

# Dynamic Policy of e-voting Village Head Election in Public Policy Perspective

Mawaddah, Een Endasari, Muslim

Sekolah Tinggi Ilmu Administrasi Bala Putra Dewa

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## Abstract

The implementation of democracy in Indonesia has undergone various developments in line with the development of science and technological advances that affect various activities of state life. One form of democracy is manifested in the freedom to choose the head of government. Indonesia has realized various democratic activities through the general elections of heads of state, regional heads, legislative members to the latest village head elections. Moreover, decentralization gives regions to manage policies that are ideally applied in their respective regions according to the capabilities and technology possessed by local governments. The implementation of digital-based village head elections in the form of e-voting colors the dynamics of existing policies at the village level. The first e-voting village election in South Sumatra was conducted in Musi Rawas Regency from December 5, 2013 to December 24, 2014, involving 35 villages that took an active role in the success of this program out of a total of 186 villages and 13 sub-districts, and the remaining 151 villages still conduct elections by voting. As an area that pioneered e-voting village elections, South Sumatra was chosen as the research location by taking a case study in one of the villages under the auspices of the local government, namely Bunga karang village. This research aims to conduct an in-depth analysis of the realization of Indonesian democracy in the village head election activities in the realization of e-voting which will assess the achievement of electability and the influence of digital literacy in Bunga Karang Village, Lago District, Banyuasin Regency, South Sumatra Province. This research is a descriptive qualitative research based on a case study in Bunga Karang Village, Lago District, Banyuasin Regency, South Sumatra Province. The data obtained will be collected through interview techniques, observation and documentation which then the data will be analyzed using data triangulation.

**Keywords:** E-Voting, Village Head Election, Public Policy, Policy Dynamics, Participation.

## 1. Introduction

Village head elections (pilkades) are a fundamental pillar of the local democratic system.

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pilkades in Indonesia, reflecting popular sovereignty at the grassroots level and providing the foundation for effective governance in rural areas. However, the conventional pilkades process is often faced with various challenges, such as high logistics costs, vulnerability to fraudulent practices, and low efficiency of vote counting time. Amidst the wave of the industrial revolution 4.0 and the rapid development of information technology, e-voting has emerged as a promising alternative that has the potential to overcome these problems. E-voting offers higher efficiency, accuracy, and transparency in the voting and counting process ([Al-Omari & Al-Madi, 2017](#)).

The adoption of e-voting in village elections is not just a technical issue, but a complex and multidimensional public policy issue. The decision to implement e-voting involves a series of political, economic, social, and cultural considerations, and requires coordination across sectors and stakeholders ([Wejnert, 2014](#)). Furthermore, e-voting policy cannot be static; it must be dynamic and adaptive to changes in the environment, technological advances, and feedback obtained from implementation in the field. The concept of dynamic policy emphasizes the importance of policy learning and continuous adjustment to ensure policy relevance and effectiveness in the long term ([Sabatier & Jenkins-Smith, 1993](#)).

This research aims to analyze the dynamic policy of e-voting for village head elections from a public policy perspective. By examining how e-voting policies are formulated, implemented, evaluated, and adapted through feedback loops, this study hopes to identify the determinants of success as well as the challenges that arise. An in-depth understanding of these dynamics is crucial to formulate policy recommendations that are more responsive, inclusive, and effective in optimizing the benefits of e-voting while mitigating its risks for strengthening democracy at the village level.

## 2. Literature Review

This literature review will elaborate theoretical and empirical frameworks relevant to e-voting in the context of village head elections, and analyze them from a dynamic public policy perspective.

### *2.1 Concept and Implementation of E-voting in the Context of Local Elections*

E-voting, or electronic voting, refers to the use of information and communication technology (ICT) to facilitate the voting and counting process ([Al-Omari & Al-Madi, 2017](#)). The implementation of e-voting aims to improve efficiency, transparency, and accuracy in the election process, as well as potentially increase voter participation through easier access ([Zubairu & Abubakar, 2021](#)). In the context of local elections such as pilkades in Indonesia, e-voting has been piloted in several regions, showing significant potential in reducing logistics costs, speeding up vote counting, and minimizing manual fraud practices ([Setiawan, 2018](#)).

However, the adoption of e-voting is not without its challenges. Crucial issues that often arise are cybersecurity and system integrity ([Adawadkar & Mahajan, 2017](#); [Al-Omari & Al-Madi, 2017](#)). Concerns related to potential hacking, data manipulation, and voter privacy issues are major concerns that require strong technical and regulatory solutions. In addition, the digital divide is a serious obstacle, especially in rural areas with limited ICT infrastructure and varying levels of digital literacy ([Haryanti et al., 2020](#); [Pradana & Sumardi, 2019](#)). This may have implications for inclusiveness and legitimacy of election results if some voters do not have access or the ability to use the e-voting system. Infrastructure readiness, electricity availability,

and a stable internet network are fundamental prerequisites that often become obstacles in remote areas ([Wibowo et al., 2022](#)).

Several case studies show that the successful implementation of e-voting is highly dependent on user-friendly system design, adequate training for voters and organizers, and massive socialization ([Ramadhani & Sudarwanto, 2021](#)). In Indonesia, the experience of e-voting pilkades shows that public acceptance is strongly influenced by the level of trust in technology and organizers ([Setiawan, 2018](#)).

## *2.2 A Public Policy Perspective on E-voting*

E-voting in village elections cannot be separated from public policy analysis. The decision to adopt and implement e-voting is the result of a policy process that involves various stages: formulation, implementation, evaluation, and re-formulation ([Howlett & Ramesh, 2016](#)). Policy Formulation: This stage involves the identification of problems (e.g., the inefficiency of conventional pilkades), the formulation of policy objectives (e.g., improving transparency and efficiency through e-voting), and the development of various policy alternatives. The role of policy actors such as the local government, legislature, Ministry of Home Affairs, and civil society is crucial in shaping this policy direction ([Prabowo & Syafi'ie, 2020](#)). The legitimacy and legal basis of e-voting are also important points in the formulation stage ([Wibowo et al., 2022](#)).

Policy Implementation: Refers to the process by which formulated policies are realized on the ground. The success of e-voting implementation is highly dependent on the administrative capacity of the organizers, the availability of resources (funds, technology, human resources), inter-agency coordination, and community support ([Ripley & Franklin, 2015](#)). Implementation challenges at the village level are often related to the lack of technical staff, uneven training, and resistance to change from certain groups ([Huda & Aslami, 2024](#)). Policy Evaluation: This stage assesses the extent to which the policy has achieved its stated objectives and identifies both positive and negative impacts. Evaluation of e-voting should include aspects of efficiency, accuracy, transparency, security, and most importantly, the level of participation and inclusiveness ([Putra & Kusri, 2022](#)). The results of this evaluation are vital for future policy improvement processes.

## *2.3. Dynamic Policy Concept*

The concept of dynamic policy recognizes that public policy is not a static entity, but rather continues to evolve and adapt to changes in the environment and learning from implementation experiences ([Sabatier & Weible, 2014](#)). In the context of e-voting pilkades, a dynamic policy approach is highly relevant given the rapid development of technology and socio-political complexity at the village level.

Key aspects of dynamic policies include:

Policy Learning: The process by which policymakers and stakeholders learn from past experiences, both successes and failures, to improve future policy formulation and implementation ([Sabatier & Weible, 2014](#)). In the context of e-voting, this learning can take the form of adjustments to systems, procedures, or socialization strategies based on feedback from previous trials or implementations ([Ramadhani & Sudarwanto, 2021](#)).

Adaptability and Flexibility: Policies should have the capacity to adapt to changing conditions, such as new technological developments, changing voter demographics, or changes in the

regulatory landscape ([Howlett & Ramesh, 2016](#)). A dynamic e-voting policy will allow for adjustments to varying local infrastructure and the specific needs of rural communities.

**Feedback Loop:** A mechanism to systematically collect information on policy impacts (positive and negative) and integrate that information back into the policy formulation or implementation process ([Anderson, 2015](#)). This feedback loop can come from evaluation reports, public complaints, input from organizers in the field, or the results of security audits.

The application of a dynamic policy perspective in the analysis of e-voting pilkades allows for a more comprehensive understanding of how these policies evolve over time, respond to challenges, and adapt to the realities of the field, instead of viewing them as static one-size-fits-all solutions.

### 3. Research Method

This research will use a qualitative approach with a comparative case study strategy to analyze the dynamics of e-voting policy in village head elections (pilkades). The qualitative approach was chosen because it allows in-depth exploration of the social, political, and technological complexities surrounding the implementation of e-voting policies, as well as capturing diverse perspectives from stakeholders ([Creswell & Poth, 2018](#)). The comparative case study will compare the implementation of e-voting in several villages or regions that have implemented the system, to identify patterns, similarities, and differences in the dynamic policy process ([Yin, 2018](#)).

Data analysis will focus on the stages of the policy cycle:

1. Policy Formulation: How e-voting policies are formulated, who are the actors involved, and what are the underlying considerations.
2. Policy Implementation: How e-voting is implemented on the ground, the challenges and opportunities that arise, and the role of technology and human resources.
3. Policy Evaluation: Evaluation mechanisms used, indicators of success, and the impact of e-voting on efficiency, transparency, and participation.
4. Feedback Loop and Adaptation: How feedback from implementation is used to revise policies, as well as the extent to which e-voting policies are adaptive.

### 4. Findings and Discussions

This section will present an in-depth analysis of the policy dynamics of e-voting in pilkades, drawing on the findings from the case studies and linking them to the dynamic public policy framework. The analysis will be divided based on the stages of the policy cycle, with an emphasis on adaptability and learning aspects.

#### 4.1 Pilkades E-voting Policy Formulation: Initial Initiation and Adaptation

The policy formulation of e-voting for village elections shows various patterns of initiation and consideration. In some cases, initiatives arise from local governments that see the potential of e-voting as a solution to efficiency and transparency, supported by a spirit of innovation and a desire to modernize village governance. In the election of village heads in Bunga Karang village, Lago sub-district, Banyuasin district, South Sumatra Province, the e-voting initiative was driven by the Department of Community and Village Empowerment (DPMD) as a response to the high logistics costs and potential disputes in conventional pilkades. They identified e-voting as a policy alternative that is in line with the regional development agenda (Interview DPMD of bunga karang village, lago sub-district, banyuasin district, South Sumatra

Province, May 12, 2024).

However, it is not uncommon that e-voting policy formulation is also a response to pressure from the public or non-state actors who want a more accountable and efficient election process. In Banyuasin Regency, for example, the initial initiative came from a group of local academics and information technology activists who saw e-voting as a means to increase participation and reduce fraud (FGD Academics, May 20, 2024). This shows the dynamics of actors in the formulation stage, where not only the government, but also civil society and professional groups play a role in pushing the policy agenda.

Key considerations in formulation often include:

**Security and System Integrity:** While e-voting offers potential, concerns about cybersecurity and data integrity are top priorities ([Al-Omari & Al-Madi, 2017](#)). Early regulations often tried to address this by requiring system audits and backup procedures.

**Initial Investment Costs:** The financial aspect is often a barrier. Policies should consider sustainable funding models, whether through APBD, central government support, or other schemes.

**Human Resources and Infrastructure Readiness:** Policies should include training for organizers and socialization to voters, as well as ensuring the availability of adequate electricity and network infrastructure ([Pradana & Sumardi, 2019](#)).

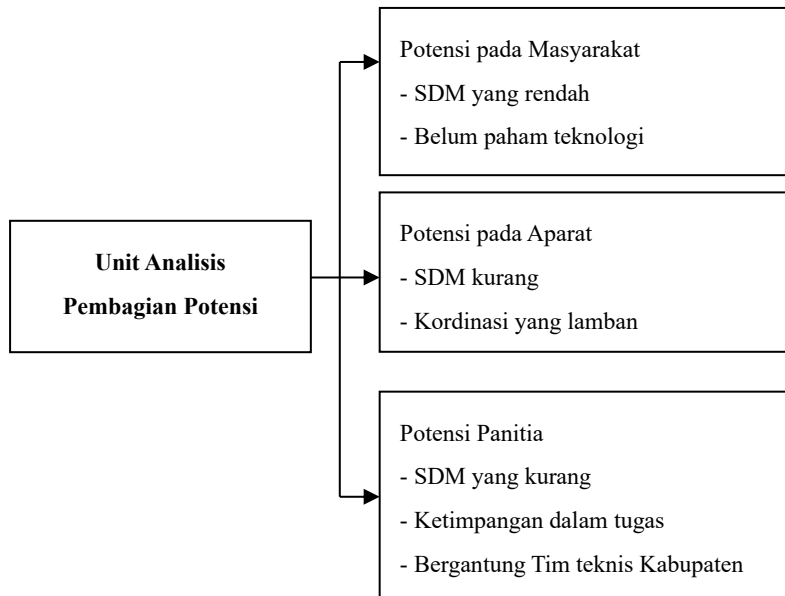
However, at this early stage, there is often limited information and experience, so policy formulation tends to be exploratory and open to later adjustments. This is the initial adaptation stage of e-voting policy, where the basic framework is set with an awareness of the need for flexibility.

#### *4.2 Dynamic Implementation of E-voting in the Field: Challenges, Procedural Adaptations, and Organizational Learning*

The implementation of e-voting is an arena where policy dynamics are truly tested. Findings in the field show that implementation is never smooth and often requires significant procedural adaptations.

**Infrastructure and Digital Divide Challenges:** In remote villages, the availability of stable electricity and adequate internet access is often an obstacle. Pilkades committees in some locations had to innovate, for example by using backup generators or setting up portable Wi-Fi hotspots (Bunga Karang Village Observation, June 15, 2024). This shows bottom-up adaptation at the implementation level in response to real conditions that were not always anticipated in the initial policy formulation ([Haryanti et al., 2020](#)).

In addition, the distribution of village potential data showed some significant weaknesses, which are shown in the flowcart below:



There is an imbalance in carrying out tasks and the division of tasks and from the answers it is clear that what is done relies on technical personnel from both the Regency and District, they do not have enough human resources for the implementation of the e-voting system The digital divide is also overcome by a door-to-door approach for socialization or providing a special helpdesk for elderly voters or those who are less technologically literate (Interview Pilkades Committee, 17 May 2024).

**Security and Technical Disruption Risk Management:** During the voting process, technical disruptions such as software crashes or overloaded servers may occur. Policy responses in the field include the establishment of standby technical teams, quick backup manual procedures, and transparent communication to voters. This incident serves as a direct feedback loop that drives organizational learning for pilkades organizers. ([Putra & Kusri, 2022](#)). The organizers then integrated this experience into the SOPs for the next pilkades, for example by increasing the number of operators or updating server specifications.

**Resistance and Public Acceptance:** Although e-voting offers efficiency, resistance may arise from groups who are accustomed to conventional methods or who do not trust the technology. Implementation policies must be adaptive in socialization strategies, for example by holding repeated simulations, involving community leaders, or showing a track record of success in other areas to build trust ([Ramadhani & Sudarwanto, 2021](#)). This is an effort to shape policy acceptance through policy interventions at the field level.

These implementation dynamics underscore that the success of e-voting depends heavily on the capacity of actors on the ground to adapt, innovate and learn from each experience. Static policies will fail at this stage; in contrast, dynamic policies allow for continuous adjustment.

#### *4.3. Evaluation and Feedback Loop: Policy Learning Mechanism*

Evaluations of e-voting pilkades policies, both formal and informal, play a crucial role in establishing feedback loops that enable future learning and policy adaptation.

**Formal and Informal Evaluation:** Local governments often conduct formal evaluations through performance reports and post-election coordination meetings. However, informal feedback from communities, local media, and public conversations are also important. For example, complaints about long queues or technical problems that are not resolved quickly are often triggers for policy revisions (Community Leader Interview, May 19, 2024). This suggests that feedback channels should be diverse and inclusive.

**Experiential Policy Learning:** The findings of the evaluation, both positive and negative, form the basis for policy learning (Sabatier & Weible, 2014). For example, if the evaluation shows low participation from the elderly, the policy can be adapted by adding special assistance programs or providing e-voting with a simpler interface in the future. If security loopholes are found, the technical policy of the e-voting system will be updated.

**Adoption of Best Practices:** The feedback process also facilitates the adoption of best practices from one location to another. Districts in Boyolali that have been successful in managing e-voting voter data can serve as a benchmark for Banyuasin District, which still faces similar challenges. This is a form of policy diffusion driven by empirical learning.

Through an effective feedback loop, e-voting policies can be continuously improved, not only in technical aspects but also in procedural and social aspects, ensuring their relevance to the needs of society.

#### *4.4. Dynamic Policy Implications of E-voting for Village Democratic Governance*

Analyzing e-voting from a dynamic policy perspective has significant implications for democratic governance at the village level.

**Increased Trust and Participation:** If e-voting is implemented adaptively and responsive to feedback, it has the potential to increase public trust in the electoral process and encourage higher participation (Zubairu & Abubakar, 2021). Ease of access and speed of results can be an attraction, especially for young voters.

**Strengthening Local Institutional Capacity:** The e-voting implementation process has increased the technical and managerial capacity of village officials and pilkades committees. They are forced to adapt to new technologies, manage risks, and interact more effectively with various stakeholders. This is a form of adaptive capacity that develops at the local level.

**Transparency and Accountability:** While security challenges remain, e-voting offers the potential for greater transparency compared to manual, especially in accessible, real-time vote counting. Dynamic policies will continue to seek to strengthen auditing and verification features to enhance accountability.

**Lack of Legitimacy vs. Efficiency:** Findings also suggest a dilemma between efficiency and legitimacy, especially if inclusivity and security aspects are not well managed. Dynamic policies should seek an optimal balance between technological advancement and the guarantee of citizens' constitutional rights, including the right to vote safely and fairly.

Overall, e-voting as a public policy instrument cannot stand alone. Its success and sustainability are highly dependent on the ability of the government and stakeholders to see it as a living policy that requires attention, adjustment, and continuous learning along with social, economic, and technological dynamics.

## **Conclusion**

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This research has analyzed the implementation of e-voting systems in village head elections (pilkades) from a dynamic public policy perspective. Our findings show that e-voting is not just a technological innovation, but rather a complex policy instrument, whose success is highly dependent on its ability to adapt, learn, and respond to environmental dynamics and feedback from the field.

At the policy formulation stage, e-voting is often initiated by pro-innovation local governments, but can also be driven by civil society demands for transparency and efficiency. Initial considerations often focus on security, cost, and infrastructure readiness, albeit often with limited information. In the implementation phase, e-voting faces various field challenges, such as limited ICT infrastructure in rural areas, digital divide, and potential technical glitches. However, findings show procedural adaptation and bottom-up innovation from village-level organizers, who actively seek solutions and adjust strategies. This underscores the importance of policy flexibility and organizational learning capacity at the local level.

Through effective feedback loops, both from formal evaluations and informal inputs, on-the-ground experiences are absorbed for policy improvement. This process facilitates policy learning and the adoption of best practices, allowing e-voting policies to continuously evolve and increase their relevance. Overall, dynamic e-voting policy emphasizes that e-voting should be treated as a living policy, which requires continuous attention, regulatory adjustments, capacity building, and strong feedback mechanisms. This approach is key to optimizing the potential of e-voting in improving efficiency, transparency, and participation, as well as strengthening democracy at the village level.

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