Digital Transformation in Indonesia Land Services

Authors: Muhammad IRFAN, Idin Yunindra Ibnu PARASU, Ketut Ary SUCAYA, Indonesia

Key words: land title, e-certificate, digital transformation

SUMMARY

Digital transformation in The Ministry of Agrarian and Spatial Planning/National Land Agency (ATR/BPN) is a long process that requires technical and regulatory support. The process started in 2017 when ministerial regulation number 5 of the Year 2017 on Digital Information Services launched as the starting point of digital services. This is followed by the issuance of a digital mortgage system in 2019 based on ministerial regulation number 9 the Year 2019 which was revised by ministerial regulation number 5 the Year 2020. The spirit to improve digital services followed by the other regulation issued in the following year on the electronic land title. Besides, several programs on mass land registration have proved to increase data and transactions in ATR/BPN. However, to transform land data into digital form, ATR/BPN needed to ensure the validity of land data as well as the application used to produce the data. Therefore, several tests were performed in ten (10) land offices. It is found that Denpasar Land Office has the highest validity score with 95.92% valid, while the Jembrana office has the lowest among ten land offices with 69.85%. To ensure data validation and integrity, National Land Data Centre (PUSDATIN) has modified the application and procedures to meet the digital data requirement. This modification still has another three procedures that still have validity scores below 100%. Furthermore, researchers proposed the implementation of data standardization to overcome the null values on the existing digital land data.

A. Introduction

The Indonesian Government's strategic goals mandated that by 2025 the Ministry of Agrarian and Spatial Planning/ National Land Agency of Indonesia (ATR/BPN) should become a world-class institution that applies digital services at all levels. It is believed that changing from paper-based documentation to digital requires radical yet complicated disruption. Digitalization is commonly known as the switch from a hand-written process to computerization, including how the data is produced and stored, and presented (Munawaruzaman, A.:2020).

Currently, the ATR/BPN has more than 500 offices that implement dual systems in their land services: manual and digital. Land administration in Indonesia has a long history of manual-based processes. The manual system works as the Ministry maintains historical records of land titles in hard copy. Implementing manual transactions has several challenges as this hard-copy document is vulnerable, requires physical storage, and demands human resources to maintain

the archive. To overcome this situation, the Government allocated an annual budget to transform the archives into digital format.

A massive land certification program was launched in 2017 to accelerate land titling over 126 million land parcels in Indonesia. In the last 6 years of its implementation, the number of registered parcels almost reached 100 million. Land offices throughout Indonesia are working hard to meet the targets set by the government. The digital transformation of land services began gradually by scanning documents collected from the public and storing them in digital form. Various impacts need to be anticipated to maintain good services in land administration. Derivative services such as land transfer, mortgage, and land splitting are estimated to increase in the future. As a solution, the Government mandated digital transformation in land administration. Digital transformation is a big task that needs advancement in technological equipment, business processes, and improving the capability of Human Resources. By implementing digital services, the Government has targeted to achieve increasing revenue from ATR/BPN. Transforming people's assumptions on land titles from a manual form into a digital environment is also another task to be put into the spotlight.

The digital transaction began in 2019 by implementing three digital information services (Ardani, M. N.: 2022). This service has changed the previous assumption that land services can only be held in land offices, as manual archives should be marked and manually signed by the authority. Digital transactions through this digital information system produce digital data that is signed digitally. This internet-based service was continued by digital mortgage services in late 2019. To date, these four (4) digital services cover more than 50% annual income from total services in 2022 by 782 billion Rupiahs. In addition to changing perceptions of land services and products, the Ministry of Agrarian Affairs and Spatial Planning/National Land Agency also needs to anticipate changes in business processes and data standardization needed for the digital transformation of land services in the future.

This paper discusses the implementation of digital transformation in the Ministry of Agrarian Affairs and Spatial Planning/ National Land Agency (ATR/BPN). The discussion started on the process of land registration and its acceleration to achieve fully registered land parcels in 2024. This is followed by the digital data element needed to support the digitalisation processes in the Ministry of ATR/BPN. Moreover, to support the implementation of digital land titles in Indonesia, several actions are needed as discussed in the last part of this paper.

B. Land Registration

Land Administration in Indonesia started in the Dutch era, by implementing *Agrarische Wet 1870*. Since 1960, Indonesia has changed the land system through the Basic Agrarian Law (BAL). In its implementation to date, there have been fundamental changes related to the BAL, namely by allowing the acquisition of property rights for foreigners both for apartments and luxury homes with certain criteria in accordance with Government Regulation Number 18 in the Year 2021. Moreover, land registration until 2016 still does not cover up to 40% of the area of Indonesia. To overcome this problem, the government conducted mass land registration.

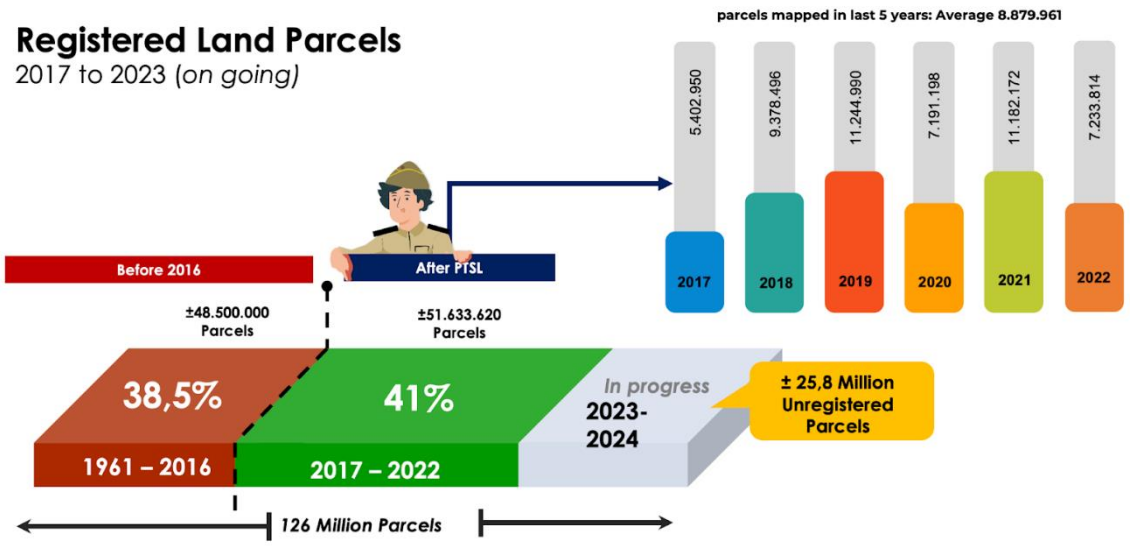

Figure 1. Land Registration

Figure 1 above shows the development of registered land parcels in Indonesia, from 1961 to 2022. The Government estimated that the number of land parcels in Indonesia is approximately 126 million parcels. During the first part of land registration from 1961 to 2016, the Government registered over 48 million parcels or less than 40%. The second part of land registration is the PTSL era from 2017 until now. During its implementation in the past six years, Indonesia had successfully registered more than 51 million parcels, or around 41%. Over 27 million new land certificates were issued during the PTSL project in 512 land offices. In addition, the Government has also conducted various programs to accelerate land registration. For example, land registration for government assets (BMN), inter-agency collaboration (*Lintor*), and land redistribution as a form of agrarian reform (Redis). In detail, the list of results of mass certification can be shown in table 1 below:

Table 1: Number of products during mass land registration in various projects

No.	Project	Number of Product
1	PTSL	27.203.949
2	Redis	1.761.476
3	Lintor	50.516
4	BMN	56.626
5	PHLN	2.492.585

It is stated on the strategic goal of the Ministry of Agrarian and Spatial Planning / National Land Agency (ATR/BPN) that by 2025, all land parcels in Indonesia will have been registered. To support massive land registration, the government is also working with various parties. One form of this cooperation is the systematic land registration funded by the World Bank (PHLN).

This project has produced almost 2.5 million registered land parcels since 2019. These measured land parcels can then be followed up on by various government programs to issue certificates.

The use of data collectors to collect physical and juridical data has an impact on accelerating land data collection. This digital data collector, namely *Survey Tanahku*, is mandatory during the PHLN project, while at the other projects in accelerating land data collection, this application is highly recommended to use. *Survey Tanahku* is able to collect land parcels, record their juridical data, record biometrical data of the landowner as well as record geotagging photographs as mentioned in regulation number 16 of the Year 2021.

The PHLN project aims to promote land use and land rights transparency over the targeted areas in ten (10) provinces in Indonesia. Previously, this project was designed to accelerate PTSL in seven (7) provinces, including providing a detailed map of forest area boundaries and provision on land thematic maps. This project involves local community participation during land data collection (Ministry of Agrarian and Spatial Planning, 2022). This project started in 2019 over seven different locations in Sumatra and Kalimantan Island. In 2022, World Bank added three more locations in several regencies in Central Java, East Java, and West Java, as shown in Figure 2.

Figure 2. PHLN location in ten provinces (Ministry of Agrarian and Spatial Planning, 2022)

Accelerating land registration is believed to improve investment and economic equity, especially in mortgage rights. From 1996 when the Mortgage Law was first implemented until 2019, this type of right was issued manually using hard copy documents. Indonesia has implemented electronic mortgage rights (HTel) since late 2019. Ministerial regulation number 5 of the Year 2017 on Digital Information Services mandated to implement the digital services on land title information, land valuation information, and information on land registration

status. In addition, to improve its services, the Government issued a digital mortgage system in 2019 based on ministerial regulation number 9 of the Year 2019 revised by ministerial regulation number 5 in the Year 2020. Imanda. N (2020) stated that electronic mortgage rights are a form of simplification of the process of issuing mortgage rights. The other electronic services in ATR/BPN, such as electronic certificate checking, land value information systems, and data on land registration status, are implemented after this HTel deployment.

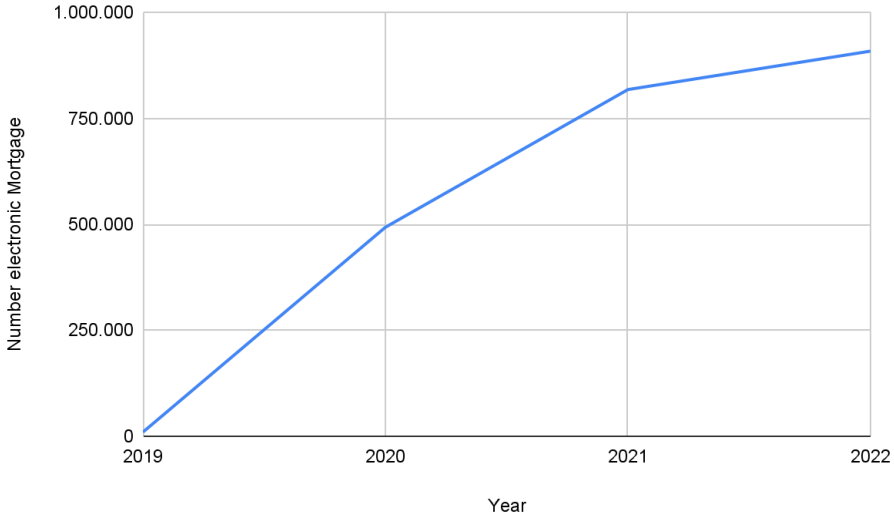

Figure 3. Electronic Mortgage in 2019 to 2022

Figure 3 above shows the increase in electronic mortgage certificates that was issued by the ATR/BPN from 2019 to 2022. In 2019 and early 2020, the Government still applied two mortgage systems: manual and digital. Therefore, the number of electronic mortgages was very low. It is shown that in 2019, the electronic mortgage right was issued electronically by less than 10 thousand certificates, or equal to 0.97% of all mortgages released in a year. The number of electronic mortgages continues to increase, and by 2022 the number of electronic mortgages is more than 908 thousand. From 2021, the mortgage rights are fully electronic, whereas the manual systems have already been removed. The statistics data taken from https://statistik.atrbpn.go.id found that the value of Electronic Mortgage Rights in 2021 is IDR 690.15 trillion while the Value of HTel in 2022 is increased up to IDR 697 trillion. Moreover, a total of 2.1 million mortgages have been issued since the launch of this service. Additionally, information services as part of these electronic services at the ATR/BPN have served more than 6.5 million requests in the same period. It is reported to increase during the pandemic shows that digital land service needed during the pandemic situation. Public used internet-based service from their home or office and got their products signed digitally without coming to land offices.

Table 2: Top-ten services in 2022 based on amount of national revenue in Billion Rupiah (taken from https://statistik.atrbpn.go.id; access date Dec 31, 2022)

No	Procedures	Number of Services	Revenue (million Rupiahs)
1	Transfer - deed of sale	855.598	360
2	Mortgage	749.929	359
3	Extension/Renewal of Rights	24.328	344
4	Transfer - inheritance	144.882	128
5	Certificate checking	2.512.326	125
6	Parcel Splitting	117.031	95
7	Cadastral Survey and Mapping	174.811	69
8	Separation of rights	42.346	58
9	Land Use analysis for business permit	3.096	46
10	Transfer - deeds of bequest	61.659	37

Reflecting on the successful implementation of HTel, ATR/BPN continues its digital transformation processes to digitalise more procedures and help landowners to access land services. Based on the data shown in table 2 above, the transfer process based on various deeds issued by the Notary is one of the most popular services among the 200 types of services at ATR/BPN. Currently, the transfer rights are carried out manually with the average number of services over the last three years reaching almost 1,3 million services in 2022. These services ranked in the second position after information services which reached more than 2.5 million services in the same period.

C. Data Element

To achieve the target of the digital transformation program, the National Land Data Centre of the Ministry of Agrarian and Spatial Planning/The National Land Agency (Pusdatin ATR/BPN) continuously develops tools and applications to standardize land data, including documents and land parcels. Data and document standardization is crucial for digital transformation. In addition to transforming all existing data on land certificates, it is necessary to identify what elements are required for data to become complete and credible information. Figure 4 below depicts the elements of data that must be filled in the electronic system. These parameters are various values, from numeric, text, and alphanumeric. Several tests had been carried out in land offices to check the completeness of those input parameters on the digital document. This test is needed before the data migrates into electronic data. It is found that several parameters were not stated in both the digital or manual documents.

The data stored in the database needs to be matched and filled in according to the documents physically stored at the land office, if data is found that is indeed empty or not found, it is necessary to create a default value as standardization. After the data is declared complete and appropriate, the data is then locked and stored in the data block.

Figure 4. Land title book and their elements

Complete information regarding the numbers in Figure 1 can be explained as follows:

1. Land Title Number: integer, unique
2. Landowner: alphanumeric, can be more than one record, followed by date of birth of each owner
3. Information on Location: alphanumeric
4. Type of Land Ownership: alphanumeric
5. Earning basis: alphanumeric, can be more than one record.
6. Period of ownership: date
7. Date, Number, and areas of Land Map: date, alphanumeric, area in square meters
8. Date of issuance: date
9. Name of Signer: alphanumeric, single entry
10. Annotation (transfer, mortgage, splitting, etc.): alphanumeric.

The test was performed to check data structure utilizing an application that was designed to find null values in each land title document. The first step of this validation check can be shown in the figure 5 below. This step gave a validity score that captures the percentage of completeness

of the data input at the digital document. It is shown that there are found invalid data (in red cross symbol). Therefore, these invalid data need to be equipped with each digital document.

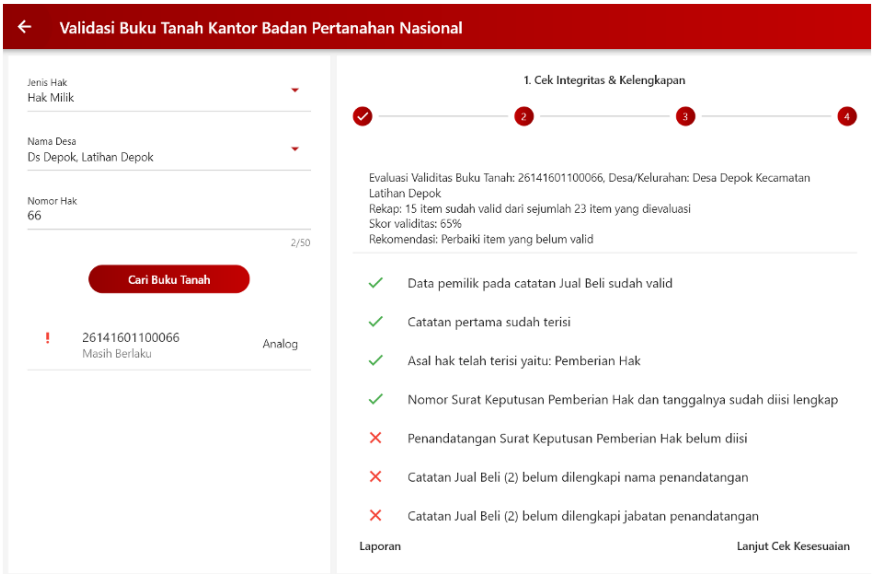

Figure 5. First step on the validation process to inspect integrity and completeness of the data.

Secondly, as shown in figure 6, the following test is to clarify some annotations on the document that need further inspection. Some annotations are required to input several variables, including date, name, checklist number (Indonesian: *daftar isian*), and type of documents. These parameters are mandatory to be stated during verification processes. Besides, every parcel needs to be checked for its location on the register map. Verifier needs to see the actual parcel on the map compared to the printed map as part of the land title issued by land offices.

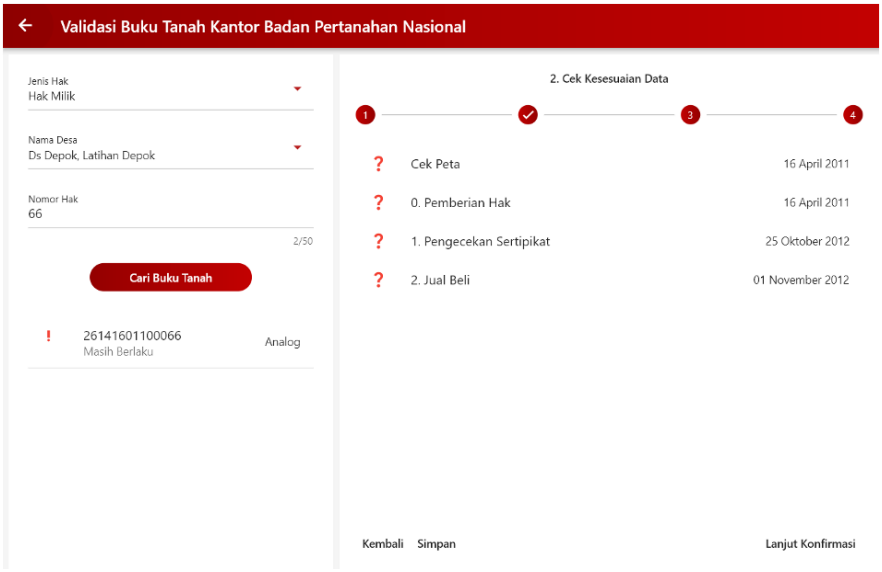

Figure 6. Clarification process to check data suitability.

The following step is to check all validated data to confirm that the processed data does not have invalid data or an empty value. Verifier needs to add a clarification using the electronic sign in this step as an acknowledgment that all data listed in this step as depicted in figure 7 are legitimate.

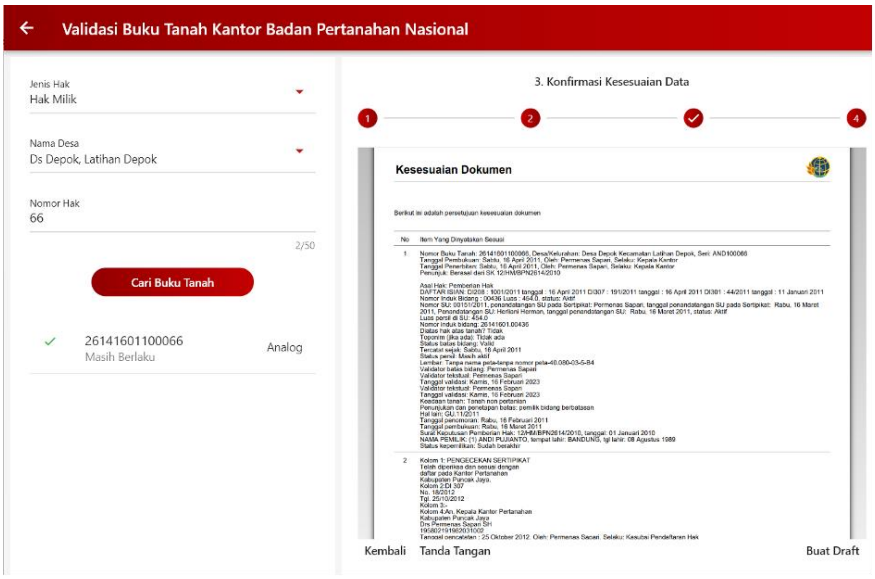

Figure 7. Data confirmation process

The final part of this checking is to create a draft of the electronic land title. After the verifier clarifies that all values are valid and have mirror quality with the printed document, the draft document will be sent electronically to the authorized official. This draft requires an electronic signature before being released as a land title as shown in figure 8. The signed document will be sent electronically to the landowner via email and *Sentuh Tanahku* account, while the data will be stored in a specific document-oriented database.

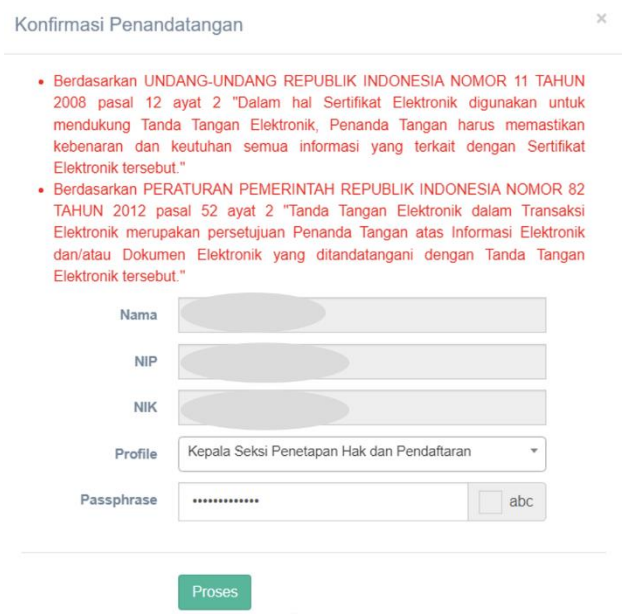

Figure 7. Electronic sign process to ensure data integrity.

D. Digital Land Title

Table 3 below listed validity scores found during archive tests in several land offices as mentioned previously. The highest validity score was found in Denpasar, with 95.92%, while the lowest was in Jembrana, with an average validity score was 69.85%. A lower score indicates more null values input during data entry, while a higher score indicates that the documents were completely input. However, the more complete the data input does not mean that the data input was similar to the hard-copy document. Therefore, visual validation is still needed before the document changes into an electronic document as mentioned previously.

Table 3: Average value of validity score during document testing in ten (10) land offices

No.	*Province*	*Land Office*	*%Validity Score (avg)*
1	*Bali*	*Denpasar*	*95,92*
2	*Bali*	*Jembrana*	*69,85*
3	*Bali*	*Karangasem*	*84,80*
4	*Jakarta*	*West Jakarta*	*76,66*
5	*Jakarta*	*Centra Jakarta*	*88,00*
6	*South Kalimantan*	*Hulu Sungai Utara*	*74,00*

7	*NTB*	*Bima*	*93,00*
8	*Banten*	*Kota Tangerang*	*81,54*
9	*Banten*	*Kabupaten Tangerang*	*70,05*
10	*Gorontalo*	*Pohuwato*	*82,00*

It shows that the most common mistakes found during validation processes are as follows; null value on the date of issuance, name of the signer, Certificate listed having more than one parcel identification number, parcel identification number not listed, Transfer record having no signer name and date of issuance. These null values occurred as the standardization of data input from around 1960 to date is changing. Moreover, this process also found that several procedures on direct services at land offices failed to create a complete annotation.

Table 4: Summary of modification on procedures of land services in ATR/BPN

No.	*Type of procedures*	*Number of Procedures*	*Number of procedures create 100% Validity score*
1	*create new certificate*	*41*	*41*
2	*create annotation*	*77*	*73*

To overcome these listed errors, Pusdatin ATR/BPN has modified the application as well as updated the procedures to ensure that each transaction is secure and create a specific annotation on the digital document. The complete recapitulation of procedure modification and update are listed in table 4 above. There are two (2) types of procedures at land offices in Indonesia. The first is procedures that create a new version or first edition of the land title. It consists of 41 procedures, while the other procedures are only creating annotations or adding the next edition of every land right. However, it is found that three (3) procedures still need to be checked and modified before the electronic land title is officially implemented. Additionally, there are 41 procedures in ATR/BPN that produce a new land title; currently all of them produce a 100% validity score.

Table 5: Proposed default value as new standardization data based on type of data.

Data Type	**Default Value**
Year	9999
Alphanumeric	-
Date	01/01/1900
Number	0
Birthdate	01/01/1900

Table 5 above shows the proposed new standard on land data value to improve validation score in each digital document. These values are simple numbers that can be applied on the digital data if the required parameter is null, or data cannot be obtained on the printed document. The implementation of new standards can be filled systematically or sporadically during visual matching.

E. Summary

To sum up, digital transformation in Land services in Indonesia still have some work that needs to be performed before fully implementing ministerial regulation number 1 of the Year 2021 on the electronic land title. Success story from the application of digital mortgage and electronic information services, Pusdatin ATR/BPN needed to perform various tests to land data in several places. These tests were performed to capture the complete picture of existing land data and digital procedures workflow in land offices. It was found that there are still three remaining

procedures that need to be fixed. Besides, existing data still has an average validation score below 100%. Therefore, researchers urge to implement new standardization on land data input to overcome this problem.

References:

Ardani, M. N., 2022. Langkah Kementerian ATR/BPN Menghadapi Disrupsi Digital: Dalam Telaah Filsafat Hukum. Gema Keadilan, [Online] Volume 9(1), pp. 19-35. https://doi.org/10.14710/gk.2022.14551.

Gunarta, D.M.I., Nurasa, A and Pinuji, S. (2020). Persepsi Kreditur dan PPAT terhadap Kualitas Layanan Hak Tanggungan Terintegrasi Secara Elektronik.. Tunas Agraria, 3(2). https://doi.org/10.31292/jta.v3i2.110

Imanda, N. (2020, May 15). Lahirnya Hak Tanggungan Menurut Peraturan Pemerintah Agraria Tentang Pelayanan Hak Tanggungan Terintegrasi Secara Elektronik. *Notaire, 3*(1), 151. https://doi.org/10.20473/ntr.v3i1.17536

Munawaruzaman, A. (2020) Online Journal Systems Unpam, Online Journal System. Universitas Pamulang. Available at: http://openjournal.unpam.ac.id/ (Accessed: January 14, 2023).

Ministry of Agrarian and Spatial Planning. (2022). *Annual Progress Report 2022*. Tim Unit Manajemen Kegiatan PPRA Kementerian ATR/BPN

CONTACTS

Mr. Ketut Ary SUCAYA
National Land Data and Information The Ministry of Agrarian and Spatial Planning/National Land Agency (PUSDATIN)
Address: Jl. Akses Tol Cimanggis, Wanaherang, Kec. Gn. Putri, Kabupaten Bogor, Jawa Barat 16966
Bogor, West Java
INDONESIA
Email: ary.sucaya@atrbpn.go.id

Mr. Idin Yunindra Ibnu PARASU
National Land Data and Information The Ministry of Agrarian and Spatial Planning/National Land Agency (PUSDATIN)
Address: Jl. Akses Tol Cimanggis, Wanaherang, Kec. Gn. Putri, Kabupaten Bogor, Jawa Barat 16966

Bogor, West Java
INDONESIA
Email: idin.yunindra@atrbpn.go.id

Mr. Muhammad IRFAN
National Land Data and Information The Ministry of Agrarian and Spatial Planning/National Land Agency (PUSDATIN)
Address: Jl. Akses Tol Cimanggis, Wanaherang, Kec. Gn. Putri, Kabupaten Bogor, Jawa Barat 16966
Bogor, West Java
INDONESIA
Tel. +62 82160291397
Email: muhammad.irfan@atrbpn.go.id

Publication rights