Architecting for Agility

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Bill is the founder and President of Metaplexity Associates, Inc. a training and consulting firm that focuses on Enterprise Architecture and Information Management. He has worked with The Open Group since 1995 and has served as chairman of the Architecture forum. He is currently the chairman of the Certification Standing Committee of the Architecture Forum.

He has been a member of the Society of Manufacturing Engineers, serving as the chairman of the Computers and Automated Systems Association and the Technical Community Network. He was the Program Manager of the Enhanced Product Realization Testbed, a collaborative engineering research project focused on agile product development techniques.

He has created a new course entitled "Architecting the Agile Enterprise" which examines this subject in detail.

Architecting the Agile Enterprise
A new course from Metaplexity Associates

The course provides the following learning outcomes:

• apply concepts from Enterprise Architecture, Agile Development, Lean Enterprise to build effective capabilities and solutions that meet enterprise requirements, align with business strategies

• demonstrate Enterprise Architecture skills that can be used to guide the developments of systems that are properly aligned with company strategies and business portfolios

• utilize agile development techniques to increase the velocity of development

• employ DevOps techniques to improve the communications and feedback
between strategists, analysts, architects, developers, testers, and operations personnel.

• implement controls to ensure appropriate compliance to architecture standards, legal and regulatory requirements when needed.

• develop effective organization, structures and processes for governing their enterprise architecture, development, testing and operations
activities.

To find out current course information, visit www.metaplexity.com/agile-enterprise

Upcoming Offerings in 2017
Dec 11 – 13 New York

Private courses can be arranged on request.
To get more information about the specific courses and to register, visit:
www.metaplexity.com/course-schedule

Use Promo Code **MACC2017** on the registration form for a 15% Discount any of these courses.

Agenda

Modern Problems

Digital Transformation

Traditional Approaches are Dead

Being Agile

Being Lean

Architecting for Agility

Modern Problems

Enterprise Qualities

SCALEABLE

PROFITABLE

SUCCESSFUL

ETHICAL

LARGE

AGILE

STABLE

INNOVATIVE

QUALITY

FOCUSED

RESPONSIBLE

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What are the barriers to being Agile?

Legacy organization structures and processes

Sequential development methods

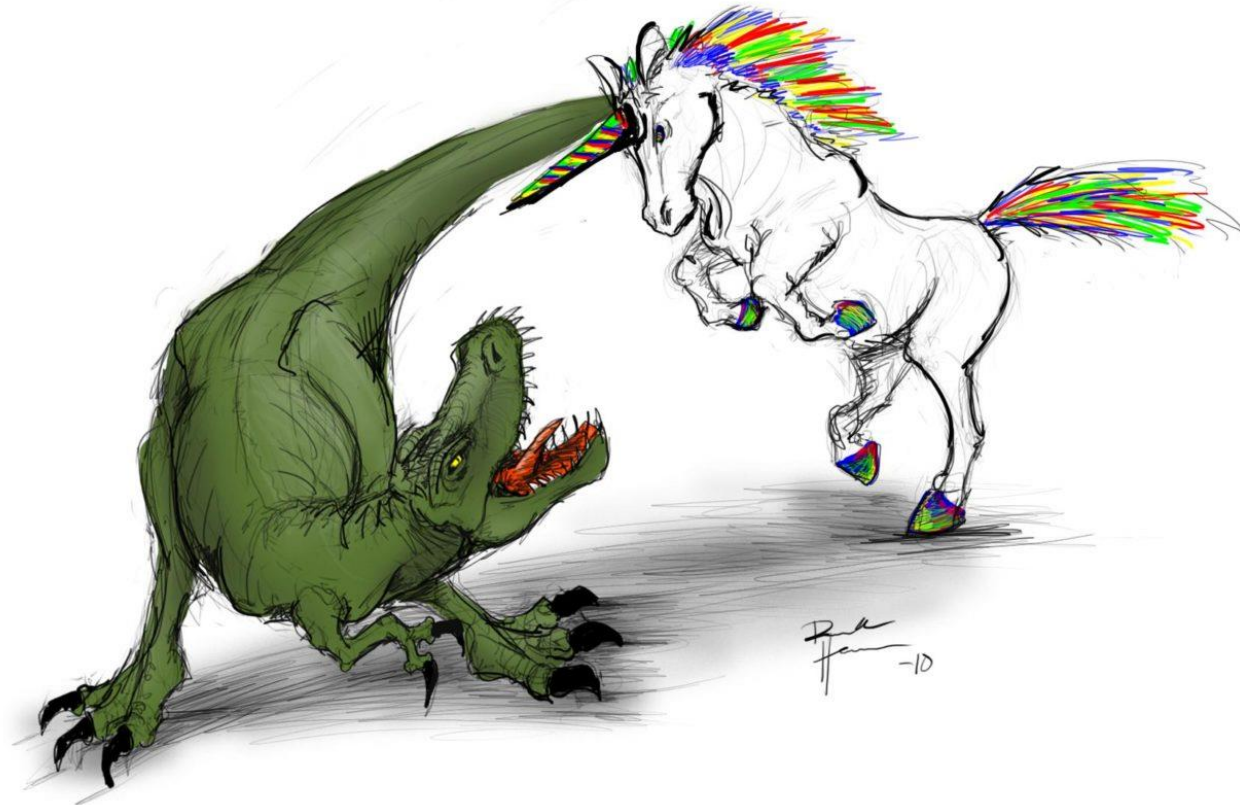Governance too rigid

Financial planning

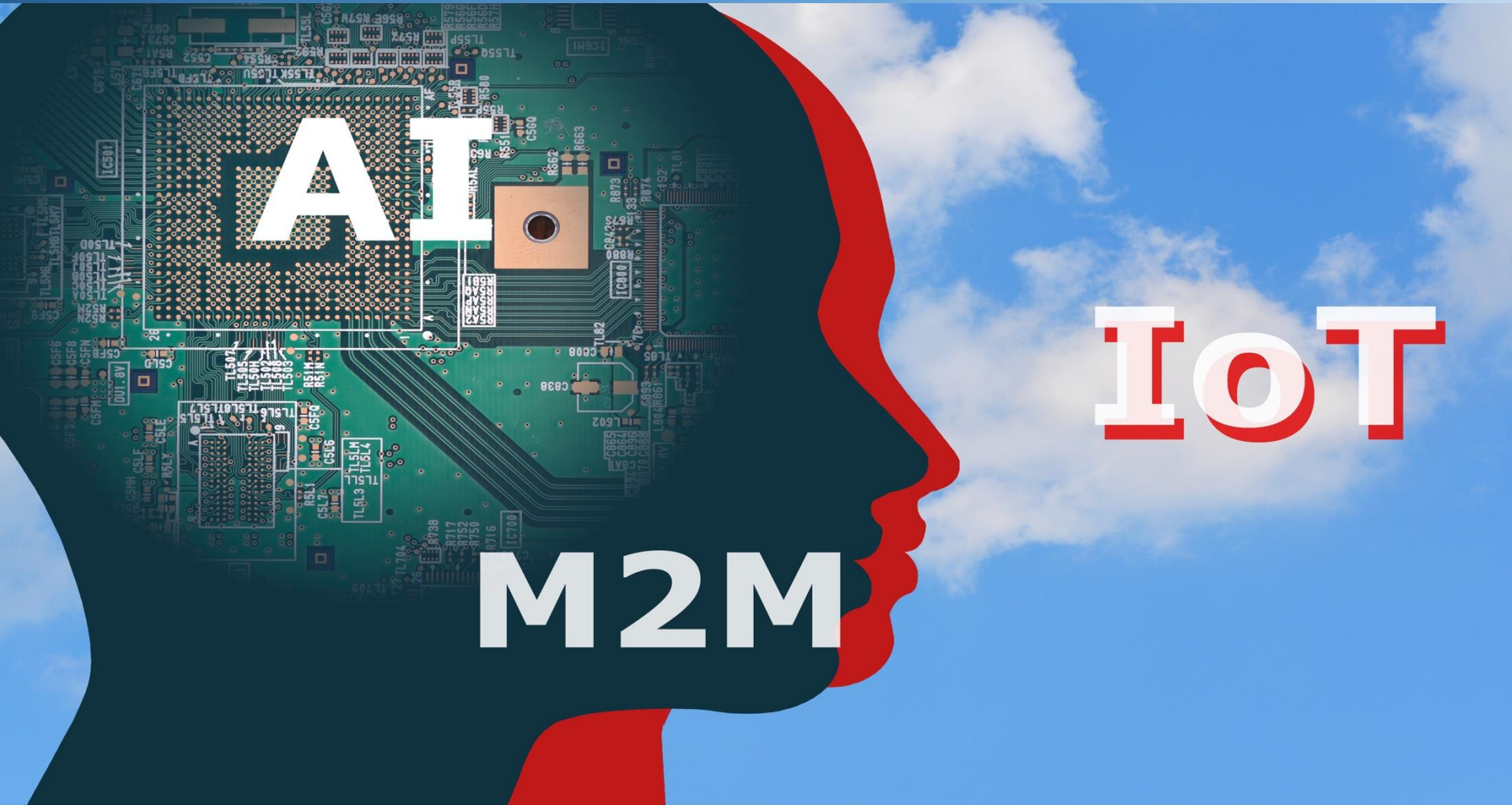Culture

Politics

TIME IS OF THE ESSENCE

ARE SILOS AND WATERFALLS ALWAYS EVIL?

Dinosaurs and Unicorns

Machines

Platforms

Crowds

Digital Transformation

Machine	Platform	Crowd
Machine Learning/AI Automation/IoT Increasing power Lower cost	Innovative Unburdened Disruptive	Leveraging knowledge Powered by enthusiasm Collective action

Source: McAfee, A., Brynjolfsson, E. Machine, Platform Crowd: Harnessing our Digital Future. (2017).

Traditional IT Approaches are Dead

Being Agile

What is Agile?

The… 'relay race' approach to product development…may conflict with the goals of maximum speed and flexibility.

Instead a holistic or'rugby'approach—where a team tries to go the distance as a unit, passing the ball back and forth—may better serve today's competitive requirements."

Source: Takeuchi, H. ,Nonaka, I.. (1986), "The New New Product Development Game", *Harvard Business R*

Agile Values

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Agile Principles

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

4. Business people and developers must work together daily throughout the project.

5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

7. Working software is the primary measure of progress.

8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

9. Continuous attention to technical excellence and good design enhances agility.

10. Simplicity--the art of maximizing the amount of work not done--is essential.

11. The best architectures, requirements, and designs emerge from self-organizing teams.

12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Scrum

What is a Scrum?

A Scrum is an agile process that focuses on maximum business value in the shortest time.

It has short iterations (sprints) that enable rapid development and inspection.

The business sets the product priorities.

Teams self-organize to determine the best way to deliver the prioritized features.

After brief predictable intervals, the product is available for inspection and the team can decide to release it -- as is -- or continue to enhance it for another sprint.

Agile Software Development Roles

Primary Roles

- Product Owner
- Scrum Master
- Development Team
- Stakeholders
- Agile Coach

Supporting Roles

- Project Lead
- Architects
- Technical Experts
- Testers
- Etc.

Agile Software Development Ceremonies

- Project Kickoff

- Backlog Grooming

- Sprint Planning

- Daily Scrum meeting/Standup

- Sprint/Iteration Review

- Sprint Retrospective

Being Lean

- The Lean Principles were originally invented by Henry Ford and made famous as the Toyota Production System

- They came from manufacturing, but apply to service organizations too

- The goal is to improve profitability by eliminating waste

- It is commonly used in manufacturing, but Lean is not just for manufacturing, it applies to knowledge work of all types, too

- Many of the goals are similar to the goals of enterprise architecture

Lean Principles

- Identify Value

- Map the Value Stream

- Create Process Flow

- Establish Pull

- Seek Perfection

Three Types of Waste

無駄
M#

斑
Mura

無理
Muri

Trivial Activity

Unevenness/Inconsistency

Absurd complex activity

7 Wastes

Defects

Overproduction

Conveyance

Waiting

Inventory

Motion

Overprocessing

Other Wastes

Latent Skill

Danger

Poor Information

Material

Breakdown

Lean Techniques

ポカヨケ Poka-Yoke	改善 Kaizen	看板 Kanban
Avoiding Errors	Continuous Improvement	Billboard

Lean Software Principles

Eliminate waste

Amplify learning

Decide as late as possible

Deliver as fast as possible

Empower the team

Build integrity in

See the whole

Source: Lean Software Development: An Agile Toolkit. (2003). Poppendieck, M., Poppendieck, T
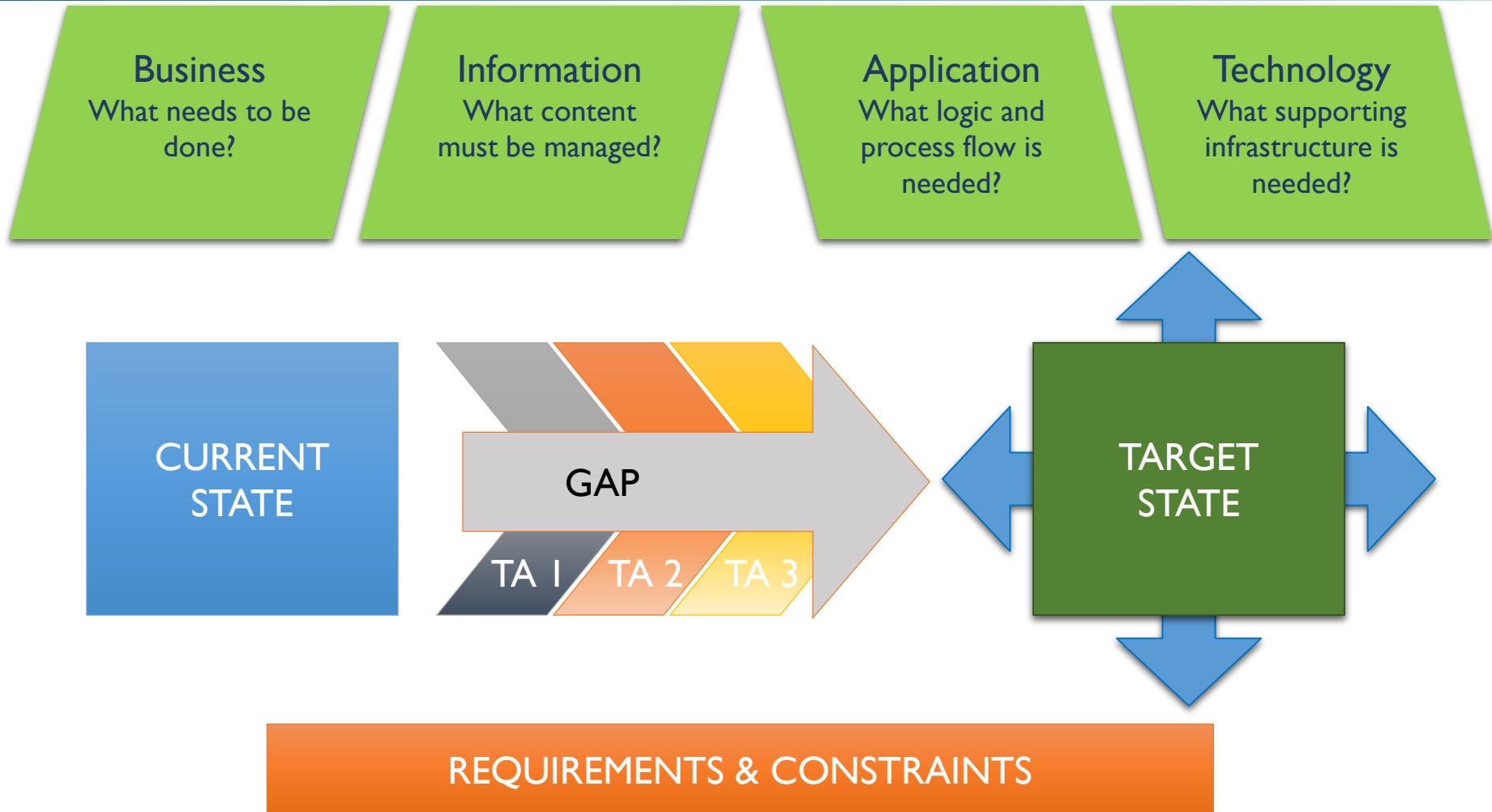
The TOGAF®
Architecture Development Method

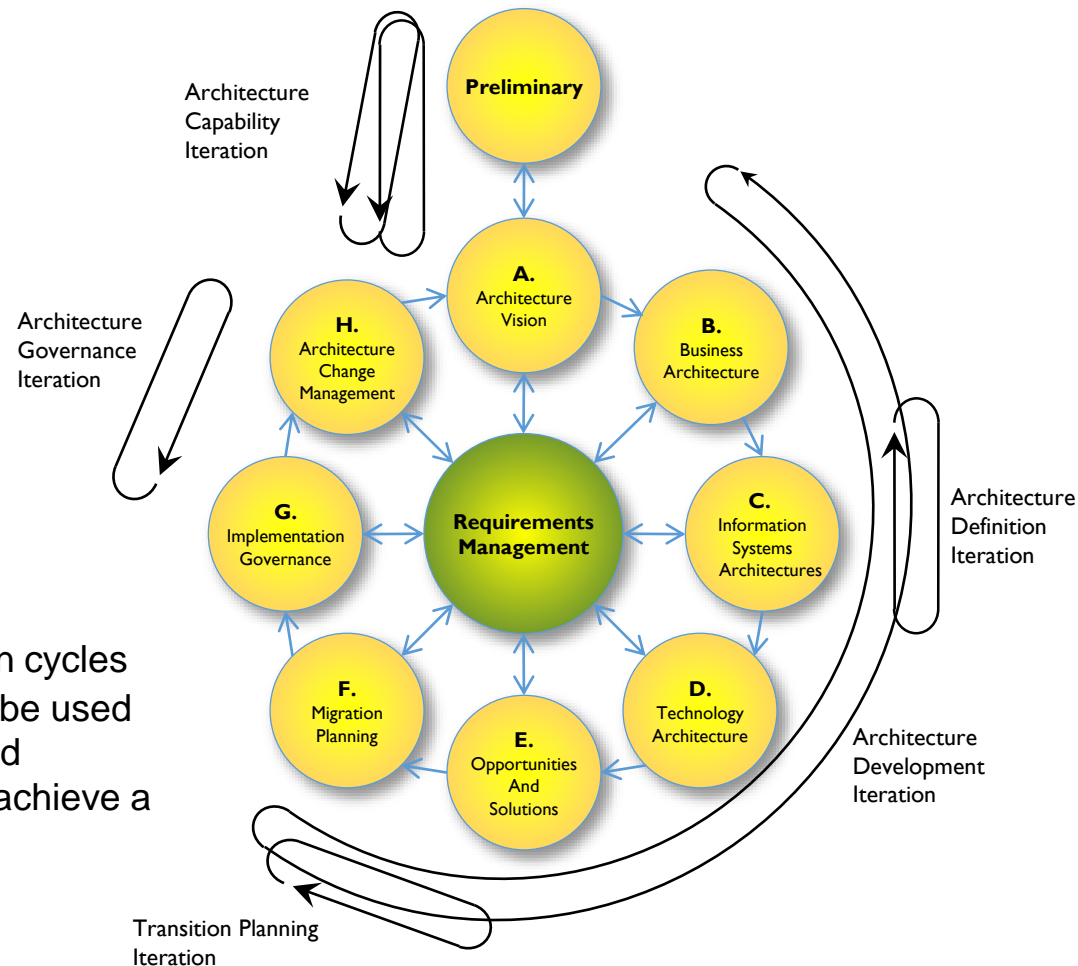The ADM provides a rigorous method that can be used to perform architecture activities.

It is intended to be adapted to meet the needs of the organization.
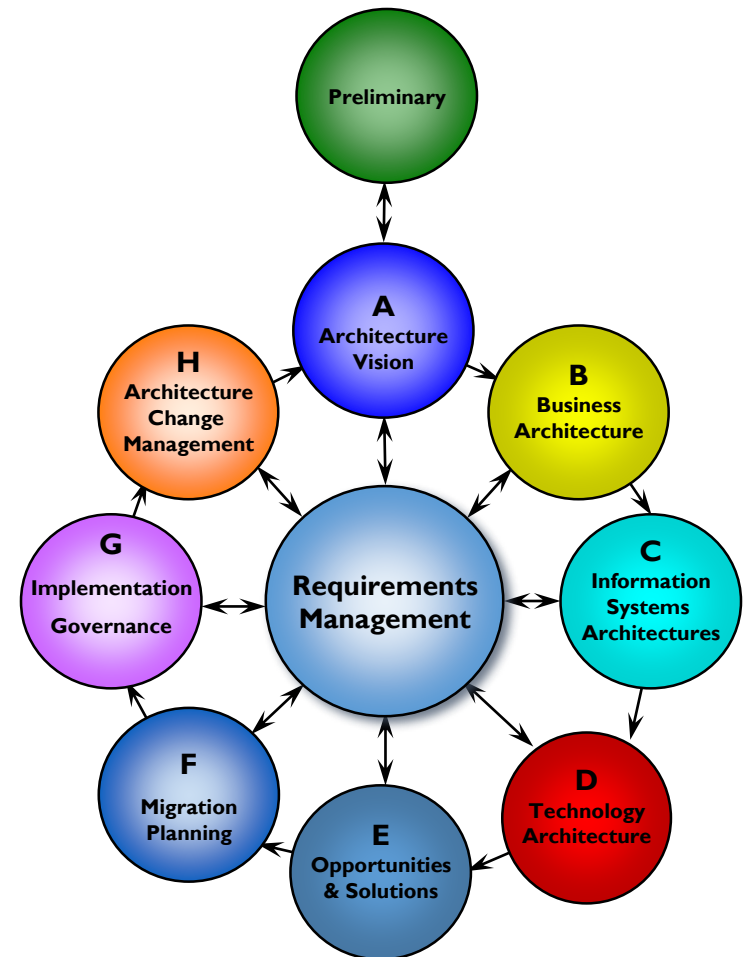
The TOGAF approach to Enterprise Architecture

Business
What needs to be done?

Information
What content must be managed?

Application
What logic and process flow is needed?

Technology
What supporting infrastructure is needed?

CURRENT STATE

GAP

TA 1 | TA 2 | TA 3

TARGET STATE

REQUIREMENTS & CONSTRAINTS

ADM Iteration Cycles

Architecture
Capability
Iteration

Preliminary

A.
Architecture
Vision

H.
Architecture
Change
Management

B.
Business
Architecture

Architecture
Governance
Iteration

G.
Implementation
Governance

Requirements
Management

C.
Information
Systems
Architectures

Architecture
Definition
Iteration

F.
Migration
Planning

E.
Opportunities
And
Solutions

D.
Technology
Architecture

Architecture
Development
Iteration

Transition Planning
Iteration

These suggested iteration cycles for the TOGAF ADM can be used to effectively group related architectural activities to achieve a specific purpose.

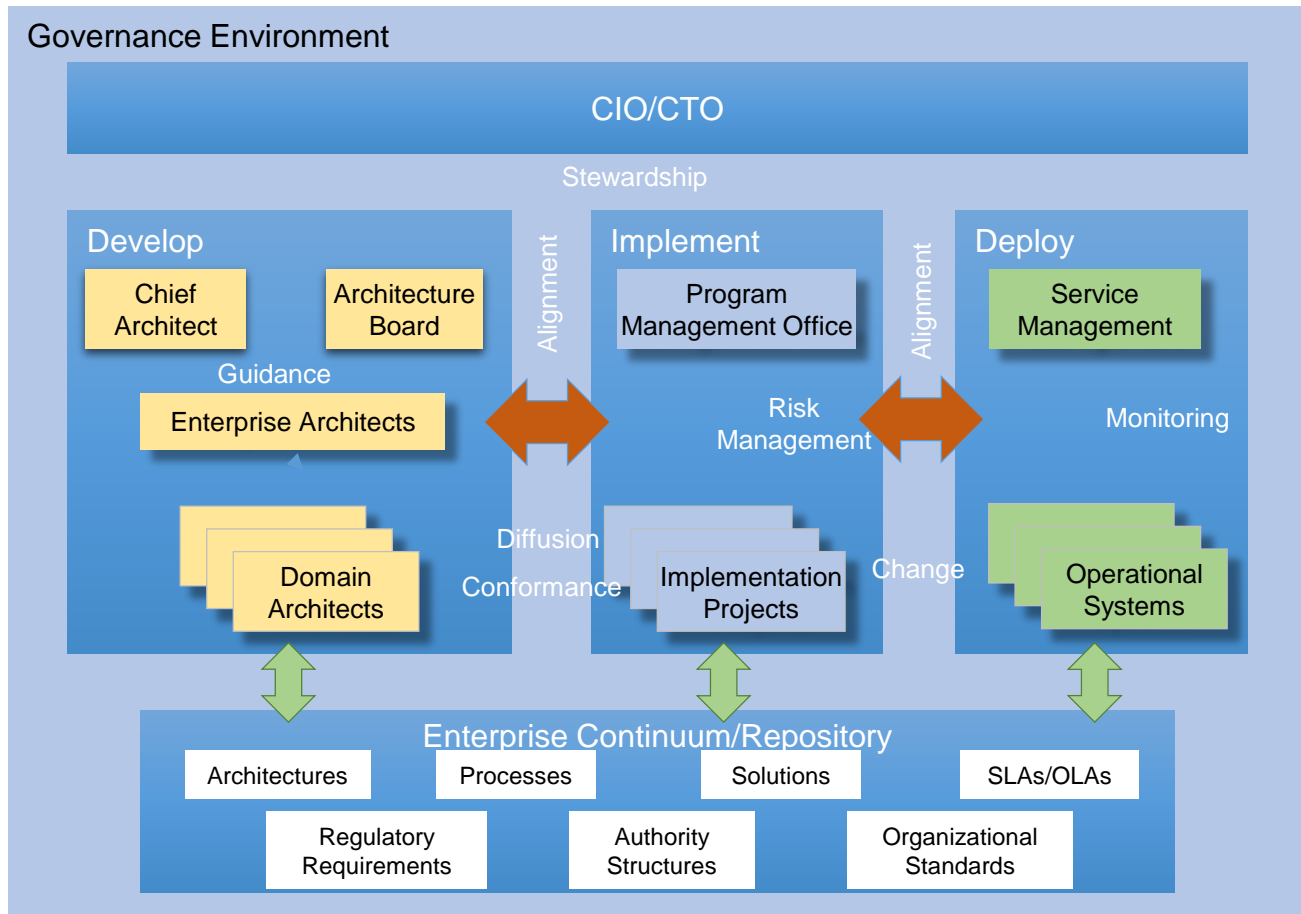# Enterprise Levels and Partitions

Strategic

Segment

Capability

Architecture Governance

TOUCHPOINTS

Applying Lean concepts to Enterprise Architecture

The goals of Lean and Enterprise Architecture are similar and complimentary:

- Improve revenue
- Avoid costs
- Improve service to the customer

Applying Lean concepts to Enterprise Architecture

Muda Avoiding waste

- Minimizing unnecessary technical diversity
- Avoiding unnecessary costs
- Encouraging reuse

無駄

Applying Lean concepts to Enterprise Architecture

Mura - Avoiding inconsistency
- – Defining effective standards
- – Working to assure compliance
- – Evolving the standards to keep pace

斑

Applying Lean concepts
to Enterprise Architecture

Muri - Knowing what is possible

- – Technology monitoring
- – Business monitoring
- – Knowledge of the organization

無理

Scaling Agile

Scaled Agile Framework (SAFe)

SAFe is a programming knowledge base that aims to enable to apply lean-agile practices at enterprise scale

It is a framework designed by Scaled Agile, Inc. out of Boulder, Colo. to allow large organizations to move toward a more agile way of working.

- By large we mean more than a thousand people in IT, and more than 250 in software development, though it can be just as effective for teams of 50–100 people

Scaled Agile Framework (SAFe)
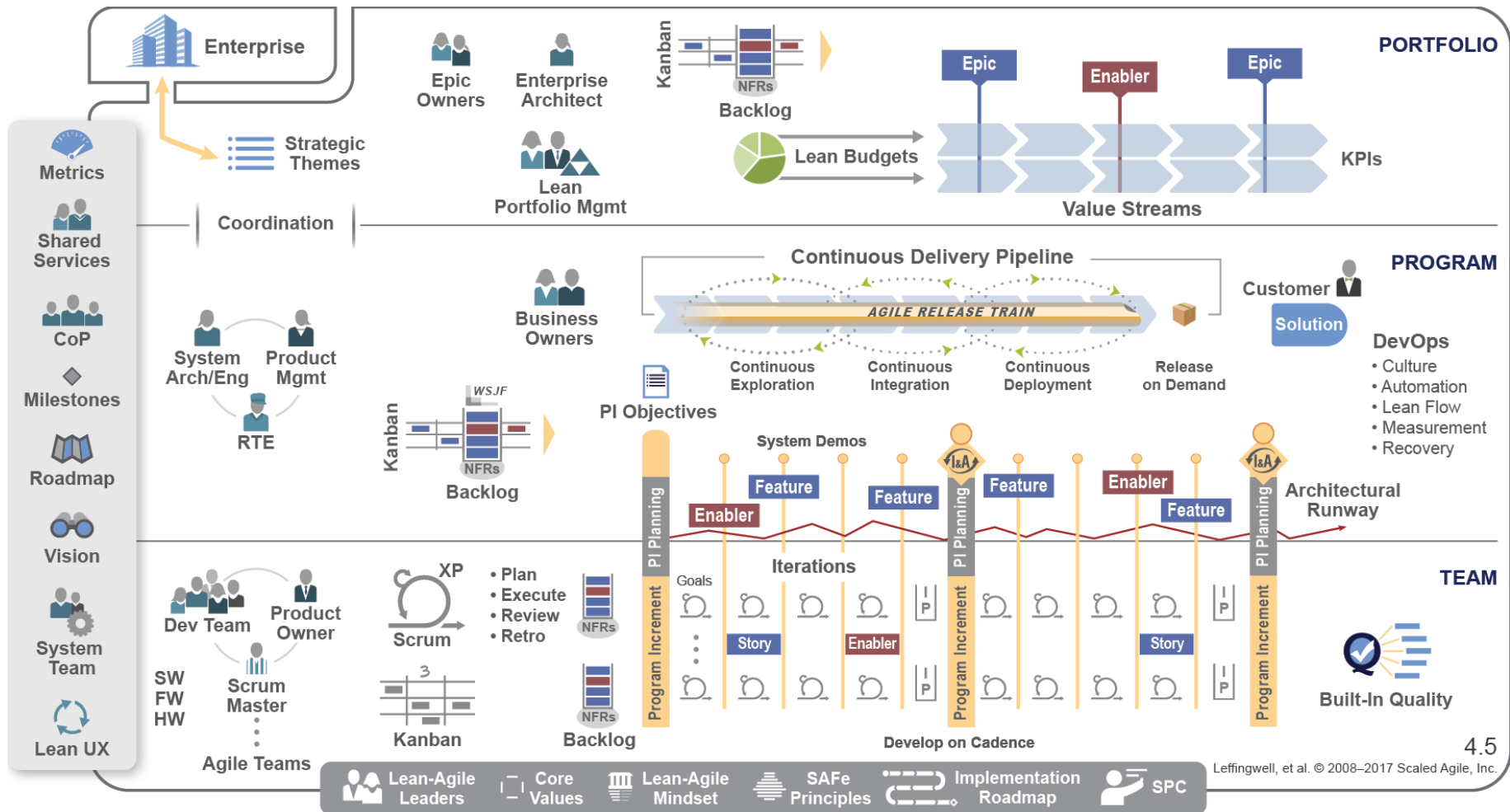
Disciplined Agile

Large Team(s)

Geographically Distributed

Regulatory Compliance

Describes a flexible, context-sensitive approach to the IT process
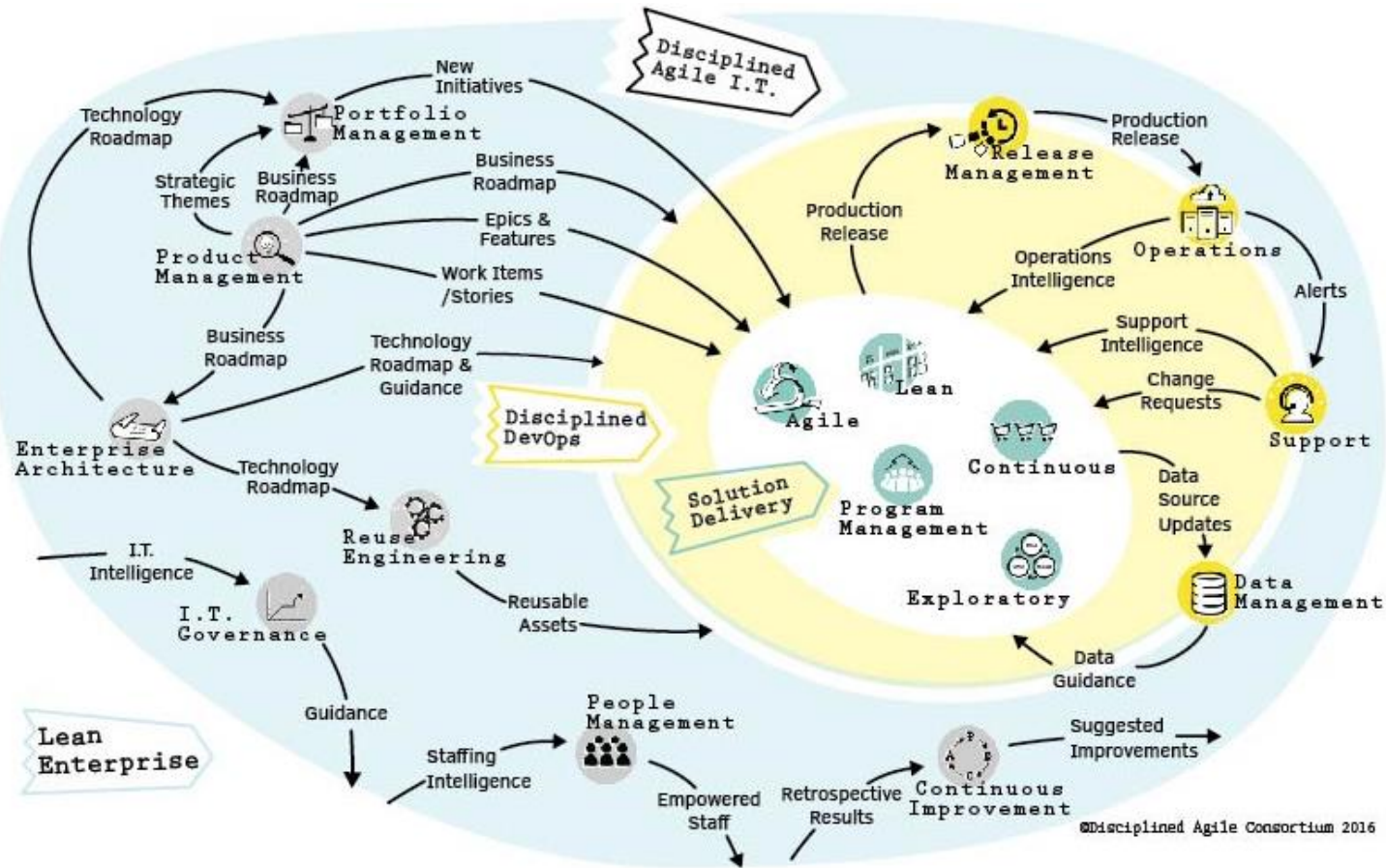
Enterprise Discipline

Disciplined Agile

Disciplined Agile is a process decision framework that is:

- People-first
- Learning oriented
- Agile
- Hybrid
- IT Solution focused
- Goal-driven
- Delivery focused
- Enterprise Aware
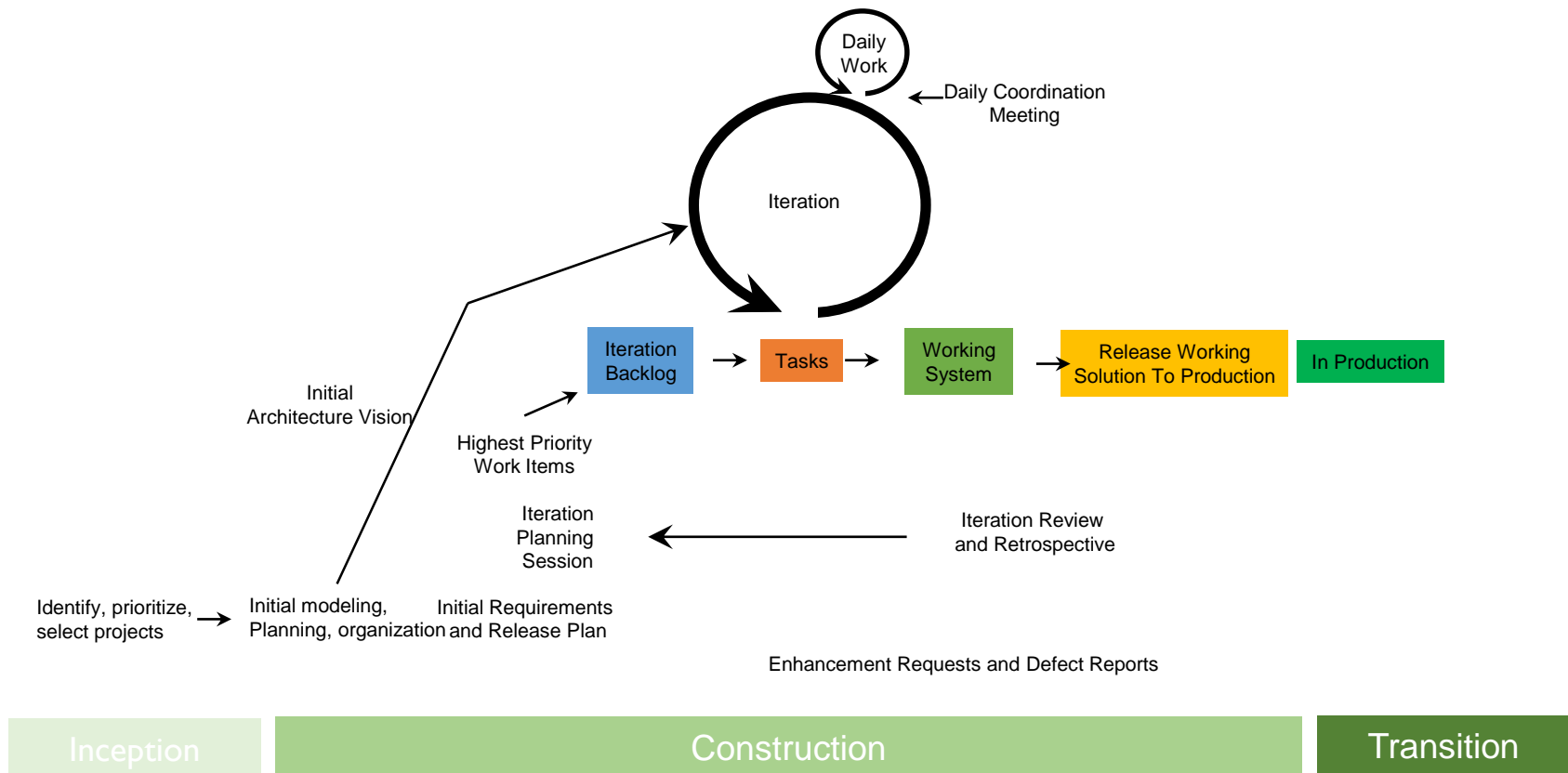- Risk and value driven
- Scalable

Source: <u>Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise</u>. Ambler, S.W., Lines, M..

Disciplined Agile

Source: Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise. Ambler, S.W., Lines, M...
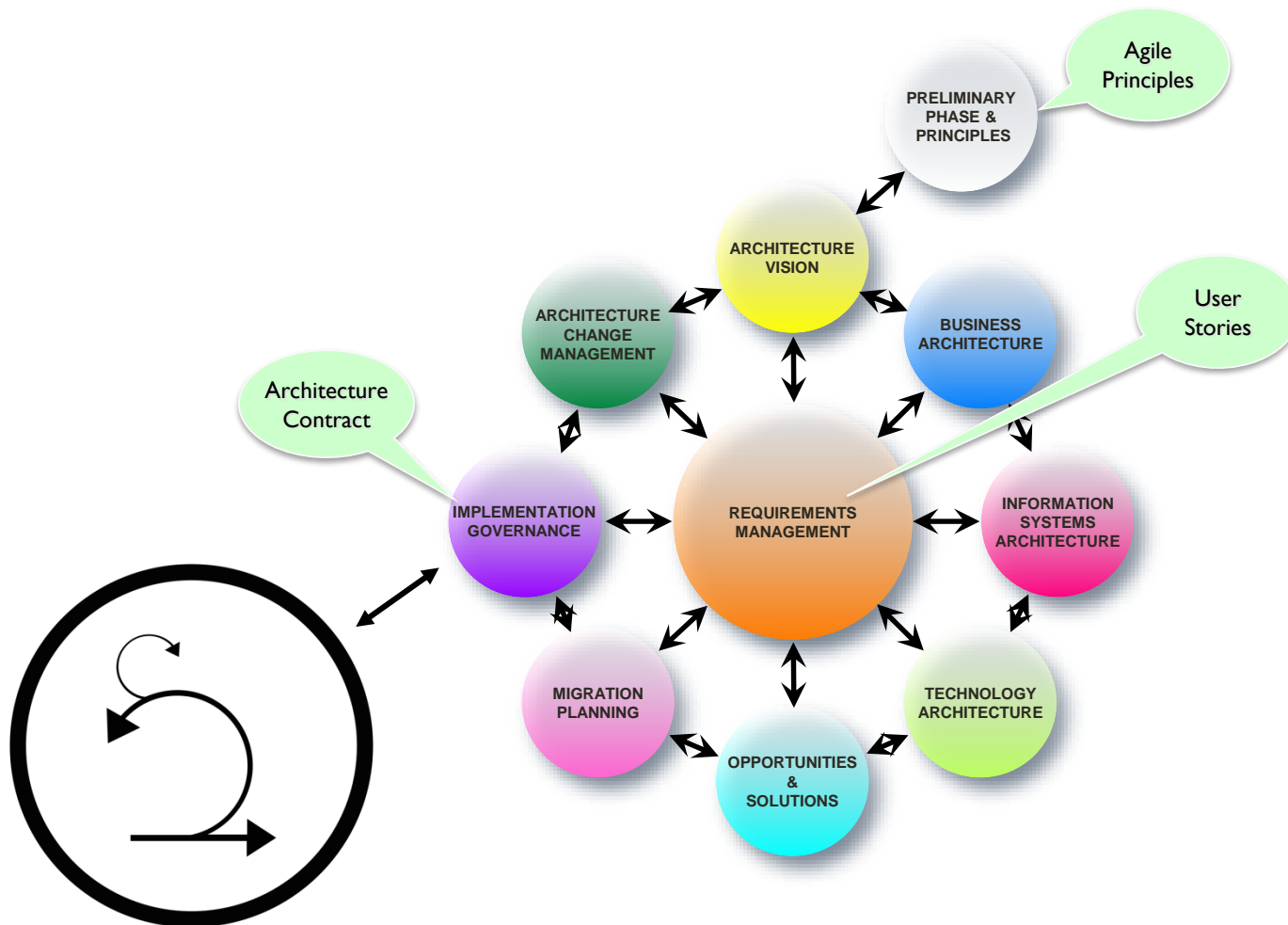
Disciplined Agile Lifecycle

Source: Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise. Ambler, S.W., Lines, M..
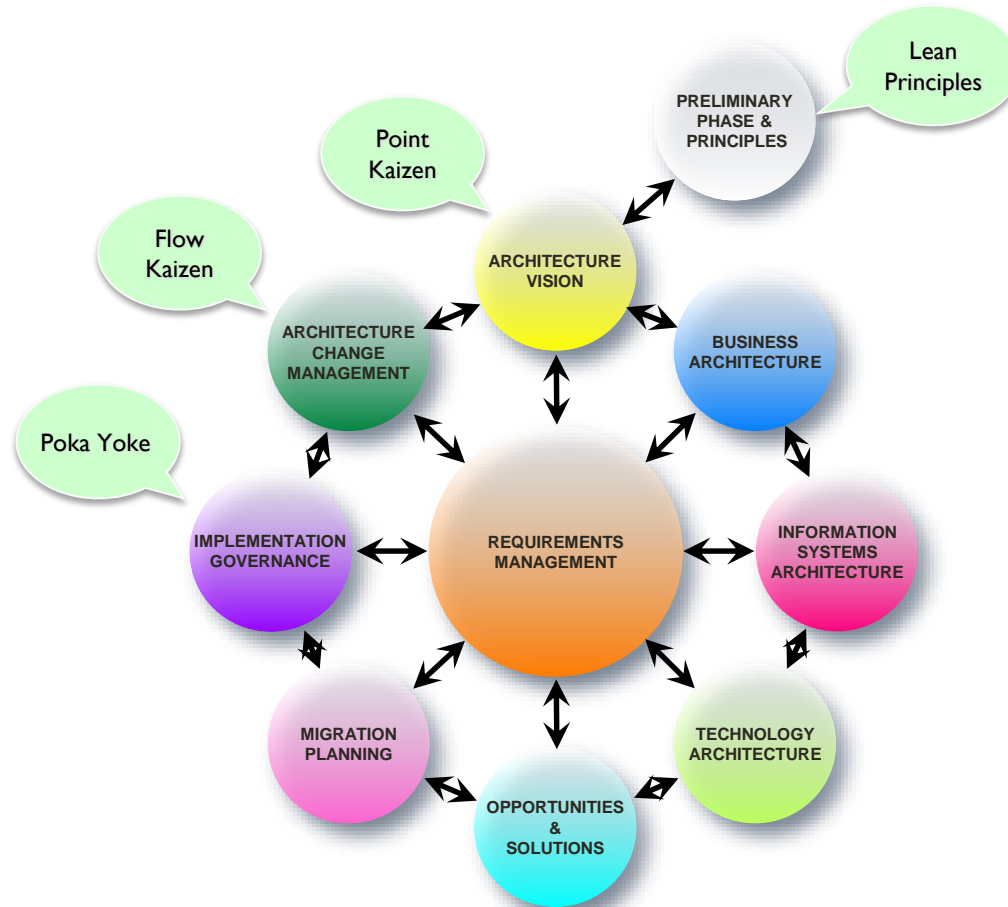
Agile and Lean Enterprise
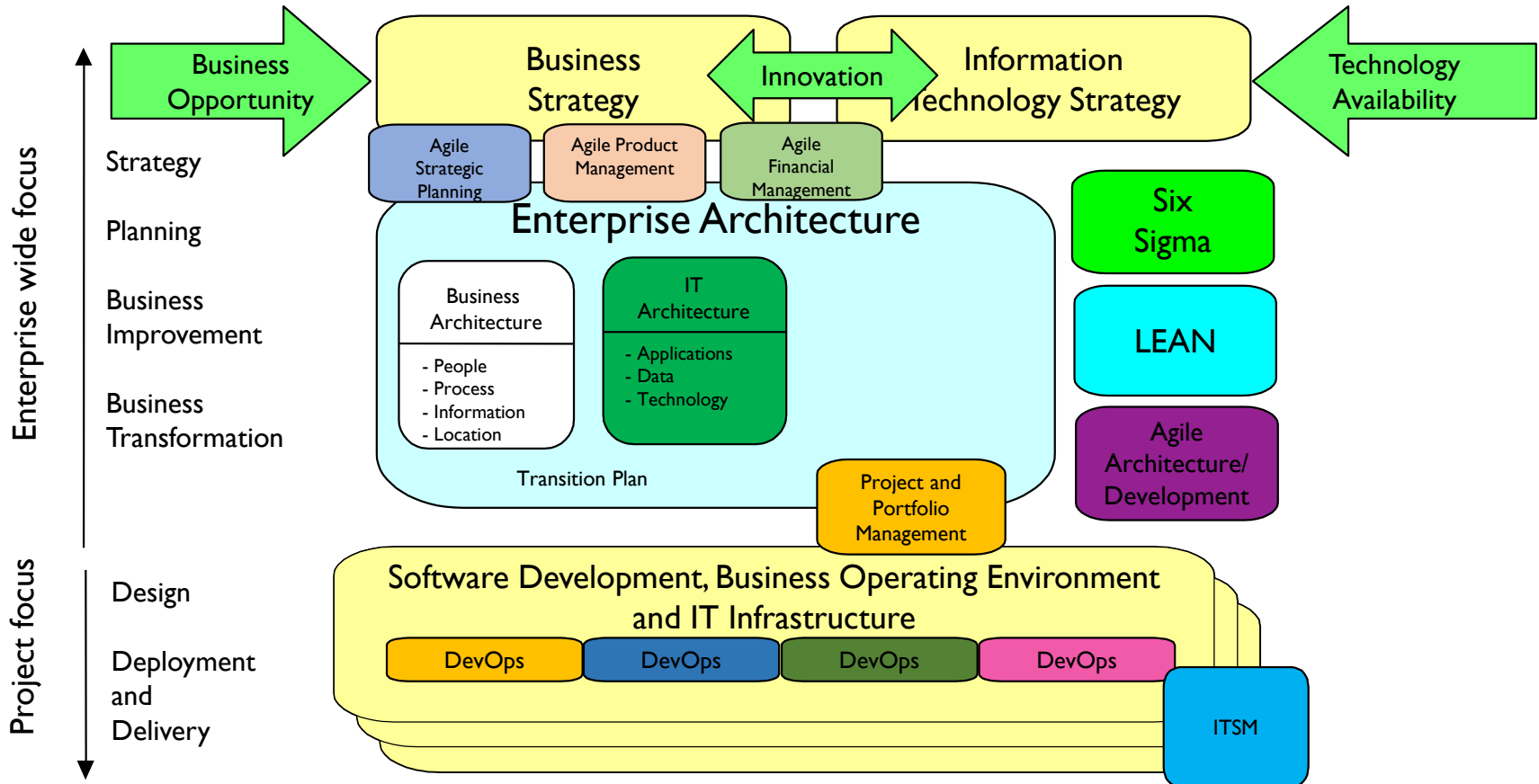
Mapping Agile & EA
(based on TOGAF® 9)

Mapping Lean & EA
(based on TOGAF® 9)

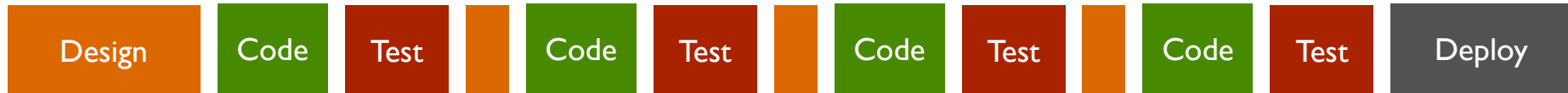# Improving Enterprise Agility with Architecture and DevOps

Architecture → Development → Operations

Improving Enterprise Agility with Architecture and DevOps

Waterfall

Design	Code	Test	Deploy

Agile

| Design | Code | Test | Code | Test | Code | Test | Code | Test | Deploy |

DevOps

| Design |

Improving Enterprise Agility with Architecture and DevOps

| Plan | Code | Build | Test | Release | Deploy | Operate |

Agile Development

Continuous Integration

Continuous Delivery

Continous Deployment

Continuous Operations

https://www.linkedin.com/pulse/dynamics-devops-adoption-dr-pallab-saha
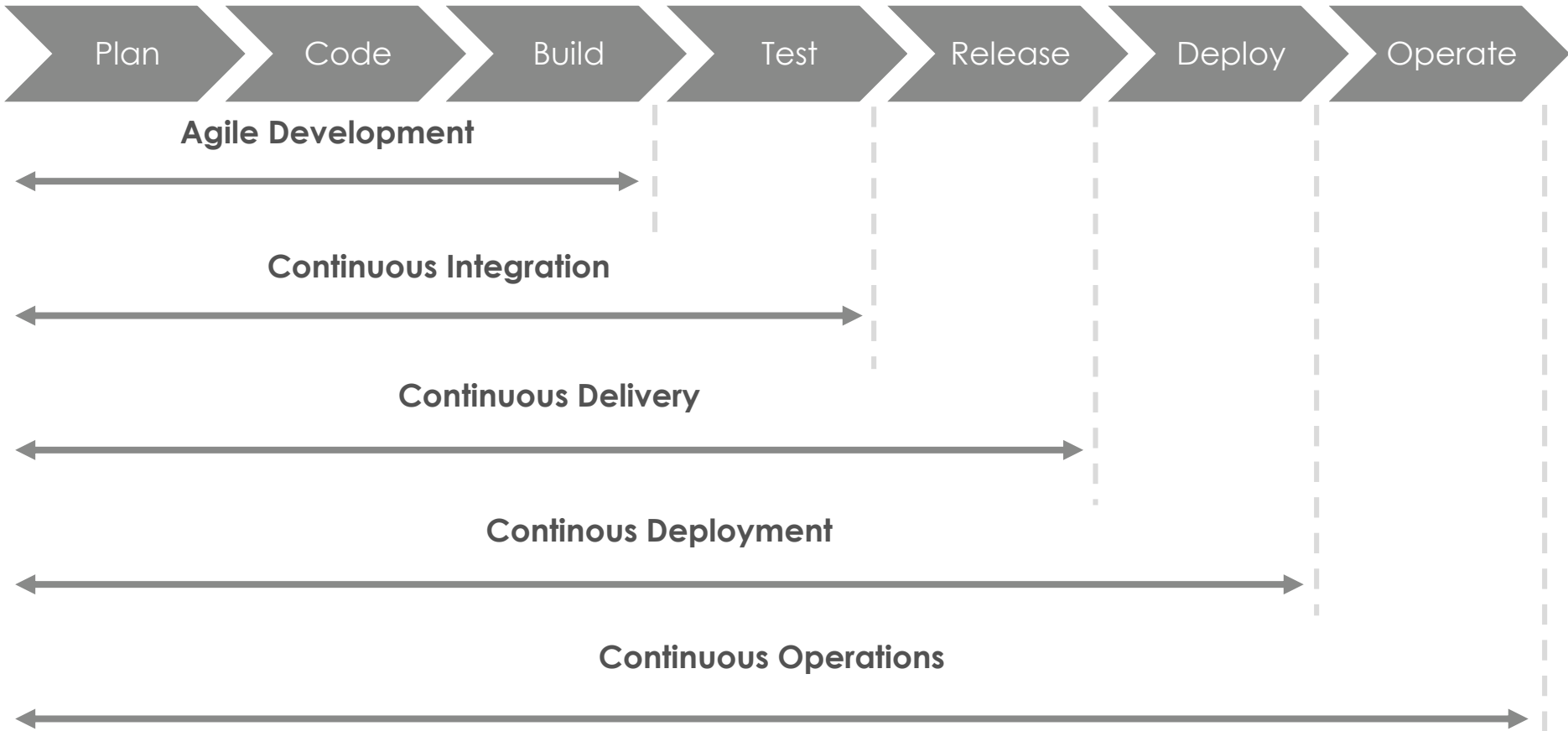
ArchDevOps
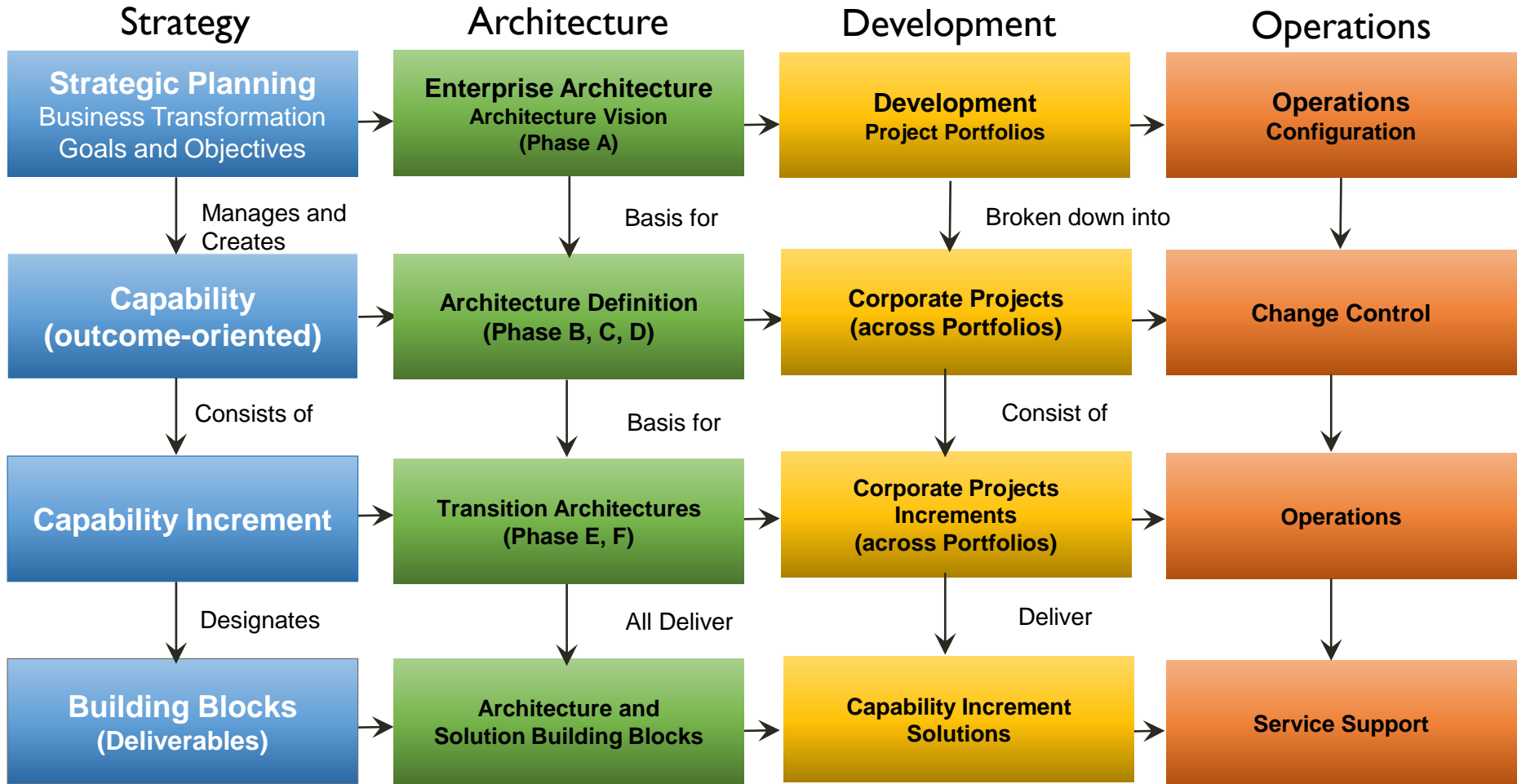
Recommendations

Enterprise methods and frameworks such as EA, Agile, and Lean all can potentially offer value to the enterprise

In many cases, the activities can be disconnected and the agility - value produced are diminished

In some cases, poor role delineation between the practitioners results in confusion, conflict, and waste

Resolving and reconciling these activities and issues will greatly improve the overall value to the enterprise

Recommendations for Enterprise Architects

Work to define an environment that provides consistency and standardization between methods/methodologies , while accommodating innovative techniques

Educate and train your architects in order to sensitize them to these new concepts

Create a working environment and a platform for execution that will support and enable enterprise solutions

Ensure that your work is relevant and focused on the needs, the culture and the maturity of the organization

Reach out to your business and IT stakeholders and seek their ideas

Recommendations for Agile Practitioners

Be aware of the impact of your work on the enterprise

Understand and influence both business and IT strategies in order to better define products, solutions and services

While your work is essential for creating valuable systems that meet the needs of customers, you do not have directly the power to set strategy or policy

Be aware of time-consuming activities, but realize that strategic planning, architecture and governance are important functions in complex organizations

Quality and collaboration is just as important as delivery time

Summary

We know what needs to be done, we just have to do it!

We need to breakdown silos, and work across disciplines

Architects must become more agile

Agilists must become more architectural

Management must change to accommodate agile practices

Governance must be an enabler rather than a gatekeeper