

3.4 Domain Engineering

A *Domain Engineering* effort is instituted by DsE program management, as its technical agent, to build a domain that addresses the needs of a designated market. A domain is a capability with which product manufacturing projects can build customized products for their customers.

The essence of domain engineering is the definition of a product family from which customized instance products can be derived. The product family is conceived to meet the needs of customers comprising a coherent market. The product family is characterized by a set of deferred decisions whose resolution is sufficient to designate a specific instance product. The defined product manufacturing process is focused on resolving these deferred decisions so as to derive a product family instance that is customized to a particular customer's circumstances; changing circumstances are reflected in a different resolution of deferred decisions resulting in a revised (i.e., different) instance product. The product family and associated process are revised over time to meet the changing needs of the associated market and product manufacturing projects.

Domain engineering is organized notionally into five elements (Figure 3.4-1), each described separately in following sections:

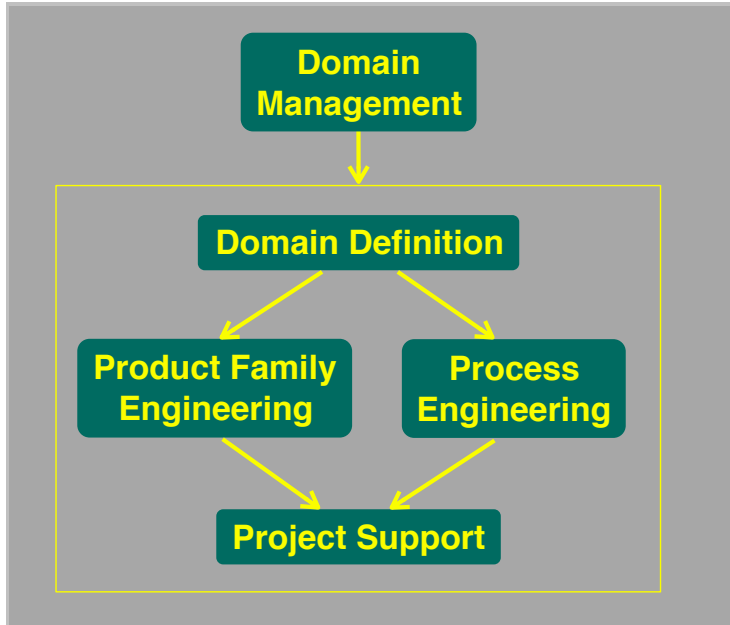


Figure 3.4-1. A Domain Engineering Process

- Domain Management – the resourcing, planning, and coordination of the domain engineering effort (an analog to the project management element of basic software product engineering)
- Domain Definition – a characterization of an envisioned product family with associated deferred decisions that are sufficient to distinguish among instance products
- Product Family Engineering – the development of a product family from which customized instance products can be derived (an analog to the product model element of basic software product engineering)
- Process Engineering – the conception and realization of a product factory in support of product manufacturing for the specification, generation, and evaluation of a customized instance of the associated product family
- Project Support – the assistance provided to each product manufacturing project in efficiently and effectively using domain capabilities to build and evolve a customized product