

# Chapter 13

## Democratic Governance: A Review of Secured Digital Electoral Service Infrastructure

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### ABSTRACT

*In any democratic nation, electoral processes pave the way to democratic governance. In regards to this, a fully digitized online voting system should be introduced, and governments should invest efforts in studying the possibilities in adopting online voting system to curb the issues mentioned above. In that sense, any user should be allowed to cast his/her vote from any remote location, and the processes should be held in full confidentiality without any intervention or possible vulnerabilities. Therefore, this chapter investigates how governments can learn various initiatives and provide funding to further conduct research and implement such methodologies. The chapter begins by exploring some traditional and current practice of electoral system and further embarks into a review of secured online voting systems that has been proposed by the body of knowledge. The chapter then presents how some countries have adopted this secured online voting systems and giving an avenue to secured digital electoral governance.*

### INTRODUCTION

The need to develop a secured Digital Electoral Service Infrastructure is nowadays becoming more prominent than ever before. The benefits users and administrators get to experience is overwhelming and not to mention the ease of use when we compare the traditional electoral system compared to a digital electoral system. The concern for the digital electoral system lies in the security aspects of it. With

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potential breaches, if a digital electoral system is exploited by attackers, it would lead to an enormous political unrest within the nation. A lack of trust in a digital electoral system majorly contributes to why traditional methods are still vastly used till this very day. With most governments thinking it is too much of a risk to take, they opt for the more reliable yet tedious approach that are profound in traditional electoral systems. This brings us to the next crucial element when implementing a digital electoral system, which is cybersecurity. Cybersecurity serves as a protective layer for internet-connected systems. This includes protecting hardware, software and data that makes up the system. Physical security is also required in protecting against unauthorized access to secured data centers. Among the elements we associate with cybersecurity includes application security which ensures that there are no vulnerabilities in the web page or application being used; information security which safeguards critical information of voters; network security in which channels used in the system has to be secured to access the application; data recovery strategies in situations where unforeseen problems arise; operational security where the systems are built without operations which could hinder the grade of security and end-user education whereby voters are given in-depth knowledge on how to operate and navigate within the system.

## **TYPES OF ELECTORAL SYSTEMS**

Electoral system is a distinguishable set of rules that determine procedures on how elections and referendums can be conducted and how the results are obtained. Generally, political electoral systems are organized by governments. But this does not mean it is not feasible in non-profit organizations as well as informal organizations. These are some examples in which we can associate electoral systems in non-political elections. Electoral systems inherit a standardized set of rules that governs pivotal aspects of the overall voting procedures. When elections occur, determining eligible voters, identifying eligible candidates, procedures in determining how the ballots are marked and casted, steps taken into consideration when the ballot is counted are all part of a fully automated electoral system. On that note, electoral systems can also be designed in a manner in which campaign spending is controlled. This is because excessive spending during the campaigning phase may lead to favoritism by the voters. This will directly affect the results of the elections. Political electoral systems are defined with respect to constitution and electoral laws. Currently, constitutional laws during the election phase is abided by the election commission. As long as it does not violate a particular country's constitution, the election commission has the authority to utilize all viable forms of election during the election phase. Traditional electoral systems are still used profoundly till this very date. That has somewhat stalled the evolution of digital electoral systems. Security concerns amid digital electoral systems has resulted in most governments globally to continue trusting on traditional electoral systems instead of reverting to digital means. Traditional electoral systems have many different ways in order to announce a winner. They are differentiated in the types of electoral system. For a country has particular type of electoral system need not abandon it as they can continue the same type of electoral system in a digital environment. The use of traditional electoral systems will continue to be in discussion until people fully trust the security measures implemented in a digital or online electoral system which should eventually be the case in our ever-developing technologies. Online electoral system can be a turning point for providing electronic services to governance similar to other systems that uses ICT for governance (Rura et al., 2011; Roy and Karforma 2011a; Roy, Banik and Karforma, 2011b); Learning (Queensland Government, 2013; Itmazi 2013); Shopping (Adeline et al., 2006); Medicine (Gartner (2013) and in democratic decision making (Olaniyan, Mapayi, and Adejumo

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