Identification and Classification of Fraud Crime by Cooperative Management Using Deep Neural Networks

Parulian Samosir, Ediwarman, Budiman Ginting, Madiasa Ablisar, Alvi Syahrin, Sunarmi, and Ismansyah

***Abstract*— Cooperatives are organizations that are legal entities and their development in Indonesia is part of the overall national development effort. Cooperatives must be built to create businesses and services in creating the principle of kinship. The problem studied is how the form of fraud against cooperatives and how criminal liability against cooperatives. In this paper, potential criminal acts by cooperative management are identified and classified using the deep neural networks (DNN) method from the data of 275 respondents. The tests at the data processing stage with the DNN model show that the model with 140 epochs gives better estimation results with an accuracy of 98.5%, while the use of only 40 epochs gives better estimation results with an accuracy of 93.9%. The use of additional features as input to the DNN model shows the estimation results with a lower error value of 0.188%. The need for supervision of fellow cooperative members in running cooperatives as well as the role of the government in supervising cooperatives that have committed fraud crimes that have resulted in restless fellow members and the community. Strengthening the Cooperative Law so that it can directly ensnare cooperative members who abuse the function of authority or commit criminal acts is also very much needed.**

***Index Terms*— Classification, Identification, DNN, Information technology, Application and services, Cooperative**

I. Introduction

COOPERATIVE is a legal entity established by an individual or a cooperative legal entity, by separating the wealth of its members as capital to run a business that fulfills shared aspirations and needs in the economic, social and cultural fields in accordance with the values and principles of cooperatives. From the above understanding of cooperatives, it is desirable that cooperatives can be used as a form of people's economic empowerment. All people need to organize themselves in cooperatives so that they can compete in terms of quality and coexist with other economic business entities, such as state-owned enterprises and privately owned economic enterprises. Article 3 of the Cooperative Law states that cooperatives in Indonesia are based on the principle of kinship. The principle of kinship is in accordance with the soul and personality of the Indonesian nation and has been entrenched and rooted in the soul of the Indonesian nation.

By adhering to the principle of kinship, the awareness of human conscience to do everything in a cooperative by all for all, under the leadership of the management and ownership of the members on the basis of justice and truth and the courage to sacrifice for the common interest will be reflected. The principle of kinship has a distinctive characteristic of the Indonesian people, namely cooperation or mutual cooperation. In this collaboration, it is reflected that in the cooperative there has been awareness of the spirit and shared responsibility for the work (emphasized on the interests of shared happiness: light and heavy to carry).

Thus, the position of the cooperative will be stronger and the implementation of its work will be smoother. The legal basis for cooperatives in Indonesia is so strong that cooperatives have a definite place. The latest legal basis for cooperatives in Indonesia is regulated in Law Number 17 of 2012 concerning Cooperatives. Especially in savings and loan cooperatives, there is a legal basis regulated in Government Regulation No. 9 of 1995 concerning the Implementation of Savings and Loans Business Activities by Cooperatives. Cooperatives are one form of economic organization that is getting the government's attention. The increasing wheels of the economy along with the more democratic political atmosphere in Indonesia, the business related to financial institutions will also mushroom to support the development of life. This happens because the business world really needs support in accessing capital for business development, both assistance in terms of investment or working capital.

There are two views regarding cooperatives in doing business: The first is a pragmatic view which sees the prospects for future development of cooperatives with an attitude of adjustment. In this view, cooperatives are required to adapt private ways into and out in the form of cooperation with Private-Owned Enterprises (BUMS) and State-Owned Enterprises (BUMN) through partnerships. The second view denounces pragmatic actions and reminds cooperatives and the government to get back to basics. With the improvement in the

Parulian Samosir, Ediwarman, Budiman Ginting, Madiasa Ablisar, Alvi Syahrin, Sunarmi, Doctoral Program of Law, Universitas Sumatra Utara, Medan, Indonesia, (paruliansamosir123456@gmail.com)

Ismansyah, Doctoral Program of Law, Universitas Andalas, Padang, Indonesia.

business world, various types of financial institutions are also increasingly emerging such as banks, savings and loan cooperatives, leasing, insurance and so on. As a result, the ranks of managers/management in these financial institutions become important.

The board of directors must be credible because the financial business is a trust and capital intensive business. This is a consequence of the increase in third party funds deposited with various related financial institutions. Third party funds are funds received by financial institutions that are not funds originating from the company's founder or own capital and are entrusted to the manager to be turned into the credit sector in order to get the difference in profits for the company's profits and pay interest to third parties. Financial institutions that are closely related to the intermediation function are banking institutions that carry out the intermediation function between creditor and debtor customers.

But in reality, there are so many non-bank financial institutions that also collect funds like banks. Directly or indirectly violate the existing statutory provisions so that it can lead to criminal snares for administrators or managers who do not have good intentions in carrying out their work. There is a phenomenon that the actions of Savings and Loans Cooperatives that result in cooperative criminal acts are not without reason. The government gives freedom to cooperatives to carry out all forms of business in order to promote cooperatives, not to mention if the business indirectly violates the goals, principles and basics of cooperatives. It can also be questioned what is the background or motive for the action of the savings and loan cooperative to commit an act that results in a criminal act, whether the Savings and Loan Cooperative is seeking as much profit as possible.

II. METHOD

The identification and classification of criminal acts of fraud in cooperatives as well as ways of accountability are carried out based on legal or normative juridical research and supported by studies using the Deep Neural Networks (DNN) method. The normative juridical research refers to the legal norms contained in legislation and court decisions as well as legal norms that exist in society10. The research was conducted within the North Sumatra Regional Police using data on cooperative cases that had been handled during 2019 and 2020, among others LP/Number/IX/2019/SUMUT/SPKT II with number of: 1360, 1379, 1380, 1383, 1454; LP/Number/IX/2019/SUMUT/SPKT III with the number of: 1390, 1393, 1392, 1396, 1402, 1424; LP/1444/IX/2019/SUMUT/SPKT I; LP / 1768 / X / 2019 / SPKT II; LP/393/II/2020/SUMUT/SPKT III; LP/201/II/2020/SUMUT/SPKT II; LP / 417 / II / 2020 / SUMUT / SPKT 'I'; LP/786/V/2020/SPKT III; and LP/1527/VIII/2020/SPKT II. The data of this report shows that there are many reports of public complaints against problematic cooperatives. Based on 2019 as many as 13 reports and in 2020 as many as 5 reports in Sub-Directorate II of the North Sumatra Police Ditreskrimsus Fismondev. And the report has been submitted to the prosecutor's office, has also been tried and decided by the Medan District Court.

As part of the identification and classification of criminal acts of fraud in cooperatives, this research is complemented by a study of the level of understanding of the community or cooperative users towards cooperative crimes using four independent variables, namely the level of understanding of cooperatives, criminal impact, legal entities, and sanctions for violations. Questionnaires were distributed to more than 200 communities and cooperative users. Furthermore, the measurement data was evaluated using the DNN method. Deep Neural Network is an advanced method of Artificial Neural Network (ANN). The difference between Deep Neural Network and ANN is the number of layers used in the model that is built. Deep Neural Network is an ANN system that has 3 or more layers of Multi Layer Perceptron (MLP) which with its deep structure can increase the capacity of its feature abstraction. A more detailed review of the network shows several logical building blocks such as neurons, layers, weights, inputs, outputs, activation functions and optimizer11. Deep Neural Network is used as the main method in estimating or predicting the level of understanding of the community or perpetrators of cooperative crimes. In this study, the Deep Neural Network Model that is formed can be seen in Fig 1. In Fig 1, there are three types of layers, namely input, hidden, and output layers. The input layer is used to accommodate input features, the hidden layer is used as a computational layer, and the output layer is used as a layer that provides output or predictive values for cooperative crime. Calculations on the hidden layer are carried out using the following equation:

The variables y, j, k, l, z each are the output values of neurons in different layers. The y variable is the neurons in the first input layer, while the j, k, l variables are the neurons in the first to third hidden layers. The estimated value of the level of understanding of the community and the perpetrators of the cooperative crime is obtained on neuron z (output layer). Parameters w, v, q, p, s in equation 1-5 are weights values with b being the bias value. The variable n states the number of iterations or the number of neurons formed in the Deep Neural Network model. Based on the results of the training model, a number of weights and biases are obtained which are expressed in a matrix. The values for weights and biases are obtained from the results of the training carried out. The related Artificial Intelligence method has also been carried out in several studies which yield excellent accuracy 12-16.

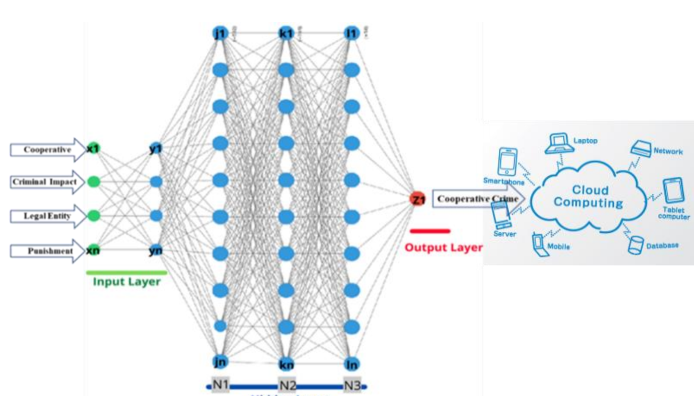

Fig 1. Deep Neural Networks Architecture for Cooperative Crime Prediction

Model

III. RESULTS AND DISCUSSIONS

Although Indonesian cooperatives are not a form of capital pool, but as a business entity, in carrying out their business cooperatives require a lot of capital. However, the influence of capital and its use in cooperatives should not obscure and diminish the meaning of cooperatives, which emphasize human interests more than material interests17. Based on the theory in criminal law regarding fraud, there are two points of view that must be considered, namely according to the understanding of language and juridical understanding, which explains: (i) In the Indonesian Dictionary it is stated that deceit means deceit, trickery, dishonest actions or words. (lie, false, etc.), with the intent to mislead, outsmart, or seek profit. Fraud means a process, an act, a way of deceiving, a case of deceiving (deceiving); (ii) According to the Juridical Definition, the definition of the crime of fraud by looking at the law has not yet existed, except for what is formulated in the Criminal Code. The formulation of fraud in the Criminal Code is not a definition but only to determine the elements of an act so that it can be said to be fraud and the perpetrators can be punished.

It is clear that what is meant by deception is a ruse or a series of lies so that a person feels deceived by what appears to be true. Usually someone who commits fraud explains something as if it was true or happened but it is different from reality. The aim is only to convince the target person to acknowledge his desire, such as using a fake name so that the person concerned is not identified and using a false position so that the listener is sure of his words. Fraud among the public is a very disgraceful act, but it is very rare for the perpetrators of these crimes to be reported to the police. Small-scale fraud is usually rarely reported so that the perpetrator continues to develop his actions until the behavior becomes large-scale.

The elements contained in Article 378 of the Criminal Code: (i) Conducted intentionally, (ii) Acts committed to benefit oneself or others, (iii) Performed against the law, (iv) Move other people by means of propulsion or persuasion in the form of using a false name or a false condition with a series of false words, (v) In that way people hand over something to make debts write off receivables. Based on the cases in the method section, there are several weaknesses of cooperatives that result in violating the provisions of Article 378 of the Criminal Code regarding fraud, there are also violations of Law Number 17 of 2012 concerning Cooperatives, there are also violations of Law Number 10 of 1998 concerning Banking.

In 1811, four additional laws were enacted: the Code of Civil Procedure (KUHAPer), the Code of Commerce (Commerce Law), the Code of Criminal Procedure (KUHAP), and the Penal Code (Criminal Law). All of these laws are gradually being amended or replaced with more modern provisions and currently only the Civil Code, most of its contents are still in the same condition as when it was first promulgated18. If fraud is carried out continuously, it is considered a continuing act (which are related to one another but each stands alone), must be seen as an action that is continued19.

Based on the understanding of the crime of fraud and cooperatives, it can be stated that the definition of a criminal act of fraud by the management of a cooperative is an act in which the perpetrator or the legal subject is a cooperative as a business entity against the customer as the victim, so that it has an impact on the loss to the victim. A business entity or corporation is a legal entity which is defined as an association or organization which by law is treated like a human person (persona) as bearer (or owner) of rights and obligations; has the right to sue or be sued before the court 20. Corporations as legal subjects are related to corporate activities that are directly related to the law, including when the corporation commits a criminal act or is known as a corporate crime.

The definition of corporate crime can be analyzed based on three The elements contained in Article 378 of the Criminal Code: (i) Conducted intentionally, (ii) Acts committed to benefit oneself or others, (iii) Performed against the law, (iv) Move other people by means of propulsion or persuasion in the form of using a false name or a false condition with a series of false words, (v) In that way people hand over something to make debts write off receivables. Based on the cases in the method section, there are several weaknesses of cooperatives that result in violating the provisions of Article 378 of the Criminal Code regarding fraud, there are also violations of Law Number 17 of 2012 concerning Cooperatives, there are also violations of Law Number 10 of 1998 concerning Banking.

In 1811, four additional laws were enacted: the Code of Civil Procedure (KUHAPer), the Code of Commerce (Commerce Law), the Code of Criminal Procedure (KUHAP), and the Penal Code (Criminal Law). All of these laws are gradually being amended or replaced with more modern provisions and currently only the Civil Code, most of its contents are still in the same condition as when it was first promulgated18. If fraud is carried out continuously, it is considered a continuing act (which are related to one another but each stands alone), must be seen as an action that is continued19.

Based on the understanding of the crime of fraud and cooperatives, it can be stated that the definition of a criminal act of fraud by the management of a cooperative is an act in which the perpetrator or the legal subject is a cooperative as a business entity against the customer as the victim, so that it has an impact on the loss to the victim. A business entity or corporation is a legal entity which is defined as an association or organization which by law is treated like a human person (persona) as bearer (or owner) of rights and obligations; has the right to sue or be sued before the court 20. Corporations as legal subjects are related to corporate activities that are directly related to the law, including when the corporation commits a criminal act or is known as a corporate crime.

The definition of corporate crime can be analyzed based on three elements, namely (i) the legal actions of corporations and their agents differ from lower socio-economic class criminal behavior in terms of administrative procedures. As a result, what is classified as a corporate crime is not only a crime against criminal law, but also a violation of civil and administrative law. (ii) both corporations (as “individual legal persons legal subjects”) and their representatives are included as criminal actors (as illegal actors) whose judicial practice depends on the crime committed, the rules and quality of evidence, and prosecution. (iii) the motives for crimes committed by corporations are not for personal gain, but for fulfilling needs and achieving organizational benefits. It is possible that this motive is also supported by operational norms (internal) and organizational sub-culture.

Weak supervision or even the absence of supervision of Savings and Loans Cooperatives provides an opening for deviations from the provisions concerning Savings and Loans Cooperatives. These deviations are not only in the form of deviations from the cooperative's code of ethics but lead to criminal acts that often make the management and managers of cooperatives suspect. Criminal acts that have the potential to occur in the activities of Savings and Loans Cooperatives as regulated in the Criminal Code are criminal acts of fraud and/or embezzlement. Currently, there are many cases of fraud and/or embezzlement under the guise of Savings and Loans Cooperatives. So in this case the loss of trust in cooperatives results in conflict and even fraud21.

The liability of cooperative criminal acts committed by cooperative officials must be determined according to the law of power of attorney, especially according to the principles developed in modern corporate law. Usually, the person who commits a criminal act is responsible, especially if the action is carried out by a representative on behalf of the cooperative principle. The next problem is whether the cooperative principal is also responsible or not. To solve this problem, it is very important to determine whether the liability of the principal of the legal entity due to the criminal act committed by his representative is direct responsibility (because of his own actions) or not22.

According to the regulations, legal entities are directly responsible for crimes committed by their representatives, provided that:

a. If an act can be considered as an act of a legal entity due to the position of the representative who carried out the act (responsible representative, an important official in the cooperative: a member of the board, or the board or manager);
b. If the representative acts within the actual limits of his authority;
c. If the crime is an act that can be subject to a fine.

According to Sutan Ramy Sjahdeini, if the type of corporation is a cooperative, then to find out who is meant by cooperative management, it must refer to the Cooperative Law. The cooperative organizational apparatus consists of a meeting of members, administrators and supervisors. By the Cooperative Law, what is meant by cooperative management is as referred to in Article 29 to Article 37 of the Cooperative Law.

According to Article 30 paragraph (1), the organizational apparatus called the administrator has the task of managing cooperatives and their businesses. Cooperative management is the management as referred to in the Corruption Act. Thus, the main directing mind of the cooperative is the management. Because the supervisor according to Article 39 of the law is the task and the authority can be very large in determining the direction of the cooperative's business activities, according to Sutan Ramy Sjahdeini the supervisor is also the directing mind of the cooperative. The Meeting of Members which according to Article 22 paragraph (1) is the holder of the highest authority in a cooperative is also a directing mind, because Article 23, among other things, establishes general policies in the field of cooperative business 23. In imposing criminal responsibility on corporations, Law no. 8 of 2010 concerning Prevention and Eradication.

In identification and classification research, the Deep Neural Network (DNN) model was built as an algorithm aimed at estimating the level of public understanding of cooperative criminal acts. Initially, the algorithm that I wanted to use was Artificial Neural Network, but during the data processing, this method was deemed unsuitable because it was not able to provide the appropriate estimation results. Furthermore, the ANN model is further configured so that it has more hidden layers and neurons or is known as a Deep Neural Network. The application of the DNN model does not only focus on classification purposes, seeing that DNN is also still part of Artificial Neural Networks (ANN), then DNN itself is also a machine learning model that can work with the Supervised Learning category. In this study, the DNN model was not applied for classification purposes but was used to carry out the regression process. The DNN model is considered necessary to be used because the data processed is not linear with respect to the value of the measurement results, so simple linear regression is considered incapable of handling the data. The prediction model is built with one input layer and eight hidden layers with the following rules: model.add(Dense(4,input_dim=4, activation='relu')); model.add(Dense(1024, activation='relu')); model.add(Dense(512, activation='relu')); model.add(Dense(256, activation='relu')); model.add(Dense(128, activation='relu')); model.add(Dense(64, activation='relu')); model.add(Dense(32, activation='relu')); model.add(Dense(16, activation='relu')); model.add(Dense(8, activation='relu')); model.add(Dense(1)).

Fig. 2 is the mean absolute error (MAE) in selecting the best model using DNN. From Fig. 2, it can be seen that the lowest MAE of around 4.4 was found in the 140th epoch, which means that the best model was found at that epoch. However, if seen from the graph, after epoch 40 the decline in MAE value is no longer significant enough, so the 40th epoch is considered sufficient to be used to build the desired prediction model. Fig. 3 compares the measurement results with the estimation results built on the level of public understanding of cooperative criminal acts. The mean values of the measurements with the questionnaire and the prediction model were 62.57 and 59.8, respectively, thus it was obtained that the prediction accuracy of the model was 95.6%. In this test, the predictive model is evaluated using test data or data that are familiar with the model. Furthermore, the model is evaluated using testing data as 60 data and a comparison of the results is obtained as shown in Fig. 4. The average value of the measurement to the predicted results is 61.4 and 60.5, respectively, so the accuracy value obtained is 98.5%. It can be seen that the accuracy of testing with testing data is higher than that of training data. This difference occurs because the test data used is much less than the training data. Fig. 5 shows the comparison of the prediction results of estimates using a model built using 40 and 140 epochs to the experimental measurement values.

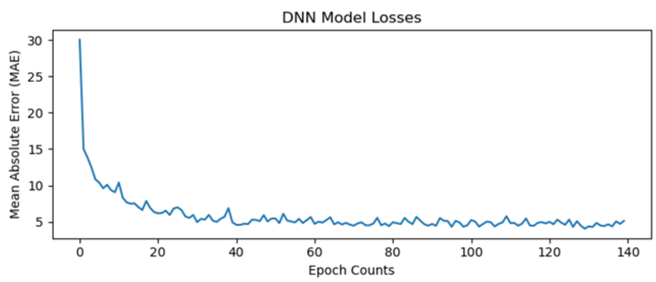

Fig. 2. Mean Absolute Error on DNN Design model.

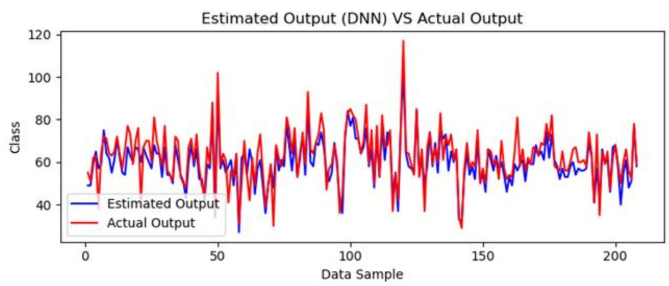

Fig 3. Comparison of Estimated Output using DNN method with Train Data of Measured Output

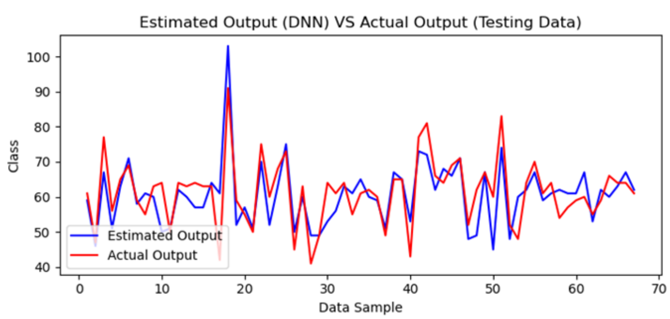

Fig 4. Comparison of Estimated Output using DNN method with Test of Measured Output

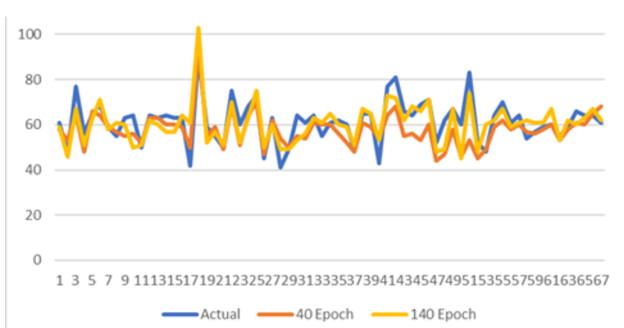

Fig 5. Comparison of Estimated output using DNN with 40 and 140 epochs, respectively with a test of measured output.

IV. CONCLUSIONS

Based on the results of the discussion, it can be concluded that the weak supervision of Savings and Loans Cooperatives provides an opening for deviations from the provisions regarding Savings and Loans Cooperatives. These deviations are not only in the form of deviations from the cooperative's code of ethics but also lead to criminal acts of fraud. The main directing mind of the cooperative is the management so that the management who is proven to have committed a criminal act of fraud will be legally responsible. In addition to juridical evaluation, in this study, testing in the processing of questionnaire data to find the best model for estimating the level of public understanding of cooperative crimes using the DNN method was carried out. The test was carried out using several DNN models with different numbers of epochs, namely 40 and 140 epochs with an accuracy of 93.9% and 98.5%, respectively. Computing the model with 40 epochs is much faster than 140 epochs with an accuracy difference of only about 4%. The design with 40 epochs is considered sufficient to build a predictive model on the level of public understanding of cooperative criminal acts.

REFERENCES

[1] M. S. Akram, “A Critical Analysis of Access to Justice in Bangladesh,” *International Journal of Humanities and Social Science Invention*, vol. 6, no. 8, pp. 50-58, 2017.

[2] G. Kartasapoetra, A. G. Kartasapoetra, S. Bambang and A. Setiady, *Koperasi Indoesia. Jakarta: Rineka Cipta*, 18, 2003.

[3] B. Joen Suh et al., “The effects of reducing opportunity and fraud risk factors on the occurrence of occupational fraud in financial institutions,” vol. 56, pp. 79-88, 2019.

[4] Y. Yang, et al., “The Chinese milk supply chain: A Fraud perspective,” *Food Control*, vol. 113, pp. 107211, 2020.

[5] J. B. Suh, H. S. Shim, “The effect of ethical corporate culture on anti-fraud strategies in South Korean financial companies: Mediation of whistleblowing and a sectoral comparison approach in depository institutions,” *International Journal of Law, Crime and Justice*, vol. 60, pp. 100361, 2020.

[6] J. Yan et al., “The effect of intention analysis-based fraud detection systems in repeated supply chain quality inspection: A context of learning and contract,” *Information & Management*, vol. 57, no. 3, no. 103177, 2020.

[7] B. Zhang et al., “A multi-criteria detection scheme of collusive fraud organization for reputation aggregation in social networks,” *Future Generation Computer Systems*, vol. 79, no. 3, pp. 797-814, 2018.

[8] R. Arshad et al., “Catch the “Warning Signals”: The Fight against Fraud and Abuse in Non-Profit Organisations,” *Procedia Economics and Finance*, vol. 28, pp. 114-120, 2015.

[9] Tarjo and N. Herawati, “Application of Benesih M-Score Models and Data Mining to Detect Financial Fraud,” *Procedia - Social and Behavioral Sciences*, vol. 211, pp. 924-930, 2015.

[10] L. Li et al., “Industry-wide corporate fraud: The truth behind the Volkswagen scandal,” *Journal of Cleaner Production*, vol. 172, pp. 3167-3175, 2018.

[11] Z. Ali, “Metode Penelitian Hukum”.*Jakarta: Sinar Grafika*. 105, 2009.

[12] H. Larochelle, Y. Bengio, J. Louradour, and P. Lamblin, “Exploring Strategies for Training Deep Neural Networks,” *Journal of Machine Learning Research*, vol. 1, pp. 1- 40, 2009.

[13] A. Turnip, E. Sitompul, G. T. Michael, S. Iskandar, D. Novita, D. E. Kusumandari, “Prediction of Drug Users Addiction Level with Methadone Treatment based on Brainwave Maximum Amplitude using ANFIS Method,” *Proc. of the International Conference on Health Informatics, Medical, Biological Engineering, and Pharmaceutical* (HIMBEP 2020), pp. 301-307, 2021.

[14] A. Turnip, G. F. Sihombing, G. F. Sihombing, G. M. Tampubolon, P. Turnip, D. E. Kusumandari, “Classification of Brain Signal Activities Before and After Consuming Soy Peptide Using Fuzzy Logic,” *In 2021 IEEE International Conference on Health, Instrumentation & Measurement, and Natural Sciences (InHeNce)*, 1-6, 2021.

[15] A. Turnip, P. Sihombing, B.N. Fitriatin, T. Simarmata, G.M. Tampubolon, T. Turmuktini, E. Joelianto, “Development of Irrigation System and Nutrition Prediction Model with ANFIS Method for Chili Plants,” *International Journal of Artificial Intelligence* (*IJAI*), vol. 20, no. 2, pp. 37-47, 2022.

[16] A. Turnip, M. S. Agung, D. K. Esti, F. S. Lisan, S. Willy, S. S. Aminah, L. A. I. Nur, D. P.Sutopo, “Methadone Effects on Frontal Brain Lobe based EEG-P300 Waves in Drug Rehabilitation Patients”, *In Proceedings of the 3rd International Conference on Applied Engineering* (ICAE 2020), pages 5-11, 2021.

[17] A. Turnip, M. A. Faizal, M. S. Agung, D. K. Esti, “Lie detection based EEG-P300 signal classified by ANFIS method,” *Journal of Telecommunication, Electronic and Computer Engineering (JTEC)*, 9, 1-5, 107-110, 2017.

[18] M. Firdaus, “Perkoprasian: Sejarah, Teori dan Praktek”. *Jakarta: Ghalia Indonesia*, 70, 2002.

[19] P. de Cruz “Perbandingan Sistem Hukum: Common Law, Civil Law, Socialist Law Penerjemah Narulita Yusron,” *Bandung: Diadit Media*, 91-92, 1999.

[20] A. Sakidjo and B. Poernomo, “Hukum Pidana Dasar Aturan Umum Hukum Pidana Kodifikasi,” *Jakarta: Ghalia Indonesia*, 67, 1990.

[21] F. Hasbullah, and Sjawe. “Direksi dan Perseroan Terbatas serta Pertanggungjawaban Pidana Korporasi,” *Bandung: PT Citra Aditya Bakti*, 28, 2013.

[22] T. Kifle Sebhatu et al. “Conflict, fraud, and distrust in Ethiopian agricultural cooperatives,” *Journal of Co-operative Organization and Management*, vol. 8, no. 1, pp. 100106, 2020.

[23] A. Muhammad, “Hukum Koperasi”. *Bandung: Alumni*. 117, 1982.

[24] S. R. Sjahdeini, “Pertanggungjawaban Pidana Korporasi,” *Jakarta: Grafitti Pers*, 156, 2007.