# Digital Transformation Trends and Best Practices through Creation of Digital Enterprise Map

## Aaron Tan Dani,

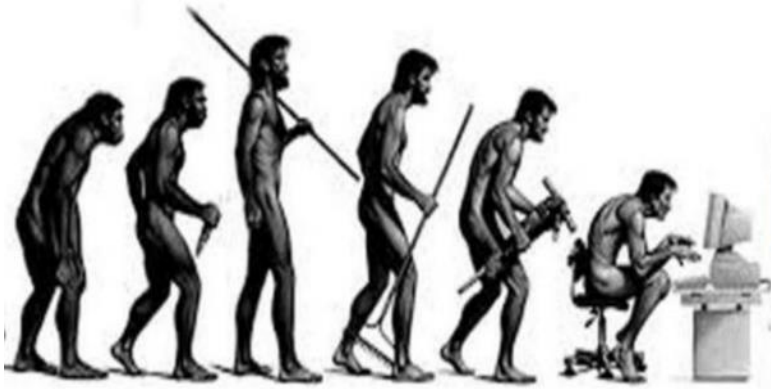Chairman of Iasa Asia Pacific aarontan@iasahome.org

Chairman of EA-SIG, Singapore Computer Society aarontan@scs.org.sg
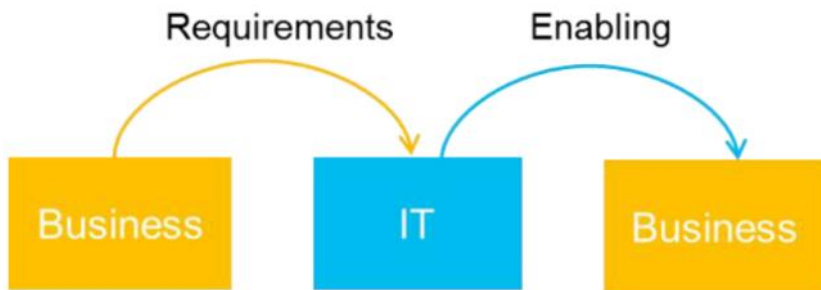
Chief Architect of ATD Solution aarontan@atdsolution.com

# The Driving Force of Digital EA: Moving from the Era of Computerization to Digitalization

The Era of Automation

The Era of Digitalization (Industry 4.0)

From 1980 to 2010

From 2010 onwards

Requirements

Enabling

Business — IT — Business

Integrated

Business — Technology

Connected
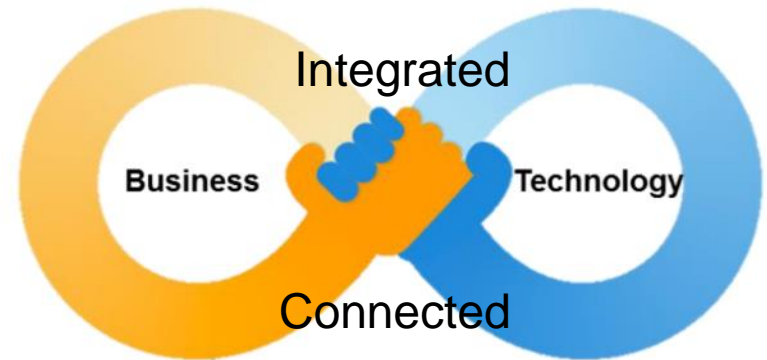
# The Era of Digitalization

*"Industry 4.0 is **NOT** about new technology nor business discipline, it is a **NEW Culture** to achieve outcomes through **digitalization** that were impossible in the past"*

## Industry 4.0

Inside-Out

Outside-Out

Outside-In

Inside-In

# DIGITAL disruption

**To Disrupt? or Being Disrupted? or Self Disrupt?**

# Enterprise Architecture (EA) as the Shield for Digital Disruptions
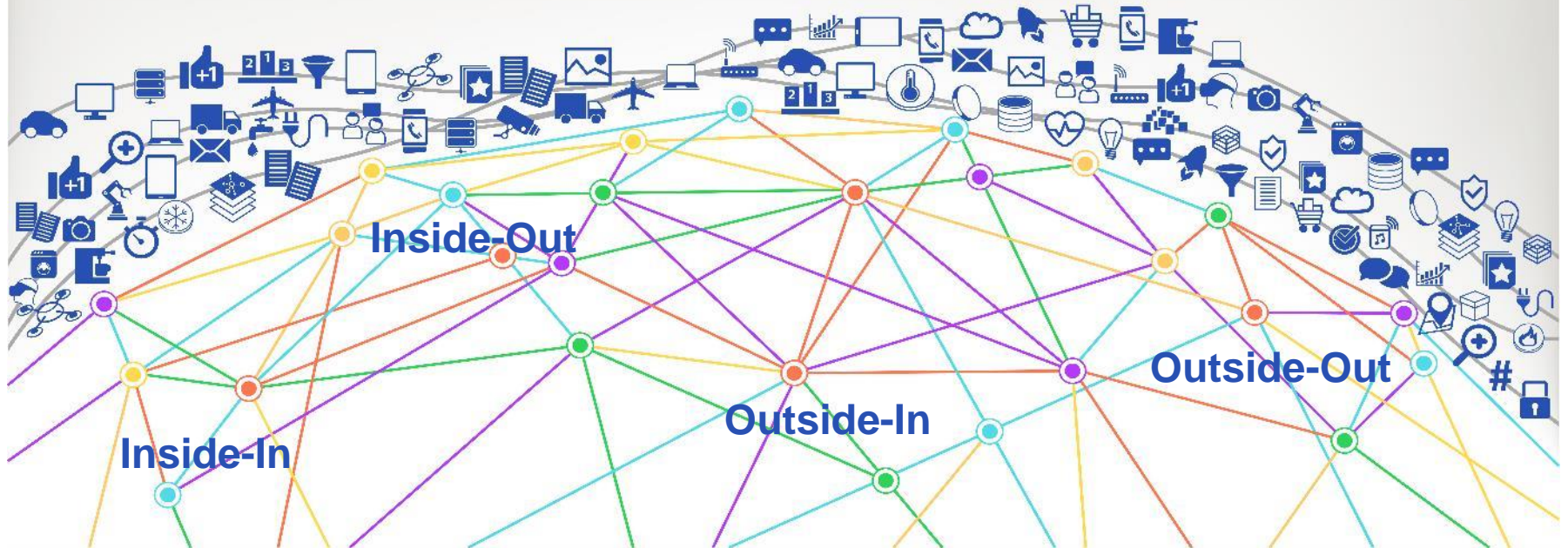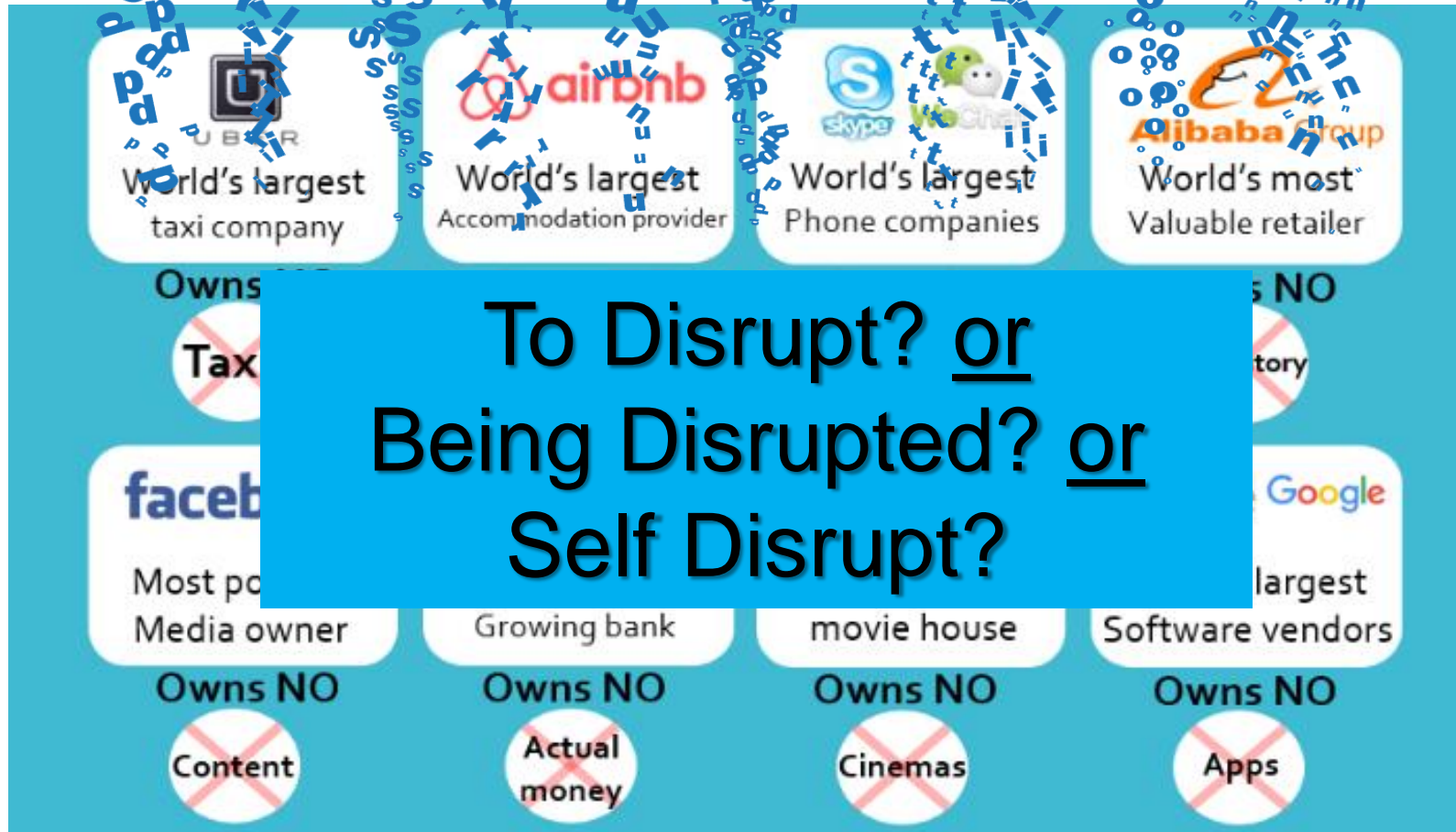


**Gartner.**

WHY GARTNER ANALYSTS RESEARCH EVENTS CONSULTING ABOUT

Search

Insight For Your Role

## Enterprise Architecture & Technology Innovation

### Attention: Digital disruption is here, and you're on the front line.

Digital enterprises require revolutionary archite
Enterprise Architecture & Technology Innovatio
practitioners must fortify legacy capabilities and
vanguard technologies such as the Internet of
(IoT).

Learn which tactics, technologies and techniqu
help you monetize information assets, shrewdl
smart machines and deliver other critical busin
outcomes.

**Gartner.**

WHY GARTNER ANALYSTS RESEARCH EVENTS CONSULTING ABOUT

Search

## Newsroom

Press Release

Share: Tweet in Share G+

STAMFORD, Conn., April 17, 2012

View All Press Releases

### Gartner Says Big Data Disruptions Can Be Tamed With Enterprise Architecture

Analysts to Discuss the Role of Enterprise Architecture in the Age of Big Data at Gartner Enterprise Architecture Summit, May 14-15 2012 in London, UK and May 23-24 in National Harbor, MD

Enterprise architecture (EA) practitioners have a major role in ensuring their organizations maximize the business opportunities posed by big data, according to Gartner, Inc.

Big data makes organizations smarter and more productive by enabling people to harness diverse data types previously unavailable, and to find previously unseen opportunities. However, Gartner analysts said big data poses big challenges as well — and that's where enterprise architects can help. As navigators of strategic change, the task for EA practitioners is to chart the right course for big data across the most critical dimensions of the organization: business, culture, talent and technology.

# What Gartner Says about EA...

## Enterprise Architecture as the Gateway to Digital Transformation - Takeaways from the Gartner EA Summit 2016

**Gartner**

Source of articles: Gartner

Author: Jean-Patrick Ascenci

Posted on May 23, 2016 by Jean-Patrick Ascenci

Last week, CAST attended the Gartner EA Summit, held at National Harbor. It was two days of jam-packed sessions and workshops about Enterprise Architecture, but what stuck out the most was the value of this very unique discipline as a catalyst for Digital Transformation.

EA and Digital Transformation were the core focus of many presentations, including Mike J. Walker's session "Leverage EA to Understand the Value and Impacts of Digital Disruption." Mike stressed that this ever-evolving discipline is becoming a vital component to corporate strategy, delivering high-performing and sustainable business outcomes.

# What Gartner Predicts about EA Adoption by 2025

## Future of EA 2025: Evolving From Enterprise to Ecosystem

**Published:** 7 October 2014

**Analyst(s):** Marcus Blosch, Betsy Burton

Digital business is altering and broadening industries, businesses and people. EA practitioners will expand their perspectives beyond an "enterprise" to deliver business outcomes and leading response to disruptive trends with the context of a broader ecosystem of customers, partners and competitors.

By 2025, organizations will predominantly focus EA on delivering business outcomes from the perspectives of their business ecosystem.

# The IASA's Architects Engagement Model

➢ It provides a guidelines for architects to be successful in delivering valuable technology strategy for the business to drive continuous transformation

# Digital EA Map – Digital EA Methodology



**DIGITAL EA READINESS ASSESSMENT**

**DIGITAL EA DEVELOPMENT - PRELIMINARY**

**DIGITAL EA DEVELOPMENT– ARCHITECTURE VISION**

Digital Transformation / Enterprise Architecture Readiness Assessment

**Motivation**

| Stakeholder Involvement | Goal Discovery | Requirement Realization | Business Drivers |

**Strategy**

| Strategy Planning | Capability Development | Outcome Realization | Resource Mapping |

**DIGITAL EA ADOPTION / LEARNING PROGRAMME**

Framework

Skillsets

IT Architecture Body of Knowledge

Notation

ARCHIMATE®

Tool

**DIGITAL EA REPOSITORY**

Digital Repository

Digital Transformation /EA Maturity Assessment

**EA ADOPTION**

**Enterprise Architect Roles**

Enterprise Architect

Business Architect

Information Architect

Software Architect

Infrastructure Architect

Solution Architect

**Foundation Body of Knowledge**

Design

IT Environment

Human Dynamics
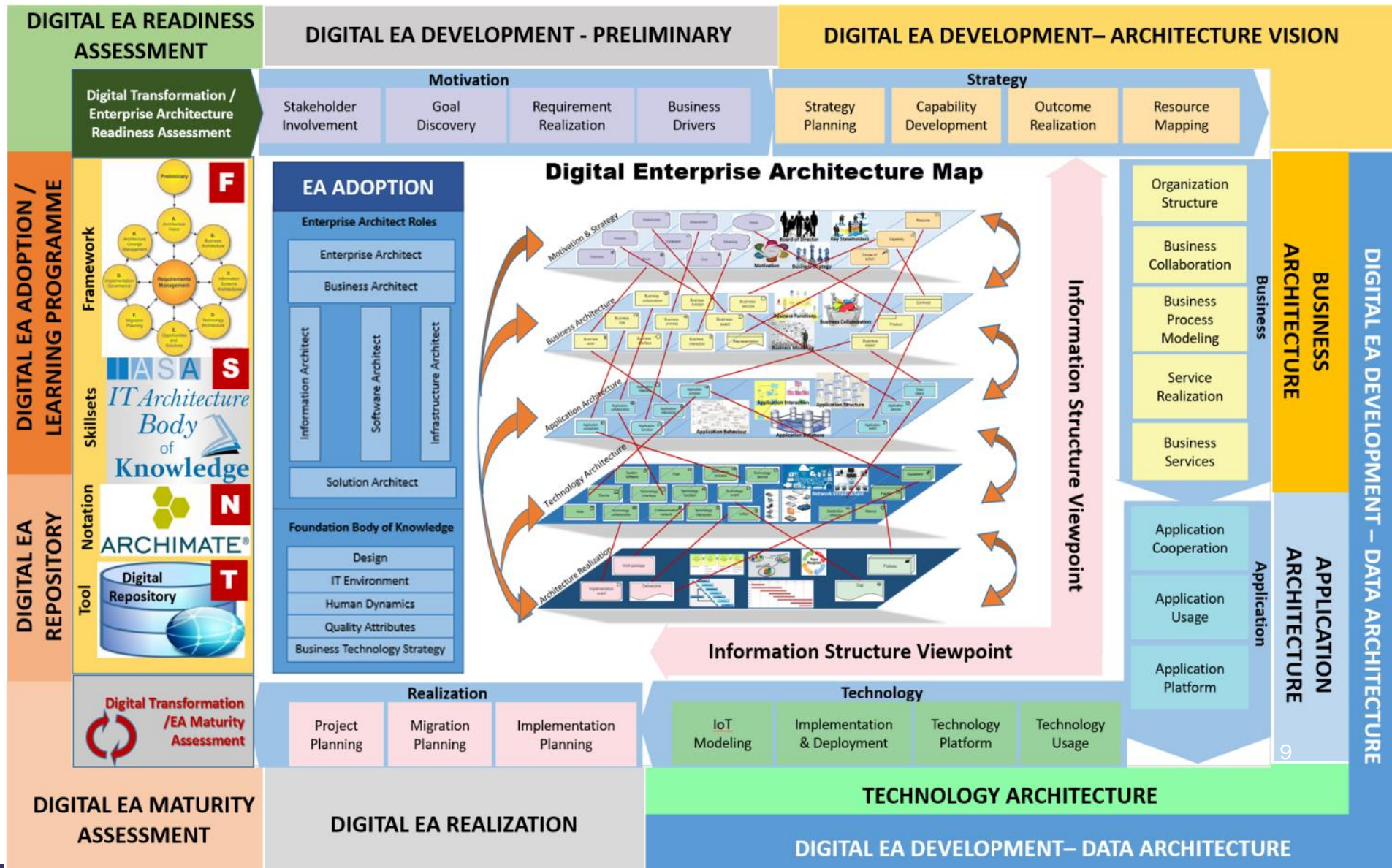
Quality Attributes

Business Technology Strategy

F S N T

## Digital Enterprise Architecture Map

Motivation & Strategy

Business Architecture

Application Architecture

Technology Architecture

Architecture Realization

**Information Structure Viewpoint**

**Information Structure Viewpoint**

Organization Structure

Business Collaboration

Business Process Modeling

Service Realization

Business Services

**BUSINESS ARCHITECTURE**

Business

Application Cooperation

Application Usage

Application Platform

**APPLICATION ARCHITECTURE**

Application

**DIGITAL EA DEVELOPMENT– DATA ARCHITECTURE**

**Realization**

| Project Planning | Migration Planning | Implementation Planning |

**Technology**

| IoT Modeling | Implementation & Deployment | Technology Platform | Technology Usage |

**DIGITAL EA MATURITY ASSESSMENT**

**DIGITAL EA REALIZATION**

**TECHNOLOGY ARCHITECTURE**

**DIGITAL EA DEVELOPMENT– DATA ARCHITECTURE**

9

# Connected Digital Enterprise Building Blocks



The **continuous digital transformation** of the **existing business** through **technology innovations** and **exploitations**

**3. Digital Transformation**

**1. Digital Strategy**

**2. Digital Enterprise Architecture**

The **Outcome Statement** about organization's Digital Positioning in terms of **Goals, Capability** and **Drivers** in the context of the technology adoption

The **Digital Enterprise Map** of connected **Business, Data, Application** and **Technology** domains to support **Digital Transformation**

# The Aspects of Digital Strategy

**Stakeholder Motivation**

**Strategy Modeling**

**Strategy Execution**

| | |
|---|---|
| **Define the stakeholder concerns that give rise to the need for a Digital Strategy** | • Why are we doing it?<br>• What gives rise to the need for a digital strategy?<br>• What challenges are we trying to address?<br>• What constraints are we looking to remove? |
| **Detail the core objectives of the strategy to address the concerns** | • What is our long-term digital strategy?<br>• How do we communicate our strategy?<br>• How will we measure the achievement of the objectives? |
| **Roadmap series of integration actions to achieve the core objectives** | • What is the schedule for implementation?<br>• What are the technology, system, resource and organisation pre-requisites to achieving success?<br>• How can this work be formulated into a realistic and achievable plan? |

# ATD's Vision – Digitally Connected Enterprise



CONNECTED Strategy

CONNECTED Business

CONNECTED Information

CONNECTED Application
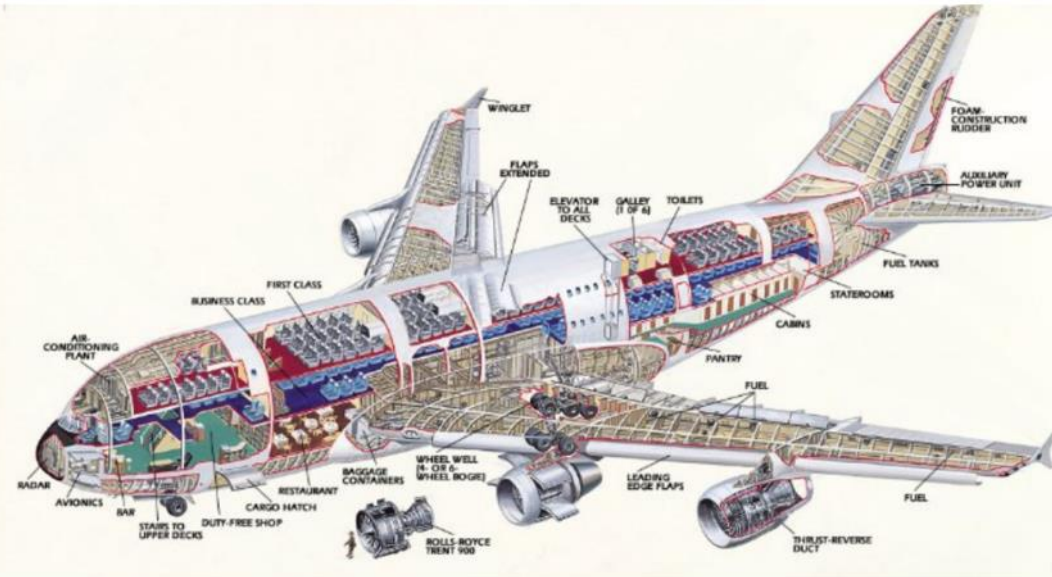
CONNECTED Infrastructure

# Aircraft & iPad Circuit Board Analogy for Metamodel & Reference Architecture



A380 components

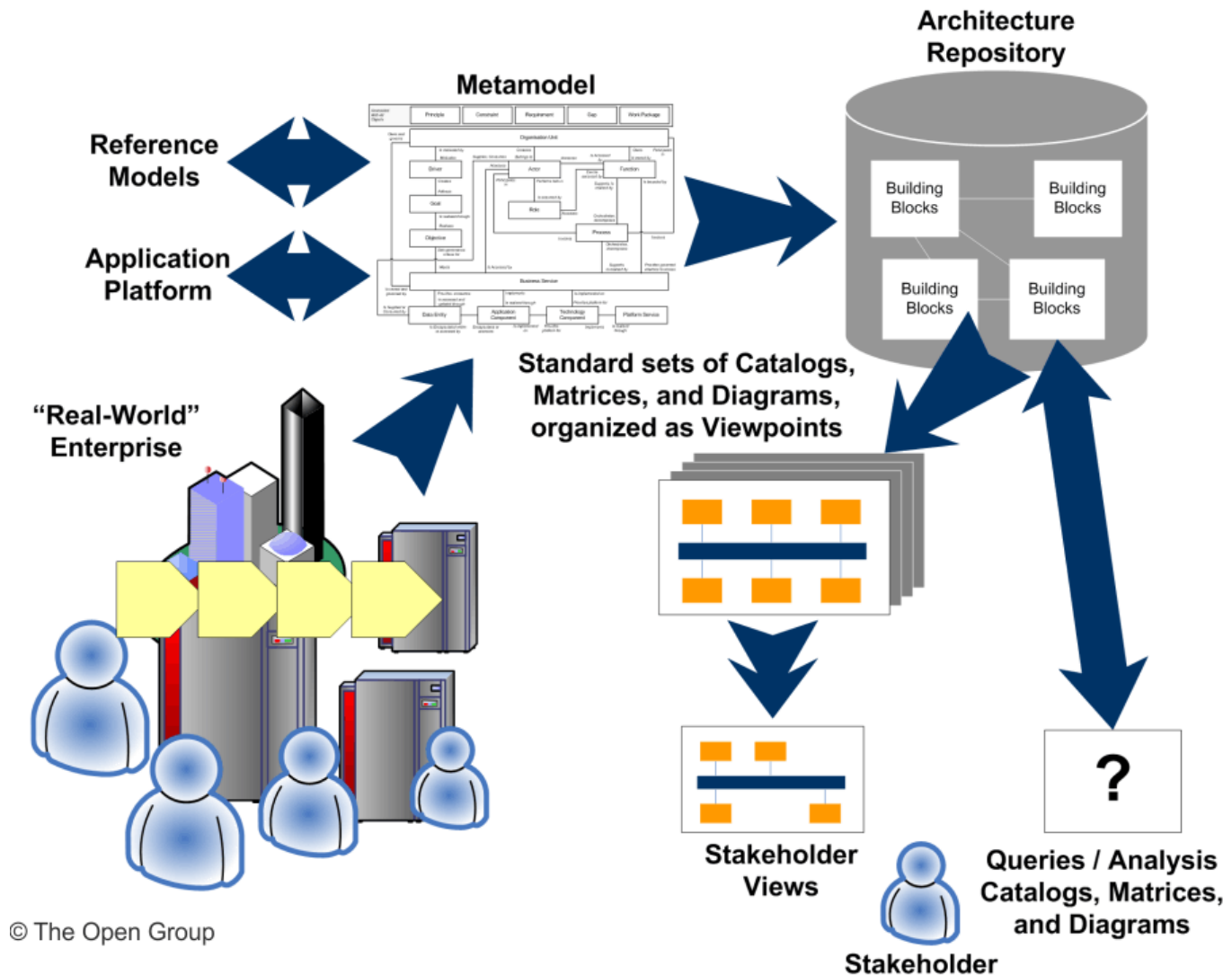## When ArchiMate meets PLM for Aircraft OEM like Airbus

Published on January 7, 2017
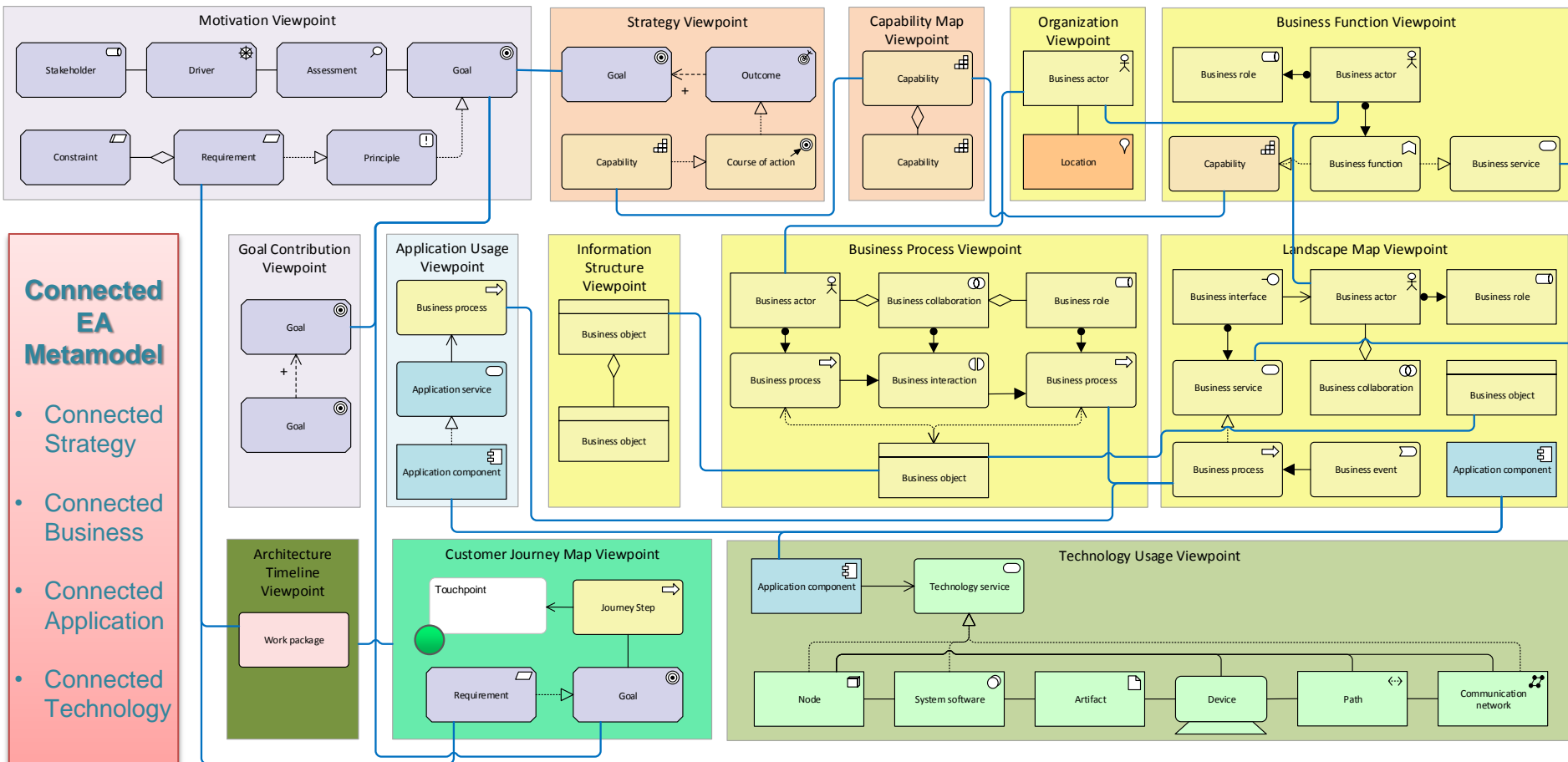https://www.linkedin.com/pulse/archimate-meeting-plm-aircraft-oem-like-airbus-dr-nicolas-figay

Dr Nicolas Figay  Follow
Expert and researcher within the field of Standards based PLM i...

👍 38    💬 2    ↗ 1

# Digital EA Centralized Repository



© The Open Group

# A Typical Example of Digital Metamodel to define Digital Enterprise Map

# Why EA? Moving from "*Hair-Ball Architecture*" to "*Digital EA Map*" (illustrated in Lego Blocks)
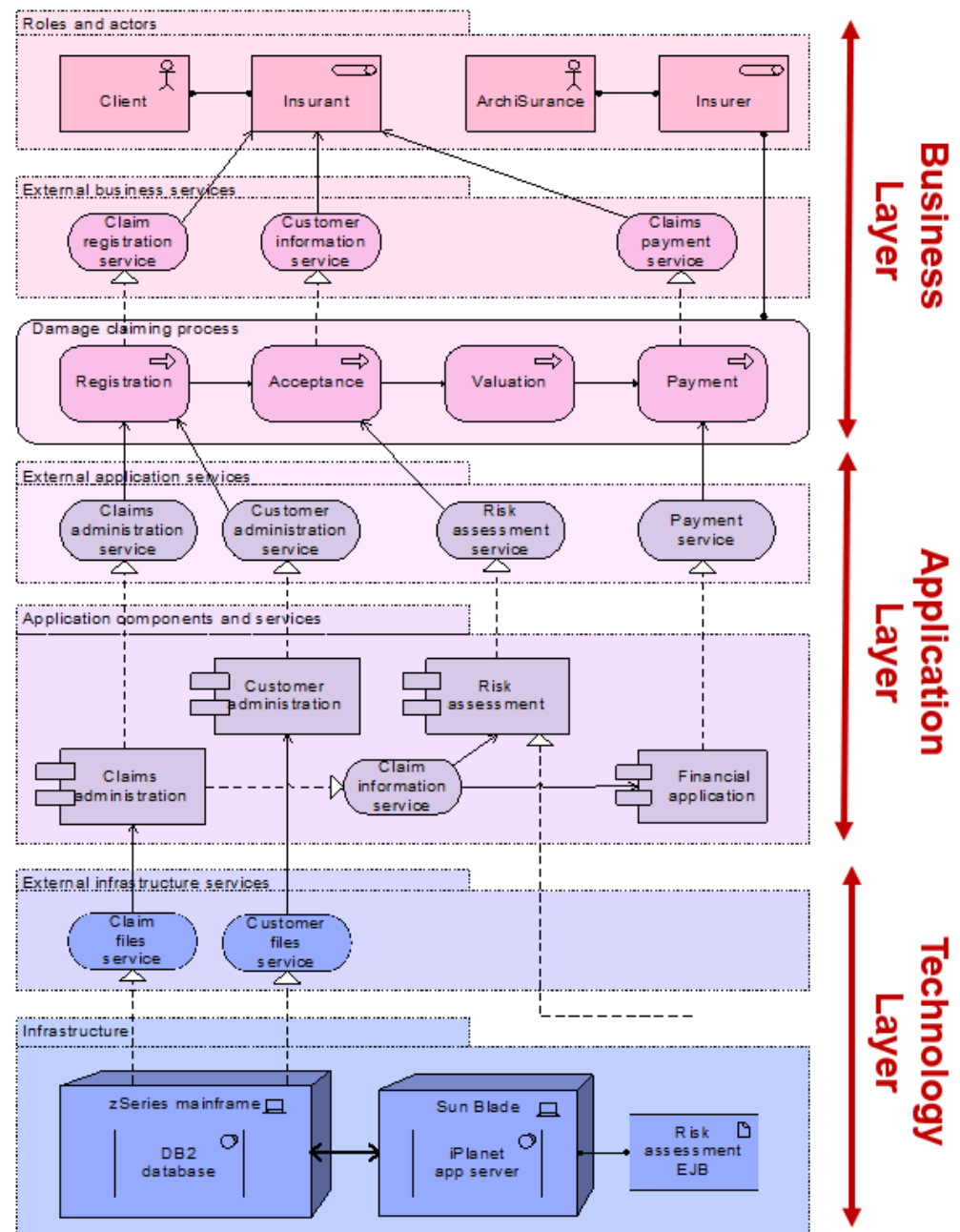
# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0 to Define Enterprise Layers



- **F**ramework (TOGAF)
- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)
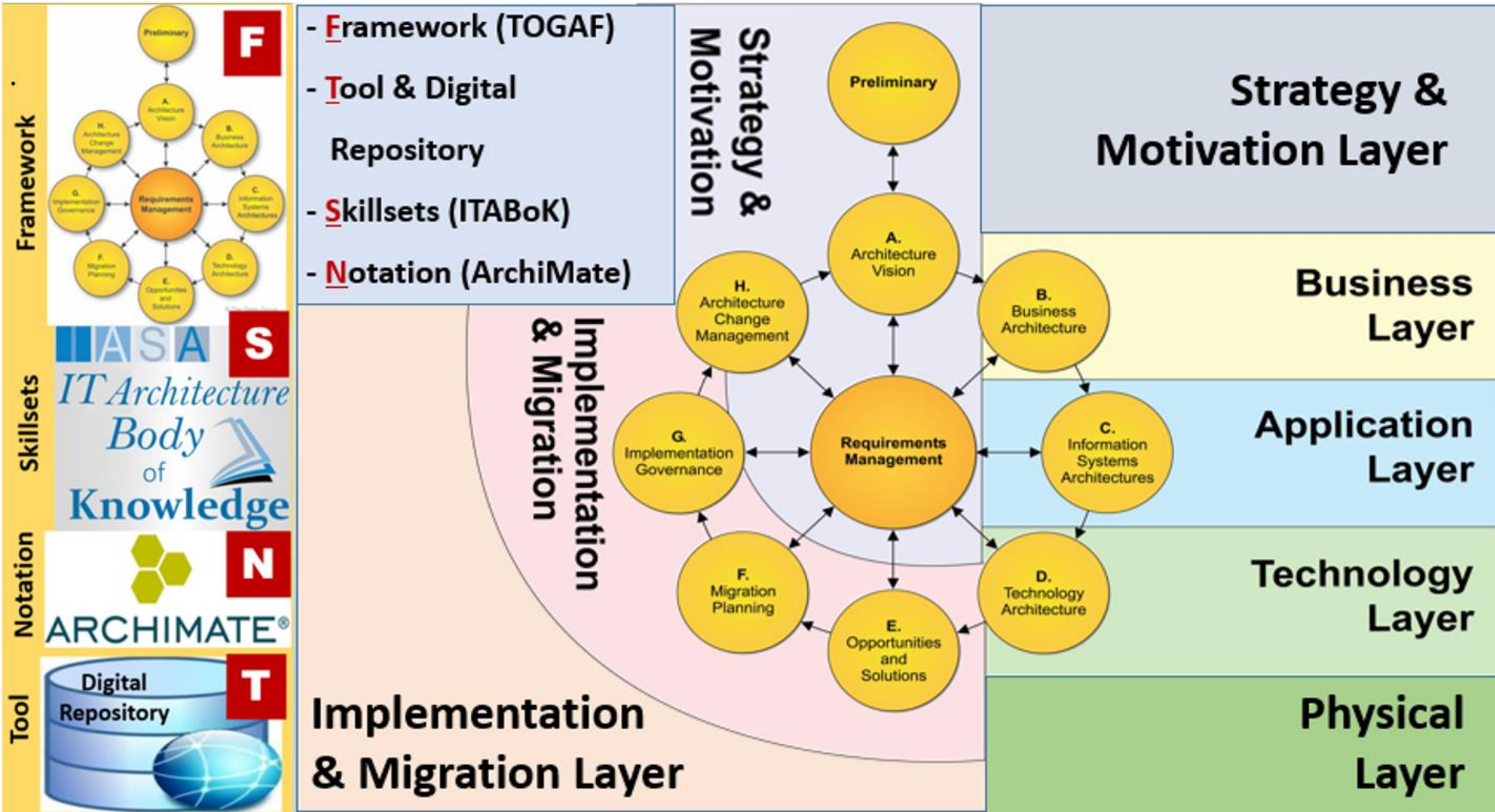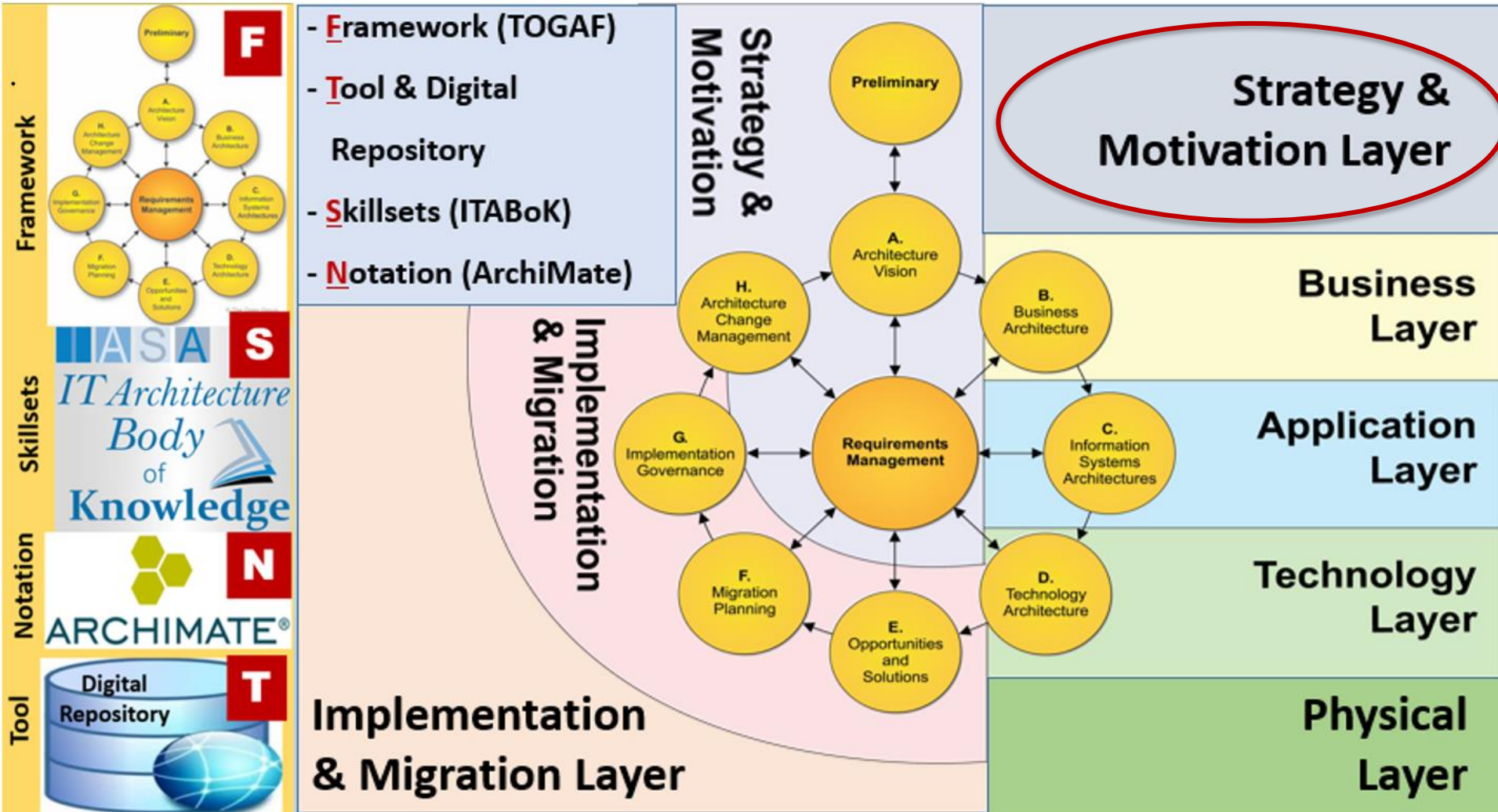
# The Enterprise Architecture Digital Map described in ArchiMate

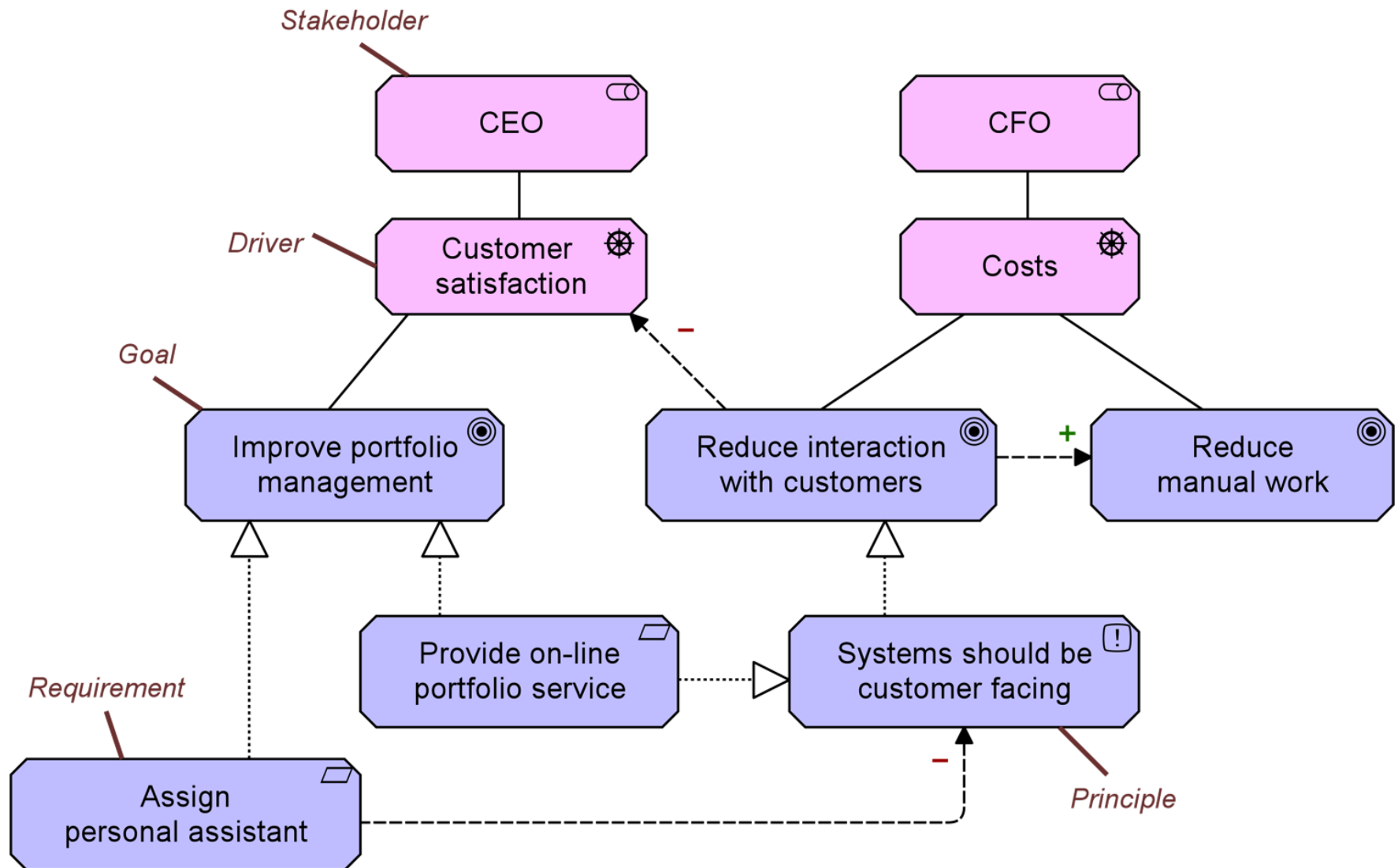- It provides **full traceability** from <u>Business</u> to <u>Application</u> to <u>Technology</u> and vice versa

- It represents **the Model of Digital Enterprise** as they **evolve over time**

# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0



- **F**ramework (TOGAF)
- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)

# Example of Digital Map for Motivation View

# Example of Digital Map for Strategy View
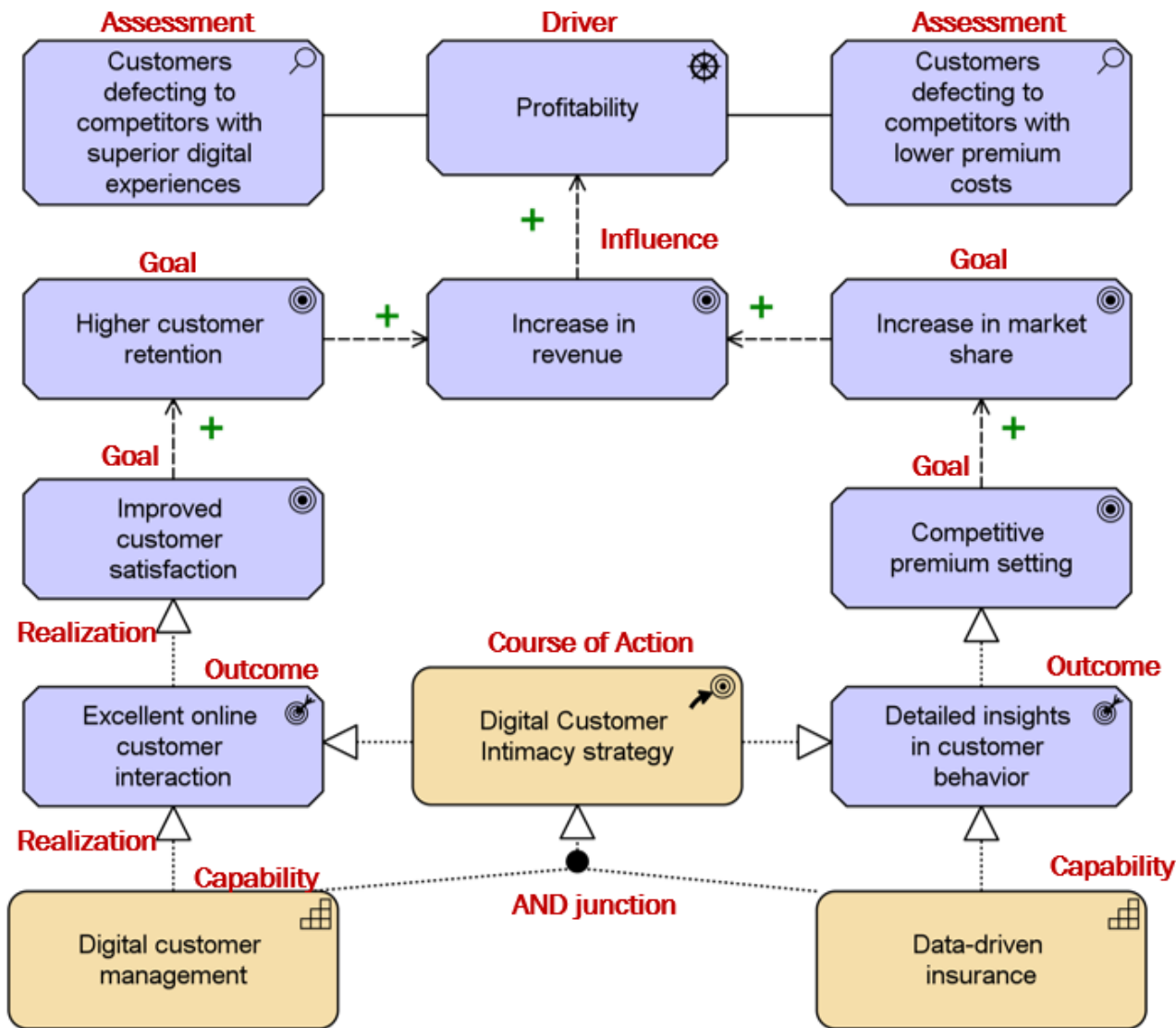


The Digital Customer Intimacy strategy requires to develop a number of new capabilities and resources, including digital customer management, data acquisition, and data analysis.

# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0



- **F**ramework (TOGAF)
- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)
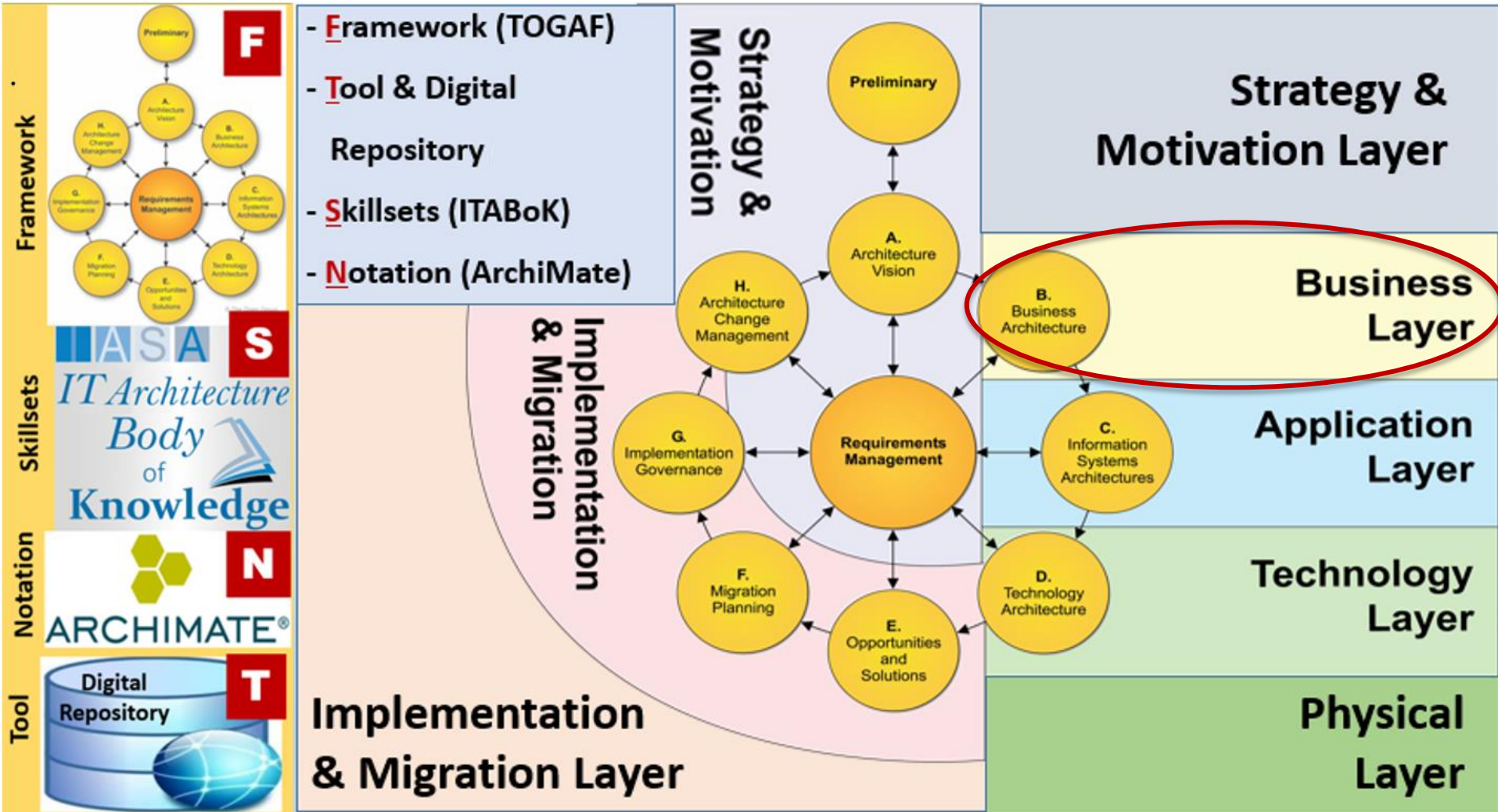
# Customer Centricity - Digital Transformation



EMPATHY MAP
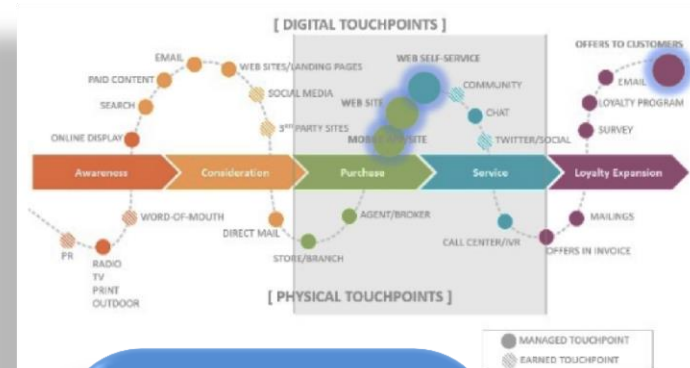
CUSTOMER JOURNEY MAP

VALUE PROPOSITION CANVAS
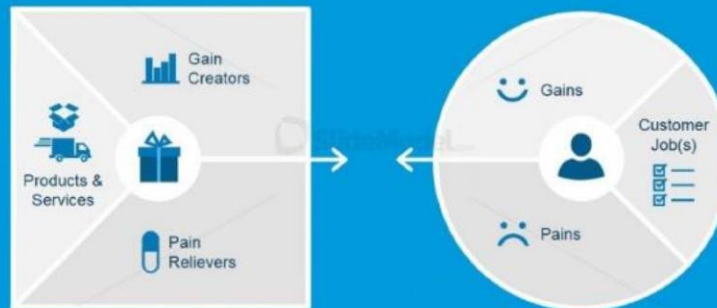
JOURNEY MAP TOOLS

# Digital Customer Journey Map Viewpoint (Template)

| Stage | 1 | 2 | 3 | 5 | 6 |
|---|---|---|---|---|---|
| **Sentiment** | | | | | |
| Needs | | | | | |
| Expectations | | | | | |
| Improvements | | | | | |
| Information/ Data | | | | | |
| Application | | | | | |
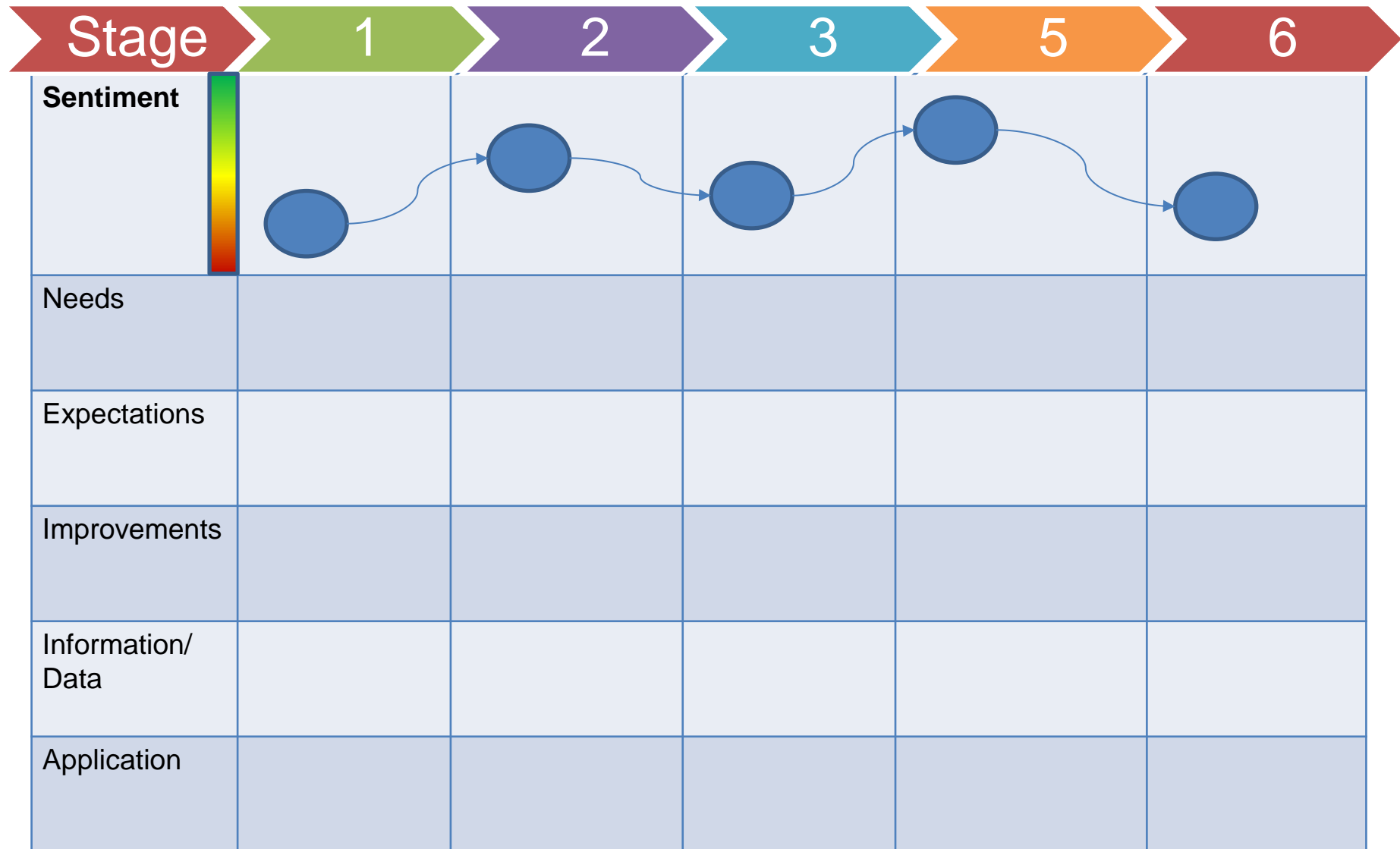
# Digital Customer Journey - Discovery Map Example

# Digital Customer Journey – Persona Identification Example



**Dato' Dr Hazreen Hasbullah**
Chief Digital Transformation Officer
Meritouse Financial Ltd

| | | |
|---|---|---|
| **Age:**<br>43<br>**Gender:**<br>Male<br>**Salary:**<br>$15,000<br>**Home Location:**<br>Country Heights, Kajang<br>**Education:**<br>PhD in Digital Transformation, University of Michigan<br>**Family:**<br>Married with 3 kids | **Goals:** To help organization in embarking digital transformation.<br><br>**Challenge:** Digital disruption, lack of internal capability, business IT integration. | **Product/Service Owned:**<br>Advising digital direction or strategy development. |
| | **Values:**<br>Leadership, Influential, Supportive<br><br>**Fears:**<br>Fears of failure | Marketing Message: |

# Digital Customer Journey – Empathy Map Example



**THINK AND FEEL?**
**Think:** Implementation of EA could help the organization/enterprise to achieve the goals
**Feel:** Excited, Motivated, Anticipation

**HEAR?**
- Hear good review about the implementation
- The best consulting services in achieving digital transformation with EA adoption best practices

**SEE?**
- Digital transformation of the organization will be success.
- Help the organization to have better work place and structured work processes.

**SAY & DO?**
Say: New experience to explore together and work together
Do: Support our business and recommend our service

**PAIN**
- Budgeting
- Time constraint

**GAIN**
- Clear definition of goals and organization
- Awareness of Digital Transformation
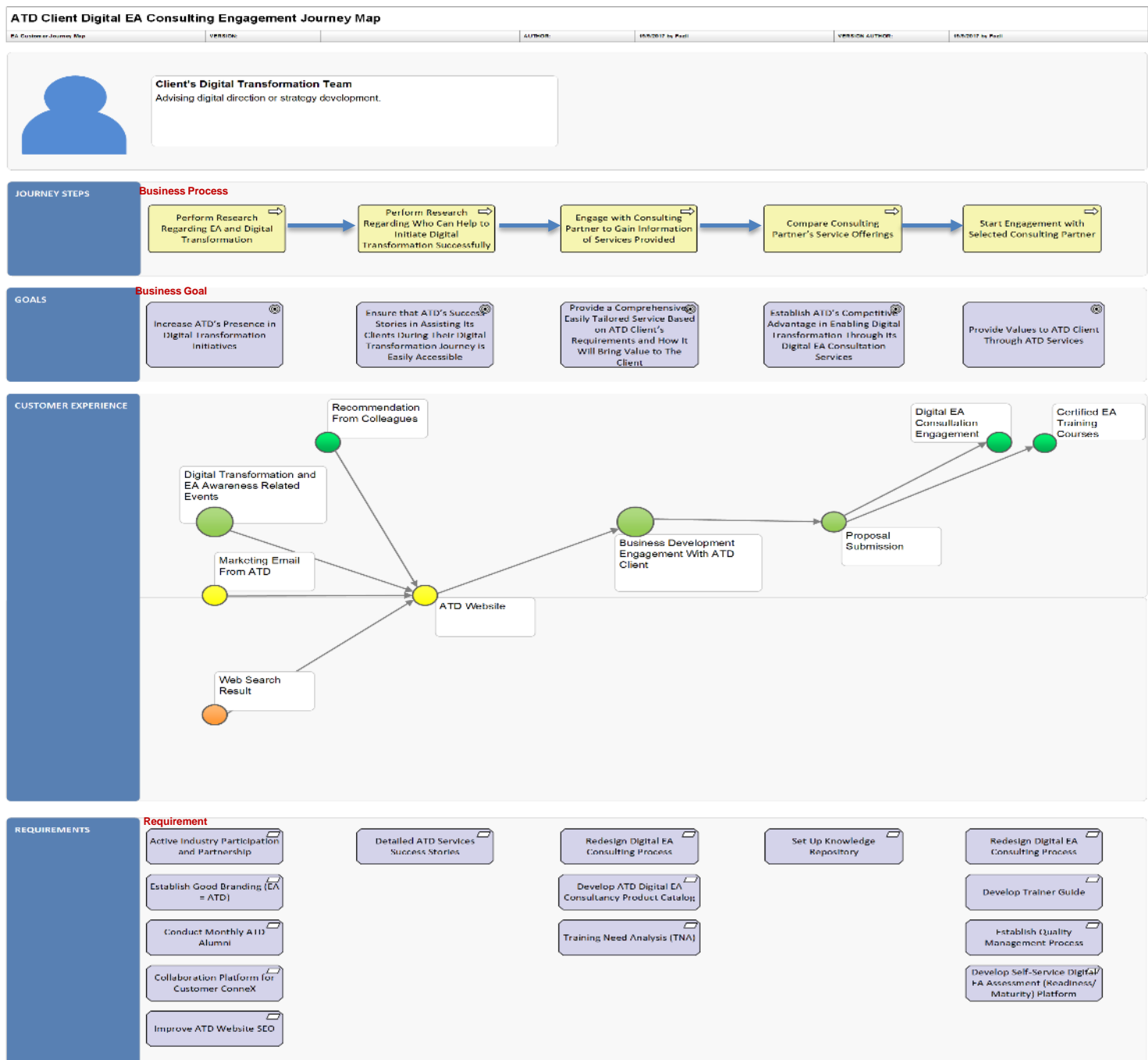
# Digital Customer Journey – Story Boarding Example

# Digital Customer Journey – Touch Points Map Example

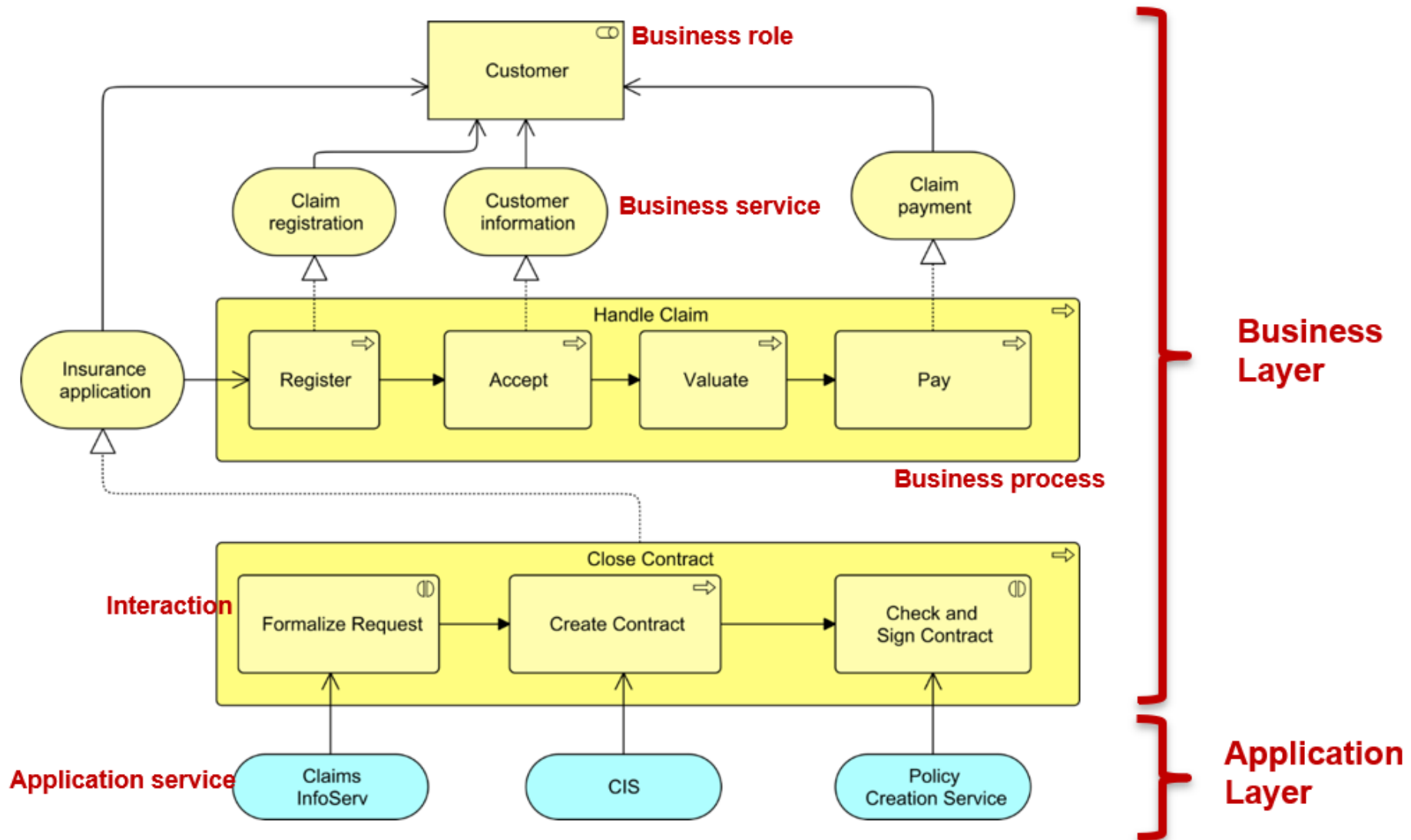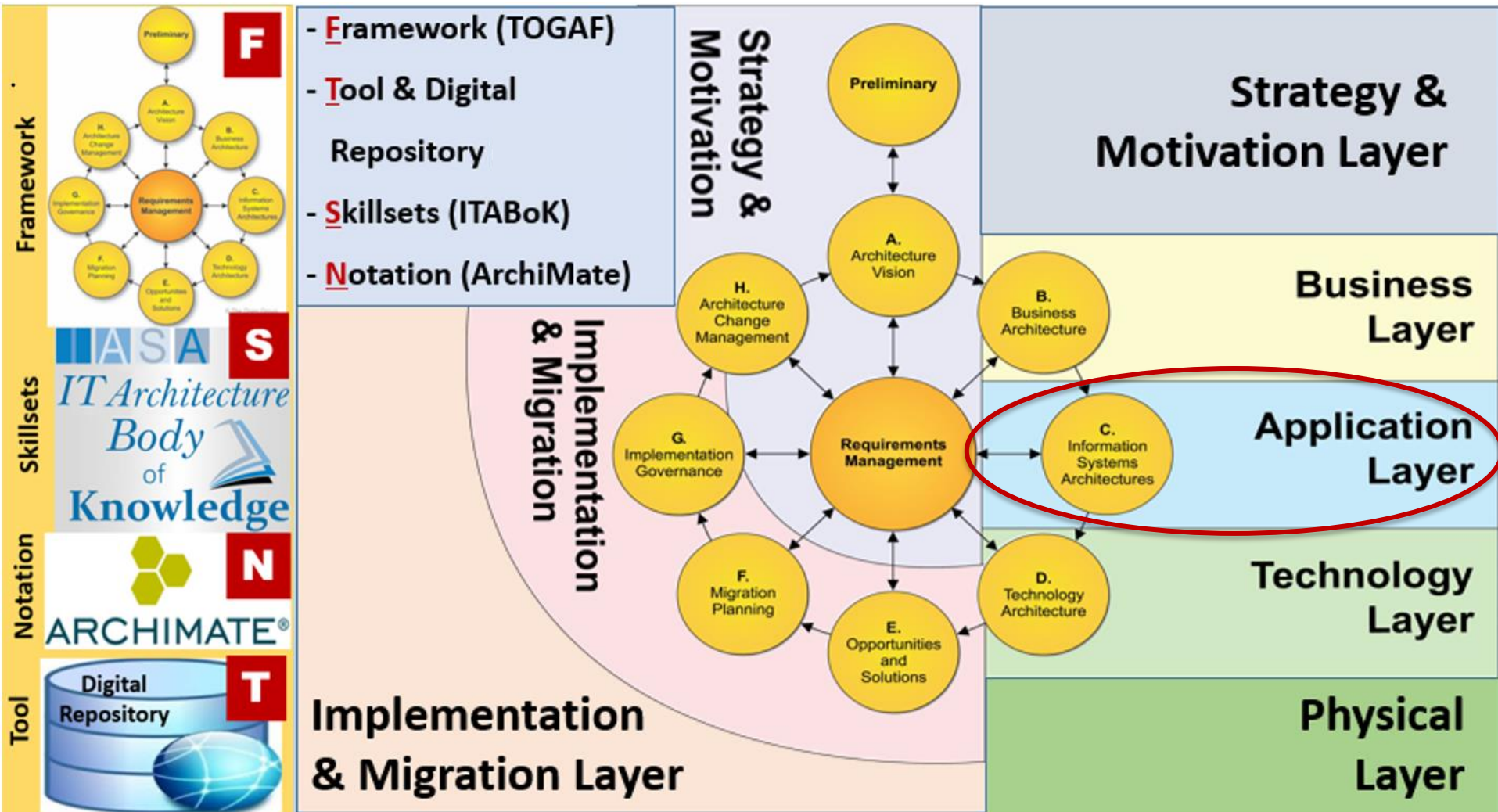**Digital Customer Journey Example Client Engagement Journey Map**



ATD Client Digital EA Consulting Engagement Journey Map

| EA Customer Journey Map | VERSION: | | AUTHOR: | 10/9/2017 by Pedi | VERSION AUTHOR: | 10/9/2017 by Pedi |

**Client's Digital Transformation Team**
Advising digital direction or strategy development.

**JOURNEY STEPS** — Business Process

- Perform Research Regarding EA and Digital Transformation
- Perform Research Regarding Who Can Help to Initiate Digital Transformation Successfully
- Engage with Consulting Partner to Gain Information of Services Provided
- Compare Consulting Partner's Service Offerings
- Start Engagement with Selected Consulting Partner

**GOALS** — Business Goal

- Increase ATD's Presence in Digital Transformation Initiatives
- Ensure that ATD's Success Stories in Assisting Its Clients During Their Digital Transformation Journey is Easily Accessible
- Provide a Comprehensive Easily Tailored Service Based on ATD Client's Requirements and How It Will Bring Value to The Client
- Establish ATD's Competitive Advantage in Enabling Digital Transformation Through Its Digital EA Consultation Services
- Provide Values to ATD Client Through ATD Services

**CUSTOMER EXPERIENCE**

- Recommendation From Colleagues
- Digital Transformation and EA Awareness Related Events
- Marketing Email From ATD
- Web Search Result
- ATD Website
- Business Development Engagement With ATD Client
- Proposal Submission
- Digital EA Consultation Engagement
- Certified EA Training Courses

**REQUIREMENTS** — Requirement

- Active Industry Participation and Partnership
- Establish Good Branding (EA = ATD)
- Conduct Monthly ATD Alumni
- Collaboration Platform for Customer ConneX
- Improve ATD Website SEO
- Detailed ATD Services Success Stories
- Redesign Digital EA Consulting Process
- Develop ATD Digital EA Consultancy Product Catalog
- Training Need Analysis (TNA)
- Set Up Knowledge Repository
- Redesign Digital EA Consulting Process
- Develop Trainer Guide
- Establish Quality Management Process
- Develop Self-Service Digital EA Assessment (Readiness/Maturity) Platform

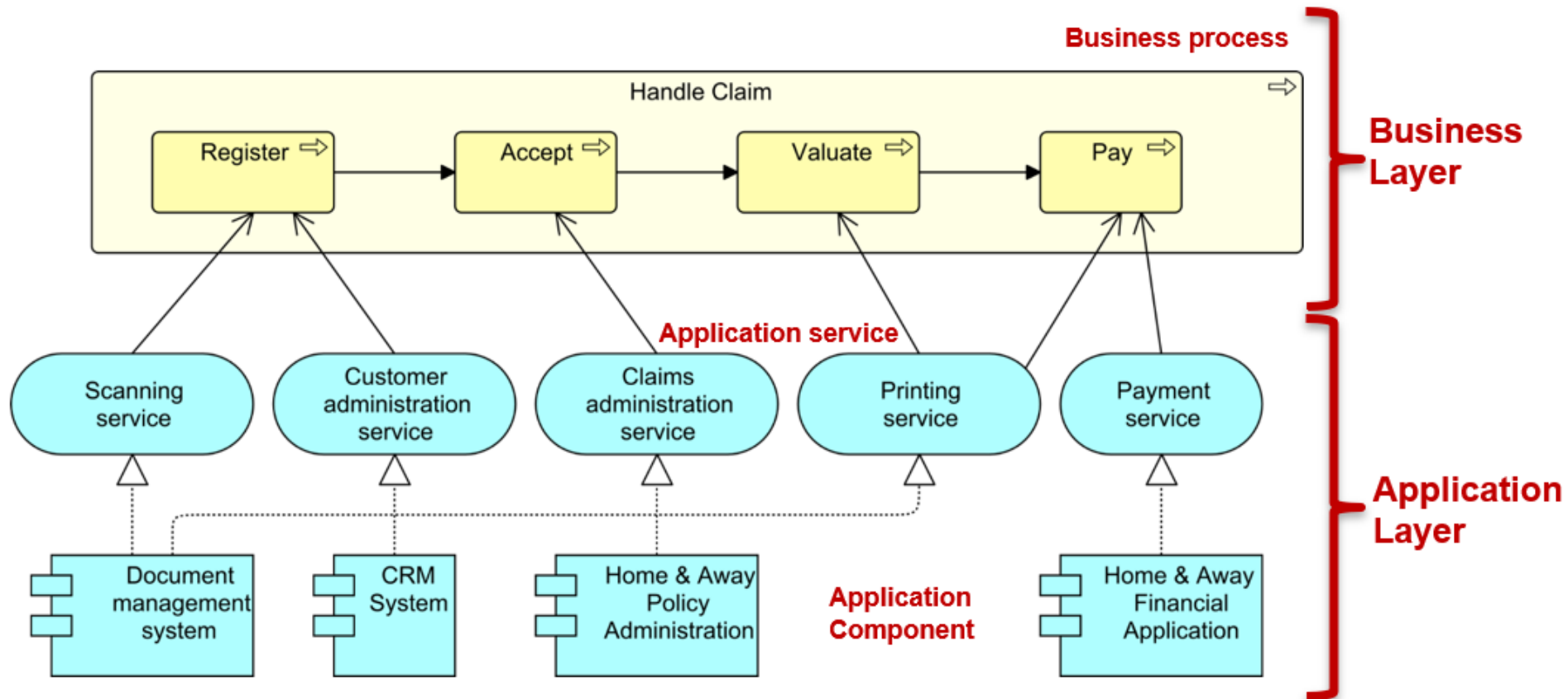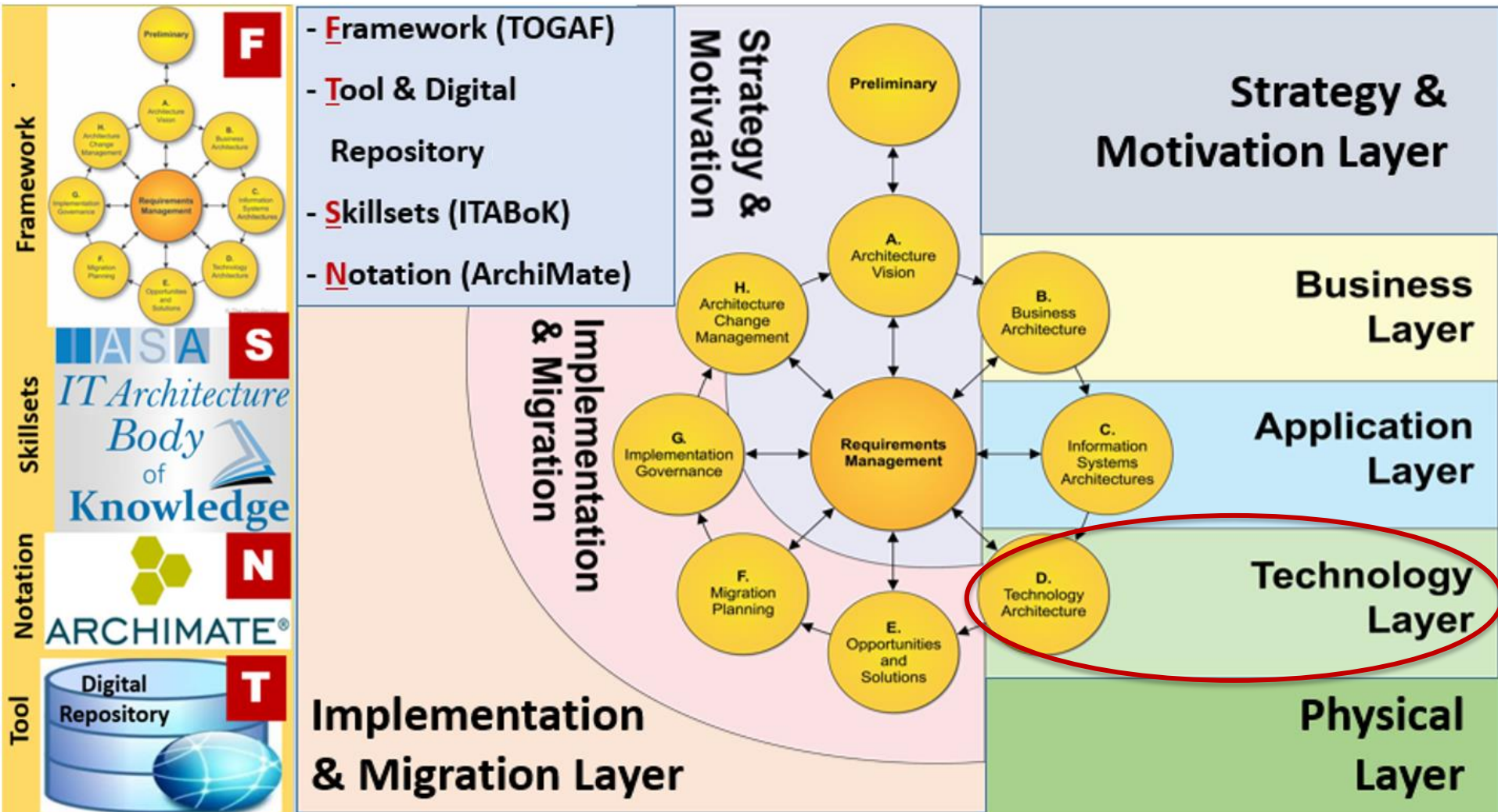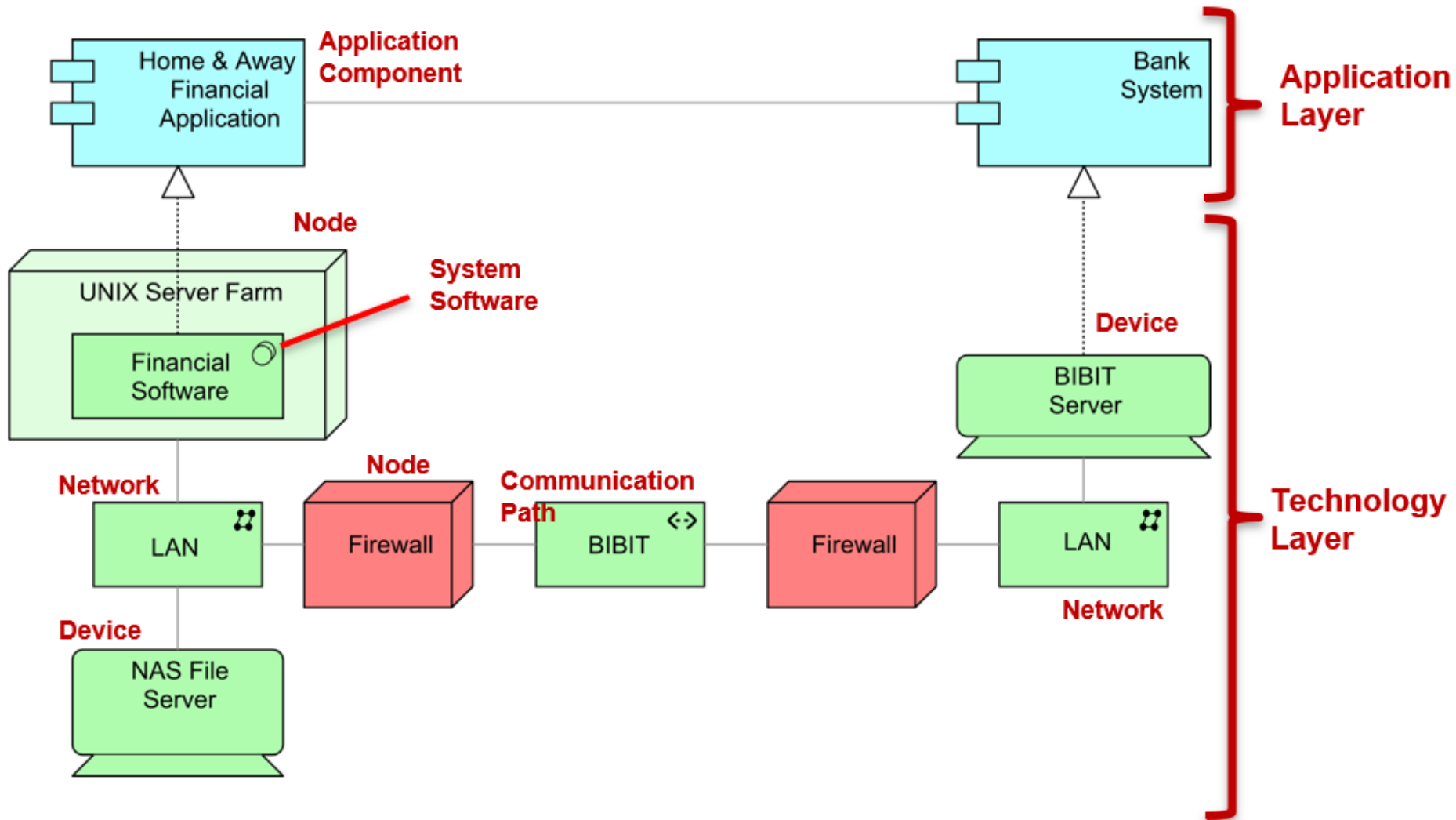# Example of Digital Map at Business Layer

# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0
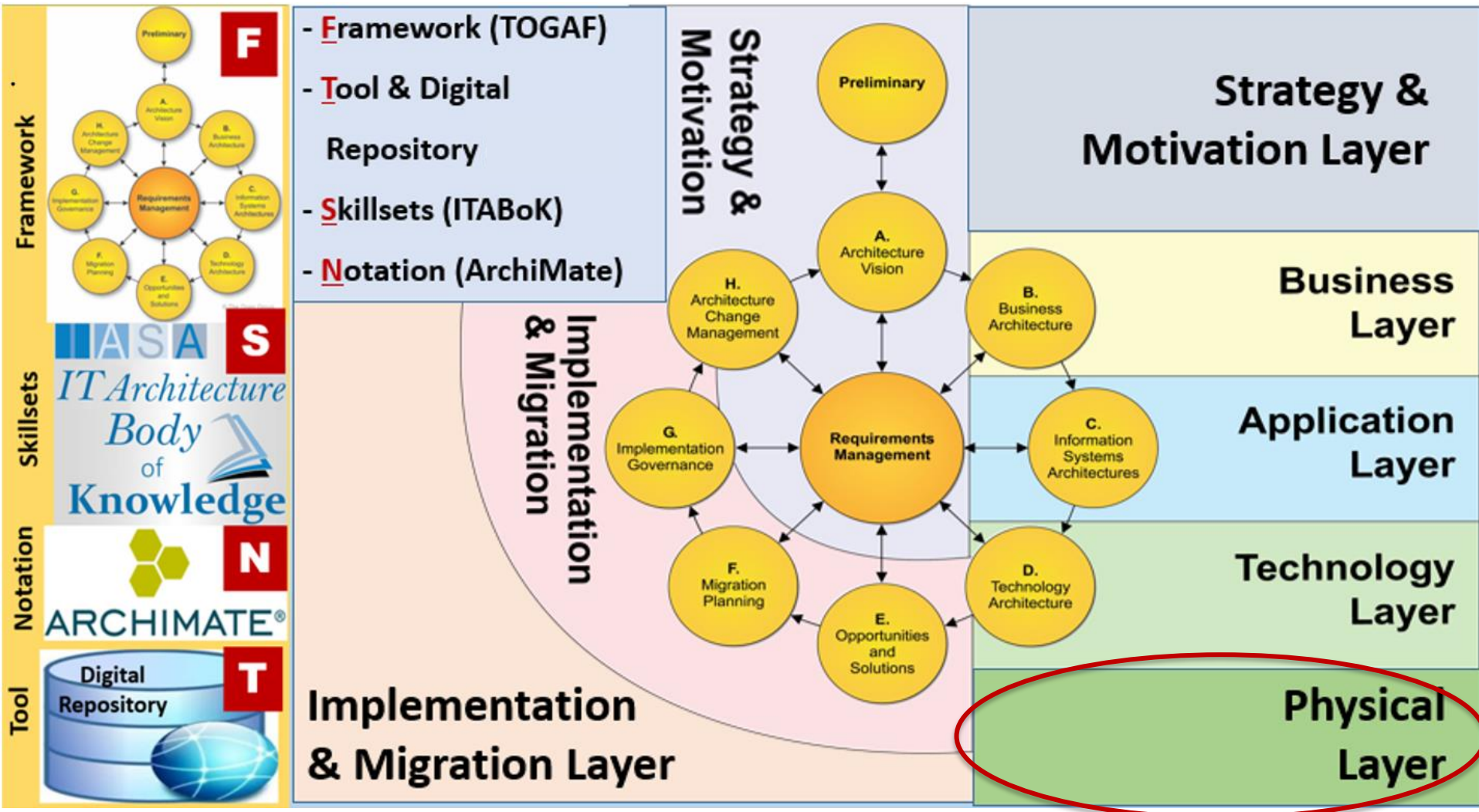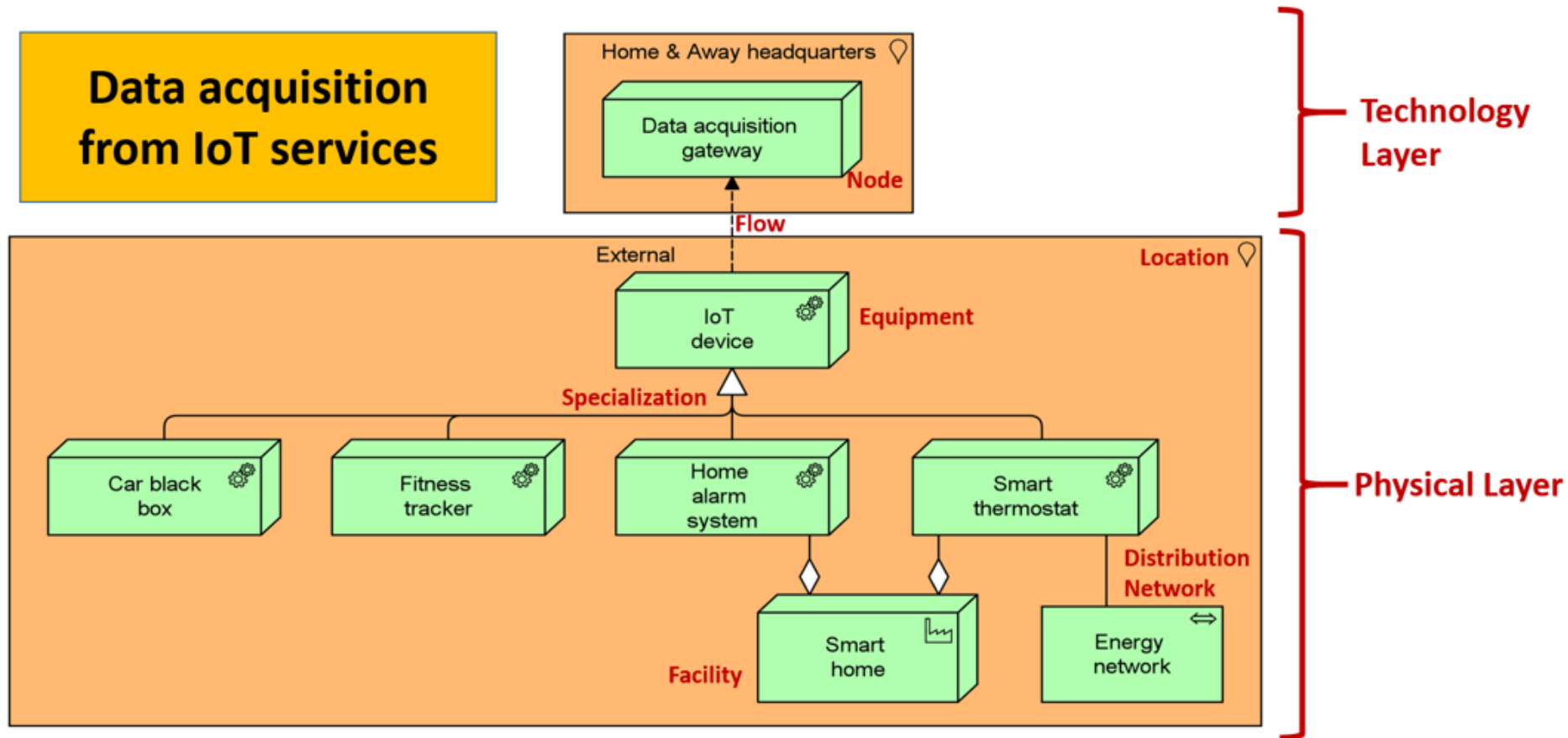
# Example of Digital Map at Application Layer

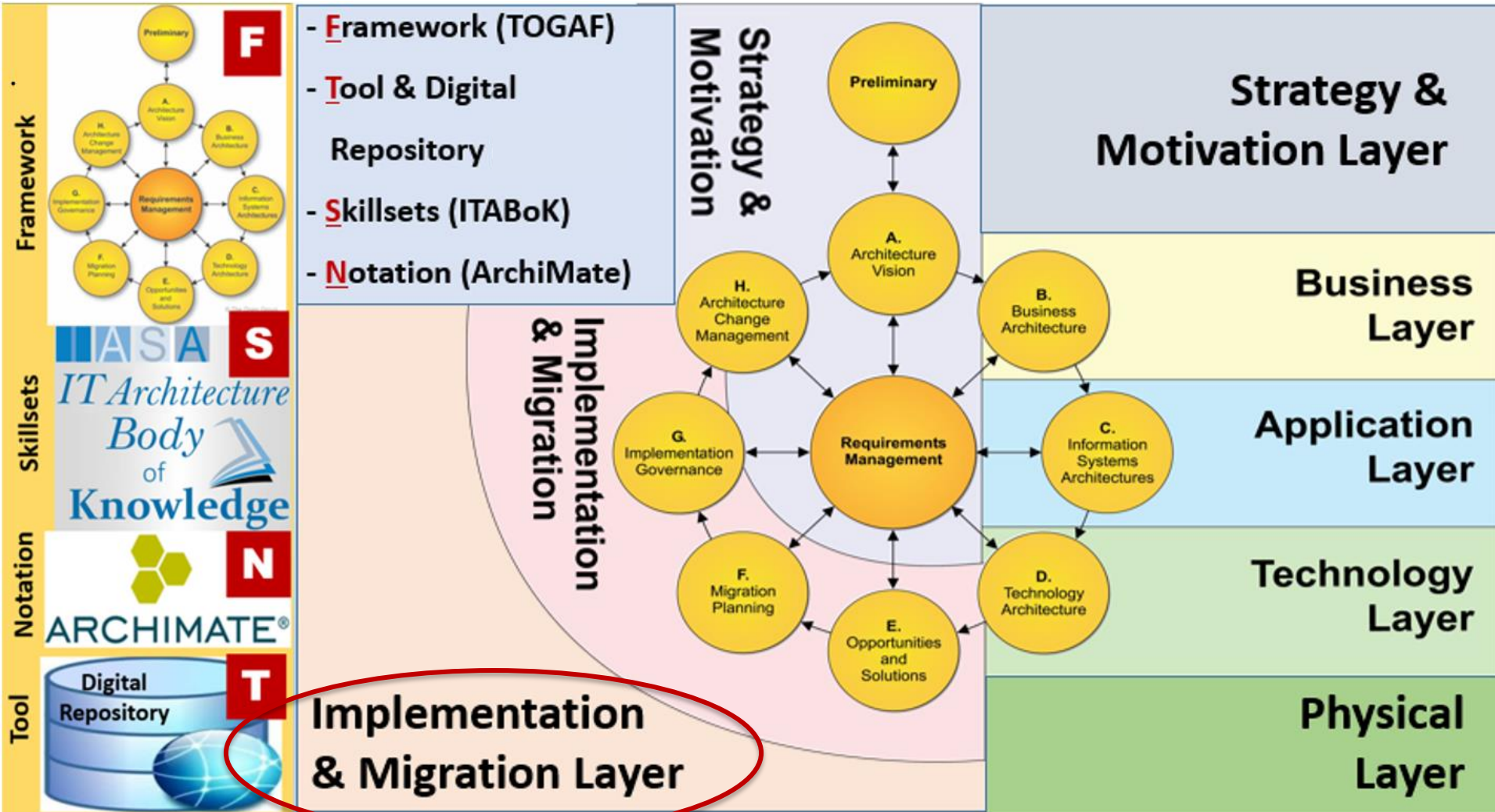# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0



- **F**ramework (TOGAF)
- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)

Framework

Skillsets

IASA
IT Architecture
Body
of
Knowledge

Notation

ARCHIMATE®

Tool

Digital Repository

Strategy & Motivation

Preliminary

A. Architecture Vision

H. Architecture Change Management

B. Business Architecture

Implementation & Migration

G. Implementation Governance

Requirements Management

C. Information Systems Architectures

F. Migration Planning

D. Technology Architecture

E. Opportunities and Solutions

Implementation & Migration Layer

Strategy & Motivation Layer

Business Layer

Application Layer

Technology Layer

Physical Layer

# Example of Digital Map at Technology Layer

# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0



- **F**ramework (TOGAF)
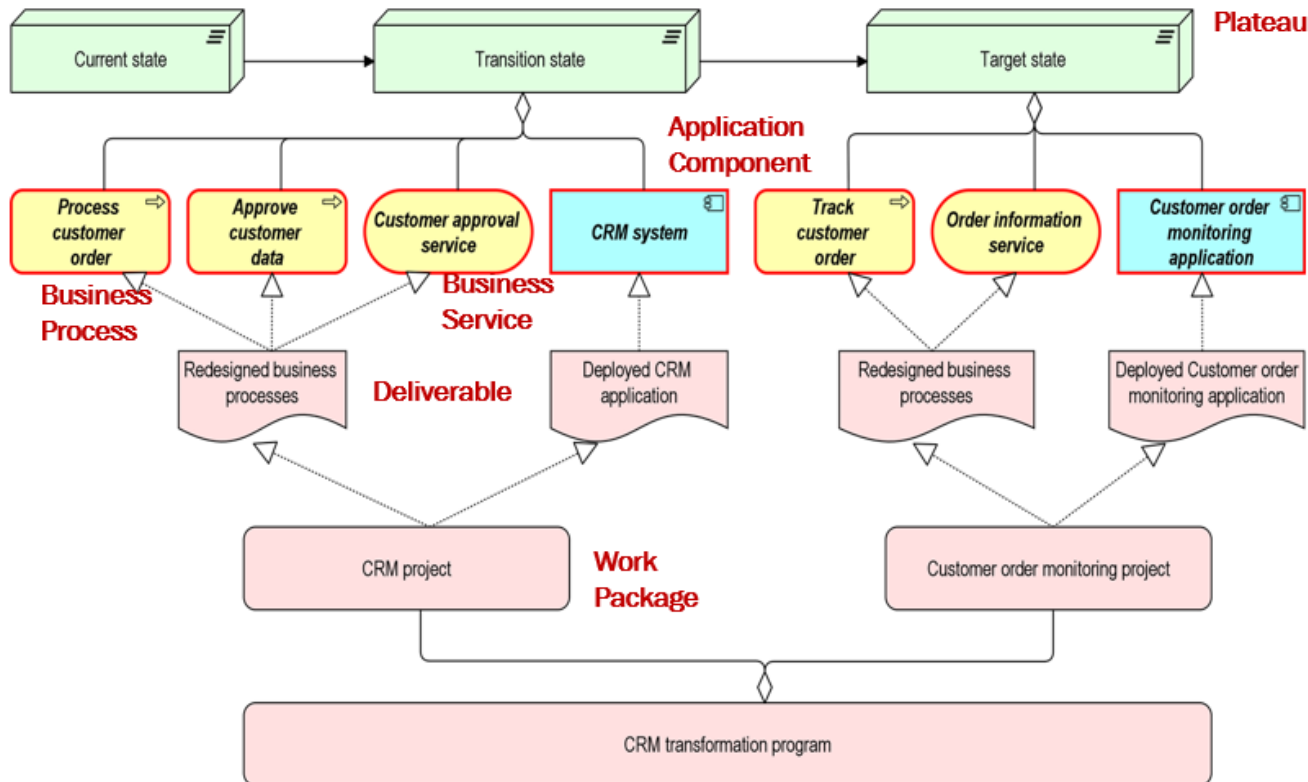- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)

# Example of Digital Map at Physical Layer (IoT)

# The Mapping of TOGAF 9.2, ArchiMate 3.0.1 & ITABoK Ver. 3.0



- **F**ramework (TOGAF)
- **T**ool & Digital Repository
- **S**killsets (ITABoK)
- **N**otation (ArchiMate)

# Example of Digital Map at Implementation & Migration Layer



This model shows **Transformation Program** that is composed of two successive projects, each with distinct deliverables that achieve a sequence of plateaus. The **first** project implements the CRM application, and the **second** implements customer order monitoring.

# Thank You