



# Elections And Digitalization: Analysis of Big Data Digital Transformation as A Substantial Democracy Platform

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**Abstract.** Digital transformation analysis has now become a necessity for every agency, both private and government agencies. Data management and analysis are a necessity in projecting the success of an agency. In the struggle for power, data analysis is the base system of a target in the process of winning individuals and groups in a democratic event. The purpose of this study is to comprehensively describe the various processes and forms of output from several existing applications into general information in one door (one-stop application). The method in this study uses qualitative research through a case study approach where this approach is to find out how in all technical mechanisms in the use of applications, the need and accuracy of data for case studies emphasizes the use of big data through contemporary big applications. The results of this study illustrate the conclusion that the characteristics of using applications in analyzing all information in the implementation of elections must be informative, accurate and accessible. In other words, the information presented by the KPU RI must be updated, definitely, measurably and institutionally accountable. As it is known that elections are a place of 'legitimate power struggle' requires accurate data and accessibility because without openness and accuracy the democratic party will become a group battle that leads to the disintegration of the nation.

**Keywords:** Big data, Elections, Digitalization

## 1 Introduction

We deliberately raised this title as a vortex of comparative principles and LUBER electoral democracy. As the basic principle of democracy, namely carrying out direct, general, free, honest, secret and fair elections<sup>1</sup> is the end point of all stages in the ELECTION and PILKADA events. This basic principle is stated directly in article 2 of Law No. 7 of 2017 which is also the limit and area of the implementation of elections in Indonesia. In the election budget, there are three institutions that govern the people's party, namely the KPU (General Election Commission) as the organizer, then BAWASLU (Election Supervision Agency) as the institution that monitors and supervises the democratic process and DKPP (Honorary Board of Election Organizers)

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<sup>1</sup> Law No. 7 of 2017 article 2

which is in charge of controlling the organizers both at the KPU and Bawaslu. The existence of these government institutions is a manifestation of the basic principles mandated by article 2 of Law No. 7 of 2017.

In 2019 the city of Makassar held simultaneous elections. Not only in the 2019 election, Indonesia held simultaneous elections, but the following year, namely 2020, it again held regional elections simultaneously. In accordance with the letter of the Ministry of Home Affairs in 2019 there are 224 regencies and 37 cities and 9 provinces throughout Indonesia that carry out regional head elections both regents, mayors and governors. For South Sulawesi there are 8 regencies and cities that hold regional elections. In the implementation of this simultaneous regional election, the organizers not only faced a new situation, namely simultaneously, but in 2020 Indonesia and almost the entire country experienced an outbreak, namely covid.

The idea of simultaneous elections began with the Constitutional Court decision No. 14/PUU-XI/2013 which determined that the policy on simultaneous elections was based on a lawsuit by University of Indonesia academician Effendy Ghazali and the Civil Society coalition for Simultaneous Elections who submitted a judicial review of Law No. 42 of 2008 concerning presidential and vice presidential elections [1]. From this basis, Law No. 7 of 2017 regulates the election of the president and vice president, as well as the House of Representatives of the Republic of Indonesia, Provincial Parliaments, District/City Parliaments and DPD simultaneously in 2019 and 2024.

In the implementation of simultaneous elections, which is the first time Indonesia has held it, there are various shortcomings in several stages of the process. Admittedly or not, there were several tests faced by the KPU that made the organizers confuse when carrying out the simultaneous elections. These tests are related to paper election patterns, in the sense that the reporting carried out by the KPU ranks up to the Ad hoc level of KDP, PPs and KPPS is to provide reports in physical form (paper) as a valid condition for a report. While we know that in 2019 technological advances have been very qualified so that the pattern of paper elections is a burden for organizers, especially ad hoc workers who have such high intensity.

Still related to reporting, in updating Voter Data also experienced obstacles, namely related to PPDP officers (voter data updating officers) who moved early to get very big obstacles in the field. These obstacles are related to the filling of form A which is so much and the data obtained from DISDUK CAPIL, namely DP4 (List of Potential Residents of Electoral Voters) which is so "chaotic" that PPDP officers are overwhelmed in registering voters, one of the cases that is "always" repeated, namely the existence of a list of voters who have died TMS (inqualified) who are always included in DP4 submitted by DISDUK through the Ministry of Home Affairs. The impact that is felt from this situation is on the recapitulation of the special voter list or known as DPK, namely unrecorded voters in the city of Makassar there are as many as 75,320 people [2]. While we know that voter data is the main basis in carrying out an election. It is said to be basic because the number of voter lists is a barometer in determining the number of ballots, the number of polling stations and a barometer in measuring the level of participation of an election.

According to the researcher of the Indonesian Independent Election Monitoring Committee (KIPP), Andrian Habibi [3] stated that the indicators to assess the success of the election are: 1. The organizer is able to ground the election, meaning that all citizens know the election that will be held and get education and political socialization

about who they will vote for, the aim is to optimize the political "literacy" of the community, especially young voters and the elderly community and the socialization is not only to those who are not disabled but who are also given socialization in ways such as providing special tools such as books Braille printed voter guide so that it can be learned by blind people; 2. All voters are well recognized for their right to vote; 3. Low abstention rate. With the political "literacy" and lack of GOLPUT, the level of participation will increase so that the participation of the people, for the people and by the people is not just a slogan.

The year 2024 is the third simultaneous election after the first simultaneous election of president and vice president and legislature at the level of the District / City DPRD, Provincial DPRD, DPR RI and DPD nationally [4]. Then continued with the simultaneous election of regional heads (PILKADA), there are 224 regencies and 37 cities and 9 provinces both at the provincial / governor and district / city levels, namely regents and deputy regents as well as mayors and mayors and provinces in Indonesia [5].

There were two important points that adorned the simultaneous party, both from procedural mechanism stages and regulations and issues related to the substance of an election of president, governor, and people's representatives at all levels. As a democratic country, elections are an obligation that must occur. Elections are the main requirement of democracy even though the results (elected persons) of elections are unpredictable "predictable procedure unpredictable results".

It also means the technical mechanism of the stages on which the election is based. This technical mechanism has shifted from paper elections to digital voting. The presence of digitalization is not only a mechanism that suddenly appears and is used in elections and (especially) regional elections, but the demand for digitalization is 'mandatory' with the Covid-19 conditions that attack almost all countries. The use of applications, zoom adorns almost every government agency, including the KPU as a leading sector holding elections and regional elections. The pattern of work from home (WFH) became a new habit in activities at that time. The use of 'digital' has long been sounded in KPU regulations including:

PKPU Number 11 of 2018 concerning the Preparation of Voter Lists in the Country in the Implementation of General Elections. Article 32 paragraph (9) related to the stages of preparing the electoral list *of the District/City KPU/KIP submits a copy of the DPT in the form of an electronic original script (softcopy), the Minutes of the Recapitulation Plenary and the Model A.3.1-KPU form in the form of an original text (hardcopy) to: a. Provincial KPU / KIP Aceh; b. Bawaslu District/City; c. Participants in district/city elections; d. Administrative apparatus at the district / city level; and e.PPS through KDP. In addition to the stage of preparing the voter list, there is also a digitization mechanism in PKPU Number 4 of 2019 concerning Recapitulation of the Results of the Counting of Votes and Determination of General Election Results. Article 18 paragraph 1 (one) letter h. copy the recording results on the form as referred to in letter g into the form Model DAA1-PPWP, Model DAA1-DPR, Model DAA1-DPD, Model DAA1-DPRD Province, and Model DAA1-DPRD Kab/Kota; Article 19 paragraph six (6) KDP must submit a copy of the form as referred to in paragraph (1) using the receipt of the Model DA form. TT-KPU to: a. Witness; and b. District Panwaslu. Referring to the articles above, the results of recapitulation at the sub-district level are submitted to witnesses and the Election Supervisor is carried out in*

*printed form. Similarly, the recapitulation at the district / city level, and the province results of the recap in the form of paper printed documents. Based on the author's experience following the recapitulation, it takes quite a long time to duplicate and give signatures and wet stamps on these documents. Digitization can be done by means of the original DA, DB, and DC forms printed in 1 duplicate and copies are photographed or scanned to be sent to the smartphone of each participant present.*

KPU Regulation No. 5 concerning the KPU of 2021 concerning the implementation of the electronic based government system (SPBE) of the general election commission. The Electronic-Based Government System, hereinafter abbreviated as SPBE, is a government administration that utilizes information and communication technology to provide services to SPBE Users. Using technology and information, hereinafter abbreviated as ICT, is an electronic-based technique used by the KPU for the collection, processing and security, dissemination, and use of data and information. The data owned by the KPU as one of the public service institutions has the obligation to collect, secure and disseminate information related to the implementation of elections and regional elections. SPBE Governance is a framework that ensures the implementation of arrangement, direction, and control in the implementation of SPBE in an integrated manner. SPBE management is a series of processes to achieve effective, efficient, and sustainable implementation of SPBE, as well as quality SPBE services. SPBE service is an output generated by 1 (one) or several SPBE application functions and which has a benefit value. Meanwhile, the purpose of SPBE is to improve the integration and efficiency of the electronic-based government system to realize clean, effective, transparent, and accountable governance as well as quality and reliable public services in KPU, Provincial KPU, and District/City KPU.

Thus, it can be understood that the KPU RI manages millions of data and information. It's just that in organizing big data, all applications are partial. With partiality, some applications in the KPU do not make users easier when information is needed in general, but makes it "increasingly" difficult to implement, implement databases, deliver information to both voters and election participants, and so on. Therefore, in this study we propose a problem formulation, namely; What are the characteristics of using the BigApp application in analyzing all information from big data? Second, how is the formation of an application that summarizes all applications in one door (one-stop application) in the 2024 electoral election?

## **2 Research Methods**

This research will be carried out by KPU in South Sulawesi using qualitative research through a case study approach where this approach is to find out how in all technical mechanisms in the use of applications, the need and accuracy of data will be case studies to emphasize the use of big data through contemporary big apps. The case study approach provides reinforcement to researchers to describe the comprehensiveness of various processes and forms of output from several existing applications into general information in one door (one-stop application). This research uses a collection of data both regulations and information in accordance with documents also the author has collected in the form of PKPU, articles related to the use of KPU database applications, and books related to electoral studies, digitalization, and studies on electoral democracy.

The results of research from observations or interviews later the author hopes to be able to be more credible/trustworthy with the support of an integrated database in the election administration system. Researchers use data analysis, such as data reduction, data presentation and conclusions.

### 3 Results

In its development, election organizers, in this case, the KPU RI as a regulator in the implementation of elections and regional elections made 8 applications in carrying out election stages aimed at being informative, valid, easy and measurable. In the use of the application, the KPU RI has created a legal umbrella related to the use of the application. The use of the application is based on KPU regulation No. 5 of 2021 concerning the implementation of the election commission's electronic-based government system (SPBE).

The results of big data analysis have high potential to be utilized in various sectors, both business, government, and including politics as a new strategy in campaigns. The 2000 U.S. General Election was the first election in which half of voters were Internet users, and in that year Internet users experienced a significant increase in Internet use, with one-third of Americans actively searching for political information, news or matters related to campaign activities in 2000 [6]. The situation in America is not much different from in Indonesia. The KPU as a technical implementer has millions of data, both voter data. The domestic voters for 514 districts/cities, 7,277 sub-districts, 83,731 villages, 820,161 polling stations, consist of 101,467,243 male voters, 101,589,505 female voters with a total of 203,056,748 domestic voters in the 2024 elections throughout Indonesia [7]. Meanwhile, the participant data are legislative members of the Electoral Area (Dapil) and the Number of Seats of DPR Members as many as 84 Dapil and 580 Seats, Provincial DPRD as many as 301 Dapil and 2,372 Seats, and the District/City DPRD as many as 2,325 Dapil and 17,510 Seats, bringing the total to 2,710 Dapil and 20,462 Seats [8]. With so much data, KPU is one of the sources of Big Data that can be used in various sectors.

According to Gartner, Big Data is an information asset of high volume, speed and variety that is processed innovatively and effectively that enables improvements in information processing, and decision making. Big Data has three variables or better known as 3V, namely volume, variety and velocity. The volume variable describes a huge amount of data and is growing all the time. Variable Variety, where Big Data is described as a diverse set of data with diverse shapes and velocity describes variable big data refers to the speed at which the data produced is at high speed [6]. Analysis of the definition of Big Data illustrates that in managing big data, technological strength is needed in it. So that innovation and new breakthroughs become a must owned by the KPU Institution.

With the availability of millions of data, the KPU is required to work systematically and accurately. This condition requires the KPU to immediately use technological capabilities in this application. The existing application used by the KPU is the Political Party Information System (Sipol), Sipol is a platform used by the KPU to input political party data, ranging from profile, management, domicile, and membership in the 2024 election. The application serves to assist political parties and election organizers in the

stages of election registration, administrative research, and factual verification of political parties. This system is also created as a tool at the registration stage to verification and determination of political parties to be carried out by the regional KPU. In fact, the application also stores all documents of election participants that will be submitted to the KPU.

The second voter data system (Sidalih), Sidalih is an application made by the KPU to facilitate the updating of voter data. Sidalih has long been used by the KPU as a service for voter collection. Sidalih can detect multiple voters, as well as record voter data in elections and district or city elections. This can be done because Sidalih is based on data on the potential population of electoral voters from the Ministry of Home Affairs (Kemendagri). In addition, the KPU also issued a Sustainable Sidalih which facilitates the management of voter data in the upcoming 2024 simultaneous elections. Based on Decree Number 81 of 2022 concerning the Application of Continuous Voter Data Information System and the Protect Your Rights Portal as a Special Application of the General Election Commission. Sidalih was created to compile, consolidate, update, announce, manage and maintain the Continuous Voter List (DPB).

The third is Silon's candidacy information system (Silon) developed by the KPU for prospective spouses of individual candidates. This application is accessed by an operator appointed as an individual candidate for the input stage and submission of support to the KPU. Silon is also used to facilitate the process of checking data in the 2024 election. Silon can make work effective, efficient and accurate. Starting to be used for verification, checking the multiple candidacy, the process of determining the Provisional Candidate List (DCS), the process of community response to the process of determining the Permanent List of Candidates (DCT).

The fourth is the electronic recapitulation system (Sirekap) Sirekap is used in determining and recapitulation of the results of the vote count at the Polling Place (TPS). This application aims to minimize counting and recapitulation errors made by officers of the Voting Organizing Group (KPPS) at polling stations. Sirekap is also a form of transparency in counting and recapitulation of the results of votes in elections. Where the input process in the Sirekap application is carried out after the vote counting activities are completed.

Fifth, the electoral district information system (Sidapil) or Sidapil is a system developed by the KPU related to electoral districts in elections. The Sidapil application has a dashboard menu consisting of the stages of electoral arrangement, maps and details of the draft electoral system that has been arranged and information on the arrangement of the electoral system set by the KPU RI. In addition, Sidapil also helps and speeds up the process of structuring, assigning and allocating seats. The reason is, this system can compile, manage, map and announce the arrangement of seat allocation.

Sixth is Logistics Information System (Silog) Silog is a special application of logistics provision in order to support the implementation of elections. This application was created since 2008 and has been used in the 2009 Election, 2014 Election, 2015 and 2017 Regional Elections. Silog is made for logistics management by integrating or combining all election logistics management so that fast, precise and real time data can be obtained according to field conditions. Silog also assists in the management of election logistics starting from the stages of planning needs and budgeting, procurement, distribution, as well as maintenance and inventory.

The seventh is the campaign finance information system (Sidakam). Sidakam is an application made specifically related to campaign finance. This application makes it easier for election participants to report campaign funds, ranging from LADK reports, LPSDK to LPPDK. The report is in the form of details of campaign finance income and expenditure. For example, campaign funds in the form of money, goods and services are obtained from political parties, candidates, other parties, individuals, groups and non-government business entities.

The eighth is the KPU member information system and ad hoc bodies (Siakba) is an application that contains the registration process and data management of KPU members and ad hoc bodies within the General Election Commission. Siakba was officially launched on October 20, 2022. Siakba is designed to conduct digital tracking related to election organizer documents. So as to maintain the professionalism of election organizers at the provincial, district / city and ad hoc body levels. In addition, the application also supports the selection of KPU members and the management of data on members of the Provincial KPU, District/City KPU and ad hoc Agency. In general, the use of the Siakba application is contained in PKPU 5 of 2021 concerning the Implementation of an Electronic-Based Government System of the General Election Commission.

Of the eight applications that have been made by the KPU RI, they are independent in their respective divisions so that there have been several impacts with different outputs. Meanwhile, the initial database was only two, namely voter data and party data. These two data are repeatedly inputted in every application in the KPU RI so that it is not easy to implement the application, it is confusing for data collection operators.

In this study, the author emphasizes the mechanism of implementation and output in each application used by the KPU in the 2024 election stage. As is known that digital elections have basically become an obligation and necessity at this time. Manual (paper) reporting methods or patterns must be abandoned because the basis of a report is validation and authenticity in a document. In other words, that digitization of election stages is a necessity for both organizers, in this case the KPU and its ranks, Bawaslu Supervisors and their staffs and election participants, namely political parties. With the availability of detailed and validated information related to the election stages, the value of democracy is higher, in accordance with the slogan "democracy is access", namely the more access, the better our democratic value.

The formation of an application called a big app is a unification of several applications in the KPU. As is known that some of these applications stand partially, so that the impedance of the data base becomes repeated. Bigapp has one database or data source useful as the main source of information presented to voters and election participants. With a one-stop data source, the security, analysis and processing of the data is more valid and accurate. As a basic formation, Bigapp must have a 3SIT component, namely simple = can be used easily by the organizer, Secure is that the application has gone through trials and is confirmed to be safe and share = meaning that the information obtained by the application can be shared with government institutions such as BAWASLU, PARPOL, and the Community. With the realization of 3S, it will obtain 1 T, namely Trust or public trust in the KPU Institution so that democracy in Indonesia is closer to the principles of LUBER and JURDIL democracy.

## 4 Conclusions

From the explanation above, we can conclude that the characteristics of using the application in analyzing all information in the implementation of elections must be informative, accurate and accessible. In other words, the information presented by the KPU RI must be updated, definitely, measurably and institutionally accountable. As it is known that elections are a place for 'legitimate power struggles' requiring accurate data and accessibility because without openness and accuracy the democratic party will become a place for group battles that lead to the disintegration of the nation. This can also be a guide for election participants that only with the accuracy of data, elections will run with the principle of fairness.

Digitalization technology is present as a tool to facilitate human work. In other words, the need for technology in the 4.0 era is included in every aspect of life and human life, including democracy and elections. The use of Bigapp is an application that unites database sources in the KPU as organizers of ELECTIONS and PILKADA. With the same source, the output in each application used in the KPU is measurable and can be accounted for institutionally. With trust in the institution of elections, democracy in Indonesia moves better.

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