Here, we will offer guidance on how to get started with architecture evaluation and how to institutionalize it in one’s own company. There are many good opportunities for doing a first and beneficial architecture evaluation—new development, modernization of a system, or selection of new technologies. We will share best practices regarding how to have a successful start and how this success can be sustained. Finally, we will look at more sophisticated architecture evaluation methods and how the discipline can be further improved with even more dedicated guidance or a higher degree of automation, for example by integrating repeated compliance checks into the build process.

13.1 What Is the Point?

There are many good reasons for conducting architecture evaluations. Many companies already do some kind of architecture evaluation. This chapter is intended to offer support during the introduction of architecture evaluation in software-related organizations and industrial software projects in order to allow effective application of the methodology presented in this book.

Q.111. Why Is It Often Difficult to Start Architecture Evaluation?

- Architecture evaluation as a means of risk management and quality assurance is new for many companies. It is an additional investment and implies making
changes in an organization. In many organizations, this obstacle has to be removed first prior to getting started.

- Architecture evaluation needs a climate of openness and cooperation. This is true for the technical level as well as for the connection to the managerial level. Presenting a system’s architecture with the goal of checking and improving it requires an organizational culture that is open to accept mistakes and eager to learn and improve. However, many organizations still do not have this type of culture.
- Architecture evaluation is an investment without immediate return. It requires spending the time of people who are typically very busy. Spending the necessary time and budget requires trusting that the architecture evaluation will be worthwhile. Often the necessity of architecture evaluation is recognized too late, when the risk has materialized already and is a real problem. In such an event, an architecture evaluation can still help to assess the situation and make decisions, but the resulting cost is typically much higher.
- Architecture evaluation requires additional investments into evaluators: This may mean qualifying internal architects with the required skills or hiring external evaluators as consultants.
- Most of the time, architecture evaluation is not a one-time activity. Rather, it accompanies software projects over their lifecycle with an emphasis on different checks and with different degrees of intensity. Viewing it as a continuous risk management activity is even harder than treating it as a one-time investment and requires strong discipline.

Q.112. What Opportunities Exist for Starting with Architecture Evaluation?

Software projects lead to many situations that are good starting points for architecture evaluation. Chapter 1 introduced numerous motivations for architecture evaluation. Below, we will briefly mention several situations that occur quite often and that are well suited for this purpose.

- **Architecture for a new system is just under design**: Checking the foundation of architecture drivers and their initial adequacy early can help to avoid expensive rework. Most of the time, an internal review is adequate and can deliver enough confidence. DIC, SAC, and DQC can be conducted.
- **Initial development of a new system is under way**: During the initial development, teams are ramped up and the system is developed under high time pressure. Questions pop up continually that are not yet answered by the architecture design so far: In such cases, a quick SAC is advisable from time to time to check whether the architecture should be changed. There is the risk that architectural ideas and the implementation might diverge and that uniformity may be missing. Thus, ACC can help to avoid a very early drift, which will be very expensive to correct later on.