Chapter 7
Software Engineering for Technological Ecosystems

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ABSTRACT

Software engineering for technological ecosystems also referred as Software Ecosystems (SECOs) focuses on the concept of software engineering field. The study of SECOs started in early 90s under business schools, mainly focused on software engineering based on the software product lines approach that aimed to allow external designers and developers to contribute to hitherto closed platforms. The chapter gives background, various dimensions, framework, architectural challenges of SECOs, and explains various limitations and different recommendations and solutions to provide a better and conclusive platform for the technology ecosystems.
INTRODUCTION

Software engineering for technological ecosystems referred as software ecosystems (SECOs) focuses on the concept of software engineering field. The study of software engineering for technology ecosystems started in early 90s under business schools. These studies mainly focused on software engineering based on the software product lines approach that aimed to allow external designers and developers to contribute to hitherto closed platforms. Various research directions developed by industrial and literature cases provides a lot of relevant perspectives to be examined such as architecture, business considerations, modeling, social networks, organizational based management, and mobile platforms (Urban, Bakshi, Grubb, Baral, & Mitsch, 2010). Besides that, software ecosystems require a multidisciplinary treatment that includes law, business, economy, communication, as well as sociology. The studies are motivated through the software vendor’s routine for there is no longer function that is independent and has the potential to deliver separate products.

These products have become dependent on other software vendors for relevant software infrastructures and components, for instance, platforms, component stores, libraries, operating systems, and other important and needed software elements. Over the past years, most institutions and firms have established Free Software and open source developments that cover technological needs, for the internal processes management and the public facing visibility. Universities, large firms, and SMSs generates a large amount of data when carrying out their operations. In order to support their emerging needs and improve the type of information systems they are using, companies search technological solutions. There are several of open source solutions that cover the basic ICT needs of business platforms, from decision-making tools to content management systems or project management software. Most of these solutions are referred to as technological ecosystems and allows focusing on information as well as knowledge to put aside the underlying technology concepts (Adomavicius, Bockstedt, Gupta, & Kauffman, 2012).

BACKGROUND

Software ecosystems give a phenomenon in the field of software engineering based on the rapid and ever evolution in the present times. The software product lines approach motivated the study of SECOs in the software engineering community. Focus was aiming on the acceptance of external developers so as to contribute to hitherto enclosed platforms. Various research activities contributed by industrial cases and literature reinforce a lot of relevant perspectives that need to be explored, like mobile platforms, modeling, social networks, and business considerations. On
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