

1. The Foundations And Future Of Software Production

Software over the last 60 years has become an essential enabler of enterprises of all kinds. As a result, it has also become a major industry both in its own right and as a necessary competence that every producer must either possess or acquire from qualified providers. Software providers must have competence not only in software production but also in the field of application.

Practices conceived to solve much simpler problems, even as improved over time, are not well suited to efficiently producing the complex products needed for systems both now and in the future. In fact, characterizations of current approaches, in order to simplify understanding, obscure much about how software-based products are actually built today.

A new conception of how to build and sustain complex software-based products is needed going forward. This text is a comprehensive guide to an approach that realizes such a conception. The sections of this chapter identify precepts that underlie the essential conception, explain terminology and concepts essential to understanding the approach, and present the vision that motivates this approach. Subsequent chapters expand in detail on the various aspects of the approach.