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Solving the Privacy and Security Challenge using ZKP: Its Positive Impact on the Economy

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The 4th and 5th industrial revolutions are improving the functioning of the working environment for different industries. However, it also introduces security and privacy challenges that lead to cybercrime which negatively impacts the economy. This article presents a comprehensive analysis of the usage of Zero Knowledge Proofs (ZKP) to protect data in the major technologies for the 4th and 5th industrial revolutions. These technologies include cloud computing, big data, Internet of Things, blockchain, 5G, artificial intelligence, and supply chain. Security and privacy challenges and solutions in these technologies were investigated. ZKP, a cryptographic method that enables verification of a party without revealing confidential details, is one of the promising solutions to fight the problem of data security and privacy. In this study, it was determined that Blockchain is the leading technology in terms of using the ZKP to improve security and enhance privacy. The paper provides the future direction to secure these technologies using cryptographic methods such as ZKP.

Keywords: Security, privacy, ZKP, 4th Industrial Revolution, 5th Industrial Revolution.

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