



## **Chapter II**

# **Computer Aided Method Engineering**

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*The relationship between information systems development methods, organizational information systems engineering requirements, and the advantage of flexible automated support environments is presented. CASE technology is presented as a possible solution to provide flexible automated support. In this chapter the major topic is a conceptual model to specify the functionality of a support environment. First a review of a number of basic concepts and approaches for deriving models for CASE environments are given. An informal description of service component concepts used to derive a generic framework is presented. Further, a configuration of service components, to support Computer Aided Method Engineering (CAME), is outlined.*

## **MODELS OF SUPPORT ENVIRONMENTS**

There are a number of approaches attempting to develop a better understanding of CASE technology to support information modeling. Some of these will be discussed below to formulate the rationale behind the approach adopted in this book.

### **Models Based on Integration Issues**

Integration issues are discussed in Wasserman (1990), Brown et al., (1992), and Wallnau et al. (1991), from the viewpoint that integration can be thought of as a set of characteristics of a CASE environment. These charac-

teristics are seen as independent dimensions, namely data integration, control integration, and presentation integration, along with which integration issues can be examined.

Subsequently, the data, control, and presentation dimensions have been expanded by adding platform and process integration dimensions (Zarrella, 1990). Platform integration refers to the technical capability of tools that execute on different hardware and system software platforms to interoperate effectively. Process integration refers to the ability of a CASE tool to represent and support the development process. This dimensional view of tool integration is further enhanced by distinguishing between integration of tools with a platform and integration of tools with a process. Tool-process integration is subdivided into life-cycle processes and development processes. Platform and process integration is seen as orthogonal to data, control, and presentation integration (Thomas et al., 1992). This multidimensional view of integration is somewhat problematic. It is not clear what is meant by: “the dimensions are orthogonal” and whether they can, or should be considered separately.

An approach discussed in Thomas et. al. (1992) treats integration not as a property of a component, but rather as a property of a relationship between components. Goals are defined for the properties of each relationship such as the relationship between a tool and a framework a tool and a development process, and among tools. A framework is the platform where the tools operate according to this interpretation; this framework is similar to the NIST/ECMA reference framework (Brown et al., 1992).

Although this view is useful to highlight integration issues as being distinct environment characteristics in their own right, it has its own limitations. The integration relationships are expressed as goals, which an environment may achieve. Unfortunately, there is no discussion about how to achieve these goals, what dependencies there are between them, and what trade-offs have to be made. This approach is helpful to consider the potential relationships between every pair of tools in the environment; but there is little direction to addressing the environment as a whole.

### **Repository Based Models**

A view focused on a central repository as a key mechanism for data integration in CASE environment is preferred by many. This has formed the basis of several efforts to develop environments. There are a number of CASE environments offering repository-based models, for example, PCTE (Portable Common Tool Environment) and its object management service (European Computer Manufactures Association, 1990). Some other examples are proprietary tools, such as IEW and IEF (Staring, 1989), object management

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