

KPIT

DD-MM-YY

Basic Software Development Process Methodology

Unit 1 – INTRODUCTION AND CONTINUITY

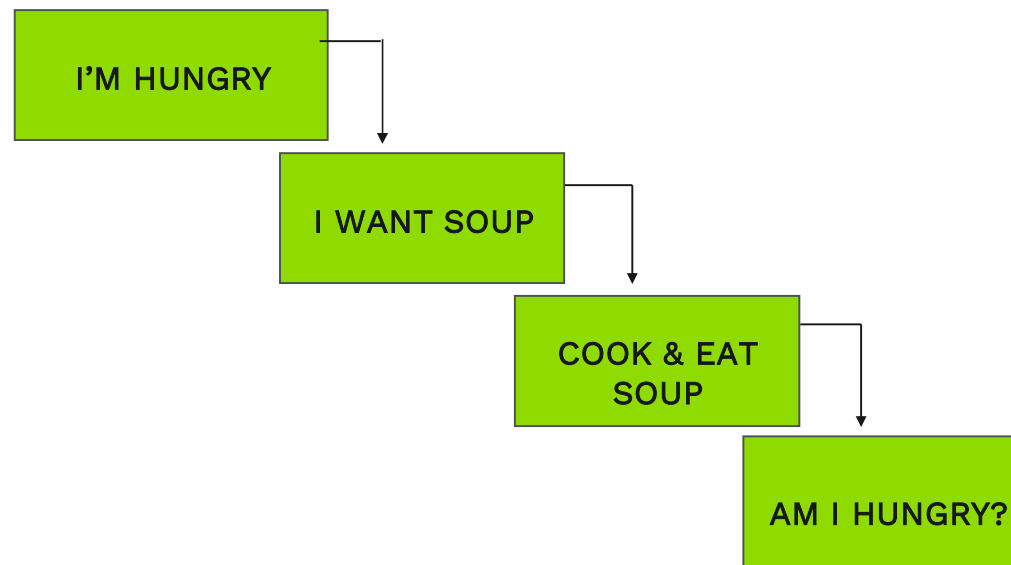


PEG, KPIT Technologies

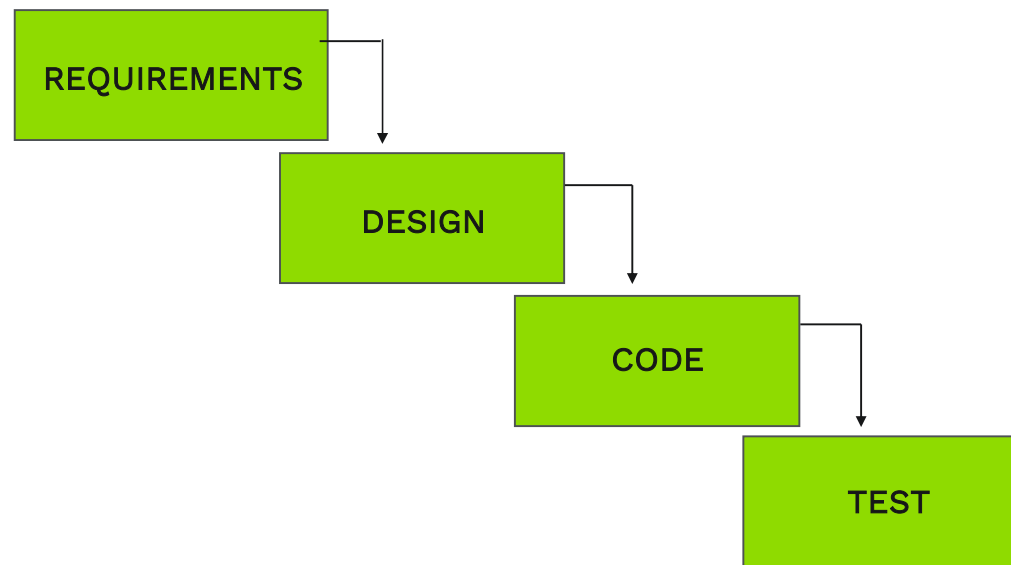


Continuity

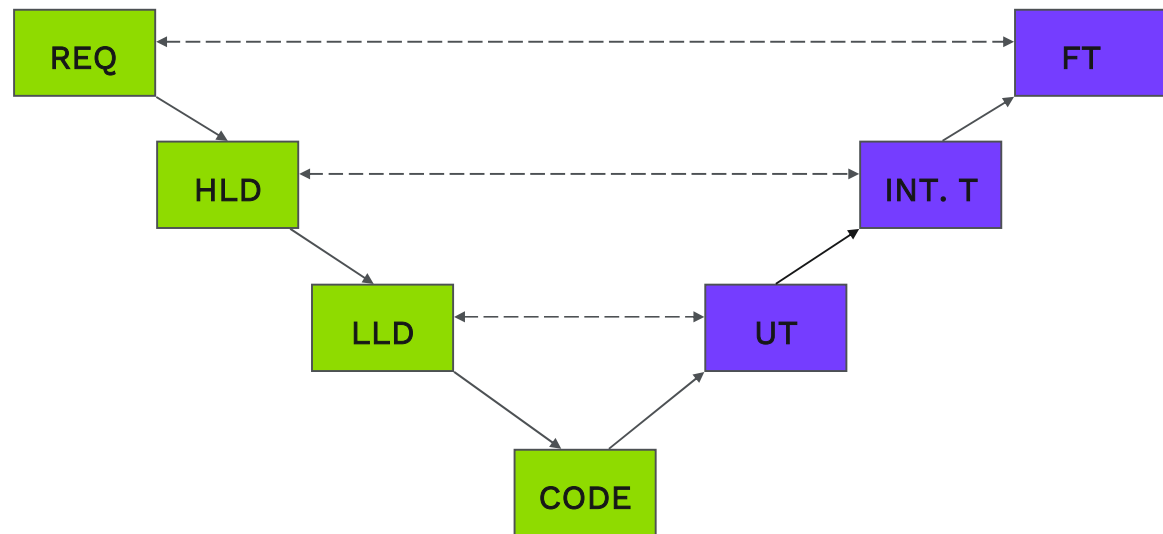
The General Problem Solving Process



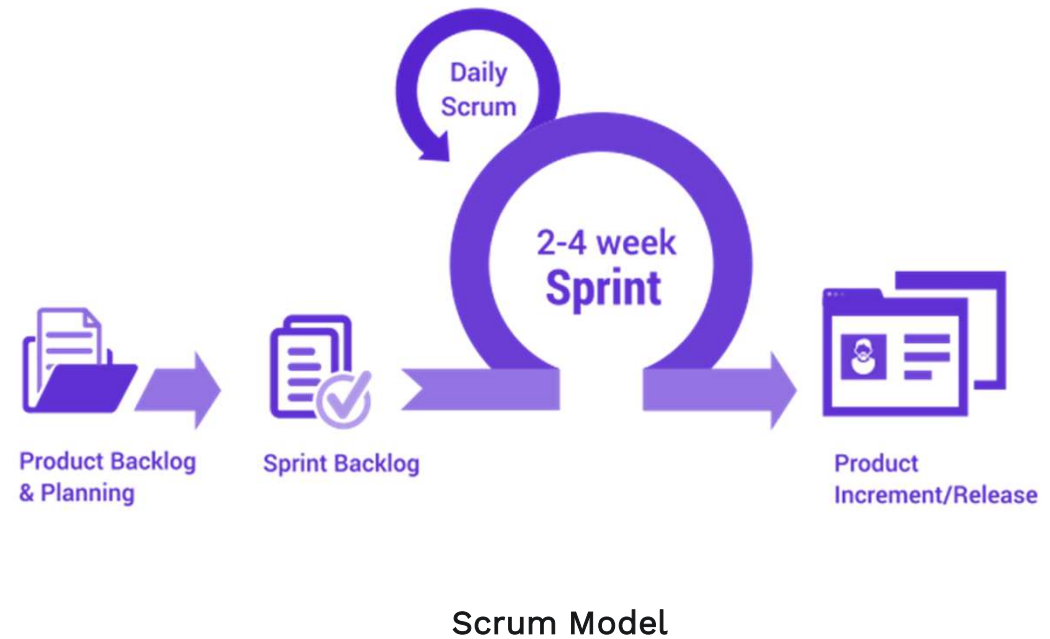
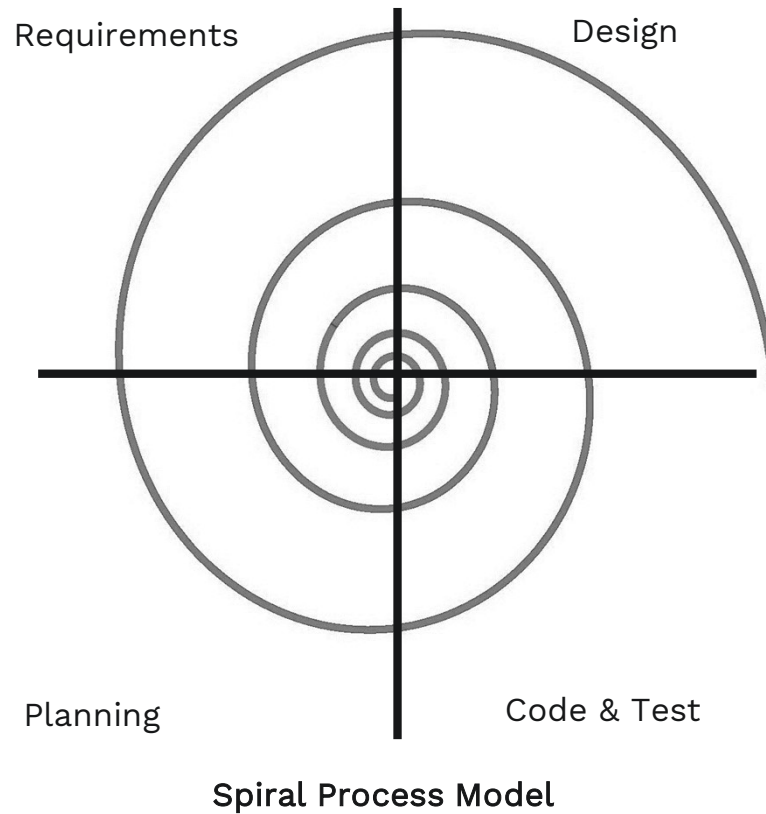
Waterfall Process



V Process



Iterative & Incremental Process



Goal of SDPM

What do all of the process models have in common?

- Waterfall Process
 - Product to Product Continuity
 - Requirements to Design to Code
- V Process
 - Product to Product Test Continuity
 - Requirement to Requirement Test, etc.
- Iterative Process
 - Increment to Increment Continuity

Hence, Continuity is adopted as the principle & goal of SDPM.

Continuity Definition

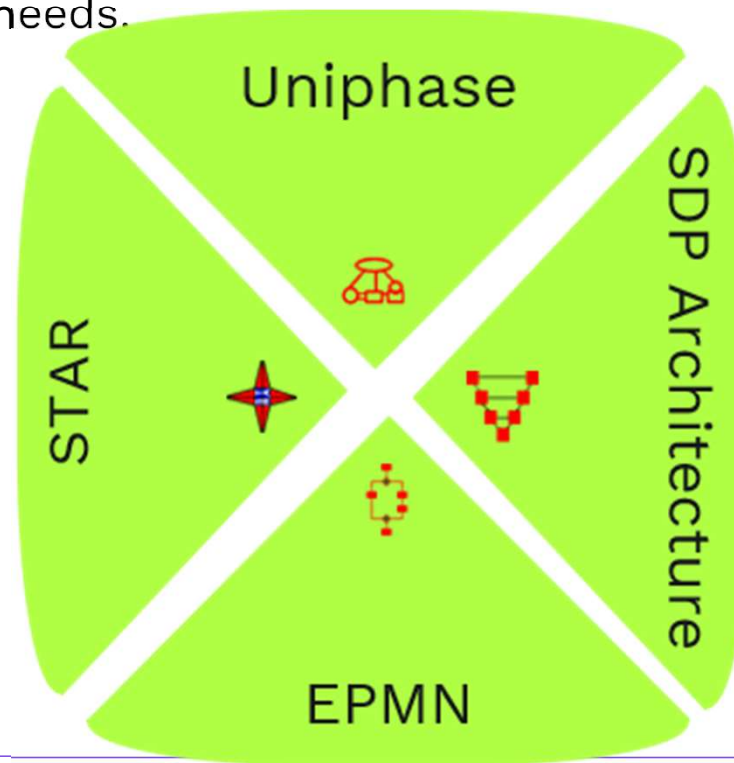
- Continuity
 - A process continuum capable of producing a continuous software product with verifiable process and product continuity.
 - Continuum - “A thing having a continuous structure.”
 - Continuous - “Uninterrupted, connected in space and time.”
 - Continuity - “The state of being continuous.”



Introduction to SDPM

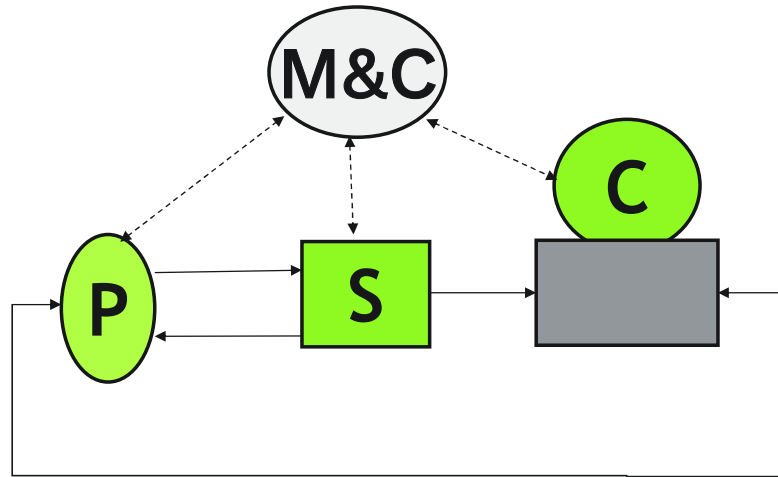
SDPM

Software Development Process Methodology (SDPM) is a proprietary methodology used by KPIT for all engineering product development and services. SDPM provides frameworks for projects to develop, plan and execute unique and specific processes suitable to individual needs.



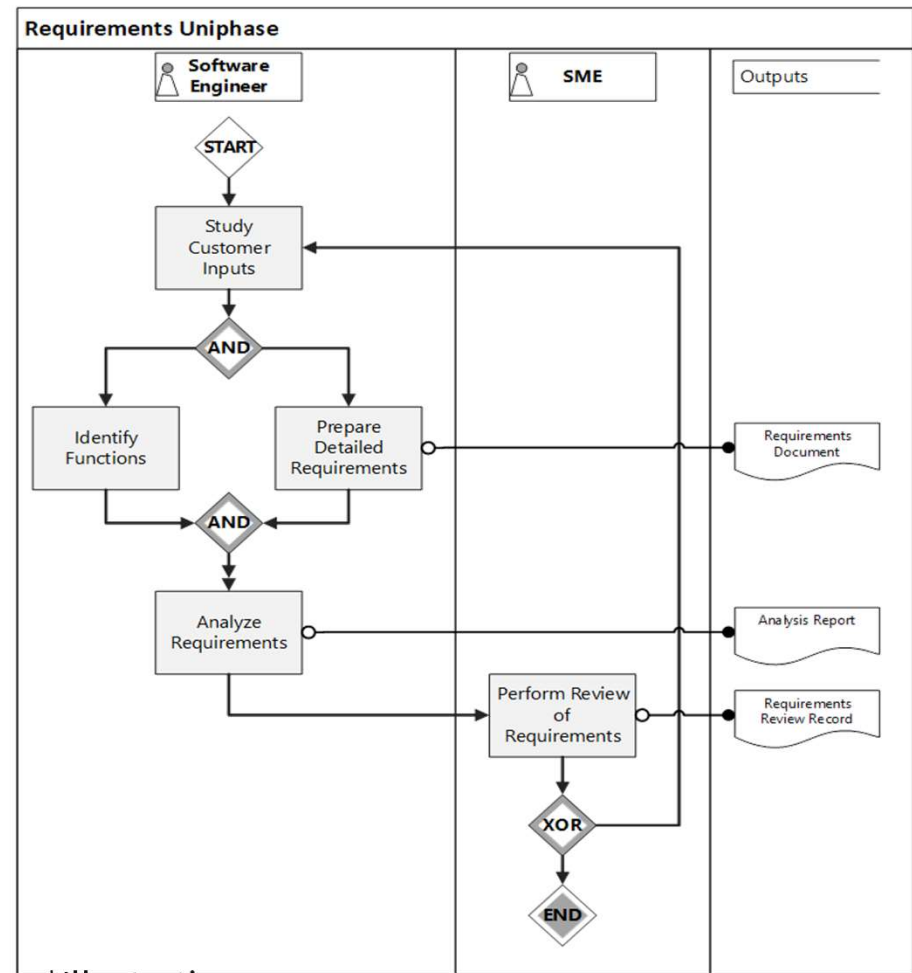
Uniphase

Uniphase is a small manageable phase of a process. All Project's engineering processes are created in terms of one or more Uniphase. Uniphase is used to uniformly identify all activities, information and actors that specify the definition of that small manageable phase i.e. Uniphase.



Process Element

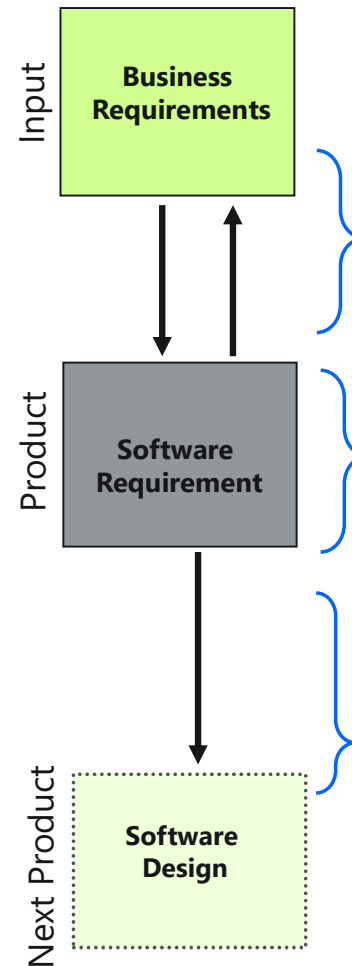
Process (P) element describes the transformation activities of the Uniphase. Activities (and their relationships) which transform an (a set of) input into an (a set of) output are defined in P element.



*Illustrative

Screen Element

Screen (S) element describes the final verification & validation to be performed on outputs generated in P element. Screen element ensures the continuity between inputs and outputs.



Upstream

- Continuity with Inputs
- Traceability

Quality & CM

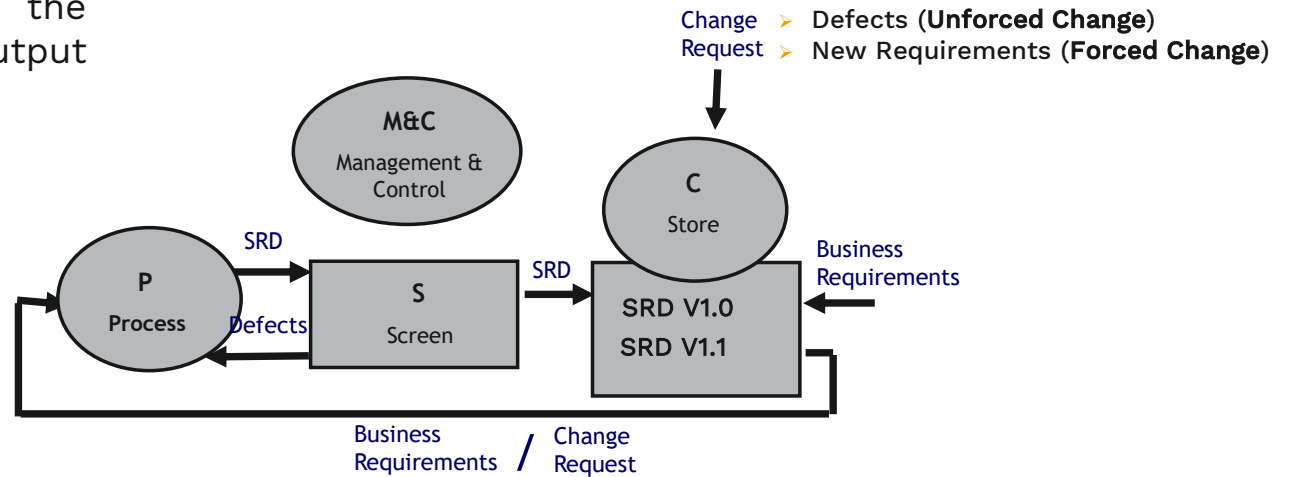
- Conformance to Standard
- Right Input

Downstream

- Fit for Use
- Completeness

Store Element

Store (C) element describes the configuration of the input and output work products.

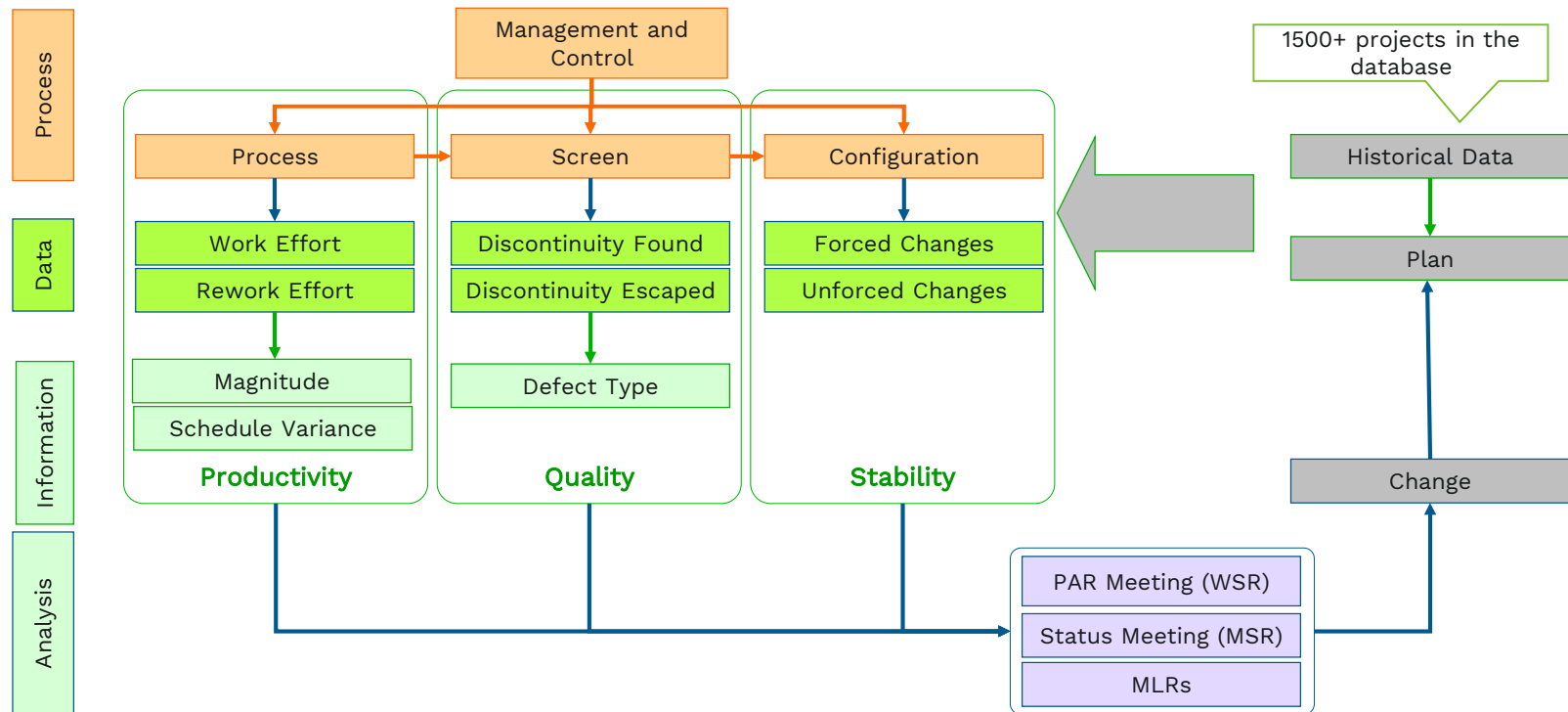


I/O/P/I	Name	Config ID	Source	Destination
I/-/-/-	Business Requirements	PRJRD DC 001	Customer	Requirements
-/O/-/-	SRD	PRJRD DC 002	Requirements	Design

Typical Store Definition

Management & Control

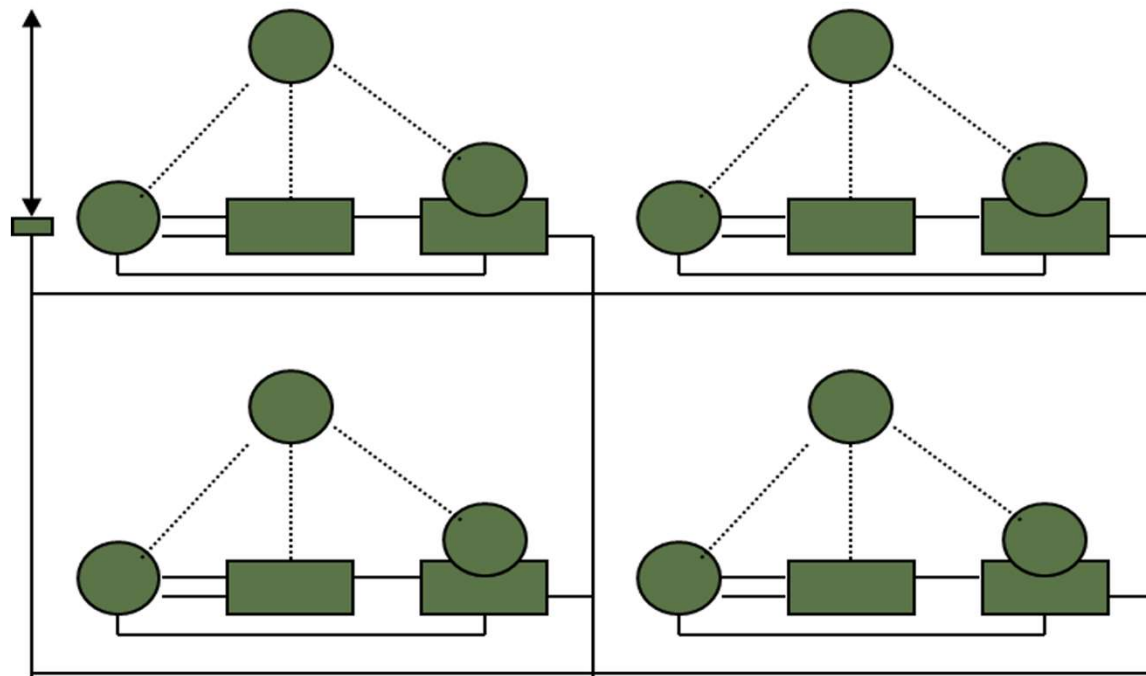
Management & Control (M&C) element describes the governance and oversight to be followed during the implementation of the Uniphase.



Metrics based Decisions - Closed Loop Feedback System

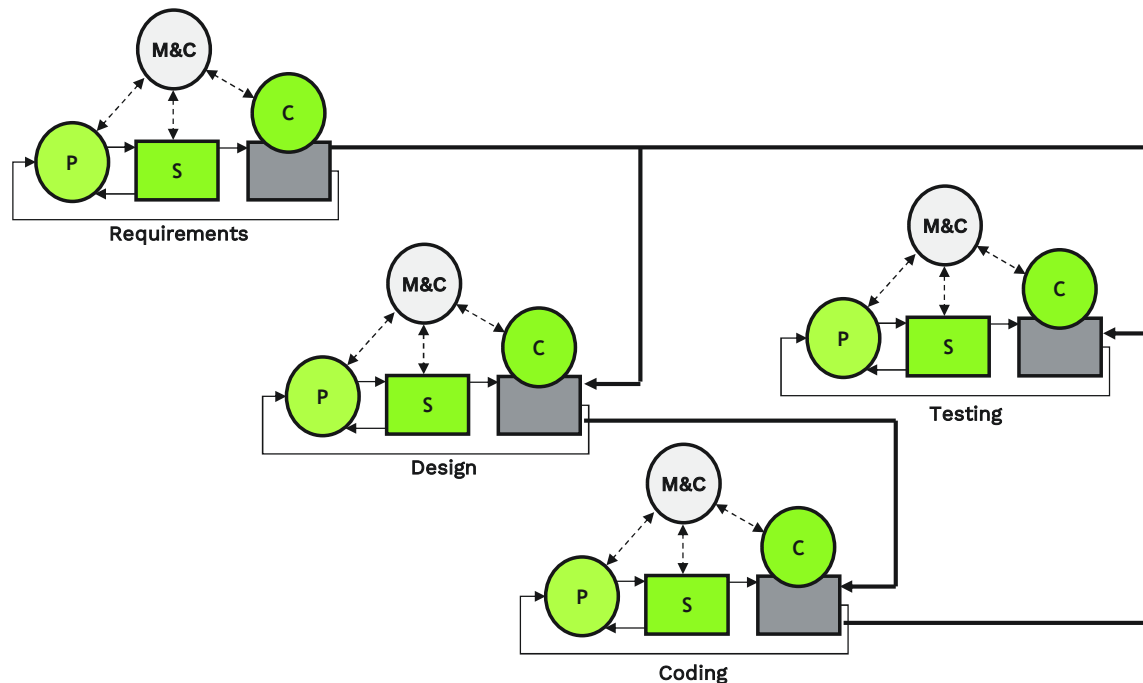
SDP Architecture

Software Development Process (SDP) Architecture allows to connect more than one Uniphase to define a **data flow** in the process. Using this data flow of the SDP Architecture; project specific process life cycle can be created, by adopting one or more life cycle models like Waterfall model, V Model, Agile, etc.



SDP Architecture - Example

Store (C) element of every Uniphase can be connected with every other Uniphase to describe the data flow of the **SDP Architecture**.

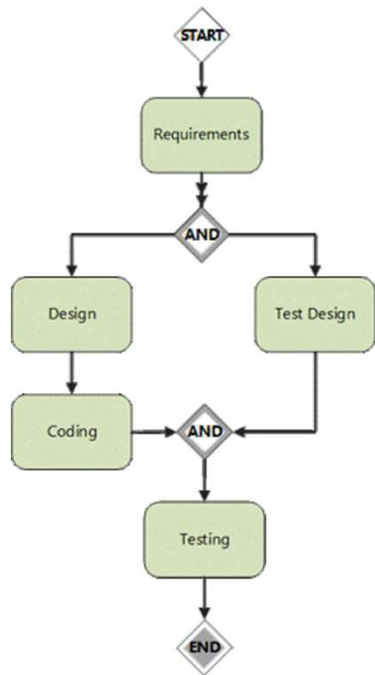


An exemplar SDP Architecture is created by adopting Waterfall model and V model to describe a specific process life cycle.

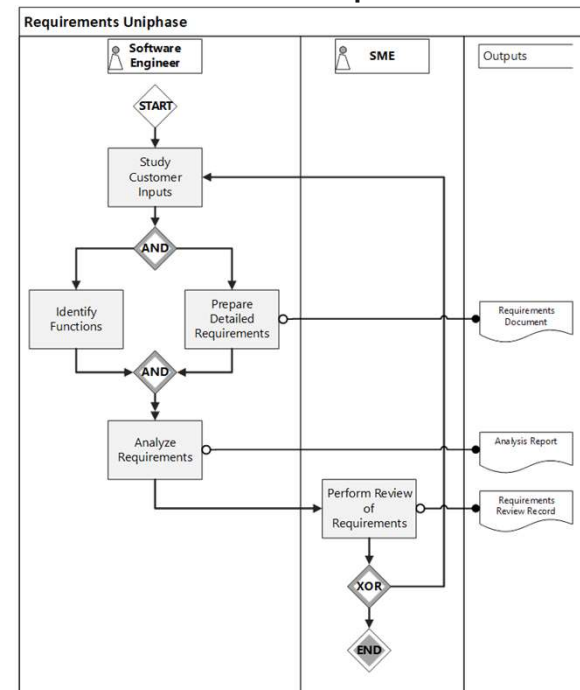
EPMN

Engineering Process Modelling Notation (EPMN) allows to specify/define the specific process, including the sequence of execution (of activities). Using EPMN, **control flow** and **data flow** within and between Uniphase is specified to complete the definition of specific process life cycle.

Between Uniphase

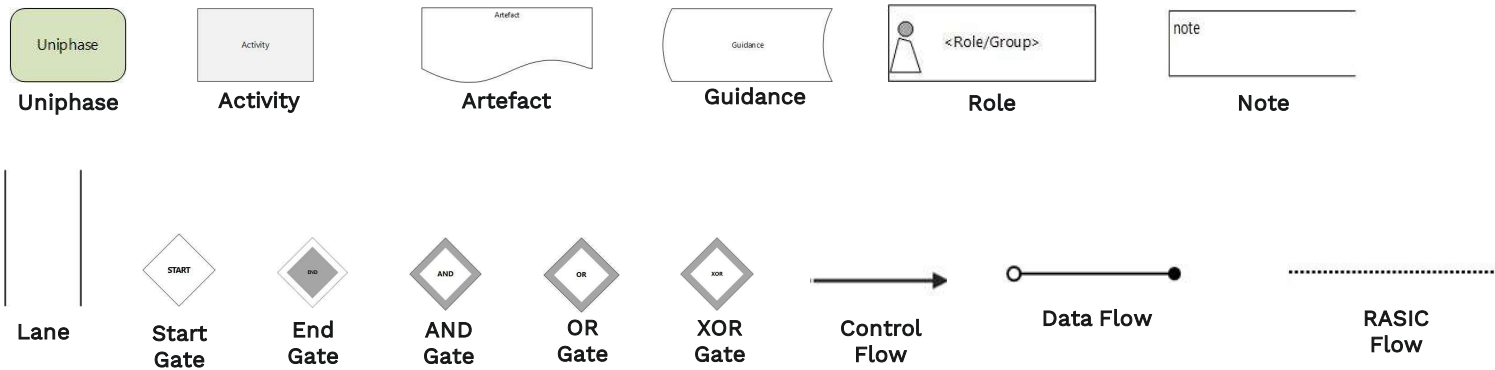


Within a Uniphase



EPMN Shapes

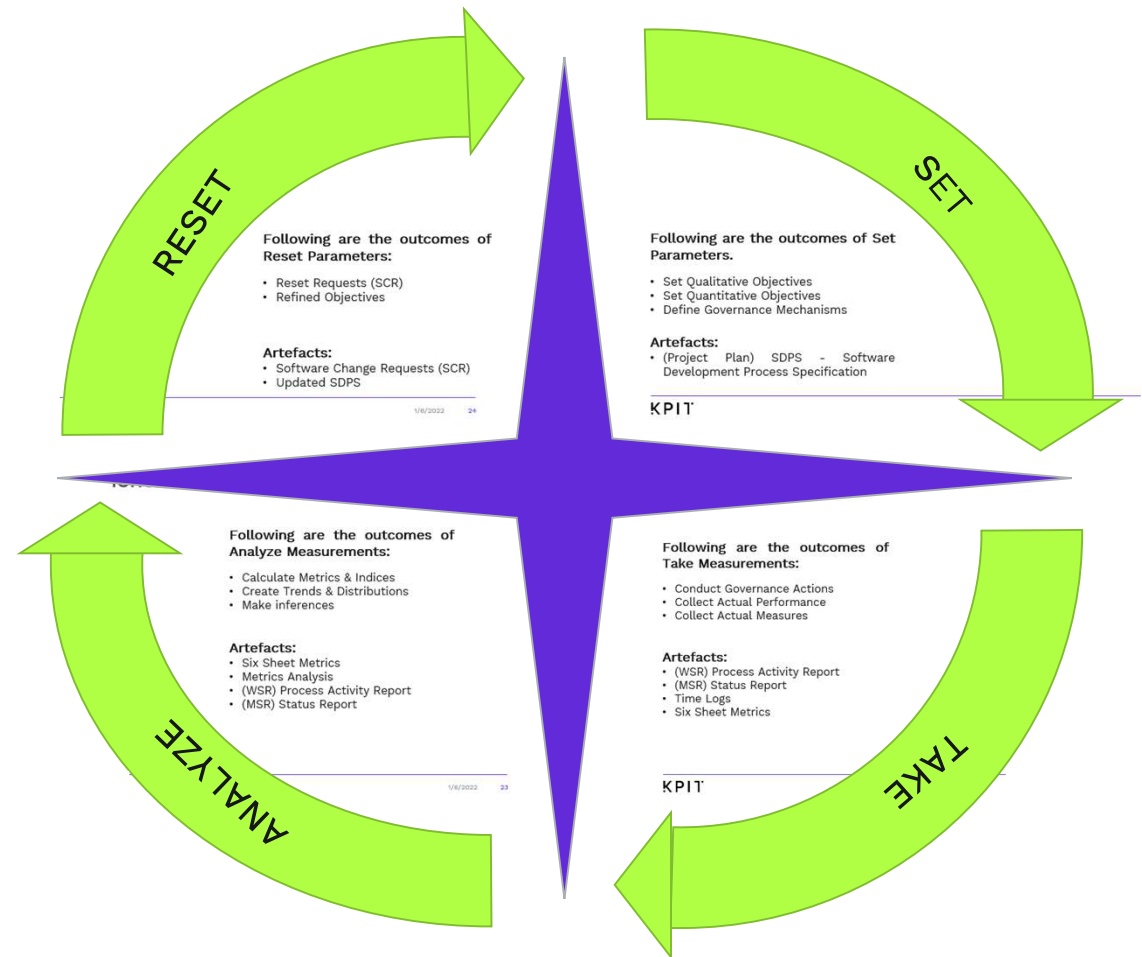
EPMN models are created using shapes described below:



These shapes are defined in detail in *Getting Started->SDPM*

STAR Process

Set-Take-Analyze-Reset (STAR) allows to monitor and control the execution of Uniphase (and whole process) as a closed loop feedback system. STAR is the dynamic element of the SDPM which is applied to execute the specific process as a project.



Set Parameters

Following are the outcomes of Set Parameters.

- Set Qualitative Objectives
- Set Quantitative Objectives
- Define Governance Mechanisms

Artefacts:

- (Project Plan) SDPS - Software Development Process Specification

Take Measurements

Following are the outcomes of Take Measurements:

- Conduct Governance Actions
- Collect Actual Performance
- Collect Actual Measures

Artefacts:

- (WSR) Process Activity Report
- (MSR) Status Report
- Time Logs
- Six Sheet Metrics

Analyze Measurements

Following are the outcomes of Analyze Measurements:

- Calculate Metrics & Indices
- Create Trends & Distributions
- Make inferences

Artefacts:

- Six Sheet Metrics
- Metrics Analysis
- (WSR) Process Activity Report
- (MSR) Status Report

Reset Parameters

Following are the outcomes of Reset Parameters:

- Reset Requests (SCR)
- Refined Objectives

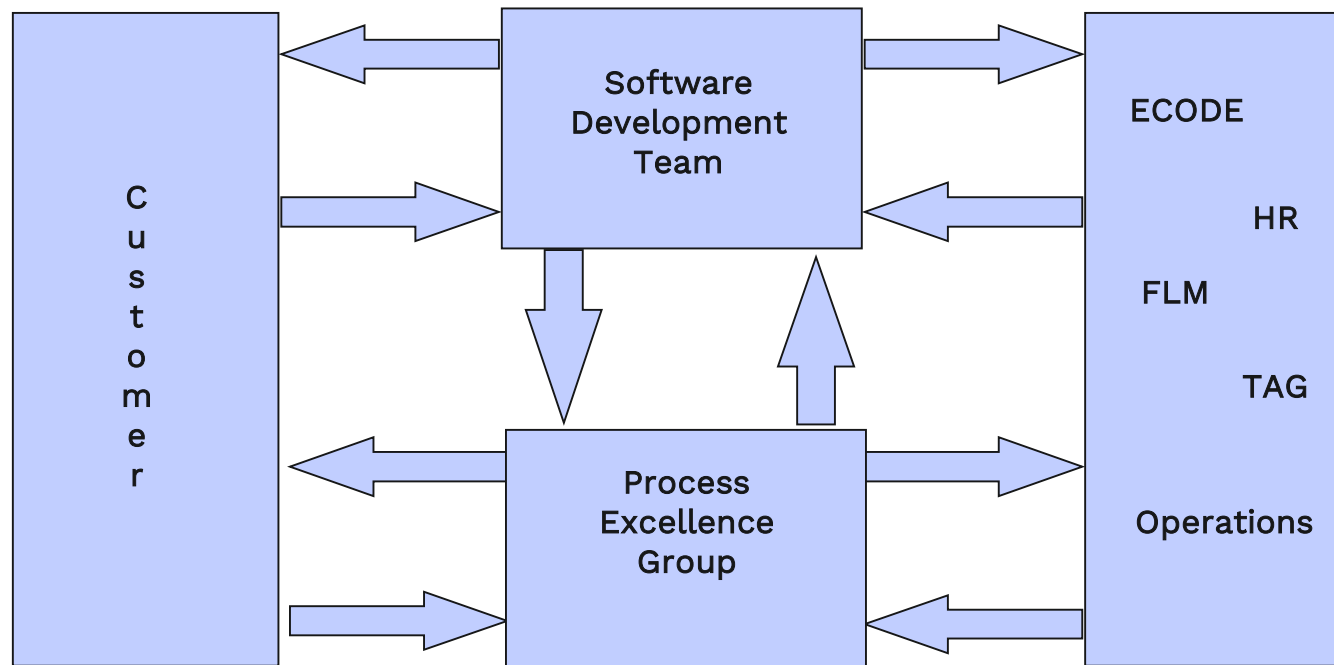
Artefacts:

- Software Change Requests (SCR)
- Updated SDPS



Delivery Excellence Group

Organizational Inter-Operability



Essential Information

Portal/Tool	Description
SDPM	https://sdpm.kpit.com Defines the Quality Management System of KPIT, contain the process library, including all templates, guidelines, checklists, etc.
URL (Projects History)	https://kpitc.sharepoint.com/sites/Auto_Repository Useful Resource Library – Contain the repository of all KPIT's project's data (shareable). Including SDPS, Lessons Learnt, Postmortems, Metrics, etc.
UNIPRO	https://unipro.kpit.com Project Planning, Tracking and Process Management Tool. Change Management, Reviews & Screens are automated using Unipro.
DRONA	https://drona-kel.kpit.com Tool used to manage Customer Feedback.
KAP	https://kap.kpit.com/redmine/ Agile projects planning and implementation are tracked through KAP tool.



Thank You