

Foundational Definitions and Concepts

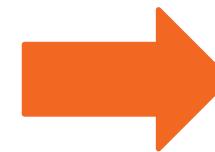
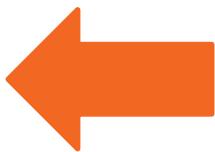


Joseph Anthony

@ansolabs | www.ansolabs.net

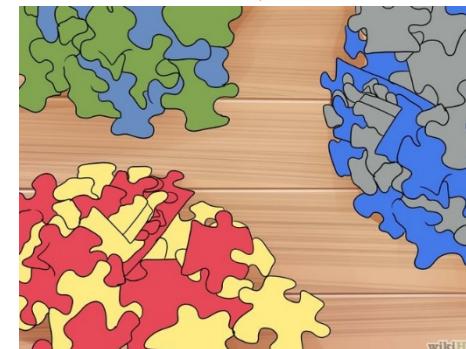
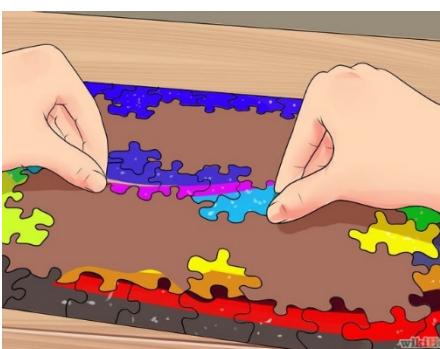
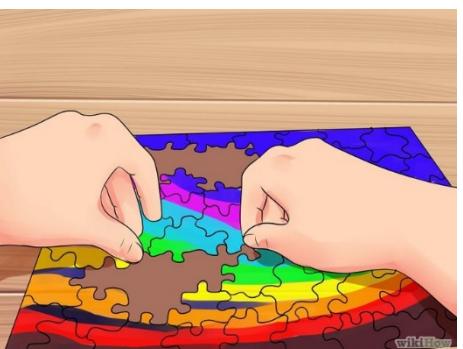
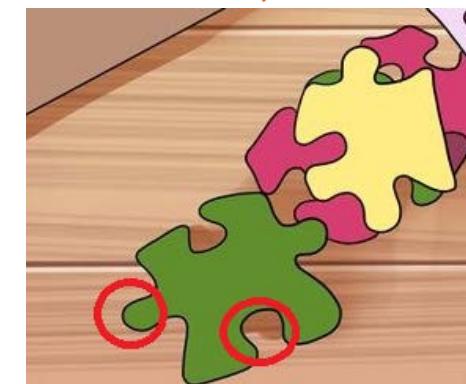
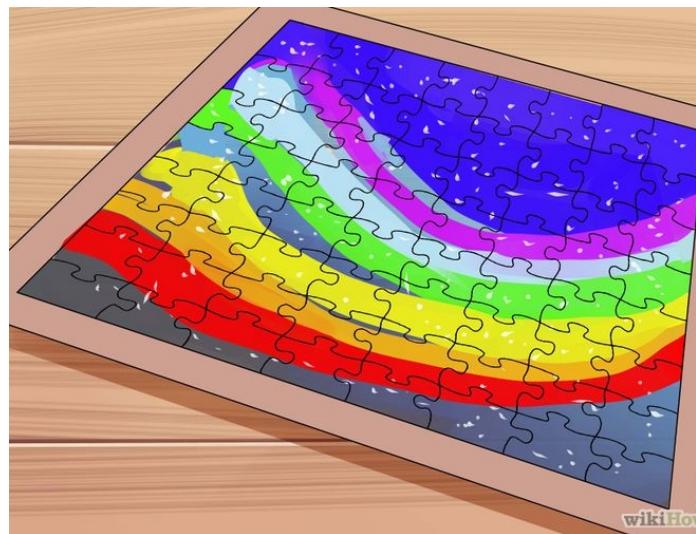
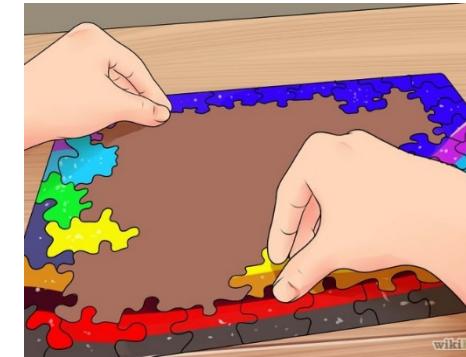
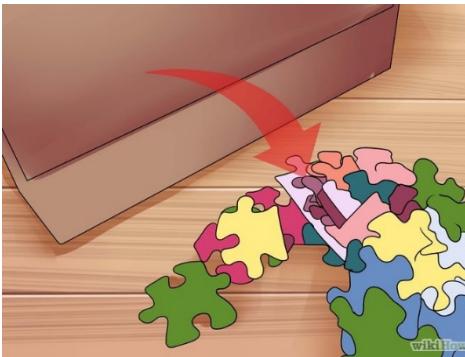
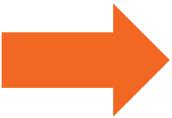
Basic Questions

What is
Architecture?



What is
An Enterprise?

What is EA?

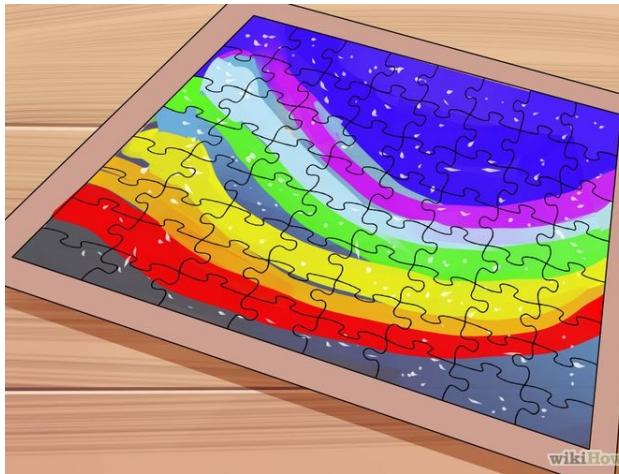


Method & images Courtesy: <http://bit.ly/1RrhYnS>

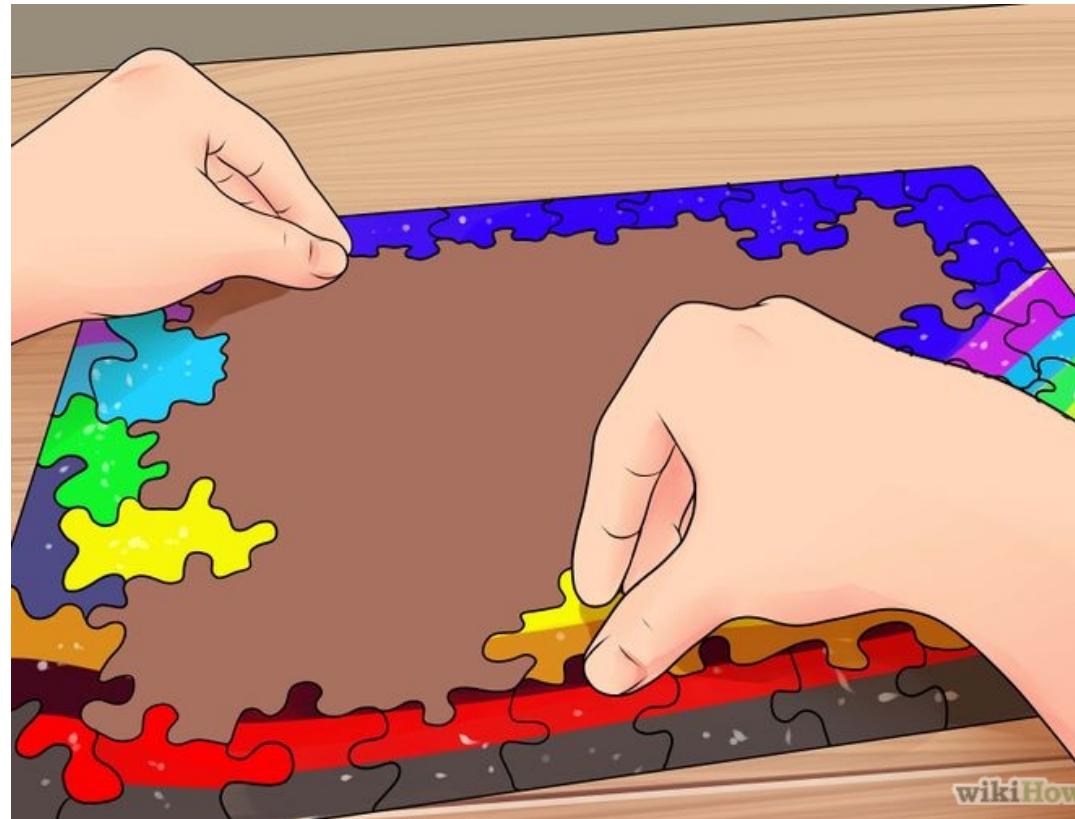


This is not unlike how
enterprise architecture is
put together!

Completed Picture Is Equivalent to Target State Architecture



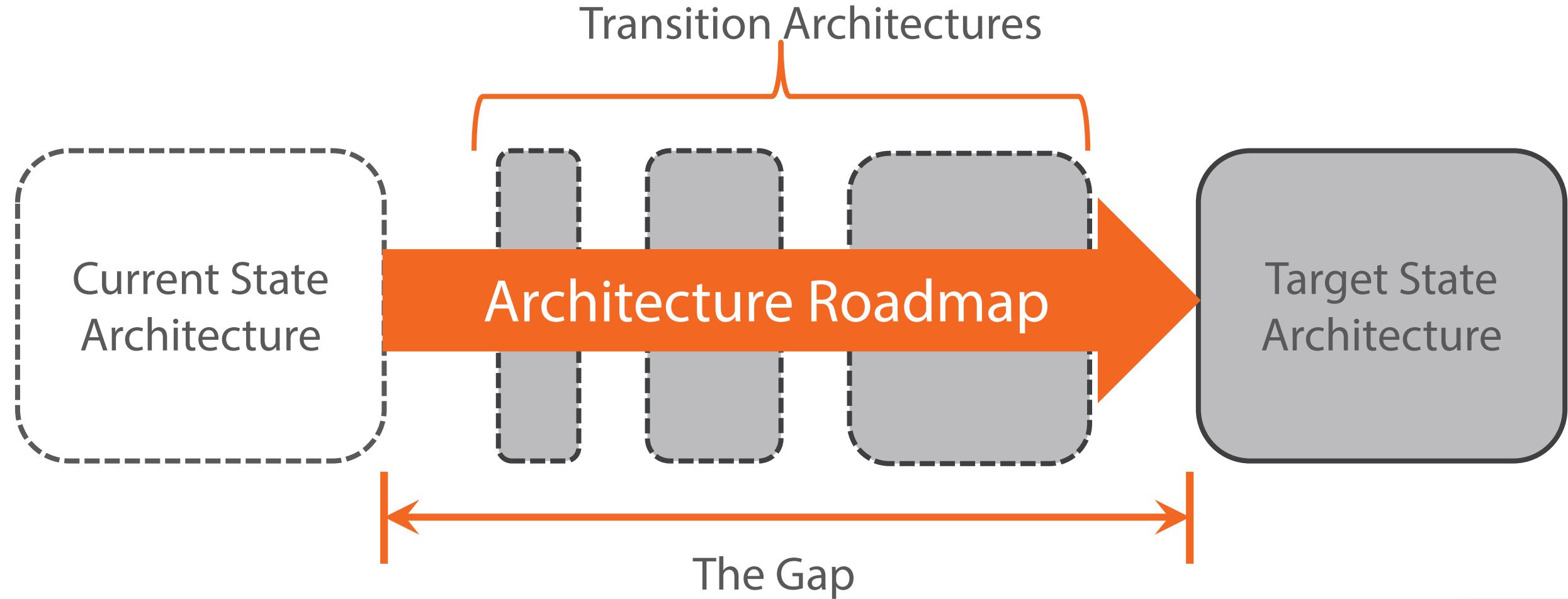
Current State Architecture



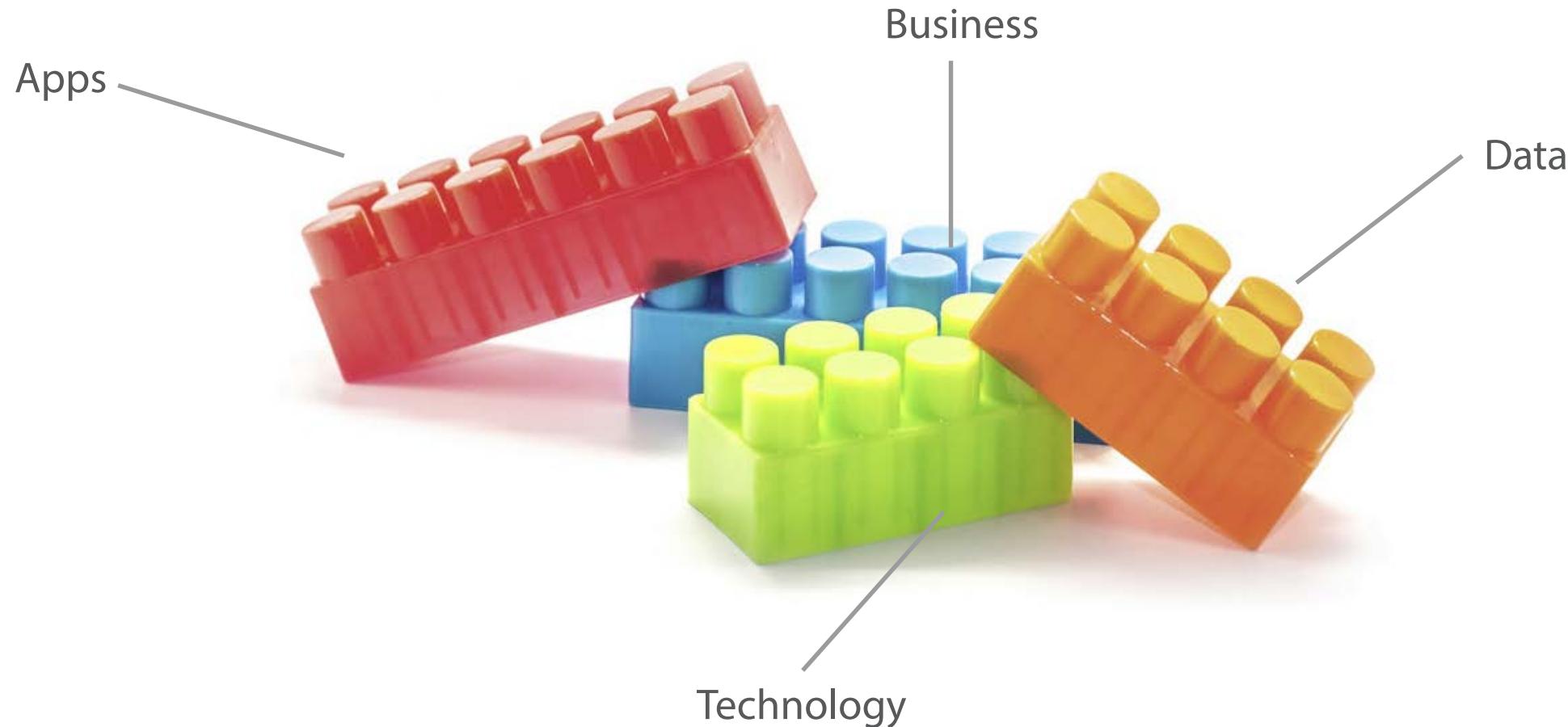
Images Courtesy: <http://bit.ly/1RrhYnS>

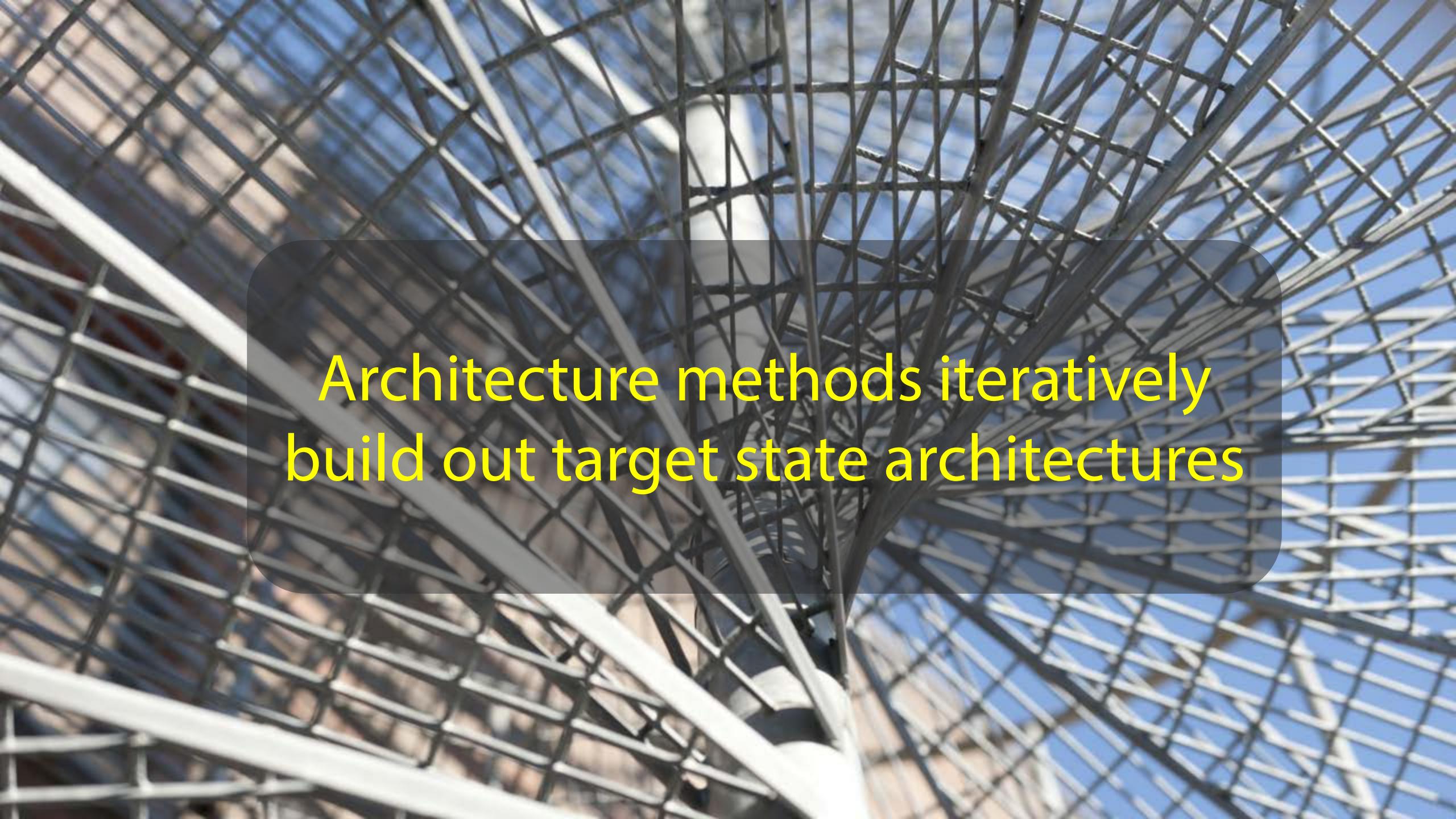
pluralsight

Strategically Architects Focus on Bridging the Gap Between Current and Target State



Architecture Building Block



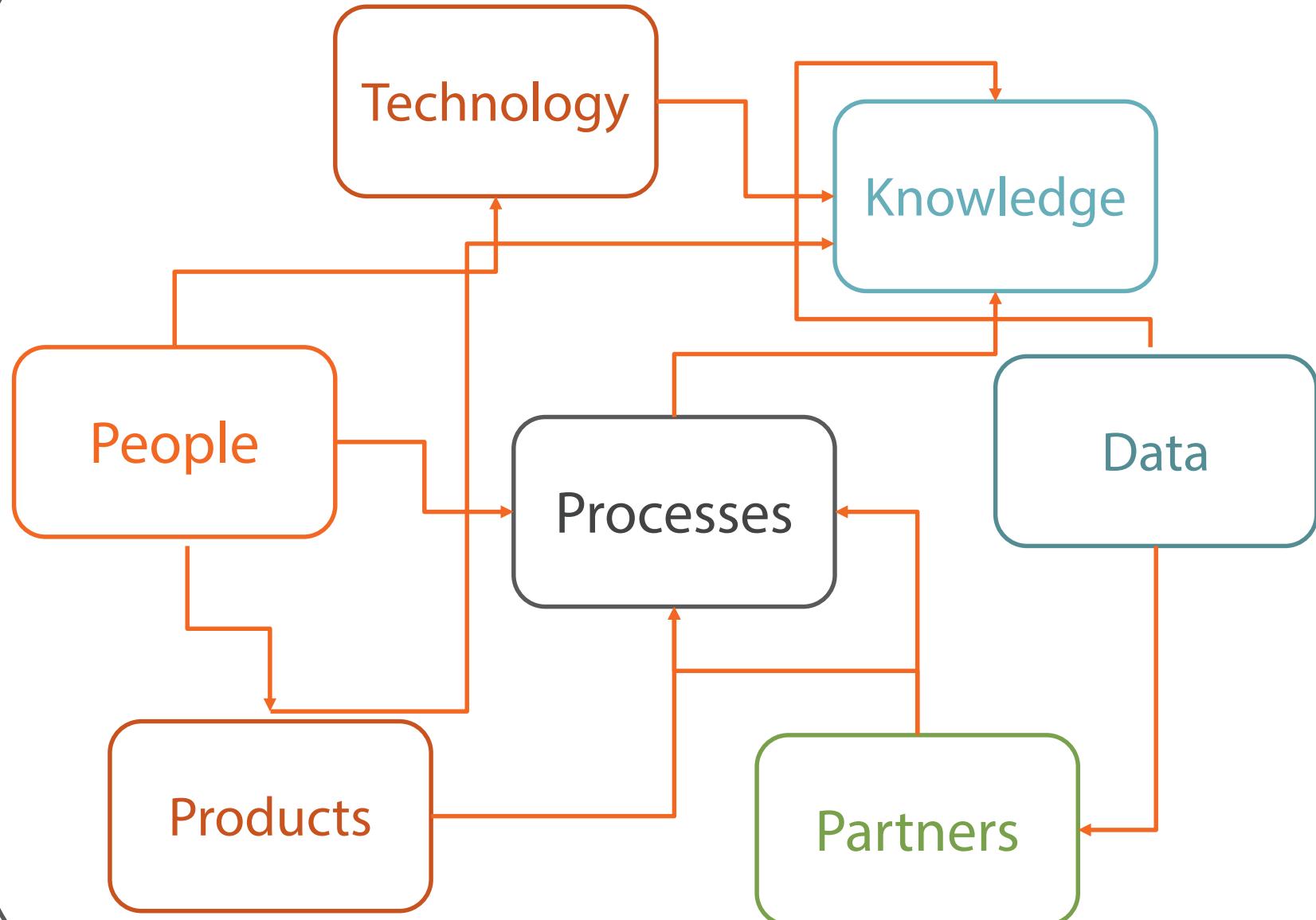
The background image shows a close-up view of a modern architectural roof or canopy. It features a complex, multi-layered steel truss structure supported by white columns. The roof is covered in a grid of transparent panels, likely glass or polycarbonate, which reflects the bright blue sky above. The perspective is looking up through the structure.

Architecture methods iteratively
build out target state architectures



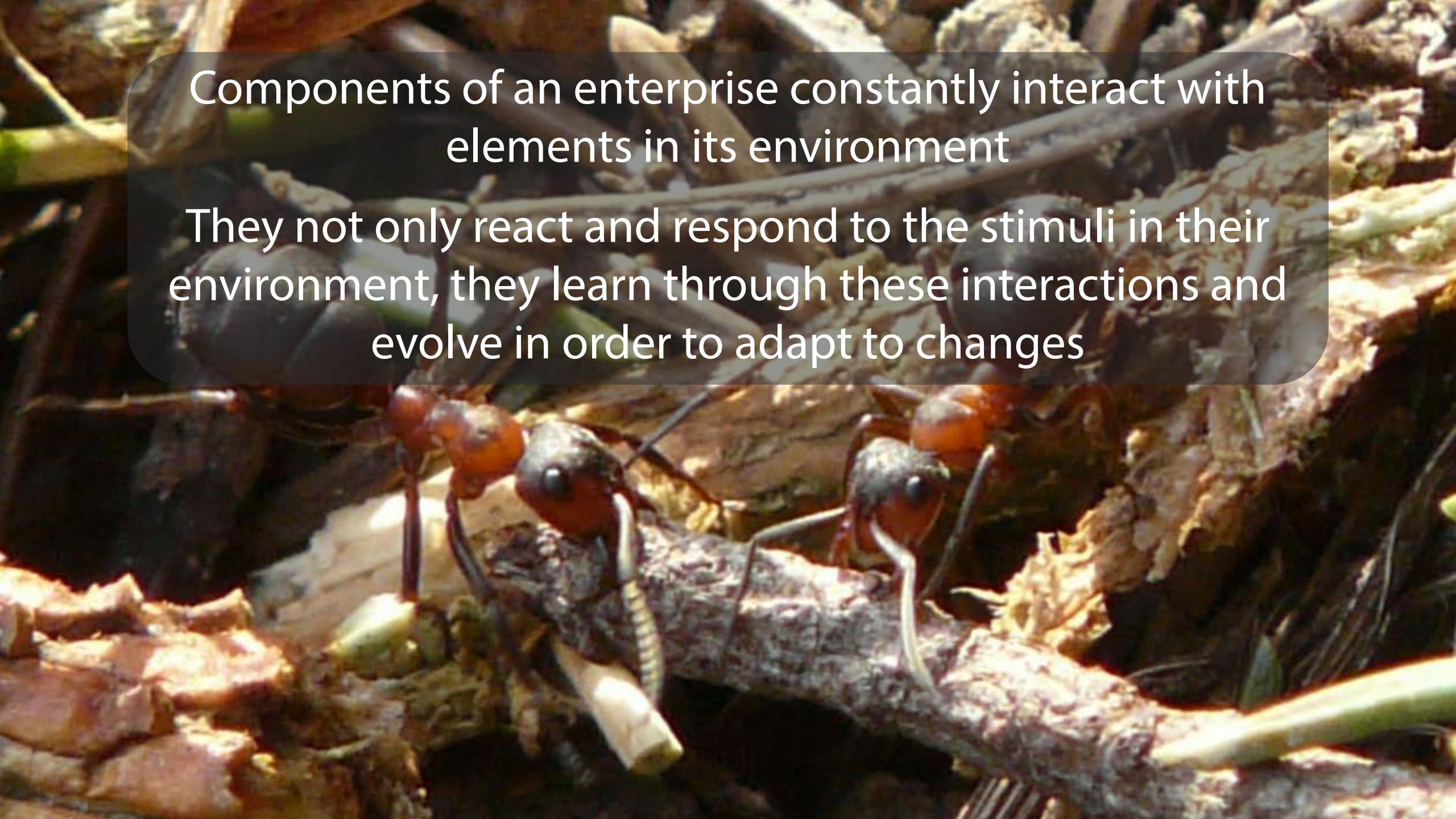
Enterprises are highly
complex systems!

Enterprises Span Multiple Dimensions



Value
Revenue





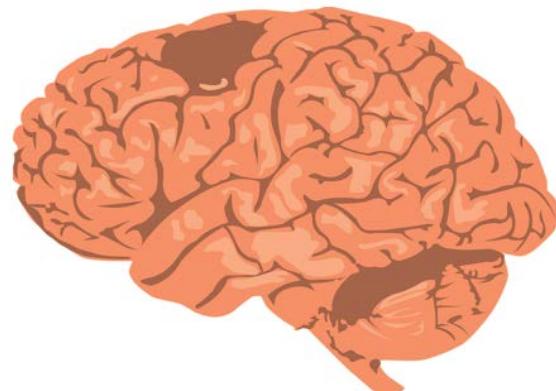
Components of an enterprise constantly interact with elements in its environment

They not only react and respond to the stimuli in their environment, they learn through these interactions and evolve in order to adapt to changes

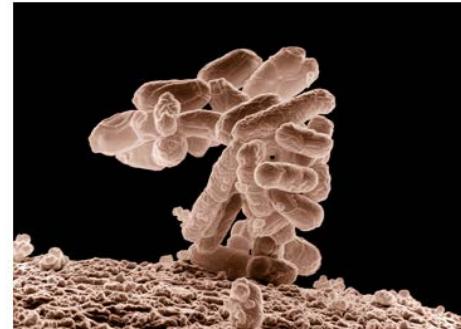
Enterprises Are Complex Adaptive Systems

Complex Adaptive Systems (CAS) are systems characterized by complex behaviors that result from non-linear interactions among large number of components in time and space at various levels of organization

These kind of systems cannot be understood by analytical methods alone but a combination of holistic and analytical approaches is required



The Brain



The Immune System



Ecosystem



The Society

What is an Enterprise?

Enterprise

Any collection of organizations that has a common set of goals

Organization

A social unit of people, systematically structured and managed to meet a need or to pursue collective goals on an ongoing basis

What Is an Enterprise?

TOGAF definition of enterprise caters to a broad array of structural arrangements

These are not constrained by corporate boundaries

Examples could be

A government agency

A private (for profit) corporation

A not for profit entity

A business unit within an organization

A chain of companies linked by ownership

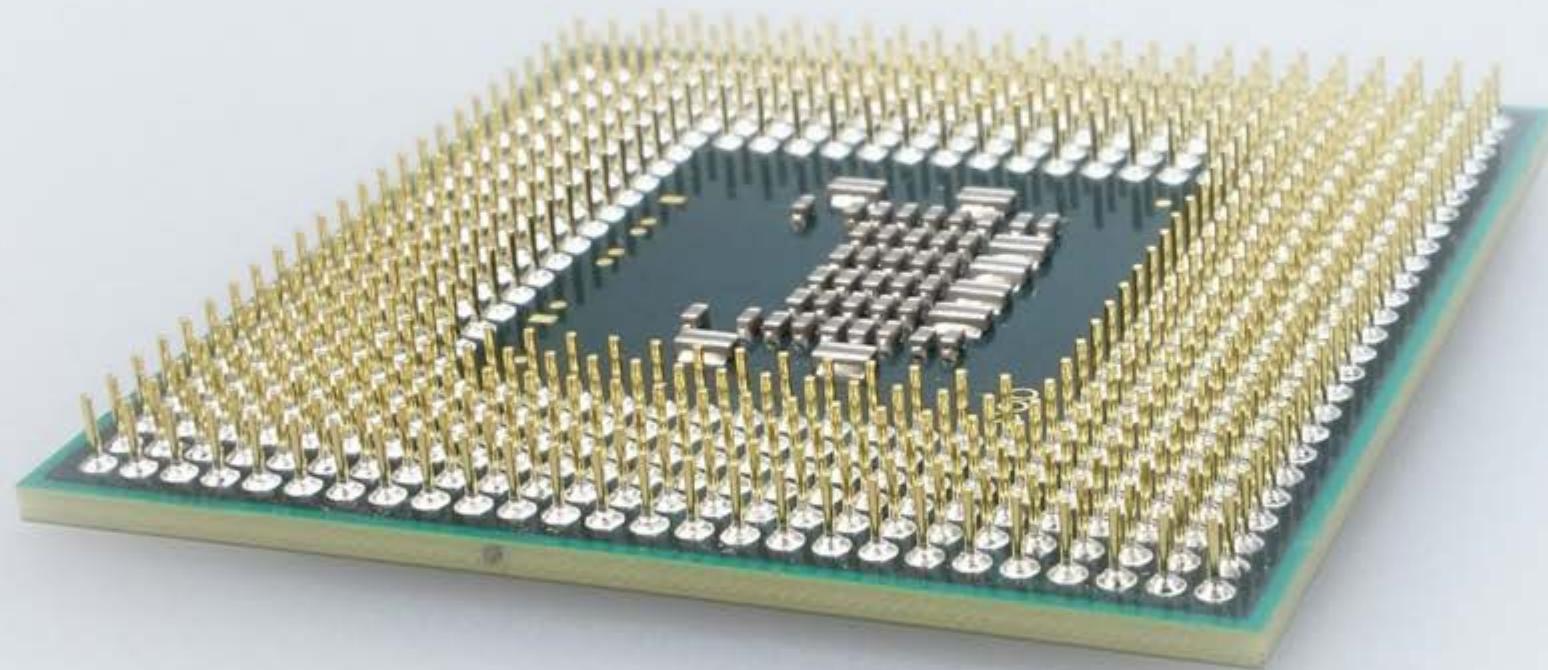


What Is Architecture?

Architecture (ISO/IEEE)

Fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution

Architecture Is About Systems



What Are Systems?

Man made systems

E.g.: automobile, cantilever bridge, smartphone

Naturally occurring systems

E.g.: Living cells, eco-systems, solar system, galaxies

Conceptual Systems

E.g.: code of ethics, OOP paradigm, relativity theory

What Is Architecture?



Architecture is not about every minutiae of how the system is organized or built

It is more about the fundamental concepts or properties that can be observed

In its elements

In the relationships

In the organizing principles

What Then Is Enterprise Architecture?

Enterprise Architecture (TOGAF)

- 1) Architecture is the structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time
- 2) A formal description of a system, or a detailed plan of the system at component level to guide its implementation

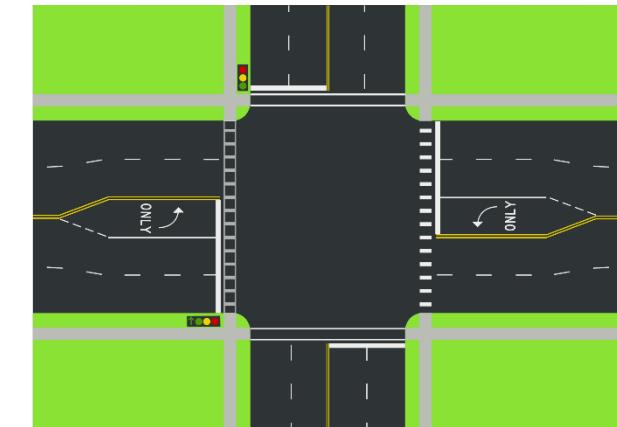
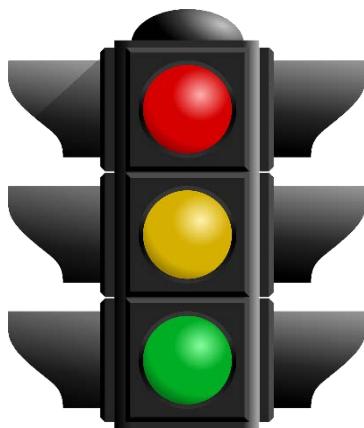
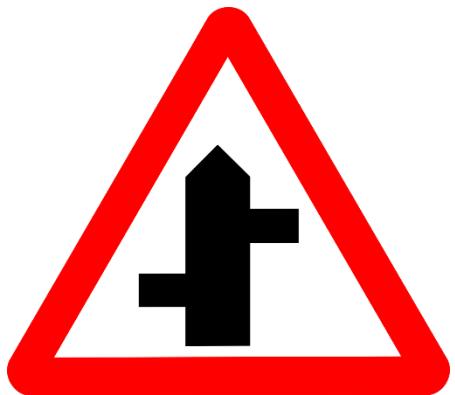


Architecture does not stop at documentation
Architecture contents are a means to an end
Architecture should enable true business
change and unlock business value

Enterprise Architecture Frameworks

Frameworks

Traffic Rules Framework



Frameworks

1 H Hydrogen																	2 He Helium
3 Li Lithium	4 Be Beryllium																
11 Na Sodium	12 Mg Magnesium																
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Rutenum	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon
55 Cs Caesium	56 Ba Barium	57 La Lanthanum	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon
87 Fr Francium	88 Ra Radium	89 Ac Actinium	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Uub Ununbium	113 Uut Ununtrium	114 Uuq Ununquadium	115 Uup Ununpentium	116 Uuh Ununhexium	117 Uus Ununseptium	118 Uuo Ununoctium

58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

What Other Frameworks Can We Think Of?

Could We Say?

Frameworks are thinking tools that help organize concepts, knowledge, understanding

Help codify best practices and approaches to solving a set of problems pertinent to a domain

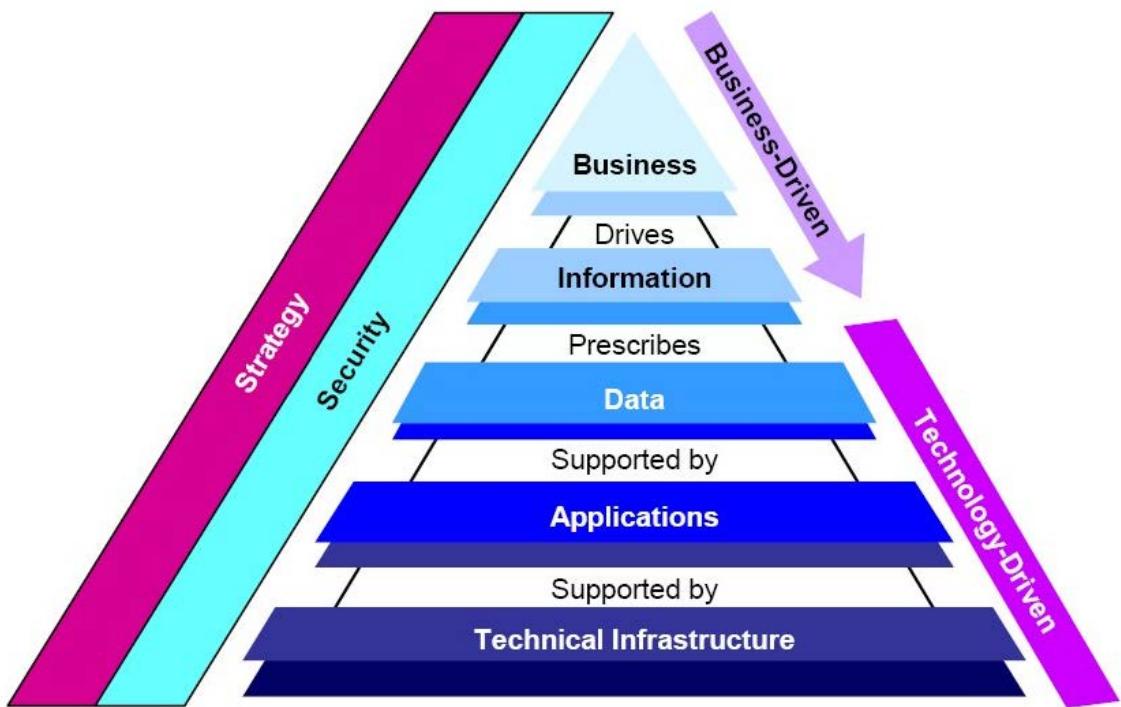
Frameworks standardize the language of the domain don't they?

Frameworks Standardize the Domain's Language



For example, a traffic violation can be described very precisely using standardized vocabulary defined by the traffic rules

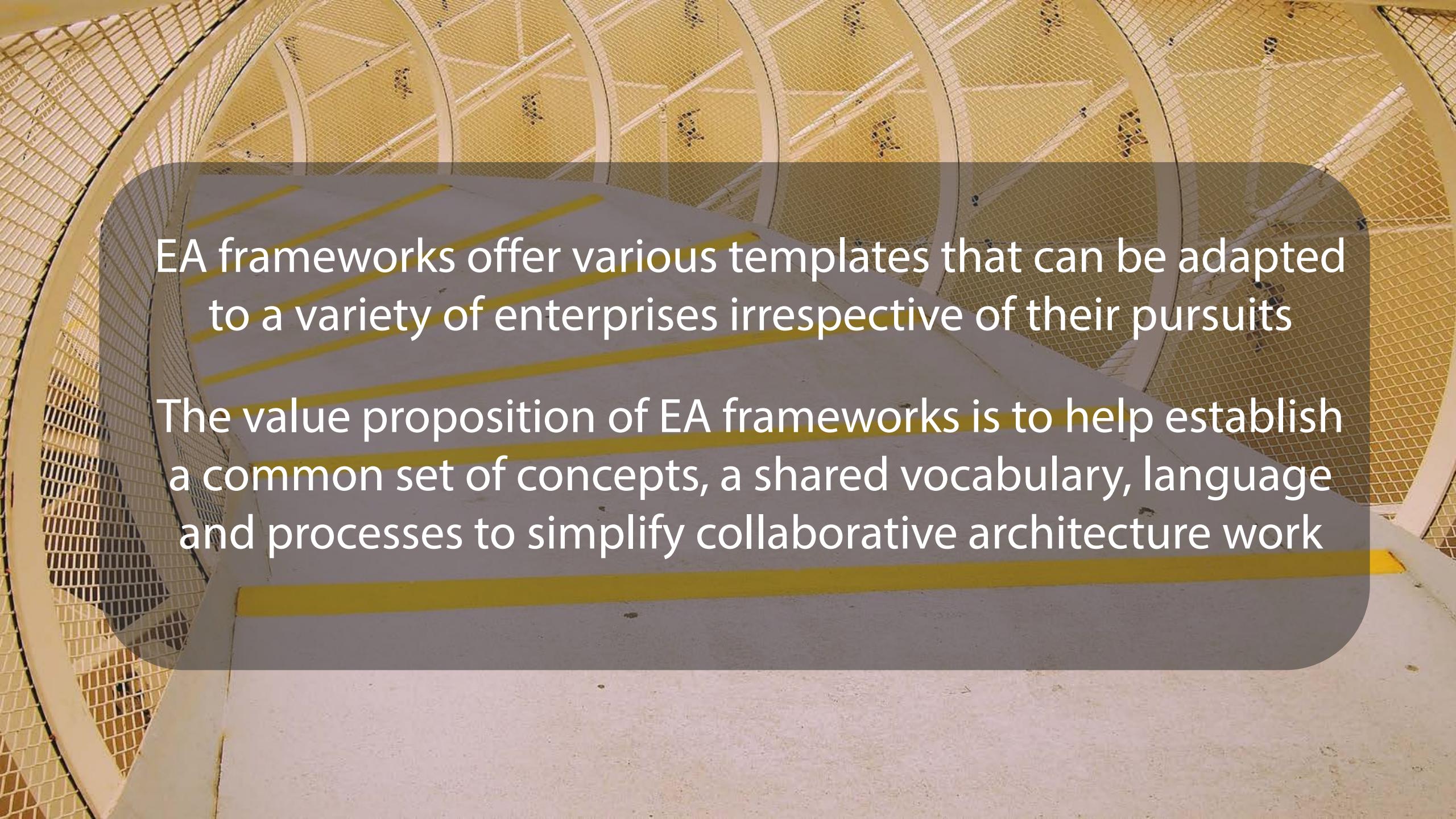
Enterprise Architecture Frameworks



Define the concepts, methods, processes and language of the EA domain

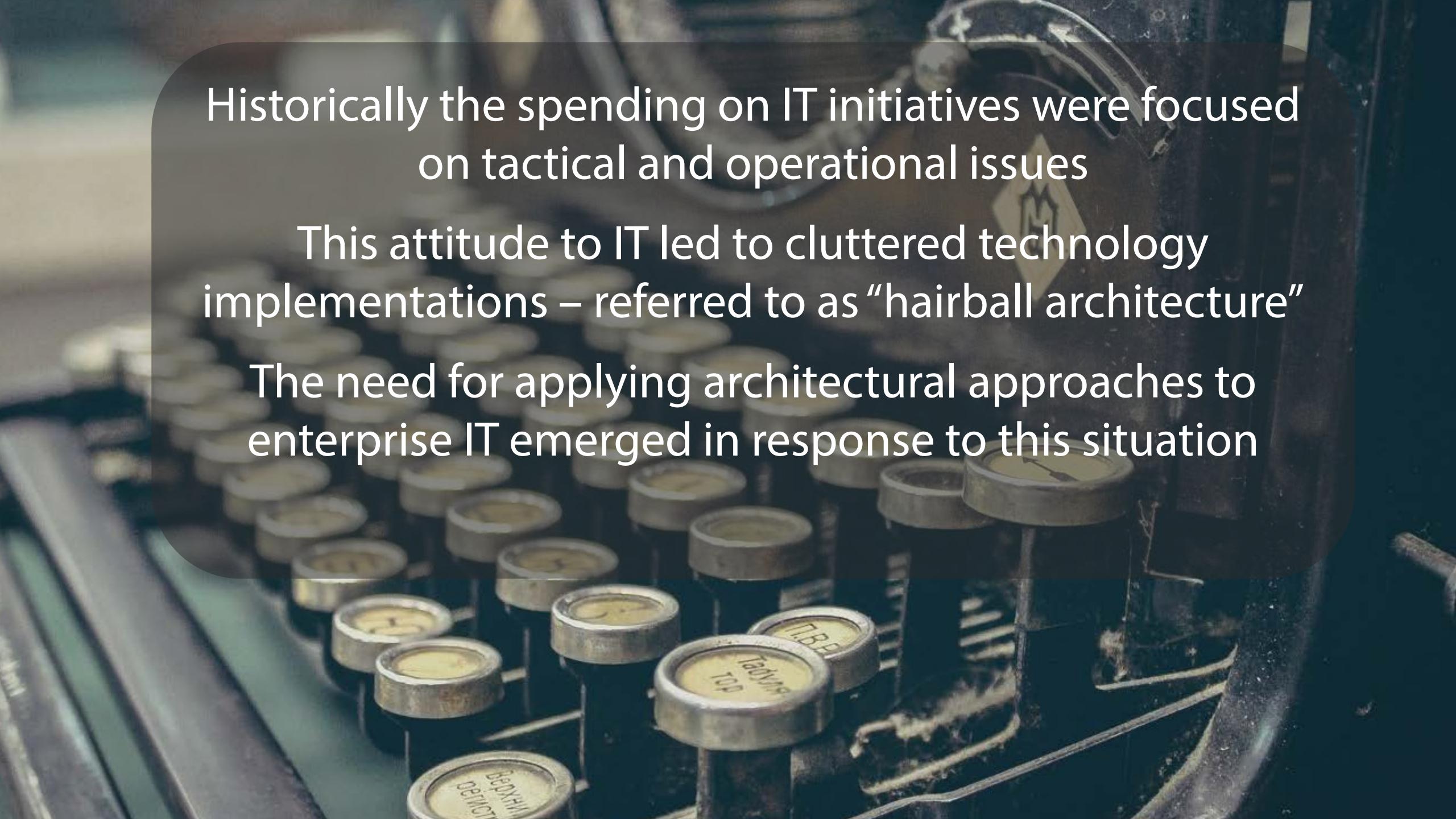
Standardization brings order, consistency and clarity to a field which by default is dominated by strong opinions, and a variety of specialist approaches

What is the collective noun for architects
again?

The background of the slide features a large, industrial-style fan or duct system. The fan is housed within a massive, light-colored metal frame. A prominent feature is a large, yellow-painted metal cage or mesh surrounding the central hub of the fan. The fan blades themselves are visible through the mesh, appearing as dark, curved shapes. The overall scene is brightly lit, casting shadows that emphasize the metallic textures and geometric shapes of the industrial equipment.

EA frameworks offer various templates that can be adapted to a variety of enterprises irrespective of their pursuits

The value proposition of EA frameworks is to help establish a common set of concepts, a shared vocabulary, language and processes to simplify collaborative architecture work



Historically the spending on IT initiatives were focused on tactical and operational issues

This attitude to IT led to cluttered technology implementations – referred to as “hairball architecture”

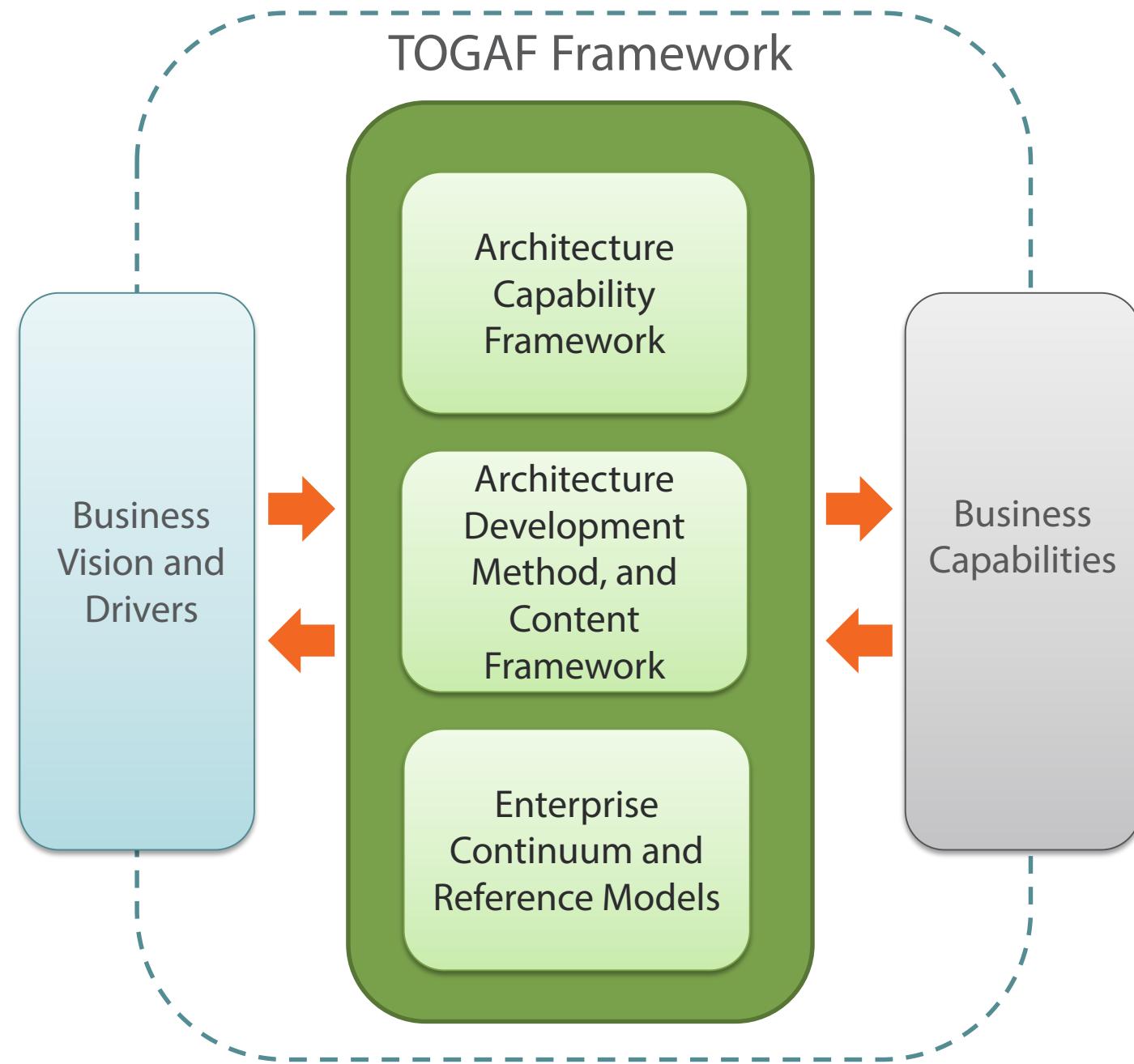
The need for applying architectural approaches to enterprise IT emerged in response to this situation



Early works in this area began as early as the 1960s within IBM by its then director of Architecture Duane P. Walker

Early adoption in the industry began only in the late 1980s and early 90s

Several frameworks came into existence from various organizations, institutions and industry consortiums



TOGAF (The Open Group Architecture Framework) came into existence in the 1990s

It is developed by “The Open Group” a vendor and technology neutral industry consortium with over 400 member organizations

Version 1.0 derived heavily from TAFIM (Technical Architecture Framework for Information Management)

The latest version is TOGAF 9.1 and it is significantly enhanced and revised from its early releases

TOGAF is defined in 6 major parts

Six Major Sections of TOGAF 9.1

Architecture
Content Framework

Architecture
Development
Method (ADM)

ADM Guidelines
and Techniques

The Enterprise
Continuum

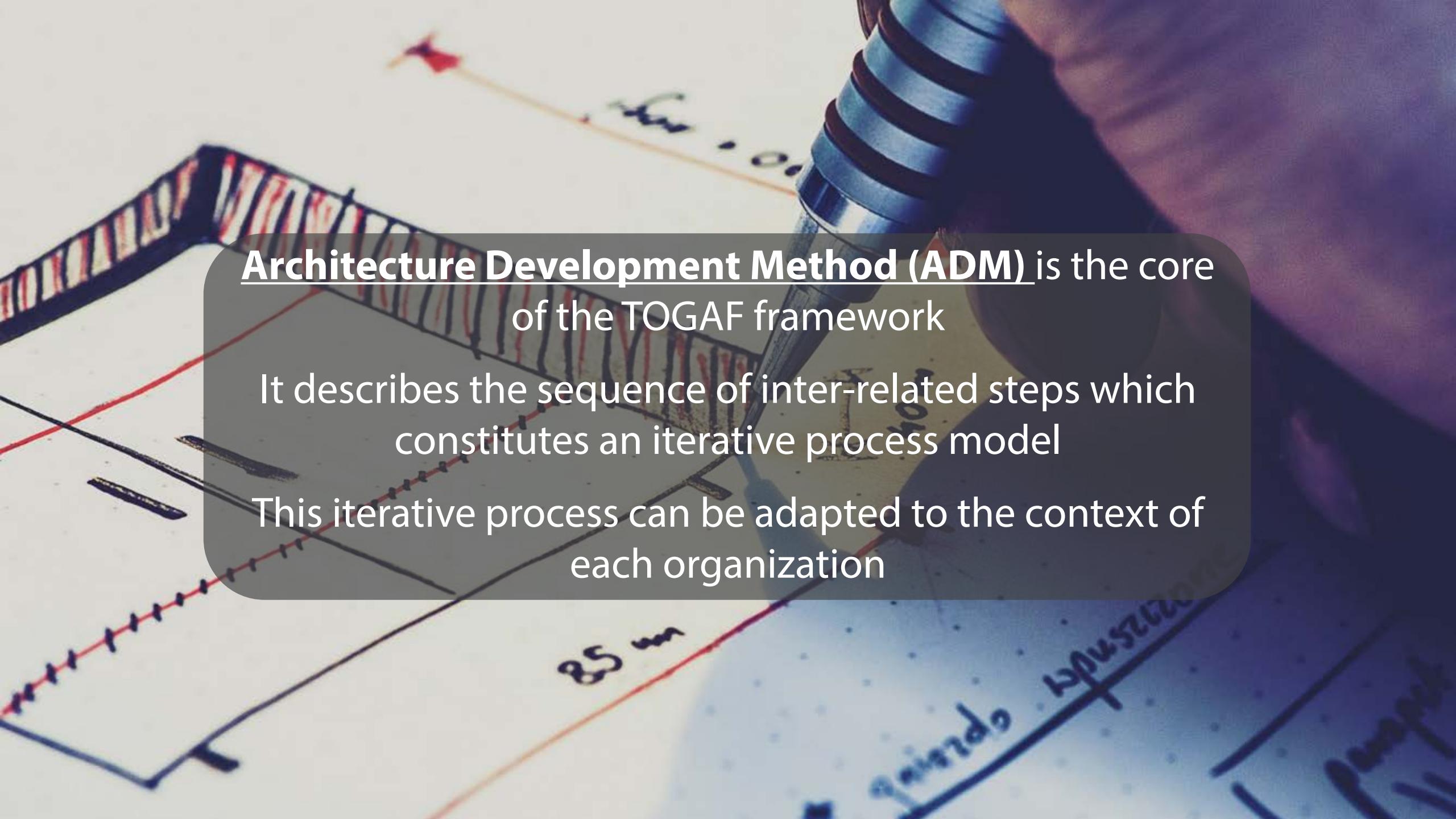
The Architecture
Capability
Framework

TOGAF Reference
Models

Architecture Content Framework

It is a framework within TOGAF 9.1 framework, focused on offering guidelines around creating and organizing architectural content

It primarily offers a content meta-model that describes the kinds of architecture models to create to describe the architecture



Architecture Development Method (ADM) is the core
of the TOGAF framework

It describes the sequence of inter-related steps which
constitutes an iterative process model

This iterative process can be adapted to the context of
each organization

A close-up photograph of a person's arm being massaged. A person's hands, wearing a blue and white striped shirt, are shown from above, applying pressure to the forearm and hand. The person receiving the massage is wearing a black watch on their left wrist. The background is dark and out of focus.

ADM Guidelines & Techniques

provides a large number of
Enterprise Architecture best
practices

It goes into practical aspects of
applying the ADM



Enterprise Continuum

Offers a view over the architecture repository of the enterprise

Facilitates discovery, consistent communication and reuse of architecture artefacts

Architecture Capability Framework

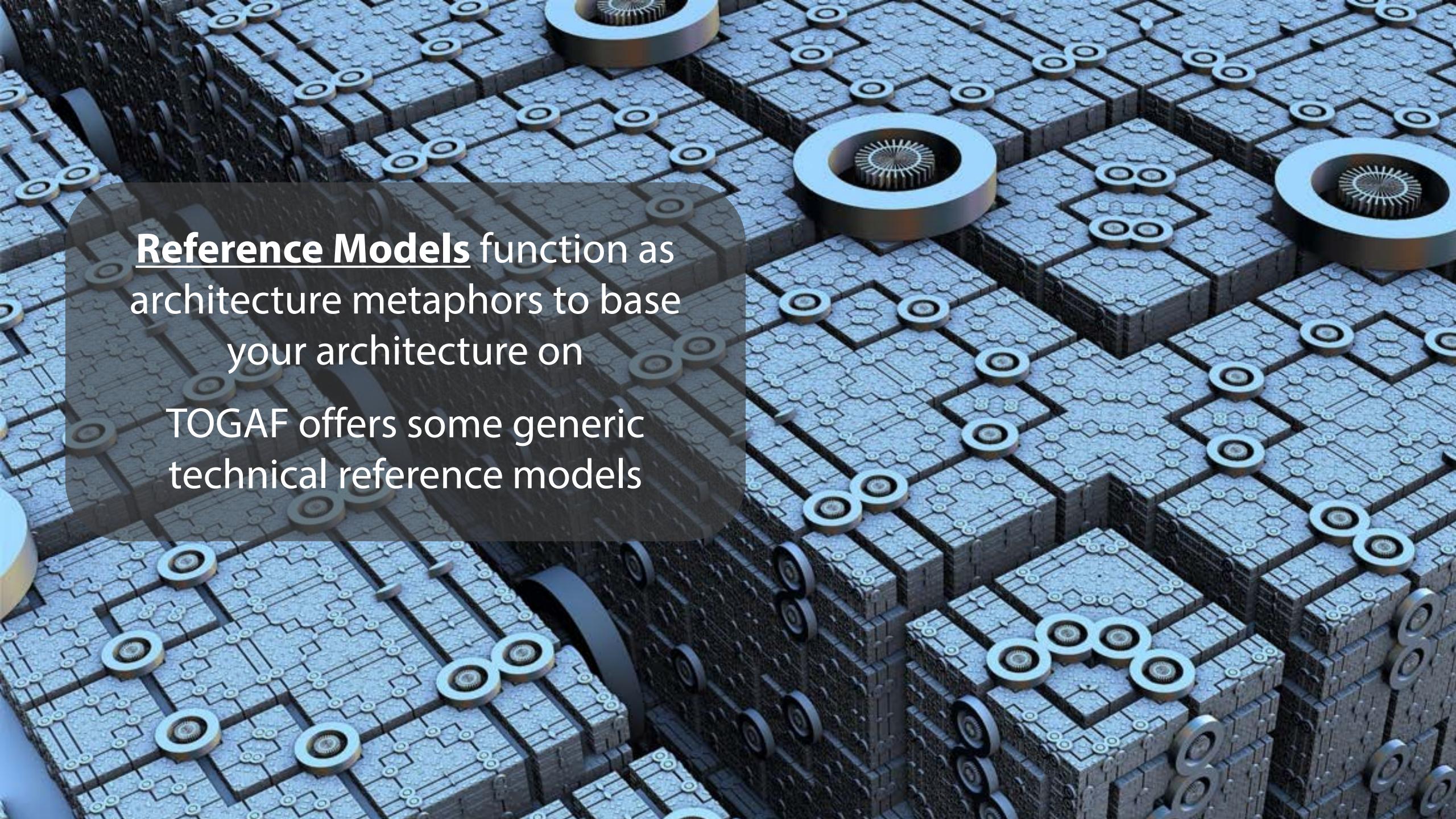
Offers guidelines on establishing
an EA capability

And around establishing and
running an architecture board

Establishing a governance process

It also defines architecture roles
and the EA skills framework





Reference Models function as architecture metaphors to base your architecture on

TOGAF offers some generic technical reference models

TOGAF Foundational Concepts

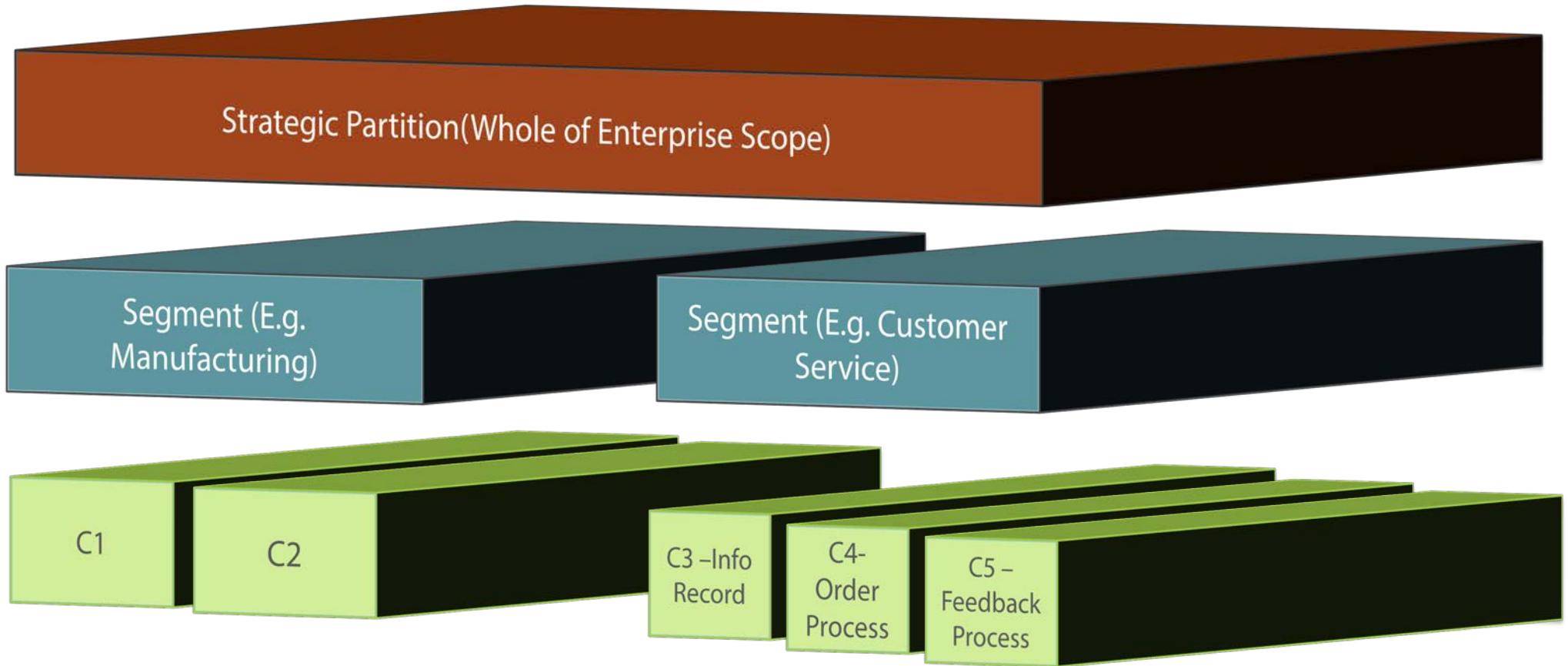
Tackling Complexity

Enterprise Architecture tackles complexity through separation of concerns

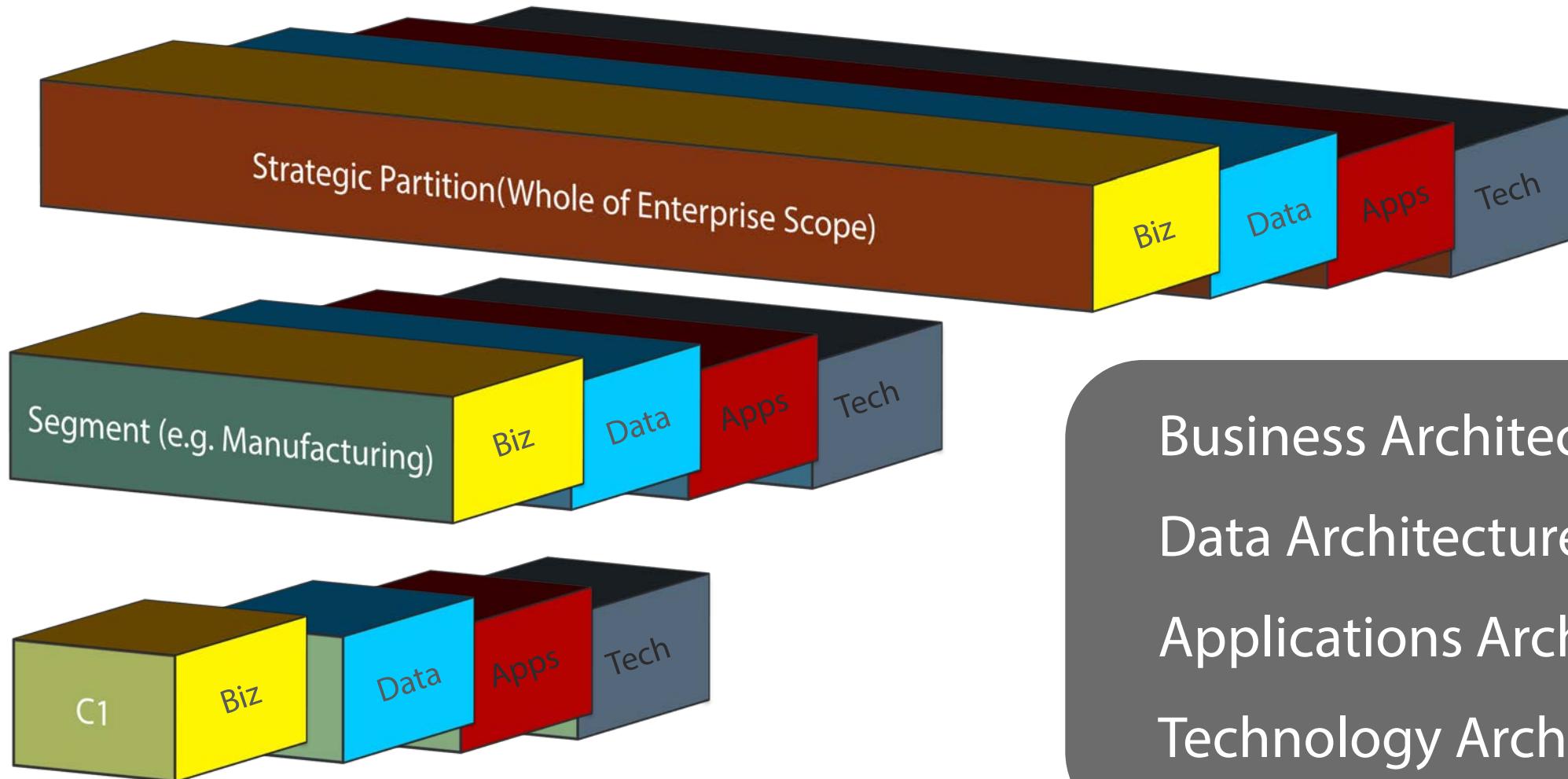
TOGAF makes it easy by defining several standard approaches to divide and conquer the enterprise's complexity



Architecture Partitions



Architecture Domains



Business Architecture

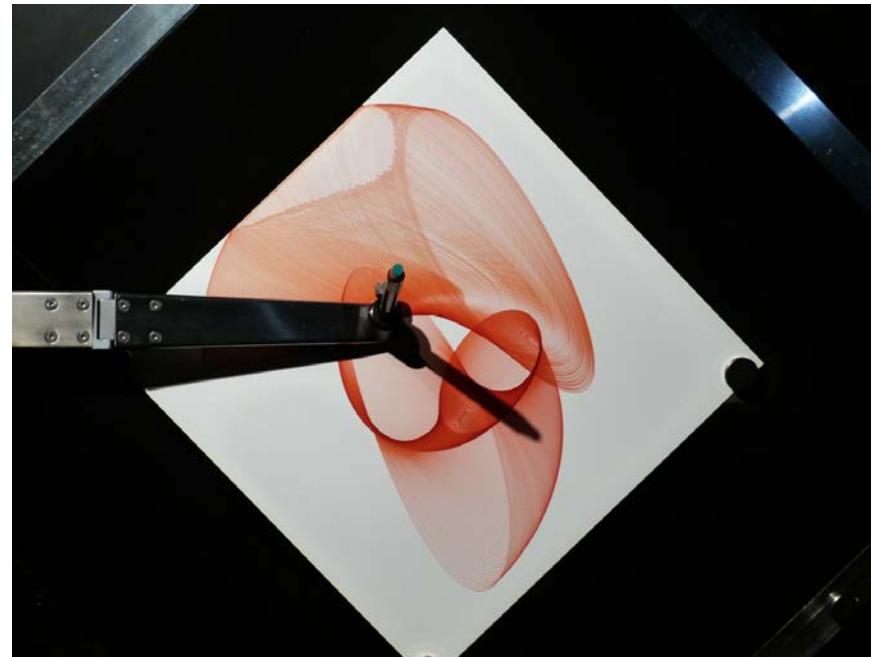
Data Architecture

Applications Architecture

Technology Architecture

Architects Operate with Two Loci of Controls

Architecture Vision



Stakeholder Concerns

Architectural Vision

Represents strategic view of the ideal target state of the enterprise's architecture

It is aligned to strategic vision

Realizes strategic vision of the business





Stakeholder Considerations

Collective of tactical and operational considerations and objectives

A stakeholder could be defined as anyone who is impacted by and/ or have an interest in the outcome of an enterprise initiative

Stakeholders are required to understand and endorse the architecture before they are implemented

Stakeholder communication and stakeholder management is a key function of enterprise architecture

Viewpoints

The architecture blueprint of a building might incorporate

Plumbing layout

Cabling plan

General layout and facades

Similarly the EA viewpoints of a B2B gateway presented to a business process expert will be different to say a network security expert

TOGAF recommends defining and agreeing on the minimum viewpoints that are necessary to satisfy the stakeholder concerns on given initiative

Views

While the viewpoints represent an angle or a perspective, it is expressed and articulated through views

Views represent the architecture from a given viewpoint

Views realize the architecture representations that are tailored to a target audience

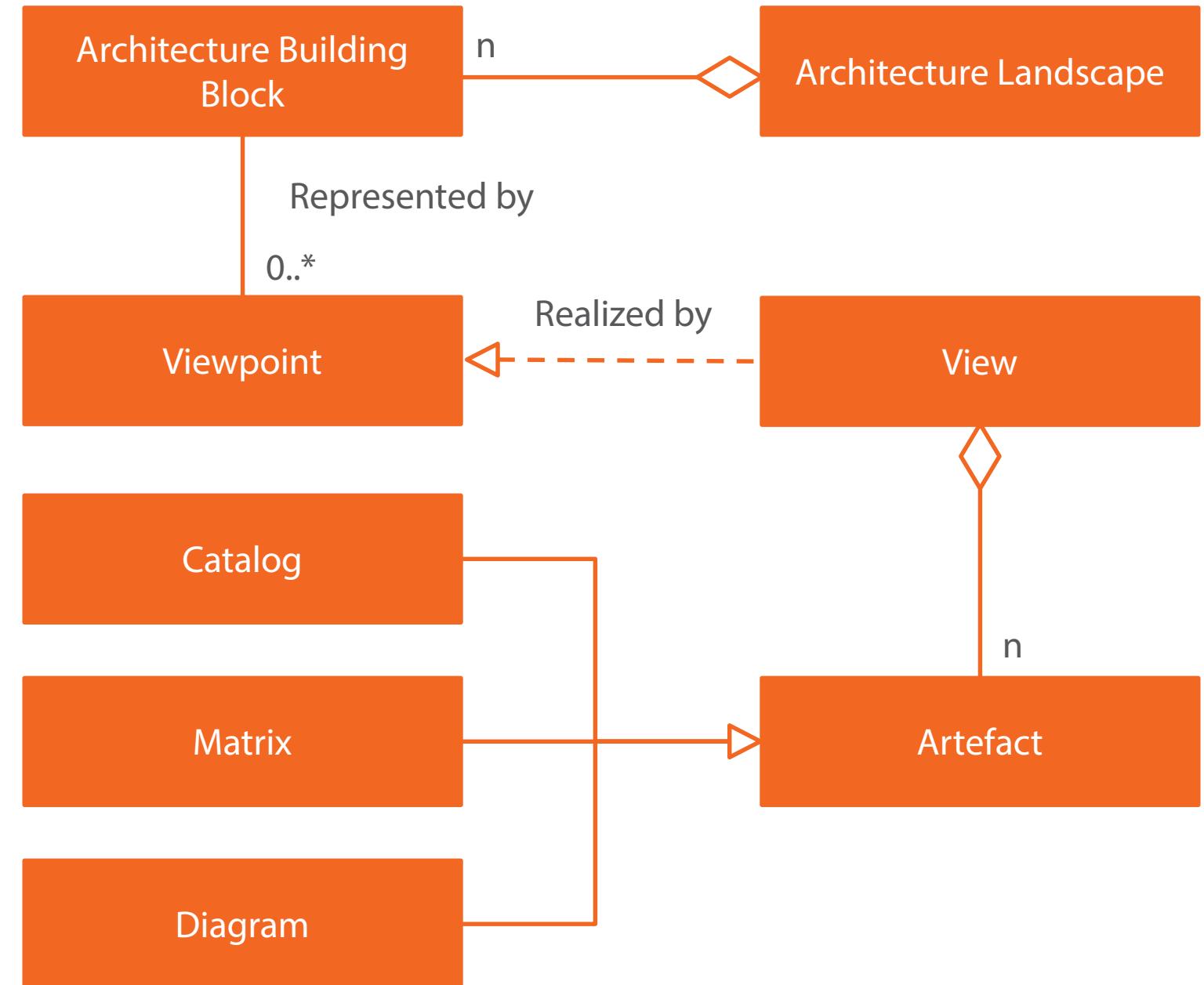


Architectural Artefacts

Catalogs

Matrices

Diagrams



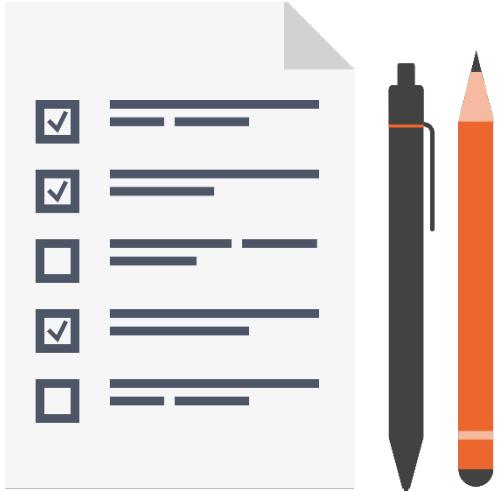
Architecture Deliverables

Contractually agreed work products that may describe one or more views representing one or more architecture building blocks

SIGNATURE



To Recap



What is enterprise architecture?

EA frameworks and their value proposition

Historical perspective of EA frameworks

Quick overview of TOGAF standard

TOGAF foundational concepts