

## Part IV

### Parameterization

In Parts II and III we have discussed extensively the definition and evaluation of queueing network models. Here, in Part IV, we discuss the parameterization of these models. Parameterization is the heart of the modelling process, for the results of a study can be no more accurate than the parameter values provided to the queueing network evaluation algorithms.

Our presentation is divided into three parts. In Chapter 12 we discuss the construction of baseline models of existing systems. A validated baseline model is the starting point for any performance study of an existing system.

In Chapter 13 we discuss *modification analysis*: the process of adjusting parameter values to project performance for modified environments. The key to modification analysis is the ability to anticipate and represent primary effects. For this reason, modification analysis relies on the experience of the analyst to a significant extent.

In Chapter 14 we discuss the use of queueing network models to project the performance of proposed systems — systems for which baseline models cannot be constructed and validated. The process of designing a new system involves continuous tradeoffs between cost and performance. Queueing network models can help to quantify performance, and thus to guide the entire design process.

The divisions between these three chapters are artificial in many respects. The construction of a baseline model of an existing system must be guided by knowledge of the model's intended applications in projecting performance for the system as it evolves. The techniques for the successive refinement of workload characterizations that have been developed to model proposed systems can be extremely helpful in dealing with existing and evolving systems.