Intersectionality Of Artificial Intelligence And People With Disability For Inclusive Banking Services

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Abstract. People with disabilities are often in unequal situations and their needs are not always recognized in contractual relationships due to inconsistencies in providing personal signatures. Previously, a study conducted by BAPPENAS, OJK, KOMPAK, and DEFINIT in 2017 showed that 84.47% of financial institutions at the central level did not have special policies regarding financial services for Persons with Disabilities. Article 35 paragraph (1) POJK Number 6/POJK.07/2022 concerning Consumer and Community Protection in the Financial Services Sector has regulated the obligation to provide inclusive banking services. To answer this research, we will use normative-empirical legal research methods. The research results show that apart from using fingerprints, people with disabilities can also use artificial intelligence such as Iris scan, Face recognition, and/or Voice recognition as a substitute for signatures as stated in the Technical Instructions for Operational Financial Services for People with Disabilities issued by the OJK.

Keywords: Artificial Intelligence; Banking; People with disability.

1 Introduction

The issue of people with disability has traditionally been seen as a form of charity-based service. Over time, this paradigm has shifted towards a rights-based approach, manifested through changes in the law, specifically the transformation of Law No. 4 of 1997 concerning People with disability into Law No. 8 of 2016 concerning People with disability (the Disabilities Act). One of the key aspects addressed in the Disabilities Act pertains to ensuring access to banking services, as stipulated in Article 9, paragraph e of the Disabilities Act.

The results of a study conducted by BAPPENAS, OJK, KOMPAK, and DEFINIT in 2017 revealed that as many as 84.47% of financial institutions at the central level did not have specific policies regarding financial services for People with disability. Additionally, 91.26% of central-level financial institutions did not have specific Standard Operating Procedures (SOP) related to financial services for People with disability. At the regional level, the study also indicated that

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88.57% of financial institutions did not have specific policies regarding financial services for People with disability.[1] Following the findings of this study, OJK (Financial Services Authority) has made efforts to develop the Operational Technical Guidelines (PTO) for Financial Services to People with Disabilities. The development of these operational guidelines also serves as a concrete implementation of providing access to financial services for people with disability as stipulated in Financial Services Authority Regulation (POJK) No. 6/POJK.07/2022 concerning Consumer and Public Protection in the Financial Services Sector (POJK on Consumer and Public Protection in the Financial Services Sector).

The mandate for Financial Service Providers (PUJK) to provide accessibility to their services is stipulated in Article 35, paragraph (1) of the POJK on Consumer and Public Protection in the Financial Services Sector. This article specifies that "Financial Service Providers (PUJK) are obliged to provide equal access to every Consumer based on the classification of Consumers as regulated in Article 23, paragraph (2)." Article 35, paragraph (2) also states that "Financial Service Providers (PUJK) have a responsibility to support the provision of special services to Consumers with disabilities and the elderly." The elaboration of this provision represents a further manifestation of the obligation of Financial Service Providers (PUJK) to provide access and services in accordance with the principle of equality.

To elaborate on the understanding of equality as mentioned in Article 35, paragraph (1) of the POJK on Consumer and Public Protection in the Financial Services Sector, the explanation section clarifies that equal access takes into consideration the classification of Consumers using products and/or services in the financial services sector. In other words, if the Consumer falls into the classification or group of people with disability, Financial Service Providers (PUJK) are obligated to provide special services that are identified and modified according to the disability classification. Article 35, paragraph (2) defines the forms of special services that can be provided, including: providing forms in braille; offering application features with attention to individuals with disabilities; having dedicated ATMs for people with disability; and providing information media that accommodates Consumers with disabilities.

The special services provided by banks to people with disability can be considered a form of accessibility. Accessibility offers opportunities for individuals with disabilities to engage in their activities independently, enabling them to participate fully in society. The scope of accessibility can encompass physical aspects, such as the provision of supportive infrastructure and facilities, as well as non-physical aspects, including the availability of supporting information. Essentially, accessibility represents the convenience provided to people with disability.[2]

So far, the ease of access to banking services has been developed significantly through the digitization of banking, including the presence of Automatic Teller Machines (ATMs), SMS banking, internet banking, mobile banking, and even the emergence of digital banking products themselves.[3] The concept of digitization should ideally align with the fulfillment of accessibility in banking services for people with disabilities, as digital access is designed to alleviate the

barriers that exist in conventional banking practices. This convenience can undoubtedly support the independence of people with disability, as they are aided by the system and represents a form of respect for the existence of people with disability as equal legal subjects in economic activities. An example is the presence of fingerprint technology, which can be used as a signature alternative for people with disabilities who find it difficult to provide consistent signatures.

Unfortunately, people with disability are often in a vulnerable position when it comes to private law matters. People with disabilities are placed and stigmatized as being under guardianship (*curatele*) and unable to stand as independent legal subjects. This caused people with disability facing conflicts or challenges in private law aspects such as challenges in banking agreements.[4] Research on the aspect of accessibility for people with disability has been conducted by Sri Yani Yolanda. The author examined Consumer Protection Studies at Bank Rakyat Indonesia (BRI) at Bukit Barisan, Pekanbaru. The research showed that the implementation of consumer protection for visually impaired people by BRI at Bukit Barisan is still low because it did not yet provide talking ATM service for them.[5] The field research conducted by the author also found that people with disabilities in Kedaibilitas and HWDI at Surabaya still experiencing difficulties in accessing banking services due to their inconsistency in providing handwriting signature. Therefore, people with disability need supporting tools to assist them in banking service activities.

The role of artificial intelligence (AI) in digitalization features assists people with disability in supporting inclusive banking services. Artificial intelligence (AI) is a feature that can help provide solutions to the challenges and barriers faced by people with disability. The concept of this has actually been established in the PTO, such as Fingerprint recognition, Iris scan, Face recognition, and/or Voice recognition, especially as an alternative if people with disability cannot consistently provide their signature on forms or standard contracts provided by banks.

Therefore, this research will analyze the intersection between the presence of artificial intelligence (AI) as a tool and the presence of people with disability as legal subjects in banking services. From this discussion, it will also be determined to what extent the application of artificial intelligence (AI) can replace signatures and be recognized as a valid and legally binding form of agreement.

2 Method

The research is conducted using a normative-empirical research method, which combines normative legal elements, supplemented with empirical data or elements. Essentially, the normative-empirical research method examines the implementation of normative legal provisions (legal regulations) in their application to legal events occurring in society. [6]

The research materials are divided into primary legal materials and secondary legal materials. The data collection technique involved conducting interviews with disabled respondents who are

members of Kedaibilitas and the Association of Disabled Women in Indonesia (HWDI) at Surabaya. Respondents are represented by disabled people with the criteria of working-age (15-64 years) and who use banking services. Interviews are also conducted with banking institutions as Financial Service Providers (PUJK).

3 Result and Discussion

3.1 The Intersection of Artificial Intelligence and People with disability in Creating Inclusive Banking Services.

Inclusive finance as a term gained prominence post the 2008 financial crisis. It was prompted by the crisis's impact on the bottom of the pyramid (includes low and irregular income groups, people residing in remote areas, people with disabilities, laborers lacking legal identity documents, and marginalized communities), which are generally categorized as unbanked in non-industrialized countries.[7] In Indonesia, inclusive finance is measured using the Financial Inclusion Index (IKI), which employs a multidimensional index based on macroeconomic data encompassing access, usage, and the quality of banking services.[8] Essentially, financial inclusion aims to eliminate all barriers to access financial services.[1] Access to inclusive banking services, in its fundamental sense, pertains to savings and loan activities.[9]

Efforts to create inclusive banking services should be capable of eliminating or reducing barriers for people with disability. This is often hindered by weak internal regulations and government regulations. To address this issue, OJK (Financial Services Authority) has issued the Operational Technical Guidelines (PTO) for Financial Services to People with Disabilities as a means of standardizing services provided by Financial Services Providers. This initiative is also based on the regulations regarding access to services for people with disability outlined in the Financial Services Authority Regulation No. 6/POJK.07/2022 on Consumer and Public Protection in the Financial Services Sector.

These Operational Technical Guidelines (PTO) address several issues frequently encountered by people with disability in banking transactions. For instance, the problem of people with disability being unable to consistently provide a signature. The standards for documents required for banking agreements have been meticulously designed to accommodate all forms of disabilities as stipulated in Article 4 (1) of the People with disability Act, which include physical, sensory, mental, and intellectual disabilities. Furthermore, to eliminate barriers for people with disability, banking service standards are formulated by actualizing the role of artificial intelligence, such as "fingerprint recognition; Iris scan; face recognition; and/or voice recognition."

Artificial Intelligence (AI) is seen as capable of providing convenient, effective, and efficient services in business industries,[10] including the banking sector. In general, AI can be understood in three ways: (1) as a discipline in computer science; (2) as an autonomous agent, capable of adaptation and having specific competencies; or (3) as a set of technologies or tools that collect

and process data. AI can also be understood as a system, a series of data processing technologies aimed at accurately representing the social world. This system interprets data gathered through computational techniques and represents it symbolically or visually.[11] In reference to this, AI should be understood as a method rather than a legal entity that entirely replaces the natural role of humans (people with disability). In other words, AI is applied to assist all the activities of people with disability in accessing banking services and does not replace the role of people with disability in making conscious decisions.

a) Obstacles of People with disability Regarding Access to Banking Services

In the field research conducted in Kedaibilitas and HWDI at Surabaya as organizations advocating for the rights and protection of people with disability, there are still obstacles for people with disabilities related to banking agreements. These obstacles generally concern administrative processes, document requirements, and the availability of standard forms or agreements.

Table 1. Obstacles in the Use of Signatures in Banking Services for People with Disabilities in Kedaibilitas & HWDI Surabaya

Name	Age	Type of Disability	Obstacles	Provenance
Esa	20 years old	Mental disability (suffering from mental disorder/depression since high school due to bullying)	Complicated account opening process and long wait times due to the signature requirement.	Kedaibilitas
Rian	29 years old	Intellectual disability (belowaverage intelligence)	Lengthy requirements and processes for opening an account due to inconsistent signatures.	Kedaibilitas
Yudi	26 years old	Mental disability (born with mild autism)	Assisted by bank employees, but felt that the process for account opening involved taking a long time due to signature requirements.	Kedaibilitas

Wawan Budi Prasetyo	44 years old	Sensory disability (total blindness since birth)	Account opening is not permitted to replace the signature with thumbprints.	HWDI Surabaya
Devirisko	47 years old	Physical disability (deaf-mute and Cerebral Palsy)	Difficulties with the signature requirement as no alternative is provided by the bank.	HWDI Surabaya

Source: Field Interview Results 2023

The above Table 1 indicates that several people with disability often encounter difficulties when faced with the practice of using signatures on banking documents. Some individuals with disabilities have difficulty consistently providing their signatures, thus requiring an extended amount of time to enter into banking agreements. Unfortunately, even though the banks are aware of the difficulties experienced by individuals with disabilities, they do not offer any other alternatives to facilitate the transaction process. However, in Section 5.1.2 of the Operational Technical Guidelines (PTO) for Financial Services to People with Disabilities, several other alternatives are provided, including the use of thumbprints and even artificial intelligence technologies such as fingerprint recognition, iris scans, face recognition, and/or voice recognition.

Based on the interviews with Financial Service Providers (PUJK) especially banks), represented by the Legal Corporate of Bank Maspion in Surabaya, it was conveyed that "the presence of signatures performed by the bank and customers is crucial because it serves as evidence of the legal relationship between the parties that can be used in the future if disputes arise".[1] A similar statement was expressed by Febriani, as the Teller Coordinator of Bank Mandiri in Surabaya, who stated that "the presence of signatures in documents, contracts, or agreements made between the bank and customers is important".[35] It can be concluded from the interview responses obtained from the banking institutions that the presence of a signature is essential in a banking transaction, and the concept of including a signature applies universally to all customers (both consumers with disabilities and non-disabilities) due to the authentic nature of the signature.

Nevertheless, considering the condition and classification of customers, the bank is obligated to identify the needs of customers with disabilities, as stipulated in Article 35 paragraph (1) of POJK

[1] Interview with Theresia Fedora Lolo as Legal Corporate Bank Maspion (October 12, 2023). [35]Interview with Febriani as Teller Coordinator Bank Mandiri (October, 24 2023)

on Consumer and Community Protection in the Financial Services Sector, which states that "Financial Service Providers (PUJK) are required to provide equal access to every Consumer according to the classification of Consumers." In Article 35 paragraph (2) of POJK on Consumer and Community Protection in the Financial Services Sector, it is also specified that "Financial Service Providers have a responsibility to support the provision of special services to Consumers with disabilities." Special services provided to Consumers with disabilities may include the provision of application features that consider the needs of individuals with disabilities.

The transformation and adoption of AI in performing banking services in terms of security, can be facilitated by the banking industry by providing fingerprint recognition for its customers.[12] Fingerprint recognition can be adopted by banking institutions because it is easy for customers to use, offers a high level of accuracy, and is cost-effective.[13] The convenience of fingerprint recognition, relying on the unique characteristics of an individual's hand, has become a favored choice among banking institutions especially in achieving financial inclusion and opening up opportunities for the bank to access funding sources from people with disability. Until now, individuals with disabilities have often been excluded from opening bank accounts due to the perception of their inability to enter into banking agreements.[14] In fact, people with disability are not incapable of binding themselves into an agreement, but they are not supported by facilities that can make them independent. In other words, an environment that is not inclusive actually creates more obstacles for them.

b) Legal Basis for the Use of Artificial Intelligence as an Alternative to Signatures in Banking Transactions

Alternative artificial intelligence technologies such as fingerprint recognition, iris scans, face recognition, and/or voice recognition can be applied as substitutes for signatures in banking transactions. The Operational Technical Guidelines (PTO) for Financial Services to People with Disabilities prepared by the OJK serve as a standardization of services. This alternative can also be ensured to provide protection and legal certainty for all parties.

The use of fingerprint recognition, iris scans, face recognition, and/or voice recognition can be considered as a form of artificial intelligence (AI) technology that combines information technology and business transactions. Based on machine learning identification, AI systems recognize digital patterns such as fingerprints, retina scans, facial structures, and voice, and then interpret user intentions at a level of intelligence almost equivalent to that of a human. [15]In other words, any barriers faced by people with disability in banking transactions can be identified and modified through artificial intelligence.

So far, the practice of digital signatures in economic activities, especially digital transactions, has been acknowledged as a valid substitute for wet ink signatures on electronic documents. Digital signatures have legal validity equivalent to wet ink signatures on paper documents, and their authenticity can be proven and is legally binding.

However, the application of digital signatures is still limited to certain documents. Article 5 Paragraph (4) of Law Number 19 of 2016 on Electronic Information and Transactions (ITE) stipulates that digital signatures do not apply to documents or letters that, based on other regulations, must be made in written form. Digital signatures also do not apply to documents that must be made in the form of a notarial deed or an act made by a notary public. This means that there are still some regulations that restrict the use of digital signatures, such as Article 5 Paragraph (4) of the Law on Electronic Information and Transactions (ITE) and Law Number 2 of 2014 concerning The Position of Notary Public.

The use of fingerprint recognition, iris scans, face recognition, and/or voice recognition essentially functions as an alternative to the handwritten signature in banking documents and agreements. In other words, the use of artificial intelligence aims to produce a marker similar to an electronic signature. Article 12 of Law Number 19 of 2019 on Amendments to Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE) emphasizes that an Electronic Signature is "a signature consisting of Electronic Information attached, associated, or related to other Electronic Information used as a verification and authentication tool." Referring to Article 1 number 1 of the Law on Electronic Information and Transactions, "Electronic Information" means "one or a set of electronic data, including but not limited to writing, sound, images, maps, designs, photos, electronic data interchange (EDI), electronic mail (telegram, telex, telecopy or similar, letters, signs, numbers, access codes, symbols, or perforations that have been processed and have meaning or can be understood by those who can understand it."

This means that the realization of an electronic signature can originate from commands or identifications on writing, sound, images, and so on. Therefore, the alternative artificial intelligence methods, such as fingerprint recognition, iris scans, face recognition, and voice recognition, are in line with these regulations.

Article 11 paragraph (1) Law Number 19 of 2016 on Amendments to Law Number 11 of 2008 on Electronic Information and Transactions (ITE), together with Article 59 paragraph (3) of Government Regulation Number 71 of 2019 on the Implementation of Electronic Systems and Transactions, also stipulates that: "Electronic Signatures have legal force and legal consequences that are valid, provided they meet the following requirements:

a. the data for creating the Electronic Signature is related only to the Signatory;
b. the data for creating the Electronic Signature during the electronic signing process is solely within the control of the Signatory;
c. any changes to the Electronic Signature that occur after the signing time can be detected;
d. any changes to the Electronic Information related to that Electronic Signature after the signing time can be detected;
e. there are specific means used to identify the Signatory; and

f. there are specific means to indicate that the Signatory has consented to the Electronic Information related to it."

These requirements must be cumulatively met for any alternative to handwritten signatures provided by people with disabilities to be considered valid and legally binding. It can be observed that the provisions in this regulation emphasize the authentic nature of the signature and the validity of the signature in line with the principle of non-repudiation

As is known, the presence of a signature in banking transactions is important and is a symbol of the contractual commitment between the parties. The contractual relationship can be based on the following three theories: [1]

a. Will Theory (*Wilstheorie*)
   Contractual obligation only arises if there is a statement based on the sincere intention. Contractual relation will only be established based on and only to the extent of the statement which corresponds with the intention. Consequently, any statement that does not coincide with the party's wish will not be considered binding.
b. Statement Theory (*Verklaringstheorie*)
   A declaration of intention that binds oneself, resulting in the formation of an agreement, for example, statements through written documents and signatures. According to this theory, a party is bound by their statement regardless of whether or not such statement corresponds with their genuine intention.
c. Trust Theory (*Vertrouwenstheorie*)
   This theory complements the deficiencies of the two previous theories. According to this theory, not every statement results in an agreement. Agreement occurs when a statement of intention is deemed acceptable by the offering party. This theory assumes that the party's statement which is objectively trustworthy is resulting from the party's own intention. Referring to this theory, the use of artificial intelligence such as fingerprint recognition, Iris scan, face recognition, and/or voice recognition can be said to fulfill the trust theory. During the process of receiving digital signature data using biometric technologies such as fingerprint, iris scan, face recognition, or voice recognition, it is already aligned with a security system involving asymmetric encryption and decryption. Therefore, it possesses authentic characteristics and is not susceptible to sabotage by other parties.

4 Conclusion

The use of artificial intelligence (AI) can be employed as an alternative to handwritten signatures in banking transactions for people with disability. This alternative may include fingerprint recognition, Iris scan, face recognition, and/or voice recognition as stipulated in the Operational Technical Guidelines (PTO) for Financial Services to People with Disabilities. The intersection between the use of artificial intelligence (AI) and people with disability does not replace their status as legal subjects but rather serves as a supportive means to overcome the obstacles, such as the challenge of consistently providing a signature in banking transactions. The encryption results

of artificial intelligence (AI), such as fingerprint recognition, Iris scan, face recognition, or voice recognition, are valid and legally binding, as determined by Article 11, Paragraph 1 of the Electronic Information and Transactions Law, in conjunction with Article 59, Paragraph 3 of Government Regulation Number 71 of 2019 regarding the Organization of Electronic Systems and Transactions.

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