BOSESKO: Designing a Synoptic Multi-platform Digital System for Citizen Participation

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***Abstract*— Digital citizen participatory toolkits are gaining interest among researchers and practitioners for their crucial role in empowering citizens, promoting accountability, and ensuring diverse voices are heard in policymaking. This study aims to develop and implement BOSESKO: Building on Opinions and Sentiments for Sustainability and Knowledge Opportunities (formerly known as Kalahok) - a multilingual, inclusive, deliberative, synoptic, digital participatory toolkit that digitized data collection and analysis to engage communities in governance using technology-based methodologies. BOSESKO is available in English, Filipino, Ilokano, and Bikol versions for web and mobile devices. It primarily encourages public feedback on disaster preparedness and Universal Access to Quality Tertiary Education (UAQTE) implementation in the Philippines. Its adaptable design extends its utility beyond its initial scope. BOSESKO explored machine learning, natural language processing, and software integration for data gathering, processing, visualization, and system development while employing a hybrid approach with Extreme Programming (XP) and Scrum. Significant findings demonstrated that BOSESKO enabled the orderly solicitation and submission of inputs from local communities through the creation, management, consolidation, analysis, and visualization of responses. The result of the analysis based on the performance of BOSESKO's web application and mobile application 4.78 and 4.40, respectively, and this can guide agencies in formulating data-driven policies for UAQTE, Disaster Risk Reduction Management, Climate Adaptation (DRRM/CA), among others.**

***Keywords*— Digital citizen participation, E-participation, System development, Integrated systems, Multi-platform systems, Hybrid software methodology**

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