Analysis of the Use of Blockchain Technology in Student Data Management in Schools

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ABSTRACT

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Blockchain, student data management, data security, transparency, operational efficiency, and education. The objective of this study is to examine the implementation of blockchain technology in the administration of student data in educational institutions and evaluate its efficacy and security in comparison to conventional systems. This study utilizes a qualitative methodology and adopts a case study approach to examine the implementation of blockchain technology in multiple schools. Data were acquired through in-depth interviews with school IT professionals, administrators, and blockchain technology specialists, as well as research of documentation relating to student data management policies and procedures. The results of the study reveal that the application of blockchain technology in student data management has several significant advantages, including greater data security, transparency, and operational efficiency. Blockchain ensures that student data is protected and may only be accessed by authorized individuals, eliminating the danger of data leakage and manipulation. In addition, the openness given by blockchain allows for real-time tracking of data changes, permitting more accurate audits and monitoring. This study, however, revealed significant problems in the application of blockchain technology in schools, such as the need for suitable infrastructure, high implementation costs, and a lack of awareness and technical skills among school staff. In conclusion, although blockchain technology offers numerous benefits in student data management, the success of its deployment rests greatly on the technical and financial readiness of educational institutions, as well as the necessity for sufficient training and socializing for users.

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