
PART IV

POSTDEVELOPMENT STAGE

Part IV goes beyond most systems engineering books in examining the role that systems engineering must play in the production, installation, operations, and support of complex systems. It also identifies the knowledge of these phases that systems engineers should acquire to ensure that the system will be affordable and fully effective in its intended operational environment.

The transition of a system from development to production is often a source of serious difficulties and program delays. If the properties of reliability, producibility, and maintainability have not been fully integrated into the system design, the transition is likely to be slow and costly. Chapter 14, *Production*, discusses these problems and describes the production facilities and operations as a system in its own right. It also discusses what a systems engineer needs to learn about production processes and problems associated with the types of systems he or she is concerned with, to guide effectively the development and engineering of such systems.

As in the case of production, the operations and support of complex systems also requires the participation of systems engineering. Unanticipated problems are the rule rather than the exception in the operation of new complex systems, and they require urgent resolution by system-oriented personnel. Chapter 15 discusses such problems as well as the systems engineering participation in the process of system upgrading and modernization.