

Service-Oriented Roadmapping & Transformation (SORT)

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Application and Infrastructure Solutions

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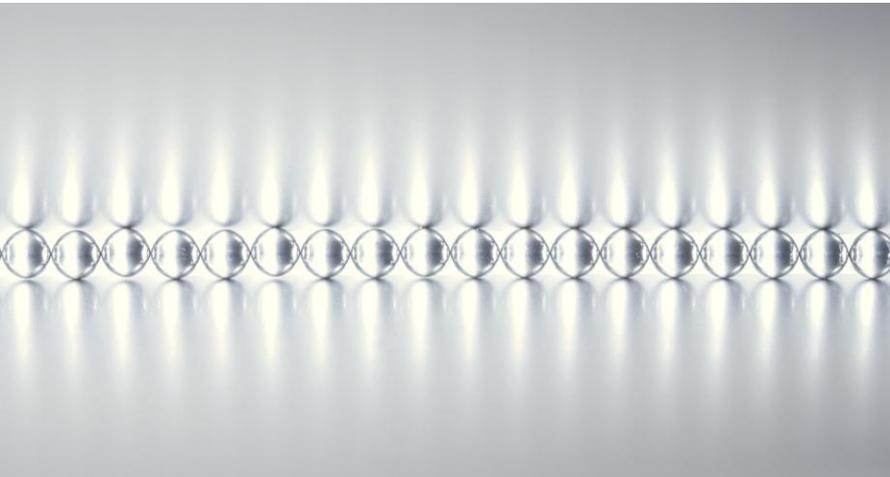
Key Differentiators

Practical Use

SORT in Action – Case Study

Summary

Q & A



State of the Art of SOA

Where are we in SOA pursuit?

SOA ecosystem

The Open Group

- Service-Oriented Architecture (SOA) is an **architectural style** that supports service orientation, which is a way of thinking in terms of services and service-based development and the outcomes of services.

OASIS

- SOA is a **paradigm** for organizing and utilizing **distributed capabilities** that may be under the control of different ownership domains. It provides a **uniform means** to offer, discover, interact with and use capabilities to produce desired effects consistent with measurable preconditions and expectations.

Reality Check

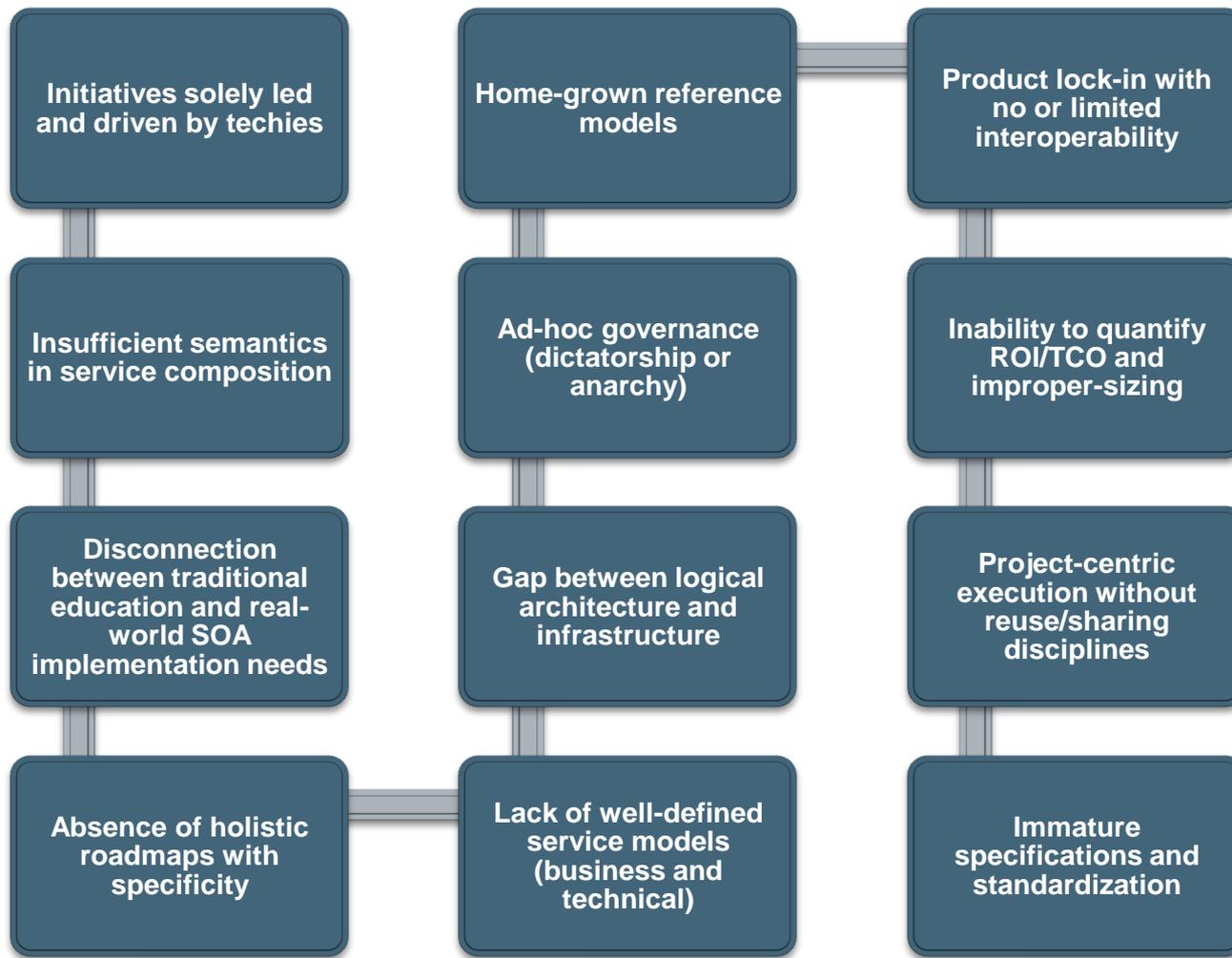
56% of executives at companies deploying SOA admit that **at least half** of the code or artifacts developed under their roofs are not reviewed for compliance before moving into production. (SOA Forum 2007)

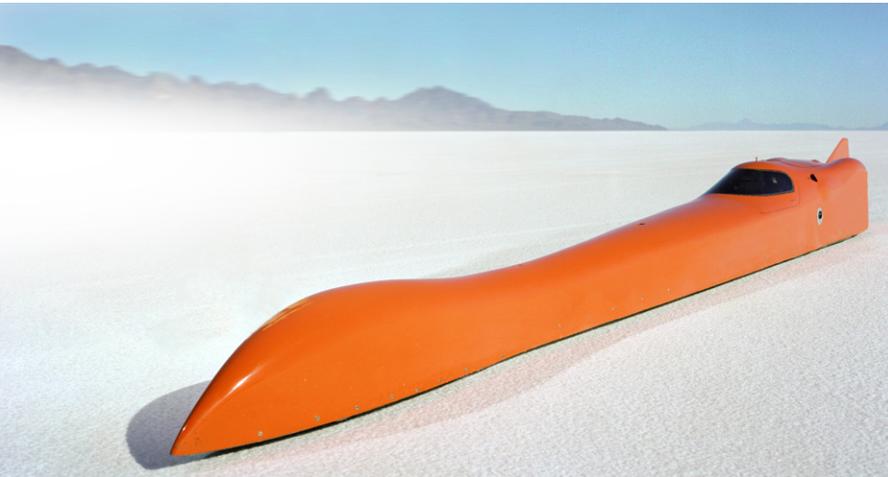
32% of those using SOA said those projects fell short of expectations (2007 *InformationWeek* survey of 278 IT pros)

- 58% said their SOA projects introduced **more complexity** into their IT environments.
- 30% said they **cost more** than expected.

Only **37%** of 106 organizations surveyed actually were realizing ROI from their investments in SOA technology and programming. (Nucleus Research 2007 Report)

Barriers to Successful SOA





Methodical Approach

A Systematic Way to do SOA right

Service-Oriented Roadmapping & Transformation (SORT)

Service-Oriented Roadmapping

Concept

- A technology roadmap is a plan that matches short-term and long-term goals with specific technology solutions to help meet those goals. It is a plan that applies to a product, service, process, portfolio, organization, or an emerging technology.

Benefits

- It helps reach a consensus about a set of needs and the technologies required to satisfy those needs.
- It provides a mechanism to help forecast technology developments.
- It provides a framework to help plan and coordinate technology developments.

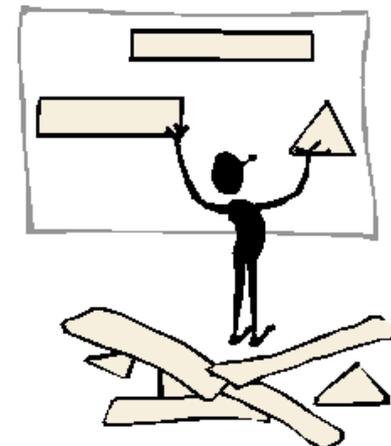
Service-Oriented Transformation

Concept

- An end-to-end process to migrate technology from the current state to the desired state, enabling the transition of the existing IT platforms to forward-thinking technology-driven solutions for the next generation.

Benefits

- Optimize IT systems
- Better alignment of IT and business
- Increase operational efficiency
- Establish competitive advantage
- Adopt best practices
- Leverage latest technologies



Value Proposition of SORT – Addressing the issues with existing approaches

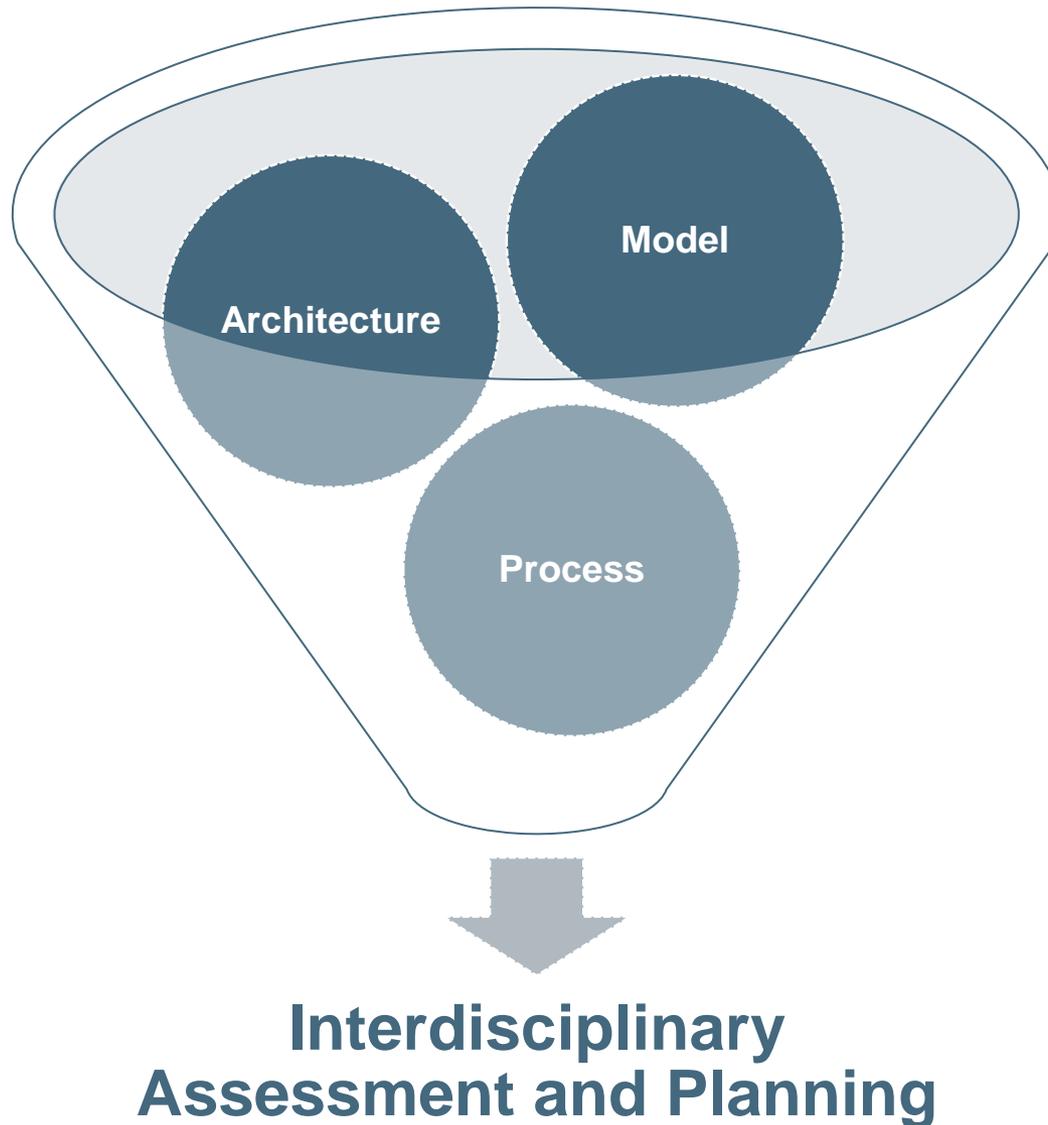
Lack of end-to-end traceability	Absence of a holistic view	Limited perspectives	Rigid and inflexible
Heavyweight requiring a steep learning curve	Focused on traditional IT practices rather than following service-orientation principles	Deficient in methodical analysis	Ineffective modeling
Nonstandard notations	Short of consistent practice routines	Questionable scope	Ambiguous taxonomy
Subjective judgments and reviews	Unrepeatable procedure	Insufficient rationales	Incomprehensive representations
Domain-specific	Nonsystematic structure	Irrational decisioning process	Not Adaptive



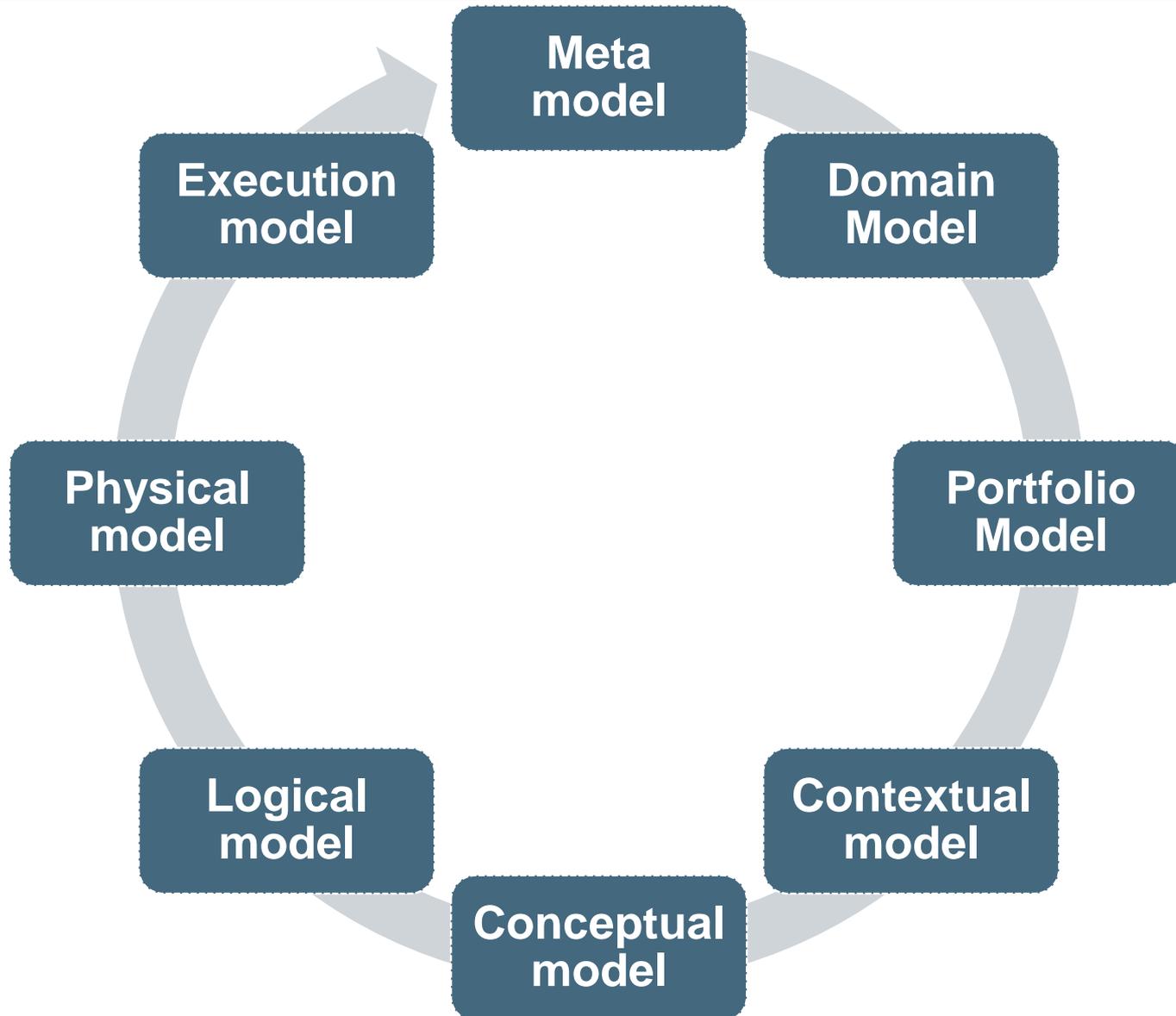
Components in SORT

How to sort out

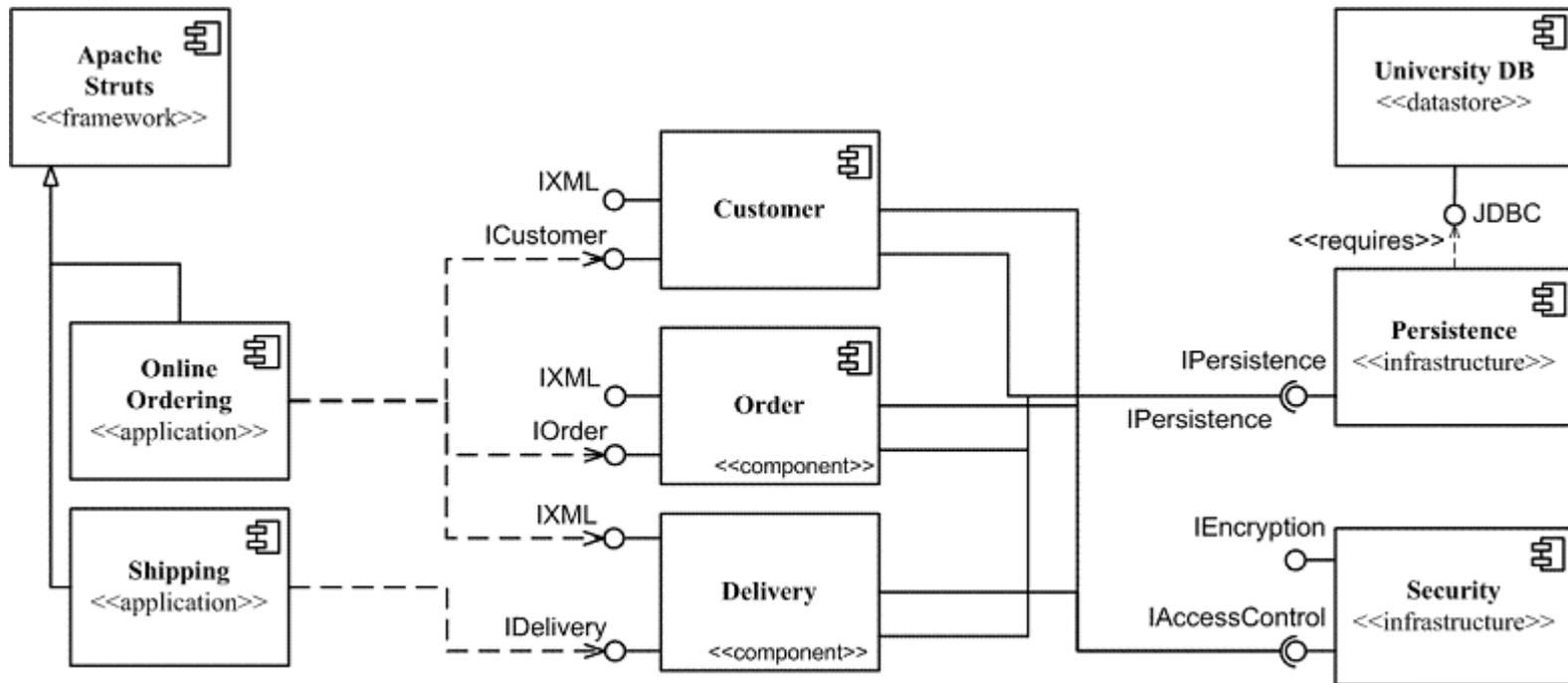
3-prong Approach: Model, Architecture, Process (MAP) Frameworks



Model Framework – broadening 4+1 views, Zachman, MDA, etc.

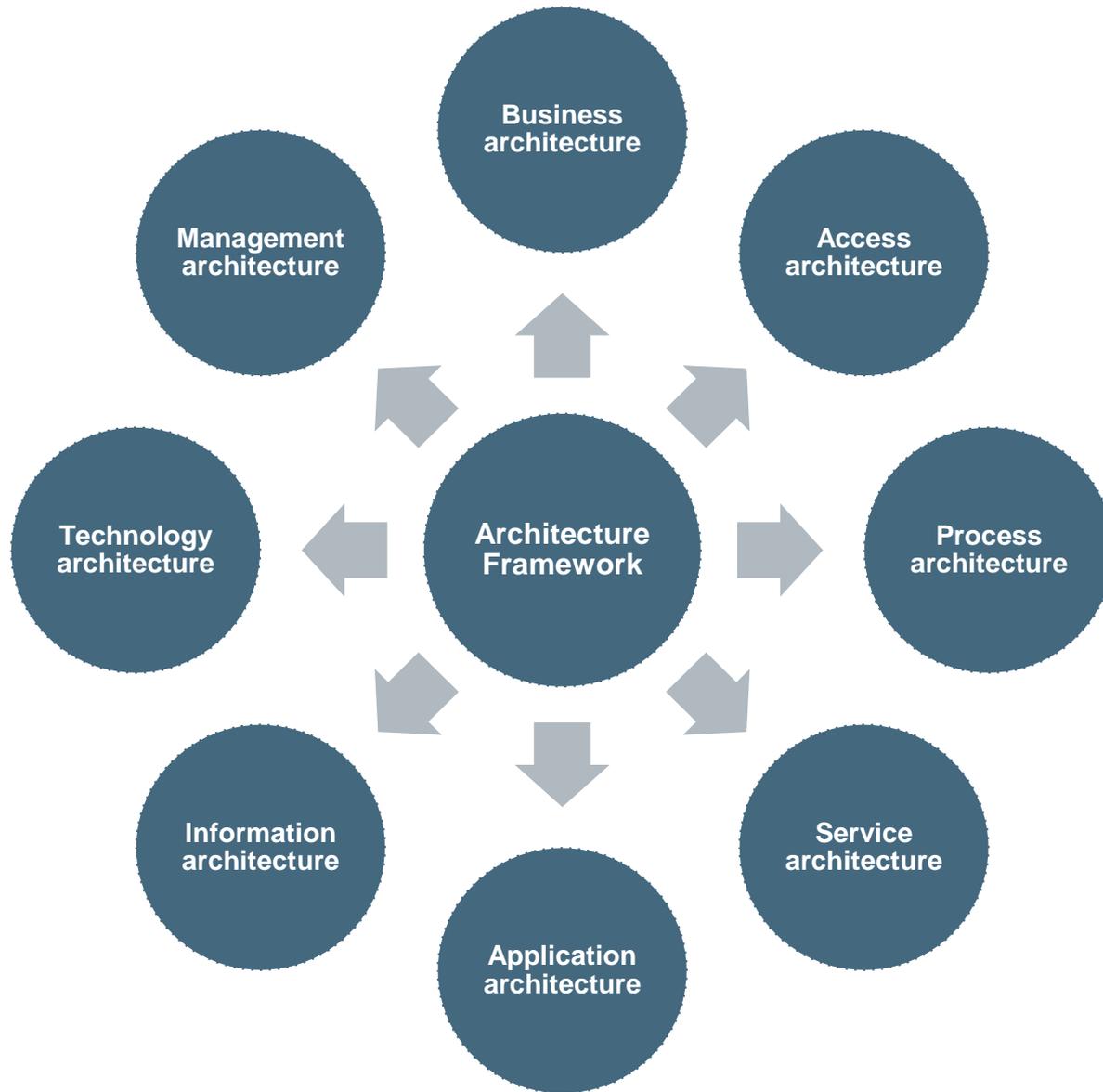


Example: UML component diagram representing the logical model of a simple e-commerce system

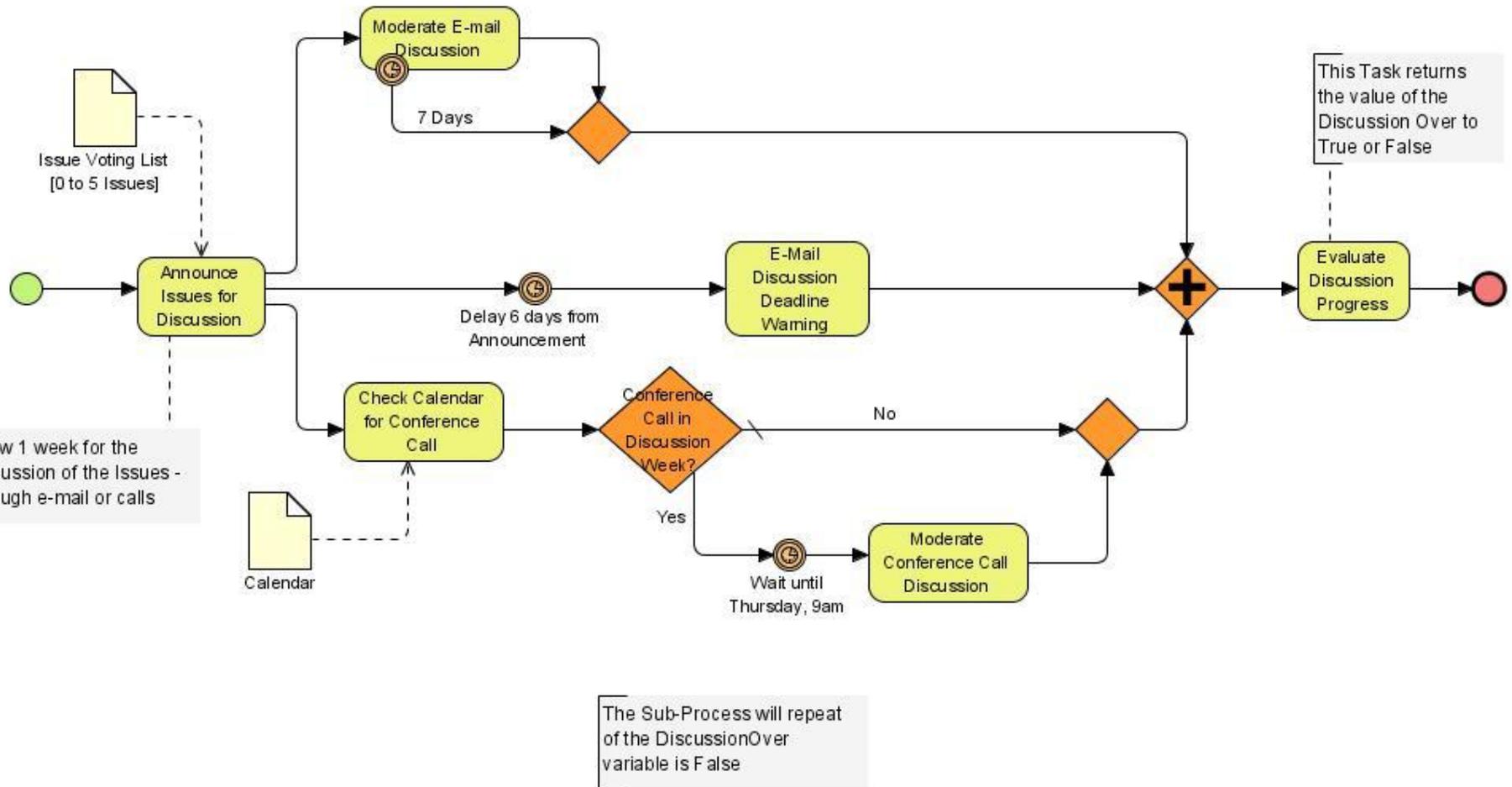


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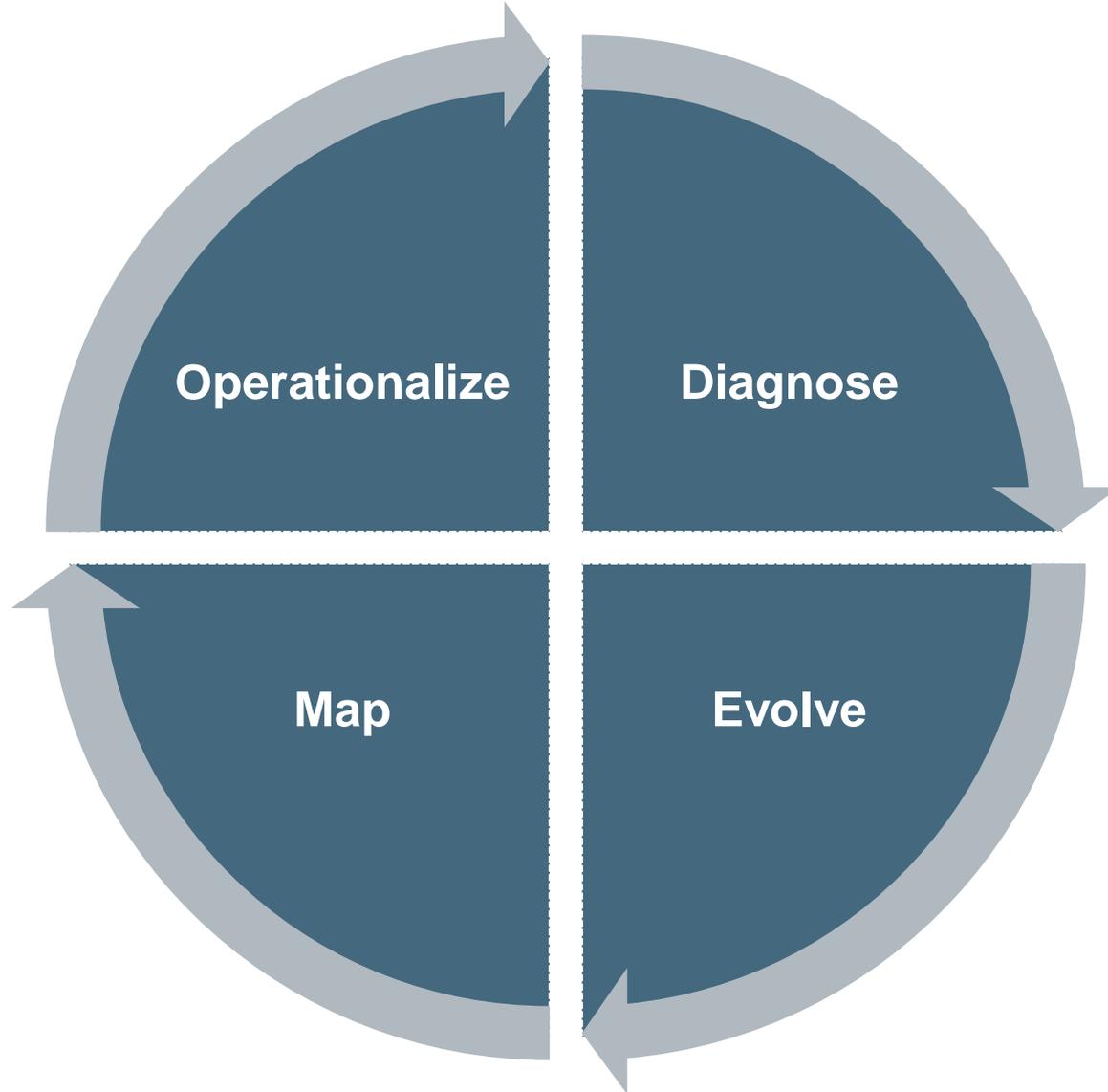
Architecture Framework – extending TOGAF, GERAM, E2AF, etc.



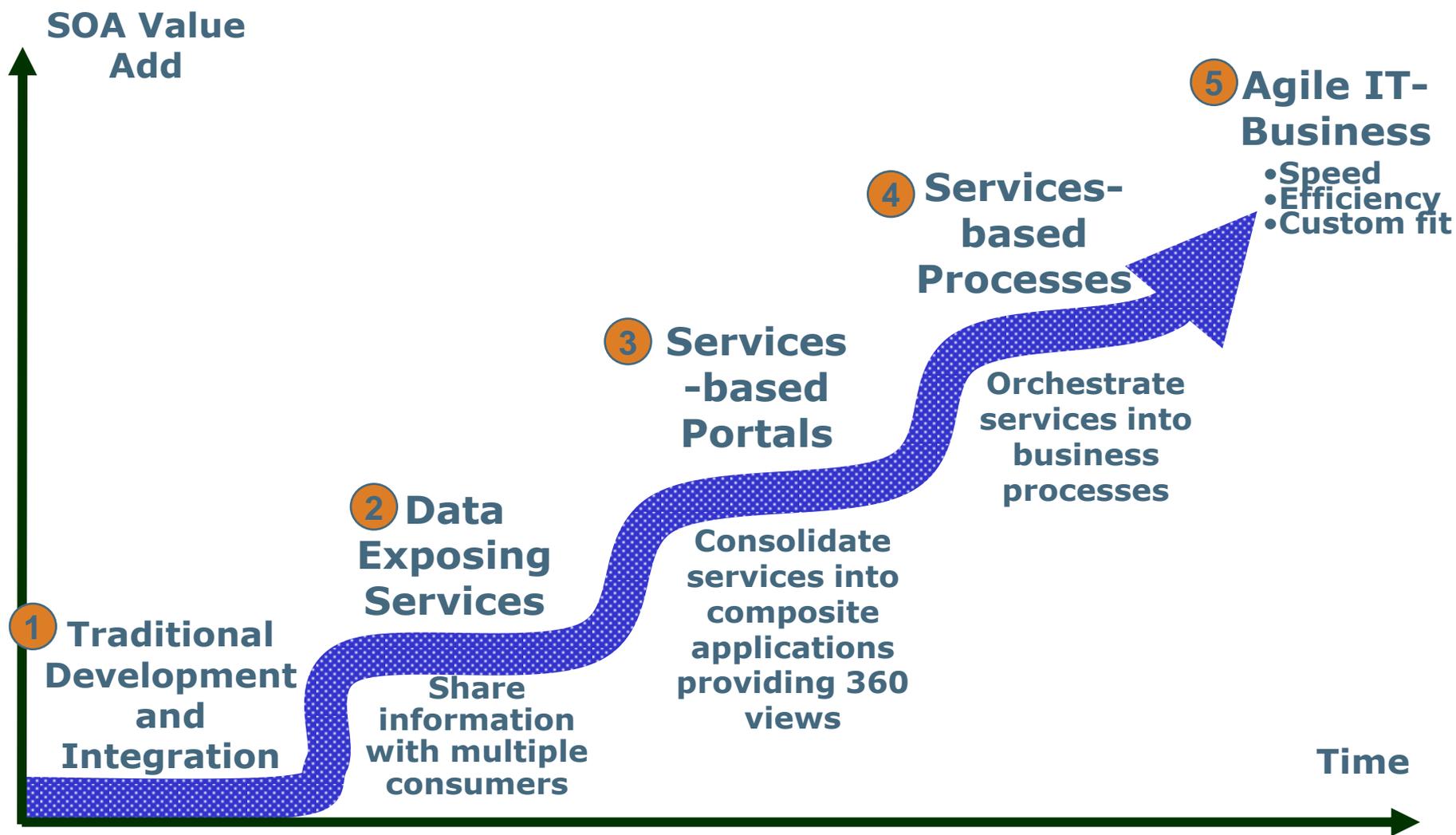
Example: Process Architecture representing discussion cycle



Process Framework – Prescriptive Procedure



Example: SOA Maturity Model for current-state assessment





SORT in Action

Case Study

Background of a Portfolio in a Major Financial Institution

Organization Profile

- Largest US bank by assets (\$ 2.25 trillion) with \$120 billion revenue and about 300K employees, possessing 6,100 retail branches and over 18,700 ATMs across the United States

Portfolio Scope

- Transaction Services Technology (TST) is the predominant bank platform for Check, Cash and Deposit image and transaction capture, processing, information management and maintenance.
- It processes transactions and services the Consumer, Small Business, Corporate and Card LOB's.
- Additionally, it interfaces with all brick-and-mortar channels as well as with the virtual (Web, Telecom, etc.) channels.
- The TST platform is an enterprise transaction hub that facilitates commerce and payments matching and processing.
- It consists of more than 110+ applications organized into approximately 8 sub-platforms with more than 300 technical resources spread across North America.

Business Imperatives

- Document and create future processes / roadmaps as the current transactions are moving from traditional channels to mobile and electronic

Business Challenges

- IT and Business process alignment and modernization with emerging channels for customer transactions

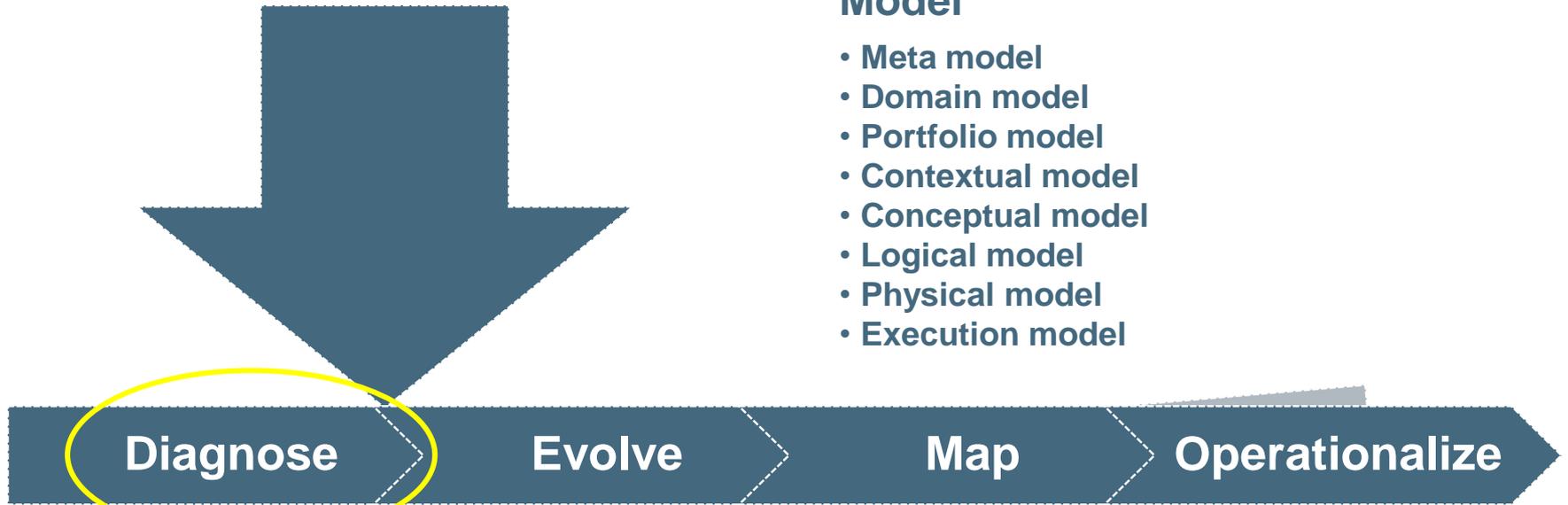
Technology

- Numerous applications and sub-platforms across multiple LOB and customer channels; supported by the associates spread over various geographies

Applying MAP Method

Model

- Meta model
- Domain model
- Portfolio model
- Contextual model
- Conceptual model
- Logical model
- Physical model
- Execution model



Architecture

- Business architecture
- Access architecture
- Process architecture
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SYSTEM CONTEXT DIAGRAM

Current State System/Application Architecture Assessment

System / Area	Systems Involved		As-is	Pain Points/Issues	To-be	Technology Soundness	
	Internal	External				SW	HW
IP	3890, CPCS, CIMS, IP Reformatter, Strata, Image Driver	TRX, Viewpoint, VRR	<ul style="list-style-type: none"> 3890 sorter: check scanner, mainframe CPCS: IBM product VSAM Image Driver in Mainframe: NDM batch job to move images from CIMS to Viewpoint Online banking access Viewpoint directly (50% traffic) BANKTEC: 3 types of HW - E, X, NCR for Image IP Reformatter: schedule events, extract data, format repository Reject & repair process: low speed End of IP Reformatter: Vector Sort (statement), return exception (IRX, IRE), reporting, R&A (Master Index) to replace old files 	<ul style="list-style-type: none"> Human errors - items not captured in the right cycle Deposit correction in-flight project: for downstream to display info (downstream does not want to go to Master Index directly) 	<ul style="list-style-type: none"> Day 2 functions moved to Day 1 Migrate away from Mainframe to server-based solution (rewrite IP): reverse engineering Rules: use rule engine Real-time processing 	declining	declining
RDSO	COMPASS modules	ICOM, Data feeds	<ul style="list-style-type: none"> Replacing 3 Thick client applications: EDS, Bank Server, and Bank Link for Merrill Lynch in favor of a web based model Image Analytics Process: Reconcile + IQA - Jetty server System launched on 8/8/08 25 items/images buffered at workstation per customer NCR code on WAS Now for GPS customers: 5K companies (11K users) Use Websphere SIB (Service Integration Bus?) at WAS tier Ajax on browser for refreshes every 5 seconds Oracle DBMS Authentication via SSO Site server SLA: 3 second response time 	<ul style="list-style-type: none"> Types of scanners supported Client-side LAN and other applications impacting RDSO performance (customer-specific environment issue) Slow response time / Throughput of the analytics component (IQM)??? 	<ul style="list-style-type: none"> Small biz clients: much higher volume RAC for DBMS tier Convergence opp with RCU 	rising	stable
TRX	Data repository	a number of enterprise systems, e.g. Float	<ul style="list-style-type: none"> Transaction hub All flat files in X9 format Contact list maintained, and audited twice a year. Waterfall SQLC Grew from the item processing system. Mirrored DASD in redundancy for recovery. Run on Sysplex. 	<ul style="list-style-type: none"> Need to reengineer to handle real-time transactions. Payment Director has a lot of features that exist in TRX today. SME involvement as it is the interface to posting systems 	<ul style="list-style-type: none"> Revisit the roadmap created a few years ago for major applications in the bank. Impact of Merrill Lynch integration after merger. 	Declining: old-style hub	declining

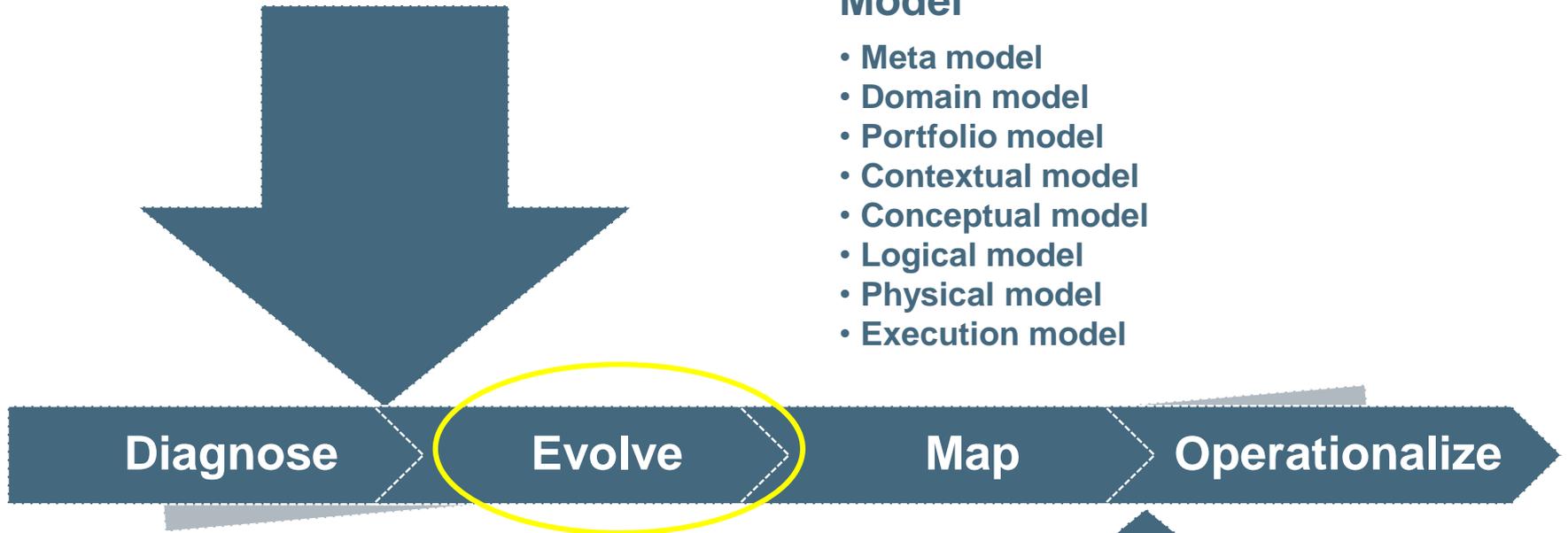
Dev Lang	Programming model	SDLC tools	Runtime Env	Web Server	App Server	DataStore	Web Server OS	App Server OS	DataStore OS	Middleware
C++	J2EE	Visual Studio	Mainframe CICS/TS v3	IIS	IIS (v6.x)	IBMEF VSAM	Windows 2003	AIX (v5.3, 6.1)	AIX (v5.3, 6.1)	ActiveMQ 4.1.2
COBOL	.Net (v1.0, 2.0, 3.5)	RSA/RAD	VTAM	WebSphere	WebLogic	MS SQL Server 2005	RHEL (Linux) v4.x	z/OS v1.9	Windows 2003 Enterprise Server	IBM WebSphere Message Broker for z/OS (v6.1, 6.0)
JCL	J2ME		Trintech	WebLogic	WebSphere WAS	DB2 UDB (v8 for z/OS, ESE v8.x)	z/OS v1.9	Windows 2003 Enterprise Server	z/OS v1.9	MSMQ
Java			Powerbuilder	Apache HTTP server v2.2	Apache Tomcat v5.0x	Oracle Enterprise Edition (v10.2, v9.2.x or lower)	Solaris v10 (Solaris 2.10.x)	RHEL (Linux) v4.x	Windows 2000 Advanced Server	File/Data Transfer Utility (NDM)
Unix shell script				Sun One/iPlanet	Citrix Presentation Server v4.0	IBM Virtual Storage Access Method VSAM		Solaris v10 (Solaris 2.10.x)		
ASP					Mainframe	BDAM		OS/2 server		
C#				Microsoft Transaction Server MTS		Informix Dynamic Server v10.0				
Assembly				MS SiteServer		PSQL Pervasive SQL v.10 (formerly Btrieve)				
Visual C++										
Visual Basic										
Progress										
11	3	2	4	5	8	8	4	6	4	4

Architecture Characteristics	Example
Batch-centric processing	Sorting
Sequential handling dictated by cycles	Exceptions
Constraints by packaged solution (lock-in to vendor products)	CPCS, ULZ
Duplication in functional implementations	IQA
Mix of technologies of different maturities	MF, C/S, Web
Home-grown communication solutions	TRX, DTS, File transfer, Strata bus, Consolidation Server
Heterogeneous platforms	8 data stores, 8 app servers
Declining & unsupported products	OS/2, Win2K, MF
Siloed apps: literally no shared components	RSH and Image View
System coexistence due to mergers	DDA, Statement
Local data stores	COMPASS
Reliance on human for cash forecast	ICOM
Solution instability	VRU in COMPASS
Multiple data repositories	GCA, Strata Master Index, Viewpoint, CIMS
An excessive number of incoming sources	SVPCo, RDSO, RIC, RCU
Workflow controlled by file transfers	NDM
Time-consuming client on-boarding	Lockbox
Isolated and ad-hoc reporting methods	Crystal Report
Inconsistent access mechanisms	Viewpoint retrieval
Dependency on vendor roadmap	IPD, NCR Xaction Manager
Insufficient and outdated design documentation	Old documents and inconsistent format
Ad-hoc system enhancements	Vendor code localized and owned by the organization
Absence of a holistic design approach	Very disjointed design end-to-end
Lack of well-defined service model and strategy	Data-centered flow in check image capture

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Business and Technology Findings

No	Category	Findings / Observations	Business/Technology Impact
1	Process / System Duplication	1.1 Duplication of processes across multiple capabilities 1.2 Duplication of processes within individual capabilities 1.3 Inconsistent process nomenclatures 1.4 Inconsistent views / interfaces across LOBs	<ul style="list-style-type: none"> Support overheads Redundant efforts for process / system changes.
2	Transaction Processing	2.1 Multiple variations of systems and processes creates inefficiencies 2.2 Data is currently managed as batch processing 2.3 Lack of real - time transaction capture for deposits, float, etc. 2.4 Commercialization of data not possible	<ul style="list-style-type: none"> Unable to meet customer needs Hard to manage processing
3	Communication Barrier	3.1 Business groups are very "silo'ed" 3.2 No formal or consistent meeting(s) between business process groups for: <ul style="list-style-type: none"> 3.2.1 Information exchange 3.2.2 Identification of process redundancy and optimization 	<ul style="list-style-type: none"> Disconnection between stakeholders Difficult to make changes
4	Corporate Mergers and Acquisitions	4.1 Lack of seamless integration from past mergers 4.2 Insufficient analysis performed on inherited costly legacy applications and their support 4.3 Lack of systems to enable analyst collaboration	<ul style="list-style-type: none"> Overlapping processes and systems Cost of support and staff

No	System	Pain Points / Issues	Technical / Business Impact
1	IP	1.1 Human errors – items not captured in the right cycle 1.2 Deposit correction in - flight project: for downstream to display info (downstream does not want to go to Master Index directly)	<ul style="list-style-type: none"> Items have to be re - captured Slowed processing Delay in clearing or fulfillment Cost of human manual handling Inconsistent mechanism Dependency on vendor product outlook
2	RDSO	2.1 "Scanner jams", both physical jams and software interruptions which cause errors in the scanning process 2.2 Client - side LAN and other applications impacting RDSO performance (customer – specific environment issue) 2.3 Ability of users to create report requests that consume excessive amount of processing power 2.4 Inadequate level of redundancy / continuity on for the database 2.5 Difficulty isolating performance bottle necks	<ul style="list-style-type: none"> Losing customers due to unsupported scanners Client un - satisfaction SLA violation Added load to customer support for scanner issues Single consumers can impact the performance of the over all system Increased outage risk as Database is a potential single point of failure Increased cost to identify problem areas

Trending

•Desired business and technology direction from an industry best practice perspective

Consolidation and Simplification



- Provide standards driven consolidated platforms to reduce redundancy and support migration to more advanced mainstream solutions
- Develop a modernization strategy for legacy system based solutions and reporting

Customer Convergence



- Drive customer loyalty through the deployment of new products and services with an agile and flexible deployment environment
- Manage, track, and analyze a single view of a customer in a customer relationship management solution

Transform Transactional Processing



- Follow industry architectural principles to create an architecture model that supports continuous processing of transactions
- Leverage service based approach and ESB technologies to facilitate event driven handling of transactions

Automate and Monitor Value Chains



- Establish Business Process Management (BPM) practices to automate, refine, and optimize business processes
- Collect and analyze process performance metrics for business activity monitoring (BAM) in alignment with enterprise performance management (EPM)

Excellence in Execution through Governance

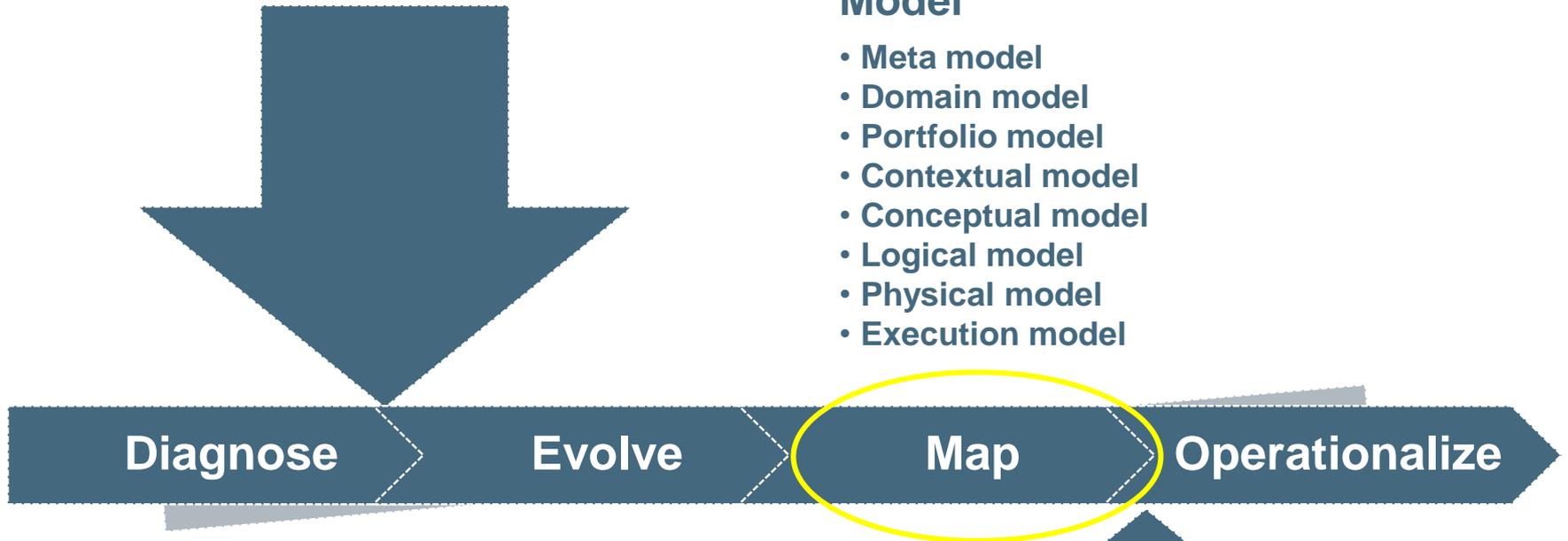


- Centralize operational procedures and best practice guides across business units into a common SDLC methodology and framework
- Continue to define and standardize end-to-end architecture methodology, TST platforms, processes, standards and governance

Applying MAP Method

Model

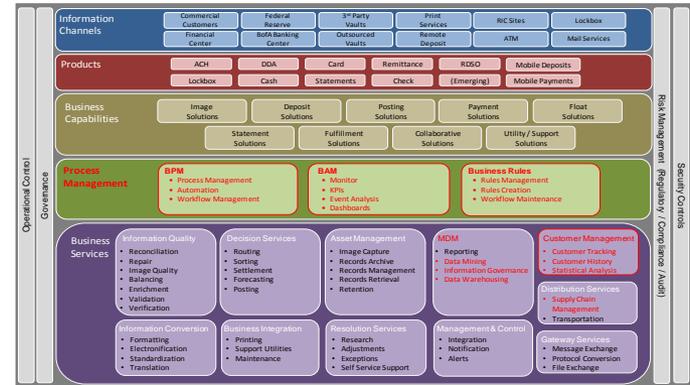
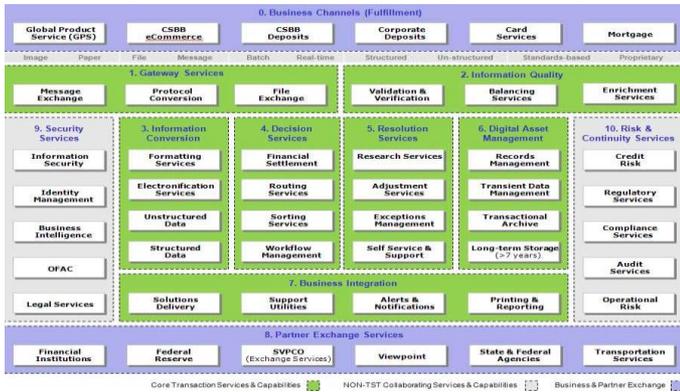
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Updated Business Domain Model Advantages



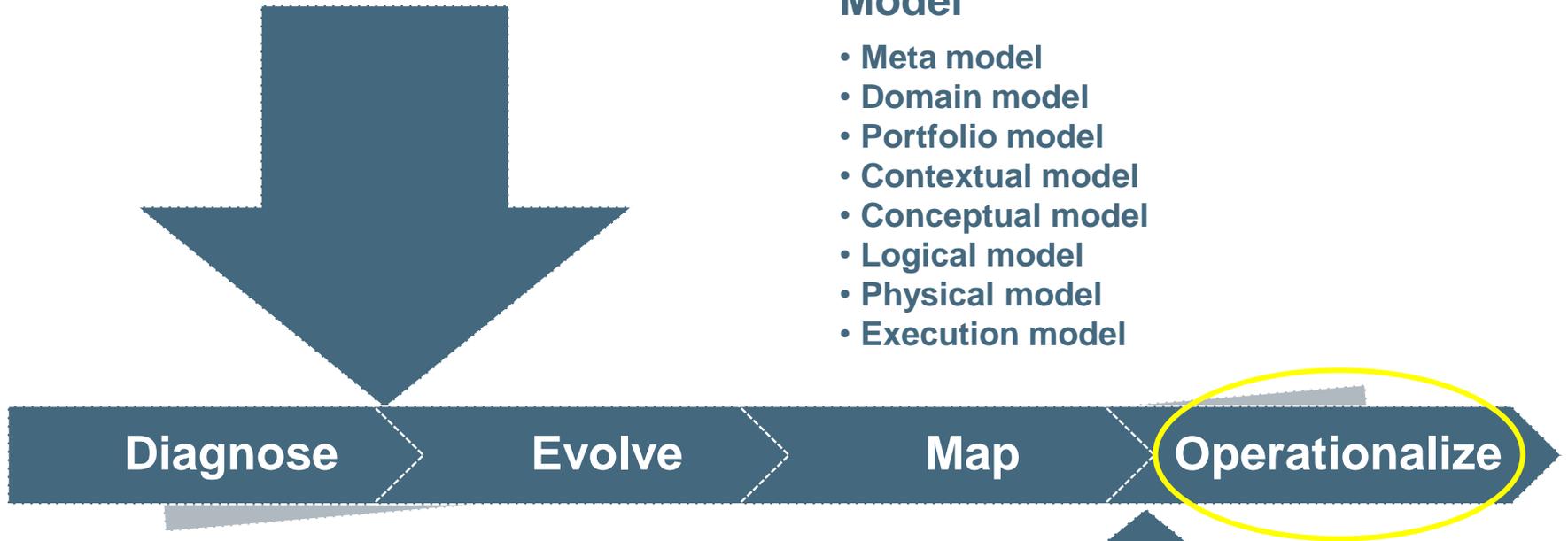
Attribute	Existing	Updated
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- | | | |
|----------------------|--|--|
| Strategy: | Compartmentalized | ⇒ Integrated |
| Focus: | Technology Driven | ⇒ Business processes and results driven |
| Organization: | Rigid and separate | ⇒ Flexible and collaborative |
| Alignment: | Operations | ⇒ Products and services |
| Measurement: | Locally focused | ⇒ Enterprise focused |
| Architecture: | Cycle-based, vendor influenced with point-to-point connections | ⇒ Continuous processing model, service driven, loosely coupled, industry aligned |

Applying MAP Method

Model

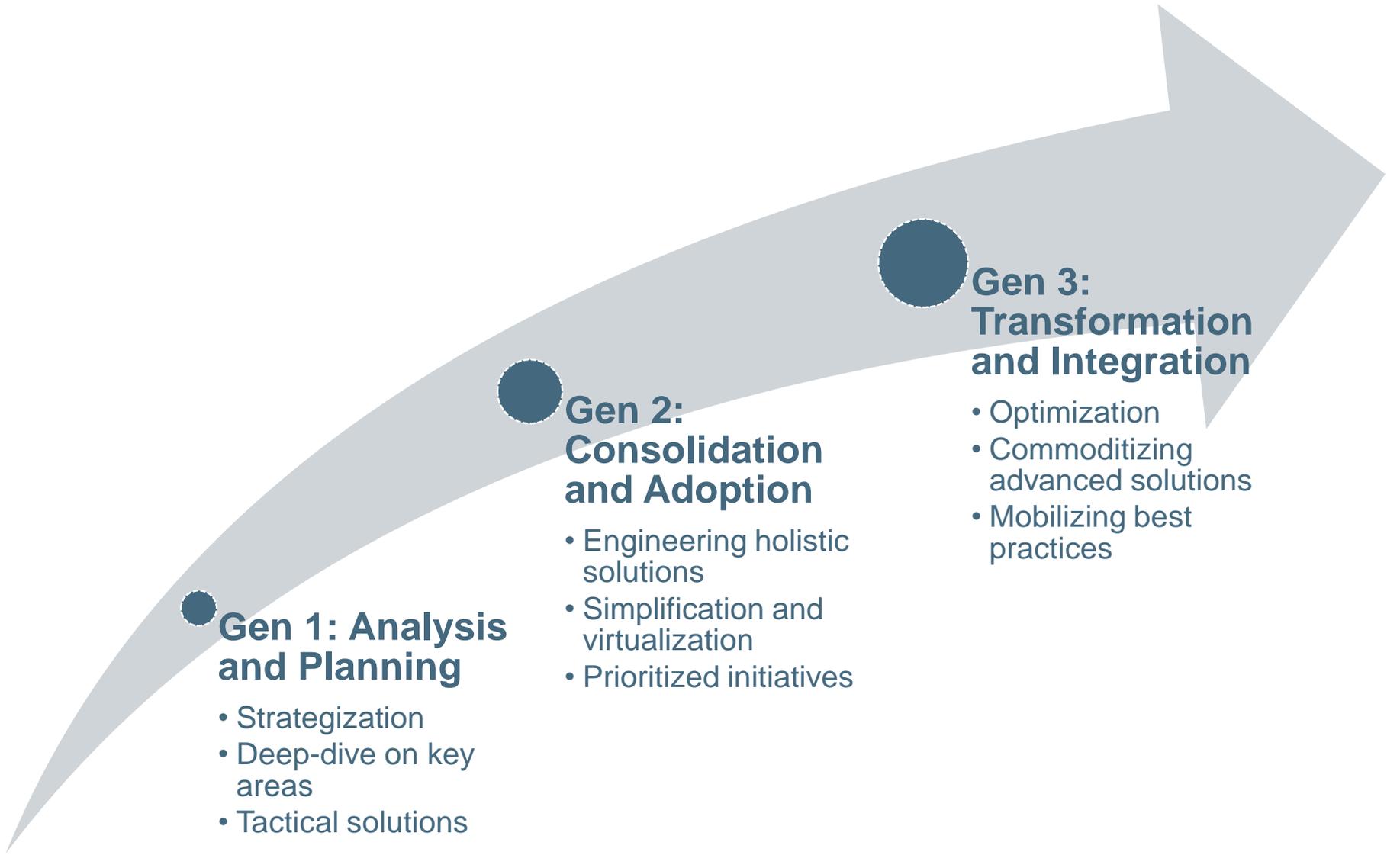
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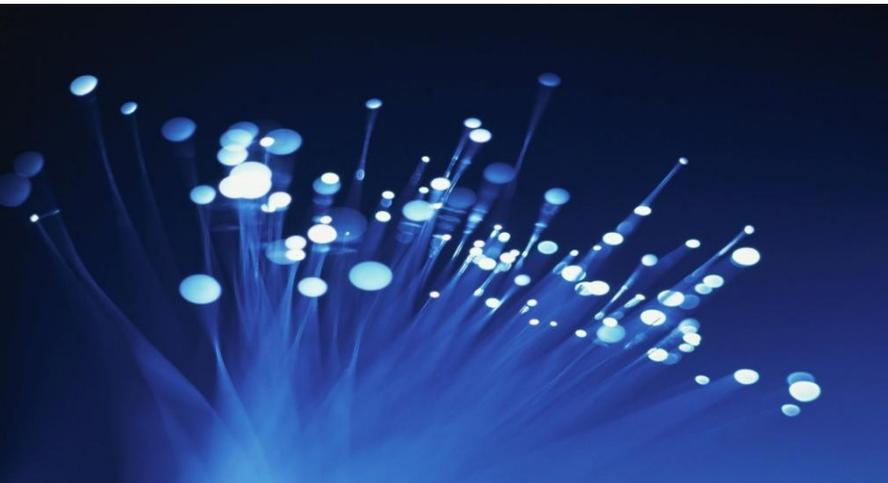


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Roadmap Blueprint



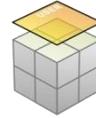
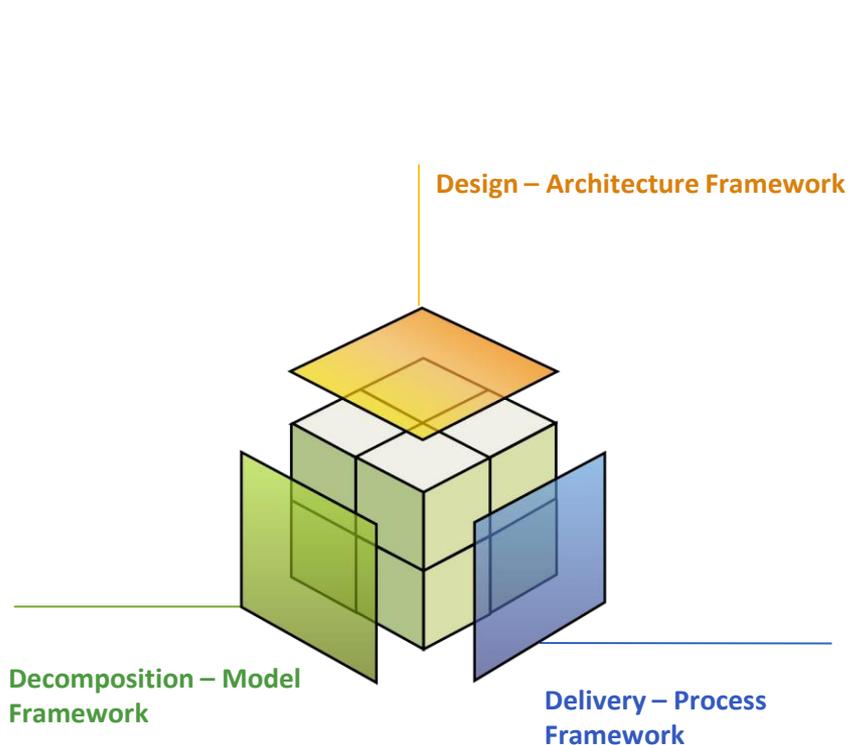


Summary

Wrap-up

A Cross-disciplinary and Multi-perspective Approach

The Service-Oriented Roadmapping and Transformation (SORT) approach consists of 3 integrated frameworks – Model, Architecture, and Process (MAP), for the decomposition, design, and delivery (3D) activities in the portfolio assessment, future capability enablement, and strategic planning in a systematic manner.



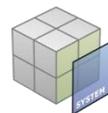
Design – Architecture Framework

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Decomposition – Model Framework

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- Portfolio model
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- Execution model



Delivery – Process Framework

- Diagnose phase
- Evolve phase
- Map phase
- Operationalize phase

Q & A

धन्यवाद Hindi 多謝 Traditional Chinese 多谢 Simplified Chinese ขอบคุณ Thai
Спасибо Russian **Thank You** Brazilian Portuguese Obrigado
شكراً Arabic **Thank You** Japanese ありがとうございます
Grazie Italian Danke German
Multumesc Romanian Merci French 감사합니다 Korean Gracias Spanish

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