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Jurnal Ilmu Pemerintahan

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Governing green open space in Indonesia: barriers and opportunities to enhancing environmental quality

**Muhamad Yusuf, Denok Kurniasih, Anggara Setya Saputra**

Institutionalizing local government accountability: a case of Nabire, Indonesia

**Petrus Izaach Suripatty, Edyanto Edyanto**

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**Yusmanizar Yusmanizar, Nur Alim Djalil, Yulhaidir Yulhaidir, Alyas Alyas**

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**Firdaus Muhammad, Andi M. Faisal Bakti, MD. Rozalafri Johori, Sadhriany Pertiwi Saleh**

Digital dilemma: technology in the vote counting process for general elections and local head elections in Indonesia  
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Bridging the gender gap: women in fisheries industry policy on the North Coast of West Java, Indonesia  
**Dewi Indriasih, Sri Mulyantini, Aminul Fajri, Teguh Rimbawan**

Fulfillment of women's political rights through mainstreaming gender quotas in Election Supervisory Board  
**Ricky Santoso Muharam, Ari Pradhanawati, Fitriyah Fitriyah, Supratiwi Supratiwi**

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**Muhamad Yusuf, Denok Kurniasih, Anggara Setya Saputra**

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**Petrus Izaach Suripatty, Edyanto Edyanto**

Developing e-government policy through social media platform in Makassar city, Indonesia  
**Yusmanizar Yusmanizar, Nur Alim Djalil, Yulhaidir Yulhaidir, Alyas Alyas**

Trade finance evolution: a comparative study of regulatory reforms in factoring policies for SMEs in India and China  
**Amit Kumar Kashyap, Simran Lunagariya**

The impact of innovation policy and the bureaucratic structure reform of organizational citizenship behavior (OCB) of the government agencies in Padang city, Indonesia  
**Haira Zulfia, Syamsir Syamsir**

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**Muhammad Nasir Badu, Syafhendry Syafhendry, Christine B. Tenorio**

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# Table of Contents

Political communication of the Prime Minister of Malaysia Anwar Ibrahim on Twitter **364-376**

**Firdaus Muhammad<sup>1\*)</sup>, Andi M. Faisal Bakti<sup>2</sup>, MD. Rozalafri Johori<sup>3</sup>, Sadhriany Pertiwi Saleh<sup>4</sup>**

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<sup>3</sup> Departement of English & Communication Universiti Islam Selangor (UIS), Malaysia

Digital dilemma: technology in the vote counting process for general elections and local head elections in Indonesia **377-389**

**Muhammad Habibi<sup>1\*)</sup>, Alam Mahadika<sup>2</sup>, Widia Astuti<sup>3</sup>**

<sup>1</sup> Center for Research, Development, Education and Training; Election Supervisory Board, Indonesia

<sup>2</sup> Departement of Politics Regional and Etnopolitict, Kazan Federal University, Rusia

<sup>3</sup> Department of Public Administration, Universitas Muhammadiyah Makassar, Indonesia

Bridging the gender gap: women in fisheries industry policy on the North Coast of West Java, indonesia **390-405**

**Dewi Indriasih<sup>1\*)</sup>, Sri Mulyantini<sup>2</sup>, Aminul Fajri<sup>3</sup>, Teguh Rimbawan<sup>4</sup>**

<sup>1,3</sup> Department of Accounting, Universitas Pancasakti Tegal, Indonesia

<sup>2</sup> Department of Management, UPN Veteran Jakarta, Indonesia

<sup>4</sup> Department of Accounting Politeknik Muhammadiyah Tegal, Indonesia

Fulfillment of women's political rights through mainstreaming gender quotas in Election Supervisory Board **406-423**

**Ricky Santoso Muharam<sup>1\*</sup>, Ari Pradhanawati<sup>2</sup>, Fitriyah<sup>3</sup>, Supratiwi<sup>4</sup>**

<sup>1,2,3,4</sup> Department of Politics and Governance Studies, Faculty of Social and Political Sciences, Universitas Diponegoro, Indonesia

Governing green open space in indonesia: barriers and opportunities to enhancing enviromental quality **424-439**

**Muhamad Yusuf<sup>1\*)</sup>, Denok Kurniasih<sup>2</sup>, Anggara Setya Saputra<sup>3</sup>**

<sup>1</sup> Department of Public Administration, Universitas Muhammadiyah Palangka Raya, Indonesia

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<sup>3</sup> Department of Public Administration, Universitas Wijayakusuma, Indonesia

Institutionalizing local government accountability: a case of Nabire, Indonesia **440-453**

**Petrus Izaach Suripatty<sup>1\*)</sup>, Edyanto<sup>2</sup>**

<sup>1</sup> Department of Government Studies, Universitas Satya Wiyata Mandala, Nabire, Indonesia

<sup>2</sup> Department of Government Studies, IISIP YAPIS Biak, Indonesia



Developing e-government policy through social media platform in Makassar city, Indonesia 454-468

**Yusmanizar<sup>1\*)</sup>, Nur Alim Djali<sup>2</sup>, Yulhaidir<sup>3</sup>, Alyas<sup>4</sup>**

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Trade finance evolution: a comparative study of regulatory reforms in factoring policies for SMEs in India and China 469-485

**Amit Kumar Kashyap<sup>1\*)</sup>, Simran Lunagariya<sup>2</sup>**

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The impact of innovation policy and the bureaucratic structure reform of organizational citizenship behavior (OCB) of the government agencies in Padang city, Indonesia 486-499

**Haira Zulfia<sup>1\*)</sup>, Syamsir<sup>2</sup>**

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Successes and failures of conflict governance: Lessons from Aceh, Indonesia and Moro, Philippines 500-510

**Muhammad Nasir Badu<sup>1\*)</sup>, Syafhendry<sup>2</sup>, Christine B. Tenorio<sup>3</sup>**

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Navigating digital platforms: a comparative study into Turkish political communication strategies on tiktok and twitch 511-526

**Canan Uyumaz<sup>1\*)</sup>, Md. Nazmul Islam<sup>2,3,4,5</sup>**

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COVID-19 pandemic and population density problem in Indonesia: transmigration policy as an alternative program 527-541

**Arifin Saleh<sup>1\*)</sup>, Rizal Khadafi<sup>2</sup>, Achmad Nurmandi<sup>3</sup>, Mujahiddin<sup>4</sup>, Agung Saputra<sup>5</sup>, Soritua Ritonga<sup>6</sup>, Sigit Hardiyanto<sup>7</sup>**

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## Digital dilemma: technology in the vote counting process for general elections and local head elections in Indonesia

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### Abstract

*The traditional methods of vote counting and recapitulation, which include manual and layered processes, are important to ensuring data security and addressing a lack of understanding of public information technology. However, it is essential to quickly and properly disseminate election results among an increasing number of survey findings within the community. Despite this contradictory scenario, it is imperative to employ information technology tools like SITUNG and SIREKAP to ensure transparent dissemination of election outcomes. The study applies a descriptive qualitative approach, collecting primary and secondary data sources including official documents, journal articles, and textbooks. By using three analysis techniques; first, by tabulating the data; second, to categorize the data; third, interpreting the findings based on the theoretical and construction of the data. The results of this study showed three main challenges to the use of digital-based recapitulation: first, the lack of a clear legal basis for the SITUNG and SIREKAP applications, which has triggered criticism from election participants and observers; second, incomplete system support characterized by limited network connectivity, which has created difficulties for field operators in the local level; and third, inappropriate data management in the SITUNG and SIREKAP applications, which included incorrect data entry. Election organizers should be aware that technology-based recapitulation data can become digital evidence for contesting parties in election courts.*

**Keywords:** digital dilemma, general election, situng, sirekap

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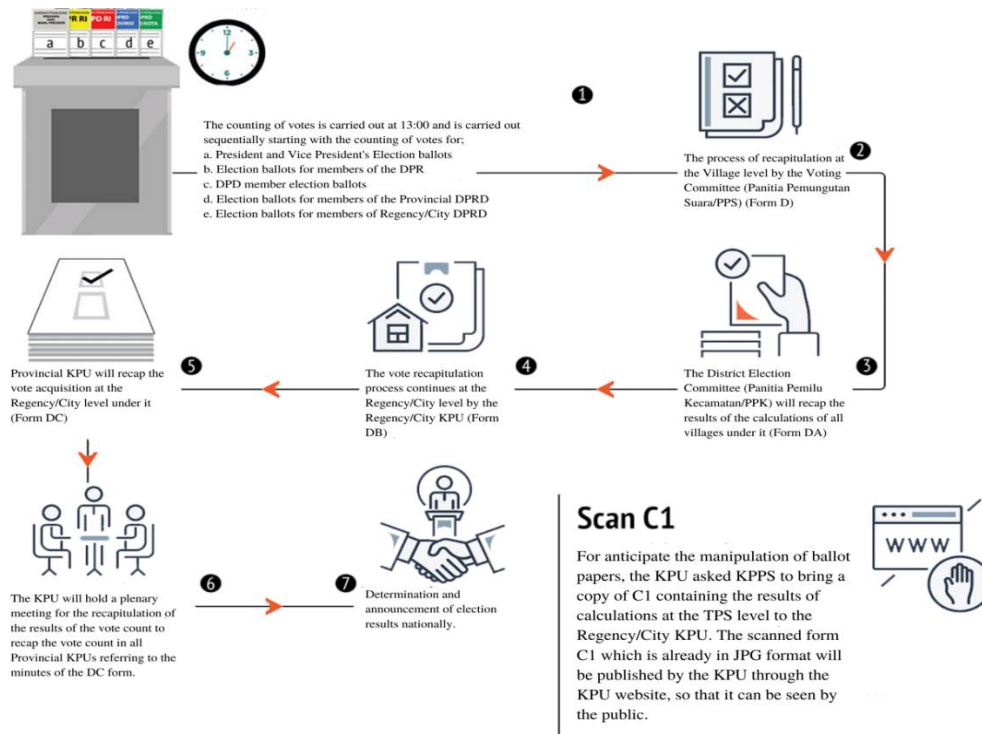
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### Introduction

The biggest challenge in conducting elections in the contemporary context has shifted from fundamental technological implementation concerns to an urgent requirement for precise election results, serving as a concrete embodiment of democratic principles (Zerback et al., 2021). Within this framework, the launched electoral system takes on critical importance, necessitating a unified approach where various election elements are integrally connected and indistinguishable (Duile, 2021). The conventional election approaches, focusing solely on the ceremonial aspects like voting and vote tallying, are now obsolete due to the advancements in information

technology (Dorpenyo, 2019). In this scenario, while alterations or enhancements to the electoral process are crucial, their absence of correlation with verifiable result quality could undermine public confidence, setting a negative example (Alvarez et al., 2009). Frequently arising indicators influencing public trust include the transparency, precision, and accessibility of election outcomes to the general populace (Ramadhan et al., 2018).

According to Law Number 7 of 2017 on Elections, procuring information regarding election outcomes entails navigating through multiple phases and enduring an extended waiting period. This delay stems from the continued use of traditional methods in the system for counting and summarizing votes. Essentially, the process of tallying and summarizing votes unfolds in several stages.



**Figure 1.** Manual Recapitulation Process  
Source : Processed by researchers

During the result of voting, the vote counting certificate is manually filled out in several copies once the votes have been counted at the polling station level. eventually this, it is forwarded to the subdistrict level for manual recapitulation and multiple copy completion of the recapitulation certificate. This subdistrict uses a tiered recapitulation method at the national, provincial, and regency/city levels. Besides from the possibility of mistakes resulting from human error, a long procedure also raises the possibility of fraud. During the outcome of voting, ballots are manually counted at each polling place by personnel who fill out several copies of vote counting certificates. These are subsequently sent to the subdistrict level so that multiple recapitulation certificates can be completed and additionally human tabulation is allowed. The sub-district recapitulation process is methodically stacked, moving up to the provincial, national, and finally regency/city levels (Asgar, 2019). This drawn-out manual procedure not only leaves room for errors caused by human error but also provides openings for fraudulent activity (Surbakti et al., 2011).

Alongside the traditional election systems, there's a noticeable increase in public awareness regarding advanced information technology, making it easier for individuals to access various types of information, including news and social media (Habibi, 2018; Risnanto et al., 2019). Consequently, the precision and timeliness of election results information have become crucial in today's context, especially when disseminating voter-related data that can wield widespread impact (Seftyanto et al., 2019; Zhu et al., 2021). For instance, when people engage in online activities, they utilize a network where devices are interconnected (Setiadi, 2014; Winarno et al., 2018).

A survey conducted a year after the 2019 elections by the Indonesian Internet Service Providers Association -APJII and the Indonesia Survey Center aimed to gauge internet usage across the nation. With a sample of 7000 respondents from various Indonesian regions and a margin of error at  $\pm 1.27$  percent, the findings revealed that internet penetration in the second quarter of 2019-2020 stood at 73.7 percent, equivalent to 196.1 million users. This represented a significant increase from the previous year, with user numbers jumping by 63.8 percent or 171.17 million people. Of this user base, approximately 27.9 percent reported experiencing signal disruptions and unstable networks. Moreover, around 95.4 percent of the respondents used the internet daily via mobile phones for over eight hours (19.5 percent), primarily for engaging with social media (72.2 percent) (Indonesian Internet Service Providers Association, 2020).

The need for accurate information has increased due to the increased demand for election data releases and data accuracy guarantees. This is especially true in light of the growing number of survey institutions and the convenient access to election data that information technology offers. (Alamsyah et al., 2020; Septianto, 2019a). In response to the public's need for prompt and accurate information on the 2019 election results, the Elections Commission of Indonesia has made the vote tally accessible to the public through the Vote Counting Information System (*SITUNG*). *SITUNG* allows the broader population to access election results swiftly and accurately. It operates by inputting and scanning data from Form C1 at the polling station level. Rapid election data provision is essential for open communication with the public, despite a number of implementation hurdles. (Azizah, 2018; Huntington, 1991; Sujadmiko et al., 2020).

Beyond the legal framework governing *SITUNG*, recurrent issues involve system devices and data management (Septianto, 2019b). The public has levied substantial criticism at both system and data management, even though the application serves merely as a platform for accessing election results (Mahpudin, 2019). Efforts to improve the application are essential given its pivotal role as a primary source for initial election results (Wulolo & Renmaur, 2019). The significance of *SITUNG* is apparent through extensive media coverage, drawing widespread attention, recommendations, and critiques from both print and electronic media. Furthermore, legal challenges aimed at *SITUNG* exist, with one notable case brought before the Election Supervisory Board. Consequently, in its decision Number 07/LP/PP/ADM/RI/00.00/V/2019, it is evident that *SITUNG* is not an official tool for counting and summarizing election votes (Purnawan, 2019). Moreover, Election Supervisory Board instructed the Indonesian election commission to enhance *SITUNG* in terms of its information technology systems and data management (Safitri, 2019).

During the 2020 Regional Head elections that took place in 270 regions, the election commissions had plans to implement the Recapitulation Information System-*SIREKAP*. The objective of introducing *SIREKAP* was to ensure the accuracy of vote results from the polling stations to the final determination. In a meeting held on



Thursday (11/12/2020) between the House of Representatives Commission II, Election Commissions, Election Supervisory Board, and the Ministry of Home Affairs, it was decided that SIREKAP would undergo testing as a tool for tallying and summarizing votes exclusively for the 2020 Local Head Election. Nonetheless, the official vote counting and recapitulation results of the 2020 Local Head Election would still rely on manual calculation and recapitulation, as documented in the official report and certificate (Maharani, 2020).

Based from the previously indicated context, this paper will investigate and assess particular concerns regarding possible enhancements when integrating information technology into the vote counting and recapitulation procedures. First, what obstacles does SIREKAP have to overcome in order to provide prompt and reliable information during the 2020 Local Head Election's counting and recapitulation phases? Second, what actions may be done to improve the SIREKAP system so that future local and elections can include e-counting and e-recapitulation?

## **Research Methods**

The method used in this study is descriptive qualitative using primary and secondary data such as official documents, journal articles, and books, by focusing the study on two information technologies used in vote recapitulation in Indonesia, namely SITUNG and SIREKAP. Focus of the study was chosen based on the level of problems that occurred in the 2019 and 2020 elections, so it deserves to be studied more deeply.

As an analytical technique, this study performs several stages of analysis as described (Neuman, 2017). First, by Tabulation the data obtained, such as in Model D. Results of the KWK form for Province level and reports on the results of Election Supervisory Board supervision. Thus, data categorizing and reduction can be done based on its relevance and significance to the research conducted. Second, the next stage of analysis is to categorize the data labeled based on the theoretical propositions built, in this case, namely: 1) malpractice in the implementation process of SITUNG; and 2) the application of SIREKAP in the Local Head Election. Third, as the final stage, the analysis is carried out by interpreting the findings based on the theoretical assumptions built.

This study triangulates sources, comparing data from one document with other sources, in order to assess the validity of the data. Triangulation in the context of primary data is accomplished by developing intersubjectivity among data linked to a concept or information, which results in a more complete understanding of a case.

## **Results and Discussion**

### **The Dilemma of the 2019 Election Vote Recapitulation Process**

The procedure of tabulating and consolidating votes plays a crucial part in the implementation of elections, as it directly impacts the eventual vote result, hence selecting the victor of the election. (Amrullah et al., 2021). This phase is not only susceptible to technical glitches but is also a common ground for fraudulent activities. The Election Law carefully addresses this by establishing a special forum aimed at resolving disputes over election results, underscoring the inherent complexity of the counting and recapitulation process (Sinamora, 2019).

The Election Law outlines a conventional election system, wherein the polling station officers play a crucial role, acting as the foundational source of election result data at each polling station (refer to Figure 1). The counting procedure at the polling

stations involves unveiling and tallying all cast ballots, with the candidate's vote totals then recorded on a large board (using a plano model form). Subsequently, KPPS officers transcribe these results onto official reports and vote acquisition certificates (Forms Model C, C1, and attachments of form C1). The voting process often generates challenges for the various stakeholders involved, compounded by the substantial number of ballots requiring counting (Zuhro, 2019). Furthermore, the transcription of official reports and vote acquisition certificates - distributed to all entities engaged in the vote-counting process, including field supervisors, representatives from political parties participating in the elections, and individual election observers is subject to human error, potentially leading to discrepancies in the official documentation and certificates disseminated to these parties.

The vote recapitulation process is meticulously structured in phases, initiating at the sub-district level and progressing through the regency/city and provincial levels, culminating nationally. Given its extensive and phased structure, this process inevitably demands a significant amount of time, with the election commissions allocating approximately 35 days for its completion. The manual approach to vote counting and recapitulation, coupled with the preparation of minutes and vote acquisition certificates at each level, introduces opportunities for fraudulent practices and vote count manipulation (Husin et al., 2021). In light of these risks, the introduction of technology is anticipated to address and mitigate these vulnerabilities. Acknowledging the potential for errors and malpractice, the election commissions incorporated the SITUNG information technology in the 2019 Election to counter these challenges.

Nevertheless, during the 2019 simultaneous general elections, SITUNG did not fully meet the initial expectations of delivering quick and accurate information on election results (Mahpudin, 2019). The criticism directed at SITUNG can be outlined as follows: Firstly, there were concerns regarding the legality of SITUNG, with some election participants pointing out that the Election Law does not explicitly endorse the use of SITUNG. This criticism was initially sparked by the re-voting process in the 2019 Presidential and Vice-Presidential Election, where a winning team argued that disclosing votes through SITUNG might influence voter preferences, consequently disadvantaging one of the election contenders.

Moreover, SITUNG frequently faced criticism for not being entirely flawless. Issues such as server downtimes and network limitations hindered operators in various regions from inputting and uploading the scanned results of Form C1 (Febriani, 2020). The network and infrastructure weaknesses in some areas further complicated the data input and Form C1 upload process, resulting in inconsistent data inputs and uploads across different regions. These discrepancies fueled suspicions among certain factions that the election commissions might have deliberately engineered and manipulated SITUNG.

A significant challenge with widespread implications is the management of data within SITUNG. Here, data management pertains to all numerical and image data housed in the system. Among the issues encountered in handling this data are polling stations having more than 300 voters each. Furthermore, discrepancies were identified between the counts of valid and invalid votes and the recorded number of voters who actually participated. The most critical issue in managing SITUNG's data was the entry of incorrect data. Errors in data entry were identified by the Election Commissions through direct monitoring and reports from the public (Sustikarini, 2020). In an effort to effectively manage SITUNG, the election commissions regularly addressed and corrected instances of incorrect data entry. Leading up to the national recapitulation

process, the election commissions documented these data entry errors, providing a status update as of May 18, 2019:

**Table 1.** Data Entry Errors in the 2019 Election

Error Type	Entries	Source			Status		
		Election Commissions Monitoring	Community Report	Amount	Completed Repair	In Repair Process	Amount
Candidate Decreased	01	23	6	29	29	0	29
Candidate Decreased	02	47	21	68	68	0	68
Candidate Increase	01	38	19	57	57	0	57
Candidate Increase	02	27	7	34	34	0	34
Candidate 01 and 02 Decreased		8	2	10	10	0	10
Candidate 01 and 02 Increase		9	4	13	13	0	13
Candidate 01 Decreased and 02 Increase		24	18	42	42	0	42
Candidate 01 Increase and 02 Decreased		17	5	22	22	0	22
<b>Total</b>		<b>193</b>	<b>82</b>	<b>275</b>	<b>275</b>	<b>0</b>	<b>275</b>

*Source : Processed by researchers*

From the incorrect data entry data, there was 193 incorrect data entry resulting from election commissions monitoring and as many as 82 incorrect data entries from public reports. Of all the data entry errors, all of them were corrected by the election commissions. However, this still reduces the level of public confidence in the 2019 election results (Tampubolon et al., 2021).

### Exploring the Implementation of SIREKAP in the 2020 Local Head Elections

In the 2020 Local Head Election, the Election Commissions planned to use SIREKAP, but the House of Representatives Commission II meeting with the election commissions, Election Supervisory Board, and the Ministry of Home Affairs decided that SIREKAP would only be tested and become a tool for counting and recapitulating votes in the 2020 Local Head Election. Official results of vote counting and recapitulation in the Local Head Election 2020 are still based on the official report and certificate of manual calculation and recapitulation (Maharani, 2020).

During the 2020 Local Head Election, the majority of the vote recapitulation was conducted manually instead of utilizing SIREKAP as originally planned. Although SIREKAP was intended to be used by the Sub-district Election Committee and the Regency/City election commissions, access to it encountered numerous obstacles. This observation is based on the oversight executed by Election Supervisory Board during the recapitulation process at both district and regency/city levels. Election Supervisory Board's supervision of 3,629 districts revealed that only 708 districts (or 20 percent) used SIREKAP for recapitulation, as conducted by the District Election Committee. The

remaining 2,921 districts (80 percent) opted for manual recapitulation due to the suboptimal functionality of SIREKAP.

Similarly, Election Supervisory Board's monitoring of the recapitulation process at the Regency/Municipal election commissions level yielded comparable findings. Out of 161 Regency/City election commissions conducting data processing on the first day of recapitulation at their respective levels (December 15, 2020), only two used SIREKAP exclusively (1 percent); 62 Regency/City election commissions (38 percent) combined the use of SIREKAP with manual calculations; the remaining 97 Regency/City election commissions (60 percent) relied solely on manual recapitulation. This manual approach led thousands of District Election Committees to reopen ballot boxes, a process executed in at least 159 districts/cities. This reopening was necessary for District Election Committees to document photos on Form C. Result-KWK form before entering the listed data into the SIREKAP application.

This step was necessary because there was no reference form available, while Form C. Result-KWK form was kept inside the ballot boxes. Consequently, documentation and data input were carried out manually, as tiered data input through SIREKAP was unfeasible at the Voting Organizing Group level. Starting on December 10, 2020, following the completion of vote collection and counting, District Election Committees assumed the responsibilities of the Voting Organizing Group to enter Form C.Result-KWK form data into SIREKAP. This effort aimed to input 100 percent of vote count data from all polling stations into SIREKAP. The input of vote results by District Election Committees continued until the completion of the Minutes of Recapitulation at the District Election Committee level.

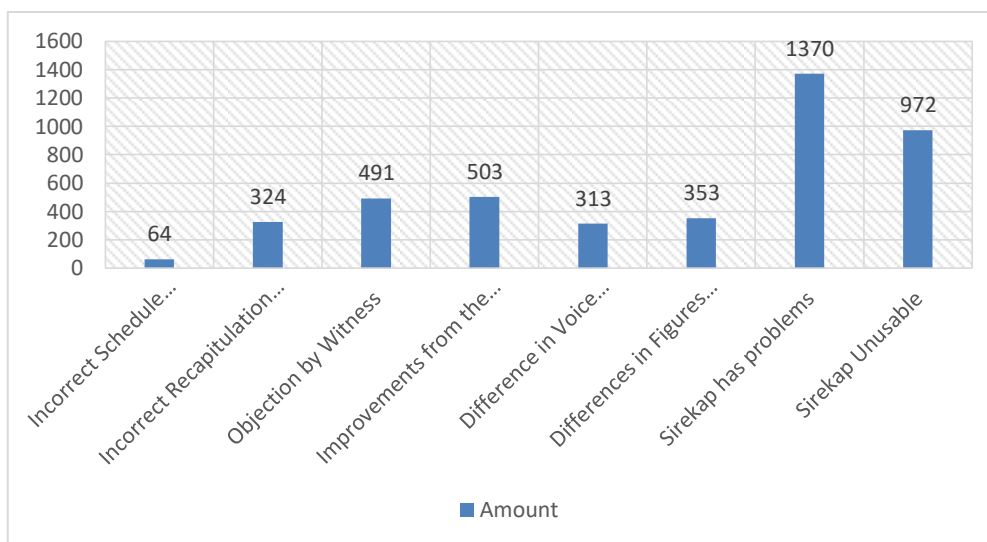
Moreover, when District Election Committee performs manual recapitulation with Excel software, the data summation is not formulated automatically. This causes undetected errors, especially regarding the use of ballots. Changing the recapitulation method to the manual method ultimately raises the potential to emerge two different recapitulation results. The two possible results are the results of manual recapitulation (due to not using SIREKAP) and information on vote results at voting place (Form C.result-KWK form) in SIREKAP, which District Election Committee entered after the issuance of the Minutes of Recapitulation (Form D.Result-KWK) in District Election Committee. Moreover, if inputting data into SIREKAP, District Election Committee does not adjust the number of voting place and the village.

For this reason, the election commissions needs to anticipate the difference in votes in the recapitulation using SIREKAP with the manual method. The potential difference in votes can occur at every level of recapitulation from sub-district, regency, to province. Anticipation is essential considering that the election commissions mentions that the SIREKAP Application aims to facilitate the election commissions work and provide information disclosure to the public. With SIREKAP, it is expected that elections can be observed by the public directly without having pay wait to longer.

### **Various Problems in the Recapitulation Process**

Based on the results of supervision carried out by Election Supervisory Board, the recapitulation process at the District Election Committee level from 10 to 14 December 2020, several special events were found. For example, the District Election Committee did not arrange a schedule based on the village grouping (64); the location of the recapitulation was carried out in a closed room (324), there were objections from witnesses (491), improvements from sub-district supervisors (503), differences in the

use of votes during recapitulation (313), there were differences in numbers from the recapitulation form (353), SIREKAP experienced problems (1,370), and SIREKAP cannot be used (972). The following are the results of supervision by the District Election Supervisory Board on the vote recapitulation process in the Districts:



**Figure 2.** Graph of Results of Supervision of the Recapitulation by Election Supervisory Board in Districts

*Source : processed by researchers*

As a comparison of vote recapitulation data, Election Supervisory Board, through the sub-district supervisory committee uses data from the Election Oversight Information System-SIWASLU. Data pairing is carried out as a comparison in improving the vote recapitulation data in sub-districts and districts/cities. There are at least 153 regency/cities uses SIWASLU data in the recapitulation process in the districts.

Meanwhile, in the use of the Election Oversight Information System, after 24 hours of voting and vote counting was closed, there were 256,139 polling stations out of a total of 298,941 polling stations (86 percent) whose supervision reports had been entered in the information system developed by Election Supervisory Board. The reports include the technical suitability of the implementation with the procedures and vote counting results at the polling stations. The data entered through Election Oversight Information System will also be used as a result of supervision if there is a dispute over election results at the Constitutional Court. the Election Oversight Information System data and Form-A results of supervision will be used as confirmation tools.

Regarding the voting and recounting of votes, based on supervision results, the Regency/City Election Supervisory Board in several provinces recommends re-voting. re-voting is recommended to be done at 103 voting place. From the results of Election Supervisory Board supervision, voter participation decreased in re-voting compared to simultaneous voting. This happened, for example, in one polling station in North Sulawesi, which participated in the simultaneous voting on December 9, 2020, as much as 91.87 percent. This number decreased on December 12, 2020, re-voting to only 43.9 percent. The same thing happened at one polling station in Central Java. In that province, participation in simultaneous voting was 77 percent of the total permanent voter list. The figure drops to 72 percent on the re-voting. After the recapitulation at the District Election Committee level, the votes acquired by the candidate pairs can already be known.

The recapitulation results can be used as an excuse for the candidate pair and their supporters to celebrate the victory, which can cause a crowd (Prabowo et al., 2021). Election Supervisory Board urges each candidate pair, campaign team, and their supporters always to maintain health protocols. In addition, Election Supervisory Board also asked the local government and the local police to deal with the crowds.

**Table 2.** Comparison of Manual Recapitulation Using SIREKAP in the Election of Governors

Province	Data Entry Sirekap (%)	Using Sirekap					Manual Recapitulation					Difference in Total Votes
		Candidate 1	Candidate 2	Candidate 3	Candidate 4	Total Votes	Candidate 1	Candidate 2	Candidate 3	Candidate 4	Total Votes	
West Sumatera	100%	614.541	678.965	223.433	725.776	2.242.715	614.477	679.069	220.893	726.853	2.241.292	-1.423
Jambi	100%	588.115	381.564	601.630		1.571.309	587.918	381.634	600.733		1.570.285	-1.024
Bengkulu*	100%	327.769	418.409	271.603		1.017.781	328.364	418.080	268.316		1.014.760	-3.021
Riau Islands	100%	184.167	279.654	308.394		772.215	184.317	280.160	308.553		773.030	815
Central Kalimantan	100%	503.354	535.333			1.038.687	502.800	536.128			1.038.928	241
South Kalimantan *	100%	869.621	828.591			1.698.212	871.123	831.178			1.702.301	4.089
North Kalimantan	100%	61.800	109.968	145.778		317.546	62.143	109.968	145.778		317.889	343
North Sulawesi	100%	493.323	129.817	819.682		1.442.822	491.457	125.627	821.503		1.438.587	-4.235
Central Sulawesi	99.97%	605.722	909.515			1.515.237	604.033	891.334			1.495.367	-19.870

Source : processed by researchers

From the data above, it can be seen that the difference in votes from using SIREKAP manually, from nine Central Sulawesi provinces experiencing problems in the data entry process, it can be seen from not all voting place doing data entry, 3 of 6311 voting place do not do data entry. The difference that occurred in South Sulawesi Province was also huge, with less than 19,870 votes. In addition, two regions carry out re-voting. This is suspected by the voting process and the recapitulation process in the election process that went wrong. This can be an evaluation of the election commissions in the recapitulation process whether the error is still the same as the use of SITUNG, namely data entry errors or manipulation in the recapitulation process.

Electoral malpractice is a serious violation of democratic integrity and fairness in the electoral system (Birch, 2011). In this context, electoral malpractice refers to various manipulative actions designed to disrupt the election process and results, resulting in a distorted representation of the will of the people. Actions such as voter fraud, intimidation, spreading false information, and manipulation of results can undermine the essence of democracy and replace public interests with private interests or certain groups who wish to benefit from such actions. As a result, electoral systems that are supposed to be a reflection of the people's voice can be polarized and compromised, harming citizens' rights to elect representatives who are in line with their aspirations and needs. Therefore, preventing and taking action against electoral malpractice is very important to maintain the integrity of democracy and ensure that elections truly reflect the voices and interests of the people.

The weak support system in our election can open the gap for vote manipulation. Manipulation occurs in at least two things, namely, voter data and a tiered recapitulation of vote counts (Birch et al., 2020). Voter data in each of our elections is always a severe problem because the data is never accurate (Habibi, 2021). Meanwhile, The hierarchical recapitulation procedure employed in vote counting introduces the possibility of computational inaccuracies, which may lead to the

manipulation of voting outcomes. The available data indicates that within a multi-stage recapitulation system, spanning from the sub-district level to the national level, there exists a possibility for the occurrence of calculation errors. Every stage of vote tabulation poses the potential for technical or deliberate inaccuracies that may impact the ultimate outcome of the election. This procedure may serve as a potential avenue for individuals with malicious intentions to manipulate the outcome of voting in order to further their personal objectives. Hence, it is imperative to prioritise transparency and correctness throughout every phase of the recapitulation. The implementation of a robust monitoring system, which incorporates the participation of impartial observers and election monitoring organisations, holds significant importance in mitigating the likelihood of inaccuracies and upholding the credibility of general election outcomes. By adopting this approach, the general populace can cultivate a heightened sense of trust in the democratic process and the precise representation of election outcomes.

## Conclusion

To adequately meet the public's need for information on election results, the election commissions has made vote count results accessible to the public through SITUNG and SIREKAP, both of which can be accessed swiftly and accurately by the wider community. However, in practice, these technologies have faced criticism on several fronts. Firstly, the lack of explicit legal standing for both SITUNG and SIREKAP has led to criticism from election participants and overseers. Secondly, these systems are not flawless, experiencing issues like server downtimes and network limitations that hinder operators in various regions from inputting and uploading C1 form scan results effectively. The challenges are further compounded in areas with weak networks due to additional network and infrastructure constraints during the data input and C1 form upload processes. Thirdly, data management within SITUNG and SIREKAP, such as erroneous data entry, presents another substantial hurdle. Despite the myriad challenges associated with employing technology in the vote counting recapitulation, the documents within these technological systems must be admissible as evidence in court, facilitating the acquisition of digitally precise evidence for concerned parties.

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