

ABSTRACT

Elections are a fundamental pillar of democracy in Indonesia, yet their implementation continues to face various challenges, including data input errors, system inefficiencies, and limited human resource capacity in utilizing platforms such as Sidalih and Sirekap. This study aims to design and develop the user interface (UI) and user experience (UX) for a blockchain-based election data management system, as well as to evaluate its functionality and usability. The methodology employed is Design Thinking, which consists of five stages: empathize, define, ideate, prototype, and testing—focusing on understanding user needs to produce relevant design solutions. The UI/UX design is implemented using the Next.js framework, integrated with Tailwind CSS and TypeScript, resulting in an interactive interface. Usability testing involved participants from the General Elections Commission (KPU) and the general public. The results showed that the success rate of usage was fully achieved by respondents from KPU Kota Bandung, indicating that all main system flows could be used effectively. Additionally, the System Usability Scale (SUS) was used to measure user perceptions of system usability, yielding an average score of 89.72, which falls into category A (Best Imaginable). Automated testing using Selenium IDE and Katalon also confirmed that all main system flows could be executed smoothly without technical issues. These results indicate that the system has strong potential to improve transparency, efficiency, and user convenience in election data management, while supporting inclusive and accountable governance in line with SDG 16.

Keywords— Blockchain, Design Thinking, Election, Frontend, UI/UX