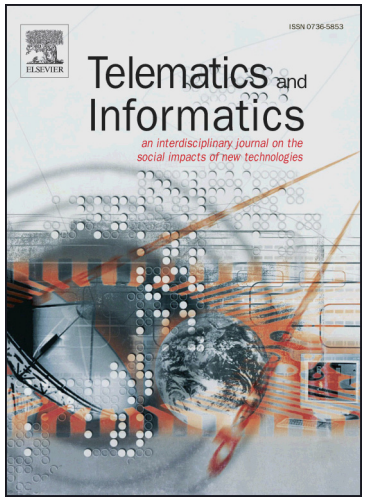

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A Framework for Critical Security Factors that Influence the Decision of Cloud Adoption by Saudi Government Agencies

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Abstract

Cloud computing technologies can play an essential role in public organisations and companies while it reduces the cost of using information technology services. It allows users to access the service anytime and anywhere, with paying for what they use. In developing countries, such as Saudi Arabia, the cloud computing is still not extensively adopted, compared to countries in the west. In order to encourage the adoption of cloud services, it is considerable to understand an important and particular complications regarding to cloud computing is the potential and perceived security risks and benefits posed by implementing such technology.

This paper investigates the critical security factors that influence the decision to adopt cloud computing by Saudi government agencies. A framework was proposed for three categories, Social Factors category, Cloud Security Risks Category and Perceived Cloud Security Benefits that includes well-known cloud security features. The framework factors were identified by critically reviewing studies found in the literature together with factors from the industrial standards within the context of Saudi Arabia. An experiment study was conducted in five government agencies in Saudi Arabia by interview and questionnaire with experts in order to improve and confirm the framework. All the factors in the proposed framework were found to be statistically significant. An additional factor identified was Failure of client side encryption. Moreover, they suggested including this factor as a potential risk under Security Risk Factors Category. The initial framework was updated based on the expert reviews and questionnaires. The results were analysed via one-sample t-test with the data integrity analysed via Cronbach's alpha. The outcome indicated the majority of cloud security adoption framework categories were statistically significant. Potential future study directions and contributions are discussed.

Keywords: Saudi Government Agencies; Cloud Adoption; Cloud Security Risks; Cloud Security Benefits.