Chapter 3
Project Planning and Realization

Tasks of project planning are the design and organization of a system, which fulfills certain requirements under given restrictions at lowest costs. This includes the selection and dimensioning of equipment, resources and other elements, the connection of these elements to performance chains and the design of logistic networks. The tasks of project realization are the scheduling of the implementation, the construction and manufacturing of the system elements, the build-up of the whole system and finally the start-up and tests. Both, planning as well as realization, need qualified project management (Nicholas 1990; Pintot and Slevin 1987; Lock 1996).

This chapter will provide insight into the possibilities, objectives, tasks and procedures of the planning and realization of logistic projects. After explanation of the possibilities of action and the objectives of logistics, the performance requirements and restrictions are discussed. The following sections present the means for specifying systems and processes, computer tools for planning and optimization, and methods for the selection of the best solution. The last section gives a survey on the role of technology in logistics.

3.1 Possibilities of Action

In order to plan successfully, one needs to know the objectives, requirements and restrictions of the specific project, as well as the possibilities of action. The basic options for logistics are (see Fig. 3.1):

- **Organizational options**: design of processes and structures; development, selection, and combination of strategies and variation of the strategy variables; linking of performance stations and integration of subsystems to networks; production or procurement either on order or on stock.
- **Technological options**: selection, invention, construction and improvement of machines, devices and transport means; layout of sites, halls and buildings; dimensioning and optimization; specialization, mechanization, automation; application of process control and IT.
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- **Economical options**: make or buy; cooperation and alliances; synergies and economies of scale; cooperative planning and scheduling; setting of prices and design of pricing models; utility-dependent remuneration

The practical use of these options depends on the situation of the company and on the particular project. Before planning a new system, one tries first to adapt, improve or extend the existing systems. Only if the required performance can no longer be achieved within the existing structures at competitive costs, a new system will be envisaged.

However, in order to exploit all possibilities, it is advisable to permanently develop new ideas and concepts. The existing systems should be compared with the own potentials of the company, not only against key performance indicators or benchmarks of other companies (see Sect. 4.5).

Performance, quality and costs can be improved substantially only by breaking down grown structures, i.e. by reengineering and business processes redesign (Hammer and Champy 1993; Scheer 1984; Schönsleben 1998). For this purpose, a potential analysis is advisable, which points out the deficiencies of the existing systems. It reveals, whether it is sufficient to adapt and optimize the present processes and structures or whether it is necessary to design and realize a new system (see Chap. 4).

If market requirements and general conditions are changing, the company is forced to rethink its organizational and technical possibilities. In successful companies, rationalization, optimization and redesign are a permanent process. The