



# Legal Revolution 5.0: Implementation E-voting as an implementation of technological developments in general elections

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**Abstract.** Along with the development of world society's thinking towards the industrial revolution 5.0, has presented several innovations, one of which is the use of artificial intelligence (AI). In the field of Indonesian law enforcement, the use of AI can be used in the implementation of electronic-based elections. In accordance with Article 22E of the 1945 Constitution of the Republic of Indonesia, elections to elect the President and Vice President, Members of the DPR, Members of the DPD, and members of the DPRD are held based on the principles of direct, general, free, secret, honest and fair every five years. The KPU has implemented an election simplification programme with the application of political party registration and vote counting with SITUNG, but the mechanism has not succeeded in increasing legal effectiveness. This paper analyses: (1) How modern elections are in the 5.0 era; (2) the successful use of artificial intelligence technology in improving election law compliance in India and the Philippines, and (3) E-voting implementation as a solution to the election law revolution in Indonesia. This paper uses a normative research method with data collection methods in the form of literature studies and several approaches: conceptual, statutory, and comparative. The results show that E-voting is able to improve Indonesia's democratic climate, as well as fulfil the principle of legal justice.

**Keywords:** Legal Compliance era 5.0, Modern election, E-voting

## I. INTRODUCTION

In the global civilization, the development of information and communication technology often changes people's behaviour. Where its development makes the world borderless and social changes that take place very quickly and significantly to society. In the end, humans have entered the period of the industrial revolution 4.0 and the era of society 5.0 where all technology is part of humans. Technology is not only used to share information but also used to help human life.[1] There are many benefits and positive impacts from the rapid development of technology, one of which is able to support complex human activities such as blockchain, internet of things (IoT), big data and one of them is artificial intelligence (AI) or in Indonesia known as artificial intelligence.[2] Examining artificial intelligence (AI), which is a technology or system created by humans and created to be able to imitate human activities and have a human-like framework in carrying out work.[3] In its development AI undergoes 3 levels of change or evolution, namely Artificial Narrow Intelligence (ANI) which is a form of Weak AI, then Artificial General Intelligence (AGI) or better known as Strong AI which has abilities comparable to humans, and finally Artificial Super Intelligence (ASI) is a form of AI that was deliberately created to exceed human capabilities.[4]

AI has a number of characteristics that are important to consider as the technology enters the national security arena. Firstly, AI is a versatile technology, as it has the potential to be integrated into almost anything. Secondly, AI is relatively transparent, meaning that its integration into a product is not immediately recognisable. AI will be used to solve problems, and there will be an expectation that AI will be incorporated into many things we do including as election technology. In the digital era, AI plays a very important role in facilitating a job, one of which is in the legal transition process that provides benefits and convenience for the community and even the country itself. With the existence of artificial intelligence, a new reform has emerged that brings changes to the state order. The use of artificial intelligence has become a common necessity in activities in this modern era. Its use is no longer limited to industrial production, public health, and public services.[5] The use of information technology in the government sector can be an opportunity to improve service quality, effectiveness, and budget cuts.[6] Therefore, artificial intelligence has now entered the realm of organising elections. Indonesia is a sovereign state of the people. This is as stipulated in Article 1 paragraph (2) of the 1945 Constitution of the Republic of Indonesia. General elections aim to advance democracy in the spirit of modernisation and provide high accessibility for the participating public.[7] In many democratic countries, the use of artificial intelligence is implemented through e-democracy or e-voting systems.[8] A strong legal framework is an important part of the electoral process. This legal framework should fulfil the principles of good election administration, which will reflect the democratic values that are the ultimate goal of the process itself.[9] In the implementation of General Elections in Indonesia, the use of artificial intelligence-based information technology has been presented in various stages that have been carried out by the General Election Commission (KPU). However, the problem is that there are many technical problems that occur in the field. Based on data from the KPU RI on 4 May 2019, the number of 2019 general election officers who died was 440 people. Meanwhile, officers who were sick reached 3,788 people.[10] This shows that in running the election process it still causes problems that should be resolved immediately. In addition, there are also other problems such as waste of paper and vote counting that is less effective and takes a long time. This paper will discuss how modern elections are carried out using integrated e-voting so that it can calculate the voting results directly as a form of legal revolution that is dynamic following the times.

## II. RESEARCH METHOD

This research uses a type of normative or doctrinal legal research which according to Peter Mahmud Marzuki in the book *Legal Research* that legal research does not recognise data. Researchers utilise the results of empirical legal science findings and other sciences for interest and analysis.[11] Legal studies in developing countries require two approaches, both legal and social science approaches. In order to analyse the problem in a directed manner, this paper also uses several approaches, namely a conceptual approach, a statutory approach, and a comparative approach. This paper uses data collection methods in the form of literature studies, namely the use of secondary data sources consisting of primary, secondary, and tertiary legal materials.[12] This research leads to practical aspects in order to overcome a concrete problem through research of legal and social facts, related legal regulations, and questions to be solved in a case. This research examines how to solve general election problems and regulations that can solve these problems. The analyses conducted on electoral law and political parties in Indonesia show that the concept of democracy is outdated.[13] On the other hand, the European Union has prepared a future legal framework to harmonise Artificial Intelligence and democracy. Therefore, this research will analyse the regulation of Law No. 7/2017 on General Elections.

## III. DISCUSSION

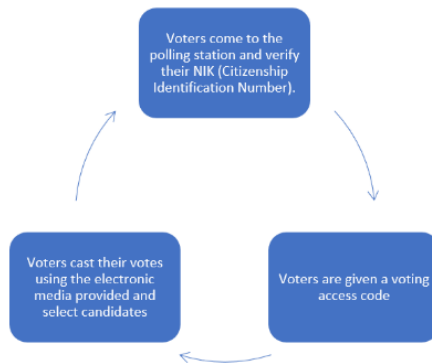
Indonesia is a country based on democracy and upholds the sovereignty of the people. As a democratic country in accordance with Article 1 paragraph 2 of the 1945 Constitution, to elect the country's leaders, Indonesia organises general elections simultaneously for the entire territory of Indonesia. In general, the way to vote is by voting or marking on the ballot paper. However, along with the development of technology, there is another technique, namely E-voting. E-voting is a simple electronic device used to record a voter's vote to replace the ballot paper and ballot box used previously in conventional voting systems.[14] E-voting refers to a system where voters cast their votes using an electronic system instead of paper ballots (or mechanical machines for casting paper ballots). Once recorded, electronic votes are stored digitally and transferred from each electronic voting machine to the voting system.

By conducting elections conventionally, the risk of errors in counting people's votes is still high because ballot papers must be counted manually. In addition, the manual method of voting will lead to some ballot fraud

by some individuals for the benefit of groups or political parties. Therefore, general elections are not in accordance with the principles of direct, general, free and fair principles that apply in Indonesia. Based on Law of the Republic of Indonesia Number 7 of 2023 article 4 letter c that the regulation of the implementation of elections aims to realise effective and efficient elections. However, the implementation of elections often causes very complex problems and cannot even be said to be effective and efficient because of the large use of paper and there are many victims, based on data from the KPU in 2019 there were 5,171 who were sick and 895 people died from fatigue. Therefore, to overcome this, the best way is to organise a modern voting system or known as e-voting. The advantages of AI in the implementation of E-voting are: reducing human error, being able to stand by 24 hours, being able to process large quantities of data in a short time, automatically completing repetitive tasks periodically, being more productive, efficient, and most importantly, transparent and objective data processing.[15] In the current context, the development is so rapid that the provisions of KUHAP, which were born 4 (four) decades ago, have become absolute with the lag of the times that cannot adapt to legal developments in today's society. However, the implementation of modern elections in Indonesia has not been implemented properly. The existence for humans, not humans for the law. Therefore, the reform that has rolled in Indonesia has brought a more democratic pattern of state life and this has also brought changes to the existing legal system, from a closed model to an open model by prioritising justice and legal effectiveness of modern electoral innovations using E-voting is in accordance with Satjipto Raharjo's progressive legal theory which states that the law is for human.[16] Therefore, the reform that has rolled in Indonesia has brought a more democratic pattern of state life and this has also brought changes to the existing legal system, from a closed model to an open model with more emphasis on justice and legal effectiveness.

The adoption of digital technology in elections has the benefit of realising effectiveness and efficiency in the process of legitimate political contestation both in the stages of voting, verification of voter identity, voting, vote counting to transmission and tabulation of election results. Basically, whatever election technology is used, it must ensure that public trust is maintained.[17] This is because trust is an important asset in democracy.[18]

The implementation of electronic elections has also been implemented in various countries, one of which is India.[19] In India, there are many problems when it comes to voting. One of them is fraud such as fake ballot papers and the high cost of voting. This prompted the Election Commission to design e-Voting in a machine or EVM In 2003, all elections in Indian states have used EVMs. This tool has also been used in national elections to elect members of the Indian parliament in 2004 and 2009. The successful implementation of e-voting in India is not solely due to technology, but also due to the simplicity of the electoral system. India uses the first past the post system or district system which is the simplest variant. Not much different from France, which has been using e-voting since January 2007, the Union for a Popular Movement (UMP) Party has organised presidential elections through the e-Voting method, as well as 750 polling stations that provide touch screens. A total of 230,000 votes were cast, representing 70 per cent of the electoral roll. Previously, e-voting elections were conducted for the first time in 2003. This helped French citizens living abroad to easily participate in the election. More than 60 percent of voters exercised their right over the Internet rather than on paper. E-voting offers several advantages over conventional voting methods, including greater speed and accuracy of vote tabulation and greater convenience for voters.[20] In the course of the general election using e voting, it will not violate the principle of direct elections.



Picture 1. Systematic election using E-voting

E-voting refers to a system where voters cast their votes using an electronic system instead of ballot paper or mechanical machines to cast ballot papers. Once recorded, the electronic vote is stored digitally and transferred from each electronic voting machine to the counting system.[20] The existence of an application for general elections will not violate the principle of elections in accordance with Article 22E of the 1945 Constitution, because the public still comes to the TPU, but the difference is in the means to vote, which previously used paper to use electronic devices such as tablets, computers or machines provided by the government at the TPU. This aims to provide efficiency and effectiveness in the implementation of elections in the digital era because the results of the election can be accessed immediately so there is no need for days of calculations which in fact also cause casualties to KPU officers. E-voting uses the Internet poll site voting system. In this type, the internet is used to send data from polling stations to local, regional and central election authorities. This type of voting works on public computers and is similar to machine voting. Connection from polling stations to headquarters.[21]

Elections using the E-voting application will not cause data transparency problems, because the data is directly inputted into the system and the public can only vote once using the Population Identification Number (NIK) which will be checked by KPU officers and can vote if it has been verified by KPU officers.

#### IV. CONCLUSION

E-voting has the potential to not only modernise the electoral process but also to improve interaction between citizens and government, through information and communication technology (ICT)-based e-participation platforms. Sophisticated security measures must be put forward to overcome the shortcomings of e-voting, its inherent transparency and to increase trust in the new system for both voters and election authorities.

The use of E-voting technology in India and France has been proven to deliver proactive elections and optimise legal compliance and will support a legal revolution. India launched EVMs in line with international recommendations. The Philippines introduced optical scan voting system to count votes easily and quickly.

The implementation of E-Voting is a progressive idea for Indonesian law in helping the Indonesian government and society to implement a legal revolution for elections in Indonesia. The state can simplify the election system using the Internet poll site voting mechanism that will be implemented every 5 years and will make it easier for the state to run elections by following changes in the modern era.

Based on the discussion and analysis in this scientific paper, the authors propose the following suggestions:

1. The government should reform the electoral law and cooperate with the General Election Commission and Law Enforcement Officials to reform the approach used in the revolution of electoral law from conventional to modern cooperative using E-voting. This step needs to be accompanied by simplification and improvement in the quality of regulations, especially for provisions relating to registration to vote counting, thus achieving a legal revolution and fulfilling the principle of fair efficiency.
2. E-voting in Indonesia must involve information technology experts, academics, the Government, and elements of society so that the goal of equitable efficiency is achieved and felt by all parties. Meanwhile, the Government needs to pay attention to the security and protection of personal data and voter data from registration to vote counting so that it can be utilised massively and optimally, the Government also needs to conduct counselling, especially for the wider community and indigenous peoples.

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