Chapter 75
A Systems Theory Approach to Electronic Voting Complexity

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ABSTRACT

Information and Communication Technologies are being evaluated as an efficient and effective way to modernize the electoral process. These initiatives have initially been met with skepticism, as a number of affecting fields operate in concert, to structure what is perceived as the dimensions of electronic voting. This chapter adds to the existing body of knowledge on e-voting, while attempting to exorcise complexity and reevaluate under a perspicacious vision, the conflictual issues, by adopting a methodology with the ability to tackle highly unstructured problem settings. For this, systems theory is employed to provide a framework for perceiving and analyzing highly complex systems in an interdisciplinary method, as well as for designing within and for them. In this context, electronic voting is identified as a 'soft' ill-structured human activity system, and soft systems thinking is applied to bring about improvement by resolving complex issues and providing a clearer perspective of related interdependencies.

INTRODUCTION

The end of the twentieth century saw the economic market emerge as a mechanism for the regulation of complex social systems through decentralization and anonymity. The theory of exchange, put economic relationships onto the center stage of international affairs, replacing military relationships of the past; no longer did politics govern society, but the market instead. This faceless governor, appeared immune to corruption but was apparently profoundly damaged to the core. The financial crisis, which has led to global recession, in turn led to losing confidence in the system of governance, projecting the necessity of redefining methods of participation in sovereignty. In the

midst of a global economic crisis, institutions of sovereign are being reevaluated under perspicacious vision, as calls are being made for increased openness and transparency of transactions.

In exploring methods of evolving participation in democracy, Information and Communication Technology (ICT) takes central status (Fraser, 2006), as electronic participation channels present a bidirectional communication channel between the "people" and their elected representation Fuchs, 2006; Won, Yeo, Lee, & Arabi, 2007). Over recent years, countries and states globally have attempted to alleviate problems of bureaucracy and improve administrative services by providing their citizens with electronic services. Recognizing the benefits offered by electronic solutions, political parties are using popular information systems to mobilize their core supporter groups and attract younger voters, hoping to alleviate the low voter turnout problems and demonstrate a versatile evolutionary profile.

Empowered by timely information and by deliberations of the discursive community, citizens may participate effectively in decision making processes, by making use of e-participation solutions. Voting is the most vital citizen participation process in democracy, as it can inherently facilitate the expression of general will. Viewed as the ultimate goal for all electronic government attempts, is the digitalization of this process, so as to offer citizens with a timely, location independent and transparent mean of participation in sovereign. Furthermore, it offers great advantages to the public bodies responsible for election administration; ballots can be provided in any language, made fully accessible for individuals with disabilities (i.e. through large fonts or the use of audio files) and in versatile formats of varying content, as the situation arises (Frith, 2007). E-voting administration is also simplified, since the number of steps involved (i.e. the distribution, the voting itself, vote collection and the counting of ballots) can all be accelerated (EU Recommendation Rec (2004) 11,2004).

The field of electronic democracy and especially electronic voting is mostly undiscovered territory and its dimensions are still unexplored, as debates on the matter are still conflictual. Concerns are often voiced on security issues, but also sociological and political implications, that may be raised from the introduction of this technology. Digitalizing communications between governments and the "people" is a process necessary to be viewed within a wider framework. It is crucial to view issues involving electronic democracy in clear perspective and bear light on their true nature. Electronic voting is a social and political project much more than a technical project. It is seen as bringing a social improvement in it by widening the circle of citizens involved in politics and political decision-making (Republique Et Canton De Geneve, 2009).Unmistakably an examination of e-democracy, and evidently e-voting cannot be performed in vitro; in isolation from other scientific and academic fields, as a purely technological approach would lead to sterile "engineering" results, as a number of affecting fields operate in concert, to structure what is perceived as the field of electronic voting. For this it is necessary to adopt a transdisciplinary methodology with the ability to tackle highly unstructured problem settings. A more suitable theoretical guideline can be found in the aspects of systems theory that deal with high-risk technologies. Systems theory provides a framework for describing, modeling, analyzing, and designing social systems; developing and institutionalizing changes to social systems; and managing systems and system change (Moynihan, 2004). Senge (Senge, 1990) ties a systems approach to organizational learning, to understanding complex, recurring interrelationships through feedback loops and directing purposeful change. In this chapter, systems thinking is adopted to illuminate the quandaries of electronic voting; a Soft System Methodology (SSM) is adopted to identify and define the true dimensions and implications involved in the adoption and development of an optimal information system.

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