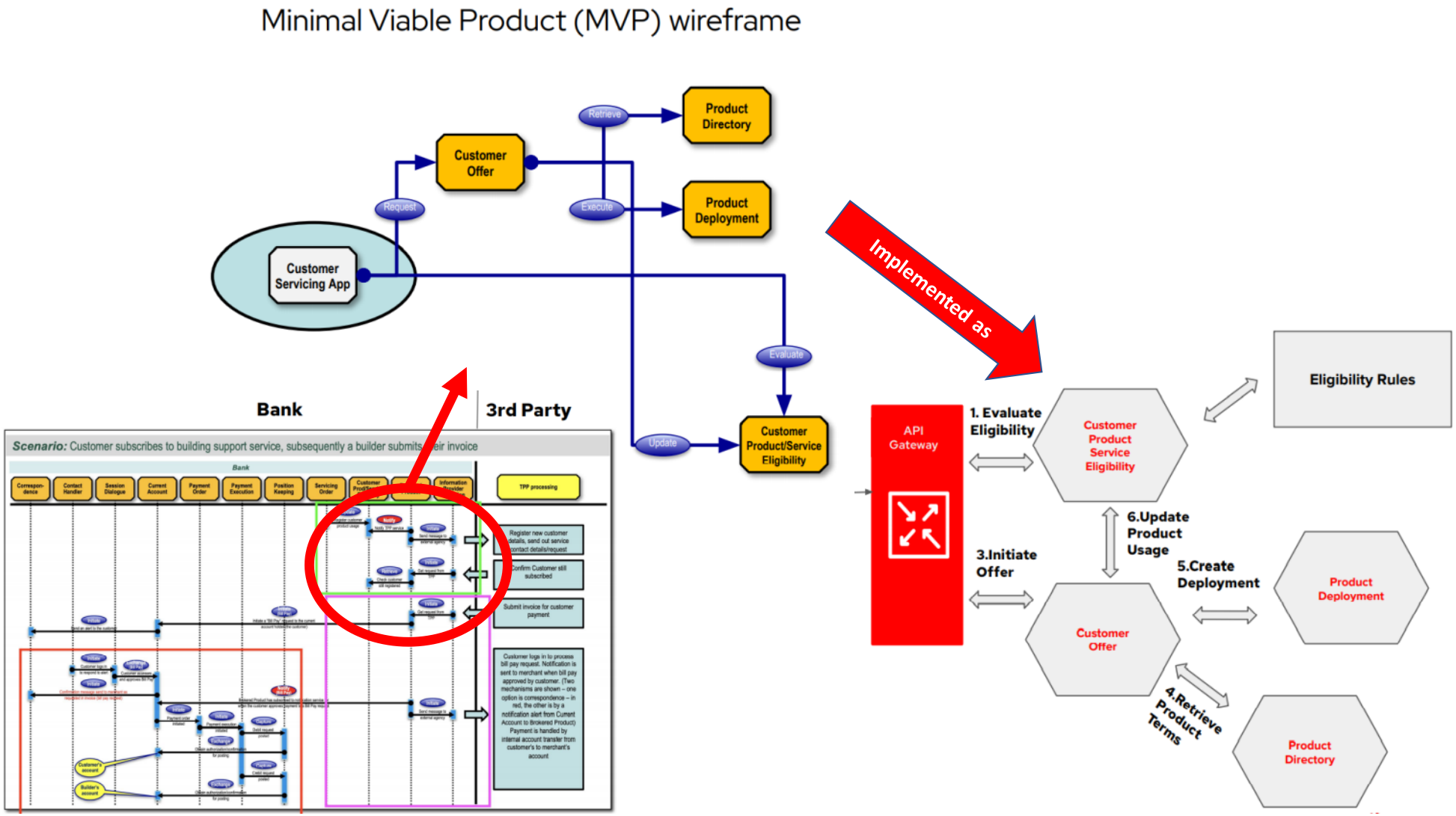
7.10 Requirement coverage comparison of candidate Payment systems for one Service Domain

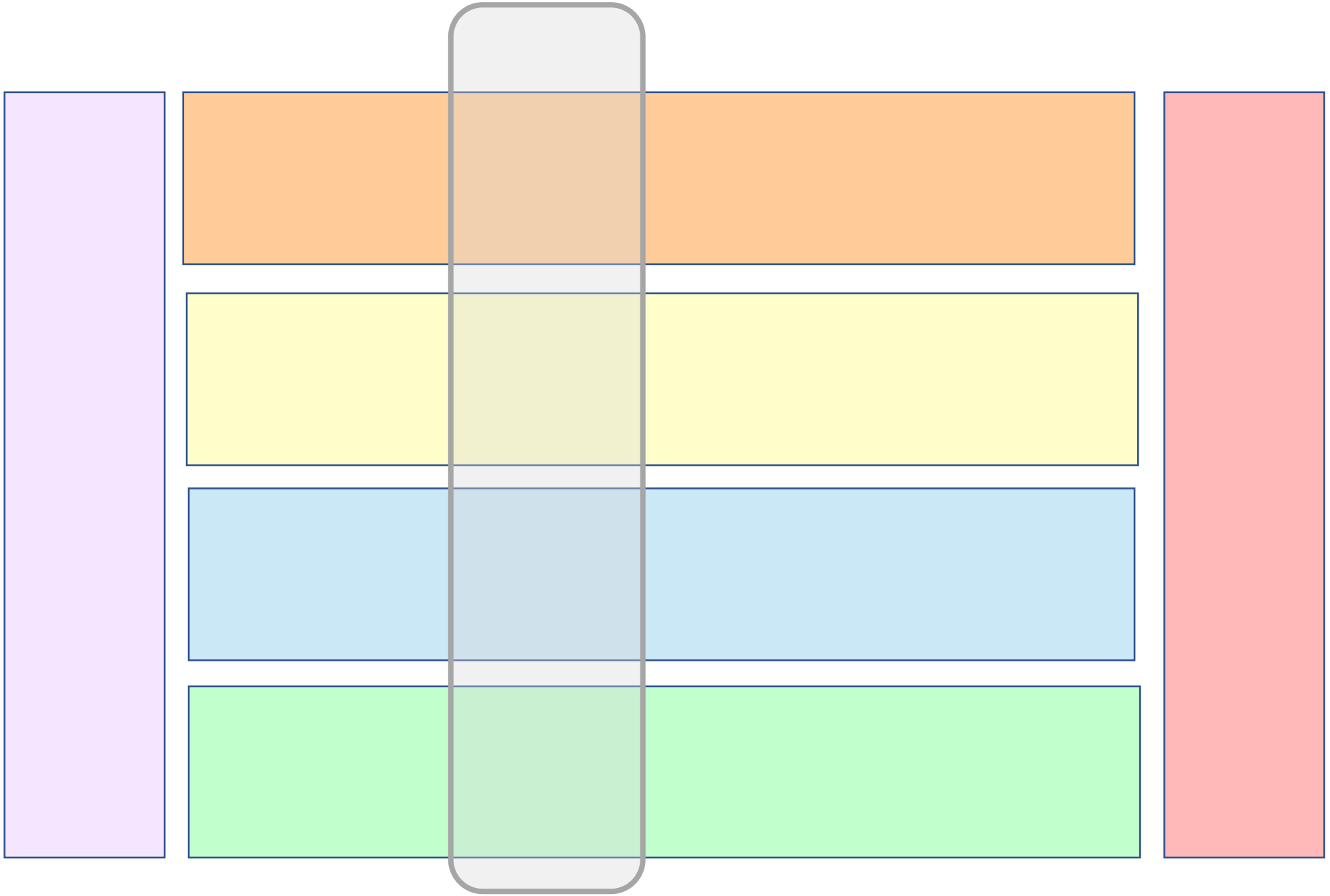
Service Domain Payment Execution - Orchestrate the execution of payment transactions, with, and between bank using any appropriate payment mechanism (A/C, wire, ACH)

Key: Gap / Needs Work / Covered

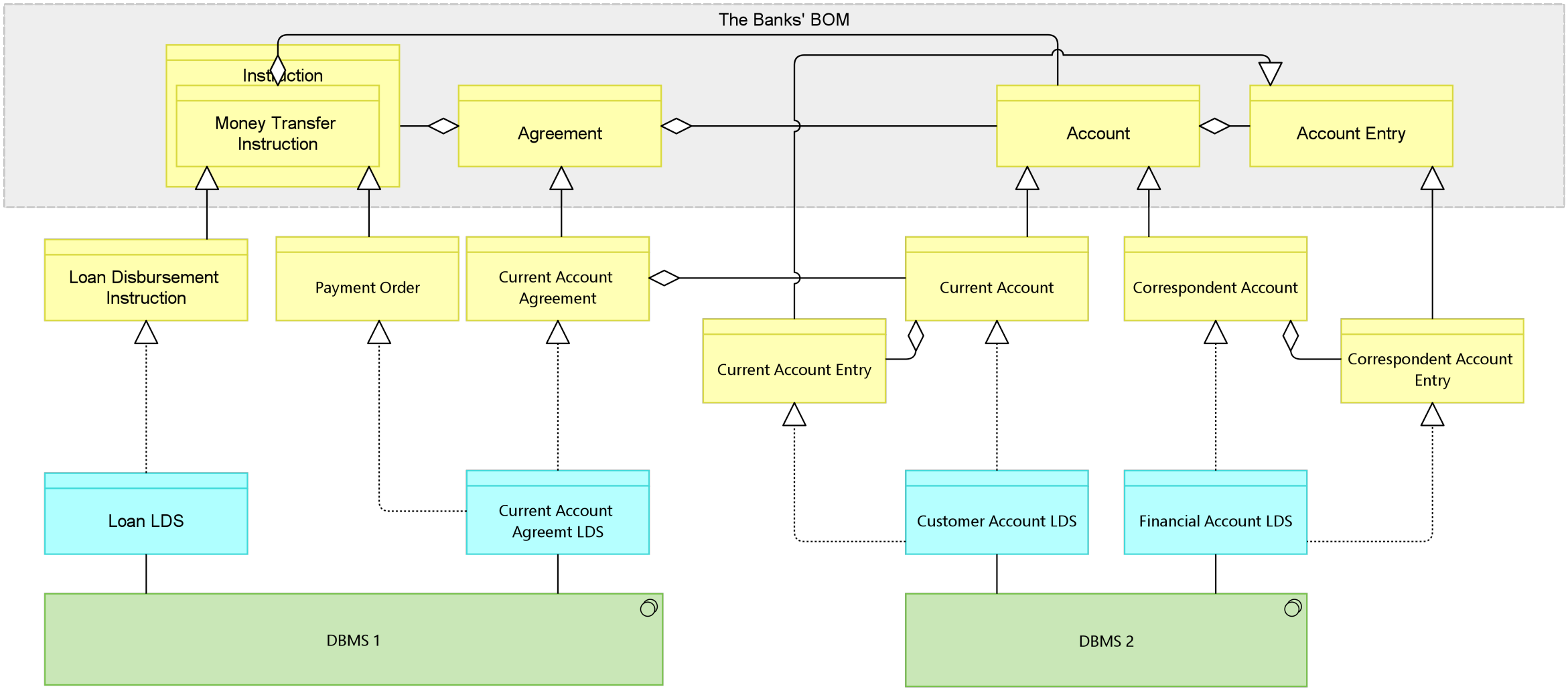
Payment Execution Feature Types	Feature Description	Vendor A	Vendor B
Functional Requirements	Automated transaction initiation		
	Batch/scheduled trasnaction initiation		
	Transaction repair/status update		
	Network availability/status update		
	Rules based payment routing & execution		
	Correspondent risk/limit checks		
	Automated/rules based message repair & duplicate payment detection		
	Payment network access (FedWire Funds, FedWire Securities, CHIPS, ACH) & conversion capabilities		
	Support for file/batch/item gross settlement processing		
	Full activity reports		
	Full audit trail reporting		
	Operator alerts		
	User defined reporting and UI field definition		
	Posting reports (reconciliation)		
Non Functional Requirements	Dual control and operator access profile		
	Multiple bank/legal entity operation		
	Suspicious access activity detection		
	Data encryption		
	High security		
	High availability/performance		

7.11 a Software Product, as a cluster of Service Domains, internally remains ‘uncluttered’“

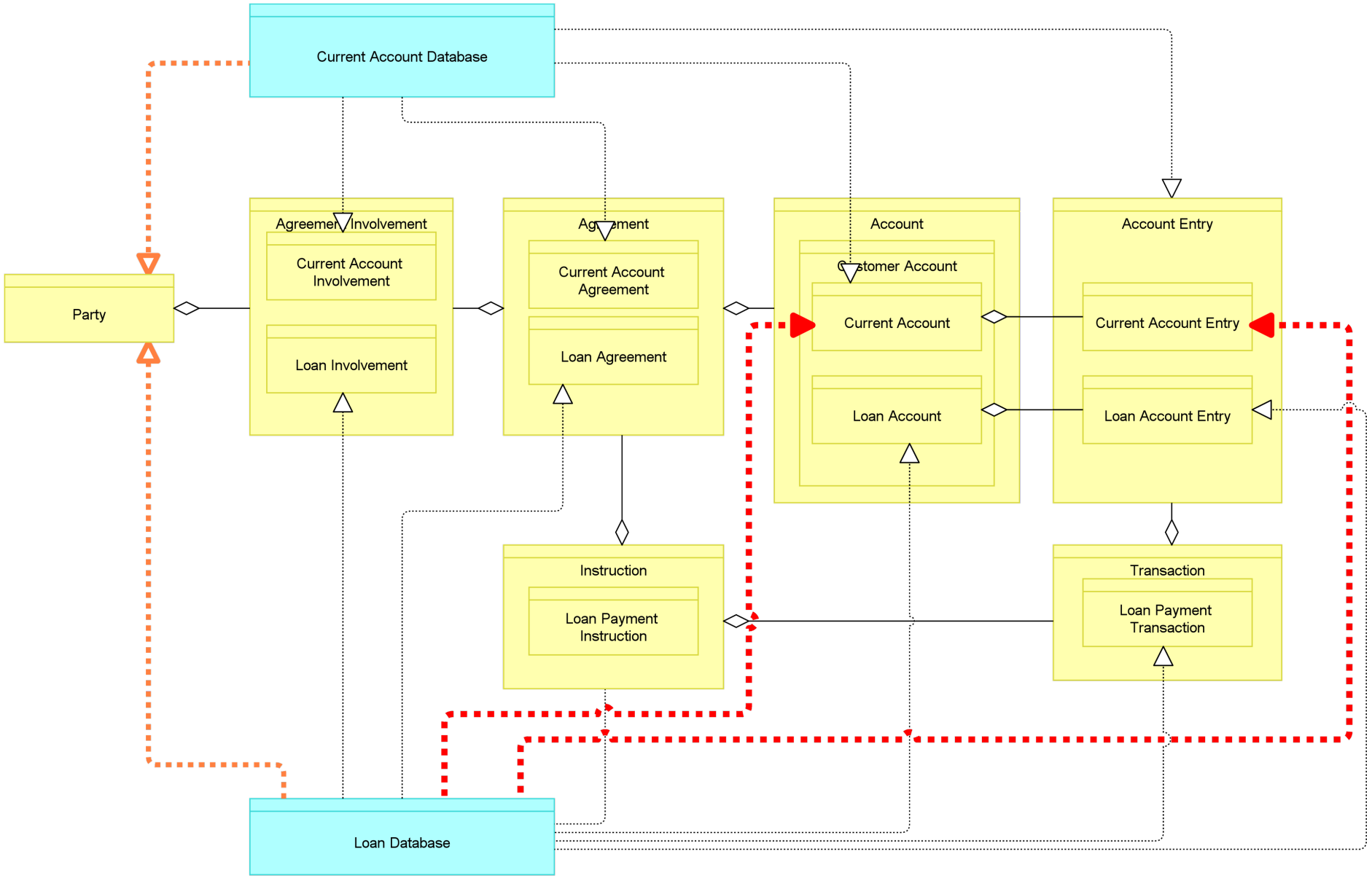




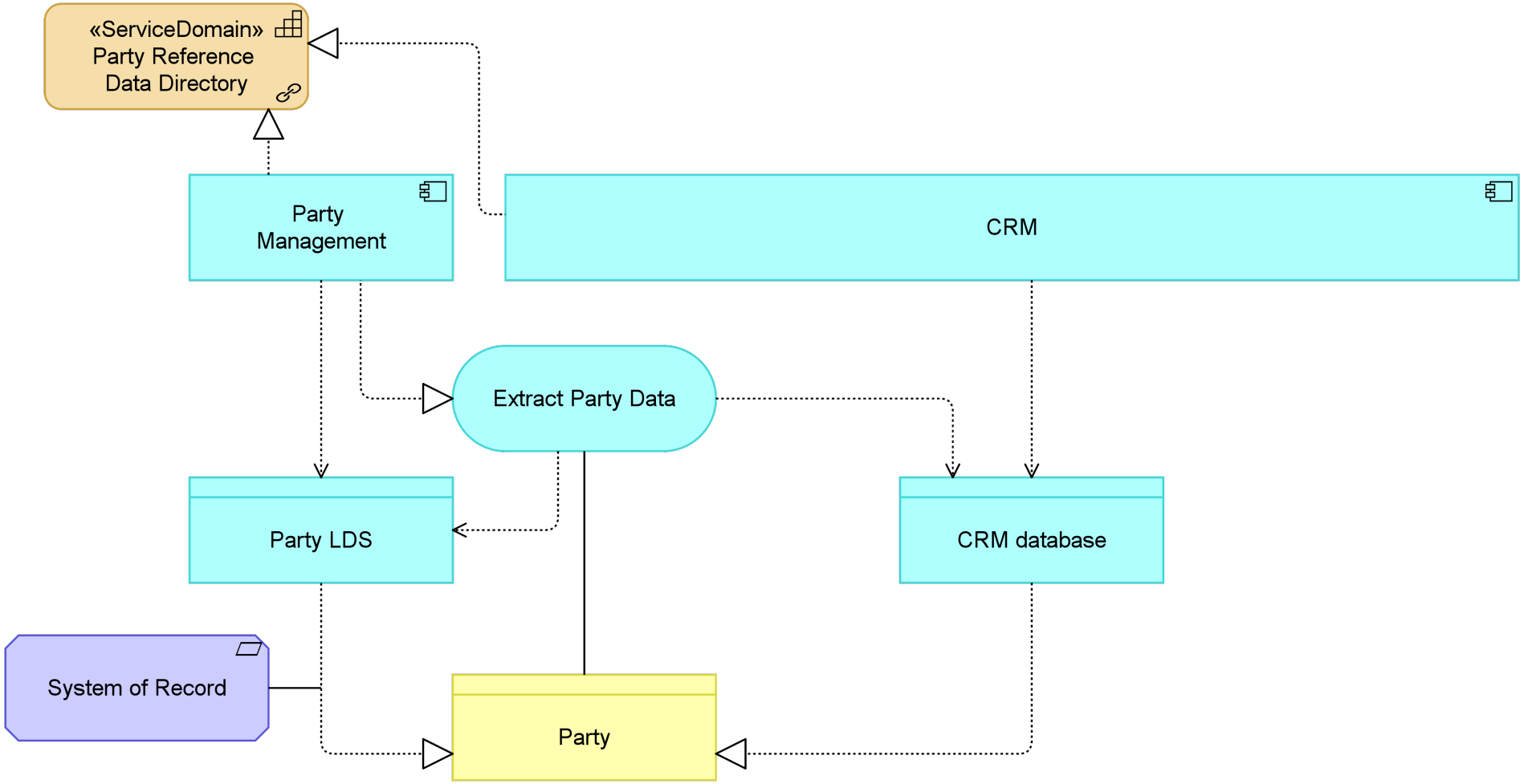
8.1 Information Realization view; the information landscape, indexed with the BOM's Business Objects linked to the data landscape linked to data technology



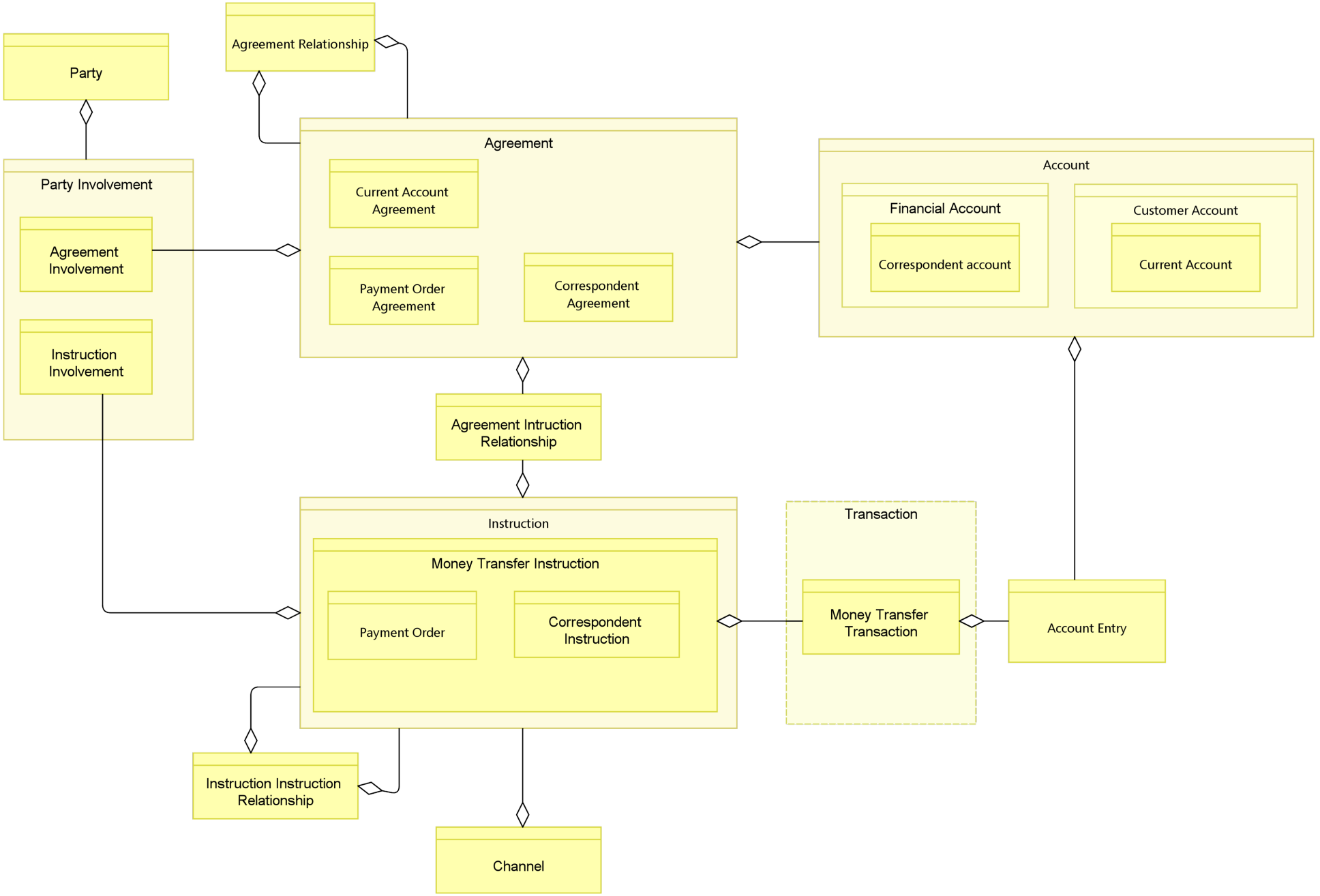
8.2 Labeling of data stores with Enterprise Information Architecture Business Objects reveals problems

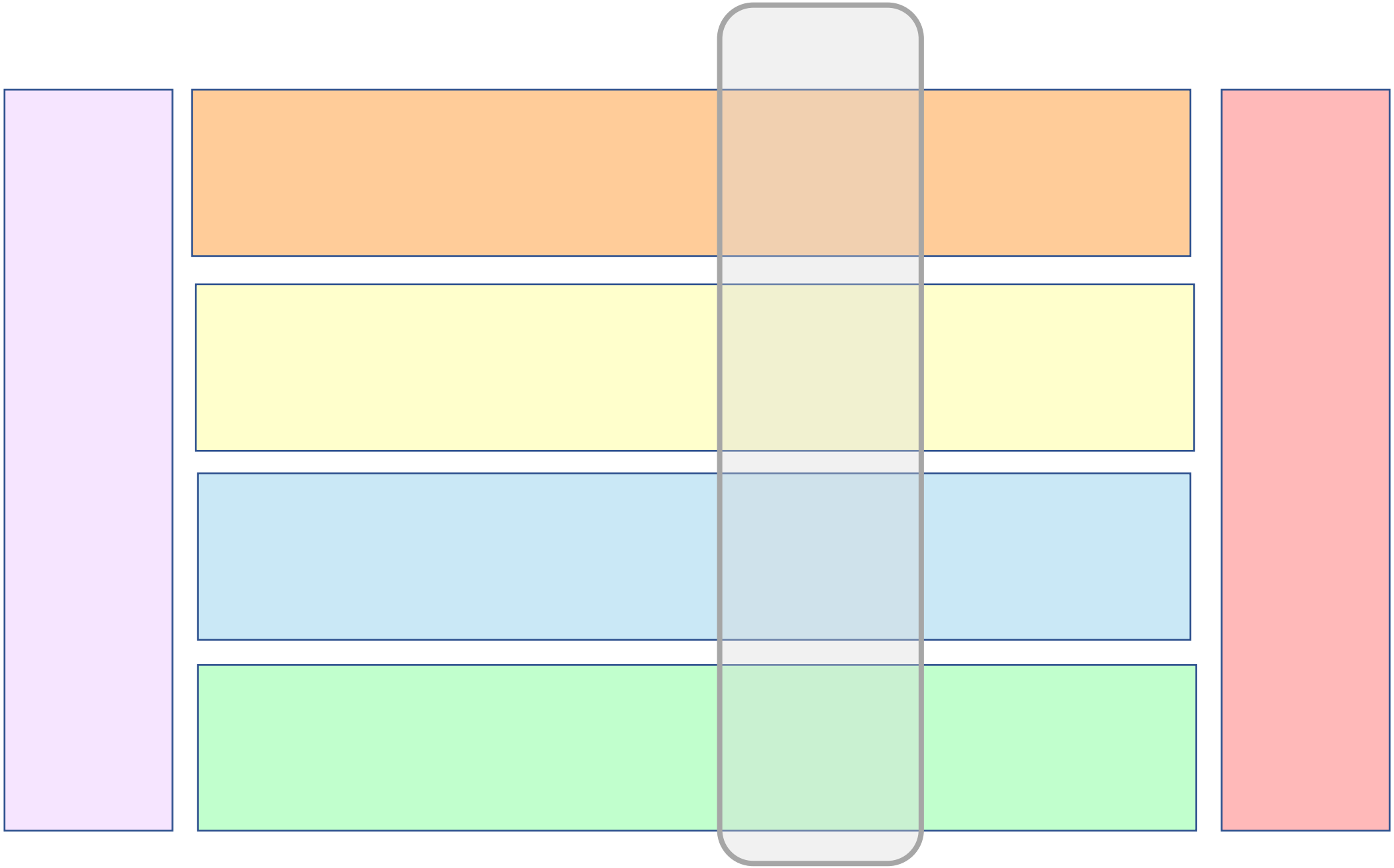


8.3 Data integration ensures the duplicated Party information remains consistent

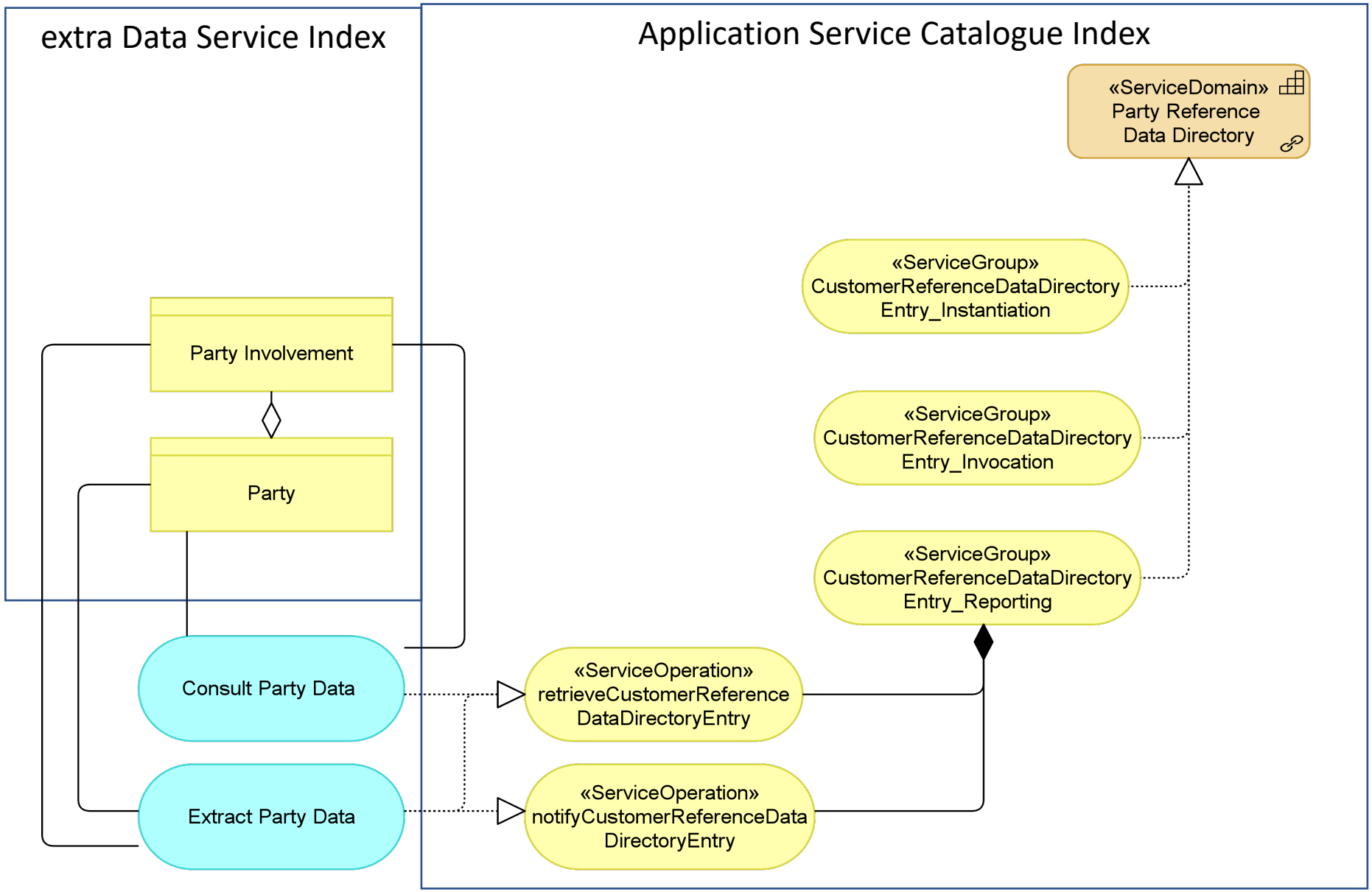


7.4 High-level information model for the Payment Group Service of the M5 Banking Group

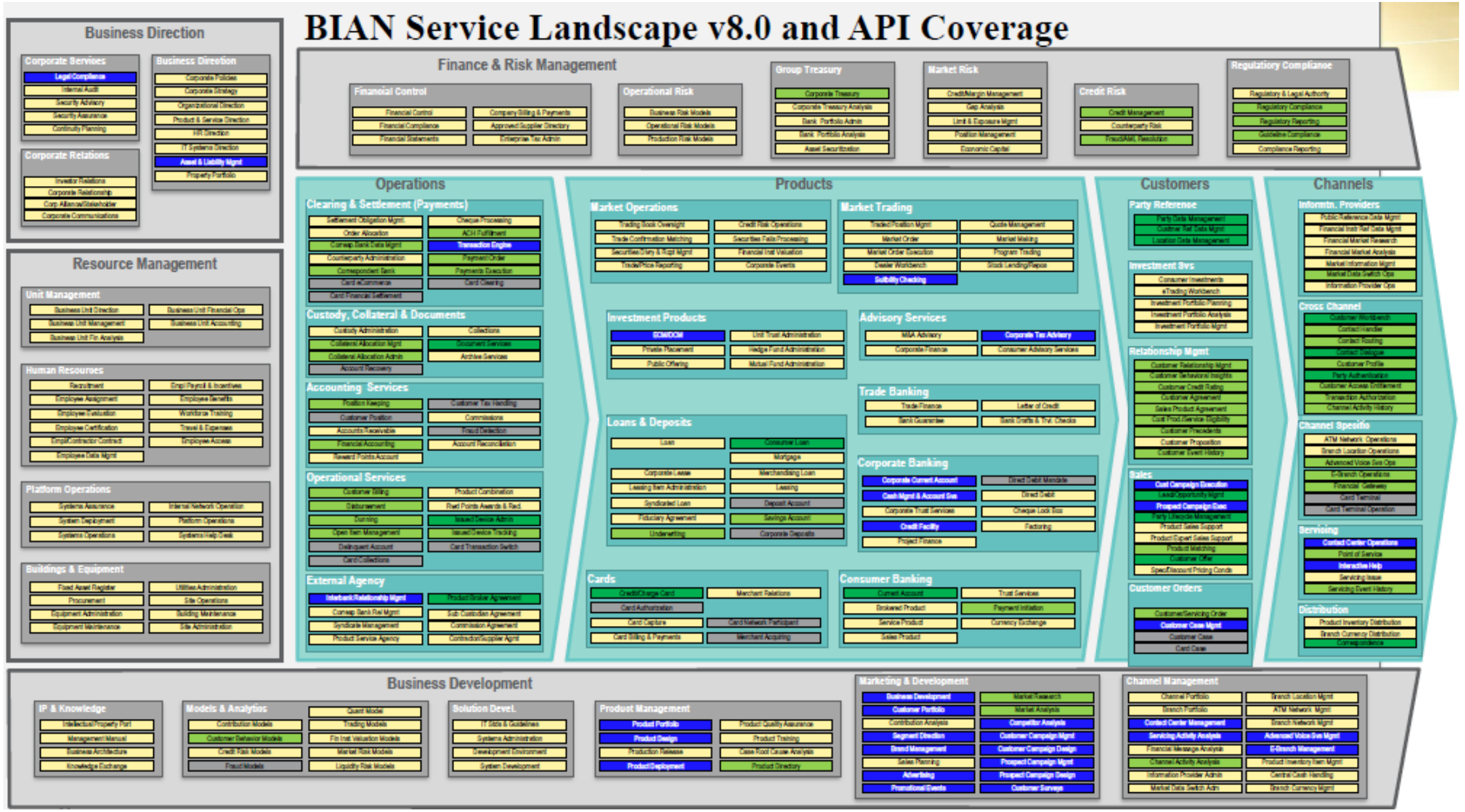




9.1 The Service Domain / Service Operation Frame of reference facilitates the search in M5 Banking Group's Application Service Catalogue



9.2 API coverage heatmap on the BIAN Service Landscape



9.3 Testimonial: delimiting and prioritizing the development of future-proof APIs

AccountInfo is a card account "service" that provides an interface to various applications for Account information.

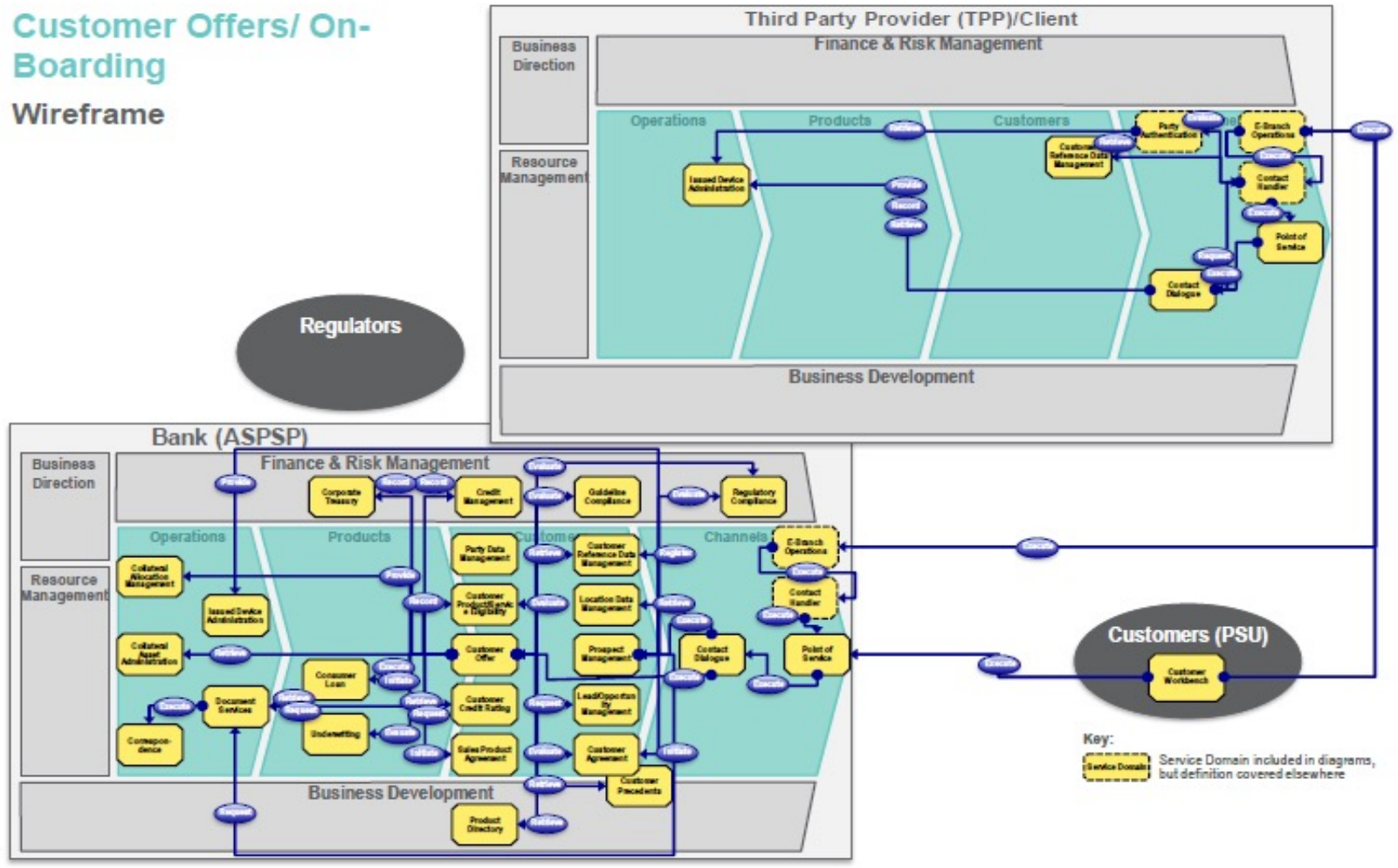
We are moving from a monolithic card account service into smaller more strategic set of micro-services.

To ensure the planned micro services are durable with minimal data overlap / duplication, we used "Service Domains" to categorize AccountInfo data fields into various buckets.

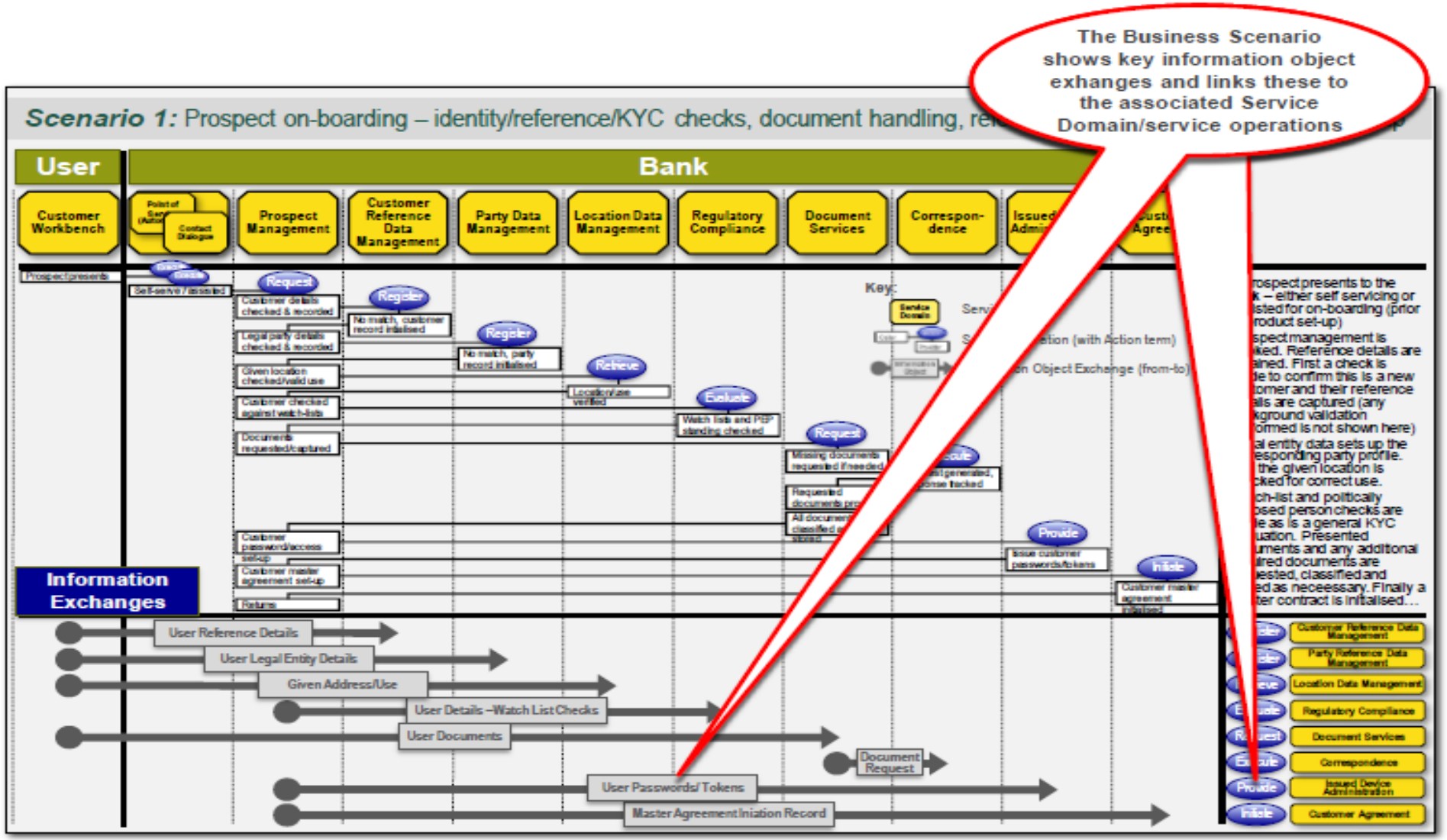
This categorization will help us determine the sets of fields that are most valuable to be available in an API in the first set of micro services we are planning to deliver.

DMB Service Domain	Field Count	Note
Position Keeping	47	Balance, Available Credit, over-limit, historical financial standing, etc…
Party Data Management	34	Name/Address/Language
Sales Product Agreement	33	TL, Opt, Feature Set, etc…
Card Billing & Payment	15	Min pay, cycle code, statement hold codes, payment history, PDD target stuff
Card Authorization	11	Status, Freeze, Activation
Issued Device Administration	10	ANR, Linked Accounts, Exp Date
Customer Credit Rating	9	Bureau stuff, high balance, risk code, etc.

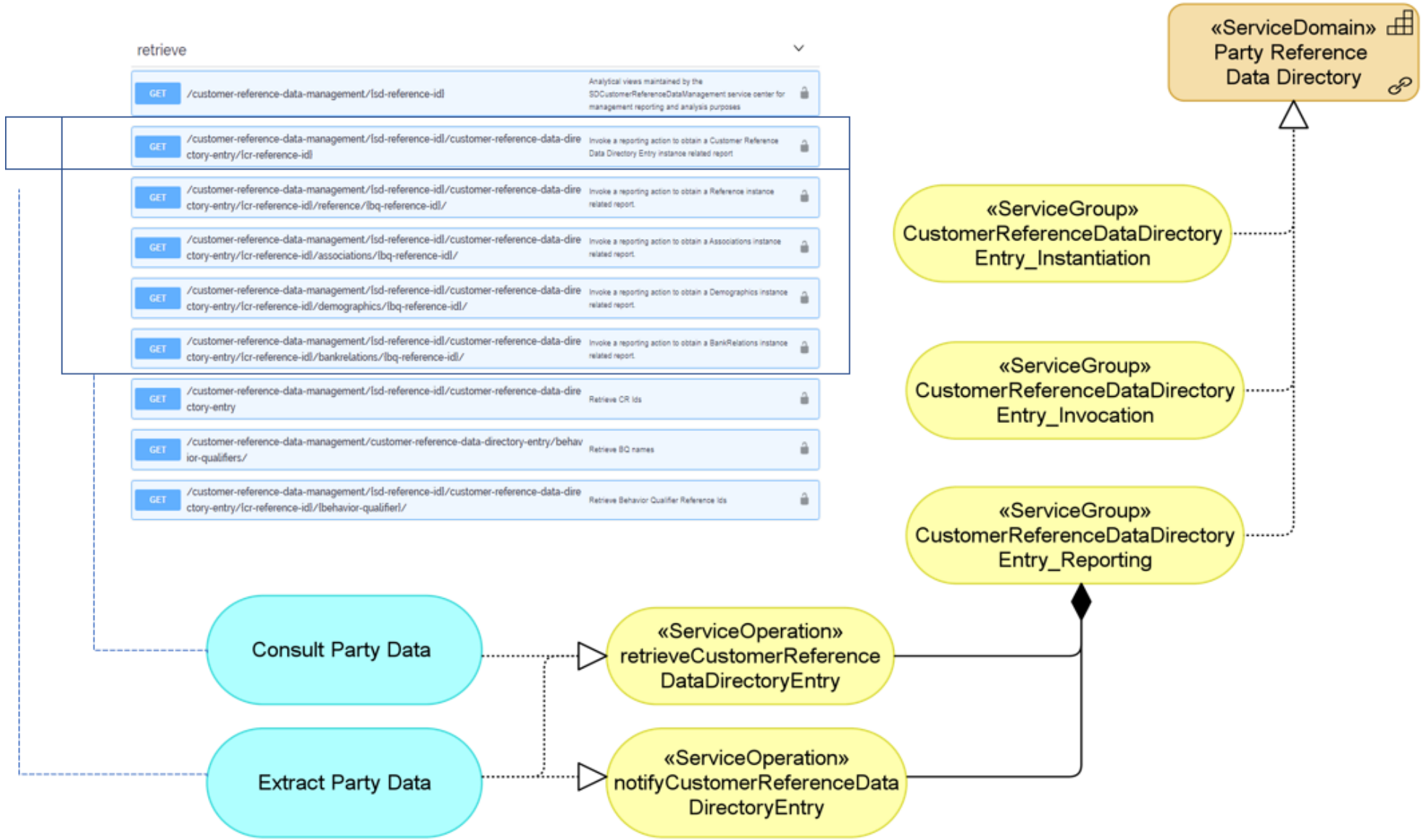
9.4 Example of a Wireframe overarching different parties



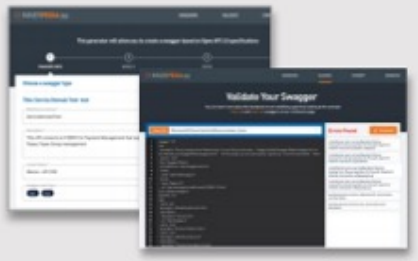
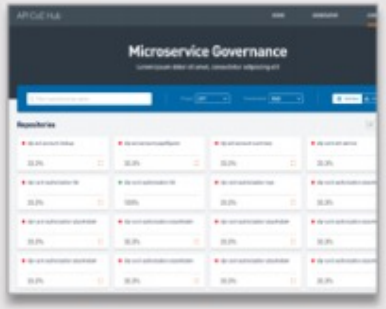
9.5 Business Scenarios provide business context and information content to the service exchanges



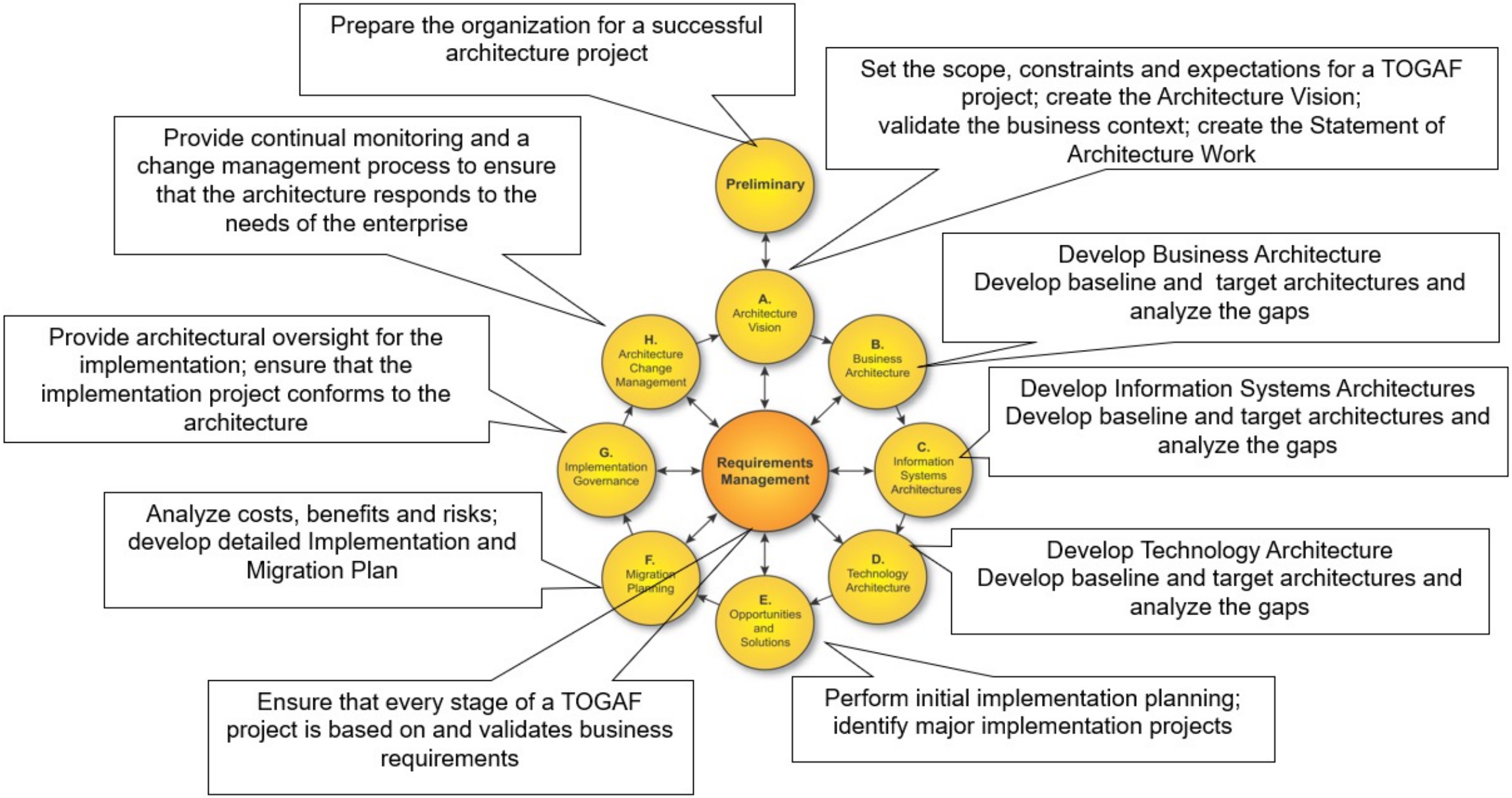
9.6 The “extract party data’ application service delivers on Control Record level; the ‘consult’ service allows the service user to choose behavior qualifiers



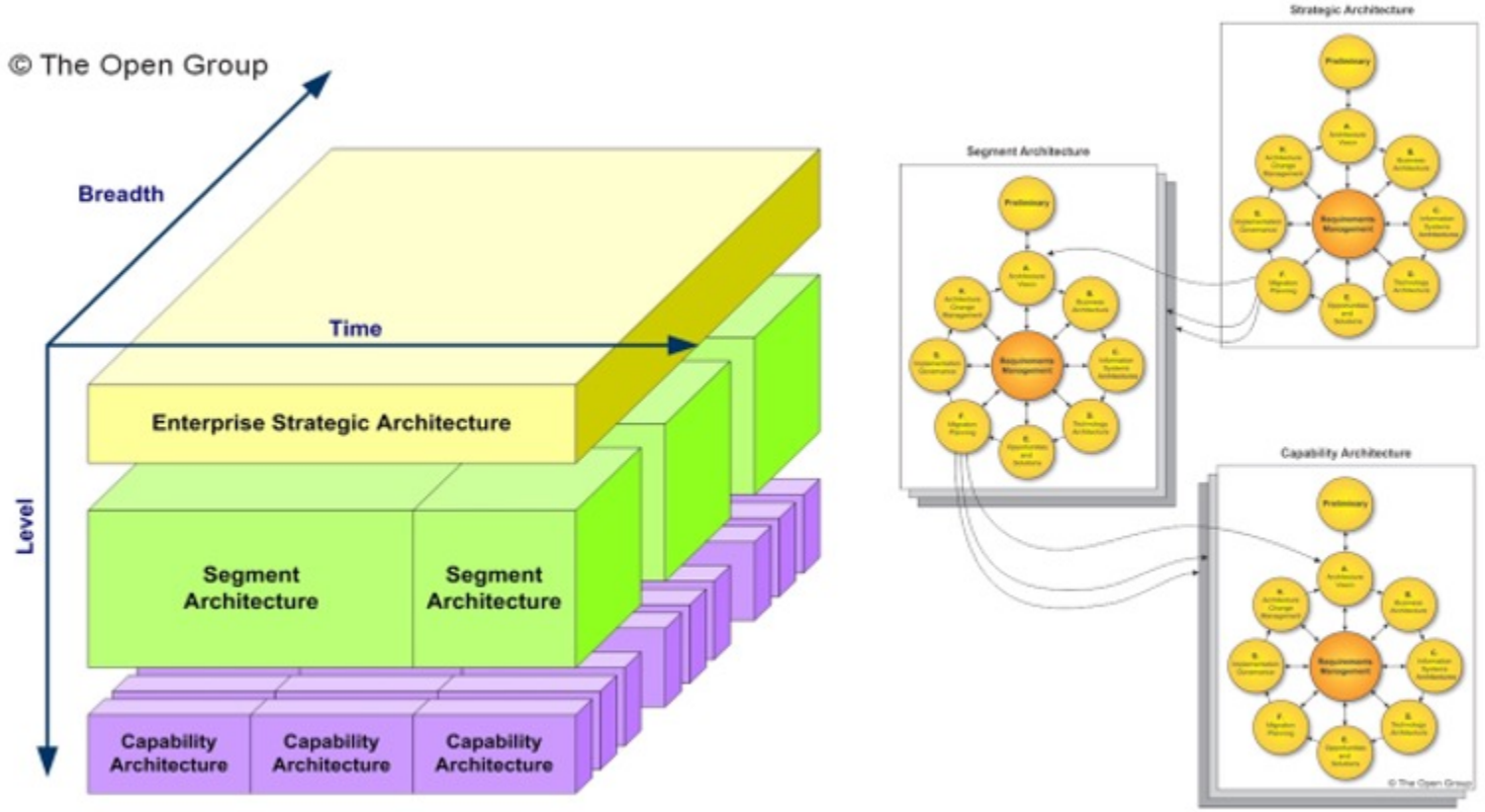
9.7 a Bank's BIAN-based APÏ development and governance toolbox

	API Discovery	API Toolkit	Generator & Validator	Pipeline Enforcement	Compliance Dashboard
	Innerpedia	**Endpoint Catalog & API model**	**Swagger Generator & Validator**	**GitOps Pipeline**	**Compliance Dashboard**
					
Description	Catalog of endpoints, inspired by the BIAN endpoint console, for individuals to discover in-development and completed endpoints	Mechanism for users to select BIAN-inspired PNC endpoints and build their payload from already modeled entities and properties	Tools that generates and auto-populates swaggers with data from the API Toolkit while ensuring adherence to BIAN and PNC standards	Pipeline outfitted with various enforcement capabilities to ensure standards are enforced	Compliance dashboard aggregates microservices' adherence to leading practices
Benefits	▪ Promotes re-use ▪ Provides all Inner APIs in one unified location ▪ Allows users to understand how to leverage and call specific services	▪ Improves time-to-market by accelerating development cycles ▪ Enables seamless integration and data sharing across systems	▪ Accelerates modeling and development time in-line with contract-based development ▪ Enables users to better self-serve and check for adherence to standards	▪ Automated pipeline checks ensure applications meet our set standards ▪ Enforcement mechanism to ensure applications not modeled correctly do not reach production	▪ Increased visibility into application compliance ▪ Alerts simplify management of 'drifted' applications

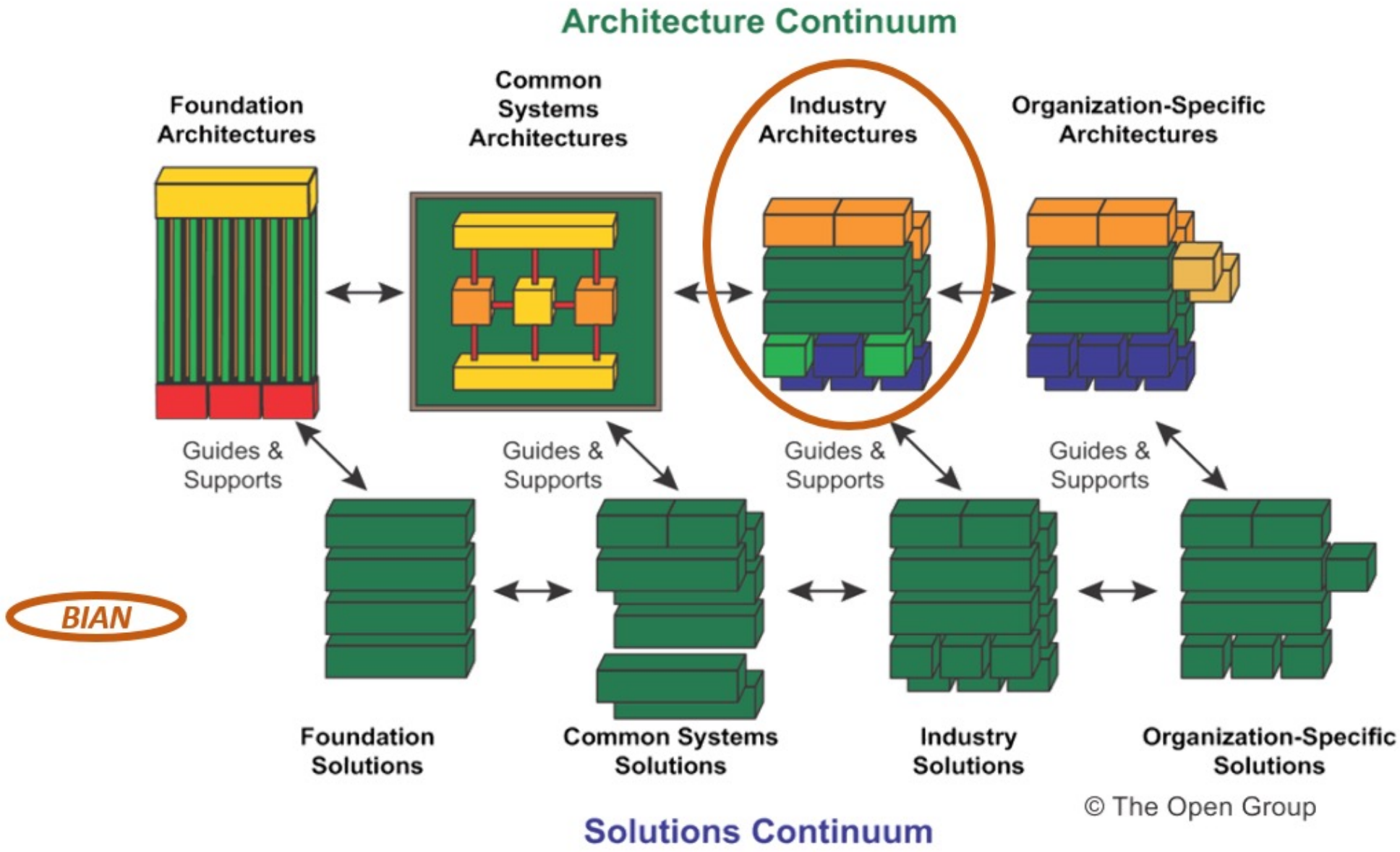
10.1 The phases of the TOGAF ADM



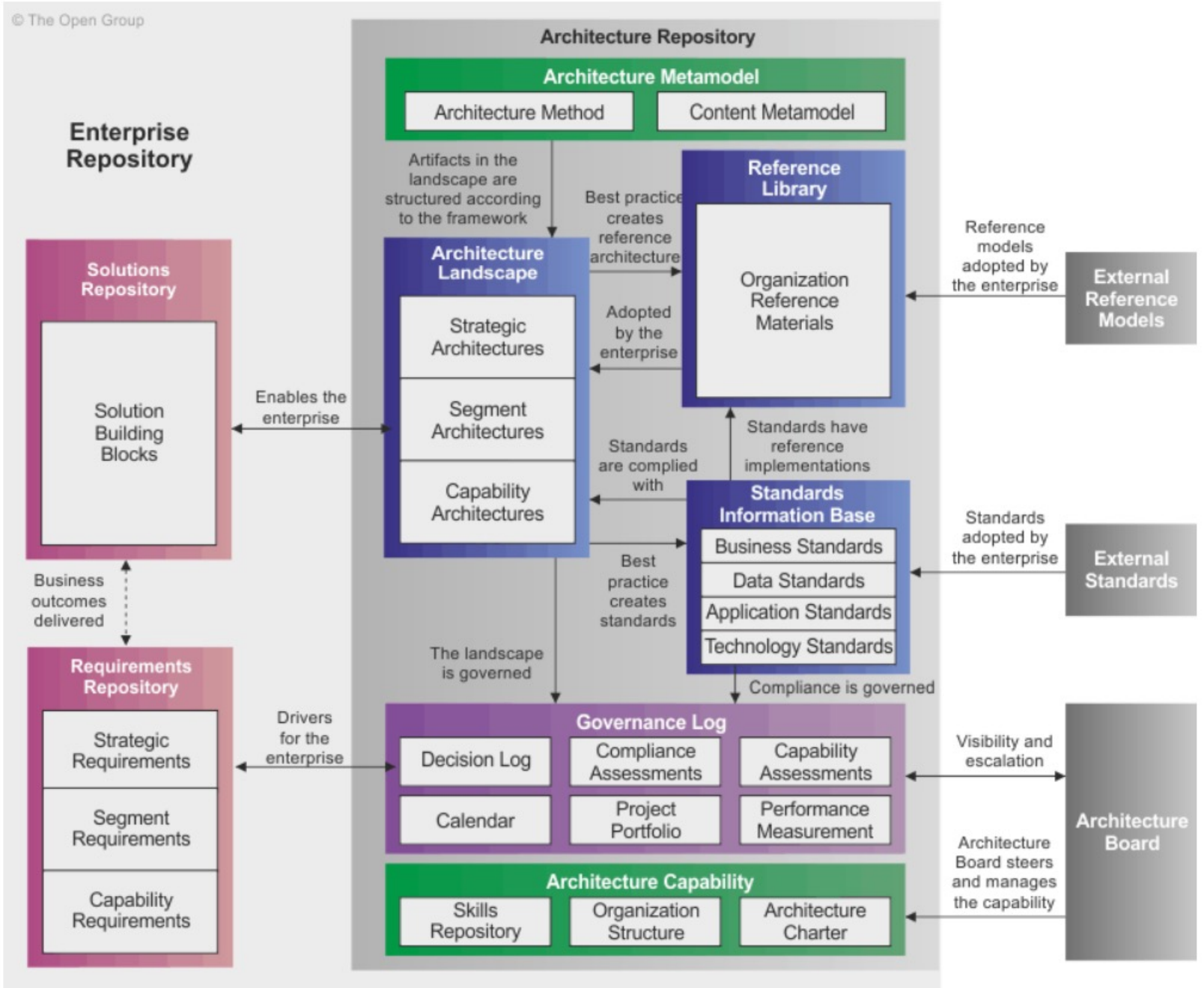
10;2 TOGAFs ‘zooming’ levels imply an iterative approach to elaborating architecture



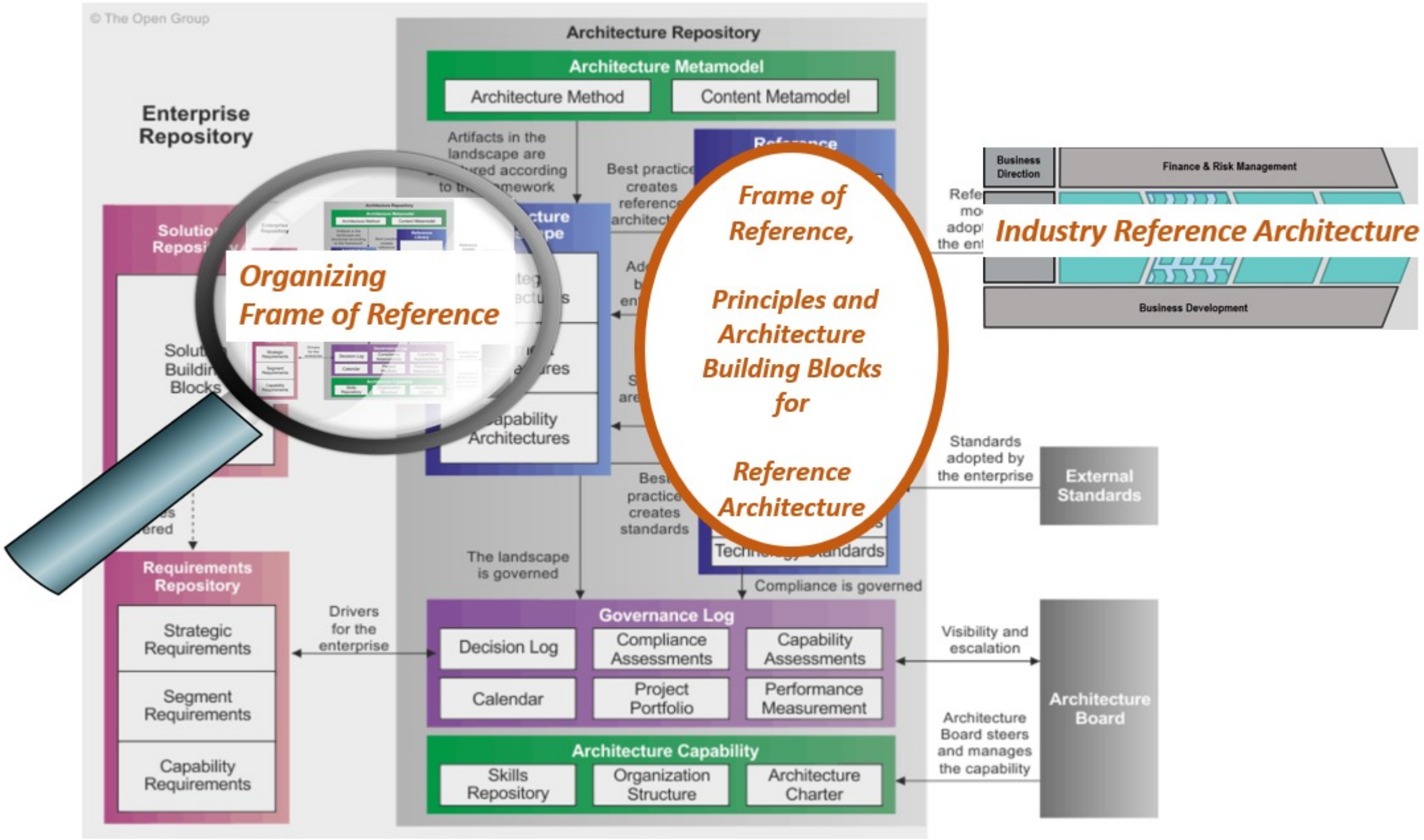
10-3 The Enterprise Continuum according to TOGAF and the position of the BIAN Reference Architecture for the Financial Industry



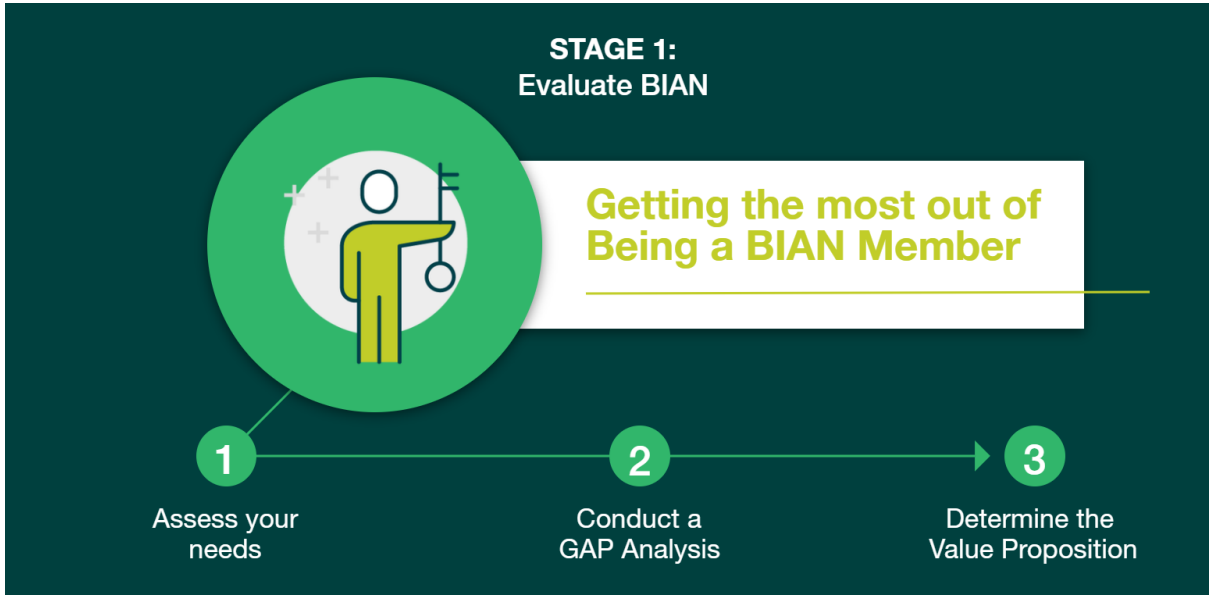
10.4 The Enterprise Repository according to TOGAF



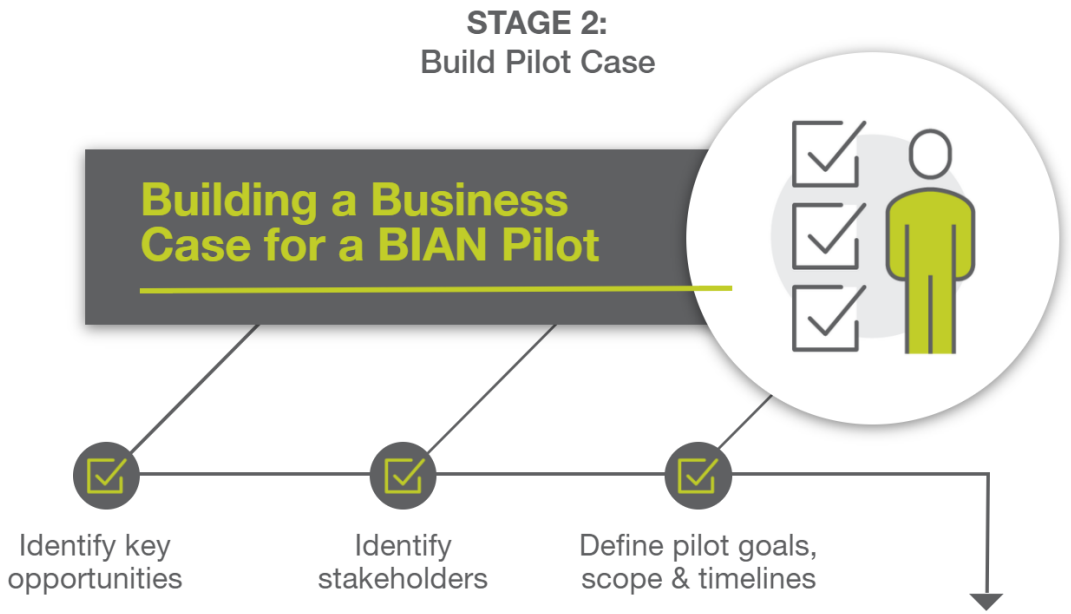
10.5 BIAN' contribution to the Enterprise Architecture toolboix



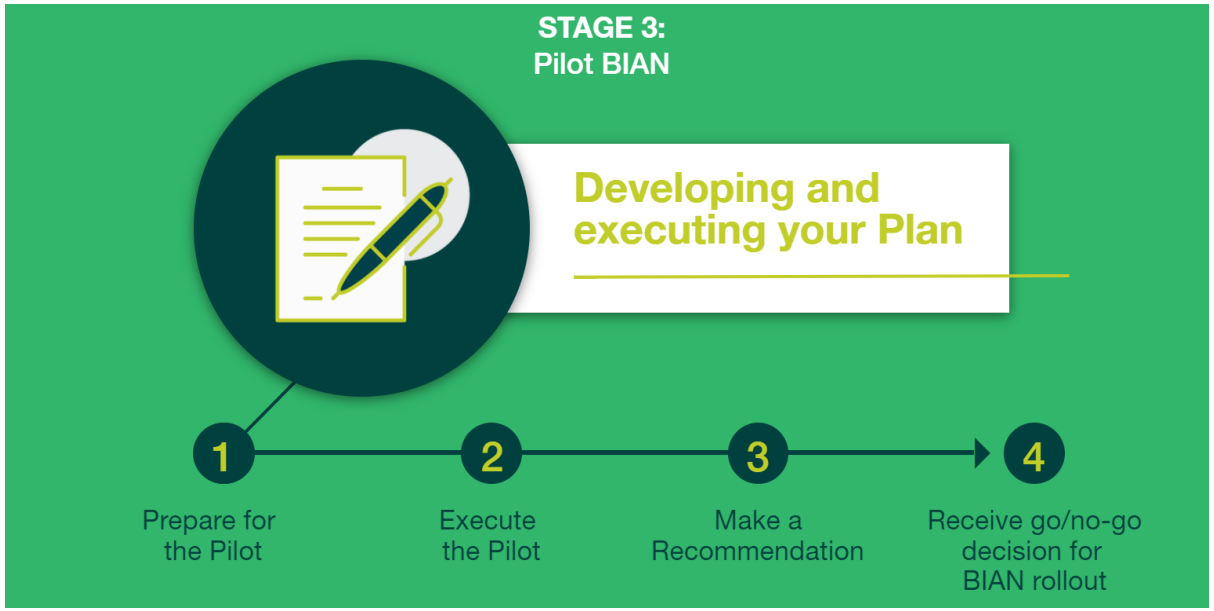
12.1 Stage 1 of a BIAN adoption roadmap: Evaluate BIAN



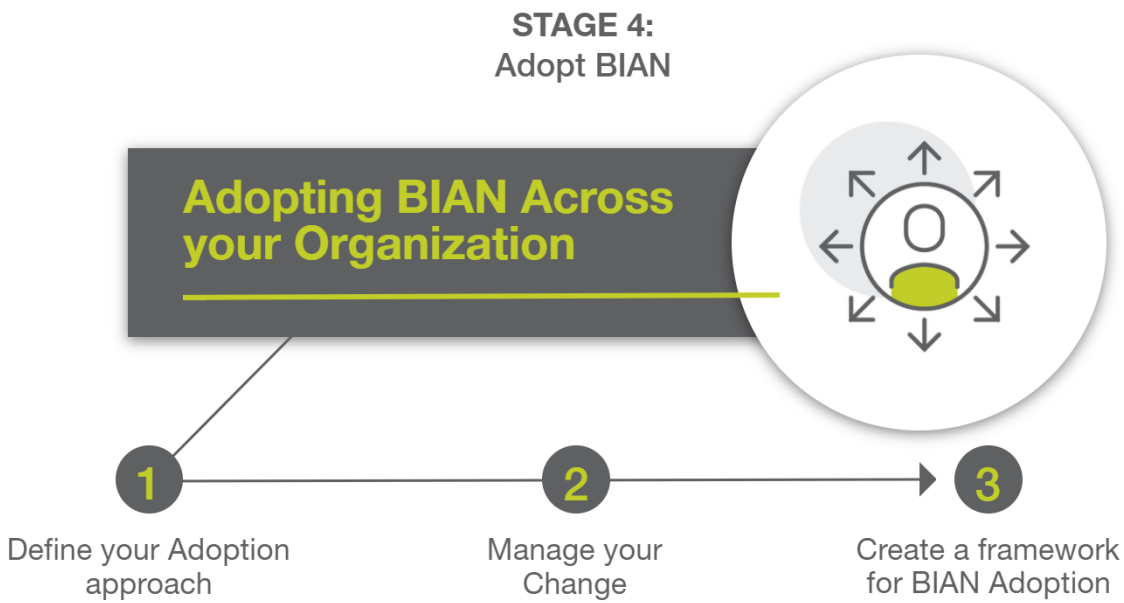
12.2 Stage 2 of a BIAN adoption roadmap: Build a Pilot Case



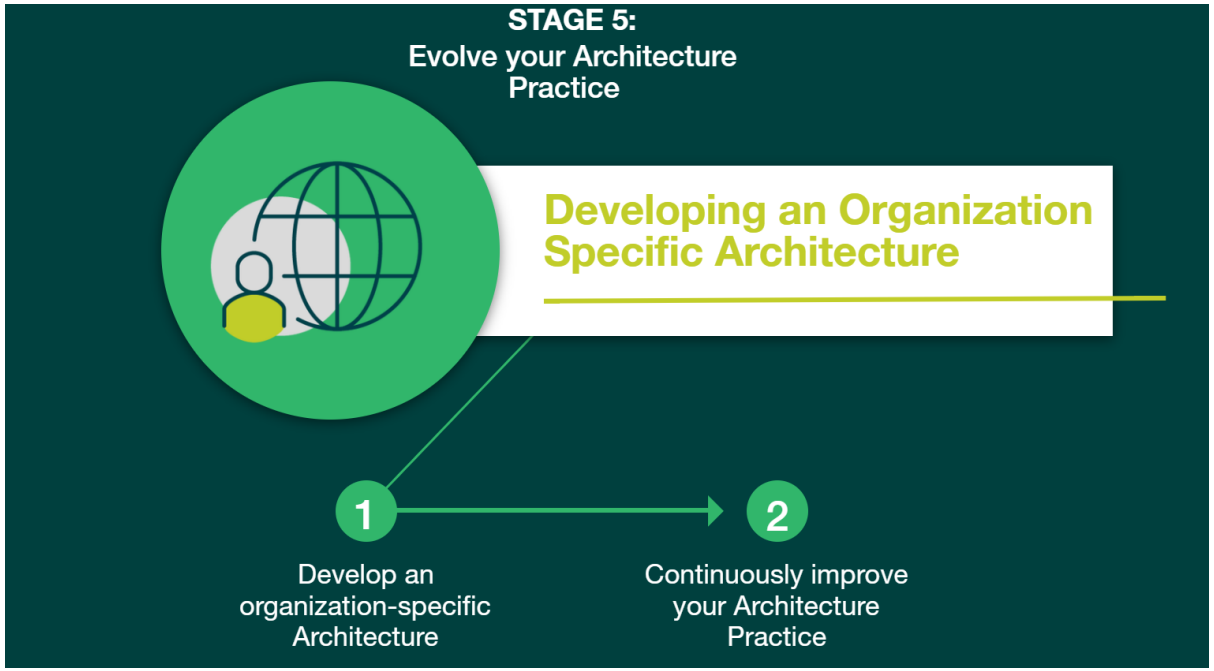
12.3 Stage 3 of a BIAN adoption roadmap: Pilot BIAN



12.4 Stage 4 of a BIAN adoption roadmap: Adopt BIAN



12.5 Stage 5 of a BIAN adoption roadmap: Evolve your Architecture Practice



13.1 A bank consists of three different layers

Business Layer

Grasps the business direction and the business capabilities, including people, business concepts, processes, and business technology.

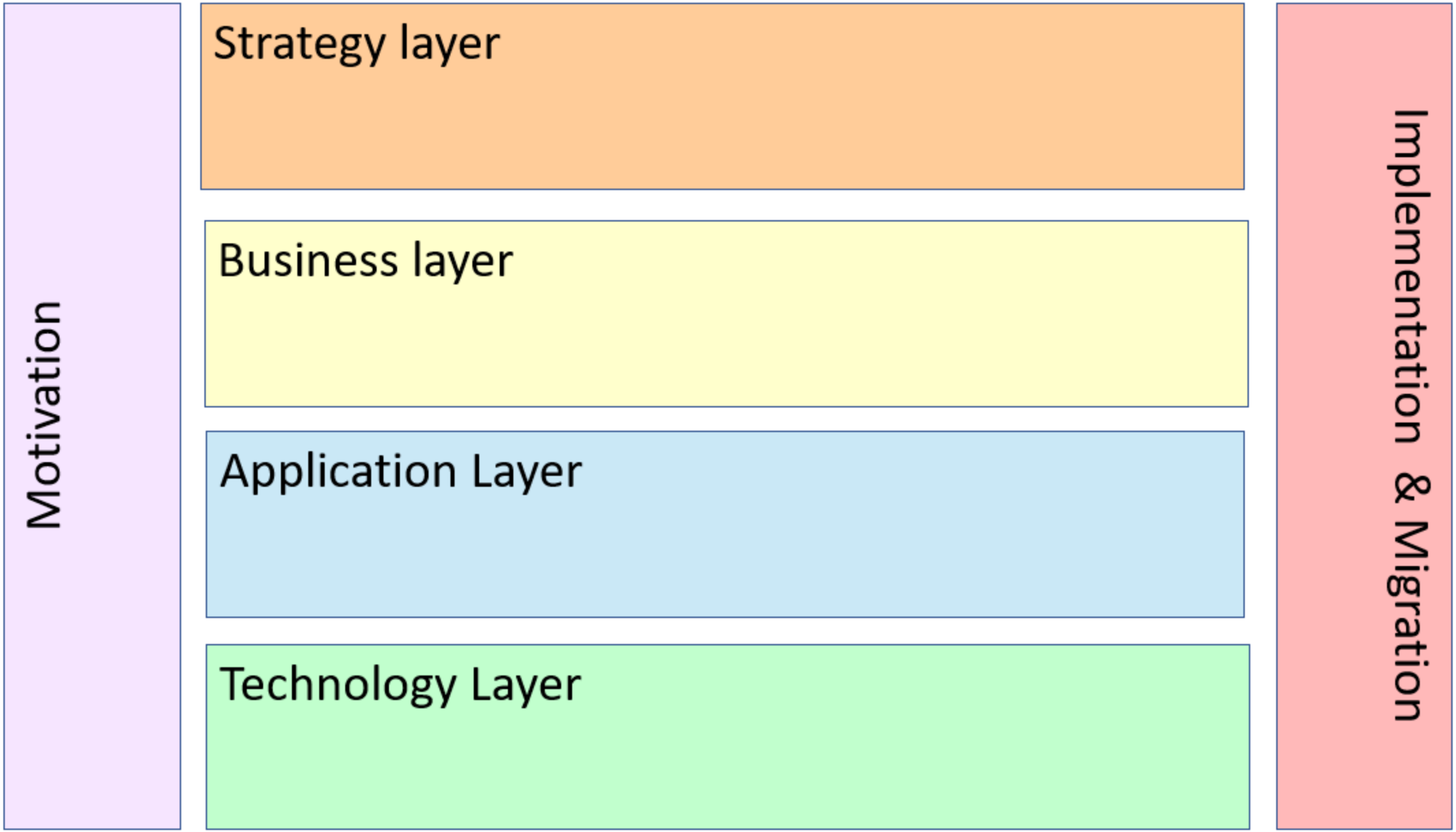
Technology Layer

Encompasses generic services and functions that provides a foundation via which a bank able to run its operations.

Application Layer

This layer represents the Information Systems landscape, with all its applications, data, technical functionality and connections.

13.2 Viewpoints on a bank: Architecture layers and Aspects



13.3 Zooming levels: diviede and conquer a wide scope and a great complexity