A case for architectural assessment for a large financial company

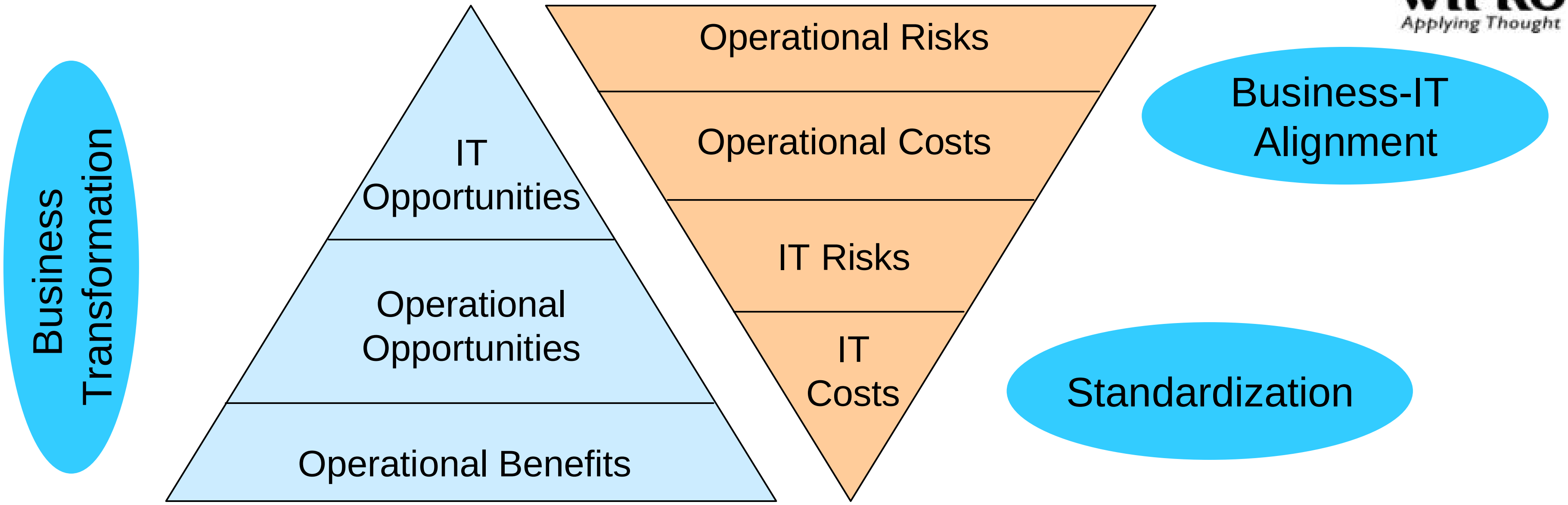
Akash Banerjee

Agenda

- Architecture assessment approach
- Case study background
- Methodology

Architecture assessment approach

Business drivers



Business Transformation

IT Opportunities

Operational Opportunities

Operational Benefits

Operational Risks

Operational Costs

IT Risks

IT Costs

Business-IT Alignment

Standardization

From		To
Build or Buy	Application Implementation	Build AND Buy AND Integrate
Data Processing	Tech. Innovation Focus	Communication + Collaboration
Outsourcing vs. In-house delivery	Capability Supply	Multi Sourcing

Enterprise Architecture

Enterprise Architecture is the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the firm's operating model.

[Source – wikipedia.org]

- Objectives
  - Business & IT alignment
  - Portfolio management: technology & application
  - IT costs optimization
- Deliverables
  - Technology roadmap
  - IT strategy definition
  - Enterprise technology standards

EA landscape

	EA Organization	Enterprise Architecture	EA Process
Strategy & Vision	Roadmap Prioritization Committee	Strategy & Vision assets	Architecture Governance Process
Reference Architecture	Enterprise Architecture Team (Enterprise Architects)	Reference Architecture assets	Architecture Development Process
Systems	Project Teams (Solution Architects)	System Development assets	Software Development Process
Operations	Operations & Support	Solution assets	Service Delivery Process

Architecture assessment context

- To be used as a management tool
  - Perform strategic planning
  - Developing roadmaps from ‘as-is’ to ‘to-be’ state

- Inputs:
  - Stakeholder requirements
  - Business cases

- Outputs:
  - Recommendations
  - Assessment reports

- a.k.a. – Architectural audits or review

Assessment drivers

Parameters	**IT capability**		**Qualitative analysis**	**Cost**	**Risk / Opportunities**	**Plan of action**
- Business needs - Issues - Technology concerns - Stakeholder concerns - Desired satisfaction levels	- Identifying capability - Is there a gap? - How wide is the gap? - Where are the issues?		- Availability - Assurance - Usability - Adaptability	- Direct cost - Indirect cost	- Regulatory compliance - Business continuance implications - Competition - Cost saving opportunities - Productivity improvements	- Build - Buy - Reuse
	Business issues	Technology issues		Business value		
	- Time to market - IT alignment - Process management	- Critical needs - Important issues - Strategic issues		- Strategic alignment - Compliance - Financial contribution - Competitive position		

Architecture assessment overview

	Assessment planning	Assessment	Analysis & Reporting
Input	– Stakeholder requirements – Assessment scope – Constraints – Assumptions	– Initial list of stakeholder requirements & NFRs – SOW – Architectural description – Reference architecture / models	– Feedback from assessment team – Preliminary findings – Initial recommendations – High level action plan
Activity	– Identify stakeholders – Identify assessment objectives & scope – Prepare assessment plan / SOW – Presentation / feedback / approval	– Identify and describe requirements & NFRs – Prioritize, trade-off – Identify architectural descriptions – Analysis	– Summarize findings & review with architecture teams – Present assessment report & recommendations
Output	– Approved SOW – Assessment plan – Deliverables list	– Architectural descriptions – Prioritized list of requirements – Preliminary findings	– Assessment report & findings – Recommendations – Action plan

Case study background

Business scenario

A large Inc. in BFSI segment is undertaking a business transformational initiative towards implementing a new Loan Consolidation Platform (LCP) that can scale and match the enterprise growth ambitions. The LCP needs to cater to a future business environment where the focus will be on:

– Facilitating increased operational efficiency through consolidation of operations

– Facilitating increased operational flexibility to be able to react to market and operational changes

– Accommodating the needs of a larger, extended and less skilled workforce as compared to the current workforce

– Transitioning loan consolidation operations to adopt a greater sales orientation

Approach:

– Engage the business partners early in the development cycle; allowing them to provide feedback and calibrate the development

– Create layered functionally coherent end-user stories, allowing for a more meaningful development cycle

– This development methodology merge easily into the deployment sequence. This would be useful risk mitigation strategy against any unforeseen delays or major change in requirements

– Prior know how of the system has been translated into a functional inventory covering ‘under-the-hood’ functionality needed to be implemented in the system.

High level definition of the releases:

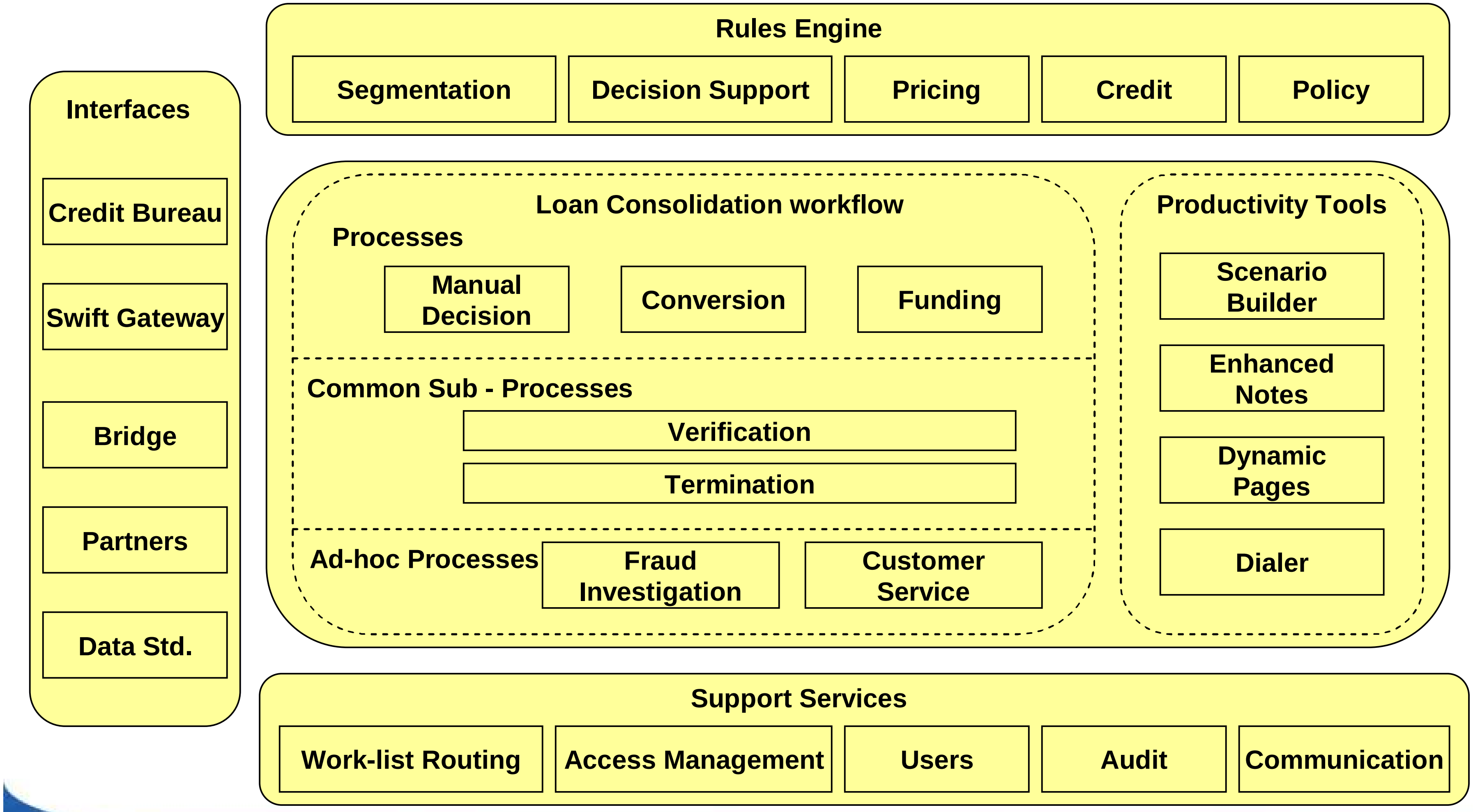
R1: Aims at moving embedded functionality related to pricing, credit policy, segmentation and stipulations from existing LCP systems into the Business Rules Engine.

R2: Aims at realizing the functional flow to support manual decision/flow-down review, conversion, verification, funding, fraud investigation and termination. At a high level, this release will involve the implementation of the aforementioned functionality using a BPM suite and creation of a Common Data Model (CDM). It also involves the decommissioning of the existing loan consolidation systems.

The LCP initiative is set in the backdrop of the business decision to build scale by consolidating operations into single location operations. In effect, there is an expedited need to decommission the X system that currently supports a specific geo. operations. The LCP program has decided to implement the R2 functionality related to the Direct Line of Business (LOB) before taking up the functionality related to the Indirect LOB.

Business scenario (contd.)

Predominantly, LCP R2 intends to build the workflow to support the loan origination process from manual decision making to Boarding. The following diagram provides a deconstructed view of the functionality, which needs to be implemented as a part of LCP R2 Direct LOB.



Interfaces

- Credit Bureau
- Swift Gateway
- Bridge
- Partners
- Data Std.

Rules Engine

- Segmentation
- Decision Support
- Pricing
- Credit
- Policy

Loan Consolidation workflow

Processes

- Manual Decision
- Conversion
- Funding

Common Sub - Processes

- Verification
- Termination

Ad-hoc Processes

- Fraud Investigation
- Customer Service

Productivity Tools

- Scenario Builder
- Enhanced Notes
- Dynamic Pages
- Dialer

Support Services

- Work-list Routing
- Access Management
- Users
- Audit
- Communication

Architectural observations

Currently in the enterprise, loan consolidation process exists in 3 platforms – X, X1 and X2. LCP conceived as the single consolidated next generation system for loan consolidation replacing the existing heterogonous platforms. The endeavor is to build the new system from ground up predominantly using best-of-breed COTS packages.

The architecture should be highly stable where changes to components should not change the infrastructure definition; rather it should enhance the capabilities available. The CLP architecture should also comply with the following architectural requirements.

Requirement	Description
Services based	– SOA will be a predominant guiding principle while accomplishing the LCP architecture
COTS based	– It should employ best-of-breed commercially available off the shelf products/components
Application Integration	– The ability to integrate with existing applications and provide a standards based framework for integrating with new applications
Reliability, Scalability & Availability	– Provide a Web-based solution that is reliable, scalable and available.
Best Practices Industry Standards	– Comply with best practices and industry based standards for building J2EE/.Net applications.
Performance	– The performance of the system should satisfy or exceed the expectation.
Reusability	– The architecture should attempt to re-use frameworks, components and patterns from existing applications and allow for future reuse across different projects.

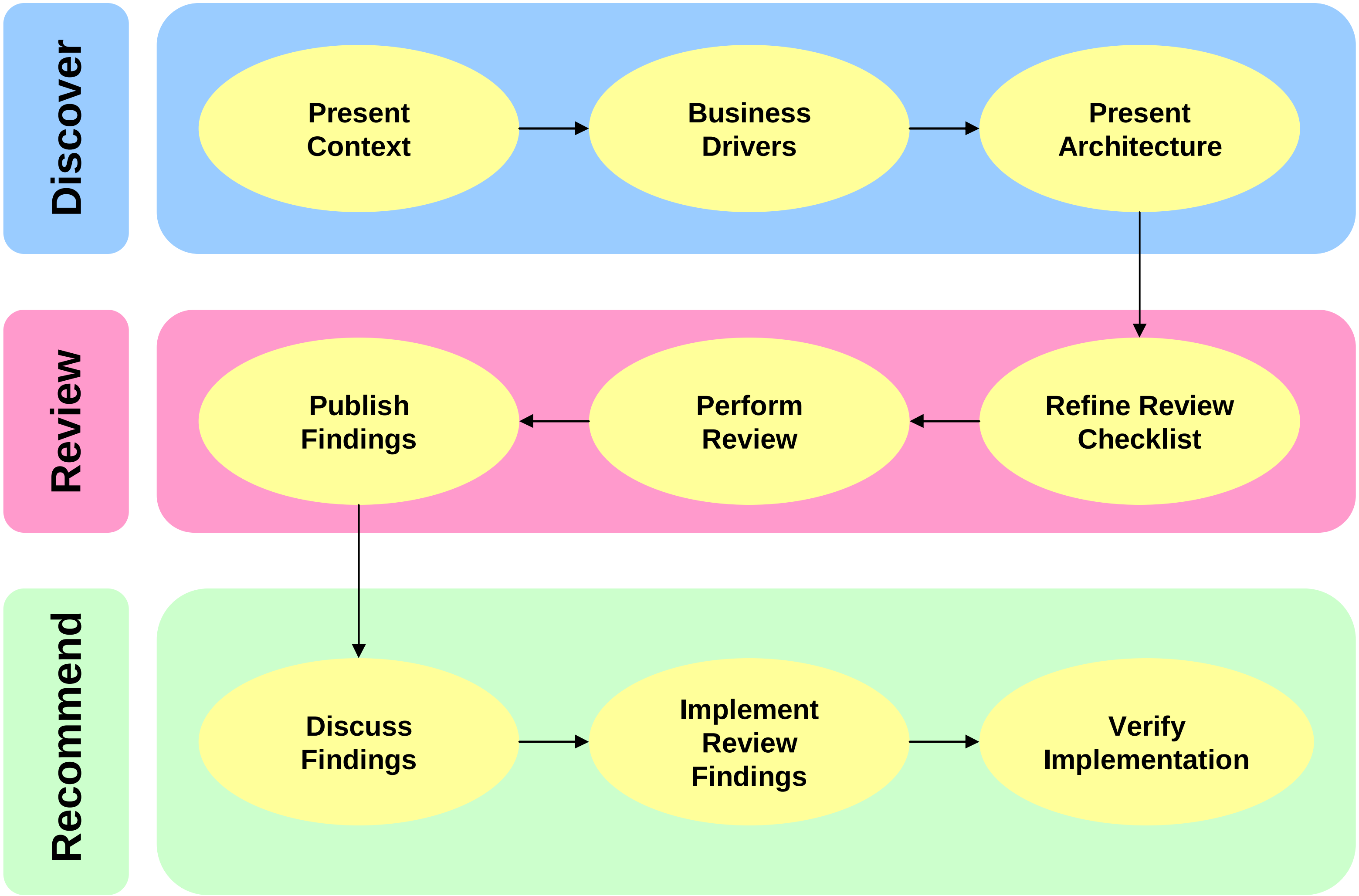
Methodology

Architecture review process

Transition strategy

Toolset examples

Architecture review process



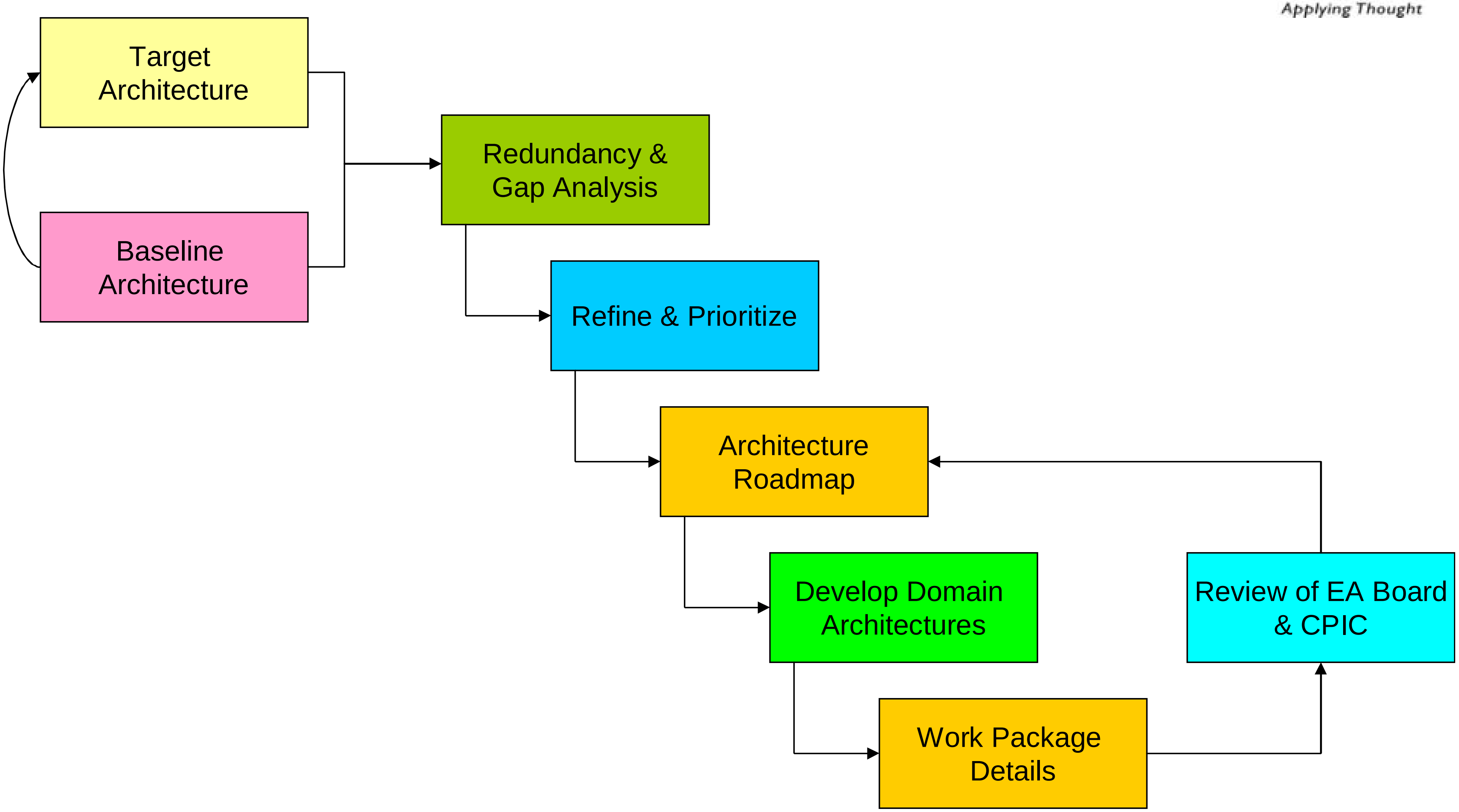
Architecture review team composition

Role	Contribution
Review Lead	Leads the review team. Actively participates in the review process. He/she consolidates the inputs from the review team members during all phases of the process.
Review Team Member	Review team members are normally experts in certain area/technology that is used in the architecture in the scope of review. He/She provides the necessary expertise required for reviewing these specialist areas.
Project Manager	PM anchors the whole review process. Arranges the necessary logistics and co-ordinates the team required for the review. Project manager presents the system context to the review team.
Business Analyst	Presents the business context and business drivers as defined in the process. He/She helps the review team through the process to answer any queries related to requirements and system functionality.
Domain Architects	Architect acts as the single point of contact through the review process. Architect presents the architecture decisions, quality attribute requirements, architecture views and thought process behind the architecture.

Review Findings Document

This document consolidates the observations of the review team members. Format of this document is modeled after a Architecture Review Checklist. Additionally review report shall be maintained to track all review findings to closure.

Transition strategy



[Source: Adapted from FEA Practice Guidance]

Toolset: Architecture Maturity

Maturity Levels

Level	Name
5	Measured
4	Managed
3	Defined
2	Under Developed
1	Initial
0	None

EA elements

Element #	Description
1	Architecture Process
2	Architecture Development
3	Business Linkage
4	Senior Management Involvement
5	Operating Unit Participation
6	Architecture Communication
7	IT Security
8	Governance
9	IT Investment & Acquisition Strategy

[Source: US DoC EACMM]

Toolset: Business Alignment Matrix

Business

	Description	**Analysis**			**Business Service Mapping**
		Business Problem	Gaps	Opportunities	
Current State					
Target State					

IT

		Principles	**Inventory**	**Model**	**Cost**
Identified Business Service	Data				
	Application				
	Technology				

Analysis:

– Collection of formal or published, easily available, commonly shared and understood views of stakeholders about the organization.

– Artifacts from architecture repository.

– Involvement of domain architecture teams.

Toolset: Balanced Scorecard

Architecturally Significant Requirement	Stakeholder	Area		Objectives	Measurement	Target	Initiatives
		Financial Perspective	Cash flow				
			ROI				
			Financial contributions				
		Customer Perspective	Value proposition				
			Time				
			Quality				
		Internal Process Perspective	Activities				
			Opportunities				
			Effectiveness				
		Innovation & Learning Perspective	People				
			KM				
			Organization structure				

[Source: Adapted from Kaplan R S and Norton D P - Balanced Scorecard]

Toolset: Software Quality Metrics

Metric Methodology Step	**Output**
Establish software quality requirements	- Quality requirements
Identify software quality metrics	- Approved quality metrics framework - Metrics set - Cost benefit analysis
Implement software quality metrics	- Description of data items - Metrics / data item - Traceability matrix - Training plan and schedule
Analyzing software quality metrics results	- Organization & development process changes
Validate software quality metrics	- Validation results

[Source: IEEE Std. reference]

Thank You

Akash Banerjee

Senior Consultant

akash.banerjee@wipro.com