



Ch.3 Software Process Structure





3.1 A Generic Process Model

Software Process – framework

Umbrella Activities

Framework activity #1

action 1.1

Task Set

Framework activity #2

action 2.1

action 2.1

Task Set

Framework activity #3

action 2.2

action 3.1

Task Set

Framework activity #n

action 3.2

action n.1

Task Set

.....

action n.k_n

Task Set

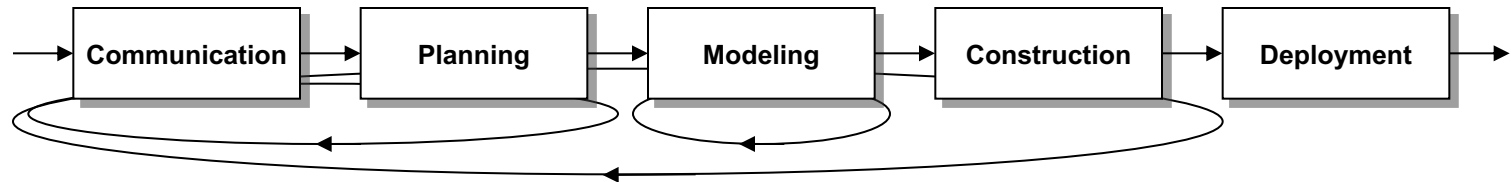


3.1 A Generic Process Model

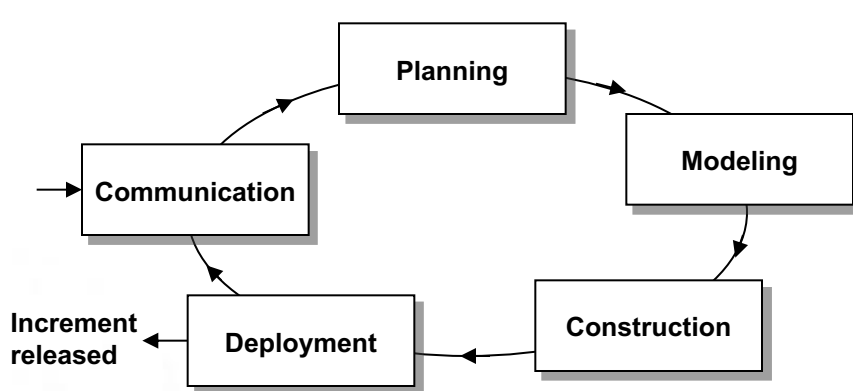
• Process flow



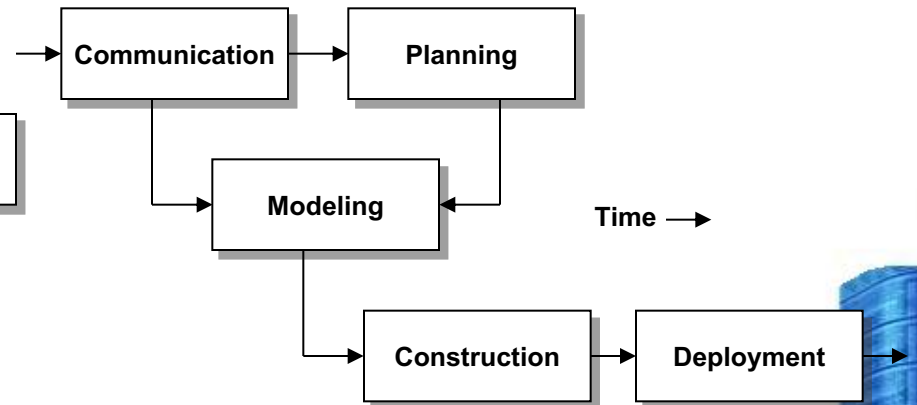
(a) Linear process flow



(b) Iterative process flow



(c) Evolutionary process flow

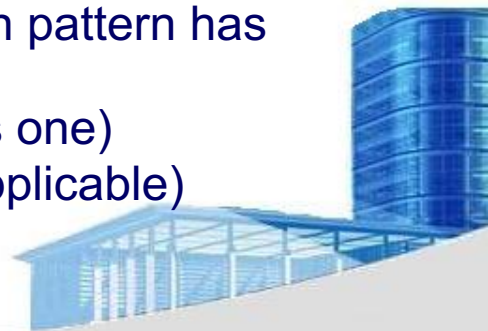


(d) Parallel process flow



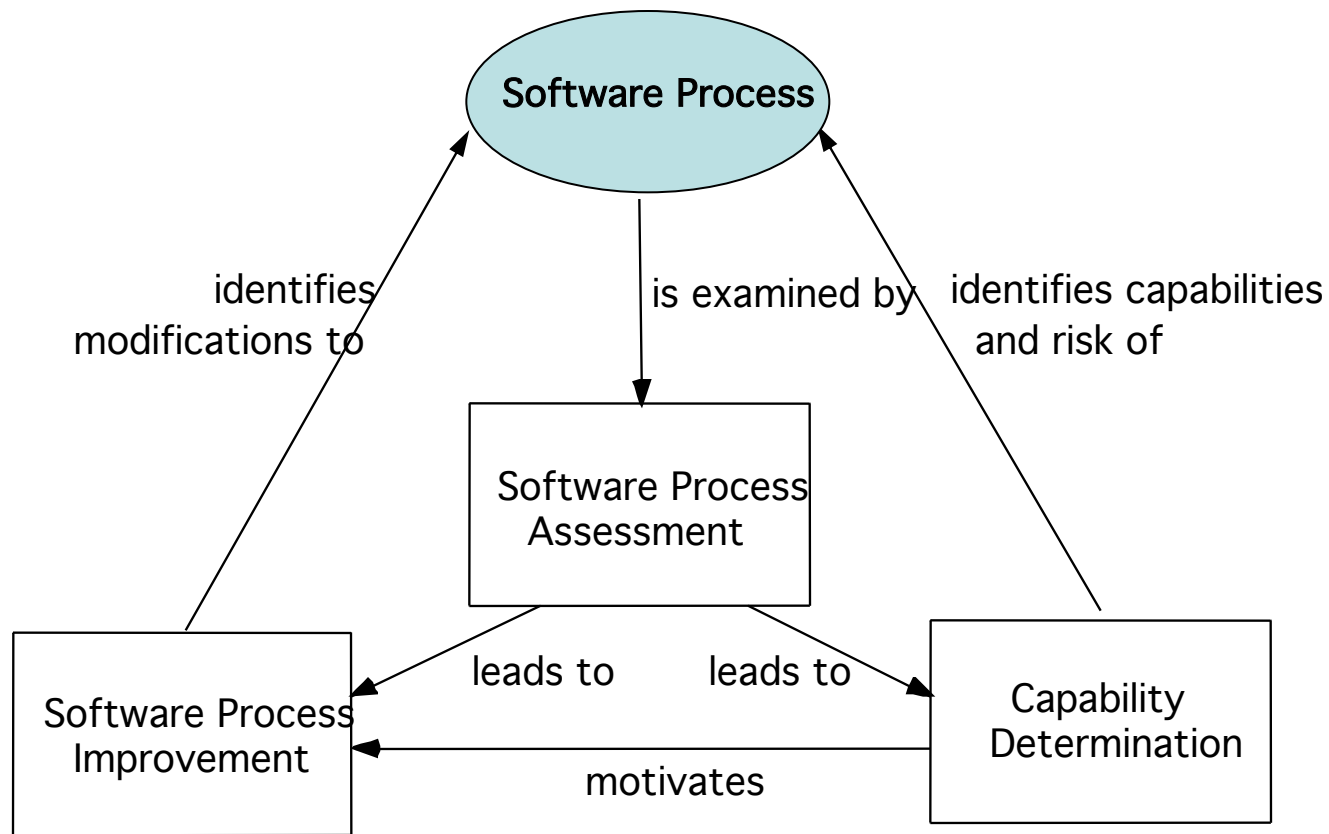
3.4 Process Patterns

- **Process patterns** define a set of activities, actions, work tasks, work products and/or related behaviors
- A **template** is used to define a pattern
- **Generic software pattern elements**
 - Meaningful **pattern name**
 - **Intent** (objective of pattern)
 - **Type**
 - Task pattern (defines engineering action or work task)
 - Stage pattern (defines framework activity for the process)
 - Phase pattern (defines sequence or flow of framework activities that occur within process)
 - **Initial context** (describes conditions that must be present prior to using pattern)
 - **Solution** (describes how to implement pattern correctly)
 - **Resulting context** (describes conditions that result when pattern has been implemented successfully)
 - **Related patterns** (links to patterns directly related to this one)
 - **Known uses/examples** (instances in which pattern is applicable)





3.5 Process Assessment



 **SCAMPI**

 **SPICE (ISO/IEC15504)**

 **CBA IPI**

 **ISO 9001:2000 for Software**





The Capability Maturity Model Integration

— by Software Engineering Institute (SEI) of Carnegie Mellon University (CMU)

- **Level 0: Incomplete** (process is not performed or does not achieve all goals defined for this level)
- **Level 1: Performed** (work tasks required to produce required work products are being conducted)
- **Level 2: Managed** (people doing work have access to adequate resources to get job done, stakeholders are actively involved, work tasks and products are monitored, reviewed, and evaluated for conformance to process description)
- **Level 3: Defined** (management and engineering processes documented, standardized, and integrated into organization-wide software process)
- **Level 4: Quantitatively Managed** (software process and products are quantitatively understood and controlled using detailed measures)
- **Level 5: Optimizing** (continuous process improvement is enabled by quantitative feedback from the process and testing innovative ideas)

