

3.4.4 Process Engineering

The process engineering model specifies a product manufacturing process and a supporting environment for the manufacture of customized software-based products. This process formulates the specification, generation, and evaluation of instances of the associated product family. Environment realization is the result of a process analogous to software product engineering for which a manufacturing capability is the product.

{effect of targeted investment/DsE process capability level for domain}

Process engineering has three elements: a process requirements specification, a manufacturing capability realization, and a manufacturing capability evaluation.

Process Requirements

The process requirements element specifies the capabilities needed by projects to perform product manufacturing based on a specified product family characterized by associated deferred decisions. In general, these capabilities encompass the conceptual elements of product manufacturing as described section 3.3 (i.e., project management, product specification, product derivation, product evaluation, and product delivery).

Manufacturing Capability Realization

A domain-specific environment enables, through the provision of appropriate mechanisms and raw materials, the streamlined building of instances of an encompassed family of similar products. It would not be an efficient or effective means for building products outside that scope. (the more narrow an environment's scope the more efficient it will be within that scope and the more it will preclude building anything outside that scope).

specify product model (decisions) {may be compartmentalized}

evaluate(->validate) model with analytic & empirical (w env simul) capab

generate (whole or operationally useful) product {incl deliverable materials (user docum)} => derive rqmts, design, component, & delivery models; => derive env, analytics, & verif models

verify product to product model

{see 2.9 => deliv & oper supp to customer} {plus validate to decision-based customer needs & certif criteria}

Manufacturing Capability Evaluation

(manufacturing project scenarios)