Implementation of Artificial Intelligence by the General Elections Commission in Creating a Credible Voter List

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Abstract

In the 20th century, artificial intelligence was a necessity that cannot be separated from human activities every day. In its development, artificial intelligence has influenced the process of running democracy where the implementation of elections has been supported by internet-based systems to make it easier for organizers, election participants, and voters in realizing the overflow and judicial elections. This research attempts to examine the Voter List Information System (Sidalih) owned by the General Elections Commission (KPU). The goal is to examine the extent of the system on how it works effectively in realizing credible votes list, what factors influence its implementation. The method used in this study is a descriptive qualitative approach. Research data collection is obtained from literature studies of previous articles and data from recapitulation by the General Elections Commission. Based on the results of the research, it will be presenting the extent to which Sidalih effectiveness in creating credible voter list, knowing the obstacles faced in implementing Sidalih in the field, the data processing through coding literature data, and reporting to reputable online media which reports the implementation of updating data, as well as listing voters by the General Elections Commission in the 2019 General Election. The coding result data is then processed using the Nvivo 12 plus feature.

Keywords: Voter List, Implementation, General Elections Commission, Sidalih

Introduction

The use of artificial intelligence has become a general requirement in activities in this modern era. Its use is no longer limited to industrial production [1], public health [2], [3], and other public services [4]. However, currently, artificial intelligence has entered into the realm of the implementation of General Elections to advance democracy in the spirit of modernization and providing high accessibility for the participating people [5], [6]. In many democratic countries, the use of artificial intelligence is implemented through the e-democracy or e-voting system [7]–[10].

The use of information technology is one form of implementing Artificial Intelligence. The use of fair information technology can provide benefits for its users, both individually and institutionally [11]. In the implementation of General Elections in Indonesia, the use of information technology based on artificial intelligence has been presented in various stages that have been carried out by the General Elections Commission (KPU), starting from the time of candidacy with the Nomination Information System (Silon) portal, up to the financial reports of prospective election participants. Through the Financial Information and Monitoring System (Simonika), as well as other systems, such as Election Organizers Information System (SIPP), Political Party Information System (Sipol), Logistics Information System (Silog), Inter-Time Replacement Management Information System (Simpaw), Counting Information System (Situng), Electoral District Information System (Sidapil), and Voter List Information System (Sidalih) [12].

In this article, we will be focusing on the artificial intelligence systems developed by the General Elections Commission in handling voter list, in which they used the Voter List Information System (Sidalih). The use of Sidalih has a very vital role in the implementation of the election; this is based on the function of voter list as a benchmark for the procurement of electoral logistical and technical needs, which includes the budget
and distribution of polling stations in areas that hold General Elections [12]–[14]. The use of Sidalih in its application is expected to be able to create a double e-gove, which is not only applying e-government principles but also providing opportunities for the public to be directly involved in efforts to create up-to-date and credible voter list [15].

Basic Theory

Implementation of Artificial Intelligence in General Elections

The use of Artificial Intelligence in General Elections has been implemented with the launch of various supporting systems for the operation of the General Election stages; these systems are presented to make it easy for election organizers and participants in carrying out the electoral stages and also aimed at providing information to the public [12], [16]. The application of information technology and the use of the software are the efforts to advance the implementation of democratic contestation based on the use of Internet of Things (IoT) technology [17], [18]. In assisting the General Elections Commission at the nomination stage, there has been an application for the Nomination Information System (Silon) which is intended to provide public information disclosure for the entire public to candidate pairs of candidates who register in general election contestation [16]. Also, there is a Political Party Information System (Sipol) application for political parties participating in the election to complete all kinds of party nomination requirements for registration as participants in general elections [16], [19]. In the calculation stage of the final results of the election, the General Elections Commission has also involved Artificial Intelligence in helping the performance of the organizers in recapitulating the election results, by using the Counting Information System (Situng) application [20]–[22].

The involvement of Artificial Intelligence is not only in the process of organizing the stages of general elections. It is also carried out at the time of the Inter-Time Turnover (PAW) of DPR members using the Inter-Time Replacement Management Information System (Simpaw) application [23], [24]. Meanwhile, one of the Artificial Intelligence applications used by the General Elections Commission that has attracted the most attention in the course of the general election process is the Voter List Information System (Sidalih). Sidalih is an online application that works by utilizing the existing internet network in Indonesia. The use of Sidalih is one of the uses of telecommuting in the running of government in Indonesia [25]. In its journey, Sidalih has experienced various kinds of improvements, since Sidalih was officially launched in 2013 by the General Elections Commission of Indonesia, the development of Sidalih has been carried out until the latest version, which is Sidalih 4.0 that is used in the implementation of the 2020 Local Leaders Election (Pilkada) [26], [27]. Sidalih was used to provide convenience and to improve the performance of the organizers in updating data and the voter list, thereby reducing the possibility of duplicate data occurring in the resulting voter lists [28], [29].

Method

This research was conducted through literature studies using secondary data in the form of reputable online news, previous articles, electoral books, and voter list recapitulation documents at the General Elections Commission. This research is a descriptive qualitative research that processes the observed data in detail with the condition of the object or subject being observed. Qualitative data analysis is the search for relationships between categories and data themes to improve understanding of phenomena [30]. This research was processed using Qualitative Data Analysis, using the NVivo 12 Plus application. The NVivo application is an app that is considered capable of helping researchers in qualitative research by providing useful data, saving time, and offering better flexibility [31].
Findings and Discussion

Effectiveness of Using Sidalih in General Election

The use of Sidalih was first carried out during the 2014 Legislative General Election which was the first step in organizing an online system-based voter list update [25], [28], [32]. The use of Sidalih in the implementation of the update can improve the performance of the General Elections Commission in updating data and the voter list [29].

In the table above we can see the number of voters from periods of the legislative elections and the presidential and vice-presidential elections. The use of the voter list as a database from the results of the Sidalih application's performance was first carried out in the 2014 legislative elections. In its implementation, the General Elections Commission was deemed capable of providing better data certainty and accuracy than the previous general election held in 2009. It can be seen that the number of data increases
voters from the 2009 Presidential Election to the 2014 Legislative Election reached 16,784,325 voters. Also, in using Sidalih, the General Elections Commission succeeded in structuring complex population data and providing certainty to 60 million voters who did not have NIKs to be accommodated and get their voting rights and NIKs from the population and civil registry offices.

Table 1: Total Number of Concurrent National Election Voters 2015-2020

| No  | Period                  | Total Number of Voters | Number of Organizing Regions |
|-----|-------------------------|------------------------|-----------------------------|
|     |                         |                        | Number of Organizing Regions|
|     |                         |                        | Province | City | Districts |
| 1   | Local Elections 2015   | 96,869,739             | 9        | 36   | 224       |
| 2   | Local Elections 2015 - 2017 | 41,210,248           | 7        | 18   | 76        |
| 3   | Local Elections 2015 - 2018 | 152,050,861         | 17       | 39   | 115       |
| 4   | Local Elections 2015 - 2020 | "The upgrade process is in progress" | 9        | 37   | 224       |

Source: processed by the author from the Election Commission voter list

The table above shows the total number of voters in several Simultaneous Regional Elections nationally. Implementation of General Elections, both held at the provincial and district/city levels starting from 2015 to 2020. Currently, it is recorded that the implementation of General Elections has been held three times and will enter the 4th in the 2020 period this year. In this implementation, the General Elections Commission has used Sidalih since 2015 as a voter list application which is an improved version of the previous Sidalih used in the 2014 Legislative General Election and the 2015 Presidential General Election.

Inhibiting Factors for the Implementation of Sidalih

The use of Sidalih in the electoral stage in Indonesia does not always run smoothly; there are many obstacles in the field which sometimes become serious difficulties and have an impact on the process of updating and matching voter list in the field. In this part, we will present some previous studies that provide an overview of the factors that hinder the implementation of Sidalih.

Table 2: Sidalih problems by current research

| No  | Title                                                                 | Authors                  | Findings                                  |
|-----|-----------------------------------------------------------------------|--------------------------|-------------------------------------------|
| 1   | 2019 Election Stages in the Middle of Natural Disaster Threats: A Case Study of Mount Agung Eruption    | Apriani & Gelgel (2020) | Natural disasters.                         |
| 2   | Preparing Concurrent Election Governance Performance Evaluation of Subdivision Programs and Data in Updating Voters' Data on the Election of Deputy City and Deputy Mayor of Bandung (Research Study at the General Elections Commission (KPU) Bandung City) | Nuryanti (2015)         | There is a data mismatch between national data and local data. |
| 3   | Updating Voter List in the Election of Regent and Deputy Regent of Bengkalis | Mariyam (2018)          | Information system disruption, careless employee performance, lack of active participation of the community to check independently in the system. |
| 4   |                                                                       | Putra & Hasanuddin (2017) | The obstacles faced by Sidalih are the negligence of officers updating voter list. |
Regency in Mandau and Bantan Districts in 2015

Realization of an Overflow of Jurdil Elections through the Validity of the Permanent Voter List

Voter Education in Increasing Public Political Participation in the 2019 Concurrent General Election

Implementation of Voter List Collection Policy in the 2013 Malang City Regional Head General Election

Based on the previous studies above, we can find out several things that have become obstacles in using Sidalih so far, which are 1) The quality of human resources; 2) Natural disasters; 3) Inadequacy of population database; 4) Sidalih disturbances that often occur; 5) Lack of active community participation; 6) The number of multiple voters, as well as voters who do not meet the requirements to be registered as proper voters in Sidalih.

**Conclusion**

The implementation of artificial intelligence in the application of updating the voter list has given us many benefits. The General Elections Commission made full use of Sidalih in 2014 when the Legislative General Election was held. In its effectiveness, the use of Sidalih has its benefits because, among other things, it can help organizers effectively recapitulate the voter list, increase the accuracy of voter aggregation appropriately, and able to detect multiple voter lists in other regions. This, of course, makes it easy for organizers to collect data on the public to get their voting rights. Based on previous researches, it was also found that there were obstacles that hindered the use of Sidalih, including the quality of human resources, natural disasters, mismatches of population databases, system and network disturbances, lack of community participation, and the number of multiple voters on the previous voter list. Ultimately, these things hindered the use of Sidalih and did not work optimally in producing a credible voter list.

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