2 Procedure Models for the Application System Development

2.1 Development and Implementation

2.1.1 Development of Standard Software Systems

Up to and including the 1990s, application systems were principally developed individually for each company. Mid-sized and larger companies normally also maintained their own development departments. However, because many of the software-supported procedures in the companies were similar, software manufacturers increasingly developed their products to satisfy the requirements of several companies or at least are easy to adapt to meet the different requirements. Standard software products were the result of this increasing abstraction of the one-off situation.

The trend to the use of standard software increased other aspects:

- The crisis in the custom software development: custom software was very expensive to realize and modify, implementation times were difficult to calculate and dependent on the “insider knowledge” of just a few developers.

- Because standardized DP services and employees with “standardized” capabilities could now be sought, the companies became not only less dependent on their DP department, but also from employees with specific DP know-how.

- The rapid change of the general situation of the company frequently required changes to be made to the software, often indeed fundamental nature. This was especially the case for the fusion of companies or their departments.

As it is easy to appreciate, the form of the software development had to fundamentally change over the years. Whereas previously every program was developed as part of a development project or at least for the company itself, nowadays business application systems are configured on the basis of standard software products. The user purchases or licenses a product and modifies it appropriately so that it meets his requirements. This means that rather than the programming, the selection and the “correct” adaptations of a standardized
application software are paramount. Although we still speak of development, we particularly emphasize the adaptation of software in the company because it nowadays plays a much more important compared with the programming.

The development and implementation of business application systems (application engineering) cannot be considered as being a one-off process that is isolated from other company activities. Rather, application systems are embedded in the development of the complete business information system (information engineering) and consequently in the development of the complete company (business engineering). The development of a business application system is also linked with many parallel development projects for various application areas such as financial accounting and production. Irrespective of which layer you consider in more detail, you can define typical tasks and phases that are critical for a systematic development. These tasks are designated as analysis, design, realization, test and operation. The organization (project management) is an activity that goes over task boundaries and serves the structure, monitoring and control organization structure and flow logic of the project. The next section describes these tasks in more detail.

In the areas of the software development and, in particular, the development of standardized application systems, these tasks have progressed from being just a simple company-related process to be a feedback multiloop system.

A loop takes place in the using companies. These use the (new) business goals and any determined problems to define the requirements made on the future application systems. These requirements are regularly analyzed and planned business concepts defined for future application systems as part of the information engineering. Once a standard software product has been selected, detailed work is performed to determine how the specified structures of the product and the future organization of a company can be reconciled. It must be decided to what extent the predefined software structures and procedures must be adapted to the organization or whether additional developments are needed in order to provide adequate support for extended requirements of the company. Finally, the system is implemented (adapted) and used (operated). If new goals or requirements arise, return is made to the earlier phases and additional projects are initiated.

A further loop takes place in the software company that developed the standard software. Such a company does not develop the software in just a single development project. Rather, such a product is created successively and makes use of as many users and/or consultants as possible. In every project (and every subsequent extension project), the users’ requirements are analyzed and in a consolidated form formulated as planned concepts, designs created, implementations realized, and test operations performed.

It is easy to appreciate that the two loops are closely connected with each other and their successful realizations depend on each other:

- The software can only have success when it is oriented towards the users’ fundamental requirements.
- New requirements that result from user operation must be recognized by the manufacturer and realized in the software.