

Big Data-based Artificial Intelligence: Court Decision Formulation to Enhance Quality and Accuracy of Fair Judgments for the Society

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Abstract: In the judicial system, judges play a strategic role in upholding justice. However, judges often have different views and considerations in deciding cases, which can undermine the justice that should be upheld. This raises the issue of how to improve the quality of judges' decisions to be more just and consistent. This study aims to explore the use of Artificial Intelligence (AI) technology based on Big Data of Court Decisions as a means to improve the quality and fairness of judges' decisions for the community. This research uses a normative juridical research approach. The results of the study indicate that AI technology based on Big Data can improve the quality and accuracy of court decisions. By collecting and analyzing data comprehensively, AI technology can provide more accurate and objective recommendations in cases being considered by judges. This can help improve justice for people who need accurate court decisions.

Keywords: Artificial Intelligence, Big Data, Court Decisions, and Justice

1. Introduction

The use of Machine Learning technology based on Artificial Intelligence (AI) and Big Data in court decisions is one of the innovations that has been widely discussed recently. AI technology enables computers to learn from data and perform tasks that typically require human intelligence.[1] Meanwhile, Big Data refers to the collection, processing, and analysis of large amounts of data to reveal patterns that cannot be seen through conventional methods. [2]

The use of AI and Big Data technology in court decisions is expected to improve the quality and accuracy of judge's decisions, as well as reduce the risk of human bias and errors in decision-making.[3] This can help increase public trust in the justice system. Judges must also ensure that the data used in decision-making is lawfully obtained and accountable.[4]

Therefore, research on the use of AI-based Big Data technology in court decisions needs to be conducted to ensure that the technology can be used fairly, effectively, and in accordance with the high legal values.[5] This research discusses how the use of Artificial Intelligence (AI) technology based on Big Data can improve the quality and accuracy of fair judgments for the community, as well as find solutions and strategies to address these issues effectively. In addition, it is also necessary to consider the changes that may occur in the existing judicial system, such as changes in the role of judges and changes in decision-making processes. These changes can have an impact on the overall fairness and accountability of the judicial system.

2. Discussion

2.1 The use of Artificial Intelligence (AI) technology based on Big Data in court decisions can improve the quality and accuracy of fair judgments for society.

Law is an inseparable entity that forms a cohesive whole and is constantly evolving, both evolutively and revolutionarily. [6] "The dynamic characteristic of the movement of law is something that cannot be erased or ignored, but rather it is essential and fundamental. Law is not only based on mere logic, but also a true science that must be constantly updated to remain relevant.[2] In relation to law as a means to transform society, law must be progressive. During the reformation era, when the law was considered as the "leader" of civil society, it was expected to be "sensitive" and even "visionary" in anticipating the changes that will occur in society.[7] In the concept of law proposed by Nonet and Selznick, the law must be adaptive. The concept of adaptive or responsive law requires the law to always act as a servant that responds to the needs and aspirations of the community, with characteristics that emphasize aspects such as substantive justice, public interest, and not only paying attention to procedural aspects. [8]

Nonet and Selznick developed the concept of responsive law, which views law as a means to respond to social needs and public aspirations, so that the law can become more open and able to accommodate social changes in order to achieve social justice and public liberation. This concept does not only see law as a set of rules or textual documents, but also considers the consequences and benefits of the law itself. In this situation, responsive law is seen as a solution to resolve the conflict between honesty and openness, and strengthens the way in which they can support each other even though there is a contradiction between the two.[9] Responsive law is a type of law that can address tension arising from social change.

The existing legal system must be able to respond to changes that occur in society. Law enforcement officials are expected to be creative in interpreting the law, not just focusing on understanding the text of the law, but also considering the humanitarian goals that are intended to be achieved. [10] Applying the law wisely to achieve humanitarian goals requires awareness and responsiveness to social demands. As a result of this responsiveness, the image of progressive law must show a responsive character. The key to responsiveness lies in its ability to capture the demands of society, as in the case of inconsistency in the verdicts of the same criminal case with the same considerations, yet resulting in significantly different judgments.

An example of a case that can be observed is Criminal Corruption Case Decision Number 06/PID.B/TPK/2010/PN.JKT.PST, which is related to the case of Endin Akhmad Jalaluddin Soefihara, and Criminal Corruption Case Decision Number 07/PID.B/TPK/2010/PN.JKT.PST, which is related to the case of Hamka Yandhu Y.R.

Table 1. Comparison of Endin J Soefihara's verdict with Hamka Yandhu's verdict.

Decision	No. 06/PID-B/TPK/2010/PNJKTPST, on behalf of Endin Akhmad Jalaluddin Soefihara	No.07/PID-B/TPK/2010/PNJKTPST, on behalf of defendant Hamka Yandhu Y.R
Case Position	<p>First Indictment :</p> <p>Defendant Endin Akhmad Jalaluddin Soefihara, balk singly or together Sofyan Usman, Uray Faisal Hamid, and Danial Tanjung, on the 8th June 2004 approximately at 15: 00 PM, or at least at other times that can no longer be ascertained in 2004, located on the 2nd floor Café Hotel Atiet Century Park on Jl Pintu Senayan One Central Jakarta.</p> <p>Have received a gift or promise, have receive a gift of money at least worth Rp. 1.500.000.000, - (one billion five hundred million rupiah) in the form of traveler's Check International Bank Indonesia (TC BII) from Nunun Nurbaeti through Ahmad</p> <p>Judge Safari aka Arie Malangjudo, given because or related to something contrary to the obligation, performed or not done in his office, that accused knowing that the gift is given because Defendant as a member of the commission DX DPR-RI who has the scope of duties include dealing with DPR-RI approval on the election of Deputy Governor Senior Bank Indonesia.</p> <p>The defendant's actions as regulated and threatened criminal in Article 5 Paragraph (2) jo. Article 5 Paragraph (1) letter of Law No. 31 of 1999 Anti-Corruption measures such as has been amended by law Indang number 20 years 2001 on changes to the Law Number 31 of 199 on the eradication of criminal acts The corruption of jo. Article 55 paragraph (1) of the 1st Criminal Code.</p> <p>Second Indictment:</p> <p>The defendant's actions as regulated and threatened criminal in Article 11 of Law No. 31 1999 on the eradication of corruption as amended by Law Number 20 of 2001 on changes to the law No. 31 of 1999 on the eradication of crime Corruption, article 1 paragraph (1) of the Criminal Code.</p>	<p>First Indictment:</p> <p>That the defendant Hamka Yandhu Y.R., together with T.M. Nurlif, Baharuddin Aritonang, Anthony Zeidra Abidin, Achmad Hafizzawawi, H. Easter Suzetta, Asep Ruchimat Sudjana, Bobby SH, Suhardiman, Marthin Bria Seran, Hengky Baramuli, Reza Kamanullah, on date that can not be ascertained again in June 2004 or at least at other times of 2004, located in the Office of PT. It's The Only Way To Go, Riau Road No. 21 Menteng Central Jakarta. Has received a gift or promise to receive give at least Rs. 7.350.000.000,- (Seven billion three hundred and fifty million rupiah) in the form The traveler ' s Cheque bank Intemational Indonesia (TCBII) Nunun Nurbaeti by Ahmad Hakim Safari (M)Jallas Arie Malangjudo, given because or related with something contrary to the obligation, done or not done in his office.</p> <p>The defendant's actions Hamka Yandhu YR as arranged and threatened criminal in Article 5 Paragraph (1) jo. Article 5 paragraph (1) letter of Law No. 31 of 1999 on Corruption as it has been amended by Undng-Law No. 20 of 2001 on Amendment to Undang Law No. 31 of 1999 on the eradication of corruption. Article 55 paragraph (1) to-1 Criminal code.</p> <p>Second Indictment:</p> <p>The defendant's actions Hamka Yandhu YR which has arranged and threatened criminal in Article 11 of Law Number 31 of 1999 on the eradication of corruption as amended by Law No. 20 Year 2001 on amendments to Law No. 31 1999 on the eradication of corruption jo. Article 55 paragraph (1) / Criminal Code (prosecution on behalf of Hamka Yandhu, page 9).</p>

Demands	<p>Letter of reference Number: TUT-15/24/2010 on behalf of Endin Akhmad Jalaludin Soefihara:</p> <ol style="list-style-type: none"> 1. Endin Akhmad Jalaludin Soefihara has been proven legally and convincingly do acts of corruption referred to in the first indictment ... (letter of claim, page 128) 2. Sentenced to imprisonment for 3 (three) reduces years while in custody and a fine of Rp. 150.000.000,- (One hundred and fifty million rupiahs), criminal subsidiary replacement brackets for 6 (Six) months in order for the accused to be detained. 3. In the face of overwhelming evidence seized for the country. 4. Set the cost of the case of Rp. 10.000,- (ten thousand rupiahs) was charged to the defendant. 	<p>Letter of Claim Number: TUT-14/24/05/2010 on behalf of the defendant Hamka Yandhu YR"</p> <ol style="list-style-type: none"> 1. Defendant Yandu YR is accused and proven guilty to commit corruption as regulated and threatened amendment in Article 5 paragraph (2) and article 5 paragraph (1) letter b, Law 31 of 1999 on the eradication of act criminal corruption ... (letter of demand page 127) 2. Dropping a criminal against Hamka Yandhu YR in the form of imprisonment of 3 (three) years and a criminal fine of Rp. 150.000.000,- (one hundred and fifty million rupiahs) subsidiary of 6 (six) months confinements 3. Evidence was seized by the state 4. Establish that Hamka Yandhu YR pay case fees of Rp. 10.000,- (ten thousand rupiahs)
Considerations Judges	<p>Aggravating factors:</p> <ol style="list-style-type: none"> 1. That defendant's action can reduce the image and dignity of ex-member of DPR-RI 2. That the defendant's action do not support the government programs that are actively combating corruption <p>Mitigating factors:</p> <ol style="list-style-type: none"> 1. That the defendant was polite in court 2. That the defendant still has a family liability 3. That the defendant has not been convicted 	<p>Aggravating things:</p> <ol style="list-style-type: none"> 1. The defendant as a member of the people representative assembly is a high state institution, should be a good example as an effort to eradicate corruption, but it was the defendant himself who committed the criminal corruption 2. The defendant's actions hurt the image of the board The People Representative Assembly of the Republic of Indonesia 3. The defendant's actions are counterproductive government to create a clean government and free from corruption, nepotism. <p>The things that Lighten:</p> <ol style="list-style-type: none"> 1. The defendant was courteous in front of 2. The defendant regrets his actions 3. The defendant returned the proceeds of crime he did

Judges Assembly's Verdict	<p>Following Article 11 of Law No. 31 of 1999 as amended by Law No. 20 of 2001 jo. Article 55 paragraph (1) of the Criminal Code and code of Criminal Procedure and other laws and regulations related. Stated in the decision of the panel judges with following verdict:</p> <ol style="list-style-type: none"> 1. The Defendant Endin Akhmad Jalaludin Soefihara proven legally and convincingly guilty on corruption 2. Bringing criminal charges against the defendant with imprisonment for 1 (one) year and 3 (three) months and a fine of Rp. 100.000.000,- (a hundred million rupiahs) subsidiary 3 (three) months of confinement. 3. Establish the period of detention that has been served the Defendant was completely removed from convicted crime 4. Order for the defendant to remain in prisoner 5. Declared confiscated goofs for the state 6. Charging the defendant to pay case fees of Rp. 10.000,- (ten thousand rupiahs) 	<p>Pay attention to article 11 of Law Number 31 year 1999 of eradication of corruption as it is amended by Law No. 20 of 2001 joint article 55 paragraph (1) of Criminal Code (KUHP) and article 25 of Law No. 46 of 2009 on the Criminal Justice system in corruption. Act Number 8 of 1981 on the Criminal Procedure Law (Head of KUHP) and the provision of legislation and regulation relating to this:</p> <ol style="list-style-type: none"> 1. According to the Court of appeal, Hamka Yandhu YR was found guilty and convinced of corruption together. 2. Penalized accordingly to defendant Hamka Yandhu with imprisonment of 2 (two) years and 6 (Six) months and a fine Rp. 100.000.000,- (one hundred million rupiahs) with the provision of life in the fine is not paid, replaced by criminal 3 (three) months of confinement. 3. The sale of goods in foreign country (the evidence was returned to the defendant) 4. Assign to the defendant of case cost by Rp. 10.000,- (ten thousand rupiahs)
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In the comparison between the two verdicts, there are several important aspects that need to be emphasized. First, in the process of prosecution against both convicts, the Public Prosecutor's Office used the same article and charges, possibly because the actions and conditions of both were not too different. Both convicts were involved in the same criminal act carried out jointly by members of Commission IX of the Indonesian Parliament related to the election of the Senior Deputy Governor of Bank Indonesia. Both convicts received money as gifts and used their authority to elect Miranda Swaray Gultom as Senior Deputy Governor of Bank Indonesia. However, there is a fundamental problem in the Judges' Verdict, namely the difference in the sentences imposed on the two convicts, in which Hamka Yandhu Y.R. received a heavier sentence than Endin A.J Soefihara.

Law needs to have effectiveness as a tool to achieve the goals of civil society.[8] Nonet and Selznick argue that the responsive law paradigm functions as a regulatory tool, rather than a judicial process. Regulation is the process of developing and adjusting policies to achieve desired legal goals. Responsive law always focuses on outcomes and goals outside of the legal

world itself. The legal system is seen as the result of negotiation, rather than a dominant force. The main characteristic of responsive law is the emphasis on values contained in regulations and policies.

Searching for the concept of responsive law is an ongoing effort in modern legal theory.[9] Jerome Frank argued that the legal realism approach aims to make the law more responsive to social needs by expanding the scope of relevant legal fields, so that legal thinking can encompass relevant knowledge in a social context. In this regard, the actions of legal officials can be influenced formally. [10]

Pound's theory proposes a more detailed model of responsive law that prioritizes social interests. According to this theory, good law should provide added value beyond mere legal procedures. In addition, the law should be competent and fair, and take into account the aspirations of society and strive to achieve substantive justice. [11]

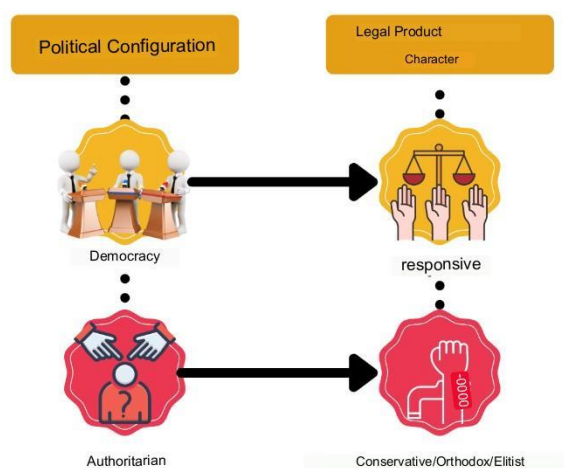


Figure 1. Configuration and Character of Law

To build a policy on the use of artificial intelligence based on big data to improve the quality and accuracy of fair judicial decisions for society, a focus on democratic principles is necessary to create a responsive legal system. Due to the significant implications of such regulations and policies, a strong legal culture, effective governance structures, and responsive legal substance with clear objectives and benefits are needed to achieve these goals. The policy must be effective and responsive in the long term, providing significant benefits for justice and the welfare of the Indonesian people within the framework of the rule of law.

AI or Artificial Intelligence is one of the technological innovations that is currently the focus of attention and competition in several countries. Artificial Intelligence (AI) refers to the idea of creating computer programs that can think like humans and help humans solve problems in their work. The goal of developing AI is to make human-made technology smarter and more useful, with applications in various fields such as industry, economy, agriculture, law,

technology, and art. The way AI works involves receiving input, processing data, making decisions, and producing output in the form of actions.[12]

According to John McCarthy, an expert system is a process for modeling and understanding human thinking in order to make machines capable of mimicking human behavior. The skills and intelligence in an expert system depend on knowledge and experience, so the software created must have knowledge and the ability to reason based on that knowledge, in order to find solutions or conclusions like an expert in a particular field.

Arman Dhani stated that in reality, the types of artificial intelligence that exist today play more of an assistant role to humans rather than replacing human roles. Currently, there are three different categories of artificial intelligence, namely:[13]

- a. *Artificial Narrow Intelligence*
Artificial Narrow Intelligence or ANI, also known as Weak AI, is a type of artificial intelligence that is limited to its specific scope of work, making it considered a weak form of artificial intelligence. However, ANI can still provide added value to our daily lives. Some examples include ATM machines, virtual assistants like Apple's Siri, song or video recommendations from Spotify, YouTube or Netflix, and automated toll gates. All of these examples demonstrate how ANI has already arrived and contributed to human life.
- b. *Artificial General Intelligence*
AGI or Artificial General Intelligence, also known as strong AI, is a type of artificial intelligence that is similar to human intelligence. AGI can be used to perform tasks that are done by humans in daily activities. In its use, AGI can help humans avoid monotonous work and provide opportunities to focus on self-development.
- c. *Artificial Super Intelligence*
Artificial Super Intelligence or ASI is a type of artificial intelligence that has a much higher level of intelligence compared to humans. If ASI is truly created, it is likely to have the ability to make predictions about disasters, map the spread of diseases, and even estimate accidents by utilizing traffic maps, these are some examples of artificial intelligence applications that can be performed. Additionally, ASI is also capable of being self-aware. Although ASI is still in development and not yet perfect, Sophia is one real-life example of this type of artificial intelligence. Sophia has even been granted citizenship in Saudi Arabia.

Based on the existence of Artificial Intelligence development, it can be seen that humans create technology to fulfill their needs and desires. When Artificial Intelligence machines are created and developed to solve specific problems, this technology can provide significant contributions in fulfilling human needs. Therefore, Artificial Intelligence can be a very useful tool in helping humans to live their lives.

AI, or Artificial Intelligence, is the ability of machines to mimic human actions such as learning and problem-solving. AI is divided into several categories, namely ANI, AGI, and ASI. In the field of law, AI is used to make fair and accurate legal decisions. In making legal decisions, judges must consider various factors, such as applicable laws, case facts, and previous rulings. This task can be very complex and tiring for judges, especially when they have to review many documents and similar cases. Therefore, developing AI applications can help judges examine documents and cases efficiently and accurately.

To overcome the challenges in legal decision-making, innovative solutions can be implemented using Artificial Intelligence (AI) based on Big Data. Big Data is a large and complex set of data that requires special technology to be analyzed. In this case, AI and Big

Data technology can be used to provide more comprehensive information about the cases being handled by judges. The data referred to here are previous court decisions that have similarities with the current case being handled. With this technology, judges can make faster and more accurate decisions.

The use of AI based on Big Data in legal decision-making can also help address the problem of injustice in the legal system. This is because AI technology can assist judges in identifying bias that may arise in the legal decision-making process. In this process, AI uses algorithms to examine various factors such as age, gender, and race of individuals involved in the case. This way, judges can avoid unfair and discriminatory decisions.

The use of Artificial Intelligence (AI) technology based on Big Data in court decisions can be a solution to improve the quality and fairness of judges' decisions for society. In making decisions, judges need to consider many factors, including similar cases that have been previously adjudicated. However, with the abundance of data available, it is difficult for humans to process and analyze all of the data quickly and accurately.

In this study, AI and Big Data technology were used to support judges in the decision-making process in similar cases. With the speed and accuracy of data processing, AI is able to provide useful information and recommendations to judges. In addition, AI can help judges predict the outcome of their decisions, thus helping them make more accurate and efficient decisions..

The utilization is done by analyzing data from several previous court decisions. This data is then processed using AI and Big Data technology to identify patterns and legal considerations in the decision-making process of judges. This facilitates the work of judges in carrying out their duties and minimizes inconsistent decisions between judges.

In order to improve the quality and fairness of judicial decisions, AI and Big Data technology can be utilized in the court decision-making process. With AI technology, judges can process data more quickly and accurately, thus helping them make more accurate and efficient decisions. In addition, this technology can also help judges identify the factors that influence decision-making, so that they can make fair and objective decisions. By doing so, the public can feel more confident and assured about a fair justice system.

In making decisions, there are many factors that must be considered by judges, such as legal regulations, facts revealed in court, and previous decisions. However, even though judges have extensive knowledge and experience, the decisions they make can be subjective and sometimes inaccurate. This is due to other factors that can influence the decision, such as emotions, perceptions, and fatigue. Therefore, the use of AI technology based on Big Data can help improve the quality and accuracy of judges' decisions.

In utilizing AI technology based on Big Data, information related to the case at hand will be collected and analyzed using AI algorithms. This information can include various types of data, such as previous decisions from judges, decisions from other courts, and data related to the case itself. With the AI technology based on Big Data, judges can obtain more comprehensive and accurate information, thereby assisting in making more accurate decisions.

In addition, AI technology based on Big Data can also help identify patterns in previous court decisions. By identifying these patterns, AI technology can assist judges in making more consistent and fair decisions. AI technology can also help identify similar cases, so that judges can see how similar cases were handled and consider them in making decisions. By collecting and analyzing data from previous court decisions, the AI system can build predictive models that can identify the factors that influence judges' decisions and predict the outcome in the case being processed.

In utilizing AI technology based on Big Data, the resulting decisions tend to be based on patterns found within the data. If the data is dominated by one group or perspective, then AI technology can produce decisions that are unfair to other groups. Therefore, there is a need to ensure that the data used in AI technology based on Big Data includes sufficient diversity to produce fair decisions for all parties involved.

3. Conclusion

The use of Artificial Intelligence (AI) technology based on Big Data in court decisions has the potential to improve the quality and fairness of judges' decisions for the community. AI innovation based on Big Data can help faster and more accurate data analysis so that judges can consider more factors in making decisions. In this context, the data used is previous court decision data that has been stored in the database. In the long run, the use of AI technology based on Big Data in court decisions can bring significant benefits to the community. By improving the quality and accuracy of decisions, judges can decide cases more fairly and justly, so that the community can feel more secure in their rights in court. In addition, the use of AI technology can also reduce the workload of judges and accelerate the decision-making process, so that the court can work more efficiently and effectively.

References

- [1] R. Moody and V. Bekkers, *Big Data and Public Policymaking: Course, Content, and Outcome*. 2023.
- [2] E. E. Supriyanto, H. Warsono, and A. R. Herawati, "Literature Study on the Use of Big Data and Artificial Intelligence in Policy Making in Indonesia," *Adm. J. Ilm. Adm. Publik dan Pembang.*, vol. 12, no. 2, pp. 139–153, 2021, doi: 10.23960/administratio.v12i2.235.
- [3] E. E. Supriyanto and J. Saputra, "Big Data and Artificial Intelligence in Policy Making : A Mini- Review Approach," *Int. J. Adv. Soc. Sci. Humanit.*, vol. 1, no. 2, pp. 58–65, 2022.
- [4] L. B. Moses, F. Johns, and D. Joyce, "Data associations in global law and policy," *Big Data Soc.*, vol. 5, no. 1, p. 205395171878343, 2018, doi: 10.1177/2053951718783438.
- [5] E. R. E. Sirait, "Implementasi Teknologi Big Data Di Lembaga Pemerintahan Indonesia," *J. Penelit. Pos dan Inform.*, vol. 6, no. 2, p. 113, 2016, doi: 10.17933/jppi.2016.060201.
- [6] M. M. Khurshid, N. H. Zakaria, A. Rashid, R. Kazmi, M. N. Shafique, and M. Nazir Ahmad, "Analyzing diffusion patterns of big open data as policy innovation in public sector," *Comput. Electr. Eng.*, vol. 78, pp. 148–161, 2019, doi: 10.1016/j.compeleceng.2019.07.010.
- [7] F. Torabi Asr and M. Taboada, "Big Data and quality data for fake news and misinformation detection," *Big Data Soc.*, vol. 6, no. 1, p. 205395171984331, 2019, doi: 10.1177/2053951719843310.
- [8] A. P. Narendra, "Big Data, Data Analyst, and Improving the Competence of Librarian," *Rec. Libr. J.*, vol. 1, no. 2, p. 83, 2016, doi: 10.20473/rlj.v1i2.1162.
- [9] M. I. Merhi and K. Bregu, "Effective and efficient usage of big data analytics in public sector," *Transform. Gov. People, Process Policy*, vol. 14, no. 4, pp. 605–622, 2020, doi: 10.1108/TG-08-2019-0083.
- [10] A. Kaplan and M. Haenlein, "Digital transformation and disruption: On big data, blockchain, artificial intelligence, and other things," *Bus. Horiz.*, vol. 62, no. 6, pp. 679–681, 2019, doi: 10.1016/j.bushor.2019.07.001.