

# Avancier Methods (AM) PLAN

## Review business case

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## **Business case**

A rationale and business justification for spending time and money.

Generally speaking, the essential elements are

ROI (benefits – costs),

Options (business or technical),

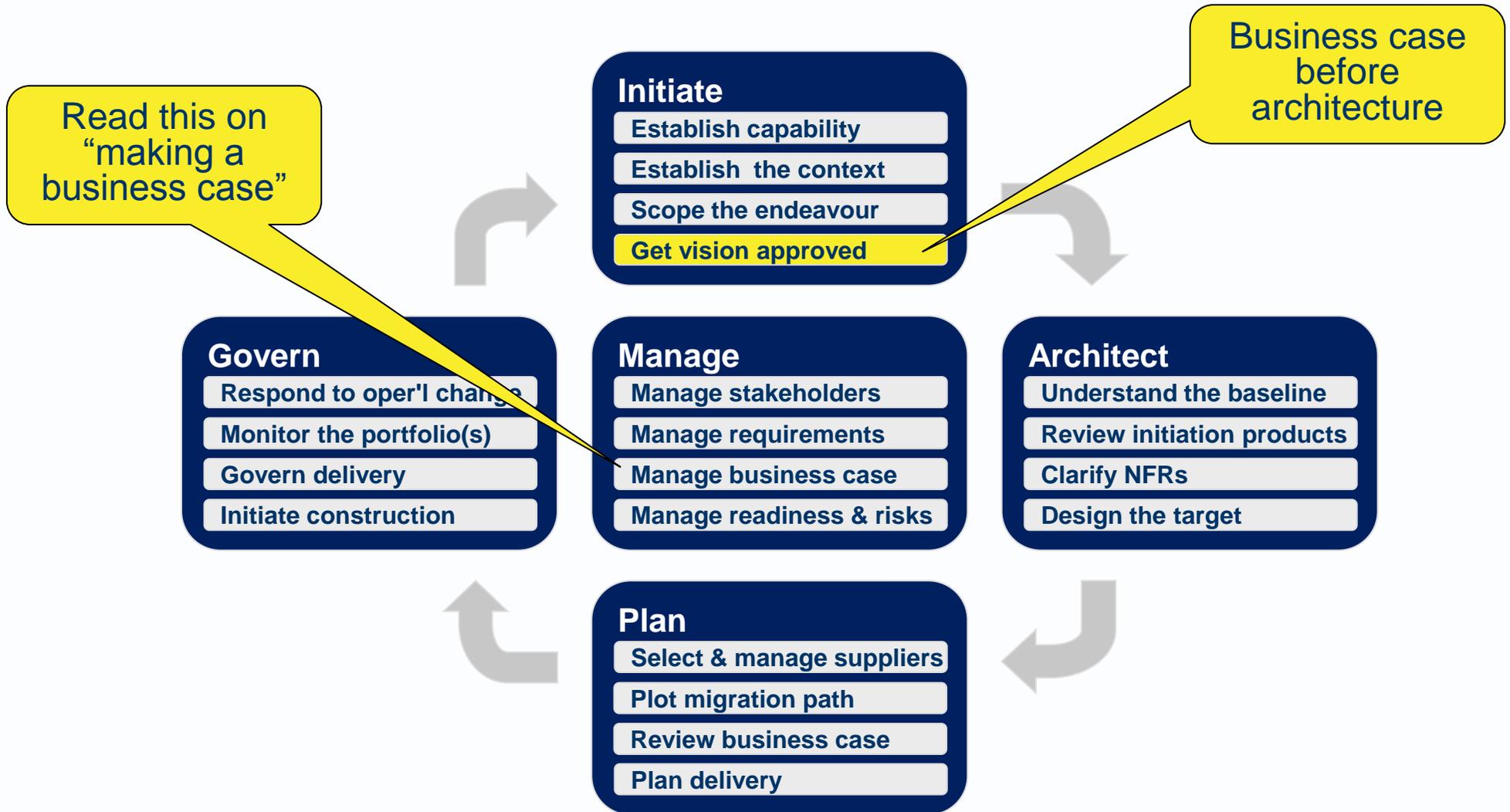
Impacts (work to be done and changes to be made)

Risks.

These terms are defined separately.

- ▶ See “Manage business case” for detailed discussion of business cases

# There should have been a business case at the start



## Section 2 of the reference model refers to the initial business case

### **Business case (before architecture)**

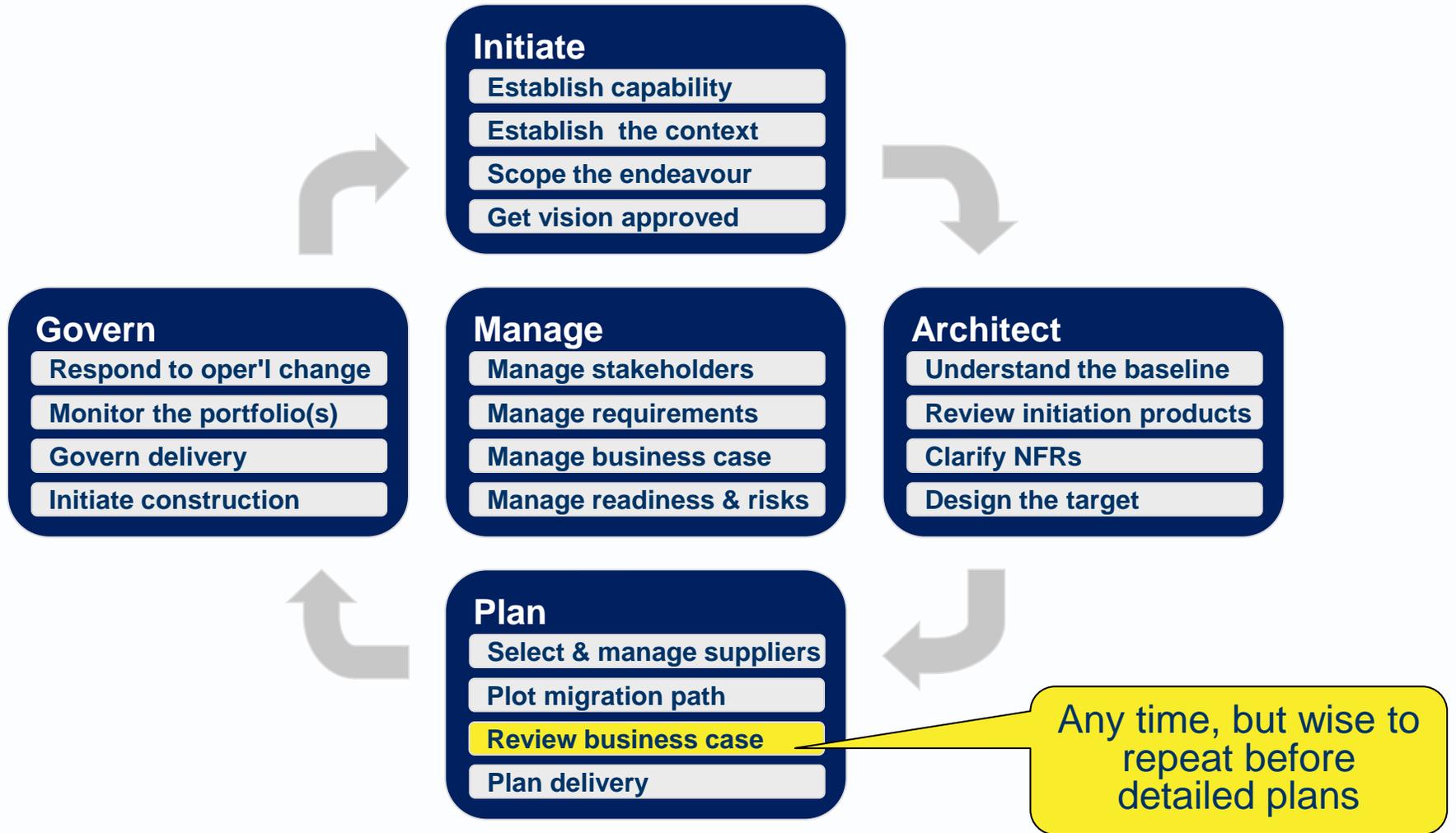
Should be outlined at the start and updated as need be. It will be reviewed and refined several times while architecture work is done.

It may decomposed into business cases for specific options, stages or projects within the overall solution.

See section 10 for definition of this term and the supporting terms below.

- Return on Investment (ROI)
- Solution options
- Cost-benefit analysis
- Risk analysis
- Gap analysis (options)
- Trade-off analysis

# Review business case (in AM)



## ▶ Roles

- The business case is likely to be “owned” by a manager.
- Architects can and should use the business case as input to defining transitions states in migration planning

## ▶ Approach

- Architects can and should use the business case as input to defining transitions states in migration planning
- The business case may be refined
  - To align with the transition states
  - As a result of lessons learned from defining transition states

## ▶ Inputs

- At least the initial migration path
- And the business case defined to date.

## 1. Analyse solution or solution options

- costs and benefits
- risks
- gaps between options
- trade offs between option qualities

## 2. Confirm chosen option

## **Solution Options**

Alternative designs. It is usual, at least at the solution vision stage, to describe two or more alternatives.

They may be compared at several stages and at several levels of design.

The choice can be guided by:

- **cost-benefit analysis,**
- **risk analysis,**
- **gap analysis and**
- **trade-off analysis.**

## Cost-benefit analysis

An assessment of the costs and the benefits of a course of action and/or a proposed system.

Or, how soon do we get the money back?

## Return on Investment (ROI)

A statement of benefits gained minus costs spent [over a period of time].

Costs must cover

- development,
- implementation,
- operation and maintenance.

Benefits may include

- money made,
- money saved,
- regulations complied and
- the resolution of specific problems. E.g. the benefit of data integrity is to save the cost of data disintegrity.

## Risk analysis

Analysis of vulnerabilities that threaten the ability of a target system to meet requirements, especially non-functional requirements, including security.

Risk analysis is needed before architecture definition starts in earnest, and then several times later in the process, and at several levels of design.

- ▶ Different businesses – different risks
  - A stock trading system moving £100M/day.
  - A SME dealing with auto-parts.
  - A government department logging claims for grants from farmers.
  
- ▶ Consider security especially.
  - Security requirements need to be stated and analyzed just as much as any other functional requirement.
  - Security functionality should be tested.
  - *See template for security risk analysis in the training manual chapter 14*

# Analyse gaps (between options)

## Gap analysis (options)

Generally, a technique for comparing two similar lists or structures, to find potentially missing items.

It can be used to compare two optional solutions, and identify gaps in one or both.

It helps if the two options are presented under the same structure as each other, or a more general structure.

Solution 1 (buy)	Solution 2 (build)
A	A
B	B
C	Gap
Gap	D

# Analyse trade offs (between options)

## Architecture

## Trade-off

## Analysis

## Method

A process in which a consultant leads analysis of target system options and the trade offs between them.

Published and promoted by the Software Engineering Institute of Carnegie Mellon University.

## Architecture Trade-off Analysis Method (ATAM)

1. Presentation
2. Investigation and Analysis
3. Testing
4. Reporting

# The Pugh Matrix (after Six Sigma)

<i>1 List criteria that the options must meet</i>	<i>2 Attach a weight to each criteria (say 1/3/5/7/9)</i>	<i>3 List the options and rate how well (say 1/3/5/7/9) each option meets each criterion.</i>	
<b>Criterion</b>	<b>Weight</b>	<b>Option 1</b>	<b>Option 2</b>
Response time			
Throughput			
Security			
Cost			
Supplier stability			
<i>4 For each option, multiply the weights by the ratings</i>			

# The Pugh Matrix (after Six Sigma)

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<b>Criterion</b>	<b>Weight</b>	<b>Option 1</b>	<b>Option 2</b>
Response time	5	3	3
Throughput	5	3	5
Security	3	5	1
Cost	3	1	1
Supplier stability	1	3	7
<i>4 For each option, multiply the weights by the ratings</i>	<b>Total</b>	<b>51</b>	<b>53</b>

# Other numbers managers care about

## ▶ ROI

- Benefits – Costs (over a time period), or
- Date when benefits > costs, or
- Profit / Investment

## ▶ Other

- $\text{Margin} = \text{Price} - \text{Cost}$
- $\text{Profit} = \text{Sales Volume} * \text{Margin}$
- $\text{P/E ratio} = \text{Share price} / \text{Earning per share}$

## ▶ Assets

- Fixed
  - Plant & equipment
  - Buildings and land
- Net Current
  - Stock, Debtors and Cash
  - Less Current liabilities

## Trading profit (Sales – Costs)

### Sales

#### Prices

- Estimating accuracy
- Competitive prices
- Product costs

#### Product

- Quality
- Design
- Range

#### Services

- Tech support
- Representative effectiveness
- Delivery

#### Market conditions

### Variable costs

#### Labor

- Cost per hour (rates, overtime)
- Productivity (methods, turnover)
- Efficiency (work methods)

#### Services

- Fuel
- Power

#### Materials

- Purchase price
- Quality
- Wastage

### Fixed costs

#### Research

#### Selling

#### Maintenance

#### Works

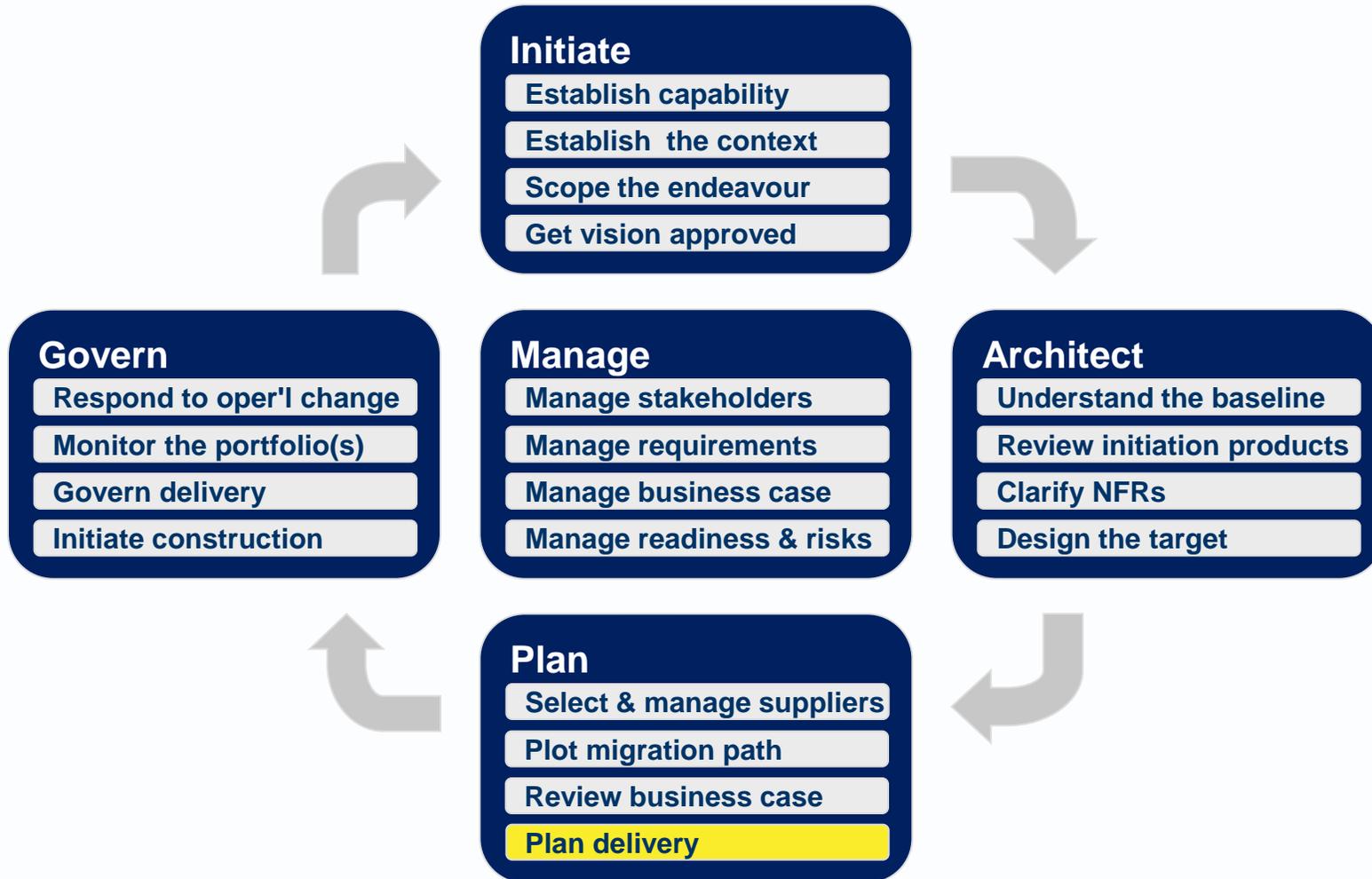
(From the pyramid principle, by Barbara Minto)

## 1. Analyse solution or solution options

- costs and benefits
- risks
- gaps between options
- trade offs between option qualities

## 2. Confirm chosen option

- Along with the best explanation you can make of how it
  - makes the business money, or
  - saves the business money, or
  - meets a legislative/regulatory imperative, or
  - reduce business risks



## Plan delivery (in AM)



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1. Chart initial roadmap
2. Help managers complete detailed plans
3. Plan implementation governance

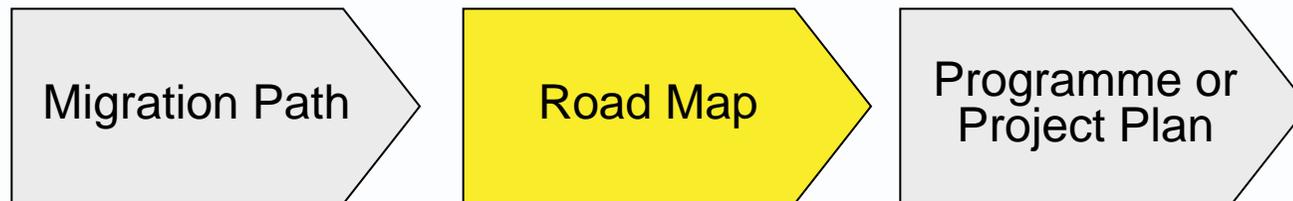
# Two kinds of road map

Emerging	E
Standard	S
Contain	C
Retire	R
Unsupported	U
Archived	A

- ▶ A calendar phasing things in and out

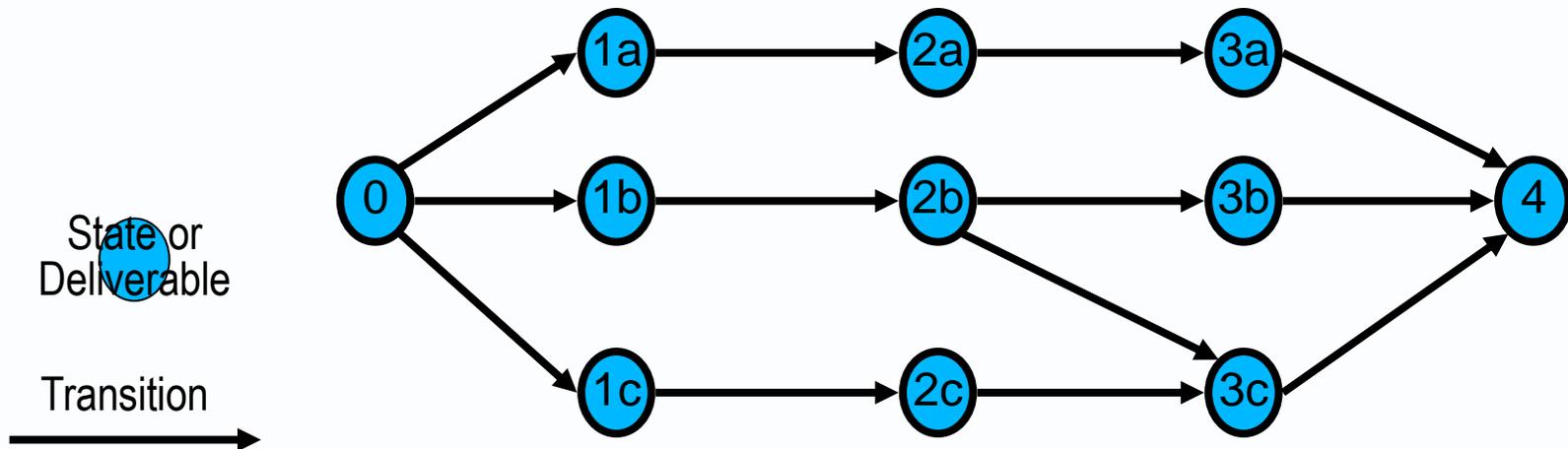
Tech Category	TAF Product	2010				2011				2012				2013			
		Q1	Q2	Q3	Q4												
<b>"Application Servers"</b>																	
	RedHat x.y		S														
	Tomcat		S														
	WebLogic App Server 10.x	S															
	WebLogic App Server 9.x	S							C								R
	WebLogic App Server 8.x	C						R									
<b>"Web Servers"</b>																	
	Apache 1.x		S														
	Apache 2.0	S				C											
	Apache 2.2x		S														
<b>Portals</b>																	
	Accordant Media Management System																

- ▶ A sketchy plan – half-way between a migration path and a complete plan



# Chart initial roadmap

- ▶ Convert the migration path into a road map
  - Decompose changes into tasks
  - Define dependencies between tasks



# Define dependencies between tasks

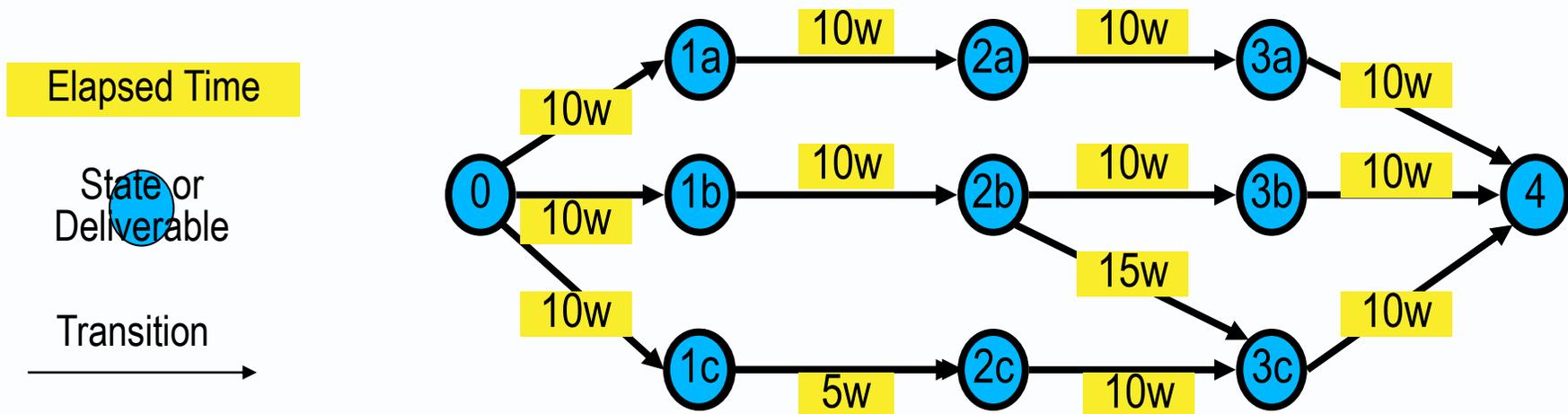
## Critical path analysis

A technique to construct a model of the project that includes

- (i) a list of all **tasks** required to complete the project (also known as work breakdown structure)
- (ii) the duration of each **tasks**, and
- (iii) the dependencies between the **tasks**.

## Program Evaluation and Review Technique (PERT)

A method to analyze the tasks involved in completing a given project, especially the time needed to complete each task, and identifying the minimum time needed to complete the total project.

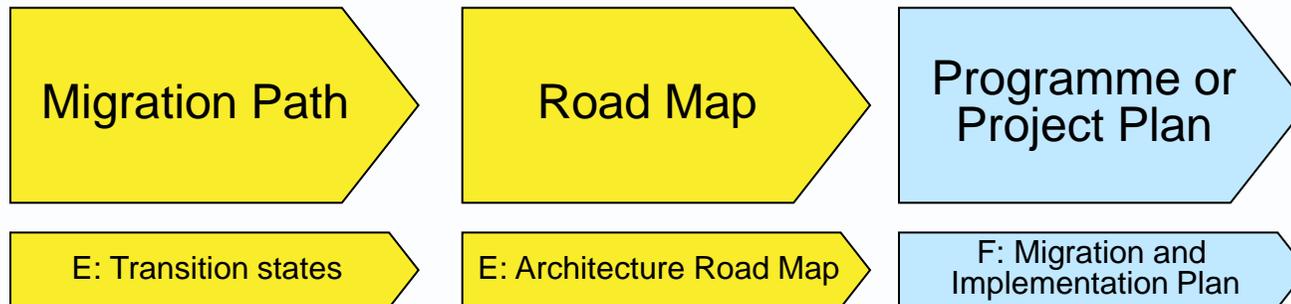


# Chart the initial road map

- ▶ Complete the initial road map
  - Estimate and schedule each work package well enough to inform the more detailed management plan

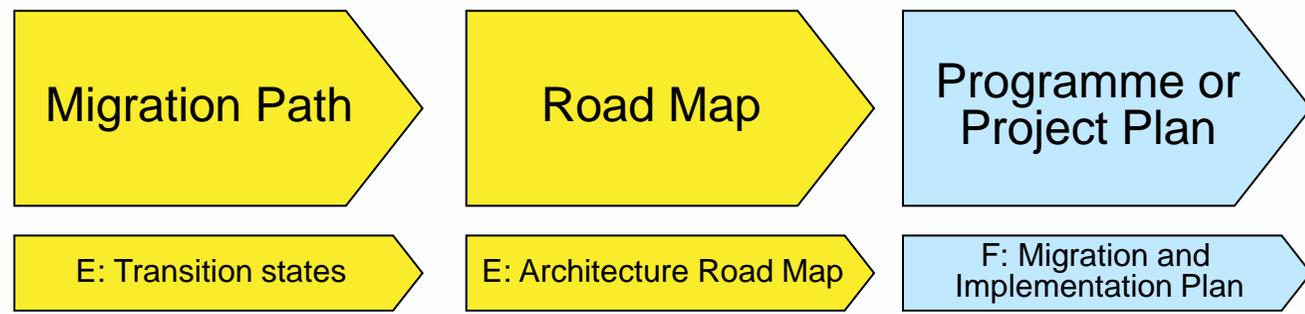
## Roadmap

A migration path/plan with timescales, and perhaps some idea of costs and resources.  
Half-way between a migration path and a project plan.

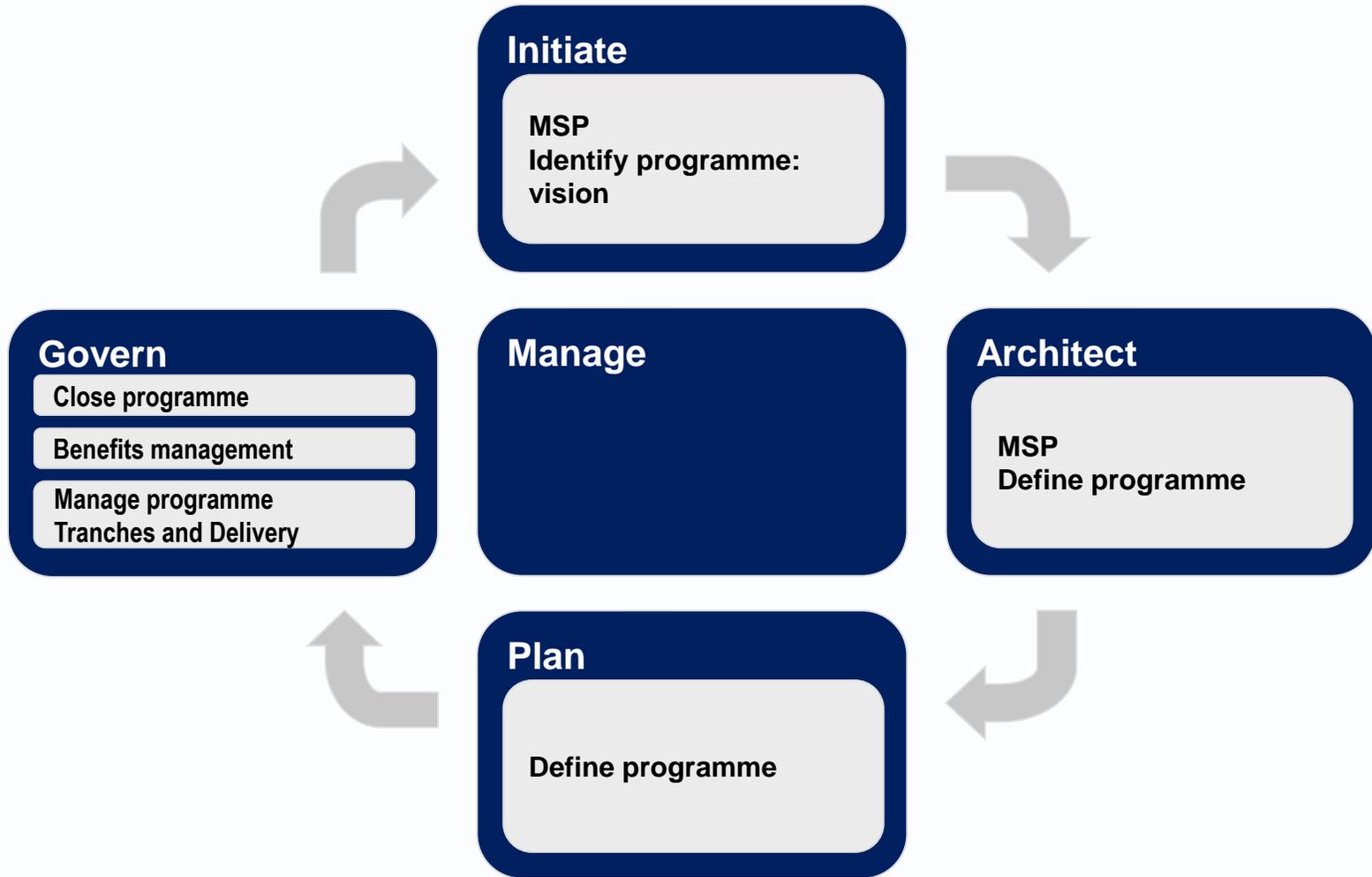


# Help managers complete detailed plans

<b>Management methodology</b>	A collection of processes and deliverables designed to guide people in how to complete a programme, project or service
<b>Programme</b>	A set of projects that are related by a common goal or shared budget, usually under one manager.
<b>Managing Successful Programmes (MSP)</b>	A methodology for managing programmes, maintained and published by the OGC. Applicable at the level of enterprise architecture.



# Managing Successful Programmes <> Avancier Methods



## Help managers complete detailed plans

### **Project**

A process that consumes time and resources to deliver a required outcome, usually under one manager.

### **PRINCE2**

A project management method.  
A well-known methodology maintained and published by the OGC. ([>Axelos](#))  
Applicable at the level of an application development project.

- ▶ For each project
- ▶ Determine how the implementation will be governed
  
- ▶ Define
  - **architecture contracts >**
  - **project compliance plan >**
  
- ▶ *These two documents may be separate or combined*

# Architecture contract (rules of engagement)

- ▶ A document agreed by a programme, project or business manager
- ▶ Perhaps an appendix to a Project Initiation Document
  
- ▶ Used by a governing architect to test the compliance of
  - Solution description (vision, outline or build-ready)
  - Operational system under construction
  - Operational system change request
  
- ▶ Against (for example)
  - Goals, objectives , requirements, **especially NFRs**
  - Architecture principles, reference models and standards
  - Earlier and higher level architecture descriptions
  - Factors listed in more general compliance review checklists

A plan that schedules

- ▶ When reviews will take place
  - Regular intervals and/or
  - Define milestones
- ▶ Kinds of review to be carried out
- ▶ What each kind of review will test compliance against
  - Compliance review checklists
  - Architecture contracts
  - Other defined inputs

