

Living Law and the Digitalization of Communal Intellectual Property: The Dialectic of Customary Law and the National Data Center

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Abstract

The digitization of Communal Intellectual Property (KIK) through the National Data Center is a strategic policy to prevent biopiracy and strengthen legal protection. However, this step presents a dilemma: providing formal legal certainty, but potentially shifting the living law that grows in the socio-cultural practices of indigenous communities. The objective and problem formulation are to analyze the interaction between the digitization of KIK and customary law, and to find solutions so that formal legal certainty can go hand in hand with the sustainability of living law. The theory and method used are Eugen Ehrlich's theory of living law, which emphasizes law as something alive in social interactions. The research method is a normative-critical approach with socio-legal analysis. The results show that the digitization of KIK is important for documentation and strengthening the legal position at the international level. However, there are risks of bureaucratization, homogenization, and state domination. Recommendations: build a community-based participatory system supported by blockchain technology, smart contracts, and recognition of customary law in national regulations.

Keywords: Communal Intellectual Property, Customary Law, Digitalization, Living Law.



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INTRODUCTION

The digitalization of Communal Intellectual Property (KIK) through the National Data Center is one of the country's strategic policies to provide legitimate legal protection for traditional knowledge, cultural expressions, geographical indications, and genetic resources.(Sulistianingsih et al., 2021)The presence of this mechanism not only strengthens legal legitimacy at the national level, but also improves Indonesia's bargaining position at the global level, especially in the World Intellectual Property Organization (WIPO) forum and in the implementation of the Convention on Biological Diversity (CBD).(Rongiyati, nd)With official registration, countries gain an effective instrument to prevent biopiracy practices and other forms of illegal exploitation frequently carried out by international actors.

Despite its strategic value, the digitalization process also poses several challenges. First, there is the potential for rigid bureaucratization due to centralized data management by the state, which in turn can create distance from indigenous communities as the legitimate owners of knowledge. Second, there is the threat of cultural homogenization, as the rich diversity of traditional expressions can be reduced to uniform formal categories, thus neglecting their inherent social, spiritual, and cultural values.(EB, 2023)Third, the risk of excessive state domination, where indigenous peoples are no longer seen as sovereign subjects, but merely as objects of administrative recording.

When viewed from the perspective of Eugen Ehrlich's living law (Hardiyanti & Sugiyanto, 2023) Law should not be understood solely as text or digital archives, but rather as something that lives in social practices, is passed down from generation to generation, and is implemented as a concrete norm in community life. Therefore, the digitalization of KIK should not be positioned merely as a means of state control, but rather needs to be designed to accommodate the values, practices, and sovereignty of indigenous communities.

A solution requires participatory and community-oriented system design. This model allows indigenous communities to actively participate in managing their own traditional knowledge. Modern technologies such as blockchain and smart contracts can be used to ensure transparency, accountability, and equitable distribution of benefits. (Ayu & Girindra, 2023) Furthermore, recognition of customary law within the national regulatory framework is an essential foundation for ensuring that the digitization of Communal Intellectual Property (CIP) does not merely stop at the administrative documentation stage, but also supports the sustainability of living law that grows organically within the community. Without explicit recognition, digitalization risks displacing the role of indigenous communities as the legitimate owners of knowledge, thereby depriving CIP of its inherent social, cultural, and spiritual significance. Recognition of customary law is crucial because it is not merely a traditional norm, but rather a dynamic, adaptive legal system that serves as a primary support for the identity and sovereignty of indigenous communities.

The integration of customary law into national regulations will provide a dual dimension for the digitalization of KIK. First, it serves as a formal legal protection instrument, providing state legitimacy to safeguard communal assets from the threat of biopiracy and other forms of global exploitation, and strengthening Indonesia's position within the international legal system. (Nurul Fitriani & Adi Sulistiyono, 2024) Second, as a medium of empowerment, where indigenous communities are no longer positioned merely as objects of recording, but as the main subjects who have the right to determine, manage, and distribute the benefits of traditional knowledge passed down across generations.

Furthermore, a digitalization model that integrates customary law recognition offers a more balanced alternative because it bridges formal legal certainty with the sustainability of living law. In this approach, law is not merely understood as written norms institutionalized by the state, but also as a reflection of social values, cultural practices, and spiritual dimensions that exist within indigenous communities. (Nurwarsih, 2025) This balance is becoming increasingly important amidst globalization, where the penetration of modernization and technology often erodes traditional boundaries and encourages the homogenization of local cultural identities. By accommodating customary law, the digitalization of KIK transforms it from a mere instrument of state control into an arena for dialogue and interaction that brings together state law and customary law. (M. Yusrizal Adi & MA Lubis, 2024) Ultimately, this mechanism strengthens legal pluralism and affirms the recognition of indigenous peoples' sovereignty as an inseparable part of national sovereignty.

Compared with a digitalization model based solely on formal state regulations, the fundamental difference lies in its orientation and the actors involved. A centralized model based

on state law tends to position indigenous communities as mere administrative objects. Consequently, there is the potential for rigid bureaucratization, limited community participation, and reduced cultural diversity to uniform formal categories. In contrast, a model based on customary law recognition positions local communities as the primary subjects, allowing them to retain control over inherited traditional knowledge while ensuring a more equitable distribution of benefits.

Thus, digitalization based on the recognition of customary law not only maintains the existence of living law, but also provides formal legitimacy at both the national and international levels.(Achmad Asfi Burhanudin, 2021)Meanwhile, an approach that relies entirely on state law may ensure administrative certainty, but it risks eroding the sovereignty of indigenous communities. Therefore, a participatory approach based on the recognition of customary law is more appropriate in Indonesia, where cultural diversity and a plurality of legal systems are integral to its national identity.(Disantara, 2021)

The following is a comparison table of two KIK digitalization models so that the differences between them are clearly visible, as follows:

Aspect	Centralized Model (Based on State Law)	Participatory Model (Based on Customary Law Recognition)
Main Orientation	Formal and administrative legal certainty	Balance between formal law and living law
The Role of Indigenous Communities	As a recording object	As the main subject and actor in KIK management
Main Risks	Bureaucratization, cultural homogenization, state domination	The complexity of coordination requires flexible regulations.
Profit	Providing national and international legal legitimacy quickly	Ensuring the sustainability of cultural values, fair distribution of benefits, and community sovereignty
Living Law Position	Potentially marginalized	Recognized, maintained, and strengthened
Context of Globalization	Easier to standardize according to international standards	Offering legal pluralism and preserving local diversity
Dominant Actor	The state as a data center manager	Collaboration between the state and indigenous communities with participatory technology

The table shows that the digitization of Communal Intellectual Property (KIK) can be understood through two approaches: a centralized model based on state law and a participatory model based on customary law recognition. The centralized model emphasizes formal legal certainty and administrative legitimacy, but risks creating rigid bureaucratization, cultural homogenization, and marginalizing the role of indigenous communities. Conversely, the participatory model strikes a balance between legal certainty and the sustainability of living law

by positioning indigenous communities as key actors in the management of traditional knowledge, supported by modern technologies such as blockchain and smart contracts.

In the context of globalization, a centralized digitalization model does have the advantages of legal uniformity and rapid administrative certainty, but it risks reducing local cultural diversity. Conversely, a participatory model based on customary law recognition is more relevant for Indonesia because it maintains legal pluralism, strengthens indigenous peoples' control over traditional knowledge, and ensures equitable distribution of benefits.

The digitalization of Communal Intellectual Property (KIK) should ideally be built on the recognition of customary law so that it can serve a dual function: providing formal legal protection (MA Lubis et al., 2024) internationally recognized and strengthens the sovereignty of indigenous communities. This aligns with Eugen Ehrlich's Living Law Theory, which emphasizes that law lives in social practices, not just in formal texts. By integrating living law into the national regulatory framework, the digitalization of KIK can become a model of just, inclusive, and sustainable legal pluralism amidst globalization.

The following is a comparison with several other countries regarding the digitalization of Communal Intellectual Property (KIK) within the framework of globalization and living law, as follows:

Country	Dominant Model	Excess	Challenge	Relevance to Living Law
Indonesia	Hybrid (Centralistic + Participatory)	Giving space to customary law as well as formal international legitimacy	Complex coordination, digital infrastructure is not evenly distributed	High – potential to maintain legal pluralism
India	Centralized (NBA as manager)	Strong legal legitimacy, easily aligned with international standards	Rigid bureaucracy, the role of indigenous communities is often neglected	Low – living law is less accommodated
Peru	Participatory	Indigenous peoples are the main subjects, fair distribution of benefits	Requires flexible regulations & community awareness	High – living law is directly integrated
Australia	Transition (Centralistic → Participatory)	Protecting Aboriginal cultural expressions, recognizing cultural rights	Not yet fully legally binding, there is still commercial exploitation	Moderate – partially accommodated

South Africa	Combination	Combining formal law with the role of indigenous communities in digital registration	Limited digital infrastructure, uneven implementation	Medium – living law is starting to be integrated
Canada	Participatory	First Nations are directly involved, consultation mechanisms are mandatory	Sometimes it clashes with federal law which places more emphasis on administrative certainty.	High – living law is recognized in policy

RESEARCH METHODS

This research uses a normative-critical approach combined with socio-legal analysis. (S. Sukanto, 1990) The normative approach focuses on the positive legal review governing Communal Intellectual Property (KIK) and digitalization policies through the National Data Center, while a socio-legal analysis is used to understand the interaction between these formal rules and customary law (living law). The theoretical framework used is Eugen Ehrlich's theory of living law, which asserts that law is not merely a formal text but rather a living norm implemented in social practices.

The nature of this research is descriptive-analytical, (S. and SM Sukanto, 2009) with the aim of describing legal phenomena while analyzing the problems, challenges, and impacts of KIK digitalization on customary law and legal protection. Research data is sourced from primary legal materials (regulations, decisions, international instruments), secondary (academic literature, journals, expert opinions), and tertiary (legal dictionaries, encyclopedias). Data were collected through library research and document analysis, then processed qualitatively through stages of reduction, presentation, and drawing conclusions, to produce solutions that balance formal legal certainty with the sustainability of living law.

RESULTS AND DISCUSSION

Digitization of Communal Intellectual Property (KIK) as a Strategic Policy

The digitalization of Communal Intellectual Property (KIK) through the National Data Center is a strategic government policy to provide legal protection for the cultural heritage and knowledge of indigenous communities. (Nadia Carolina Weley, Viona Puspita, Nurlaly, Idham, 2024) This protection encompasses traditional cultural expressions, traditional knowledge, geographical indications, and even genetic resources, which are often exploited by foreign parties without permission and without equitable distribution of benefits to their owners. Through official digital registration, the government seeks to curb biopiracy practices that have harmed indigenous communities and ensure legal recognition of their rights.

Furthermore, the digitization of KIK is not merely an administrative process but also plays a crucial role in strengthening Indonesia's position internationally. An integrated national database can serve as a valid legal instrument in global forums such as the World Intellectual Property Organization (WIPO) and support the implementation of the Convention on Biological Diversity (CBD). Thus, Indonesia is not only able to safeguard its communal wealth domestically but also increase its bargaining power in international negotiations regarding the

use of traditional knowledge and genetic resources. This policy also embodies a balance between the demands of globalization and efforts to maintain the nation's cultural identity, allowing KIK digitization to serve a dual role as an instrument of legal protection and a symbol of political and cultural sovereignty globally. (Hamisa et al., 2023)

While the digitalization of KIK through the National Data Center brings strategic benefits, this policy also has the potential to create several risks that must be anticipated. First, there is the potential for rigid bureaucratization due to the centralization of data management by the government. Overly formal administrative processes could widen the gap between the state and indigenous communities as the legitimate owners of traditional knowledge, thus limiting public participation. Second, digitalization could lead to cultural homogenization, as the rich diversity of traditional expressions is reduced to uniform legal categories, potentially eroding the social, spiritual, and cultural values inherent in indigenous communities.

Furthermore, state dominance in the digitalization process also poses a threat. Indigenous communities risk being marginalized and treated merely as objects of administrative record-keeping, rather than as primary subjects entitled to manage and determine the use of their own knowledge. If this occurs, the initial goal of digitalization, which is to protect and empower local communities, could be distorted. Therefore, the success of this policy is crucially determined by the state's ability to recognize and integrate customary law (living law) into national regulations. (Jufianty Trisna Putri, 2024)

A participatory, community-oriented digitalization model is a more relevant approach because it places indigenous communities at the forefront of managing their traditional knowledge. Direct community involvement shifts the digitalization process from a top-down, state-dominated process to a bottom-up approach that considers the aspirations, values, and needs of local communities. This type of participation is crucial to ensure that digitalization is not merely an administrative procedure but also serves as a means of preserving cultural identity, strengthening sovereignty, and ensuring equitable distribution of benefits for indigenous communities.

The use of modern technologies such as blockchain and smart contracts provides significant support to this mechanism. (Mardhiah, 2025) Blockchain, with its transparent, decentralized, and manipulation-resistant characteristics, can guarantee the authenticity of KIK data while protecting it from unilateral claims by external parties. Meanwhile, smart contracts can be used to automatically regulate rights and obligations related to the use of traditional knowledge, including a proportional profit-sharing mechanism between users and community owners. Thus, the technology functions beyond simply an administrative tool, but also as an instrument of social justice that upholds accountability and transparency.

Furthermore, this participatory model also opens up space for harmonious dialogue between state law and customary law (living law). (Novyta Uktolseja, 2025) The state continues to act as a facilitator by providing formal legitimacy at the national and international levels, but indigenous communities retain the authority to regulate and preserve their knowledge heritage. With this approach, digitalization is not merely implemented as a means of state control but rather transformed into an empowerment mechanism that is inclusive, sustainable, and aligned with the principles of legal pluralism developing in Indonesia.

The following benchmarks for the participatory model of digitizing Communal Intellectual Property (KIK) in Indonesia place indigenous communities as the primary subjects in the process of recording, managing, and utilizing their traditional knowledge and cultural expressions. This approach seeks to maintain a balance between formal legal certainty provided by the state and the sustainability of customary law (living law) that exists within the

community. Compared with other countries, there are several variations of the model, as follows:

Benchmarks	Indonesia	Peru	India	Australia	Canada
The Role of Indigenous Communities	Involved, but still limited to administrative partners	Main subject, decision maker in recording & utilization	Limited, more as a recording object	Starting to be involved, but not yet fully sovereign	Central position, mandatory consultation at every stage
Role of the State	Facilitator and regulator, tend to be dominant	Regulatory facilitator, community as main actor	State (NBA) as full controller	The state begins to reduce its dominance, giving space to communities	The state as a community partner, not a sole controller
Integration with Living Law	There is recognition, but it is not yet optimal in formal regulations.	<i>Living law</i> become the main basis for KIK management	Hardly accommodate customary law	Some admittedly, it is still transitional.	<i>Living law</i> recognized and become part of official policy
Utilization of Technology	Still in the discussion stage (blockchain, smart contract)	Some local initiatives, not yet fully modern	Focus on administrative databases	Start developing a cultural protection platform	Leveraging digital systems according to community needs
Distribution of Benefits	Not yet clear, depending on state regulations	Transparent, regulated together with indigenous communities	Emphasizing administrative certainty, distribution is less fair	At first there was a mechanism, but it wasn't evenly distributed	Mandatory through community consultation & agreement

Compared with ideal indicators, the digitalization of KIK in Indonesia has only reached a partially participatory (hybrid) stage, where indigenous communities have been involved but have not yet become the main actors, while the state remains dominant, the integration of customary law is limited, the use of modern technology has not been realized, and the benefit distribution mechanism is unclear. To achieve an ideal participatory model like those in Peru and Canada, Indonesia needs to expand the role of indigenous communities, position the state as a partner, recognize customary law in formal regulations, utilize digital technologies such as blockchain and smart contracts, and build a fair and transparent benefit distribution system. Thus, the digitalization of KIK is not only administrative, but also becomes an instrument for inclusive and sustainable empowerment of indigenous communities.

The Dilemma between Legal Certainty and Living Law

The digitization of Communal Intellectual Property (KIK) has dual consequences that often create dilemmas. On the one hand, this policy provides the state with a formal instrument to ensure legal certainty through official registration in the National Data Center. Through this mechanism, traditional knowledge, cultural expressions, geographical indications, and genetic resources gain legal legitimacy recognized at the national and international levels. This is a strategic step to protect cultural heritage from biopiracy and illegal exploitation, while simultaneously strengthening Indonesia's bargaining position in global forums such as WIPO and the Convention on Biological Diversity (CBD). (Kusuma & Roisah, 2022)

On the other hand, digitalization has the potential to weaken the existence of living law, namely customary law that is alive and practiced in the socio-cultural practices of the community. The risk of cultural homogenization can occur when the rich diversity of traditions is simplified into uniform formal categories, thereby ignoring their inherent spiritual, social, and cultural values. State dominance in data management also risks positioning indigenous communities merely as objects of record, rather than as sovereign subjects who regulate their own knowledge. This tension reflects the clash between written law (state law) and customary law (living law), where formal legal certainty does not always align with the values and practices practiced by local communities. (Widyastuti, 2021)

Therefore, the digitalization of KIK presents a significant challenge: how to balance the state's need to achieve internationally recognized legal legitimacy with the obligation to maintain the existence of customary law as part of the nation's cultural identity. Without this balance, digitalization risks becoming merely an administrative tool for the state and losing its empowering function. Therefore, the digitalization of KIK needs to be designed in a participatory, community-based manner, and integrated with customary law in national regulations. Thus, digitalization not only strengthens formal legal certainty but also ensures the sustainability of living law as it grows and develops within society.

To bridge the dilemma between formal legal certainty and the sustainability of living law, a participatory, inclusive, and community-centered digitalization model for traditional knowledge management (KIK) is needed. The first step is to shift the state's position from primary controller to facilitator, providing legal legitimacy at the national and international levels. The state's role remains crucial in protecting against biopiracy and global exploitation, but the management of traditional knowledge should remain in the hands of indigenous communities as its rightful owners.

Furthermore, customary law needs to be firmly integrated into formal regulations. Customary law should not be viewed as a supplementary source, but rather as a dynamic and living legal system. This explicit recognition will create a balance between state law and living law, ensuring that the digitalization of customary law (KIK) does not weaken cultural identity, but rather strengthens it.

Furthermore, the application of modern technology is key to linking legal certainty with respect for local values. Blockchain technology, which is transparent and difficult to manipulate, can guarantee the authenticity of KIK data and protect against unilateral claims. Meanwhile, smart contracts can be used to automatically regulate rights and obligations, including profit sharing if KIK is used by a third party. Thus, technology plays a role beyond simply being an administrative tool; it also serves as a vehicle for social justice, ensuring transparency, accountability, and the equitable distribution of benefits. (Andini Eka Budiyo, 2023) Finally, benefit-sharing mechanisms must be designed fairly and transparently, not only

through state regulations but also through customary deliberations. This scheme ensures that every use of KIK provides tangible benefits to the owner community, whether in the form of royalties, empowerment programs, or cultural preservation.

Through a participatory approach, the digitization of Communal Intellectual Property (KIK) can mitigate the tension between the need for formal legal certainty and the sustainability of living law. From this perspective, digitization is not merely understood as a state administrative instrument focused on recording and control, but rather as a means of empowering indigenous communities that is inclusive, sustainable, and consistent with the principle of legal pluralism in Indonesia. Thus, the digitization of KIK has a dual role: strengthening formal legal legitimacy required at the national and international levels, while simultaneously preserving the social, cultural, and spiritual values inherent in the lives of indigenous communities.

Conceptually, this model aligns with Eugen Ehrlich's idea of living law, namely law that is alive and implemented in social practice. Through digitalization, state law and customary law can be brought together as equals and complement each other without hierarchy. This makes an important scientific contribution by demonstrating how technology can bridge the gap between state law (written law) and living law (customary law). (Widya et al., 2024) Thus, the digitalization of KIK can be used as a relevant case study to deepen the theory of the interaction between formal law and customary law in a modern context.

Furthermore, the use of digital technologies such as blockchain and smart contracts adds a new dimension to this discussion, particularly regarding the concept of transparent and accountable distributive justice. Blockchain serves to maintain the authenticity and security of KIK data, while smart contracts enable the automatic implementation of fair benefit distribution when KIK is utilized by third parties. The academic implication of this is the emergence of a new paradigm that positions technology not merely as an administrative tool, but also as an instrument of legal protection and social empowerment. Law in this context is no longer understood solely as a normative text, but also as a dynamic system that interacts with technological developments and cultural practices.

Furthermore, participatory digitalization of KIK can serve as a best practice for other countries with diverse cultures and pluralistic legal systems. Amidst globalization's often-homogenizing cultural trends, this approach demonstrates that technological modernization can coexist with the preservation of local identities. For the development of legal science, this model emphasizes the importance of an interdisciplinary perspective that combines legal studies, anthropology, and information technology in understanding contemporary legal phenomena.

Thus, the participatory digitization of Communal Intellectual Property (KIK) not only has practical value in protecting cultural heritage and traditional knowledge, but is also academically significant because it brings together three dimensions of contemporary law: state law, living law, and digital technology. From a state law perspective, digitization serves to provide legal certainty through an official recording system recognized nationally and internationally, thereby providing formal legitimacy and strengthening Indonesia's position in global forums. However, this legal certainty is not sufficient on its own. In the context of legal pluralism in Indonesia, living law, which arises from the socio-cultural practices of indigenous communities, remains the primary source of legitimacy. Customary law plays a vital role in maintaining the cultural, spiritual, and social values inherent in KIK, and therefore must be accommodated in formal regulations to prevent it from being marginalized by the dominance of state law.

Meanwhile, digital technology acts as a bridge between state law and living law. Blockchain technology, with its transparent, decentralized, and difficult-to-manipulate nature, can guarantee data authenticity and prevent unilateral claims against KIK. Meanwhile, smart contracts can automatically regulate rights, obligations, and equitable benefit distribution among stakeholders. With these characteristics, digital technology functions not only as an administrative tool but also as an instrument of social justice, supporting transparency, accountability, and community participation in KIK management.

From a theoretical perspective, the integration between state law, living law, and digital technology reflects a legal innovation model based on legal pluralism. (Disantara, 2024) State law provides certainty, living law maintains social and cultural legitimacy, while digital technology ensures the two can coexist harmoniously. This emphasizes that law is not a rigid system, but rather a dynamic ecosystem capable of adapting to technological developments without losing its connection to local wisdom. Ultimately, the digitalization of KIK serves not only as an instrument for legal protection and empowerment of indigenous communities, but also as an academic model that emphasizes the role of law as a bridge between global modernization and the preservation of local identity, as well as a means of strengthening the nation's cultural sovereignty in the international arena.

The following is a comparison and benchmark for KIK digitalization by looking at the relationship between state law, living law, and digital technology, as follows:

Aspect	Indonesia (current condition)	Peru	Canada
State Law	Focusing on formal recording in the National Data Center, the state still dominates as the main controller.	Have a specific legal framework that regulates the protection of traditional knowledge with formal recognition of indigenous communities.	Provide federal and provincial regulations that provide space for direct participation for Indigenous peoples in the protection of traditional knowledge.
Living Law	Customary law is only generally recognized and has not been fully integrated into national regulations.	Customary law is explicitly recognized as part of the legitimate legal system.	Indigenous communities have greater autonomy in determining the use of traditional knowledge according to their cultural values.
Digital Technology	The use of technology is still limited to discourse (blockchain & smart contracts have not been implemented in real terms).	Several digitalization programs are carried out by involving local communities in documenting traditions.	Using digital platforms managed jointly by the government and indigenous communities to protect and regulate access to traditional knowledge.
Distribution of Benefits	There is no clear mechanism; the potential for centralization in the	There is a benefit sharing mechanism that directly involves indigenous communities.	The benefit distribution scheme is regulated through collective agreements and community oversight.

	hands of the state is still great.		
Community Participation	The participation of indigenous communities is still limited, tending to be objects of recording.	Indigenous communities are the main actors in KIK data collection and management.	Indigenous communities have a major role in determining access, use and distribution of benefits.

This comparison shows that Indonesia is still at a hybrid stage, where the state is dominant but indigenous communities are beginning to participate. Meanwhile, Peru and Canada are more advanced, prioritizing indigenous communities as the primary stakeholders.

Analysis of Eugen Ehrlich's Living Law Theory

According to Eugen Ehrlich, law is truly born and develops through social interactions in society, (Susilowati Herry, 2000) It's not limited to legal texts or official state documents. This view emphasizes that law has a living dimension, reflected in everyday practices, cultural values, and social norms upheld by communities. This theory is highly relevant in relation to the digitalization of Communal Intellectual Property (CIP). (Lutfiana, 2021) The formalization process through the National Data Center is indeed crucial for providing administrative legal certainty, both at the national and international levels. However, without recognition of customary law, living law risks being reduced to mere administrative records, losing its substantive meaning for indigenous communities.

Furthermore, the absence of recognition of customary law in digitalization can create a distance between indigenous communities and their own cultural knowledge and heritage. Overly formal data collection processes have the potential to ignore the spiritual, social, and cultural values inherent in customary law, thereby diminishing the role of law as a social tool. This creates a gap between state law, which emphasizes formal certainty, and living law, which serves to maintain social legitimacy. Therefore, the integration of customary law into the formal legal framework is a fundamental requirement for the digitalization of customary law to maintain its socio-cultural essence.

From an academic perspective, this dilemma demonstrates the urgency of a legal pluralism approach to analysis. Digitalization that relies solely on state law will lead to injustice, while the recognition of living law without formal regulatory support could weaken Indonesia's position in the global arena. Therefore, a participatory model that combines the two is needed, utilizing digital technologies such as blockchain and smart contracts. This technology can ensure that Indigenous Peoples' Intellectual Property Rights (KIK) are not only documented but also continue to function as living knowledge, benefit indigenous communities, and are fairly protected within national and international legal frameworks.

An example is traditional knowledge regarding herbal remedies. Many indigenous communities possess unique recipes that serve not only as medicines but also as rich spiritual and ritual meanings. If this information is simply formalized in the National Data Center without involving indigenous communities, the state does indeed gain legal legitimacy to protect it from biopiracy. However, the social and spiritual dimensions inherent in this knowledge are potentially overlooked. In such a situation, indigenous communities risk being positioned merely as objects of record, rather than as primary subjects with sovereignty in managing their own knowledge.

From an academic perspective, this phenomenon demonstrates that living law is inseparable from the digitalization process of customary law (KIK). Recognition and integration of customary law into formal regulations are essential requirements to ensure that

digitalization does not stop at administrative legal certainty but also maintains the integrity of the social and cultural values contained within. The use of modern technologies such as blockchain can ensure data authenticity, while smart contracts can regulate the fair distribution of benefits to indigenous communities when their knowledge is utilized by third parties.

Through a participatory approach, the digitization of Communal Intellectual Property (CIP) is not only understood as an instrument of legal protection against the threat of biopiracy and exploitative practices, but also functions as a strategic tool for empowering indigenous communities while preserving the nation's cultural identity amidst the rapid flow of globalization. The protection mechanisms presented through digitalization provide formal legitimacy that is recognized both nationally and internationally, thereby strengthening Indonesia's bargaining position in global forums such as the World Intellectual Property Organization (WIPO) and the Convention on Biological Diversity (CBD). Moreover, inclusively designed digitalization ensures that indigenous communities remain in their position as the primary subjects in the management, utilization, and distribution of benefits from their traditional knowledge.

Theoretically, this framework is closely related to Eugen Ehrlich's concept of living law, which emphasizes that law truly lives in socio-cultural practices, not merely as a written document. By integrating customary law into the national legal framework, the digitalization of customary law (KIK) presents a concrete form of legal pluralism, where state law and living law are not positioned as opposites but rather as complementary. The support of digital technologies such as blockchain and smart contracts strengthens this dimension: blockchain guarantees data authenticity and security, while smart contracts enable transparency and a more equitable distribution of benefits. Thus, technology becomes not merely an administrative tool but also an instrument of social justice that connects formal legal certainty with cultural legitimacy.

In the context of globalization, this participatory digitalization model demonstrates that technological modernization does not necessarily mean the loss of cultural diversity, but rather can be a means to strengthen local identities. Participatory digitalization of KIK demonstrates that law can act as a bridge between modernity and tradition, as well as an empowerment mechanism that strengthens the sovereignty of indigenous communities. From an academic perspective, this approach enriches interdisciplinary discourse by integrating legal, anthropological, and information technology perspectives, resulting in new understandings of how law operates within a dynamic social ecosystem.

Therefore, the digitalization of KIK is not only relevant as formal protection but also contributes to the development of contemporary legal theory, particularly regarding legal pluralism, the integration of technology into the legal system, and the role of law in preserving cultural identity amidst global challenges. This model demonstrates that law is adaptive, dynamic, and able to meet the needs of society in the digital age.

The following are the benchmarks for KIK Digitalization: Indonesia with several countries, as follows:

Country	Legal Framework	The Role of Indigenous Communities (Community Role)	Digital Technology (Technology Use)	Benefit-Sharing
Indonesia	Protection through the	Involved, but still as an object	Digital technology (blockchain, smart	There is no clear mechanism yet,

	Intellectual Property Rights Law & National Data Center; there are no specific regulations for Intellectual Property Rights.	of recording; the dominant state.	contracts) is still just a discourse.	distribution is still controlled by the state.
India	<i>Traditional Knowledge Digital Library (TKDL)</i> ; recognized by WIPO.	Community as data provider; primary controlling state.	Comprehensive digital database.	Focus on preventing biopiracy, not direct profit sharing.
China	<i>Intangible Cultural Heritage Law</i> & patent law.	Customary law is not dominant; the state is centralized.	Digitization of cultural archives.	There is no clear scheme for the community.
Japan	<i>Cultural Properties Protection Law</i> .	Communities are involved in conservation, but within a state framework.	Digitization of museums & cultural archives.	Focus on preservation, not distribution of economic benefits.
Australia	<i>Indigenous Cultural and Intellectual Property (ICIP)</i> .	Aboriginal communities are the main actors; full rights to KIK.	Blockchain-based digital projects for arts & culture.	The profit sharing scheme is clear & based on community agreement.
Brazil	<i>Biodiversity Law</i> ; mandatory benefit-sharing.	Indigenous communities are recognized as legal subjects.	National biodiversity database.	There is a clear benefit sharing mechanism.
South Africa	<i>Intellectual Property Laws Amendment Act(2013)</i> .	Customary law is recognized as limited.	The KIK database is still in its infancy.	Weak distribution mechanism.
Kenya	<i>Traditional Knowledge and Cultural Expressions Act(2016)</i> .	Indigenous communities are recognized as rights holders.	The database is under development.	A profit-sharing scheme was designed, but implementation was weak.
Ethiopia	Protection of agricultural & herbal knowledge.	Indigenous communities have a strong role.	Local registration, limited digitalization.	Local community based distribution.

New Zealand	Māori protection through the Waitangi Tribunal.	Māori community main actor; full rights.	The digital platform is managed jointly by the government and the community.	Customary & state agreement based mechanism.
Philippines	<i>Indigenous Peoples' Rights Act</i> (IPRA).	Indigenous communities are the main subjects; fully recognized.	Digital database through NCIP.	Fair & transparent benefit distribution scheme.

This table shows that Indonesia currently occupies a hybrid model: a legal framework and digitalization efforts are in place, but the state still dominates. To achieve this ideal model, Indonesia needs to strengthen specific regulations for KIK, give a leading role to indigenous communities, implement cutting-edge digital technology, and establish a transparent benefit distribution mechanism.

CONCLUSION

The digitization of Communal Intellectual Property (KIK) through the National Data Center is a crucial step in providing legal certainty and preventing biopiracy. However, it must go hand in hand with the recognition of living law to prevent the erosion of the social, spiritual, and cultural values of indigenous communities. With a participatory approach, state law can provide formal legitimacy at the global level, customary law maintains the continuity of cultural identity, while digital technologies such as blockchain and smart contracts act as a bridge that ensures transparency and equitable distribution of benefits. This dialectic emphasizes that the digitization of KIK is not only an administrative instrument, but also a means of empowering indigenous communities and strengthening the nation's cultural sovereignty in the era of globalization.

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