

BLOCKCHAIN 3.0: TOWARDS A SECURE BALLOT DEMOCRACY THROUGH A DIGITIZED PUBLIC LEDGER IN DEVELOPING COUNTRIES

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ABSTRACT

This paper reviews scholarly articles on the application of blockchain technology for secure electronic voting (e-voting). Furthermore, the feasibility of using blockchain technology to replace the existing manual or semi-digitized voting system in developing countries with Nigeria as a case study is performed. To analyse the current state and preparedness of adopting Blockchain Enabled E-voting (BEEV) system in Nigeria, this paper employs the qualitative SWOT (Strengths, Weaknesses, Opportunities, and Threats) and PEST (Political, Economic, Social, and Technological) analysis approach. This evaluation leads us to identify internal and external factors and the strategic direction in adopting BEEV in Nigeria. It is the authors' opinion that this approach could also be tailored to evaluate situations of other developing countries.

Keywords: Security, E-voting, I-voting, Blockchain, Developing Countries.

INTRODUCTION

"It is enough that the people know there was an election. The people who cast the votes decide nothing. The people who count the votes decide everything" - Joseph Stalin. Democracy is the pillar of every political system and ensures an equal and fair voting system by guaranteeing the right of all eligible voters to freely vote for their preferred party or candidate. The concern on every voters' mind is whether their vote will count and if the votes recording and the final result is accurate. Despite the tremendous technological advancement and digitization of numerous spheres of modern life, most elections are still conducted using paper-ballot and usually offline, especially in developing democracies around the world. Traditional ballot-based voting have the following inherent flaws (Meter, 2015; Oke, Olaniyi, Aboaba, & Arulogun, 2017; Olaniyi, Arulogun, & Omidiora, 2012).

- Paper ballot prone to fraud

- Manual counting errors
- Compromise during the distribution of election materials from central locations to voting centres
- Possible compromise and interference by external companies or contractors handling the manufacture of election materials or voting database management
- High cost associated with conducting elections
- Time-consuming
- Complex processes

Due to the complexity, cost and time associated with conducting free, fair and credible elections, and the accusations and counter-accusations that follow every election cycle, attention is moving towards adopting current technological advances, away from the traditional paper-ballot voting system. This is in order to eliminate human errors, fraud, and biases, thereby improving trust in the electioneering processes. Consequently, over the years, scholars and democratic experts have advocated for an e-voting (Ibrahim, Kamat,