

# Avancier Methods (AM) extra Concepts

## Architecting as a System/Capability Change Process

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## What is EA?

- ▶ “EA regards the enterprise as a system, or system of systems.”
  - ▶ TOGAF
- 
- ▶ EA is about enterprise-scale **business system planning**
  - ▶ Or **business capability planning** if you prefer

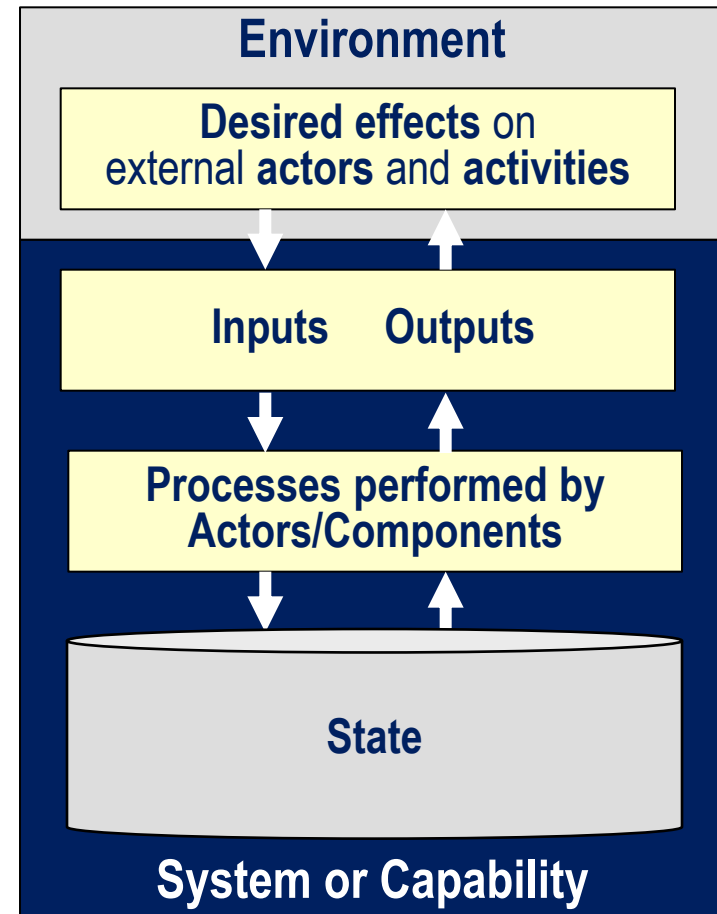
- ▶ The architect of a business system/capability should start by encapsulating that system/capability.



- ▶ The value of a business system/capability lies in what it delivers by way of outputs (directions, products and services)
- ▶ Questions to be answered include:
  1. What external entities are to be monitored, directed or served?
  2. What outputs will be delivered to achieve those ends?
  3. What inputs must be obtained to produce outputs? from what suppliers?
  4. What processes will obtain inputs and produce outputs?
  5. What resources (human, computer, other) will perform the processes?

# What is an enterprise as a system? Or capability?

- ▶ A bounded network of
- ▶ Actors/Components playing
- ▶ Roles in
- ▶ Processes to
- ▶ Achieve desired effects by
- ▶ Maintaining system state and/or
- ▶ Transforming inputs into outputs



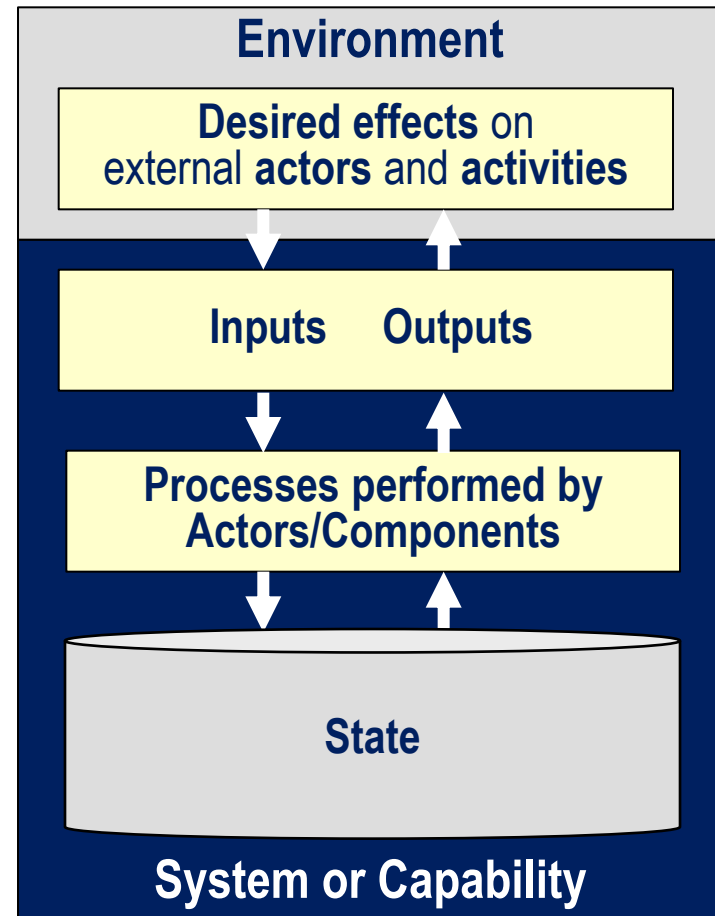
# Architecting as a change process

Envision

Architect

Plan

Govern building and change

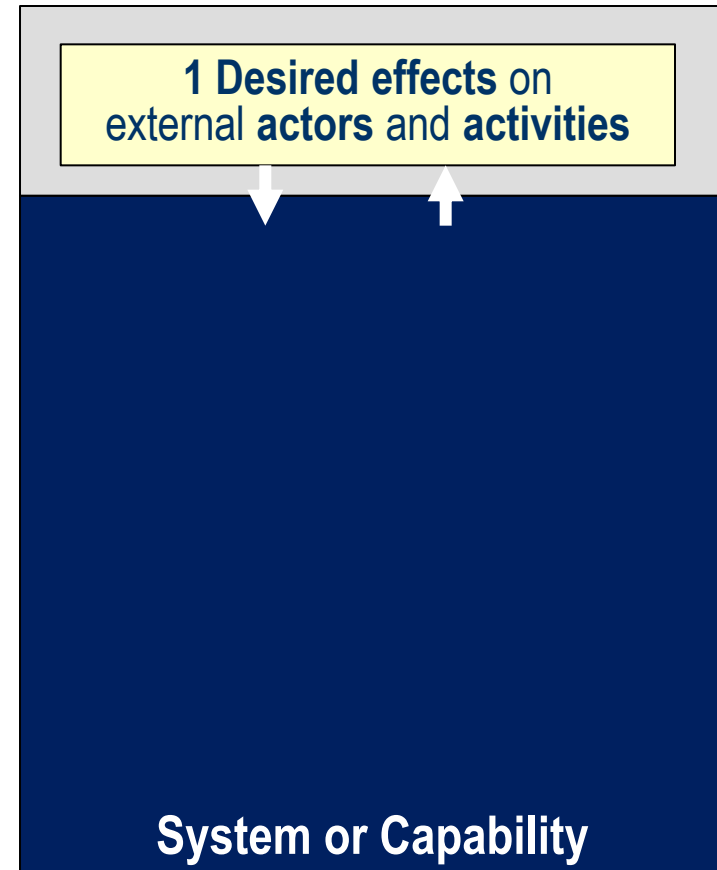


# Architecting as a process – Envision

## Envision

What are the desired effects or outcomes of the system?  
What external entities are to be monitored, directed or served?

- ▶ Define the desired effects or outcomes of the system? to be built or changed
- ▶ wrt actors & activities outside the system that are to be
- ▶ supported or enabled,
- ▶ monitored or directed

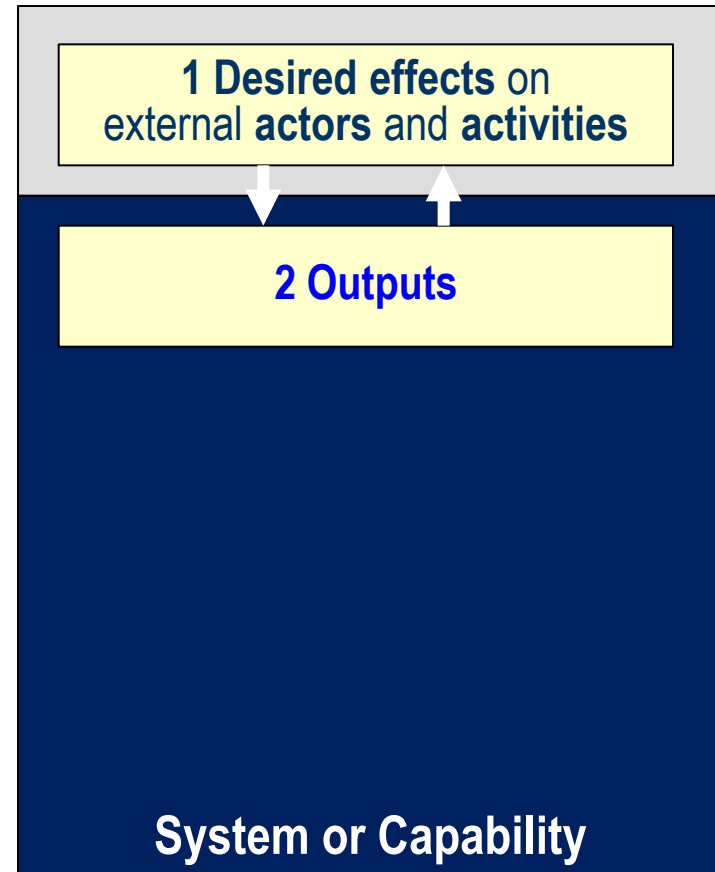
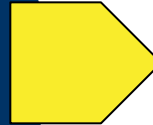


# Architecting as a process – Architect

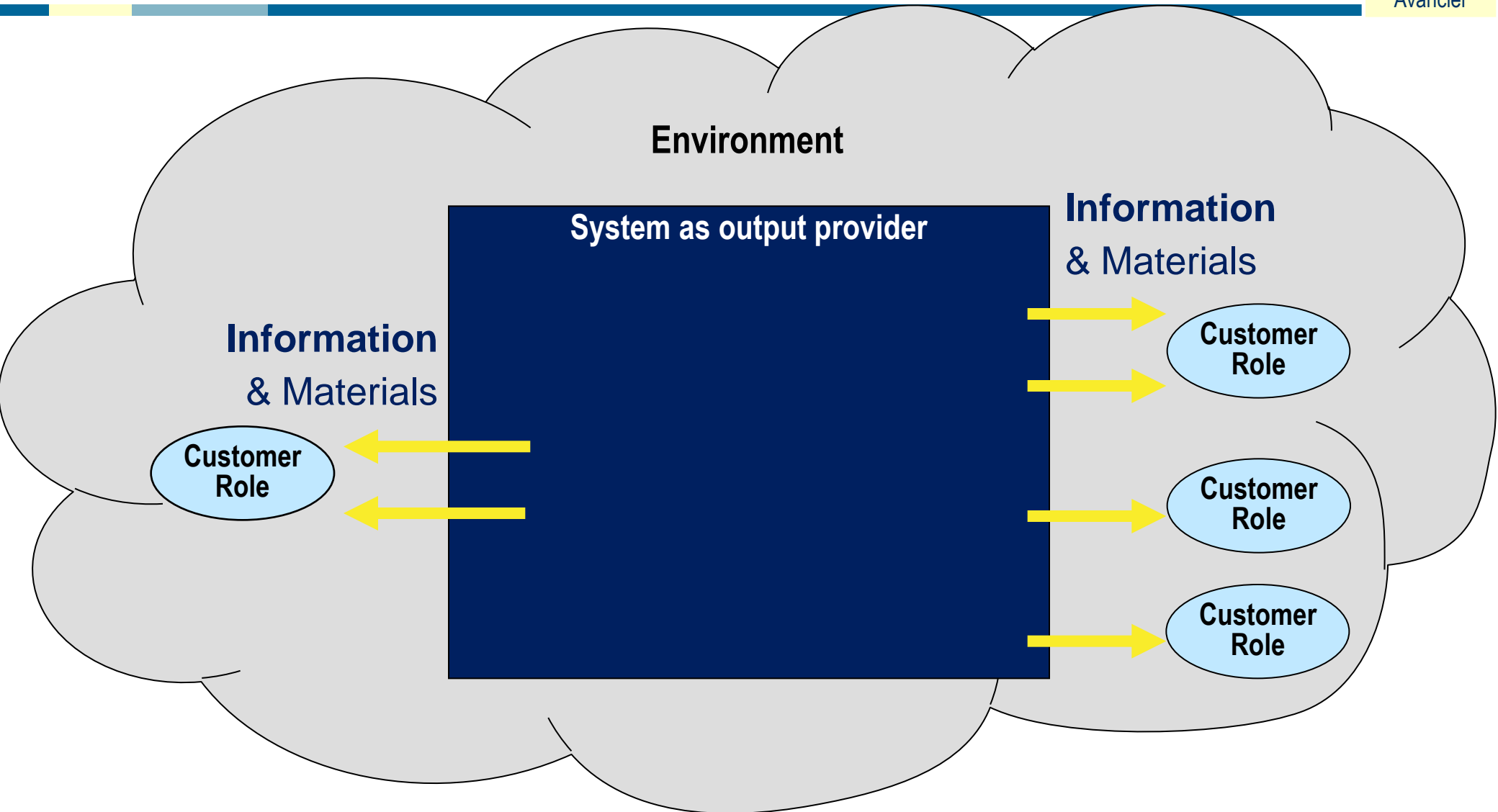
**Envision**

**Architect**

What outputs will be delivered to achieve those ends?



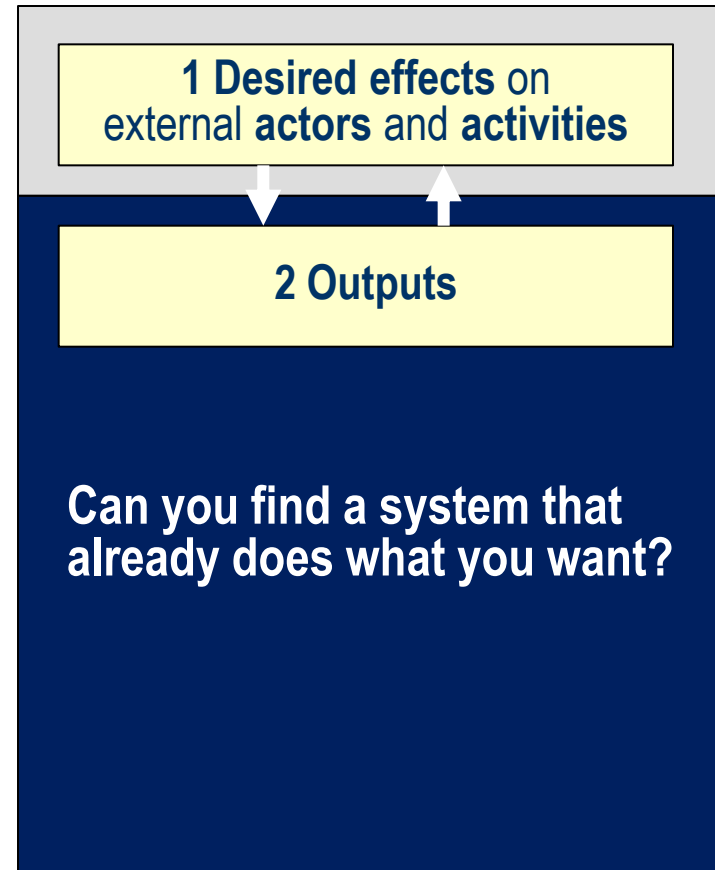
# What directions/services/products do external actors need?





## At this point...

- ▶ Look for a system with the capability to do this job well enough.
  
- ▶ The general principle being
  - Reuse before buy
  - Buy before build
  
- ▶ But beware
  - **Non-functional requirements**
  - **Stored data requirements**
  - **System integration requirements**
  - **TCO**, inc. licence fees, operation and maintenance costs



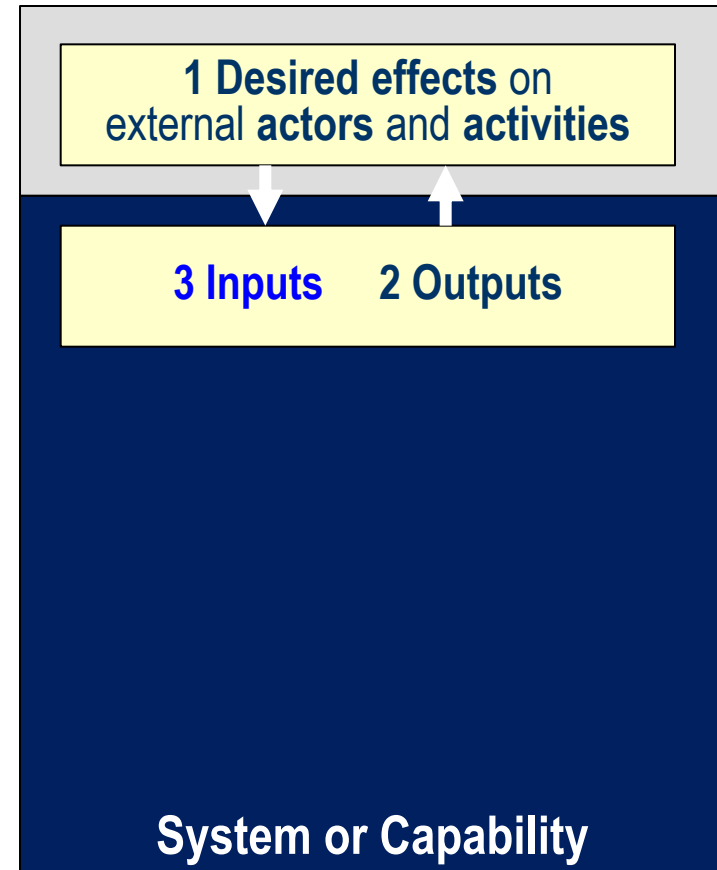
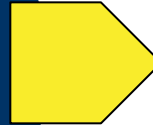
# Architecting as a process – Architect

## Envision

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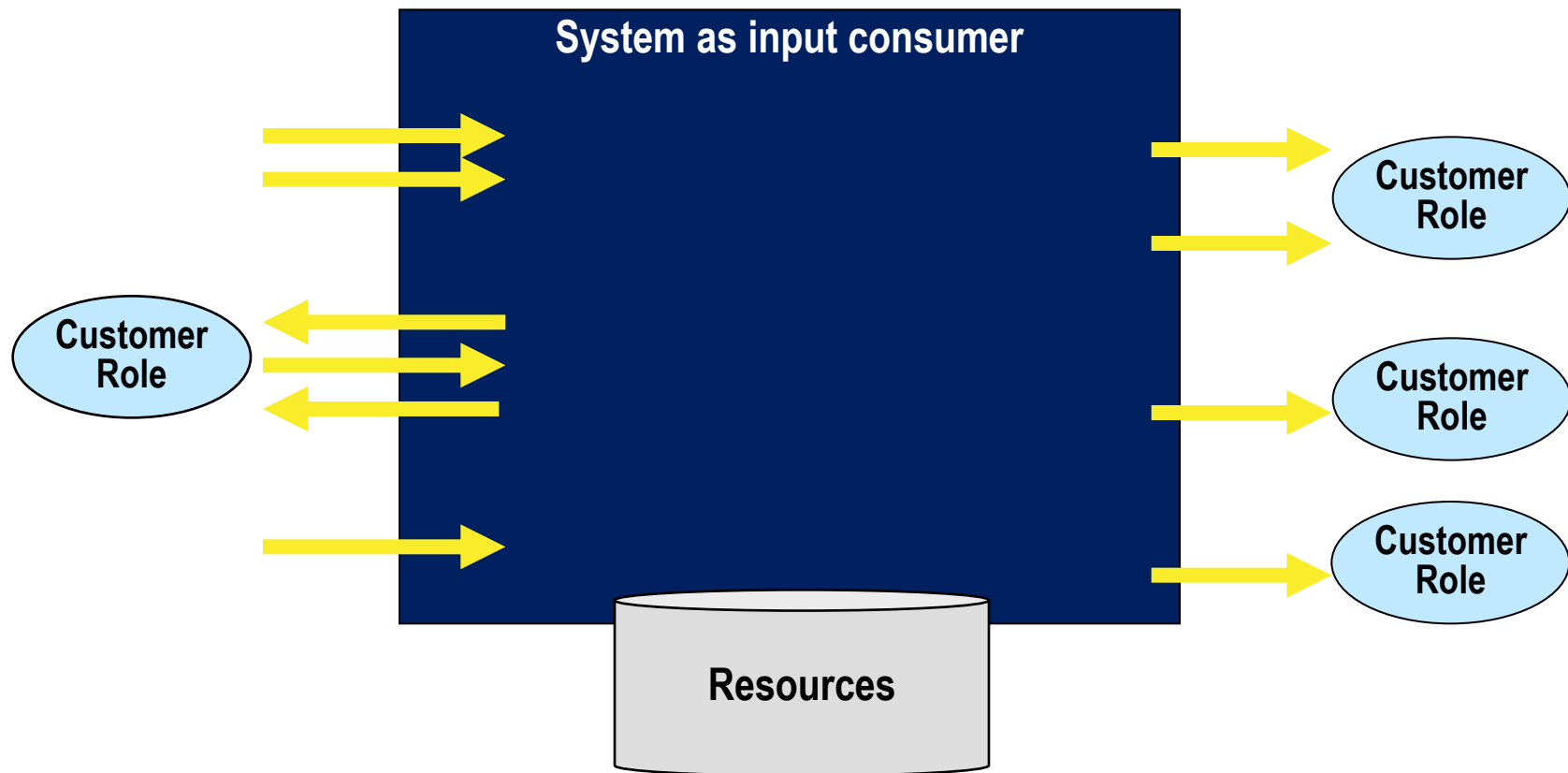
## Architect

What outputs will be delivered to achieve those ends?  
What inputs must be obtained to produce outputs? from what suppliers?



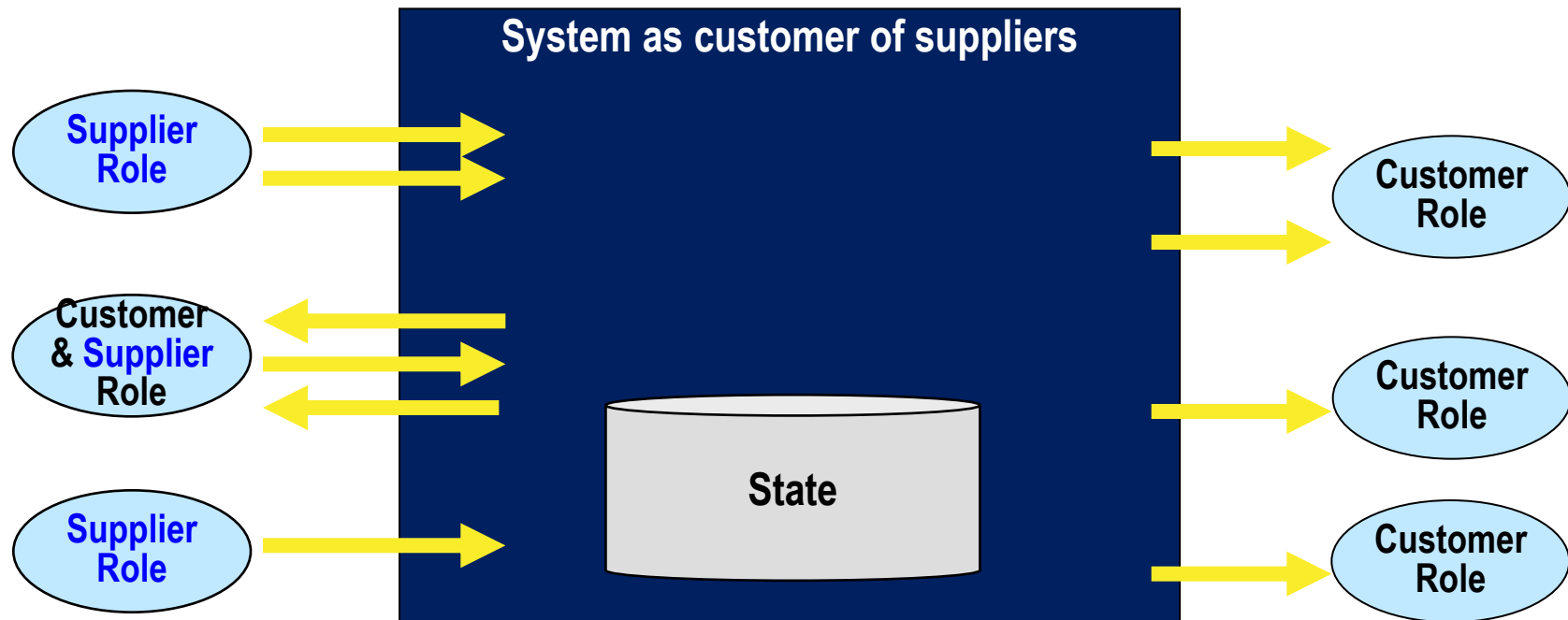
# What inputs must be obtained?

- ▶ Inputs can include information and materials
- ▶ (energy is usually taken for granted)



# Who supplies the inputs?

- ▶ Suppliers provide inputs and refresh system resources/state

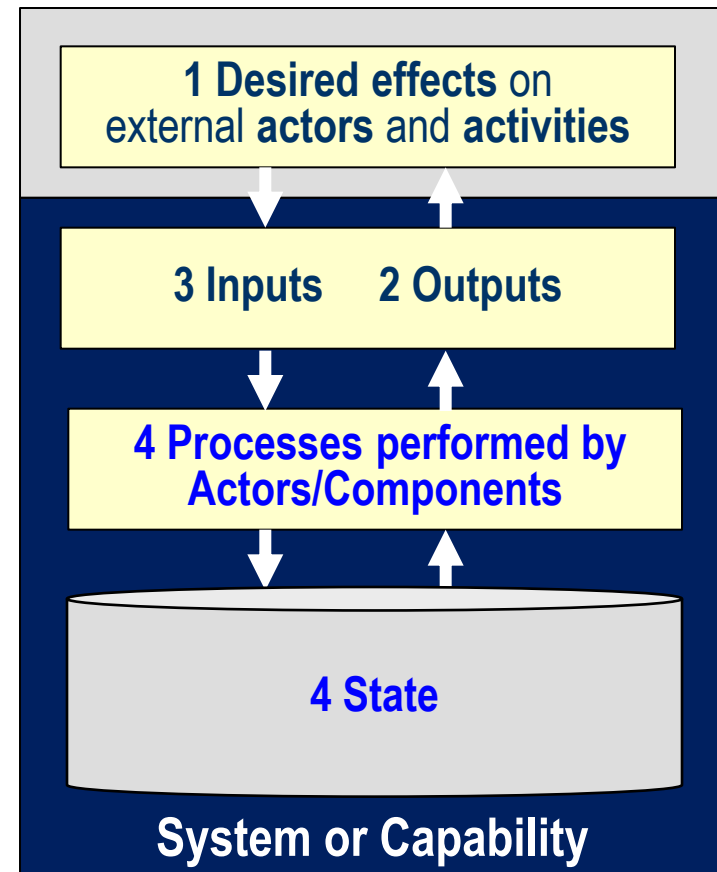
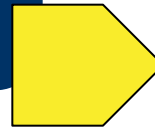


# Architecting as a process – Architect

## Envision

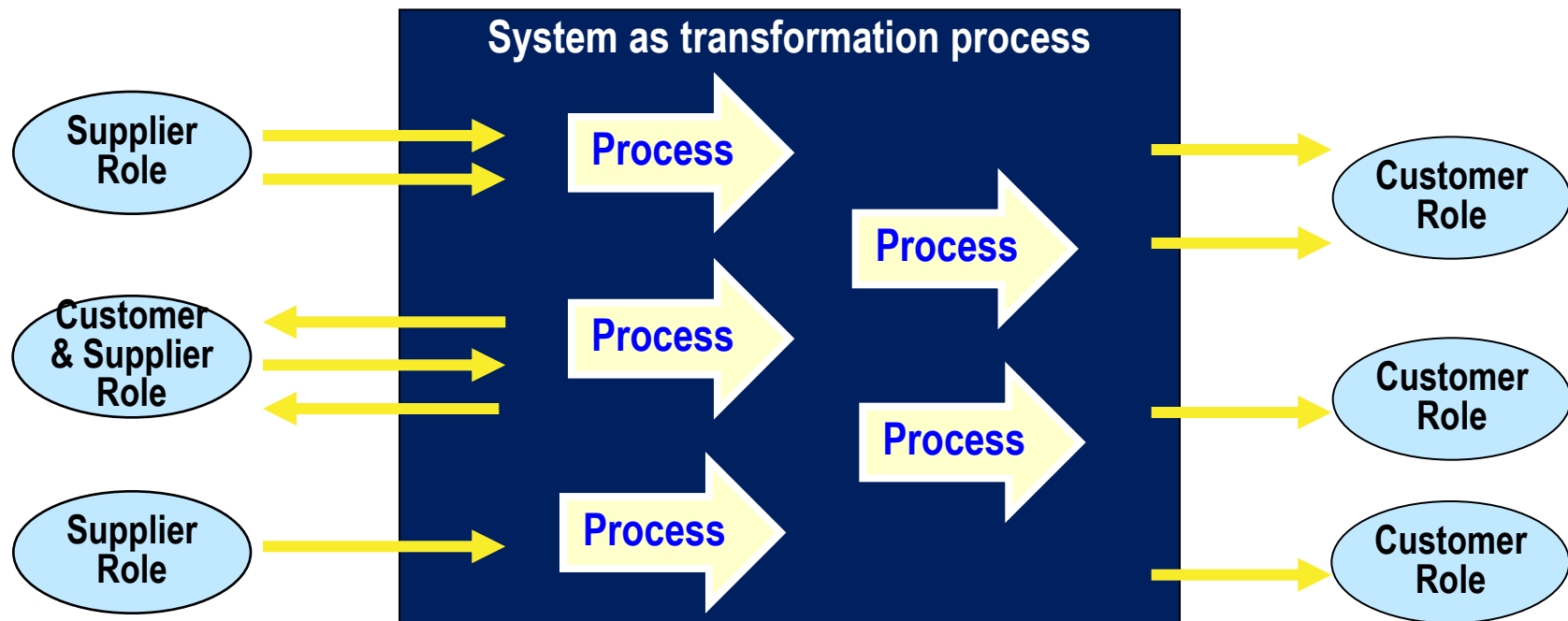
## Architect

What outputs will be delivered to achieve those ends?  
What inputs must be obtained to produce outputs? from what suppliers?  
What processes will obtain inputs and produce outputs?  
What resources (human, computer, other) will perform the processes?



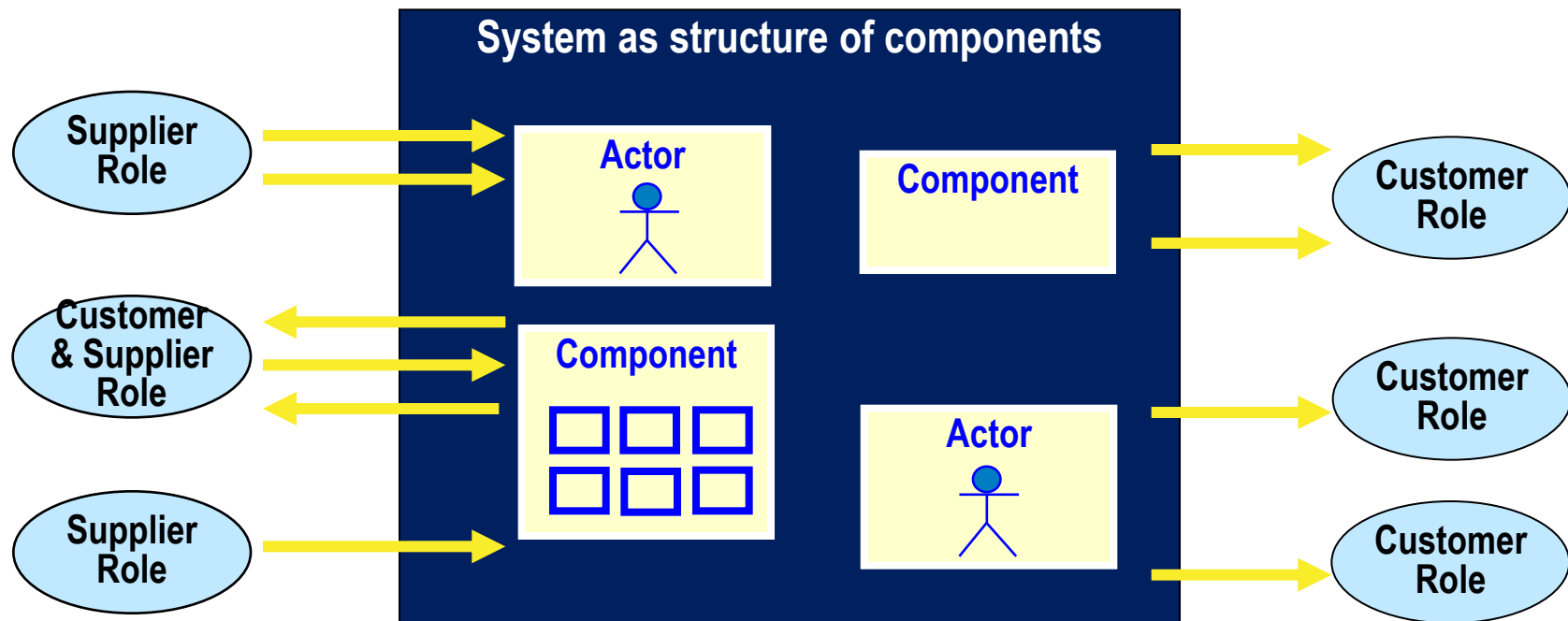
# What processes will obtain inputs and produce outputs?

- ▶ **A behavioural view** shows processes executed (cf. a use case diagram)



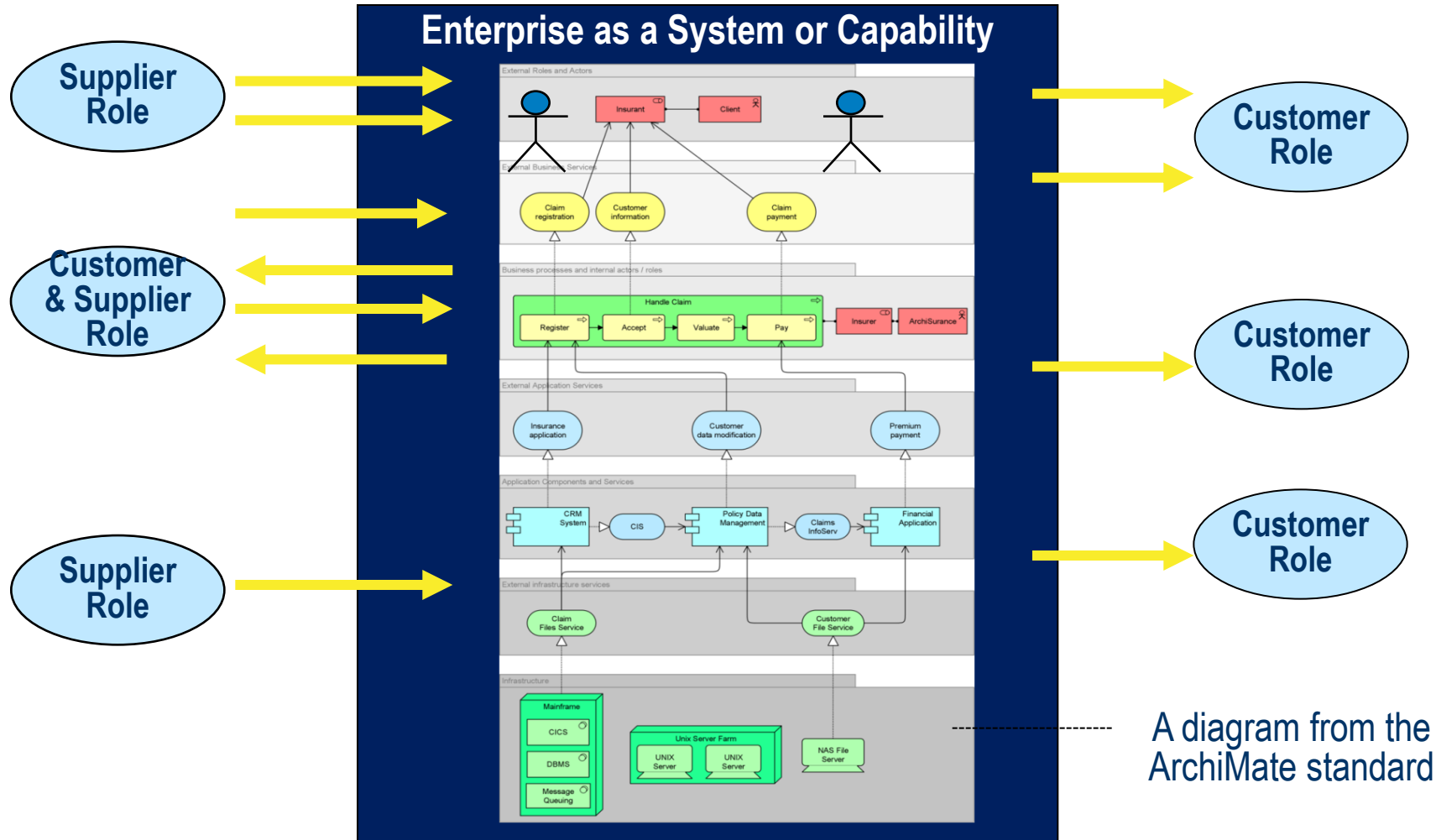
# What resources will perform the processes?

- ▶ **A structural view** shows actors/components (human, computer, other) that perform processes



# How do the actors/components cooperate?

- ▶ Actors/components interact in processes





## Envision

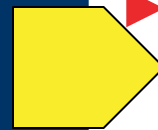
- ▶ Architects assist programme/project managers in drawing up plans for change

## Architect

- ▶ Bearing in mind
  - Forces: Mission, Vision, Drivers
  - Aims: Goals, Objectives, Requirements

## Plan

What work must be done to make required changes?



- ▶ Plan the programme, project, or work package, considering
  - Time
  - Cost
  - Value
  - Risks
  - Resources etc.

# Architecting as a process - Govern building and change

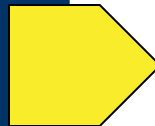
Envision

Architect

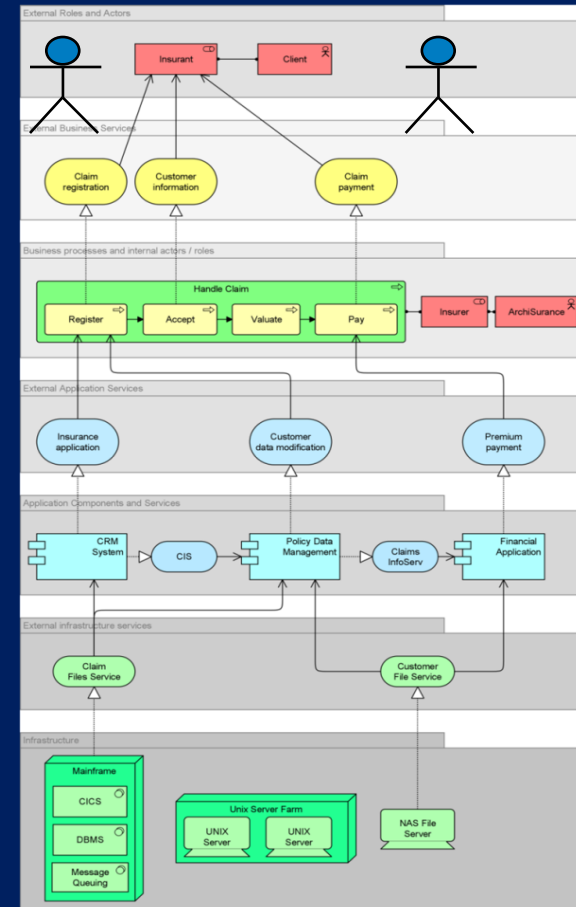
Plan

Govern building and change

Are the builders doing what was directed?

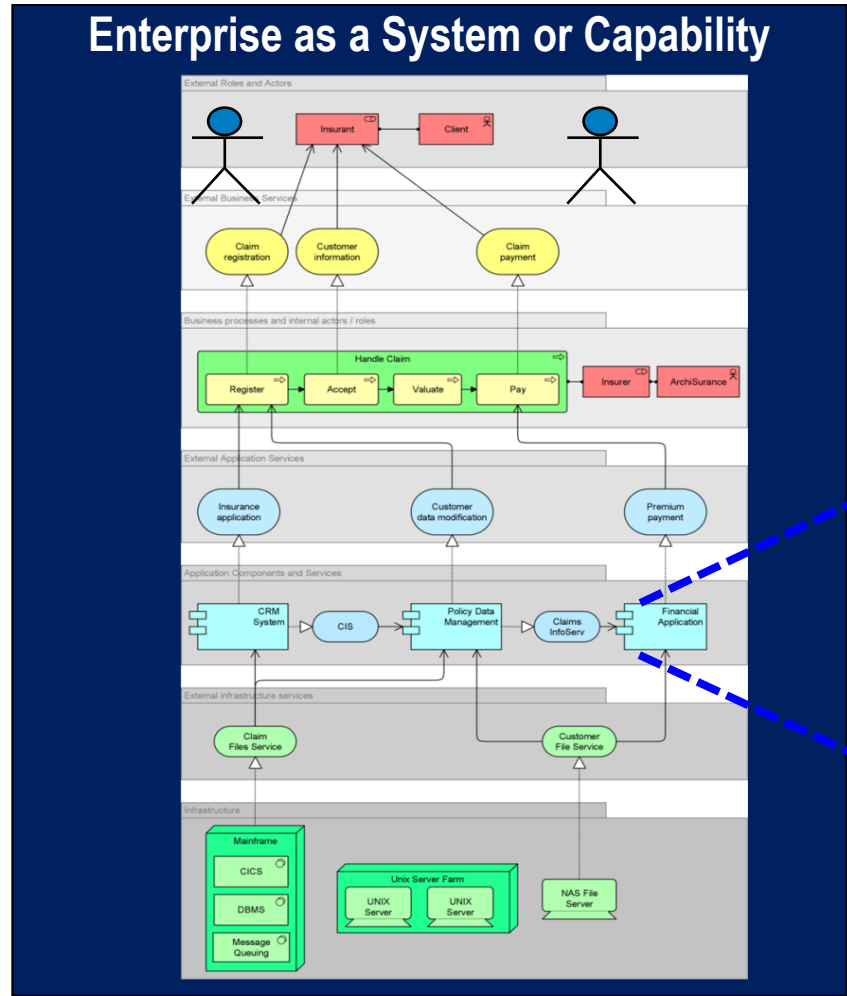


## Enterprise as a System or Capability



# Build and deploy the component subsystems

- ▶ At a higher level, architects define coarse-grained actors/components



- ▶ At a lower level, a software architects may follow the same process to define a software application

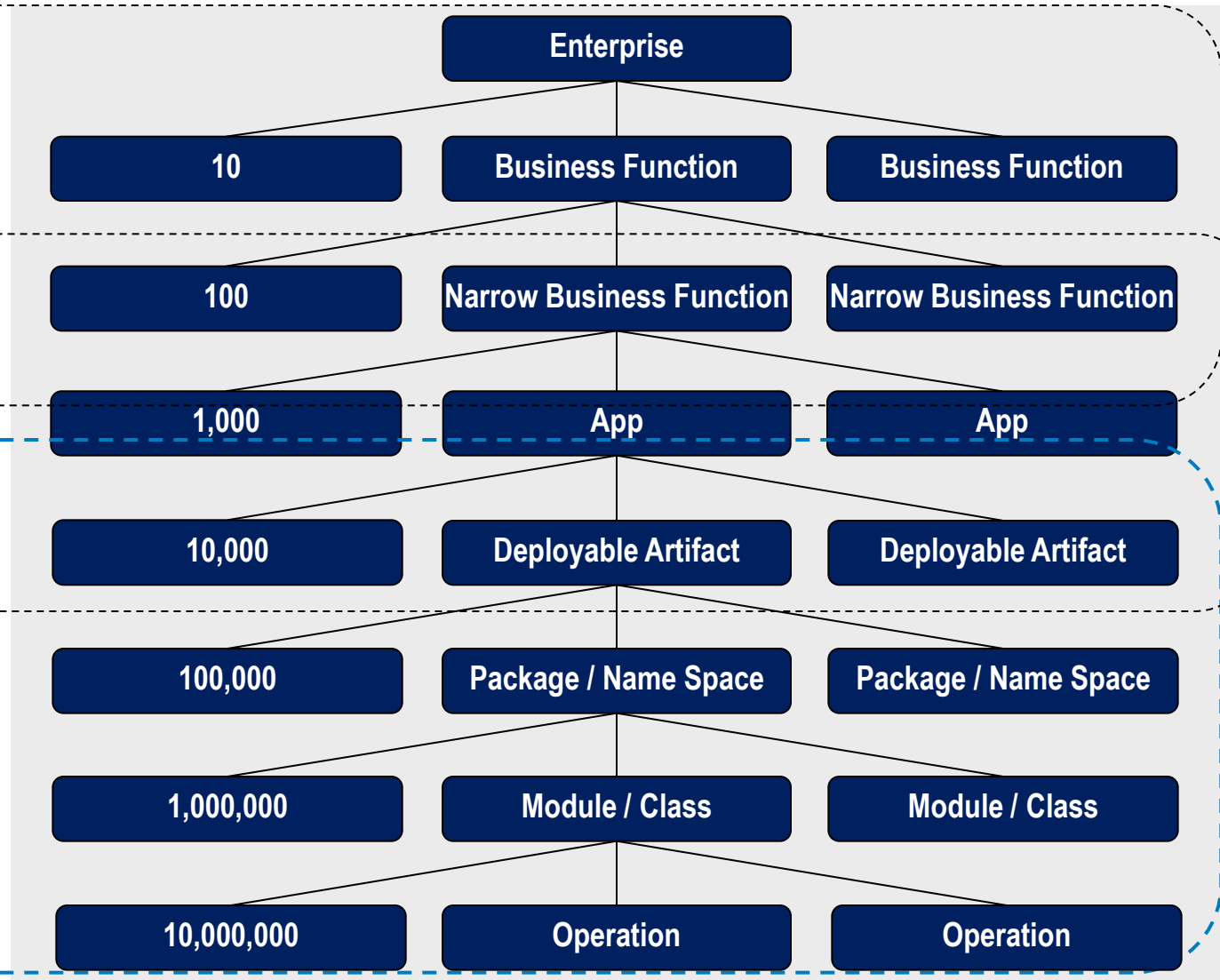
**Application as a System or Capability**

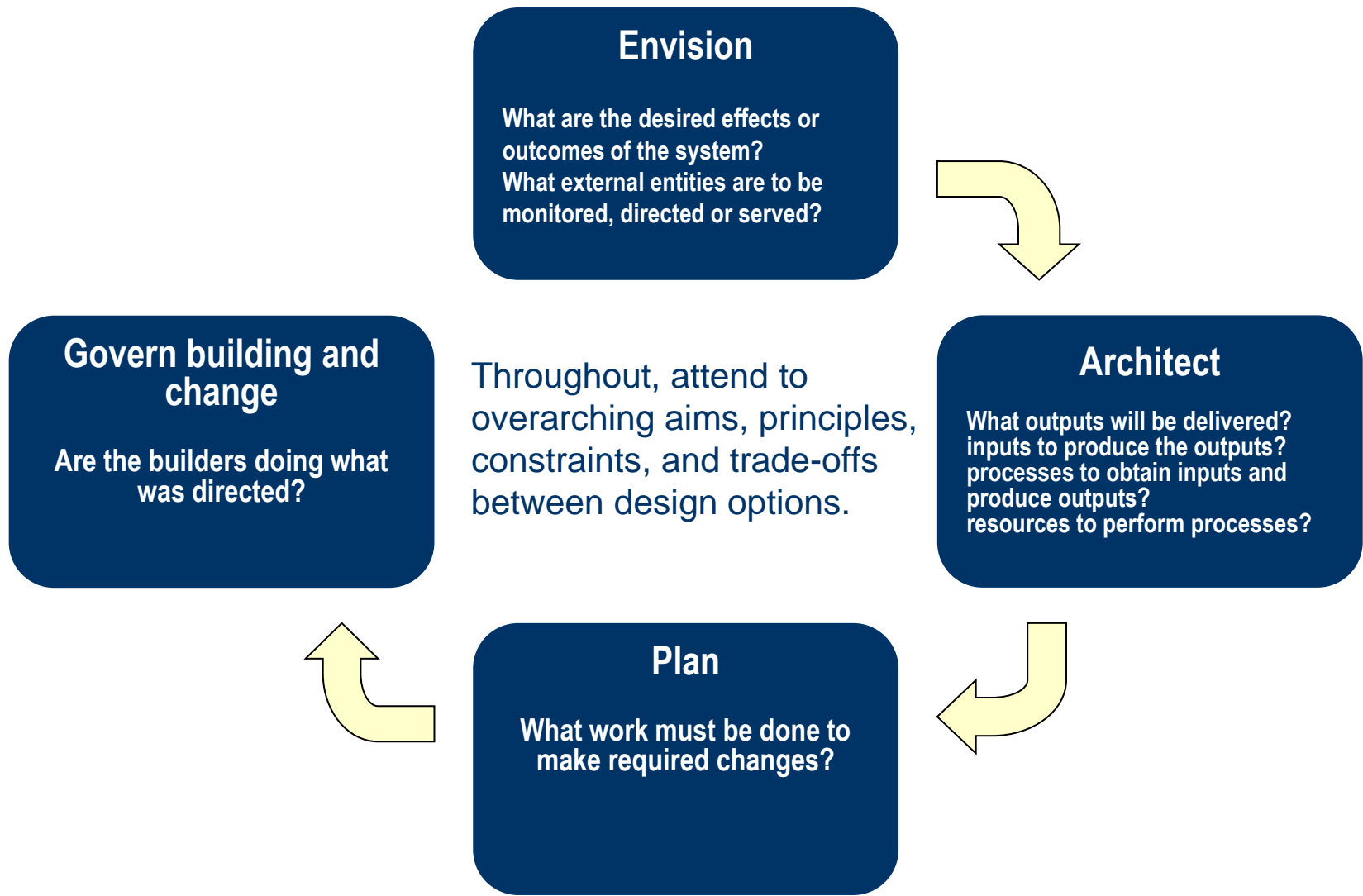
# The enterprise as a system of systems

Enterprise Architecture

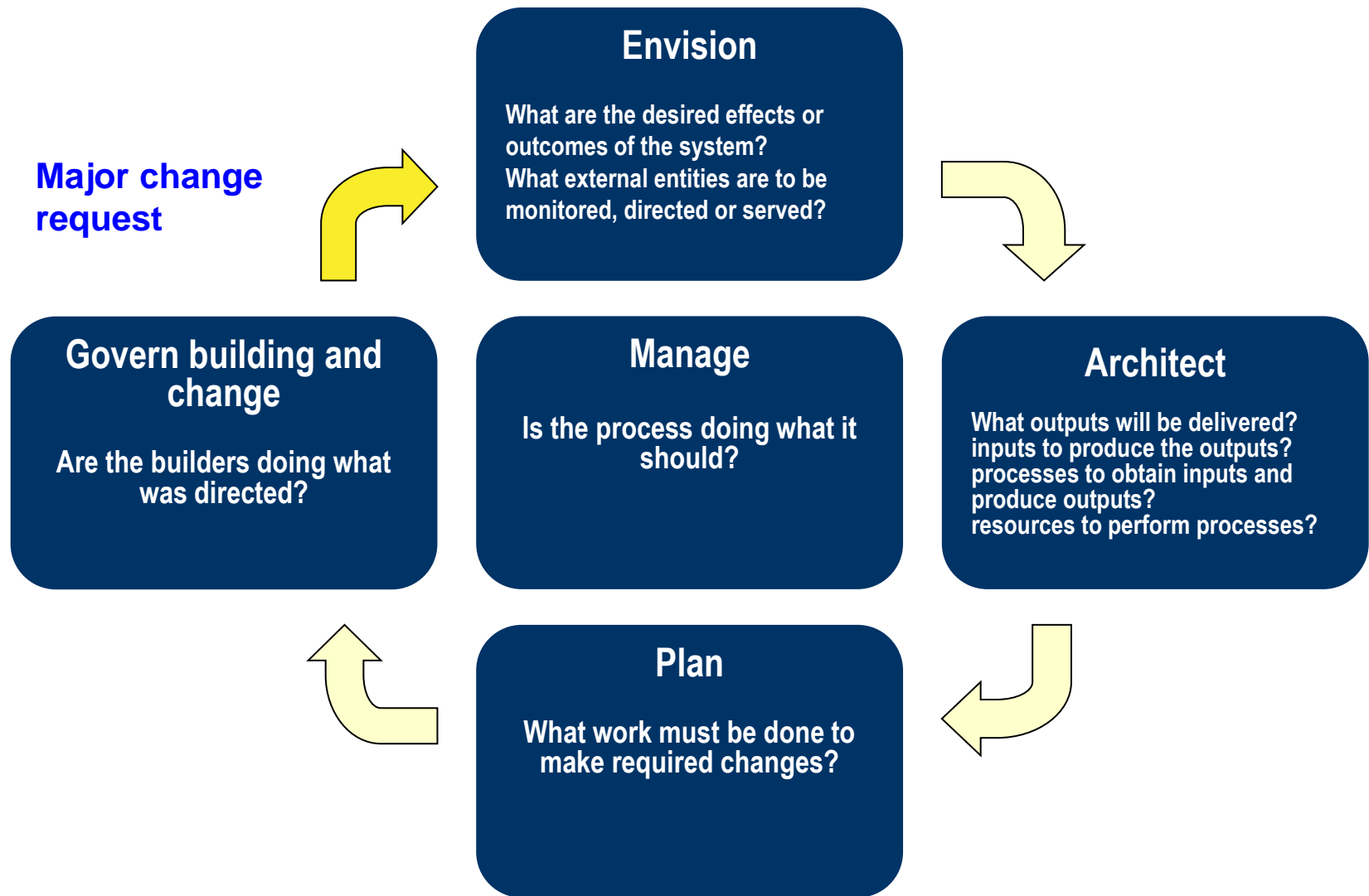
Solution architecture

Application software architecture





# Architecting as a change cycle



# TOGAF as a enterprise/system architecture/change process

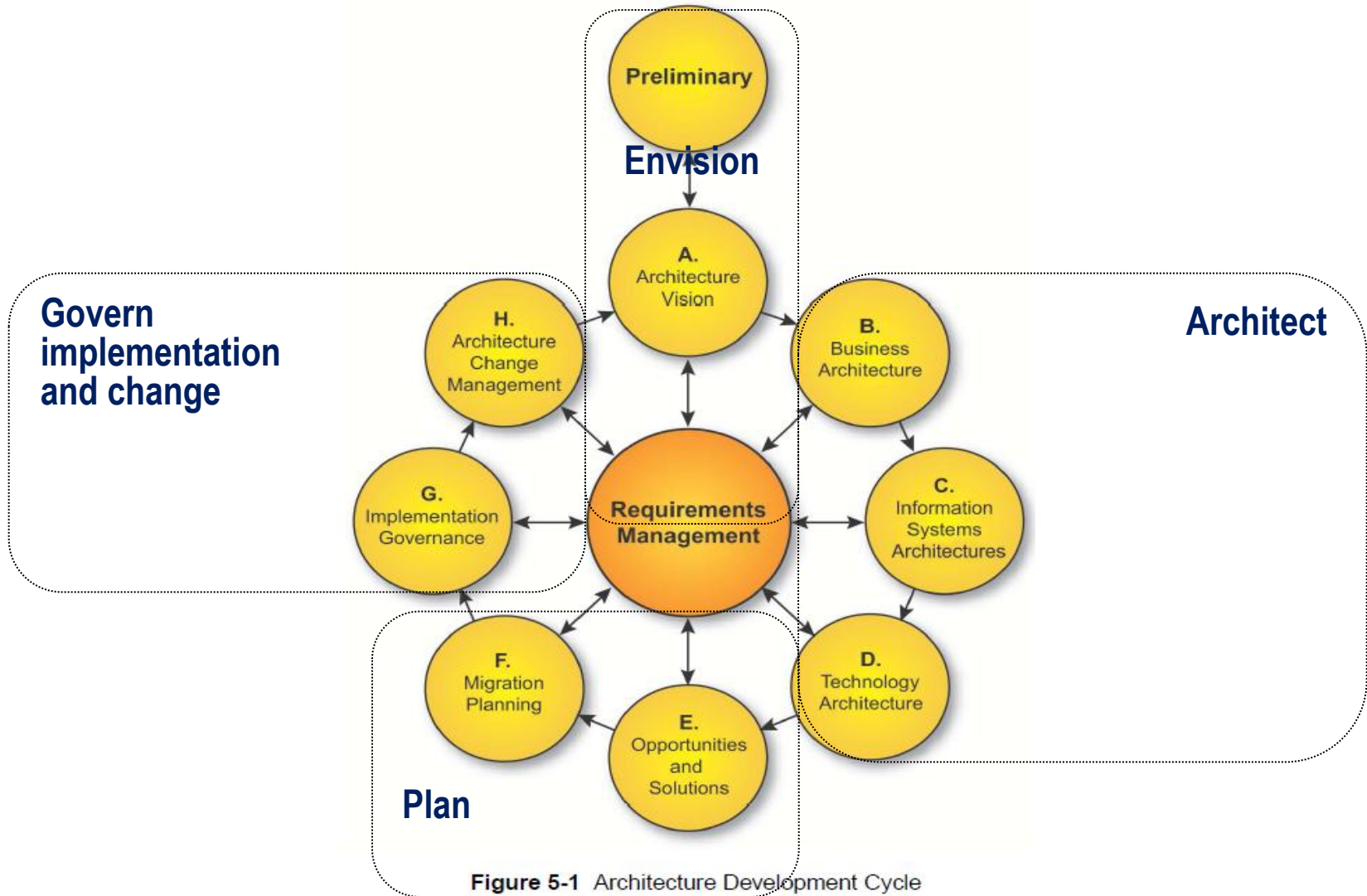


Figure 5-1 Architecture Development Cycle