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USING VOTE E-RECAPITULATION AS A MEANS TO ANTICIPATE PUBLIC DISORDERS IN ELECTION SECURITY IN INDONESIA

Yusa Djuyandi^{1*}, Ari Ganjar Herdiansah², Intan Nurma Yulita³, Sud Sudirman⁴

^{1,2}Department of Political Science, Universitas Padjadjaran, Bandung, Indonesia, ³Department of Computer Science, Universitas Padjadjaran, Bandung, Indonesia, ⁴Department of Computer Science, Liverpool John Moores University, Liverpool, England.

Email: ¹*yusa.djuyandi@unpad.ac.id, ²ari.ganjar@unpad.ac.id, ³intan.nurma@unpad.ac.id, ⁴s.sudirman@ljmu.ac.uk

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Abstract

Purpose: General elections in Indonesia until the last election were carried based on a manual system and complex checks. This process is always vulnerable to errors and fraud. As a result of these errors and frauds, the election results are always debated and doubtful. The dissatisfaction with general election results which causes security disturbances is an example of political threats and political instability. To fulfill the principles of elections, the presence of e-recapitulation is vital.

Methodology: The method used in this study qualitatively with data sources consisting of primary data, namely the results of observations and interviews, as well as secondary data, namely the results of literature studies and search for documents and articles in the media.

Main Findings: Based on field studies, the efficiency and effectiveness of e-recapitulation are believed to be the solution to current problems in Indonesia. It can be concluded that the use of e-recapitulation must begin immediately in a large scope in all regions of Indonesia to realize better, more effective and efficient general election.

Implications/Applications: The implementation is believed to minimize the emergence of post-election conflicts caused by fraud in the vote-counting process. Free bribery and fraud can be guaranteed in the future.

Keywords: *General elections, political threats, political instability, vote counting process, e-recapitulation, security.*

INTRODUCTION

General elections in Indonesia are held every five years to elect the president and members of the legislative. Indonesia's elections have six basic principles namely direct, general, free, confidential, honest and fair. However, the implementation of these principles is not yet optimal because Indonesian elections are still marred with errors and fraud. We define election errors as those that occur due to the unprofessionalism of the election organizers in their work as well as their low level of skill and expertise. This results in technical errors when organising the voting, vote counting, vote count recording, or during the recapitulation of the vote counting results. Errors in elections can cause a disturbance. As an example, there was an occasion in Depok City where inaccurate vote-counting resulted in chaos and interruptions by a number of political party witnesses during the election organizer's meeting¹. While errors occurred by mistakes or due to unprofessionalism, they are different from fraud. We consider fraud as a deliberate act, often maliciously and arises because of the low ethics and integrity of election officials in pursuit of victory. General elections in Indonesia, including the last one in 2014, were traditionally implemented using a complex manual vote counting, check and recheck system. This opens a possibility for numerous election violations. A research conducted by the IT Academic Forum (FAIT) showed that there were fraudulent actions that affected the results of the 2014 legislative general election. These fraudulent actions include deliberate miscounting of votes by some political parties by forging the C1 forms which were used to record vote counts at each voting stations and used as references during vote count rechecking, also known as vote recapitulation, at subsequent stages².

The vote recapitulation process that rechecks the vote counting results is performed at all administrative levels of government but is always prone to errors and fraud. Although all election officers and committee members are expected and have been sworn to uphold the integrity of the election, they are in most cases the people who are responsible for the many fraudulent activities during the election. The results of this fraud led to a discrepancy in the results of voter data recapitulation at various levels, e.g., between Kelurahan (sub-sub-district) and Kecamatan (sub-district) or between Kecamatan and City. This is evidenced by numerous reports to the Constitutional Court regarding indications of fraud allegedly committed by Camat (Kecamatan Head), Lurah (Kelurahan head) and/or election officers³.

¹ For example in Depok City. As a result of miscalculating the number of votes in the determination of election results at the city level, KPPS in Depok City was attacked by interruptions by a number of witnesses from political parties. "KPPS Depok Dinilai Salah Hitung, Rapat Pleno Dihujani Interupsi [Depok KPPS Assessed False Calculations, Plenary Meeting Facilitated by Interruption]." 21 April 2014. Source: <https://wartakota.tribunnews.com/2014/04/21/kpps-depok-dinilai-salah-hitung-rapat-pleno-dihujani-interupsi> [Accessed on 19 August 2017].

² Source: <https://www.beritasatu.com/politik/195308-potensi-kecurangan-terbesar-ada-di-tingkat-tps-pps-dan-ppk.html> [Accessed on 19 August 2017]

³ Also look at to "Meluas, Tindak Pidana pada Pemilu 2014. [Widespread, Criminal Actions in 2014 Election]" Khairul Huda, pakar hukum pidana dari Universitas Muhammadiyah Jakarta, mengungkapkan masifnya kesalahan-kesalahan tidak masuk akal yang

There are still various malpractices in the election, ranging from ballot concealment, voting termination, manipulation of vote counting at polling stations, and changing the recapitulation of vote counting results, indicating that there are still problems in the implementation of elections in Indonesia. As a result of these errors and fraud, election results are always disputed and are always in doubt. This situation is certainly not politically conducive because it can have a negative impact on political stability and the emergence of conflict. It is not infrequent that in some areas in Indonesia where conflicts and security disturbances arise because of dissatisfaction with the results of vote counting due to indication of manipulation of vote counting. One example of this is the attack on the office of the Ministry of Home Affairs in Tolikara District in Papua. A large group of people who claimed to be supporters of a legislative candidate did not accept the ruling of the Constitutional Court on a disputed election result due to alleged fraud ([Fachrudin, 2017](#)). Another example occurred in Aceh Province where a post-election shooting occurred and was linked to the defeat of a candidate. This was then used by the governor of Aceh as a reason to categorize Aceh as an area prone to conflict ([Andwika, 2017](#)).

The implementation of manual vote counting in the general election is indeed still a problem, and therefore in order to fulfill the election principles, the presence of technology in the electoral process is very necessary. Even in elections that involve many voters with complicated electoral systems such as in Indonesia, the adoption of technology is a necessity. The adoption of appropriate technology is expected to avoid or reduce unintentional errors and fraud made by government officers, participants, election officials.

The form of electoral technology that has never been implemented and can be applied in Indonesia is e-voting, however, the idea of implementing this election technology system is still subject to discussion by practitioners and academics. Opponents to this idea argue that e-voting does not provide any opportunity for check and recheck by the community as is happening nowadays because the vote-counting is only carried out by the election organizers without involving the community⁴. There are other alternative systems that can be used instead. These systems do not eliminate community involvement in the election process. One of such systems is the e-recapitulation system. With this technology, the calculation of the number of votes will be done electronically or even online. This technology is believed to be able to facilitate the checking and rechecking of vote counts quickly and accurately and minimizes any doubts in the election results.

In other countries, the use of information and electronic technology for election purposes is also not new. India, the Philippines, Brazil, the United States, and Australia are countries that implement e-voting systems. Whereas Germany, the Netherlands, and Ireland are countries that have applied but no longer adopt e-voting because it is considered not to provide opportunities for public supervision and can be a source of distrust due to its susceptibility to hacks⁵. Based on this argument, in this study we limit our discussion to the use of e-recapitulation as an effort to overcome security disturbances in elections in Indonesia.

The utilization of technology in the implementation of elections has been investigated by several researchers. One such example is a study conducted by [Apriani, Hamudy, Rifky, and Hadi \(2018\)](#) regarding the village head election using e-voting in the village of Batanghari and the Bogor regency in Indonesia. In this study it was found that manual village head elections (or Pilkades) using paper-based ballot has weaknesses such as voters casting the wrong way, slow vote counting, as well as misuse of the voting invitation letter that should be given only to the legitimate voters. The use of e-voting can facilitate faster, more efficient, transparent and accurate election during voting and vote counting, and is also dependable in the case of result disputes process.

Besides [Apriani, Hamudy, Rifky, and Hadi \(2018\)](#) research on e-voting in Indonesia were also carried out by [Ginting, Sipahutar, and Halik \(2018\)](#) who examined the feasibility of the policy for the use of technology to produce a summary of e-vote result in the 2019 election. The study realized that using the technology for e-recapitulation process is feasible, however, the study also concluded that there needs to be a policy to anticipate the problems that might arise in the use of e-recapitulation technology in the 2019 elections. Regarding the advantages of e-voting itself, a work carried out by [Hsiao, Wu, Liu, & Chung \(2017\)](#) stated that the major advantages of using e-voting compared to the traditional voting, lie in the mobility strength of the former, thus reducing a large amount of election costs and enhancing the convenience for the public. Furthermore, electronic voting systems can also act as the defender of free will and help resist bribery and coercion.

Based on these, it can be ascertained that there are no other studies that have examined the main topic that we are proposing in this paper namely using vote e-recapitulation as a means to anticipate public disorders in election security

menimbulkan kecurigaan seperti surat suara yang tertukar, surat suara yang sudah dicoblos maupun penggelembungan-pengelembungan suara [Khairul Huda, criminal law expert from the Muhammadiyah University of Jakarta, revealed the massive irrational mistakes that raised suspicions such as the ballot papers exchanged, ballots that had been punched or markup]. Source: <http://poskotanews.com/2014/04/20/meluas-tindak-pidana-pada-pemilu-2014/> [Accessed on 19 Agustus 2017].

⁴ "Perlukah Penerapan "E-voting" pada Pemilu di Indonesia? [Is it necessary to implement "E-voting" in Indonesia elections?]" 13 January 2017. Source: <https://nasional.kompas.com/read/2017/01/13/09373191/perlukah.penerapan.e-voting.pada.pemilu.di.indonesia> [Accessed on 9 August 2017].

⁵ Also look at "The Netherlands will count every vote by hand to stop hackers influencing parliamentary election." 2 February 2017. Source: <https://www.independent.co.uk/news/world/europe/netherlands-parliamentary-election-count-vote-by-hand-stop-hackers-cyber-crime-fraud-hacking-a7558701.html> [Accessed on 9 August 2017].

in Indonesia. As a result, we believe that this study has sufficient novelties in the literature.

LITERATURE REVIEW

Electronic Voting (E-Voting) and Electronic Voice Recapitulation (e-Recapitulation)

The poor management of voting in each polling station, starting from the emergence of the issue of authenticity of the vote recapitulation document, which can often be easily falsified ([Surbakti, Supriyanto, & Santoso, 2013](#)), to the impact that can lead to conflict and security issues, has encouraged efforts to overcome these problems. The e-recapitulation system is expected to be able to solve the problem above because e-recapitulation uses technology to calculate the results of voting so the results will be sent directly to the data center in the KPU from each polling station. In addition to better accuracy, if there is an error, by using an e-recapitulation it is also possible to track and retrace the error. In term of security, an e-recapitulation system can be equipped with existing computing security system by the operator ([Andrari, 2016](#); [Biju, 2016](#); [Saahar, Sualman, Hashim, & Mohamed, 2017](#); [Wibowo & Zamzamy, 2015](#)).

E recapitulation is part of e-voting. The need for using e-recapitulation is technically driven by electoral vote-counting procedures which until now have been overly vulnerable to manipulation without trace ([Ginting, Sipahutar, and Halik, 2018](#); [Solihah, Djuyandi, & Rahmatunnisa, 2018](#); [Teng, Quoquab, Hussin, & Mohammad, 2016](#)). [Prasetya \(1997\)](#) considers that the current vote counting procedure does not have an adequate validation mechanism that allows the committee to prove the absurdity of a fraudulent claim. Vote counting also involves a lot of paper documents that can be easily forged, something that an e-recapitulation system can solve.

According to [BPPT \(2014\)](#), e-recapitulation is a method of acquiring, checking and rechecking vote counts of each administrative tier using IT. This system should be part of electoral governance reform, using electronic technology in the election recapitulation process in each polling station. This program can also reduce problems that occur due to human error. Recommendations for using e-Recapitulation aim to produce elections that are more credible, clean, transparent, cheap and easy. It has an important role namely the process of processing, shipping, auditing and displaying the results of the recapitulation of election votes for each polling station (TPS).

Simple electronic voting or known as e-voting can be interpreted as a way of voting through technology or voting machines. [Cenitkaya & Centikaya](#) as cited in [Darmawan, Ikhsan, Nurul, and Evida, \(2014\)](#) state “e-voting refers to the use of computers or computerizes voting equipment to cast ballots in an election”. The use of technology in the voting process first appeared in the 1990s in the United States. At first the presence of e-voting motivated by the rampant manipulation of election results. In other words, e-voting was used as an instrument to prevent vote inflation. Furthermore, the existence of technology in voting is considered to be effective and efficient with various model variants.

[Uzedhe and Okhaifoh \(2016\)](#) pointed out that there are several reasons why a country needs to implement e-voting, which are to prevent electoral fraud and election violence. Based on the case in Nigeria, in every election year, manipulations are made by corrupt electoral officials and as a result, different forms of predictions about possible violence are made.

The electronic voting scheme is derived from the three characteristics of traditional voting, and the security requirements for electronic voting contain the following seven items:

1. Anonymity refers to no one being able to recognize the correlations between ballots and voters.
2. Fairness indicates that no one could acquire or count the temporary votes of each candidate before the election results are announced.
3. Uniqueness allows each legitimate voter to vote only once in each election.
4. Legitimacy indicates that only citizens who are eligible to vote could participate in the election.
5. Verifiability refers to the ability to check that each ballot is correctly counted towards the election results.
6. Mobility shows the advantage of ubiquity that voters could vote online anywhere.
7. Non-bribery and coercion refer to voters with free will being able to elect the ideal candidate, without being coerced and bribed ([Hsiao, Wu, Liu, & Chung, 2017](#)).

Security

Security disturbance is one of the major problems that often arise every time an election is held in Indonesia, either at national or regional level. The mass protests against alleged vote-counting fraud are born from a sense of worry for some other people, the reason was not infrequently that the action led to clashes of two camps and caused security disturbances. According to [Born et al. \(2003\)](#), threats to security can be caused by four reasons namely 1) political threats such as political instability, terrorism, and human rights violations, 2) economic threats such as poverty and wealth gap, and 3) environmental threat which can be both natural or man-made, including nuclear disasters, food shortages, global environmental changes, etc. Based on this, therefore, we argue that the dissatisfaction with general election results which causes security disturbances is an example of political threats and political instability.

Simma as cited by [Born et al. \(2003\)](#), defines security as an action taken to fight an attack that originates in society. According to Simma, based on Article 41 and 42 of the UN Charter, the act of maintaining security is aimed at fighting the pressure carried out by the peace breaker. In Simma's perspective, any mass protest that leads to riots can disrupt security, and therefore the rioters need to be opposed. However, efforts to fight the pressure of the peace breakers certainly need to be done by the state, because the state has legal power and power.

When security is interpreted as an effort to counter pressure by certain parties (from within) who want to create unrest or unsafe conditions, it can also be perceived as freedom from difficulties or a peaceful situation without any danger or threat (Liota PH as cited in [Prihatono, et.al. 2007](#)). Likewise, with [Mydske and Peters \(2006: 100\)](#) which defines security as a condition of loss of threat, which appears to fulfill collective/public needs.

METHOD

The method used in this study is qualitative with data sources consisting of primary data, namely the results of observations and interviews, as well as secondary data, namely the results of literature study and search of documents and articles in the media. The first stage of the study was to collect primary and secondary data and then reduce the data by selecting relevant data. The second stage is, from the data that has been reduced then the mapping and collection of documents and studies are carried out to identify patterns, actors and recommendations that arise. Stage three is the analysis of the data that has been mapped and compiled so that the resulting discussion descriptive narrative.

DISCUSSION

Development of IT in Indonesia has increased rapidly in the past ten years due to the soaring number of adoption of electronic devices and widening access to the internet at affordable prices. The rapid development of information technology utilization at this time can be seen from the pattern of life of Indonesian people who began to be inseparable from technological devices such as: smartphones and notebooks / PCs. Changes in lifestyle have also been brought to digital life direction, where all information wants to be accessed rapidly through technological devices, including the start of the desire of the community to the calculation of electoral votes can get out quickly and accurately.

Technology utilization for the election is not just limited to its use for polling and counting, but also in the phases of preparation and evaluation. In the case of the technology, the e-recapitulation process can assist in planning and monitoring the counting of the number of ballots from all polling stations so that cases of vote inflating or counting ballots that sometimes differ in number can be avoided.

Maximizing the role of technology, in general, is not considered difficult. The KPU can use technology to facilitate the process of organizing elections as many election monitoring institutions use technology to monitor whether there are violations in the electoral process.

Legal Basis of Election Technology Use

To avoid controversy in the implementation of elections, it is necessary to have a law that regulates the use of technology-based devices. In the 2004 election, for example, the commission's decision to count recapitulation as acquired by IT is not good. Although the KPU repeatedly asserted that the calculation with IT will only serve as a control tool for the recapitulation of tiered manual counting from TPS, PPS, PPK, Regency / City KPU, Provincial KPU, and KPU, its presence was still questioned because it was considered as a disruption to the official manual vote counting and recapitulation. Even though the vote counts with IT succeeded in fulfilling the public's curiosity about the election results, the results of the counting were still suspected of being the engineering of the organizers to win certain election participants.

The problem becomes more complicated when with different technologies, the KPU organizing the 2009 election failed to show the results of vote counting with IT. The recapitulation of vote counting with ICR technology failed because the number of votes collected in the legislative elections did not even reach 30% of the total votes. This resulted in the system being discontinued in the subsequent presidential election. This is a failure at many levels considering the high cost of the equipment that was specifically procured for this purpose as well as the bad publicity it created. With this failure, the nation's desire to be able to check election results in real-time from the official source is dashed. Instead, they have to rely on the many quick count results that some survey and polling companies conducted.

The impact of these failures also gave rise to a negative response from legislators. Any subsequent proposals to put vote e-Recapitulation using IT into law were met with large skepticism. Policymakers in the DPR still do not fully believe that the presence of technology in voting and counting can facilitate the electoral process. They do not believe that the presence of technology can realize the six basic principles of elections. Notably, the Law No. 8/2012 on the general elections of members of the DPR, DPD, and DPRD does not mention technology fees and vote counting. This problem would have been avoided if the pilot implementation of the e-Counting and e-Recapitulation went well and received public trust. In that scenario, Indonesian legislators would have little problems in adopting it to law for subsequent elections. Nonetheless, without a legal basis in the law, the application of technology in voting and counting will not get legal certainty and is always questioned.

Indonesian Constitutional Court is, however, more receptive to the use of technology. A decision by the Constitutional Court No 147 / PUU-VII / 2009 encouraged lawmakers to include provisions on the use of technology in the stages of voting and vote counting. As a result, Law No. 1/2015 in conjunction with Law No. 8/2015 were approved that regulates the implementation of elections: Article 85 (1) the voting for elections can be done by:

- a. Give a one-time sign to the ballot; or
- b. Vote through electronic voting equipment.

Article 98 (3) also states that in the case of voting carried out by electronic means, vote counting can be carried out either manually or electronically or both. Article 111 (1) states that the mechanism for calculating and recapitulating the votes manually and/or using the vote-counting system electronically is regulated by KPU regulations.

Of the three articles governing the use of information technology in polling and counting votes, it can be concluded that 1) The election law provides legal framework of using e-voting, in addition to the old way of voting for ballots, and 2) When voting is done electronically or e-voting, vote counting can be done either manually or electronically or both; and 3) Further provisions regarding manual and/or electronic calculations are regulated through KPU.

Indonesian Law No. 1/2015 in conjunction with Law No 8/2015 becomes a strong legal basis for the use of information technology in voting and counting. This is the basis for election organizers to prepare everything related to the use of information technology in voting and counting. The use of information technology in the voting and counting should be preceded by in-depth study, various tests, as well as the readiness of equipment, staff and the community. Based on this, this research will also discuss how the mechanism for using e-recapitulation information technology and what is the effectiveness of the use of information technology.

Application E-Recapitulation in Elections

Application of technology in Indonesia's election is not new. In the 2004 election, the KPU has begun to introduce information technology calculations. In the implementation of the system, the results of vote counting at each polling station (Form C-1) is entered to a computer system at the PPK Secretariat and then sent to the KPU database in Jakarta. Despite experiencing some technical constraints, the results of data transmission achievements in that election were quite high reaching 81 percent of the total number of votes cast⁶. The calculation of information technology is indeed not yet the basis for determining the votes and seats of political parties, but their presence can be used as a means to control tiered manual counting from TPS, PPS, PPK, regency/city KPU, provincial KPU, and central KPU. The calculation using information technology is also able to fulfill people's desire to know about the election results.

During the 2009 general election, the election commission applied a similar system but the result was poor. The system only recorded 28% of the total votes in the legislative elections⁷. This became a bad precedent which later cancelled the use of e-recapitulation in the presidential election. With this is also lost the country's hopes to be able to view and check election results quickly and in real-time.

Ahead of the 2014 election, the election commission's preparation to use IT technology is in fact very solid. Although there is no strong legal basis, the KPU was aware that the use of technology can help the process of carrying out elections in a superficial and fair manner, then the KPU perfected the Voter Registration Information System (Sidalih) and Logistics Information System (Silog) which had been pioneered in the previous elections. The Commission also made an Application Programming Interface (API) KPU, Political Party Information Systems (Sipol), and the Informa System Counting (Situng)⁸. However, all there were still plenty of issues with the systems resulting in the problem mentioned earlier.

One of these was objections to Sipol by political parties because they considered there was no sufficiently strong legal basis for its implementation. As a result, the role of Situng was replaced by a simpler internet technology application model but the accuracy was guaranteed. There is no vote counting, but the general public can count on their own. The method is by scanning the results of the vote count at the TPS (Form C-D1) then the results of the scan are published on the KPU website (www.kpu.go.id).

The KPU's decision to publish a Form C-1 is a matter that should be appreciated because, in this way, the commission has put the principle of transparency at the forefront in the vote count, and also allows anyone to check the truth of the results of counting at each polling station. With the publication of the scan results of Form C-1, the public can participate in checking the correctness of the scan for Form C-1 so that it can be known the results of the calculation of accurate voice acquisition. One community group that is concerned about the results of the Form C-1 scan is Guarding Elections.

⁶ "Ini Penerapan Teknologi e-Rekapitulasi BPPT Secara Nasional [This is the Implementation of National BPPT e-Recapitulation Technology]." 23 May 2014. Source: <https://www.bppt.go.id/teknologi-informasi-energi-dan-material/1985-ini-penerapan-teknologi-e-rekapitulasi-bppt-secara-nasional> [Accessed on 20 August 2017].

⁷ Ibid

⁸ Look at www.kpu.go.id

Calculation results conducted by "Kawal Election" can be a comparison with the results of the KPU official count⁹. However, this election guard was carried out only in the election of the president and vice president. Source: election guard, 2017.

However, despite all the efforts made by the KPU to improve and improve the quality of elections through the use of technology, so far the use of technology in elections does not have a legal basis that can legalize it. The political party's objections and the emergence of a debate over the planned use of technology in elections, especially in voting and counting, are still an obstacle to the legality of using technology. Based on experience and failure when trying to use vote counting technology in the 2009 elections and 2014 elections, careful consideration is needed to develop electoral technology. Therefore, the use of technology in the election so far needs to be evaluated thoroughly in order to formulate the right policy, and so that later the election can be more qualified.

The use of e-recapitulation is an important part of the modernization of the electoral system in Indonesia. In this context, as with general social modernization, the aim of implementing e-recapitulation is a form of transformation from a manual system that is assumed to be not so effective and expensive, towards an accountable, effective and efficient system. This is based on the consideration of aspects of effectiveness and efficiency so that it is expected to be one of the drivers of the creation of a more advanced and prosperous society. In addition, the demands of the times always overshadow the manual system transformation towards electronics, so the use of technology becomes a necessity.

However, the use of technology does not necessarily easily apply, of course there are various complexities that accompany it. The author assumes that along with the progress of time, as well as the use of various information technology used by the government in me achieve better governance, the electoral system must be forward-looking using capable and mature technologies that can minimize the problems that occurred in the manual election system. The complexity of the problems that occur in the manual system, including the calculation and recapitulation of the results of the ballot. Therefore, the use of technology, in this case, should have been able to address human error that occurs in these stages.

Furthermore, if examined more deeply we need to see the use of e-recapitulation in Indonesia, based on its substance, whether it is contrary to the principle of the election, then in the context of the al procedure, whether it is contrary to the procedure or legal provisions that have been used. In addition, as a nation that is diverse and rich in culture, we need to see the cultural aspects that exist in each region. After that, we need to convince the public that the use of such technology initiated solely for the common good, not for the sake of a handful of groups who use the idea for their own benefit. Furthermore, into our discussion together about the description of the actual provision of e-Recapitulation as one of the participating systems that support conducive general election, so it can take place in an honest, fair and secure.

The principle of elections in Indonesia, namely direct, general, free and confidential. Thus, the application of e-recapitulation technology must be able to guarantee that nothing is contrary to the principle of the election if the technology is used. Conceptually, its use is to guarantee the six basic election principles. Thus, in this case e-recapitulation acts as a tool to support the effectiveness and efficiency of an election event. Implementation of the general election can still be done directly and publicly, targeting the voters to freely determine their choices, and ensure the confidentiality of their choices.

Modeling e-Recapitulation technically should be able to describe to the public, that the application of this technology does not decrease the substance or the principles of the election. This technology is an effective means to process the results of the counting of ballots at polling stations, which are then accumulated as the level, continue to cascade from PPS to the KPU RI. Thus, the application of e-recapitulation strengthens the purity of the results of the vote acquisition recap at TPS. Unlike the case with e-voting, which plays a role since the voting, e-recapitulation plays a role to manage the results of the vote at the polling station, until it is accumulated to various levels. Even the use of this technology could significantly reduce human error in the process of calculating the accumulated noise, but it can prevent various interests to commit fraud that tends to happen during vote counting meetings at various district levels. However, we also need to note that the process still requires all election officials to be honest and fair when entering the data to the computer system. And subsequently, the data must also be secured to avoid tampering by third parties.

From the procedural point of view, the use of e-recapitulation does not conflict with what has been mandated by the Act on the General Election Commission (KPU). Researchers are of the opinion that the legality of the application of e-recapitulation in the elections is sufficiently strong. We argue that based on the principle to realize better, more effective and efficient elections the use of e-recapitulation must immediately begin in large scope in all parts of Indonesia. Indonesia can still learn from adopting this technology even if its implementation is below expectation. The discussion in this context will be discussed more closely in the sub-chapter of Vote Counting Methods in Elections. We should emphasize that as soon as all the requirement to implement the technology are met, Indonesia should use the system as the main system to conduct election and not just as a checking mechanism to the manual system.

In addition, in the procedural context, the application of e-recapitulation in the recapitulation process must have a clearly structured mechanism. As well as providing access to the public, especially those with an interest and participating in

⁹ <http://www.kawalpemilu.org/#0>

overseeing the recapitulation process until its endorsement. If this is used, it will certainly reduce the manual recapitulation stage which can take up to three more days at the KDP level only. After inputting the voting data from all polling stations has been collected, the data can be accumulated directly according to the level through this technology. If we need urban data, the data can be easily accessed. Likewise, if the data needed is at the sub-district, district/city or even provincial level. But what we still have to discuss in depth is the technical matter of ratifying the results of the accumulation of votes that have been generated by the e-recapitulation program. Is the procedure of the ratification using the mechanism of a plenary meeting attended by witnesses and the supervisory committee still necessary? As for this matter, the author agrees that the stages of ratification are not through PPS or PPK. Instead, the PPS and PPK have the duty to input data and guarantee the truth of the data collected.

If technology is the main issue, the system needs to be supported by a mature facility and infrastructure throughout Indonesia. In addition, in order for the operation of these facilities to run properly, an operator or officer who understands how to use the program is needed. Practically, however, human resource often becomes obstacles. As is the case, based on the writer's observations on the 2018 Regional Election Commission KPPS recruitment in the city of Bandung, which can be relatively said to be quite advanced.

However, the minimum education requirement that must be possessed by prospective KPPS members in high school. This had become quite a contentious issue in the KPPS based on the fact that people with higher education tended not to be interested in joining KPPS members. In addition, the recruitment process of KPPS is often based on recommendations from the Chairperson of the RW (Rukun Warga), although this is the authority of the PPS. Thus, in almost every period of the implementation of the General Election, the people who are members of the KPPS are people who are relatively close to the RW.

However, on the other hand, there are cultural problems that we must look at together, in the process of applying e-recapitulation technology. The application of the latest technology does tend to be appreciated by millennials, but earlier generations need to adjust to the situation. In addition, elections in Indonesia attract a variety of conflicts, because there are variety of interests that are in the mix. The manual electoral system is carried out by involving many parties so that there is a 'welfare distribution' there, the process involving many parties will increase the income of every interested people attending a manual recapitulation forum, from the witnesses to candidates or political parties, to various logistical support personnel. This is compared to if only through a system that can reduce the role of the community in the election's purpose. It is conceivable if the manual system is completely transferred to the e-voting system, then certainly there will be resistance from various parties. One of the reasons is that the purpose of e-recapitulation is efficiency, in addition to the effectiveness of the time of recapitulation, but the government needs to change the mindset of the community, especially for those who seek 'profit' in the momentum of elections.

Then, in addition to considering the substantial, procedural, and cultural aspects, in the process, the government must build political consensus among the elements of the executive body, that the transformation and modernization of the electoral system must be carried out. And, no less important is the consolidation between legislative members regarding this matter must be built, because they are the ones who can provide legal provisions regarding the electoral system in Indonesia. Therefore, every legislative and executive element needs to reach an agreement or political consensus which modernization of the electoral system in Indonesia needs. After that, the consensus must be agreed upon by the election organizers, be it the KPU, Bawaslu or DKPP. Synergy is needed so that the implementation of the transformation of the general election system can be supported by various parties.

The application of e-recapitulation or other policies must be made carefully, as ideally a policy is made with the aim of public interest. The complexity of the problems that exist within the scope of the election must continue to be inventoried and find the best solution to solve them. If e-recapitulation is seen as a new step in the modernization of the electoral system in Indonesia, it is as ideal as possible for us to formulate, through a thorough study. In addition, this should not even destroy the image of the procurement of the system, as in the-KTP project. E-recapitulation technology must be designed as effectively as possible, and easy to operate and not easily hacked by irresponsible people. In addition, technicians, in this case, must be able to guarantee that errors in data input must be minimized so that the accuracy of the calculation results will be even greater.

Then, the organizers must be able to guarantee that through certain arguments, e-recapitulation technology aims to benefit everyone, not only the interests of a handful of groups. The process must be carried out by parties who can account for the public trust and experts who execute the process while remaining accurate and reliable. Do not let in the process the program be tainted with corrupt practices. In addition, the system created must be able to facilitate the recap process, not even make it difficult and confuse the officers who input the data. As an example of the author's observations in the 2018 elections, in West Java there are two applications for updating the data, the first is Sidalih made by the KPU RI, then the second is Sicoklit made by the West Java Election Commission, precisely implemented in Bandung City. In the process, updating the data uses more Sicoklit applications, but often refers to a variety of criticisms from the voter data operators from various sub-districts in Bandung. One of the obstacles is that the data updating process is accompanied by the development of the application many times in the name of increasing effectiveness, but in fact just adding more work to the data updating officers. This is because applications that are not fully prepared are forced to be used.

The main urgency of implementing e-recapitulation in this election is effectiveness and efficiency, and how the conflict of interest in elections can be minimized so that the implementation of elections can be carried out safely and conducive. Then, after discussing matters relating to the dynamics that exist in the process of implementing e-recapitulation. In the next sub-chapter, the author describes the matters relating to the method of counting the votes. This is related to where the location of e-recapitulation can be a priority in the recapitulation process, or only as a comparison of the results of recapitulation.

Election Vote Calculation Method

Since the 1955 election until the 2014 election, both for legislative and executive elections, the same method of counting has always been used. First, vote counting at polling stations, namely by opening one by one the ballots that have been cast off by voters, but also mentioning one by one the vote acquisition of political parties or legislative candidates on the big board and Form C-1. The results of checking the ballots are written on the Plano C-1 sheet, then after all ballots are counted, KPPS officers rewrite the form on a formal C and C1 form (with hologram) and made several copies. After being rewritten, all KPPS members and witnesses signed the files. The vote-counting process is not only attended by KPPS officers, TPS Supervisors, and witnesses, but also open to the public, voters, and election observers.

Second, the recapitulation of the results of vote counting in stages, from PPS, to PPK, to the regency/city KPU, to the provincial KPU, and to the KPU. Here the results of the vote count in the TPS (Form C-1) are recapitulated at the PPS, the results of the vote count in the PPS are recapitulated, the results of the PPK vote count are recapitulated at the regency/city KPU, recapitulated in the provincial KPU, and the provincial KPU vote count results were recapitulated at the KPU. If the election is for district/city DPRD members and regent/mayor regional elections, the recapitulation stops at the regency/city KPU, if the election is for provincial DPRD members and the governor's election recapitulation it stops at the provincial KPU. Only in the elections of members of the DPR, DPD, and presidential elections, recapitulation continues until the KPU at the central (national) level. In the 2018 regional election, a simplification of the recapitulation of the results of the vote count was made, which was initially from the polling station then to the PPS and then PPK, and later. Now the recapitulation process starts from TPS then to PPK, this is nothing but aiming to minimize the political interests of irresponsible people who tend to direct or influence the organizers to cheat, namely changing the results of the votes or political parties' votes.

The results of the recapitulation of the vote count of district/city DPRD members and regent/mayor regional elections were then determined by the regency/city KPU as an election result, followed by the determination of elected candidates based on the voting formula and the determination of elected candidates. Likewise, the results of the recapitulation of the votes for the provincial DPRD elections and the gubernatorial election were determined by the provincial KPU as an election result, followed by the determination of elected candidates based on the formula for obtaining seats and the determination of elected candidates. The same thing also happened in the election of members of the DPR, DPD and the presidential election. The results of the national recapitulation are determined as the election results, then followed by the determination of the selected candidates based on the formula for obtaining seats and the determination of elected candidates.

Tiered vote counting, starting from the polling station, the recapitulation of the vote count results in PPK, Kabupaten / city KPU, provincial KPU, and KPU, requires a long time. Election results can take more than four weeks or more to be announced. This is where the presence of technology is needed to speed up the process of counting a beacon so that all parties involved in the election will immediately know the results. Not only that, the counting of votes in stages opens a space for fraud and manipulation of vote counting so that the presence of technology is expected to be able to close it.

Problems in this context, the use of e-recapitulation will reduce direct participation and supervision carried out by witnesses of candidates or political parties, Election Supervisory Committees, and the general public. If you see a pattern that is done manually, it starts from the counting of ballots at the polling station, which is then copied in the certificate of the results of the vote count, namely forms C and C1. The results of the calculation are the recapitulation agreed upon by the witness and the TPS Supervisor. Furthermore, the important documents are entered into a sealed ballot box, and sent to the Voting Committee (PPS), after the ballot box is collected from each polling station in one kelurahan, PPS takes copies of the model C from outside the sealed ballot box. For PPS, and other files submitted to PPK (Sub-District Election Committee), namely the form of the C-1 model for PPK, for Scan KPU data, and for the kabupaten / Kota KPU Regency archives. Then, the sealed ballot box was sent to PPK to then recapitulate the sub-district level. After that, PPK sent three ballot boxes, one of which contained a collection of C-1 model forms from each polling station in the sub-district.

The file outside the box is in KDP, then submitted to the Regency / City KPU to scan the results of the vote count at the polling station. This is one of the e-recapitulation methods carried out by the KPU. This activity is carried out to determine the temporary results of a collection of C-1 model forms from each polling station quickly, without having to wait for a tiered recapitulation from the Plenary Meeting on the determination of the KDP level results. Based on the author's observations of the implementation of this in the city of Bandung, the scan of the C-1 model experienced several obstacles. First, the process of collecting copies of the C-1 model form from the polling station level to KDP was often incorrect. The author assumes that when KPPS officers carry out Bimtek (Technical Guidance) on the implementation of Tungsura (Vote Counting) is not taken seriously, due to many factors, namely the timing of Bimtek implementation with voting day is very

close, besides the number of participants who follow and the material delivered the Bimtek makes the activity not conducive. Furthermore, the guidebook was not given in advance when the KPPS was inaugurated, and the guidebook was only given to two people from seven KPPS members, so that many did not read the guidebook, only based on the experience of the members in holding elections (if members The KPPS had previously participated in a similar activity). Thus, KPPS officers do not remember things that should be stored in boxes and outside the box. So that a copy of the C-1 form that should have been out of the box, and distributed to PPS, PPK, and Kab / City KPU became non-existent. Witnesses and TPS Supervisors (P-TPS) at the polling station generally do not have insight into things that should be inside and outside the box. Thus, PPS members must recall the problematic KPPS members as well as being witnessed by the PPL (Field Supervisory Committee) in the kelurahan, to retrieve the files left inside. This can hamper the process of collecting copies of the C-1 form which should immediately be sent to the Regency / City KPU after all the boxes have been collected in the PPS, one day after the voting day.

Secondly, mistakes are often found in filling out the form model C-1, even to write the number of clear ballots in accordance with the number of DPT at the polling station plus 2.5% to replace the damaged ballots and mistakenly still found errors. According to the author's observations, this could be due to KPPS members being tired after working for the full day before the election day and having to wait for the arrival of logistics from the PPS. Besides, problems were often found that election logistics were not as timely as expected. That the logistics of the KPU of Kabupaten / City KPU should be sent to PPK is five days before the election, then set by PPK to be sent to PPS three days before the election, then set back by PPS to be sent to the TPS one day before the election. The fact is there is still there new logistics arriving during the election eve to the PPK which require them to immediately distribute to PPS and TPS. Thus, polling station officers must standby waiting for the arrival of logistics until late at night. After that, at 7 am, the KPPS must have opened a polling station, and carried out the voting process until 1:00 p.m. After that the ballot counting was carried out, in this process, of course, there was a dynamic between KPPS, witnesses, and also P-TPS. In addition, more than one election event, namely Pilwalkot (Mayor and Deputy Mayor Election) and Pilgub (Election of Governor and Deputy Governor) increased the level of difficulty and drained the concentration of KPPS members. So it is not uncommon for us to find that the process of counting and completing administration takes up late at night.

The number of forms that must be filled out by KPPS is quite excessive. Copies of the C-1 form alone must be distributed according to the number of candidate witnesses who participate. Using an example during the Bandung and West Java Province elections in 2018, KPPS officers must fill in one holographic C1 model form to be included in the Governor Election box (Pilgub), then one holographic form to be included in the Mayor Election box (Pilwalkot). Each of the Pilgub and Pilwalkot plus eight copies are for the Witness of each candidate, PTPS, PPS, PPK, Regency / City KPU. In addition to the holographic forms along with copies, the polling officer must fill in the other forms, namely the types of model forms C2 to C7, plus the obligation to participate in inputting the data needed in the Sitagis application. Thus, the potential for human error is very large, even during the scan process carried out by the Regency / City KPU, many errors were found in writing the results of the calculation data. It is conceivable if these errors continue to occur, then in the implementation of Pileg (Legislative Election) and Presidential Election (Presidential Election) which presents five boxes in each polling station, namely the Presidential Election Box, DPR, DPD, Provincial DPRD, and Regency / City DPRD, the potential human error will get bigger.

These constraints make the process of collecting copies of the C-1 model form a long time ago, not even one hundred percent can be collected from the target of collecting two days after the election day. Thus, several strategic steps need to be taken, namely by simplifying the forms that must be filled by polling station officials, then the recruitment of KPPS must be filled by people who are committed, have integrity, and understand the technical order of the election at the polling station level. In addition, the level of welfare of Election Organizers at the KDP level to KPPS must be increased, this is to encourage motivation and participation of more qualified people, to join as election organizers. Then, KPPS coaching must be done carefully and deeply, strived far from the day of the election, and the method used is a simulation, not only using the lecture method, which is relatively not easily remembered. So even with the instruction manuals and videos of the implementation instructions, it must be immediately socialized to KPPS, after they are inaugurated, generally H-30. In addition, efforts are made to find out things that must be in the box and outside the ballot box, the instructions are attempted to stick to the ballot box, so KPPS officers can see it clearly. This also needs to be balanced with the knowledge of the P-TPS and also the witnesses, the Panwascam (District Supervisory Committee) and parties must provide education to their members who are participating in the polling station to know the technical details of the election at the polling station.

Our discussion regarding the efforts of the Bandung City Election Commission in simulating the e-recapitulation is the basis for debate whether or not e-recapitulation can become the main means for vote recapitulation. In addition, in the process of manual recapitulation, both in the PPK, as well as the Regency-City KPU, and subsequently continue to be tiered, according to the level of the general elections held, this requires participation from various parties, especially witnesses from political candidates Election Supervisory Board and the community at large. There are many things that must be addressed in order to be able to apply this as a whole. However, if we leave the opportunity to continue learning in realizing the transformation of the electoral system, then it is quite detrimental. Thus, although the manual system is still ongoing, the implementation of e-recapitulation must continue to roll in every momentum of the election, even if it is only

a comparison. But along with the process, the organizers must continue to evaluate and formulate the best patterns in the use of these technologies.

Many benefits can be presented by the application of this e-recapitulation system, especially from the context of effectiveness and efficiency previously explained by the author. This nation must continue to learn to improve itself by repairing damaged systems, and the quality of human resources needs to be improved, especially for those who are members of the election organizers. In this context, the momentum of elections is a means of realizing people's sovereignty, as well as a means of choosing people's leaders both in the executive and legislative institutions, at the central and regional levels. Therefore, the holding of elections must be carried out with full integrity and in accordance with its principles. Thus, as a manifestation of the contribution of the research team to realize the transformation of the recapitulation system for the better, then in the next discussion, the researchers describe matters relating to the proper e-recapitulation modeling in Indonesia.

Using Vote E-recapitulation to Minimize Potential Conflicts and Security Disorders

Election problems so far as mentioned earlier occur at all stages of the vote counting and recapitulation process. But most people believe that the majority of the problem occurs at the start i.e., during the voting and counting. With the e-recapitulation, the process of vote counting will be faster and more precise, so that it is expected to minimize the emergence of potential conflicts and security disturbances caused by public distrust of the manual recapitulation process. So far, manual recapitulation which is considered to be time-consuming, vulnerable to noise reduction, this condition often results in protests which lead to damage, conflict between supporters of the masses, and disruption of security.

Based on data released by [Perludem](#) (2017), there are several incidents of violence and conflict in the elections that take place at the recapitulation stage of the vote count, as listed in the table below:

Table 1: Incidents of Violence and Conflict in the Elections 2017

Date	Area	Stage	Election Type	Conflict results
24-26 February 2017	Kab. Intan Jaya, Papua	District level vote recapitulation	Regency Election	<ul style="list-style-type: none"> • 4 people died • 600 people were injured by arrows and stone throws • 3 houses were burned • A number of residents fled to Timika and Nabire • The Intan Jaya KPU office was damaged
1 March 2017	Kab. Puncak Jaya	Recapitulation of votes	Regency Election	<ul style="list-style-type: none"> • Four people died including a soldier
25 February 2017	Kab. Maybrat, Barat	Recapitulation of votes	Regency Election	Wounding of the Maybrat KPU chief
26 Maret 2017	Kab. Yapen, Papua	Recapitulation of votes	Regency Election	The Yapen KPU office was burned by a group of people to thwart the plenary recapitulation of the regional head election.

Source: [Perludem](#), 2017.

Based on other studies, it was found that there were two other regions which were also turbulent due to dissatisfaction with the results of the vote counting which also led to the emergence of security disturbances. The two elections were Tolikara Regency, Papua, which did not accept the decision of the Constitutional Court (MK) on the results of the elections and then attacked the Ministry of Home Affairs ([Fachrudin, 2017](#)), and the Aceh local election (Pilkada) which was marked by post-Pilkada shootings caused by the defeat of the candidate ([Andwika, 2017](#)). The loss of life, injuries and damage caused by dissatisfaction with the results of vote counting ultimately resulted in the democratization process being tarnished, the regional head election conflicts that occurred in 2017 were expected by several informants, such as the Election and Democracy Syndicate (SPD), Indonesian Parliamentary Center (IPC) and Police, do not take place in 2018 regional head elections or even in the 2019 legislative and presidential elections¹⁰.

Any conflicts, both on a small and large scale, originate from the dissatisfaction with the results of vote counting has become the attention of the election organizers, both at the central level to the regions. Based on the results of the focus group discussion conducted, many informants from the KPU supported the desire to be able to implement e-recapitulation

¹⁰ Researcher's statement on Election and Democracy Syndication (SPD): Erik Kurniawan, Researcher at the Indonesian Parliamentary Center (IPC): Arbain, and Polsight Researcher: Yughi. The statement was given at the time of the FGD on 5 May 2018.

technology as a mechanism to calculate and accumulate voter votes. This technology is believed to have more security guarantees in the midst of concerns over the involvement of individuals in manipulating the vote-counting process which then results in dissatisfaction with the candidate pairs of regional heads or political parties. However, it is undeniable that the concern about the weakness of this system will ultimately make political decision-makers in the DPR still delay the use of e-recapitulation technology in elections¹¹.

Security guarantees at the time of the holding of elections are a priority and have become a very important matter because in some elections (including local election or Pilkada) dissatisfaction with the process of vote recapitulation often results in conflicts that disturb the community. Often the police are required to map and identify areas that are prone to conflict and have high potential for fraud in every election, especially in Papua¹². Efforts made by the police are to avoid fraud which results in the emergence of political tensions.

The application of e-recapitulation technology is different from e-voting, although e-recapitulation technology will be applied as the main system in calculating the number of votes. The system will be able to accommodate public participation and performing check and recheck of the election results. Public participation related to the results of this election began since the Legislative Election and the President in 2014. The KPU as the election organizer opened C1 scan data to the public online. Through the data opened by the KPU, the public can check the results of the election directly, this method can counter any suspicion from party witnesses or even presidential candidates of potential fraud in vote counting. In some cases, if this suspicion is not taken care of by the KPU, it can potentially lead to conflict.

The opening of the C1 scan data since the 2014 election has produced several examples of direct public participation such as Kawal Pemilu which later continued on the implementation of the 2015 elections namely Kawal Pilkada. By opening the C1 scan to the public it will expand the use of technology phrases in the elections that were previously limited to the use of technology by election organizers to the use of technology in the supervision of elections conducted by the public.

Kawal Pemilu and Kawal Pilkada are the best examples in the implementation of technology use in monitoring election results, although since the 2014 General Elections there have been many best examples of users of technology as part of community participation, such as Election API as an example of technology-based election socialization that helps the public know who is the candidate, then the eyes of the masses who help supervise election violations. Kawal Pemilu and Kawal Pilkada are born from the openness of the KPU itself which uploads C1 scans online where they use web-based technology that invites the public to participate by examining C1 scans at polling stations in their respective regions.

Basically, the conception of security can be interpreted simply as a situation where we can feel free from all kinds of threats that can disturb or harm us. Even so, in this context, security in the general election event is to provide a conducive and fair feeling in the conduct of elections. So that any element, both organizers, participants, and the general public can see the political contestation as a competition between candidates or a fair political party. All of them are given the same opportunity and stage, with the same rules, where no one is privileged. Based on the agreement of the rules of the game, one party is not permitted to carry out anarchic or violent actions, and one person, whether participant, organizer or sympathizer to act arbitrarily interferes with the conduct of Pilkada, including fraudulent acts that can conflict between contestants.

Vulnerable threats in the recapitulation process are bribery and other political lobbies that can disrupt the integrity of the organizers in carrying out the recapitulation process. In our observation during the 2018 regional election in Bandung, we concluded cheating is almost difficult to do. This is because all witnesses and also P-TPS received copies of the C-1 model form. They all performed vote recapitulation independently from the PPK at each polling station. Any engineering of vote counting result will be easily identified. So even when the recapitulation process continues to the Regency / City KPU level, each witness and also the City Bawaslu have a recapitulation of the results of the recapitulation at the KDP level. Although the authors assume this, all forms of potential fraud remain in the manual recapitulation process. Thus, the application of e-recapitulation technology can be one of the solutions to minimize the form of political threats that occur in the recapitulation process.

CONCLUSION

The development of IT in Indonesia has increased rapidly over the last ten years. The KPU can use technology to facilitate the election management process. This paper proposes an alternative through e-recapitulation. The purpose of implementing e-recapitulation is a form of transformation from a manual system that is considered not very useful and expensive, towards an accountable, effective and efficient system. However, the use of technology is not necessarily easy to apply, of course, various complexities accompany it — the principle of elections in Indonesia, namely direct, general, free and confidential. Thus, the application of e-recapitulation technology must ensure it. However, we also need to note

¹¹ FGD results with Election and Democracy Syndicates, Indonesian Parliamentary Center, Polsight, Some KPU Staff. The FGD was conducted in Bandung, May 5, 2018. Results of interviews with several members of the DPR from the PKS Faction (May 10, 2018) and PPP (August 15, 2018).

¹² "Hindari Konflik di Pilkada, Polda Papua Awasi Sistem Noken [Avoid Conflict in Local Election, Papua Regional Police Monitor the Noken System]." Source: <https://www.liputan6.com/pilkada/read/3229663/hindari-konflik-di-pilkada-polda-papua-awasi-sistem-noken> [Accessed on 15 May 2018].

that the process still requires all officials to be honest and fair when entering data into computer systems. Furthermore, the data must also be secured to avoid interference by third parties.

The use of this technology also demands the support of mature facilities and infrastructure throughout Indonesia. Even, the operators or officers must understand how to use this program. On the other hand, there are cultural problems that we must pay attention to together. Besides, the government must build a political consensus among the elements of the executive body. Based on the results of the focus group discussions conducted, we can implement e-recapitulation technology in Indonesia. It is believed to have more security guarantees. It can minimize the emergence of post-election conflicts caused by fraud in the vote-counting process.

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