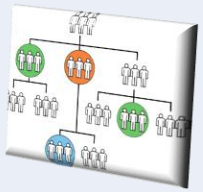
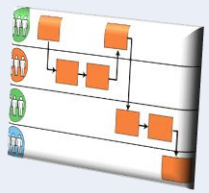
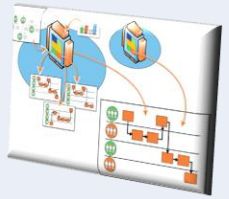
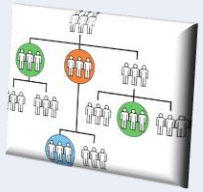
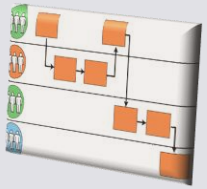
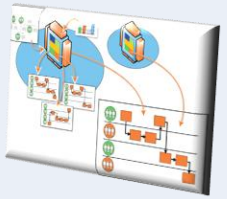
SysFEAT Methodology

Capability Based Planning

Change of paradigm

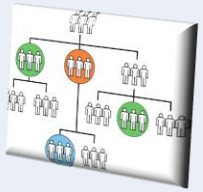
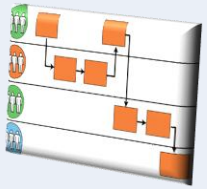
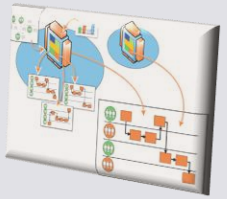
Hierarchy	Matrix	Network
1980's and earlier	Late 1990's	Today's Organizations
		
▪ Department Focus ▪ Hierarchal Systems ▪ Mainframe centric ▪ Monolithic	▪ Business Process ▪ Client/Server ▪ Monolithic	▪ Virtual organizations ▪ Distributed Functions ▪ Service oriented ▪ Componentized
▪ Org-unit, ▪ Org-chart	▪ Value Chain, ▪ Processes	▪ Strategic alignment ▪ Business Capabilities
Function Optimization	Process Reengineering	Agile@Scale

Change of paradigm

Hierarchy	Matrix	Network
1980's and earlier	Late 1990's	Today's Organizations
		
▪ Department Focus ▪ Mainframe centric ▪ Monolithic	▪ Business Process ▪ Client/Server ▪ Monolithic	▪ Virtual organizations ▪ Distributed Functions ▪ Service oriented ▪ Componentized
▪ Org-unit, ▪ Org-chart	▪ Value Chain, ▪ Processes	▪ Strategic alignment ▪ Business Capabilities
Function Optimization	Process Reengineering	Agile@Scale

Where most architecture tools are positioned.

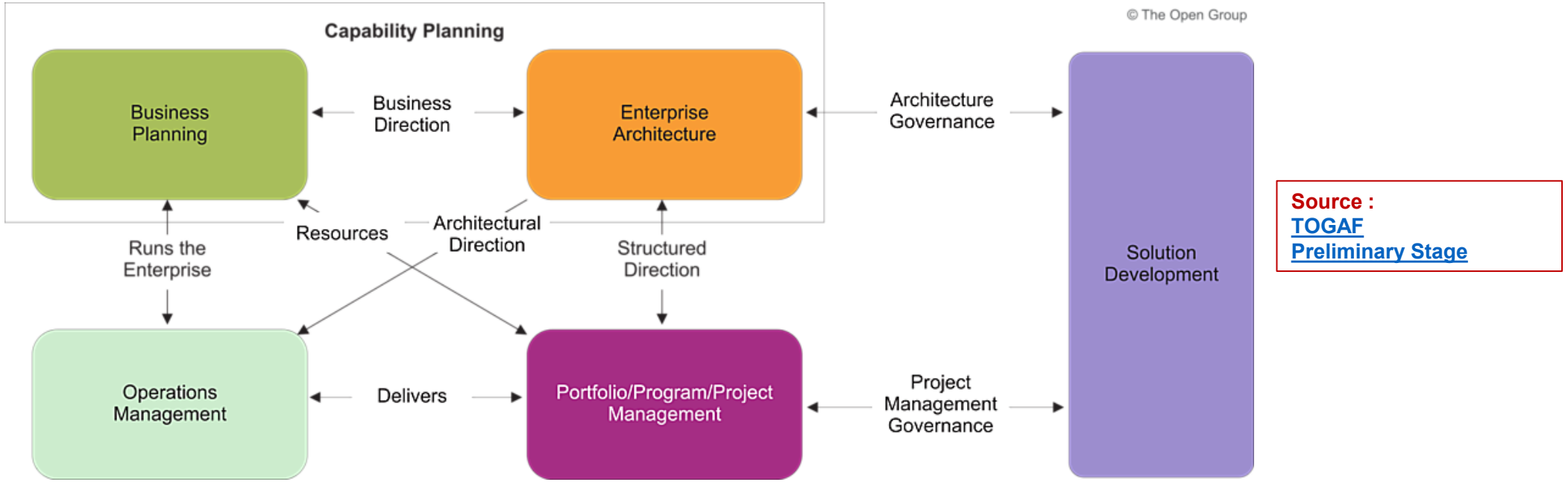
Change of paradigm

Hierarchy	Matrix	Network of Network
1980's and earlier	Late 1990's	Today's Organizations
		
▪ Department Focus ▪ Mainframe centric ▪ Monolithic	▪ Business Process ▪ Client/Server ▪ Monolithic	▪ Virtual organizations ▪ Distributed Functions ▪ Service oriented ▪ Componentized
▪ Org-unit, ▪ Org-chart	▪ Value Chain, ▪ Processes	▪ Strategic alignment ▪ Business Capabilities
Function Optimization	Process Reengineering	Agile@Scale

Where SysFEAT aims at being positioned.

Introduction

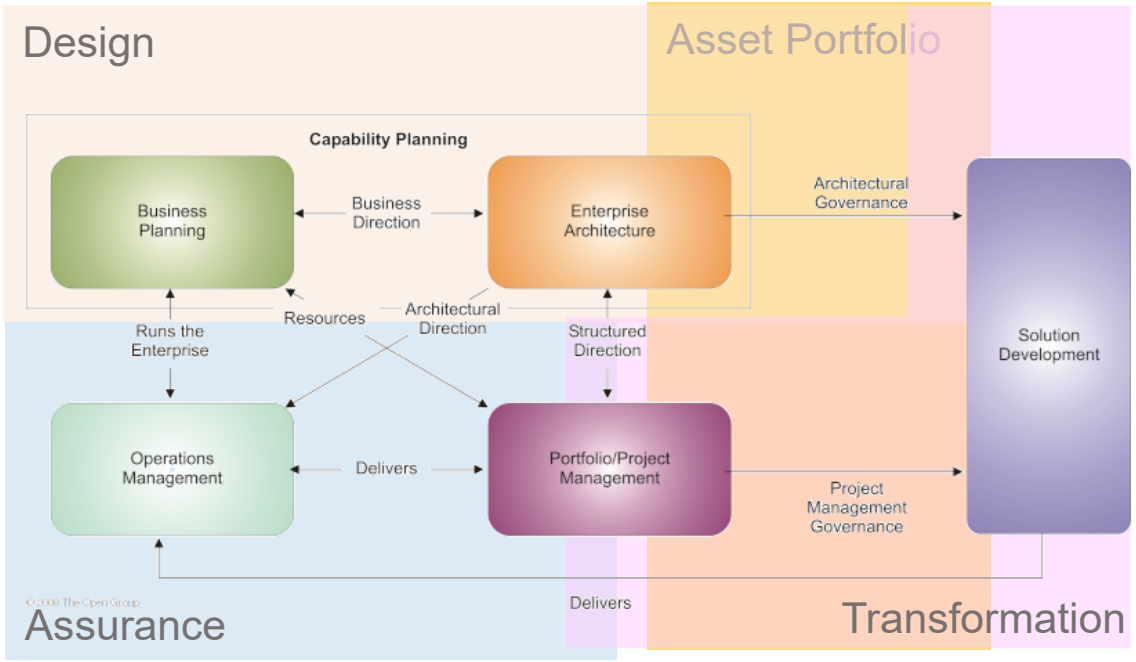
- Capability-based planning focuses on the planning, engineering, and delivery of strategic business capabilities to the enterprise.
- It enables a rigorous coupling of requirement analysis and of systems of systems analysis and the enterprise level.
- Standard frameworks such as UAF, ArchiMate or TOGAF are providing standard building blocks that can be shared by the architecting community.



Source :
TOGAF
Preliminary Stage

Enterprise Architecture Main Use Cases

- Enterprise transformation: help and guide business stakeholders in designing and guiding the executing enterprise transformation plans (doing the right things).
- Enterprise resources alignment: provide measurable business requirements for enabling resources (Organization, IT, infrastructure) and ensure that these resources map business requirements over time.
- Operational Excellence: help and guide business stakeholders in designing and conducting operations and ensure recurring and long term improvements throughout the organization (doing things right).
- Operational Assurance:
  - Privacy Assurance: ensuring and proving that the enterprise practices of collecting, maintaining, using and disseminating information about individuals follow privacy rules stated by authorities.
  - Business continuity planning: help in the design and follow-up of systems of prevention and recovery to deal with potential threats to the enterprise.
  - Operational risk assurance: predicting and managing risks that could hinder the organization to achieve its duties.



Enterprise Architecture Roles in TOGAF

Enterprise Architecture Building Blocks

– To do so, we need to:

Decide and plan what we want to be
<Road-mapping>
Enterprise & Management Systems

Describe the enterprise
<Enterprise Maps>

Asset Architecture | **Asset Deployment**

Eco-System & Constraints

Gather who is involved
<Teams>

Portfolios/ Initiatives

Organize change & assurance initiatives in alignment with Operations
<Agile @ Scale>

Govern and guide transformation and assurance activities

Method Guidance | **Assessment** | **Decision Making** | **Team Collaboration**

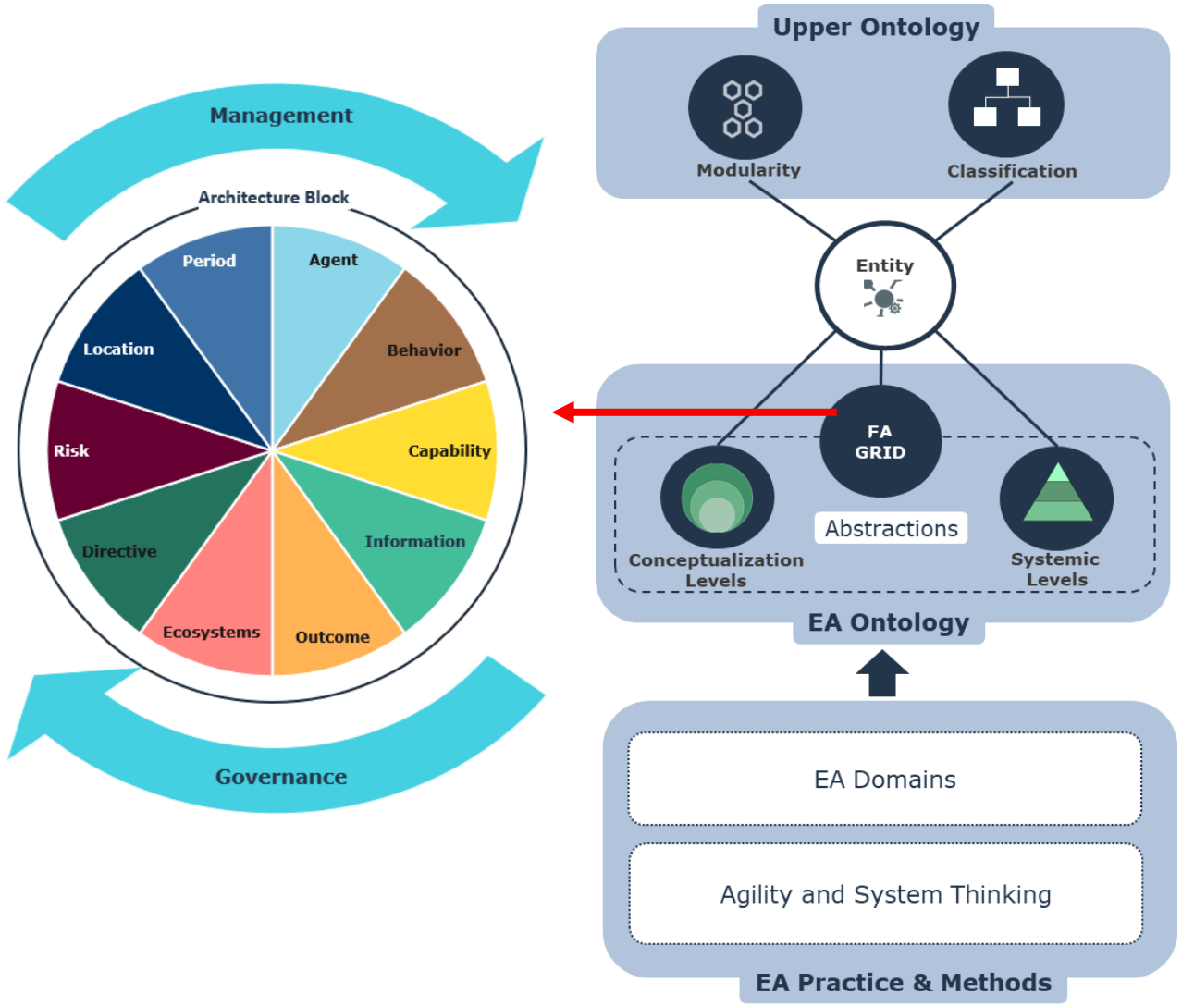
Build on Asset Architecture foundations

Ontology Based Meta-Model | **Viewpoints** | **Stakeholder Management**

The SEAF GRID in the Architecture Framework landscape

- The SOF provides a description of the Operating Semantic of the architecture framework,
  - *from Capability offered by Agents that act and interact (Behavior) in their Operating Eco-Systems to produce Outcomes that benefit (value) to other Agents*.

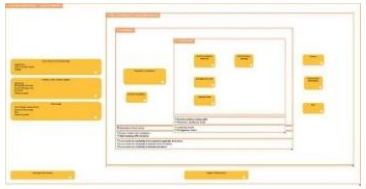
- A complementary GRID (EA GRID - Technology Concepts) provides a classification of Technology Assets that facilitate Business Assets in their production/consumption of Business Outcomes.



Capability Planning – Top down Approach

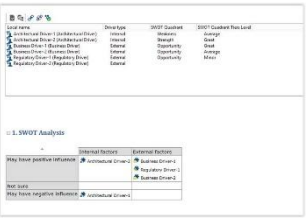
As is Mapping

- Design Business Capability Maps
- Design Business Function maps
- Provide in-depth view : exploded Diagram



Capture Motivations for changes

- Identify Enterprise Architecture Stakeholders
- Identify & assess Drivers: SWOT
- Assess current capabilities: Assessment map (as is)



Capture Strategy Planning

- Design transformation stages
- Define goals, associated Measurable Propertys & capabilities for each stage
- Define course of actions to attain goals.
- Assess new capability maps in regard to strategy.

Design Alternatives Solutions

- Design Business Operating models (when needed)
- Organizational Architecture (when needed)
- Application Architecture (when needed)
- Technology Architecture (when needed)

Assess and Select Solutions

- Capability outcomeiveness assessment
- Enterprise Roadmap

Plan & Govern Transformation

- Design Transformation Initiatives & projects
- Govern Transformation

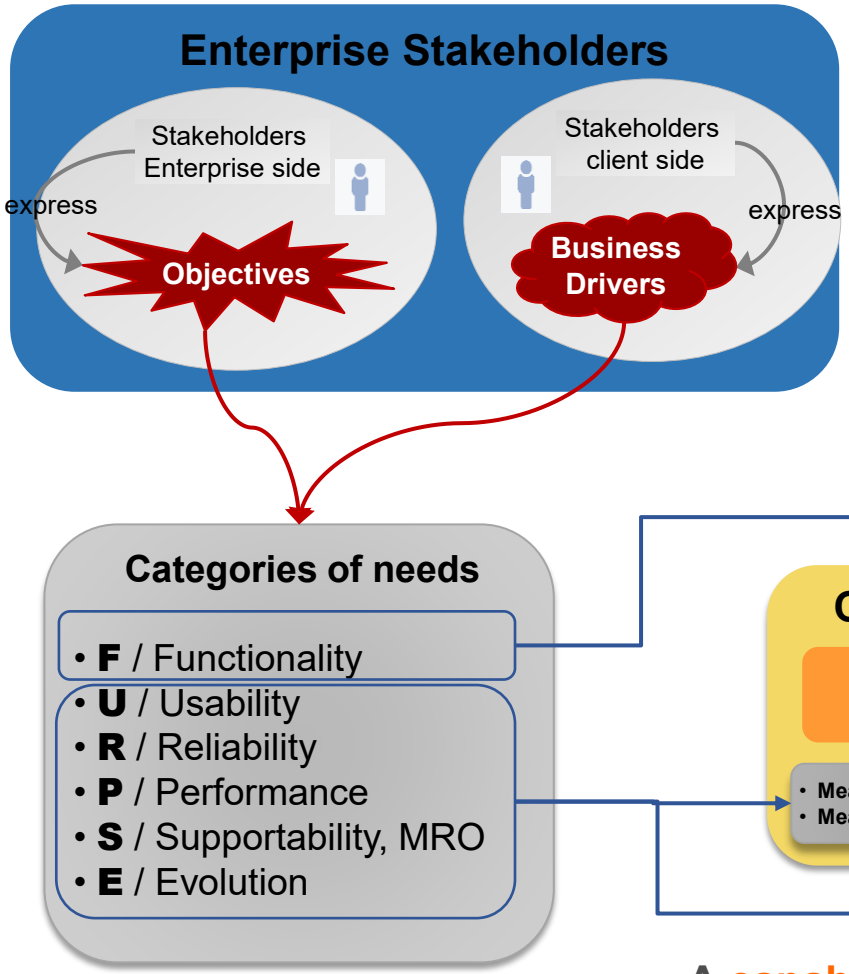
Architecture	Deployed Assets

As Is Mapping

As is Mapping

- Design Business Capability Maps
- Design Business Function maps
- Provide in-depth view : exploded Diagram

Capabilities, Drivers & Need analysis



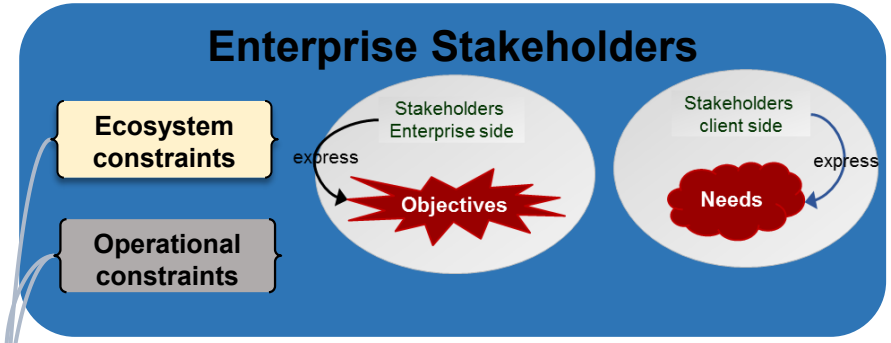
Needs and qualities expectations determine what the enterprise/system shall do, under which non-functional requirement and under which operational conditions.

Needs are directly related to the system purposes (intent, raison d'être) and to business capabilities it must provide.

See FURPSE and ISO 9126 :
https://en.wikipedia.org/wiki/ISO/IEC_9126

A capability is an ability to deliver an expected Outcome (resource in a particular state, quantified by Measurable Property), while satisfying expected delivery Measurable Property (performance, usability, …)

Capability requirements & constraints

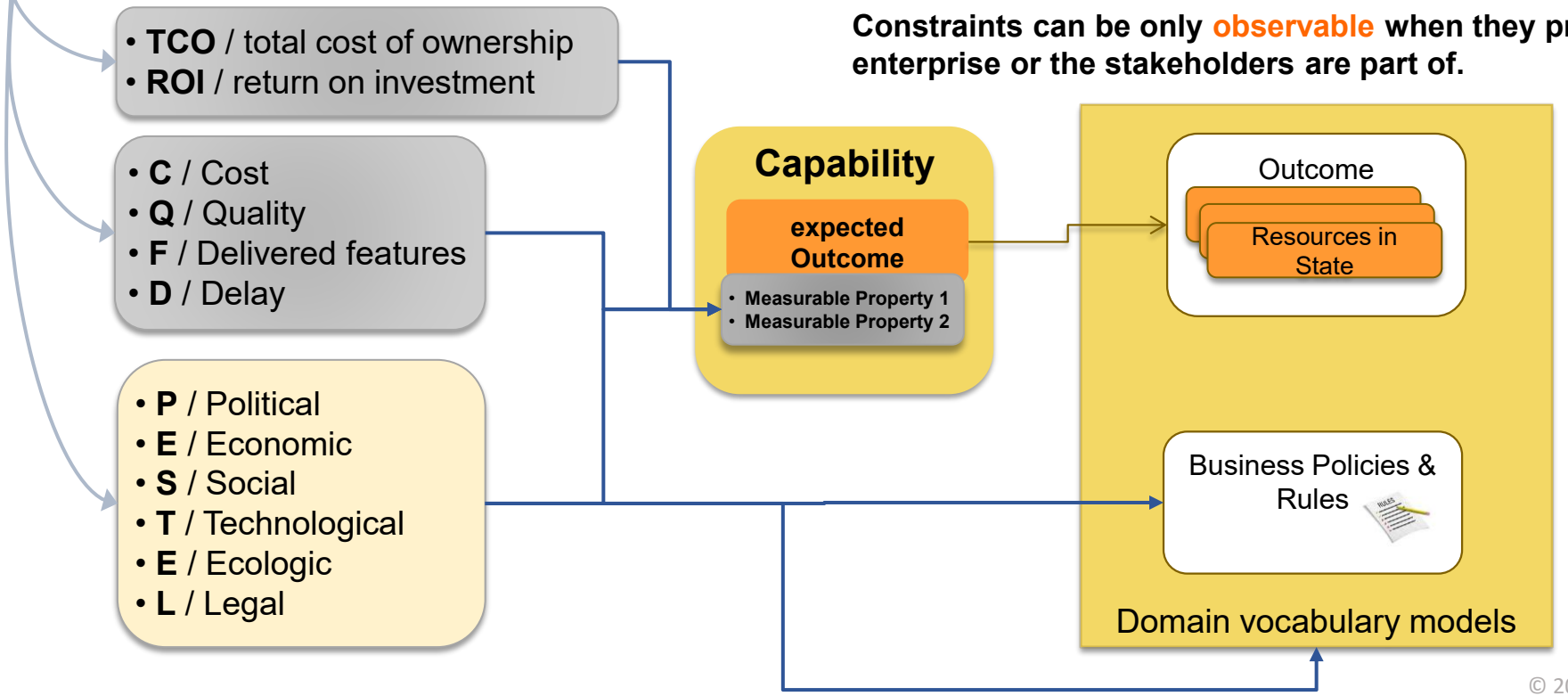


Constraints usually come from the environment in which capability configuration will be immersed in, whether outside or inside their mission contexts.

Constraints influence what capabilities shall be by imposing additional conditions or by setting guidance/rules for system

Constraints can be controllable when they proceed from the enterprise or organism for which the system is realized.

Constraints can be only observable when they proceed from the ecosystem that the enterprise or the stakeholders are part of.



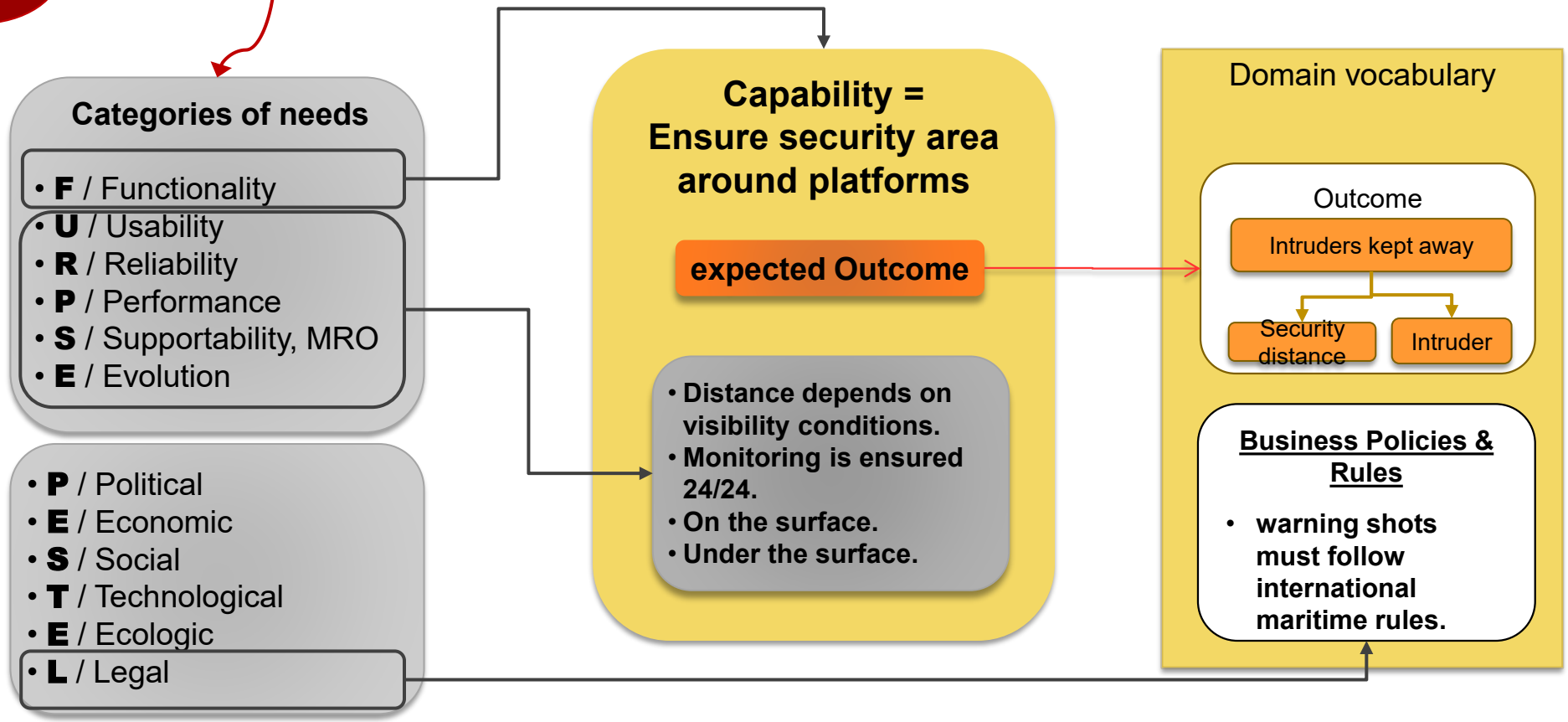
Sample - Oil platform protection

Need :

Oil platform protection

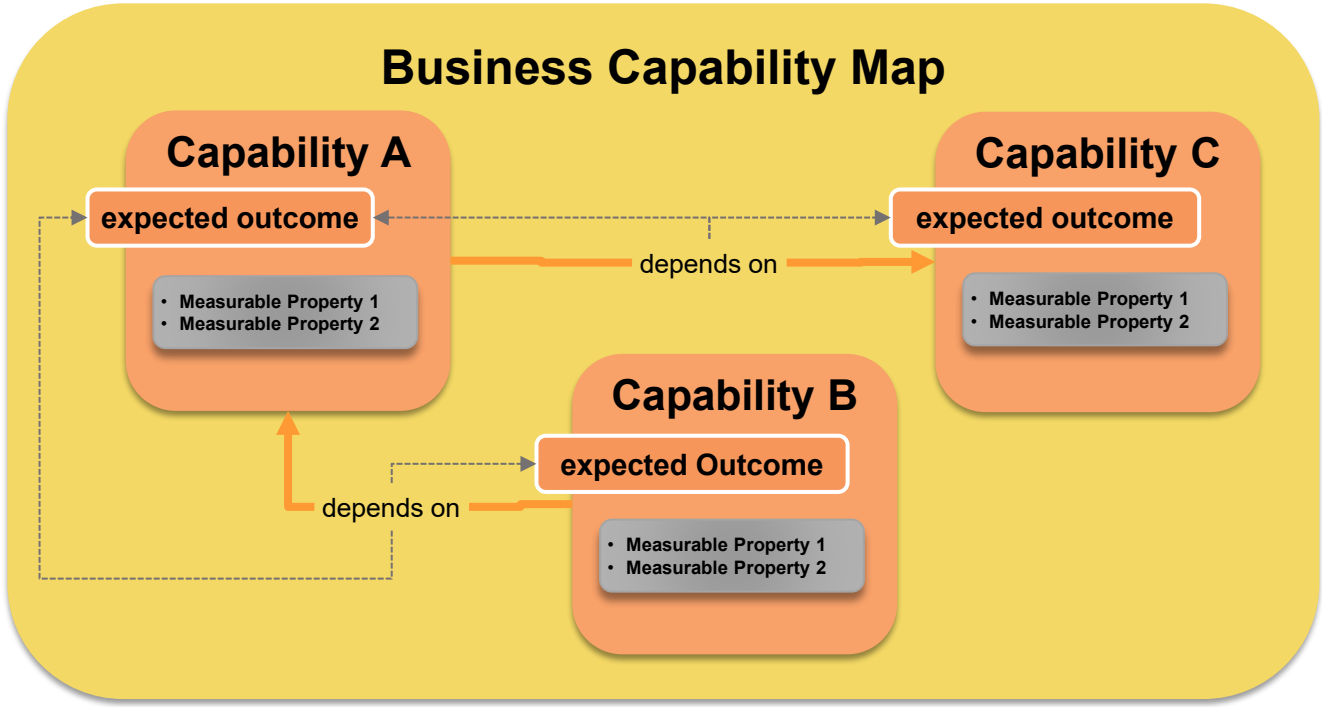
Need analysis

The approach moves from a "narrative" expression of needs ("*The system shall provide timely detection, assessment, and response to mitigate potential physical attacks*.") to a categorization in capability/desired outcome/conditional properties



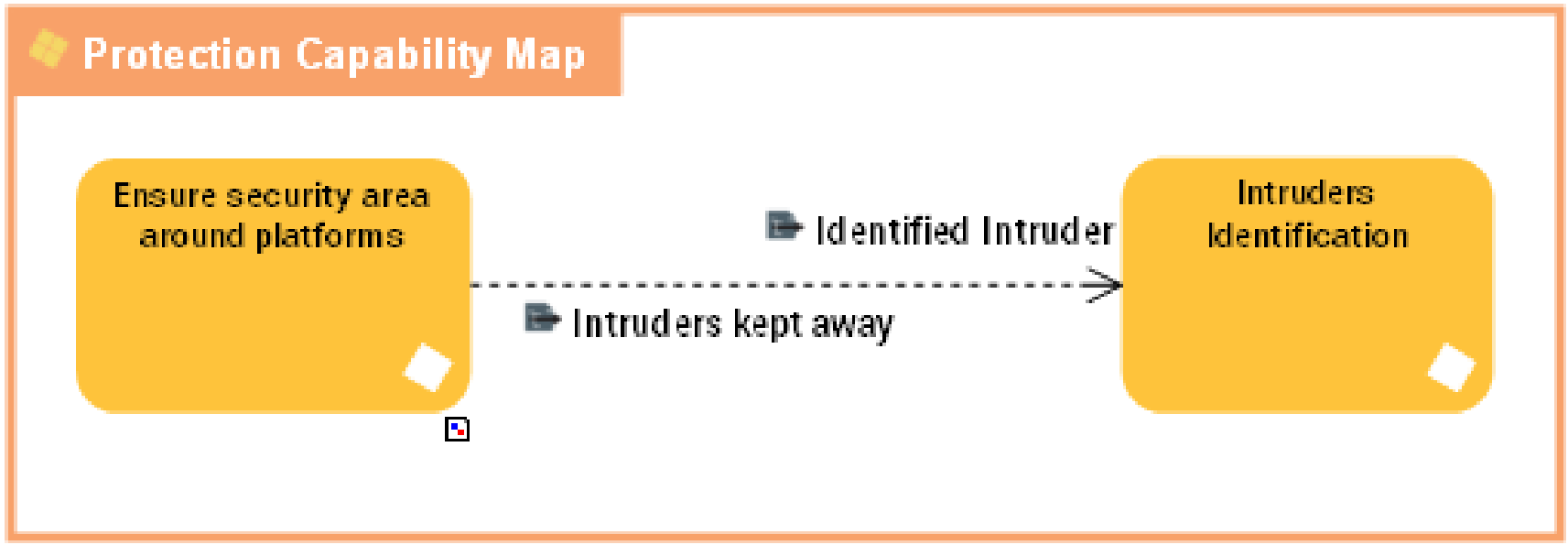
High level Business Capability Map

- A business capability map defines the set of business capabilities to be made available by the enterprise.
- It also defines the dependencies between these capabilities



High level Business Capability Map Example

– The “Intruders kept away” expected outcome of the “Ensure security around platform” business capability depends on the “Identified Intruder” expected outcome of the “Intruders Identification” business capability.



Business Operating Model & Capabilities

As Is Mapping

- Design Business Operating Model

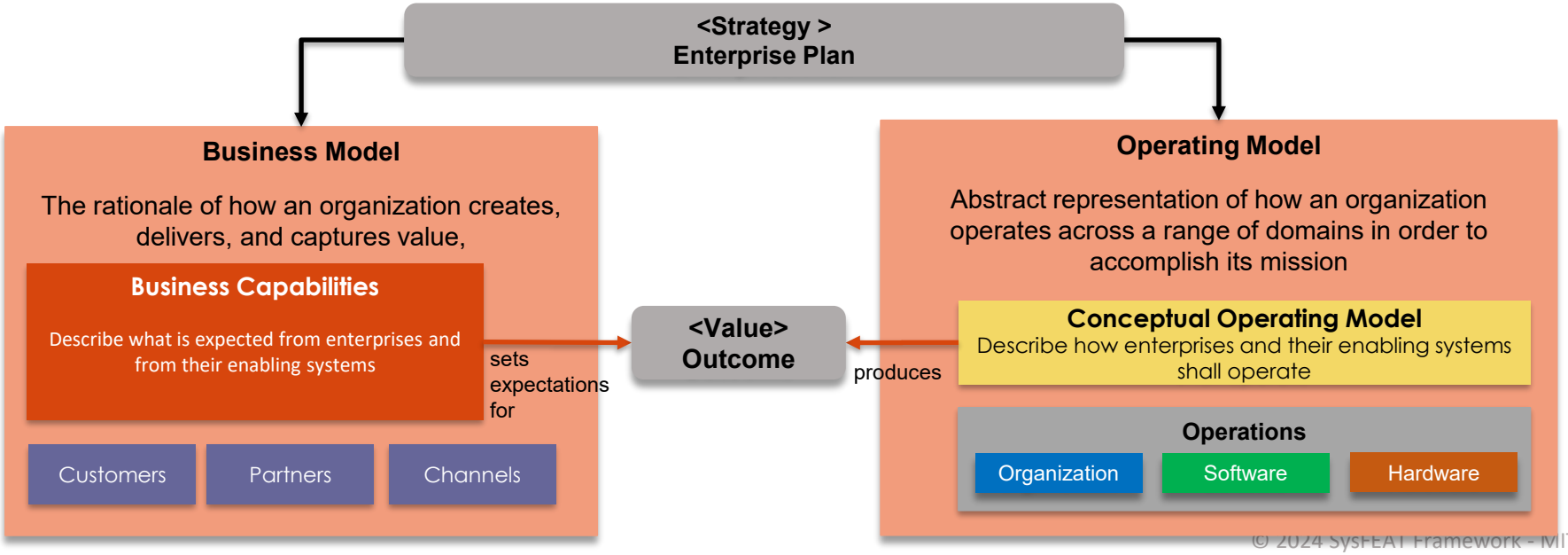
– Understand how the enterprise conceptually operates to meet expected capabilities.
  – Understand which business functions are involved in realization of capabilities.
  – Understand how business functions behave to deliver expected outcomes: value streams.
  – Understand how business functions publish their outcomes and under which conditions: interaction & services.
  – Understand how business functions are organized: business functions structures & business interactions.

As is Mapping

Business Model vs Business Operating Model

- Enterprise Business Model
  - A business model describes the rationale of how an organization creates, delivers, and captures value, in economic, social, cultural or other contexts. The process of business model construction is part of business strategy.
  - In a Capability centric approach, the business model is the planning of business capabilities and associated business values.

- Enterprise Operating Model
  - An operating model is an abstract representation of how an organization operates across a range of domains in order to accomplish its mission. There are different ways of classifying these domains.
    - Conceptual business model often called “Business Operating Model”.
    - Physical operating models: Organizational operating model, IS operating model, Infrastructure operating model, …

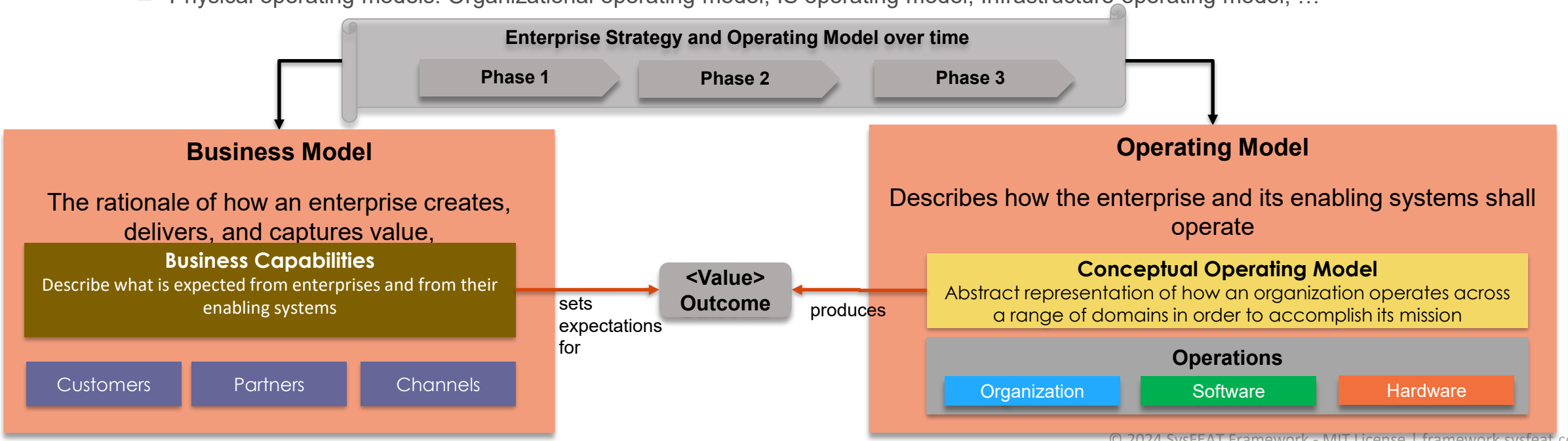


As is Mapping

Business Model vs Business Operating Model

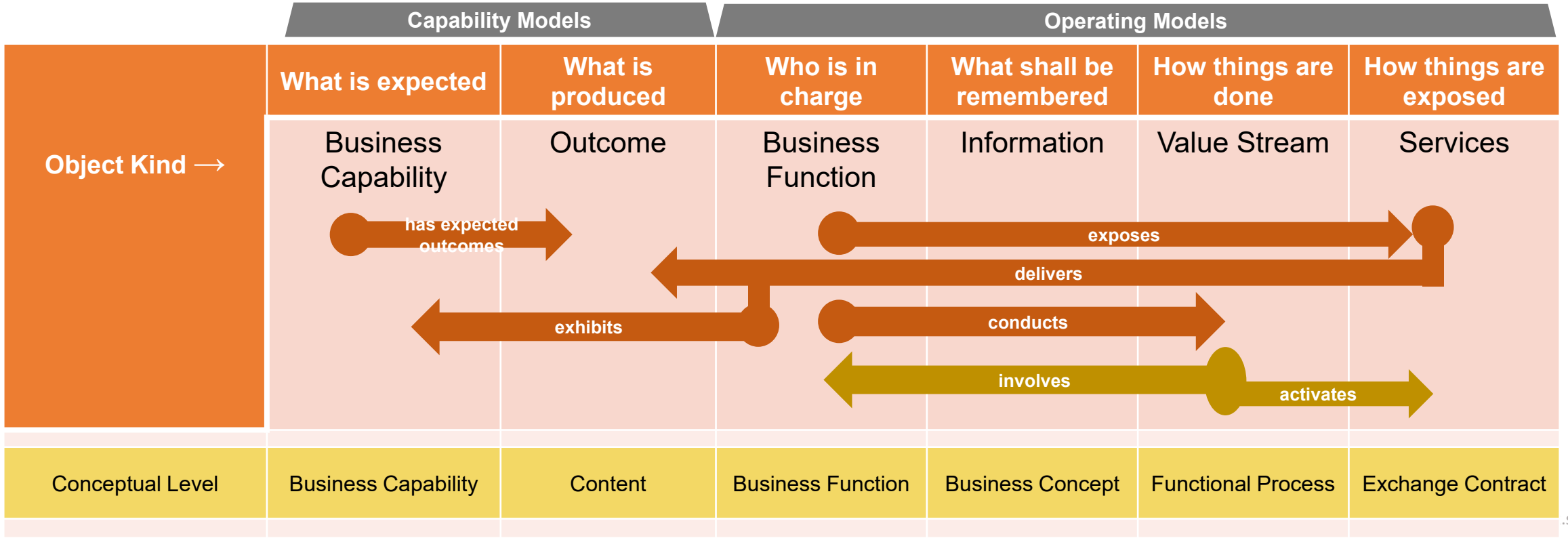
- Enterprise Business Model
  - A business model describes the rationale of how an organization creates, delivers, and captures value, in economic, social, cultural or other contexts. The process of business model construction is part of business strategy.
  - In a Capability centric approach, the business model is the planning of business capabilities and their associated business values.

- Enterprise Operating Model
  - An operating model is an abstract representation of how an organization operates across a range of domains in order to accomplish its mission. There are two major kinds of operating models:
    - Conceptual business model often called “Business Operating Model”.
    - Physical operating models: Organizational operating model, IS operating model, Infrastructure operating model, …



Business Capabilities & Business Operating Models

– A GRID view of the perspective of the Conceptual SOF.



Capability Phasing

Capture Motivations for changes

- Identify Stakeholders
- Identify & assess Drivers: SWOT
- Assess current capabilities: Assessment map (as is)

Capture Strategy Planning

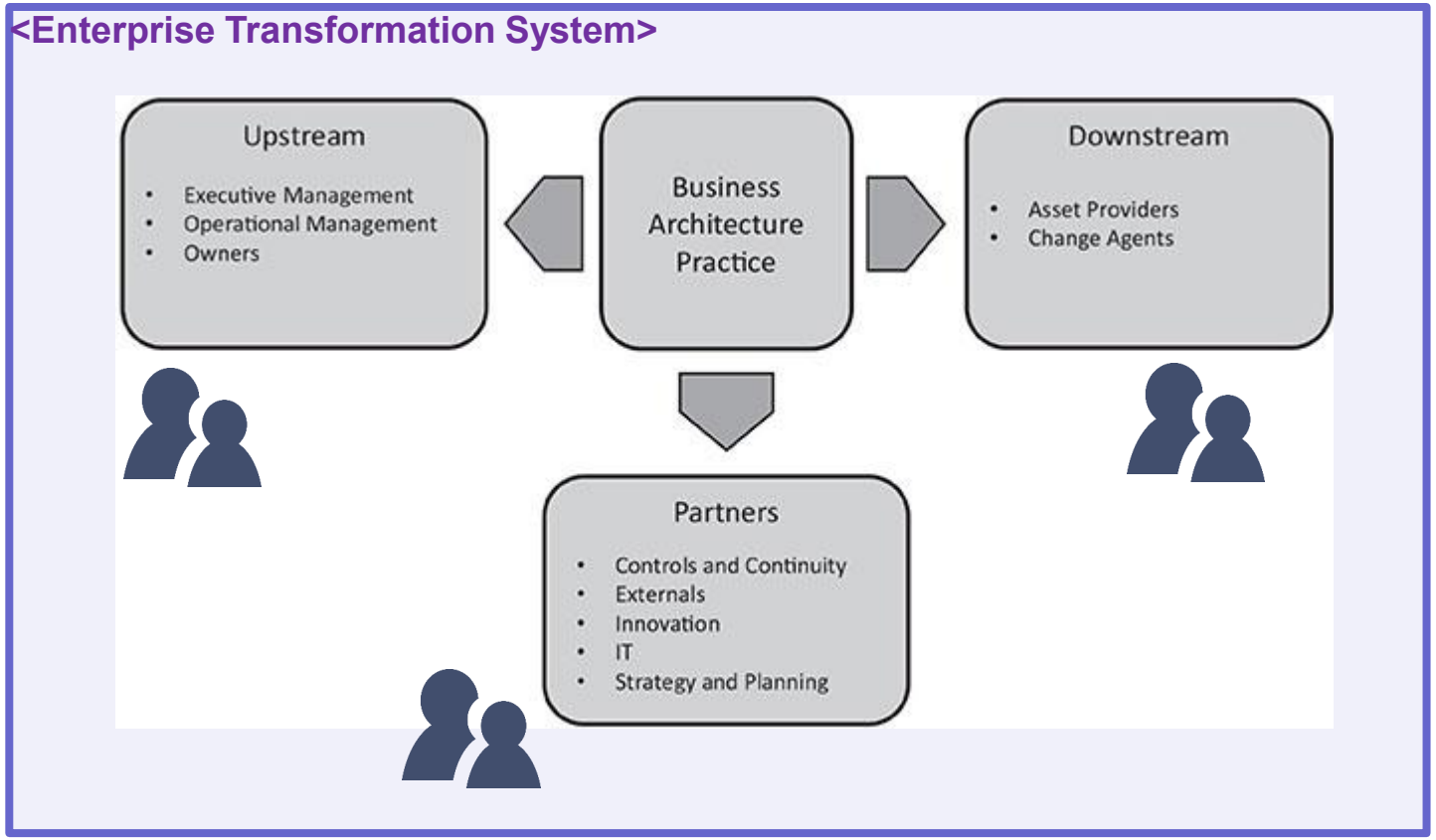
- Define transformation stages
- Define goals, associated Measurable Propertys & capabilities for each stage
- Define course of actions to attain goals.
- Assess new capability maps in regard to strategy.

Enterprise Transformation Stakeholders

Capture Motivations for changes

- Identify Stakeholders

- Enterprise Transformation Stakeholders are representatives of the various groups which are at stake with the enterprise transformation initiatives
  - Executives
  - Operational Executives
  - Customer representatives
  - Operational employees
  - IT Executives
  - ...



Pizza & CO Current State Assessment

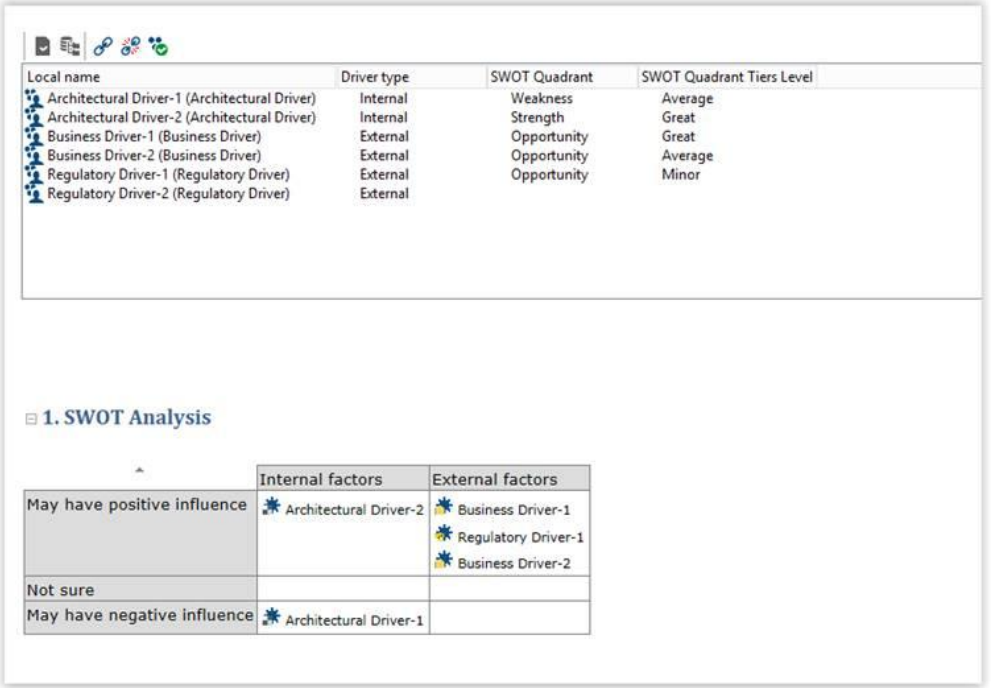
Capture Motivations for changes

- Identify & assess Drivers: SWOT
- Assess current capabilities: Assessment map (as is)

- Drivers:
  - Customers are complaining of poor quality in deliveries.
    - Measurable Property: Delivery Time, Pizza Temperature at Delivery
  - Organic Pizza is emerging as a fast growing and selective segment.
    - Measurable Property % of organic ingredient to be recognized as organic

- SWOT Assessment
  - Weakness :
    - Our deliver process is not under control.
  - Threat:
    - competition is %20 faster in delivery
  - Opportunities:
    - organic pizza are highly requested by customers, Regulation is sharpt to become organic certified.
  - Strength:
    - we have cooking expertise in organic pizza (according to as is capability assessment).

Driver assessment & SWOT

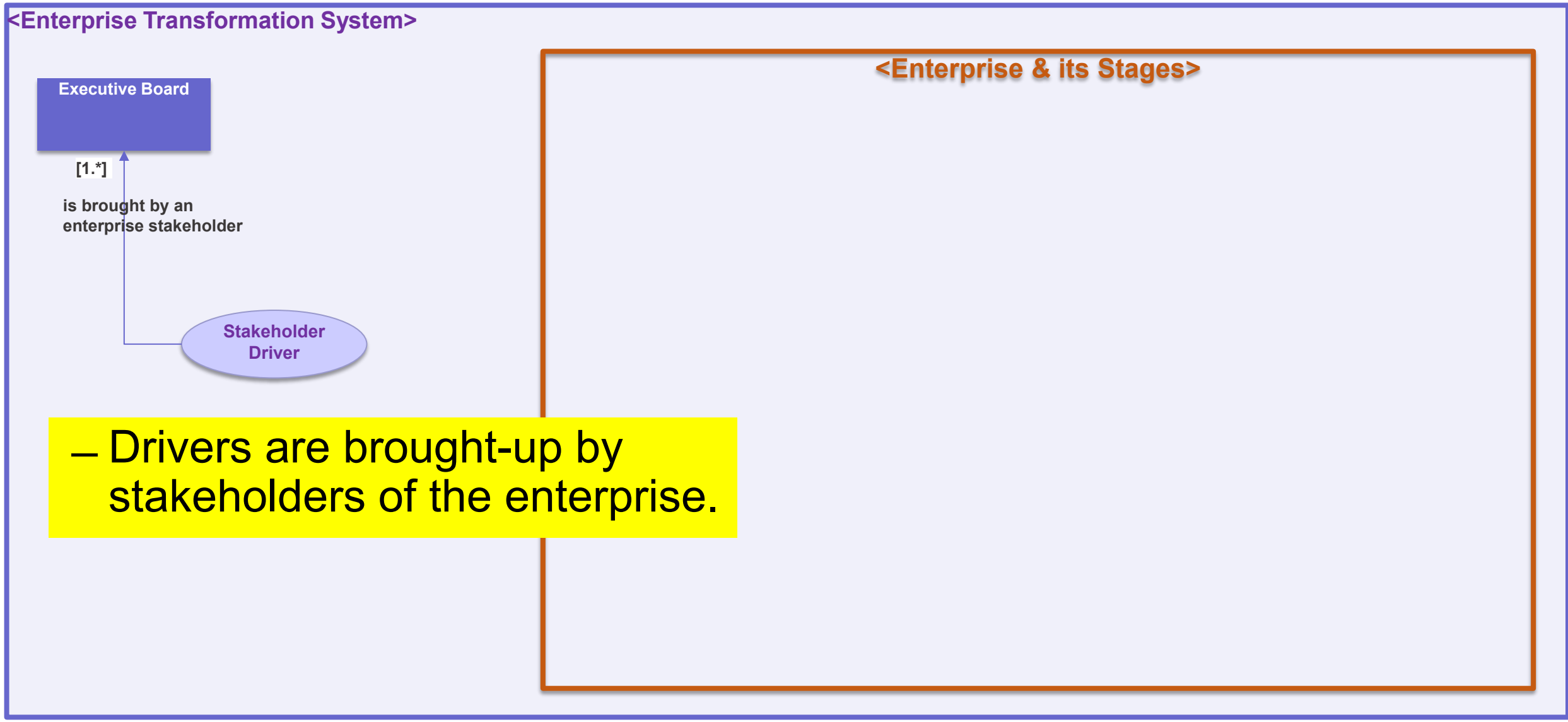


Local name	Driver type	SWOT Quadrant	SWOT Quadrant Tiers Level
Architectural Driver-1 (Architectural Driver)	Internal	Weakness	Average
Architectural Driver-2 (Architectural Driver)	Internal	Strength	Great
Business Driver-1 (Business Driver)	External	Opportunity	Great
Business Driver-2 (Business Driver)	External	Opportunity	Average
Regulatory Driver-1 (Regulatory Driver)	External	Opportunity	Minor
Regulatory Driver-2 (Regulatory Driver)	External		

1. SWOT Analysis

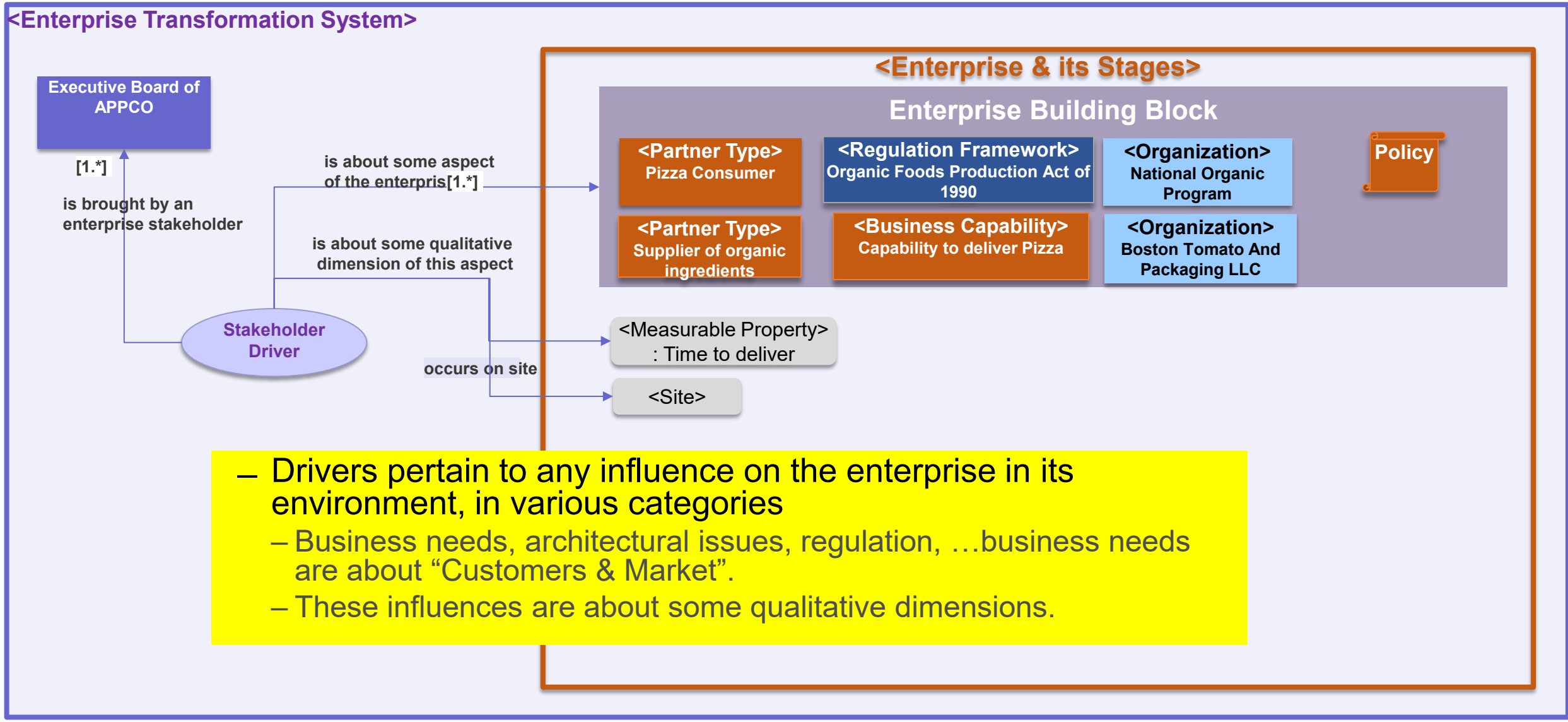
	Internal factors	External factors
May have positive influence	Architectural Driver-2	Business Driver-1 Regulatory Driver-1 Business Driver-2
Not sure		
May have negative influence	Architectural Driver-1	

Drivers & Stakeholders



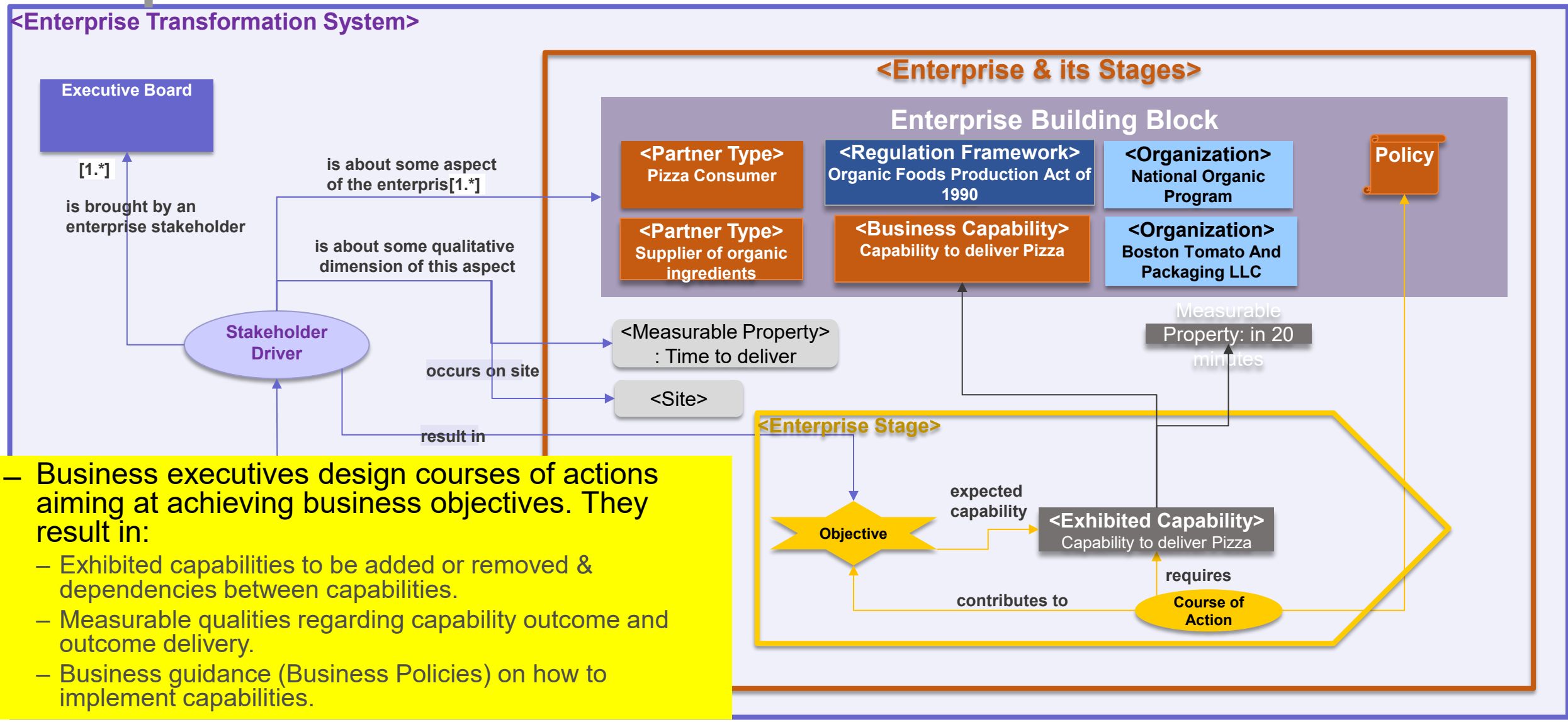
– Drivers are brought-up by stakeholders of the enterprise.

Drivers & Influences



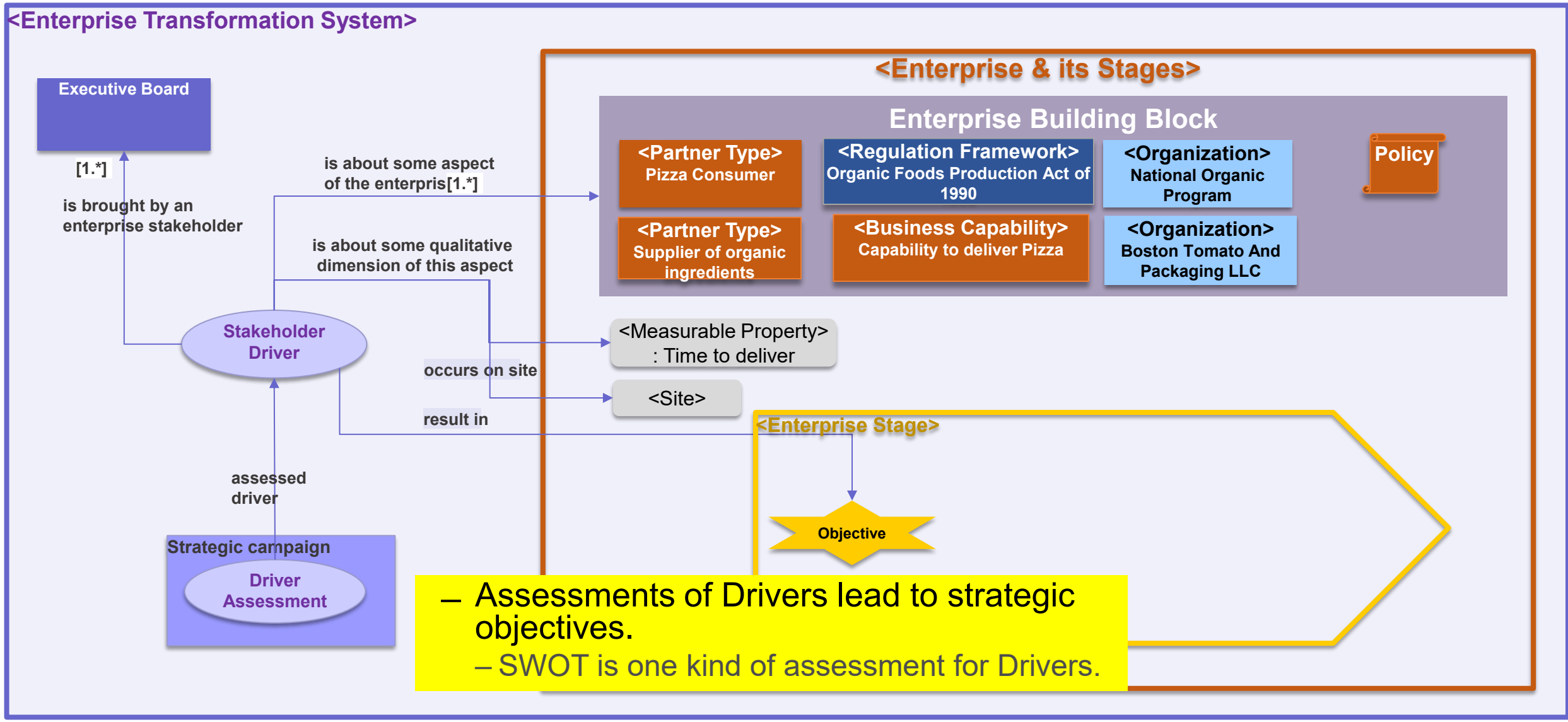
- Drivers pertain to any influence on the enterprise in its environment, in various categories
  - Business needs, architectural issues, regulation, …business needs are about “Customers & Market”.
  - These influences are about some qualitative dimensions.

Drivers, Objectives (expected Results) & Capabilities



- Business executives design courses of actions aiming at achieving business objectives. They result in:
  - Exhibited capabilities to be added or removed & dependencies between capabilities.
  - Measurable qualities regarding capability outcome and outcome delivery.
  - Business guidance (Business Policies) on how to implement capabilities.

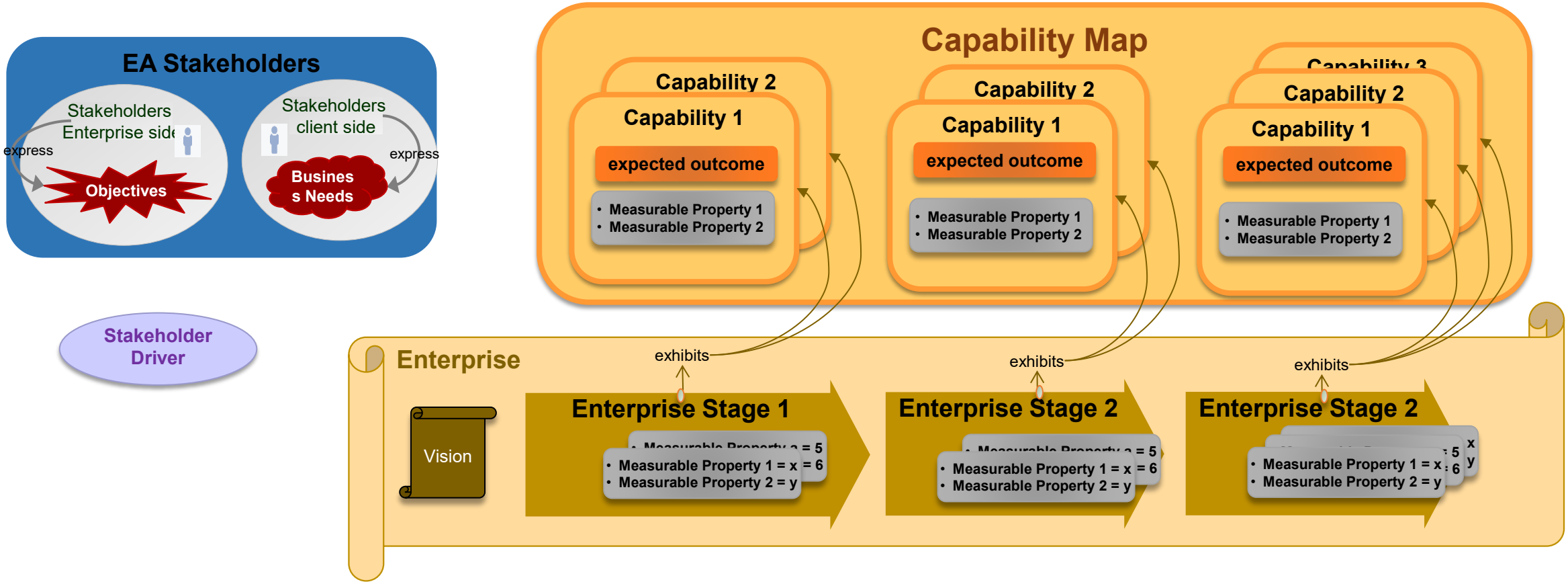
Drivers & Objectives



- Assessments of Drivers lead to strategic objectives.
  - SWOT is one kind of assessment for Drivers.

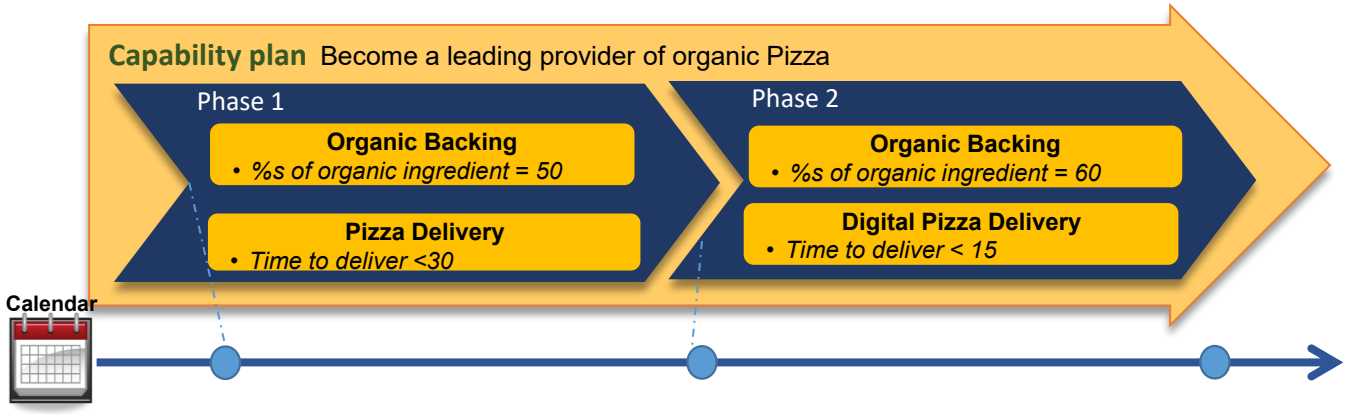
Capability planning – Strategy Level

- Capabilities are expected over period of time represented as expected stages of the enterprise (enterprise = undertaking).
- Each enterprise Stage expresses a disposition to delivery of a set of capabilities, under particular quantified qualities.



Strategy planning – Pizza & CO Sample

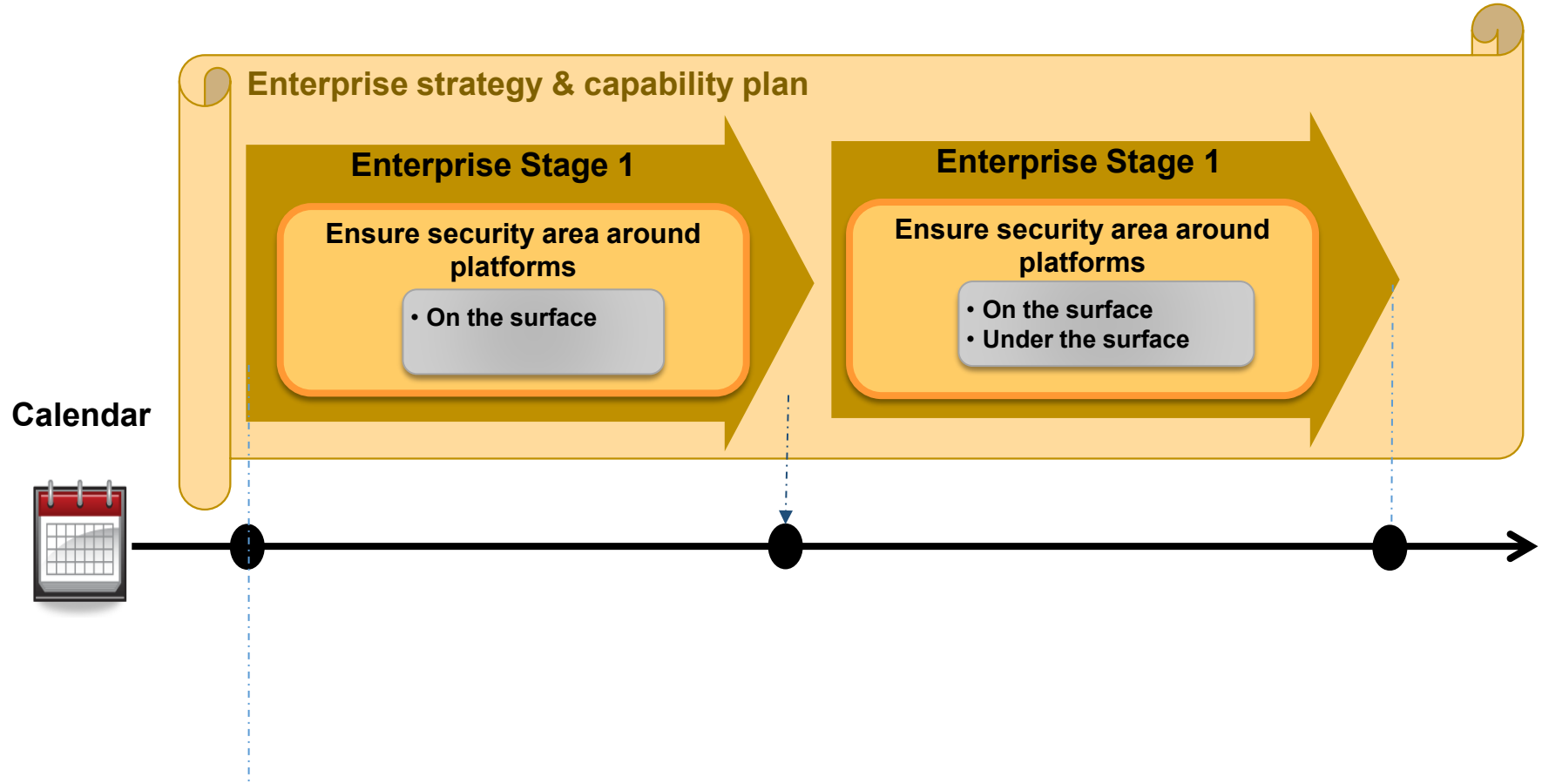
- Vision:
  - Become a leading provider of organic Pizza.
- Stage 1
  - Add the Baking Organic Pizza Capability (%s of organic ingredient > 10% than legal requirement)
- Stage 2
  - Improve delivery process of Organic Pizza (Time to deliver <15 mn).



Capability Assessment

	Business Value	Capability Design	Capability Effectiveness
Business Capability Map - Financial Institution			
Processing	Noticeable impact	At least one of incorrect, inefficient, or non-timely but meeting all critical expectations	Automation in limited areas
Sales, Markets & Relationships	Limited impact	At least one of incorrect, inefficient, or non- timely but meeting some critical expectations	Effective automation of high
Product, Client & Trade Support	Limited impact	At least one of incorrect, inefficient, or non-timely but meeting all critical expectations	Effective automation of high
Risk, Compliance & Financial Management	Limited impact	At least one of incorrect, inefficient, or non- timely but meeting some critical expectations	Effective automation of high
Compliance	Negligible impact	At least one of incorrect, inefficient, or non- timely but meeting some critical expectations	Effective and across the bo

Strategy Planning – Oil Platform Sample



Architecture	Deployed Assets

To be Architecture & Strategic Alignment

Design Alternatives Solutions

- Design Business Operating models (when needed)
- Organizational Architecture (when needed)
- Application Architecture (when needed)
- Technology Architecture (when needed)

Pizza & CO: Solution Design

Design Alternatives Solutions

- Design Business Operating models (when needed)
- Organizational Architecture (when needed)
- Application Architecture (when needed)
- Technology Architecture (when needed)

– Using SysFEAT framework, architects and business analysts provide alternatives solutions with associated measurable properties.

– Example:
  – Phase 2:Ability to delivery organic pizza < 15 minutes
    – Solution 1: owned delivery service.
    – Solution 2: delegated delivery service.

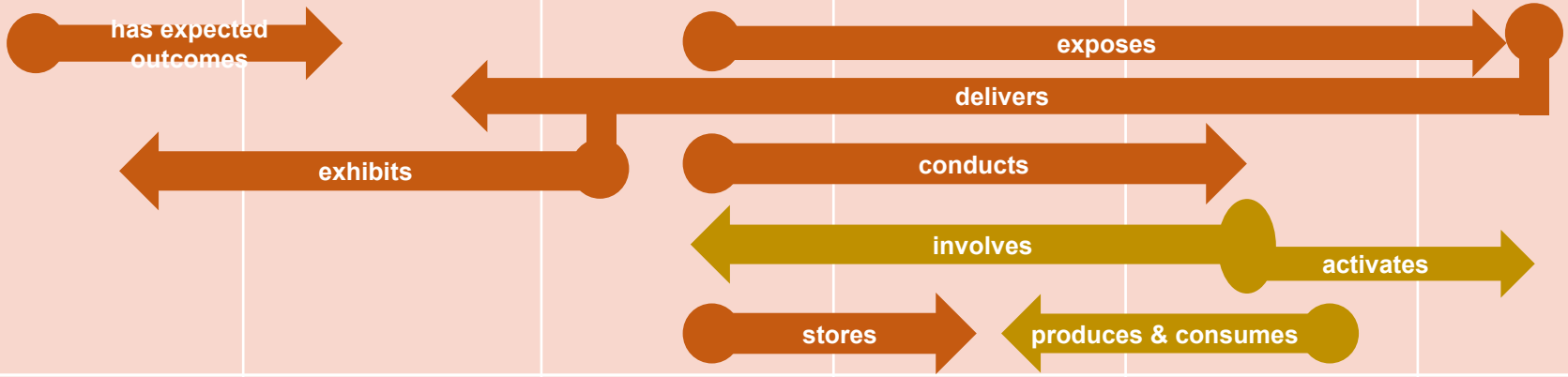
Capability Map with Alternative Solutions

Resource Operating Model & Capabilities

- Understand how the enterprise operates to meet expected capabilities.
  - Understand which agents are involved in realization of capabilities.
  - Understand how agents behave to deliver expected outcomes: processes.
  - Understand how agents publish their outcomes and under which conditions: interaction & services.
  - Understand how agents are organized: agent structure & agent interactions

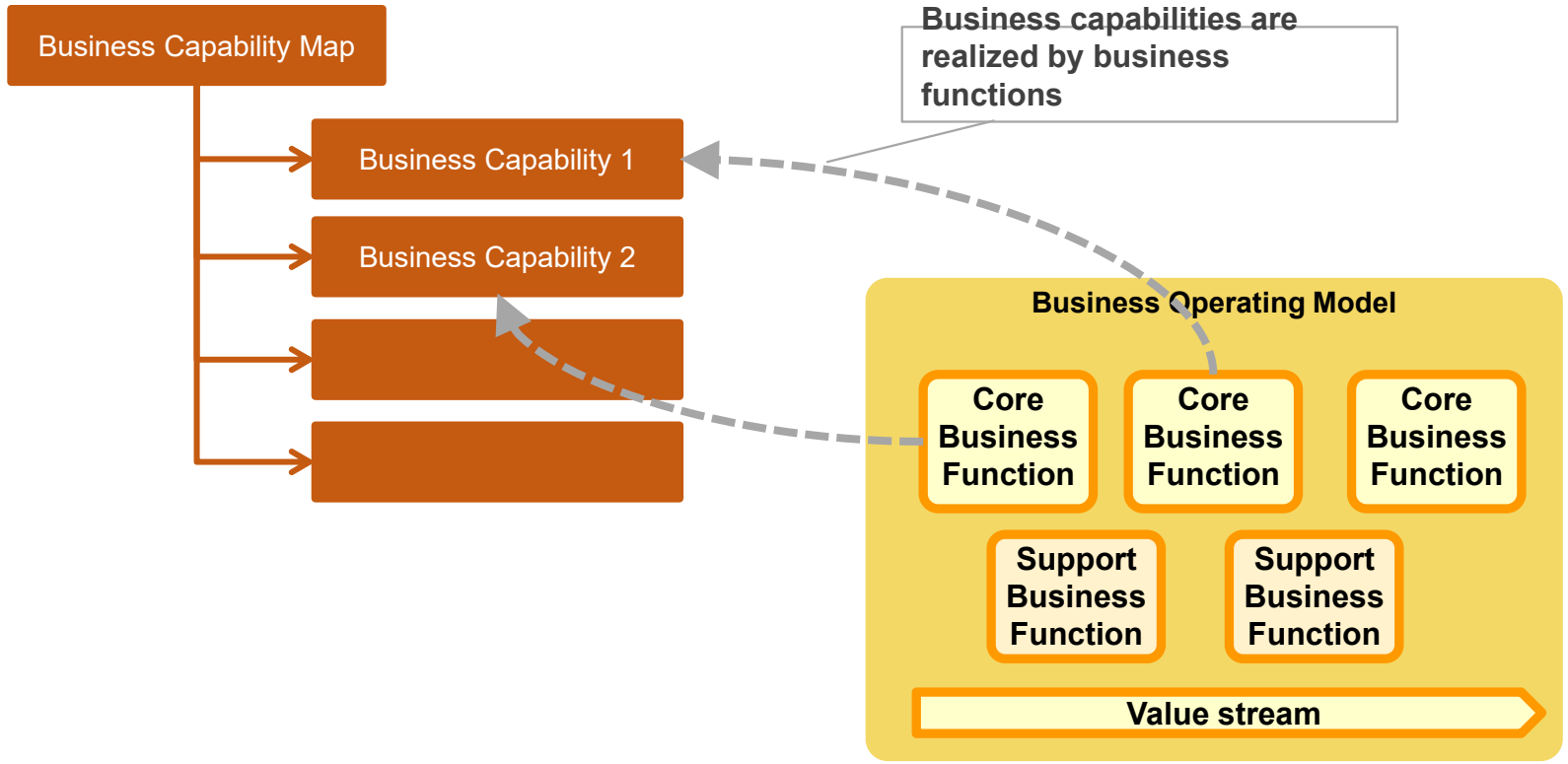
Enterprise Capabilities & Operating Models

	Capability Models		Operating Models			
Model Kind →	**What is expected**	**What is produced**	**Who is in charge**	**What shall be remembered**	**How things are done**	**How things are exposed**
↓ EA Conceptualization levels	Capability	Effect	Agent	Information	Process	Services
Conceptual Level	Business Capability	Content	Business Function	Business Concept	Functional Process	Exchange Contract
Resource Level: Organization	Skill	Content	Org-Unit	Data	Organizational Process	Exchange Contract
Application	Functionality	Content	Application System Application	Data	System Process	Exchange Contract
Hardware	Functionality	Content	Artifact	Technical Data	System Process	Exchange Contract
Resource Configuration	Business Capability Functionality	Content	Resource Architecture	Data & Technical Data	System Process	Exchange Contract



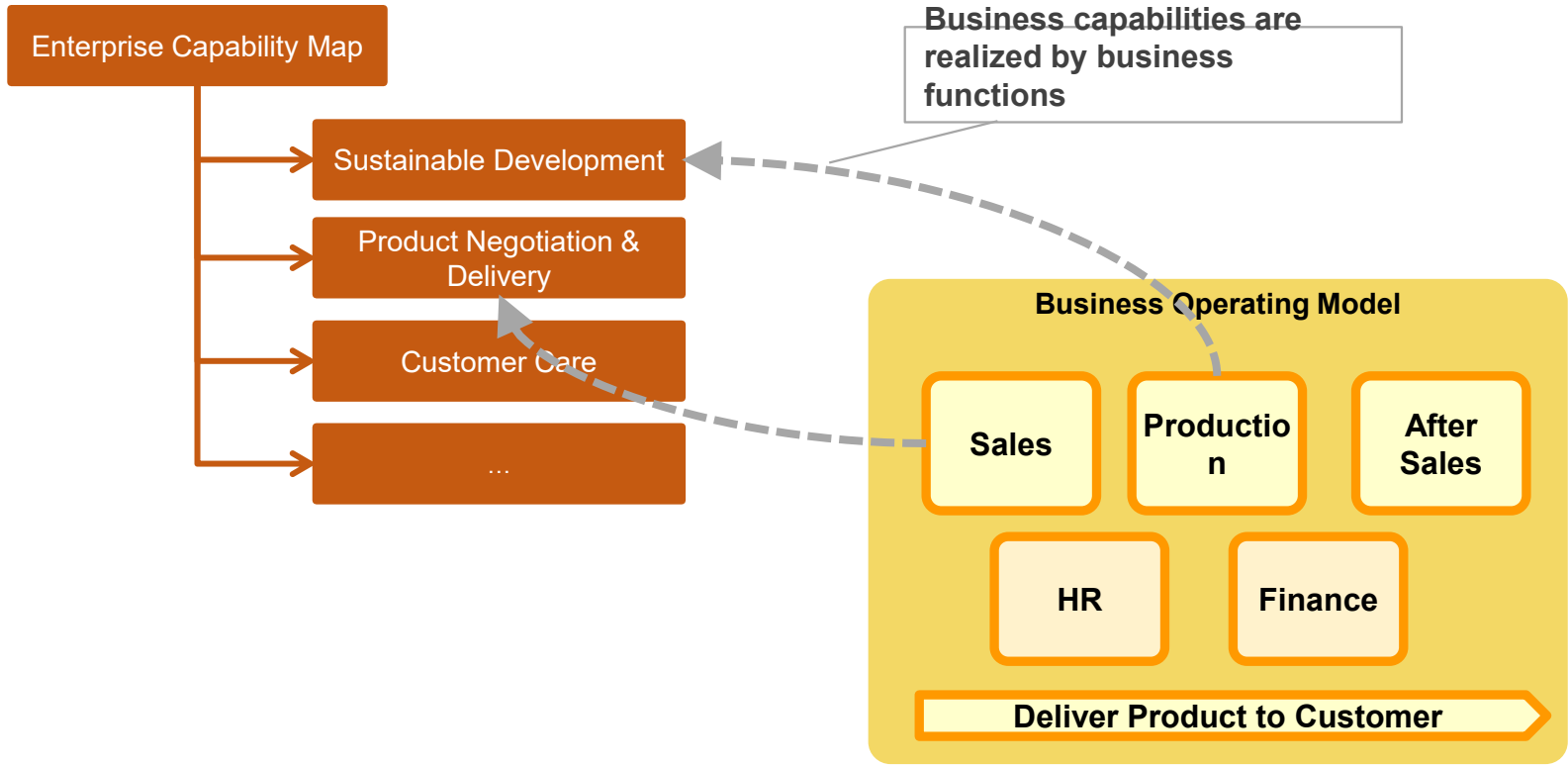
Strategic Alignment of Business Operating Model

- Business capabilities are realized by business functions.



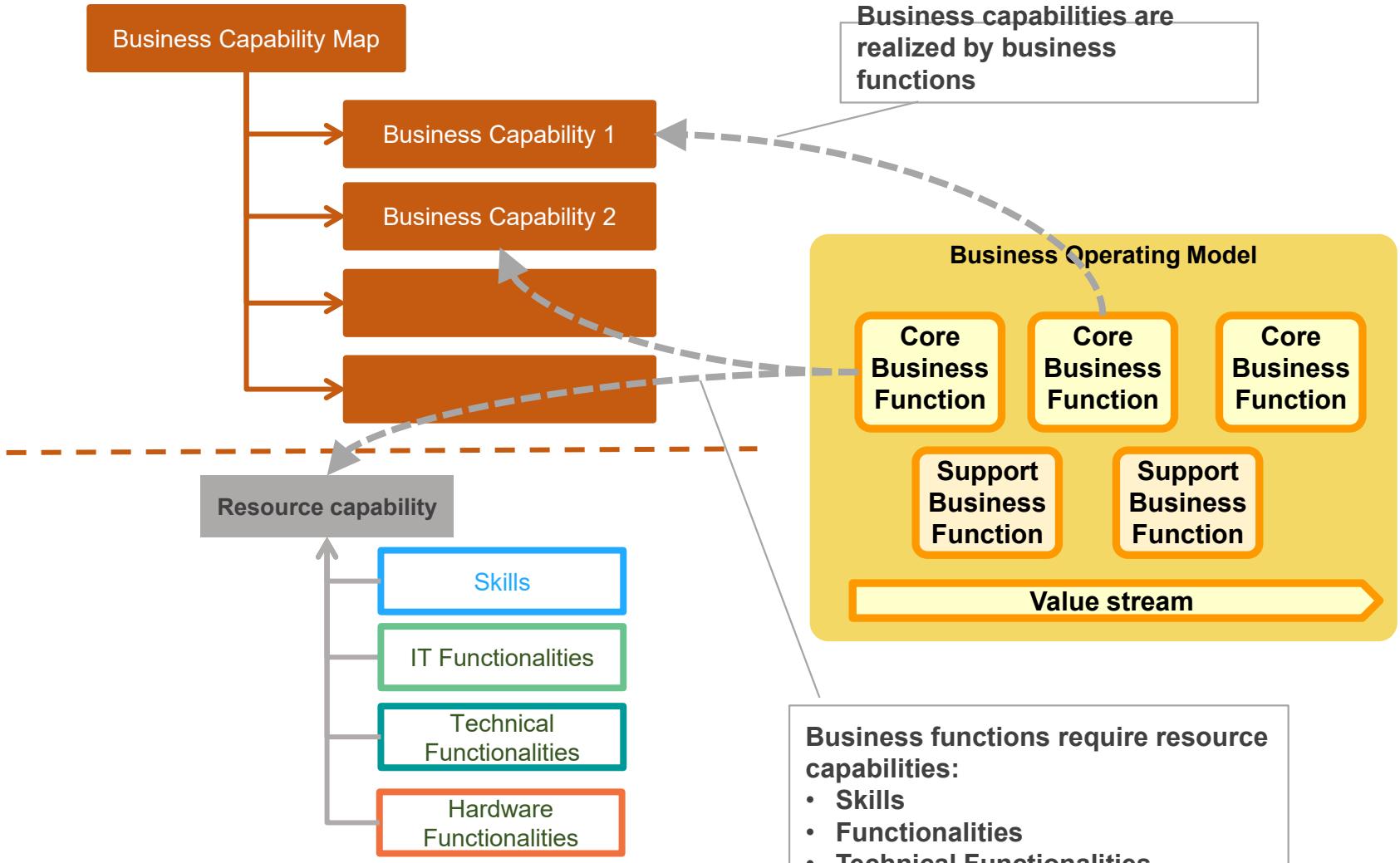
Strategic Alignment of Business Operating Model

- Business capabilities are realized by business functions.



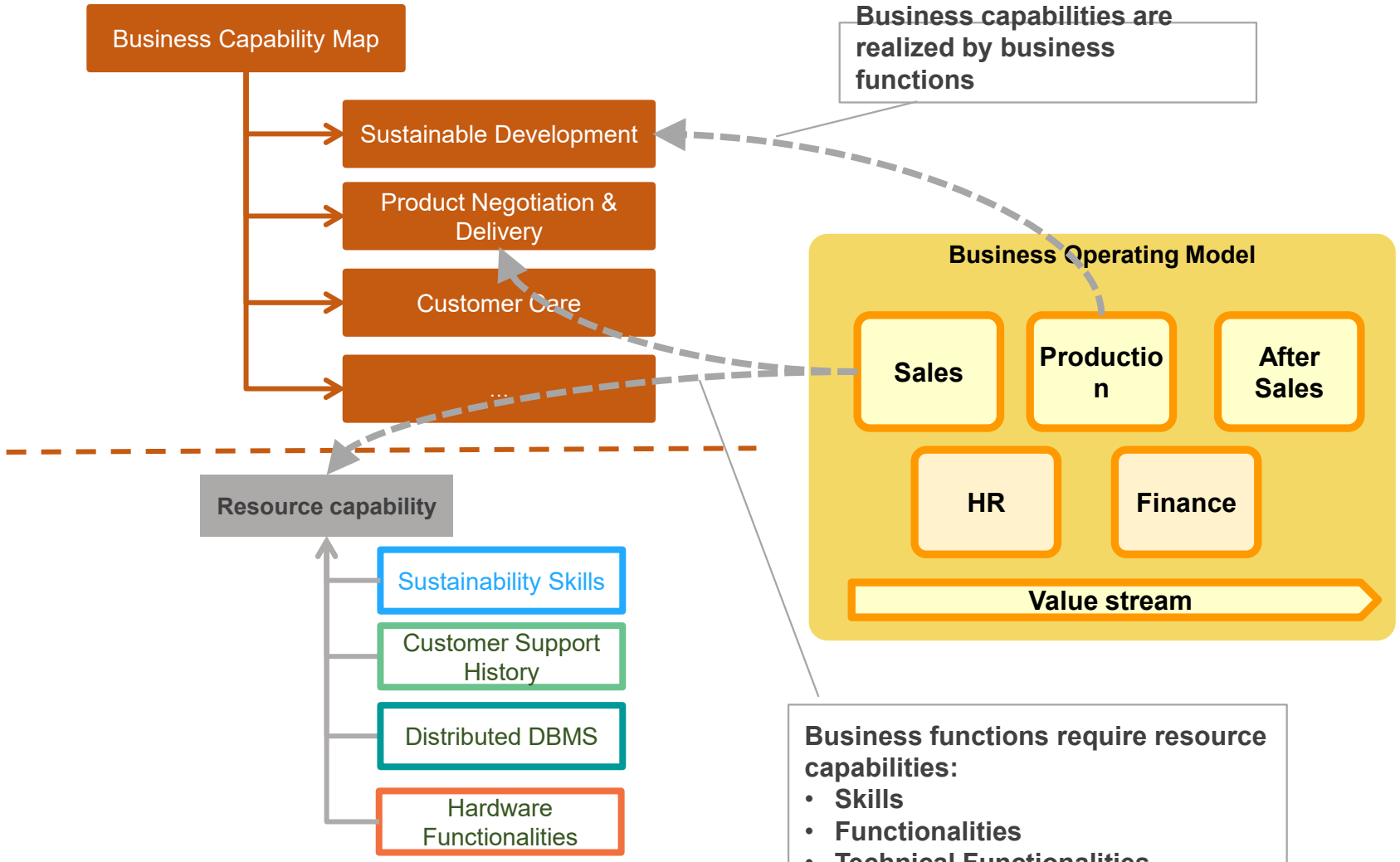
Strategic Alignment of Resources Capabilities

- Business capabilities are realized by business functions.
- Business Functions required Functionalities/Skills



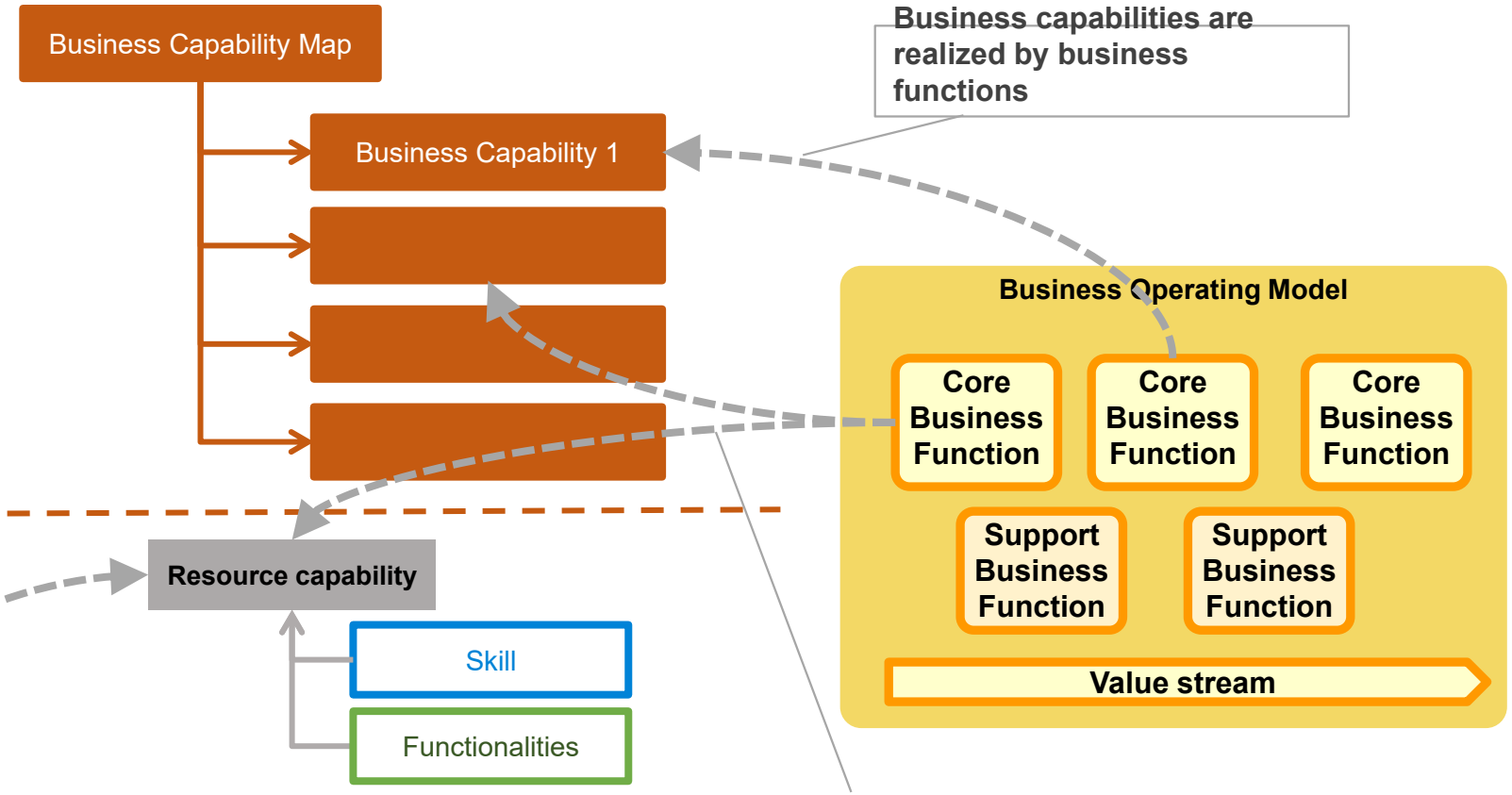
Strategic Alignment of Resources Capabilities

- Business capabilities are realized by business functions.
- Business Functions required Functionalities/Skills



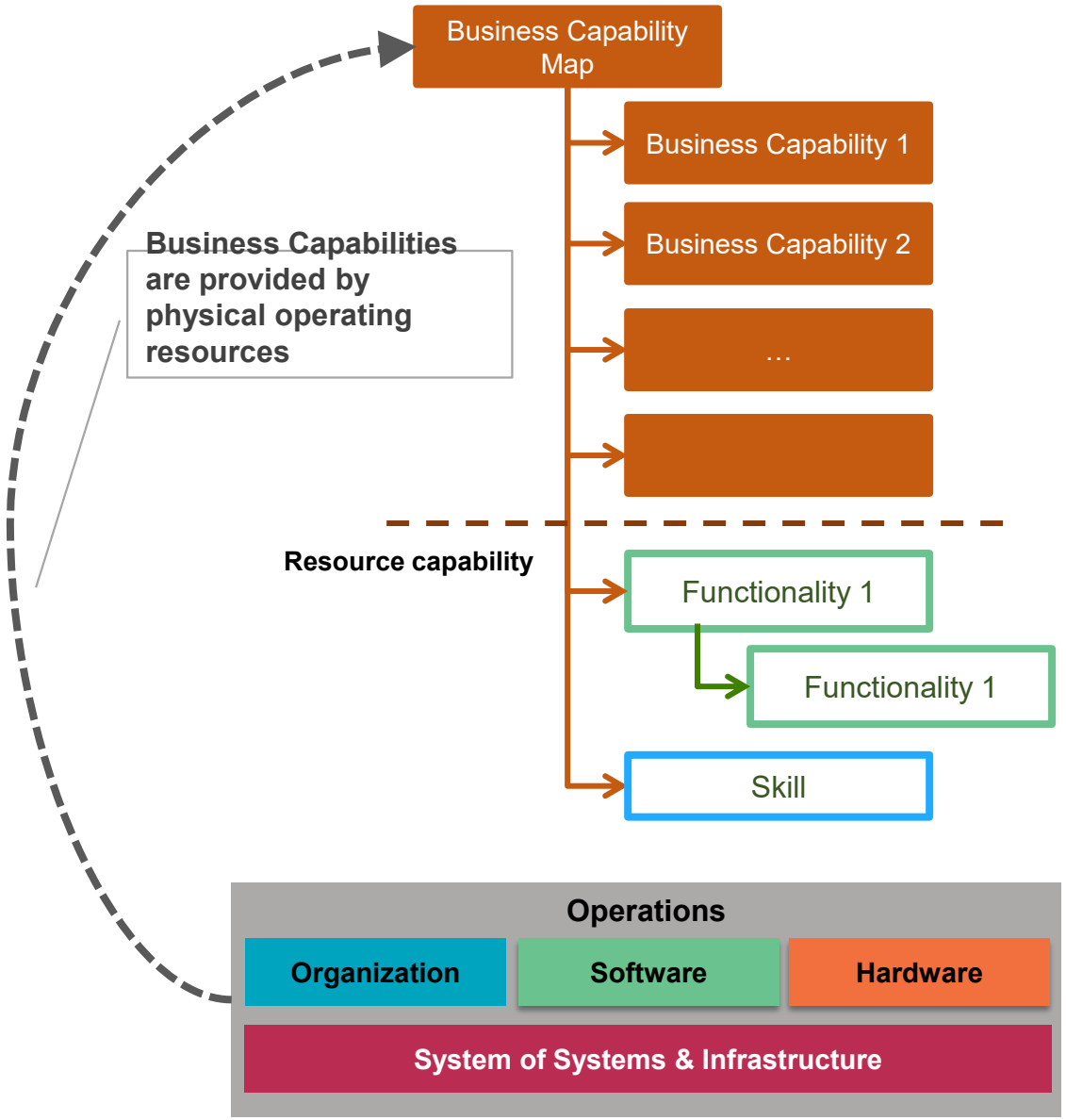
Strategic Alignment of Resources and Operating Model

- Business capabilities are realized by business functions.
- Business Functions required Functionalities/Skills
- Business Functions and related functionalities are realized by operating Resources



➔ Flexible, modular,
➔ building blocks

Alternative Business Capability single breakdown



Capability decomposition goes down to functionalities and skills ➔ No differentiation between enterprise needs (business capability) and enterprise enabling capabilities (business functions).

-> Preferential approach for US.
-> Major limitation: amalgamation of business capability and resource capability.

Actually, business capabilities may express dependencies on resource capabilities but they are exhibited by business functions.

➔ Simple but hierarchical & rigid

Decide and plan what we want to be
<Enterprise Road-mapping>

Assessment & Road mapping

Assess and Select Solutions

- Capability outcomeiveness assessment
- Enterprise Roadmap

Pizza & CO : Solution selection

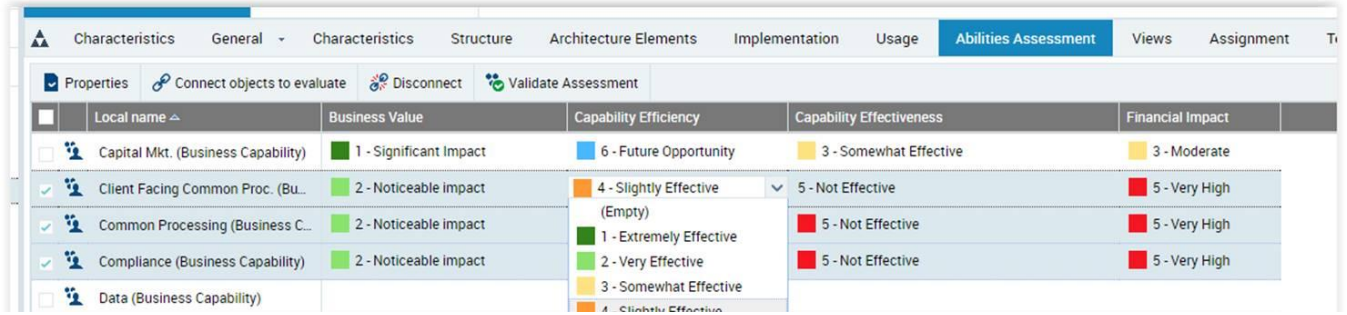
Assess and Select Solutions

- Capability outcomeiveness assessment
- Enterprise Roadmap

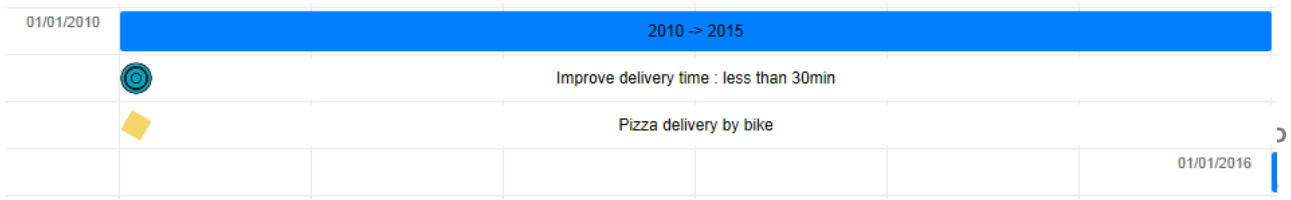
– Using capability outcomeiveness assessment in regard to Measurable Propertys associated to capabilities in the strategic planning, Executives selects the appropriate solution by balancing Risk and Opportunities.

- Ability to delivery organic pizza < 15 minutes
  - Solution 1:
    - owned delivery service. √
  - Solution 2:
    - delegated delivery service.
- The result is the enterprise roadmap

Capability Assessment



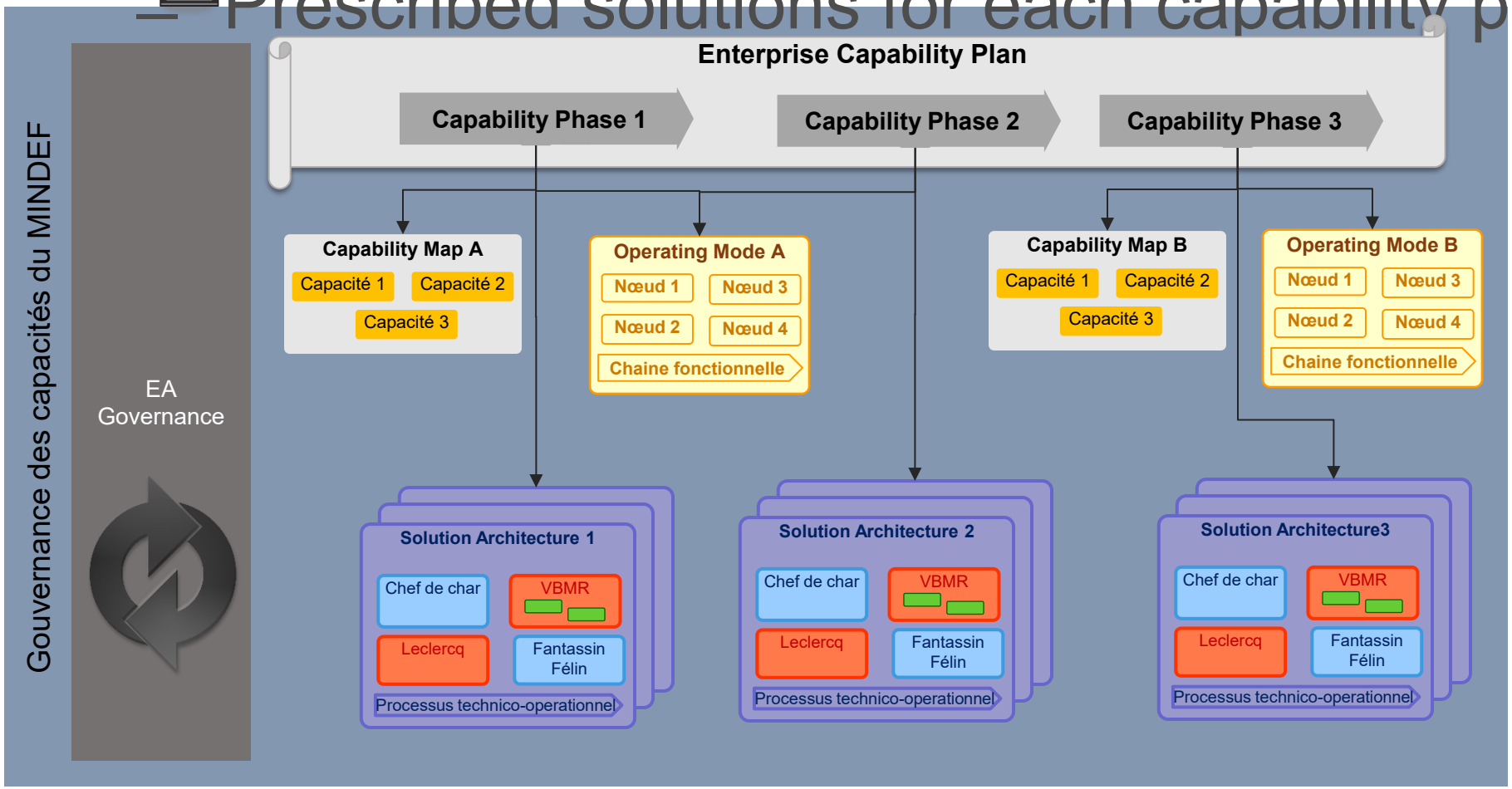
Enterprise Roadmap



The Capability Plan

Calendar

Prescribed solutions for each capability phase



Enterprise Board

Operational Executives

Subject Matter Experts

Enterprise Architects

Subject Matter Experts

Solution Architects

Operators

Decide and plan what we want to be
<Enterprise Road-mapping>

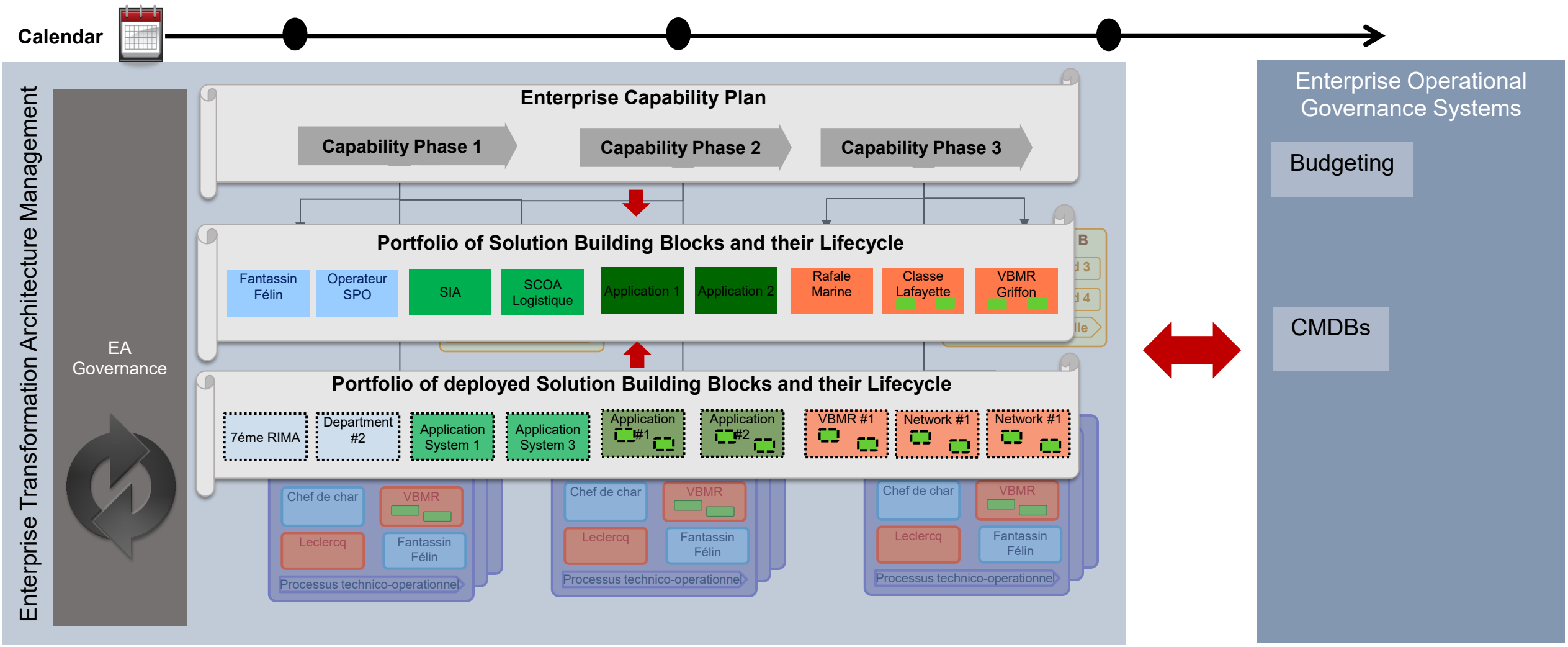
Organize alignments and transformation initiatives
<Program Management>

Alignment & Transformation

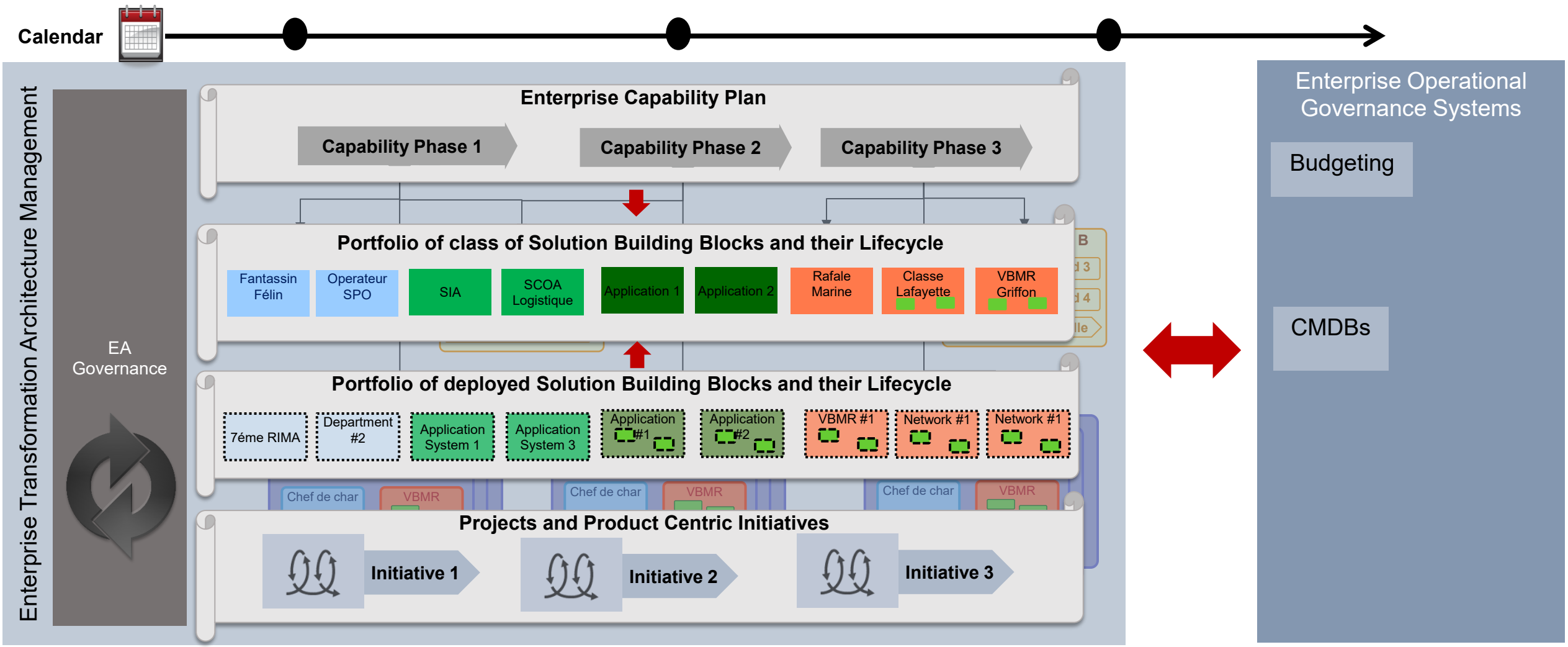
Plan & Govern Transformation

- Design Transformation Initiatives & projects
- Govern Transformation

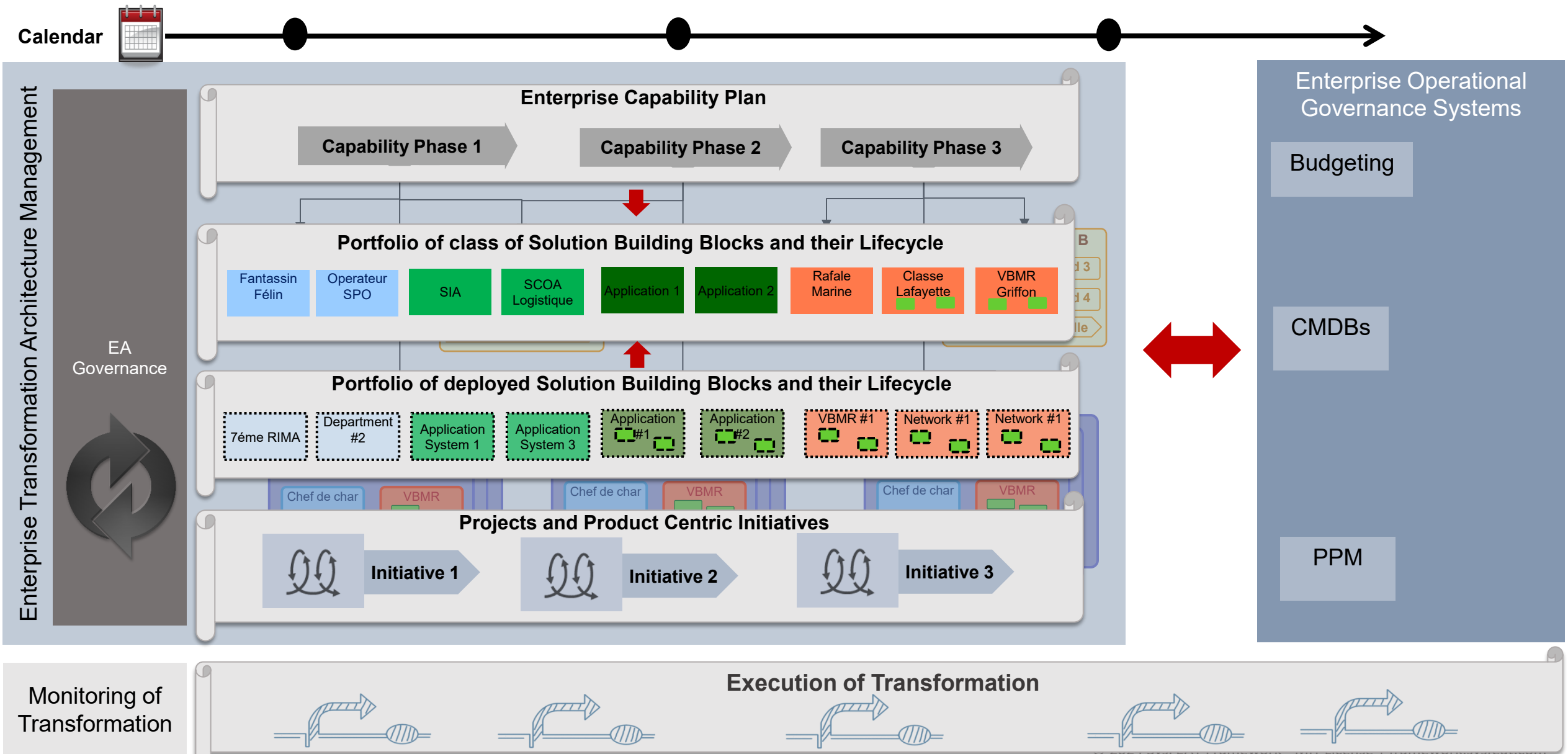
Life Cycle of Solution Building Blocks



Transformation Initiative setup

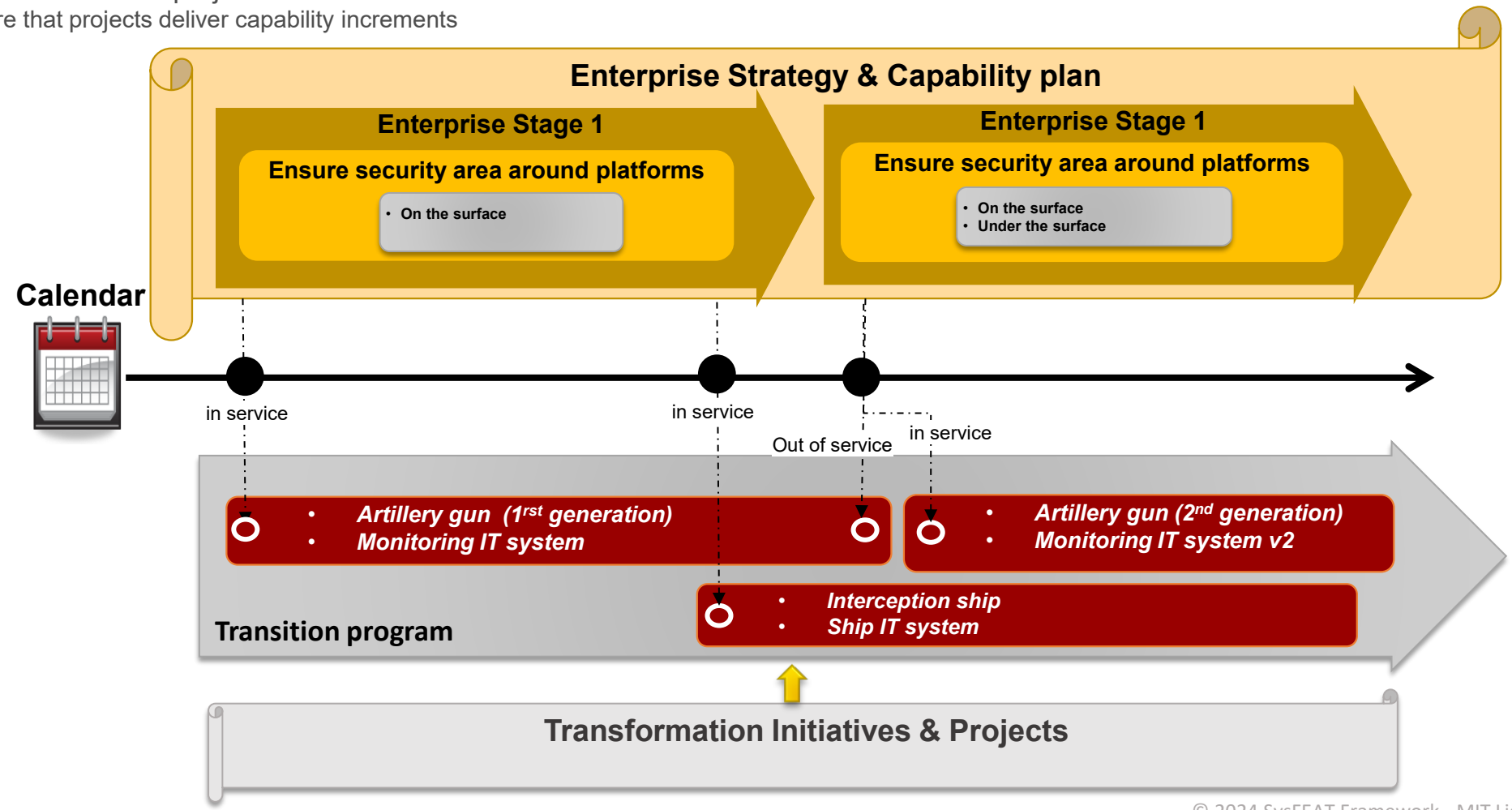


Transformation Governance



Enterprise planning & Assets

- Establish delivery milestones:
  - Planned capabilities versus asset delivery and decommissioning.
- Frame transformation projects:
  - Ensure that projects deliver capability increments



Benefits

Benefits

- Clear separation of concerns that clarifies relationships between stakeholders
  - Job–to-e-done, customer needs, business models, business operating model, solution architectures.
  - Requirement planning, solution planning, transformations.
- Effective requirement traceability framework
  - Non functional requirements are captured and quantified upfront in capability analysis and are satisfied downward by appropriate system architectures.
- Temporal based architecture analysis that ensures projects synchronization through planned capability increments.

Benefits

- If you don't have any architecture, you end up building garbage and slums.
- The Enterprise Architecture discipline allow setup the right amount of architecture work to enable sustainable businesses and foster innovation.