3.4.1 Domain Management

The domain management model specifies the direction, organizing, resourcing, planning, and coordination of a domain engineering project targeting a specified coherent market. Program management establishes a domain as its technical agent and pursues continuous improvement in the quality of its work. A domain is focused on providing associated manufacturing projects with the capabilities and materials needed to build products that meet the needs of customers in the targeted market.

Domain management is a variant of singular-product project management (as described in section 2.2), differing in three aspects: (1) its "customer" is a set of projects that build customized products for customers in the targeted coherent market, (2) its "product" is a domain (i.e., a product family and associated means for deriving products), and (3) the product family encompasses complete software-based products as appropriate (i.e., based on competence to perform all aspects of integrated systems, software, and hardware engineering and manufacture).

The elements of domain management are direction, planning, and increment performance of the domain engineering effort.

Domain Direction

Domain direction specifies the relationship of the domain to the program and related domains (if any). A domain is initiated by a program to create and coordinate technical capabilities that enables projects to build similar customized products for their customers.

Program management specifies the objectives, market, and initial resources for the domain. Domain direction coordinates domain engineering work with projects and reports on progress to program management. Domain objectives focus on the current and future needs of the targeted coherent market as a whole. Program management provides direction on conformance to enterprise- and program-level policies and procedures and use of associated services, including marketing, financial, facilities, personnel, and technology capabilities that support domain efforts.

Domain direction specifies the process for performance of domain engineering and quality criteria by which its productivity and domain quality are measured and improved. (The introduction to this chapter describes an assumed process for domain engineering in overview. Its activities are described in further detail in this and subsequent sections of this chapter.) Quality criteria for domain engineering productivity is an elaboration of the four categories of developmental quality as defined for software engineering (in section 2.2): feasibility, sustainability, conformability, and verifiability. Domain quality is evaluated in terms of the productivity and product quality that can be achieved by projects in building products.

Domain Planning

Domain planning specifies a domain plan having two aspects: the nature of the relationship between the domain and dependent projects and a master plan for realizing the domain over its expected useful life.

The program performance element of project management specifies the relationship of the domain to manufacturing projects: as a shared technical resource, as a collaborative collective within which projects operate, or as the technical authority over projects.

The domain master plan specifies building the capabilities of the envisioned domain as an evolving series of increments. These capabilities evolve over time as resources and technology are available to make improvements and as market and project needs change.

Increment Performance

Increment performance specifies the performance, in accordance with the domain engineering process, of a domain increment as specified in the domain master plan. Domain increments are typically limited to a maximum of three months to enable responsiveness to actual progress and changing circumstances.

Increment performance entails elaborating, resourcing, and directing performance of the assigned increment plan to produce a consistent domain realization that satisfies specified quality criteria. This includes tasking to improve and extend the domain as

projects build products and identify changing and emerging customer and market needs for subsequent planning.