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Beyond Continuous Integration: Factors Influencing Adoption of Continuous Delivery in Irish SMEs

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Abstract

Modern software companies are under pressure to develop high-quality software faster than ever before, while keeping risks to a minimum. Adding to this pressure, experimentation and rapid feedback are playing an increasingly important role in software product development, allowing the most agile companies to gain a competitive advantage.

Continuous Delivery is a promising addition to modern software development practices, offering practitioners the ability to deliver quality software to the customer in shorter iterations, while learning and experimenting with every release.

This research investigates the extent of Continuous Delivery use in small to medium-sized companies in Ireland, and uncovers factors influencing its adoption. A large variation in Continuous Delivery adoption was observed. The research establishes that a company's total number of employees, and its number of software-related employees, significantly influence Continuous Delivery adoption. Furthermore, the research shows that there is a significant difference between Continuous Delivery practices used in the development of mobile software, and those used in the development of web-based software. Finally, a number of additional factors that influence Continuous Delivery adoption emerged, which included: software development culture; the use of legacy systems; personal perceptions of Continuous Delivery practices; and the alignment of business processes with software development and delivery processes.

Companies adopting Continuous Delivery should consider not only the associated technical aspects, but also the organisational constraints in the form of culture; business process; and employee perception; in order to fully realise Continuous Delivery's potential.