



# How to Design a Life Cycle Process



## A tale of two standards

ISO 12207 Standard for Software Life  
Cycle Processes

OMG Software Process Engineering  
Metamodel Specification (SPEM)

Designing a process

Making it agile

Getting it off the shelf



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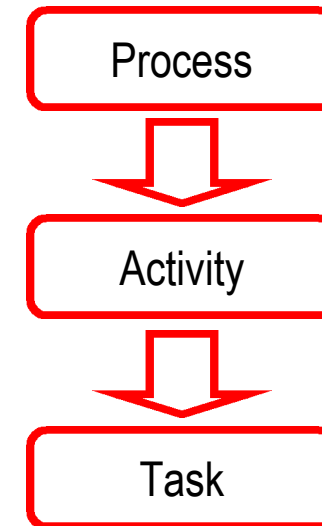
# ISO 12207 Standard for Software Life Cycle Processes

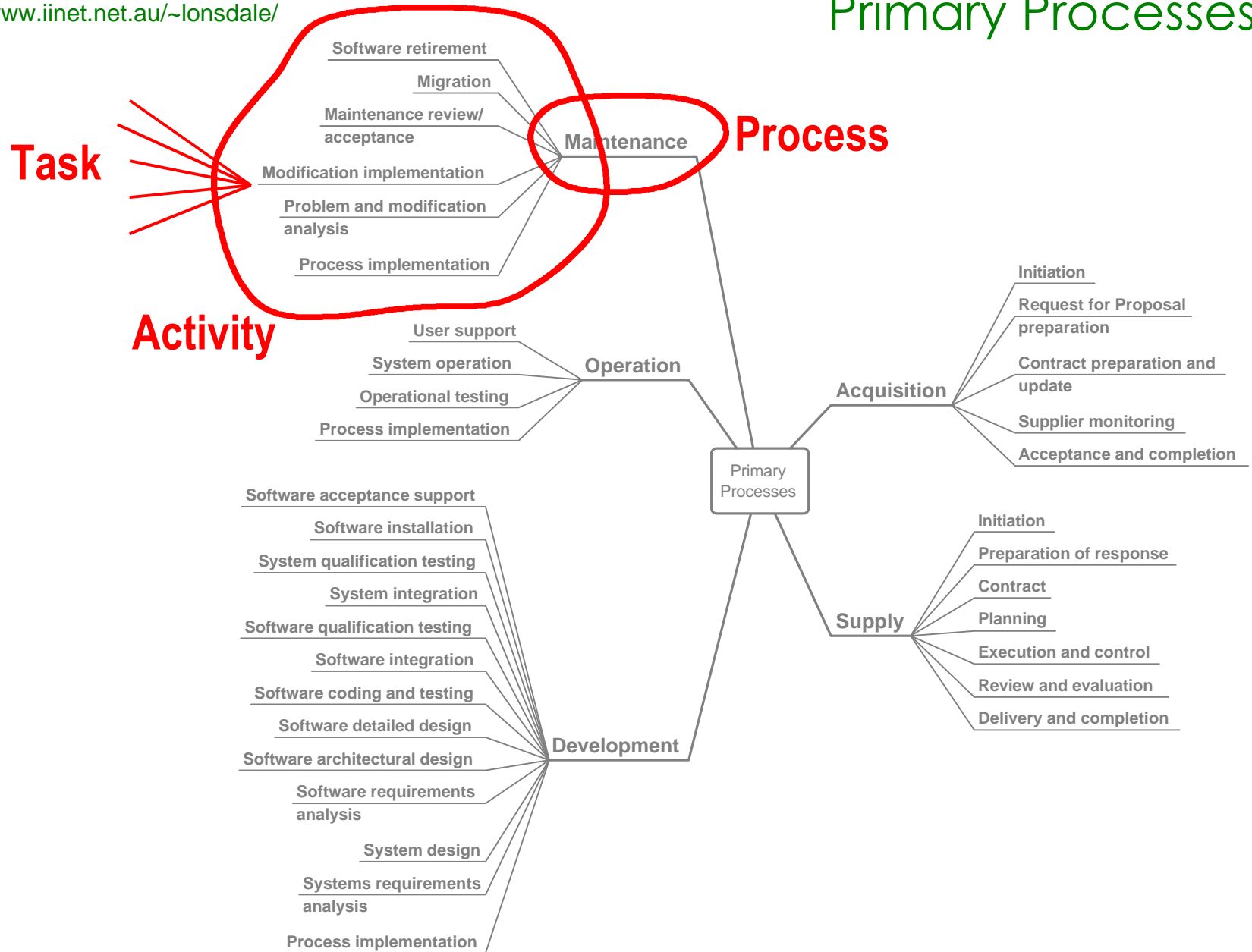
## Three categories of process

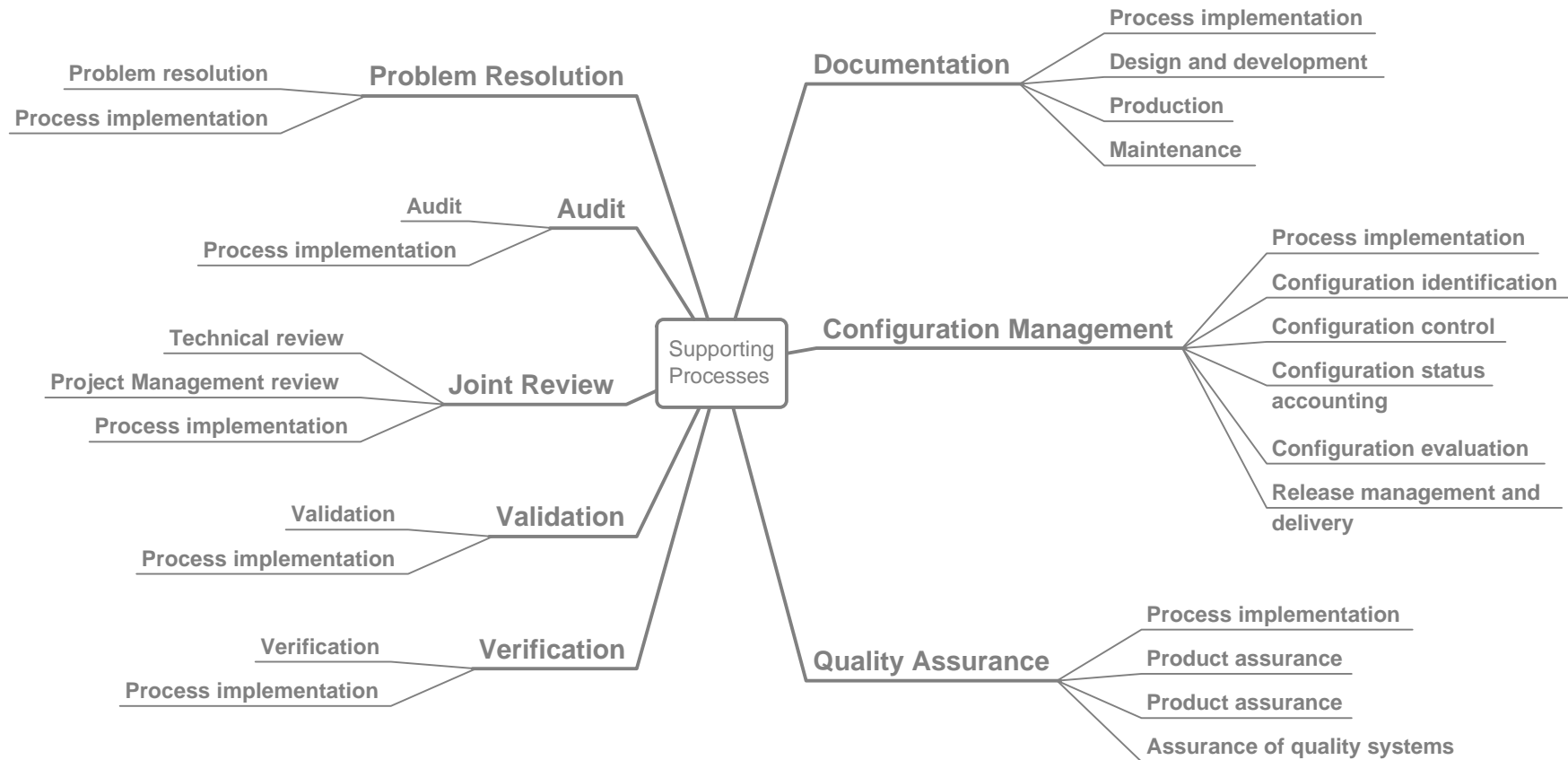
Primary processes

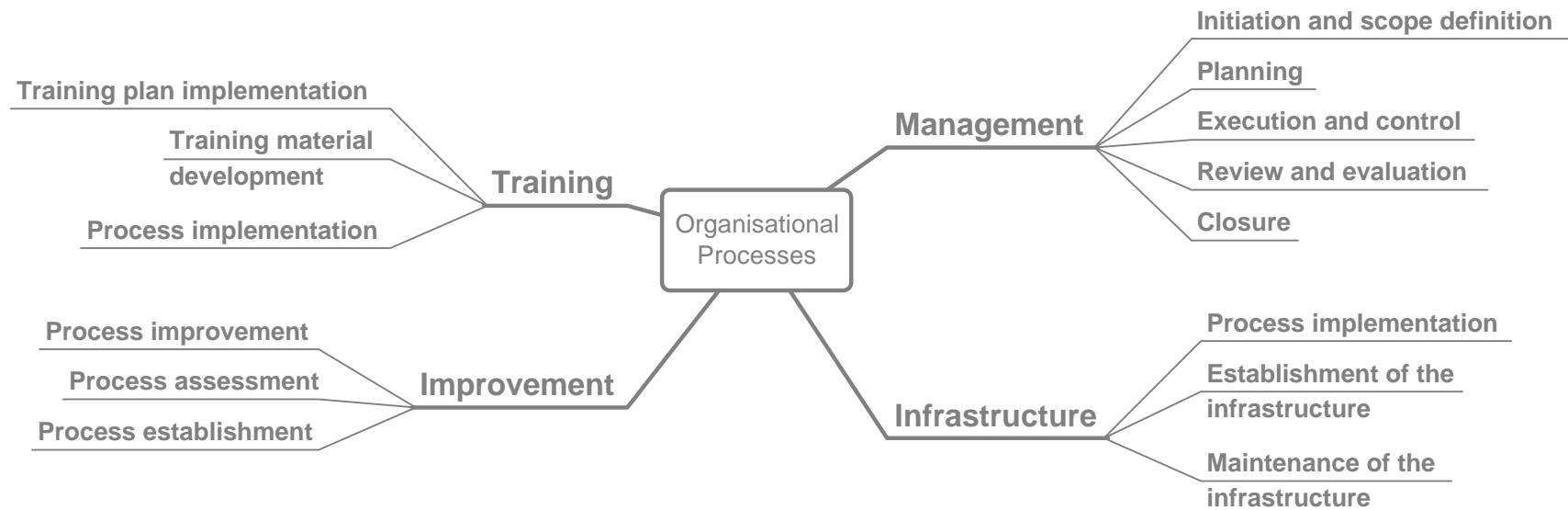
Supporting processes

Organisational processes











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OMG  
Software Process Engineering  
Metamodel Specification  
(SPEM)



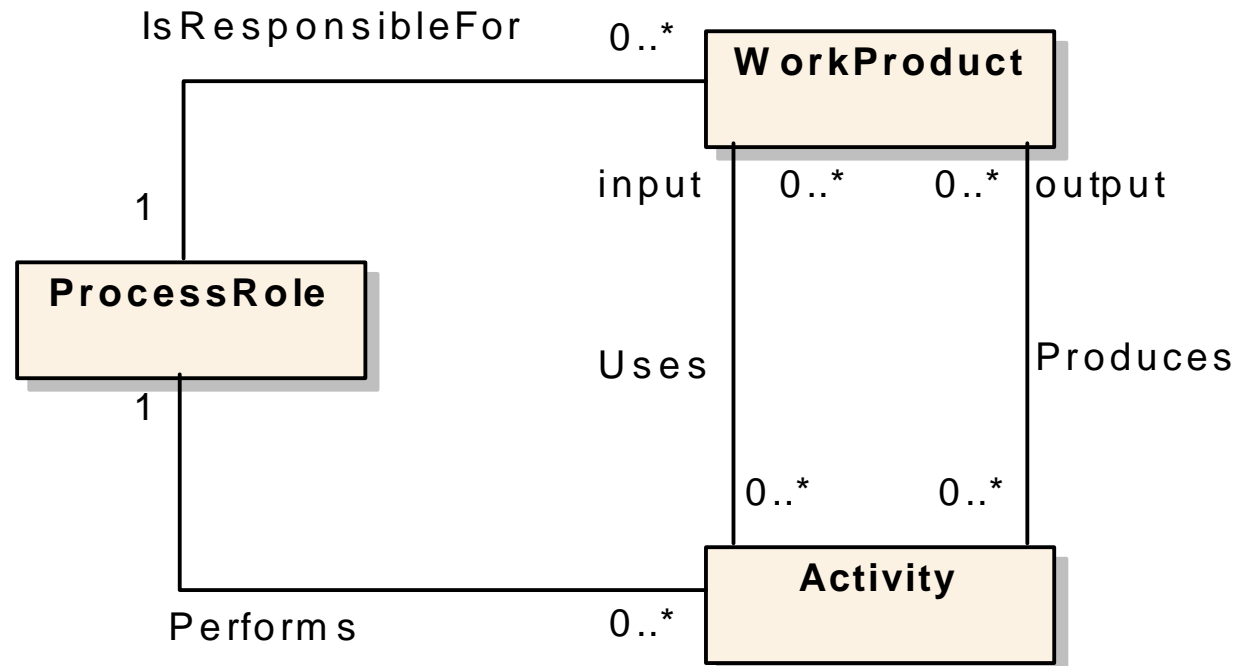


SPEM is a metamodel for defining life cycle processes and their components

Extends the Unified Modelling Language (UML) with process specific stereotypes

Designed to accommodate a large range of existing processes

Many existing processes are used to provide examples in the standard



## WorkProduct

UML Class or ObjectFlowState

Specialisations

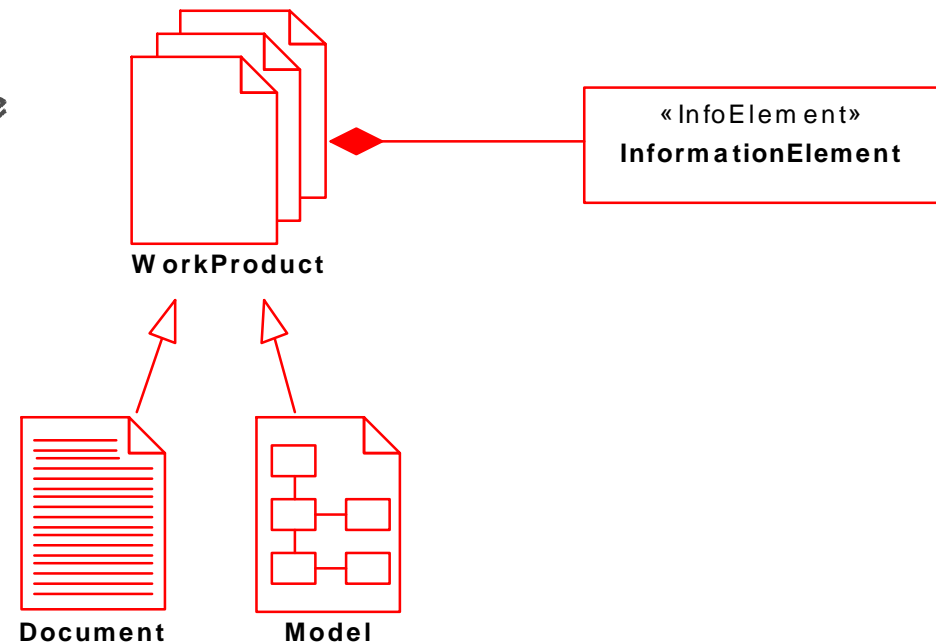
Document

Model

## InformationElement

Component of a WorkProduct

UML Class

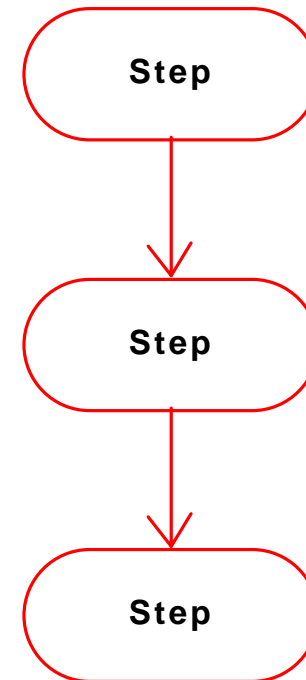
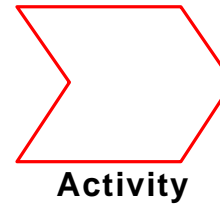


Activity

UML ActionState or  
Use Case

Step

UML ActionState

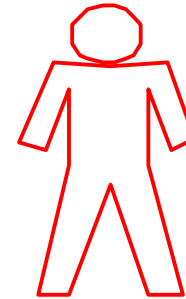




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## SPEM Process Structure

ProcessRole  
UML Actor



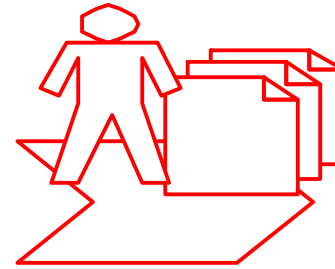
**ProcessRole**



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## SPEM Process Structure

ProcessPackage  
UML Package



**ProcessPackage**



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## SPEM Process Structure

### Guidance

UML Comment

Types of guidance

Guideline

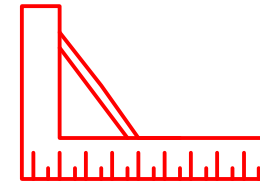
Technique

UML Profile

Tool Mentor

Check List

Template



Guidance



## Process

Is a stand alone, complete, end-to-end process

## Discipline

Partitions activities into common themes

Defines the conceptual order of activities which generate a work product or apply a technique

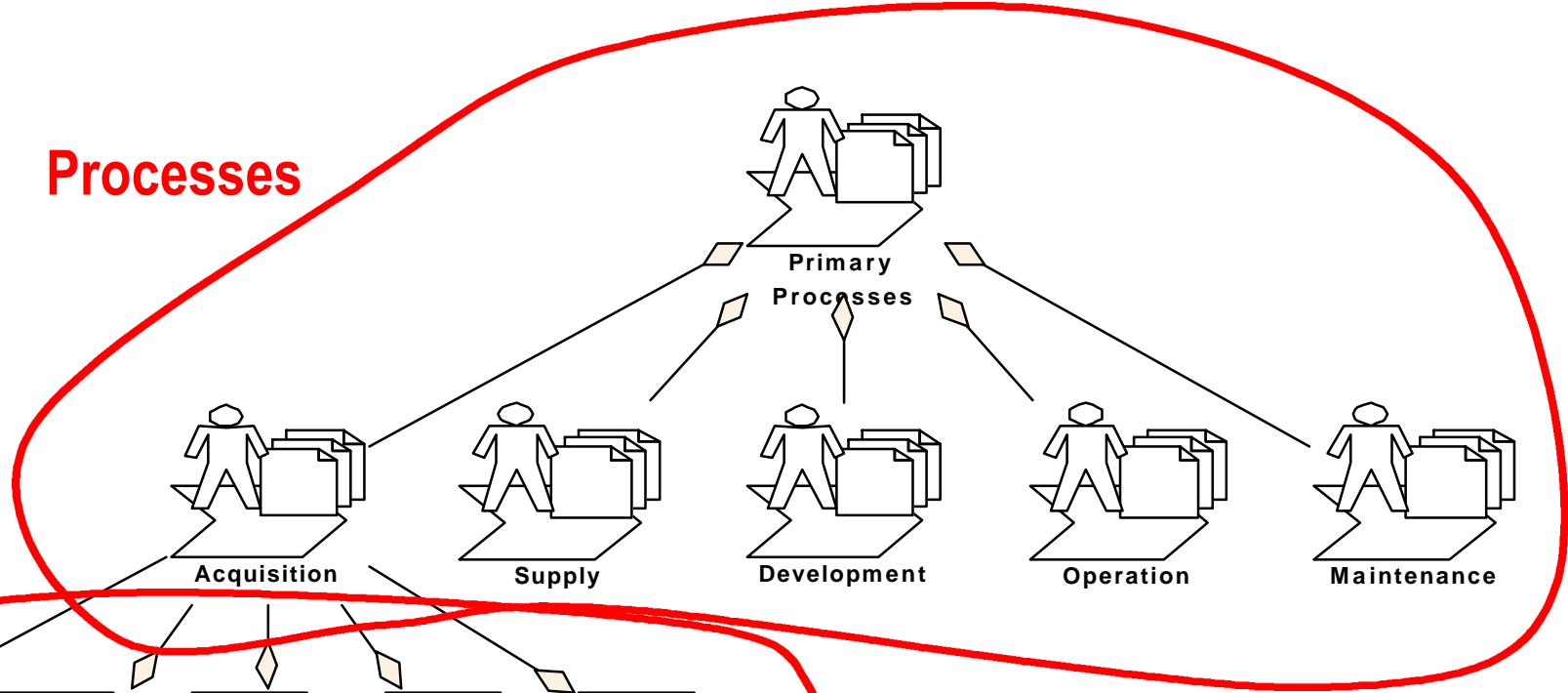
Includes WorkProducts and Guidance

Independent of time

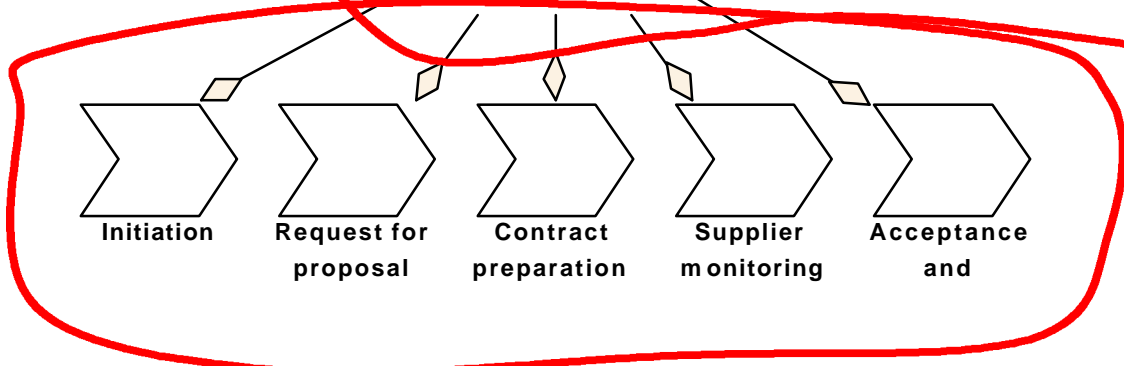
Do not include iteration



## Processes



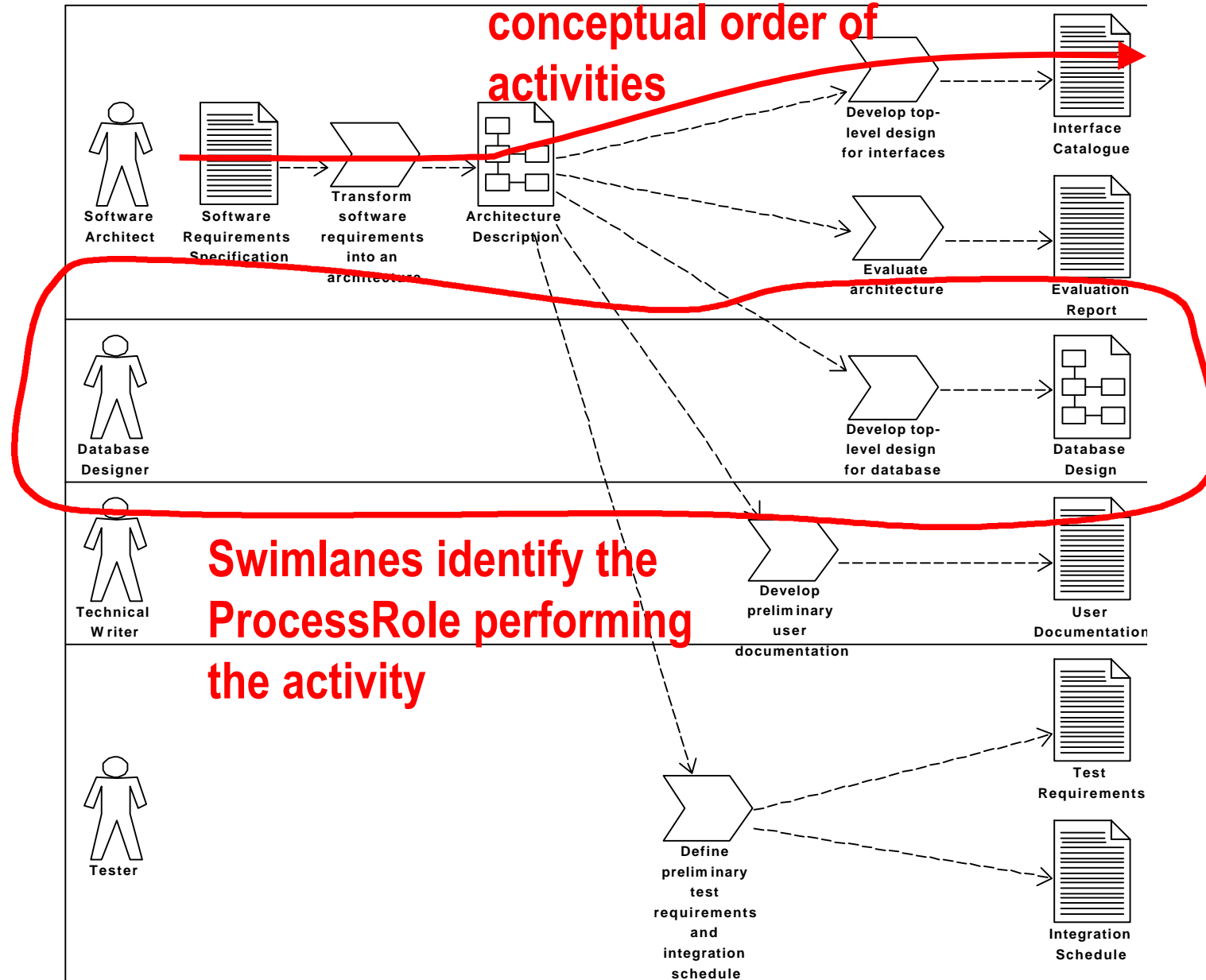
## Activities



**ISO 12207 Task = SPEM Step**



Object flows define the  
conceptual order of  
activities





A life cycle is the order of activities in time

Can include iteration

SPEM has three types

Phase

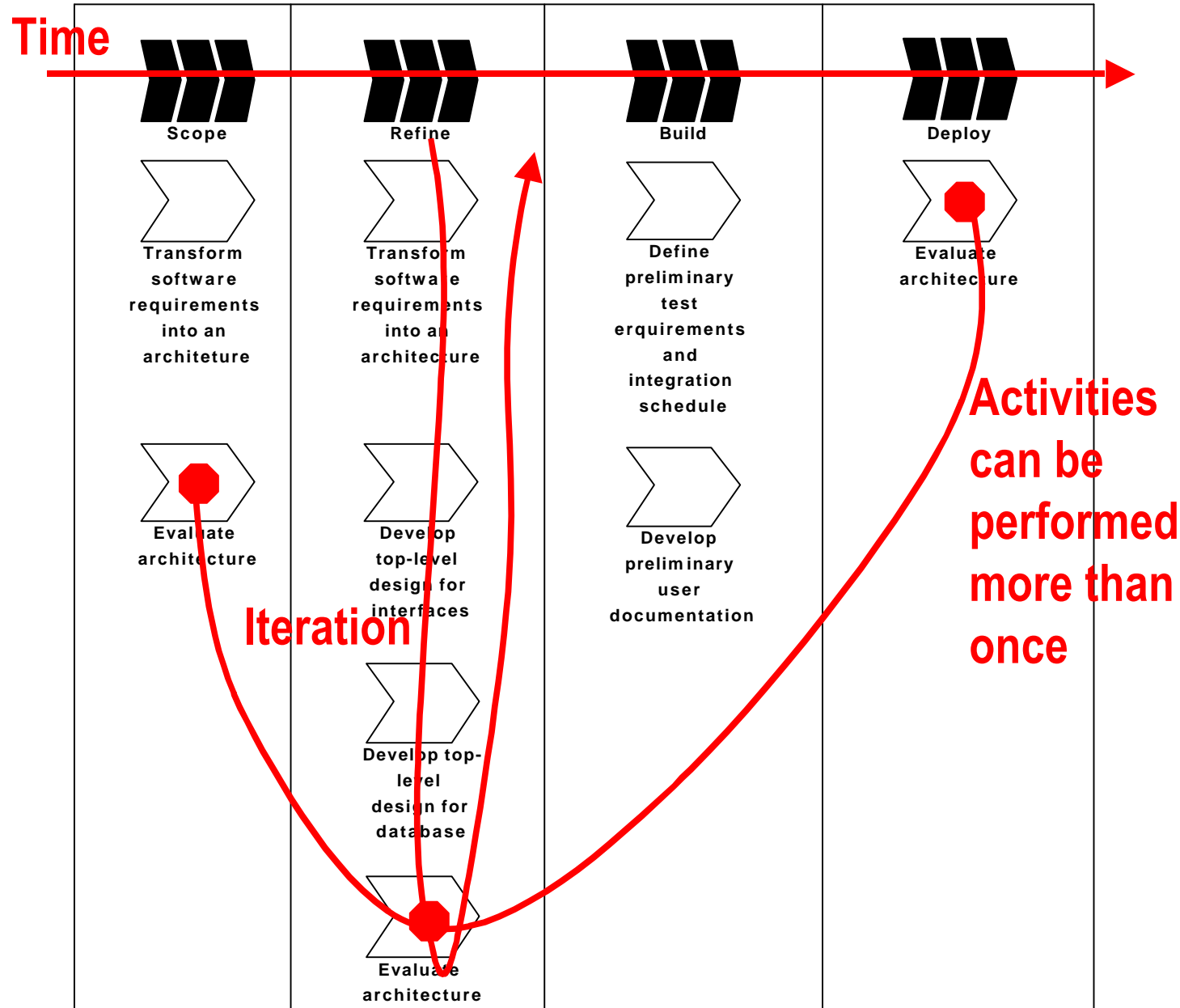
Has a major milestone as exit criteria

Life-Cycle

Sequence of phases that achieve a specific goal

Iteration

A subset of a phase with minor milestones



## Discipline

Conceptual description of WorkProduct  
creation

Assumes maximum level of detail for  
WorkProduct



## Phase

Describes milestones and deliverables

Opportunity to vary the level of detail for  
a WorkProduct



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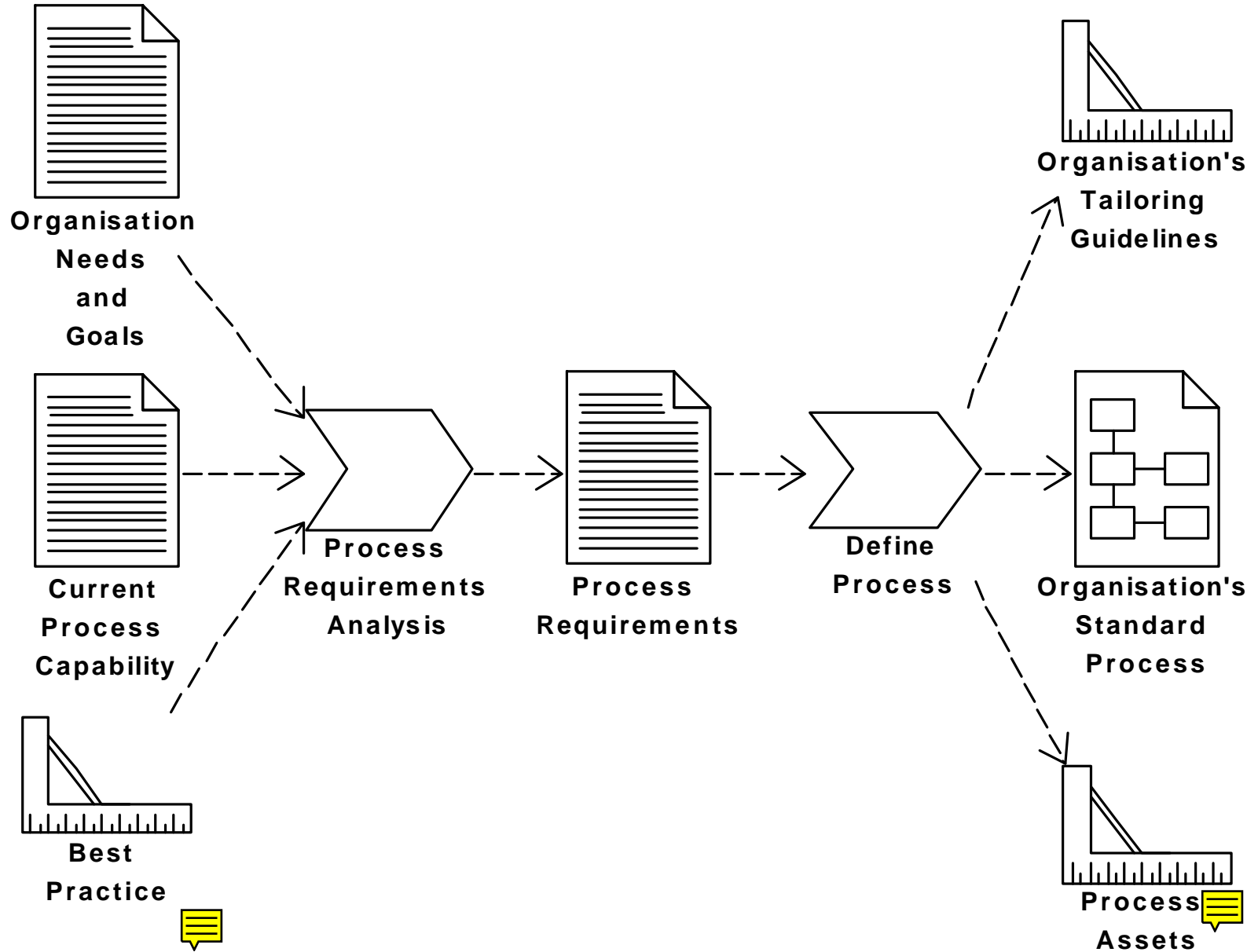
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Designing a process

Process meta model	SPEM
Process framework	ISO12207 (RUP, Open )
Organisation process	Tailored framework
Project process	Tailored organisation process
Project	Scheduled and resourced project process



# Designing a Process







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**Making it agile**



The organisation's standard process represents the full monty

As such it will only be suitable for the most complex of projects

However, arbitrarily changing the standard process defeats its purpose

The solution is to define which attributes of the process are tailorable


Suitable attributes include

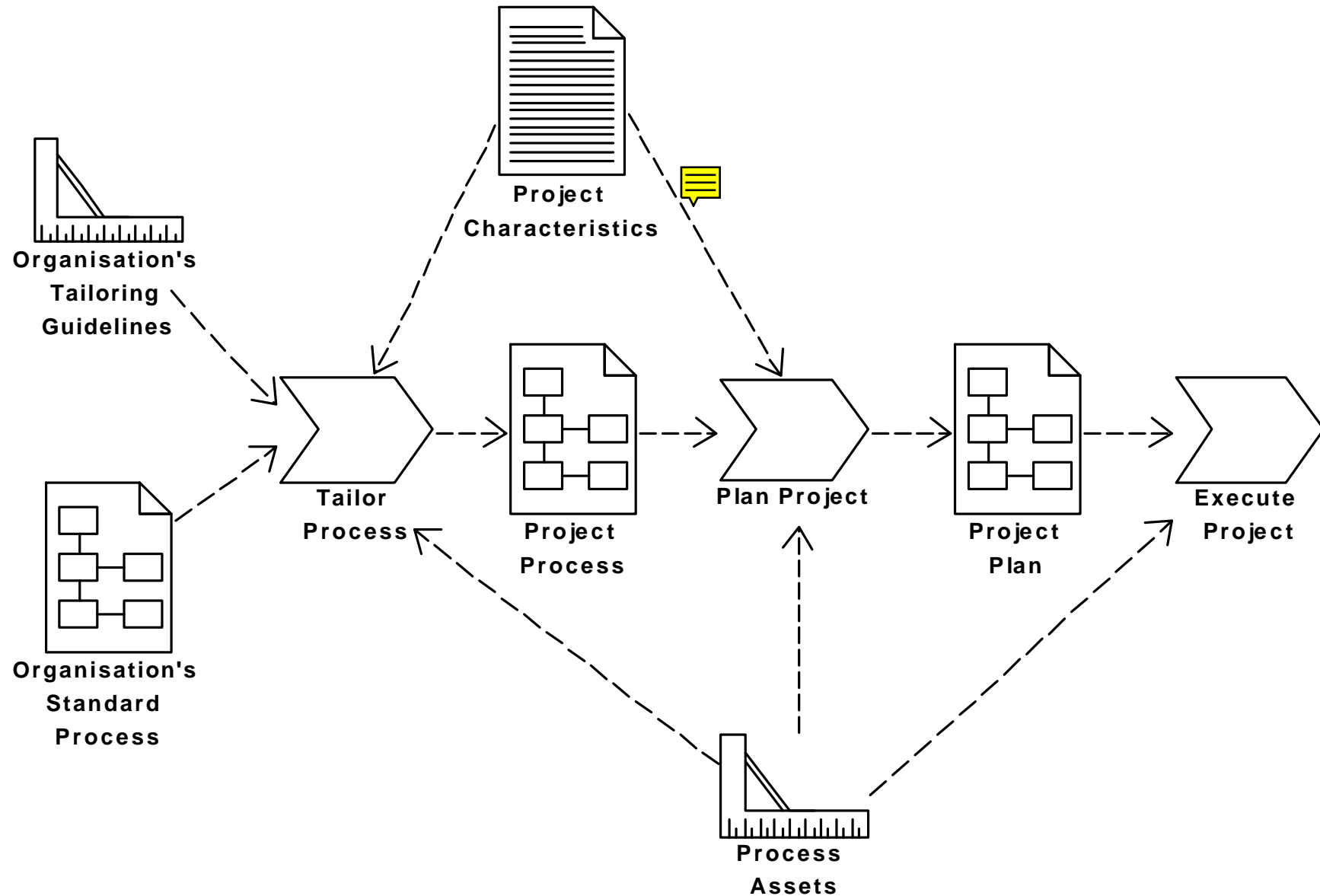
Formality

Scope

Precision

Frequency

Process Element	Examples	Tailorable Attribute	Alternatives 
WorkProduct	Software Requirements Specification Software Architecture Detailed Design	Formality	Change control board, configuration managed, date/version
		Scope	Formal standard, suggested template, guidelines or notes
		Precision	Documented reviews, informal reviews, self review
Activity	Request for proposal preparation Configuration status accounting Training material development	Frequency	Week, month, quarter, milestones
		Formality	Minuted meeting, informal meeting, memo, phone call
ProcessRole	Requirements Analyst Designer Programmer	Performer	Individual Team Organisation





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Getting it off the shelf



## Commitment to Perform

Policy statements

Leadership

## Ability to perform

Resources and funding

Training

## Measurement

## Verifying implementation



Questions?



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**Discussion**