Challenges Affecting the Successful Adoption of DevOps Practices: A Systematic Literature Review

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Abstract

Contemporary business organizations are increasingly turning to IT-related tools, particularly software, to enhance the efficiency of their operational processes. As a result, time to deliver to market and the quality of software product has been a major concern to software development companies. Hence these organizations are willing to implement DevOps practices. DevOps has emerged as a promising approach in software development and operations, aiming to enhance collaboration, automation, and efficiency in delivering high-quality software products. While DevOps practices have gained significant attention globally, the successful adoption of DevOps practices in specific regions, may encounter unique challenges for various reasons. It also has become a critical endeavor for organizations in the developing countries, like Sri Lanka, seeking to enhance their software development and delivery processes. This systematic literature review explores the challenges affecting the successful adoption of DevOps practices by extensively analyzing relevant scholarly articles, conference papers, and industry reports. The identified challenges encompass organizational culture, technical infrastructure, skill gaps, regulatory compliance, and resource constraints. More specifically, the analysis revealed major challenges such as resistance to change, absence of supportive and visionary leadership, outdated legacy systems, high cost of investment, skills gaps, communication gaps between development and operations teams, and a deep-seated company culture.

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