A Review on Factors Influencing Implementation of Secure Software Development Practices

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Abstract : More and more businesses and services are depending on software to run their daily operations and business services. At the same time, cyber-attacks are becoming more covert and sophisticated, posing threats to software. Vulnerabilities exist in the software due to the lack of security practices during the phases of software development. Implementation of secure software development practices can improve the resistance to attacks. Many methods, models and standards for secure software development have been developed. However, despite the efforts, they still come up against difficulties in their deployment and the processes are not institutionalized. There is a set of factors that influence the successful deployment of secure software development processes. In this study, the methodology and results from a systematic literature review of factors influencing the implementation of secure software development practices is described. A total of 44 primary studies were analysed as a result of the systematic review. As a result of the study, a list of twenty factors has been identified. Some of factors that affect implementation of secure software development practices are: Involvement of the security expert, integration between security and development team, developer's skill and expertise, development time and communication between stakeholders. The factors were further classified into four categories which are institutional context, people and action, project content and system development process. The results obtained show that it is important to take into account organizational, technical and people issues in order to implement secure software development initiatives.