The benefits of reuse are quite apparent. So the question is not whether to install a reuse program but rather how to install it. Some of the benefits of reuse can certainly be realized by casual approaches. However, adopting large-scale, institutionalized reuse requires many steps and is not trivial at all [Bra94d]. Reuse programs should start small and gain experience through pilot projects in order to be successful and effective. A common misconception is that object-oriented programming will bring software reuse for free.

In this chapter we describe how to install a reuse program. Steps that have to be undertaken to install a reuse program are depicted in Section 5.1. Selling the idea to management is discussed in Section 5.2. In Section 5.3 we consider how to motivate reuse, and in Section 5.4 we cover third-party components and component markets. A summary follows in Section 5.5.

5.1 Steps to Install a Reuse Program

Software reuse must be explicitly installed. It requires start-up costs and has effects not only on technical aspects. A reuse program should be installed in progressive steps, where each step sets the basis for the following steps. This enables starting a reuse program and learning from it. Advantages for this incremental approach are [Pri91c]:

J. Sametinger, Software Engineering with Reusable Components
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- immediate return on investment,
- confidence within the organization,
- ease of management,
- possibility to tune and refine the reuse program, and
- possibility to monitor and evaluate reuse.

Additionally, the process should be systematic and formal, i.e., consistent, repeatable and decomposable into well-defined steps [Pri91c]. These steps may be carried out repeatedly, increasing the scope of reuse in case its adoption has been successful so far. The steps for adding the practice of reuse to an organization are described in the subsequent sections. An overview of these steps is depicted in Fig. 5.1.

Various reuse benefits were described in Section 2.2 on page 11. Reuse programs can be tuned to benefits that fit the business objectives of an organization. The objectives should be clearly defined, e.g., productivity/quality improvements, time to market [GFW94].

Several authors have described how to set up reuse programs, e.g., Braun [Bra94d], Goldberg and Rubin [GR95], Griss [Gri93], Griss et al. [GFW94], Joos [Joo94], Mili et al. [MMM95] and Prieto-Díaz [Pri91c].

5.1.1 Reuse Assessment

Despite of the apparent benefits of reuse, its potential in a certain organization have to be understood and should be assessed before a reuse program is installed. The potential payoff/cost to the organization have to be analyzed. The following questions should be addressed during this phase:

- *Is software reuse feasible in our organization?*
  Is software production large enough to justify a reuse program? Will management support a reuse program? Are there enough (human and financial) resources for a reuse program? Can we afford a reuse program? How many