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Enhanced Model for Risk-Based Assessment of Employee Security with Bring Your Own Device Using Cyber Hygiene

Authors : Saidu I. R., Shittu S. S.

Abstract : As the trend of personal devices accessing corporate data continues to rise through Bring Your Own Device (BYOD) practices, organizations recognize the potential cost reduction and productivity gains. However, the associated security risks pose a significant threat to these benefits. Often, organizations adopt BYOD environments without fully considering the vulnerabilities introduced by human factors in this context. This study presents an enhanced assessment model that evaluates the security posture of employees in BYOD environments using cyber hygiene principles. The framework assesses users' adherence to best practices and guidelines for maintaining a secure computing environment, employing scales and the Euclidean distance formula. By utilizing this algorithm, the study measures the distance between users' security practices and the organization's optimal security policies. To facilitate user evaluation, a simple and intuitive interface for automated assessment is developed. To validate the effectiveness of the proposed framework, design science research methods are employed, and empirical assessments are conducted using five artifacts to analyze user suitability in BYOD environments. By addressing the human factor vulnerabilities through the assessment of cyber hygiene practices, this study aims to enhance the overall security of BYOD environments and enable organizations to leverage the advantages of this evolving trend while mitigating potential risks.

Keywords : security, BYOD, vulnerability, risk, cyber hygiene
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