

# Securing Land Registry by Blockchain: At the Crossroads against Land Fraud Registration

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## Abstract

The computerized Land Registration System (CLRS) is a database maintained by the land registry offices in West Malaysia. It has enormous databases but with questionable data security competency as it could be penetrated due to relatively poor maintenance. CLRS has safety issues when reported incidences of the duplicity of owners and the non-existence of land titles. Successful registration of titles resulted from fraud practices or tampered instruments of dealings further exposes the weaknesses of the CLRS. The concept of permanent data under Blockchain makes it extremely difficult to remove, reverse or make unauthorized addition to the database. Change, if any, requires authorization at a certain level. By having a Blockchain system in place, data can be made accessible to the public without fear of modification or manipulation. Thus, the use of Blockchain can enhance the safety measures under the CLRS. This paper aims to examine the concept of Blockchain and its use in providing security in land registration and how it can be employed in the context of the Malaysian land registration system. The idea of the Blockchain system and how it works in land registration will use doctrinal and a comparative analysis basis. Ultimately, to improve the current CLRS system and ensure the accuracy and reliability of the database in land administration in Malaysia, adopting a secure method such as the Blockchain system may give a favourable result.

**Keywords:** Registration System, Database, Blockchain, Land Fraud, Indefeasibility of Title

## Introduction

The rise of digital and information technology demands a more secure and efficient administration of land transactions. Reliability of information on property titles upon registration is therefore crucial. The trend worldwide is to have a digitalized system of land registration that can shorten the land registration process and, at the same time, be fraud-free. On this note, Malaysia is not far behind as the CLRS digitalized land transaction processes since 1995 (Karim et al., 2011; Zakariah

et al., 2020). The digital process indeed increases efficiency in land registration. The security of the registration process, however, leaves much to be desired. Statistics of the Department of Director General of Land and Mines recorded 786 land fraud cases between 2010 to 2019. The Royal Malaysian Police reported 844 cases of land fraud between 2010 to 2018. Indeed, corruption and abuse of authority are the main contributing factors that led to the registration of documents tainted with fraudulent activities (Abraham et al., 2018). This high number of fraud cases reflects the weaknesses of the CLRS as the central system of registration for land dealings. In the world of digital land registration, the blockchain-based approach to registering property titles is said to be the way to ensure efficiency and security in land registration (Shuaib et al., 2020). The blockchain system has become an essential part of the digital land registration system in countries, such as Sweden, the United Kingdom and Australia (New South Wales).

In addition to the above, the land registry of Sweden, LanMateriet, started the Blockchain Development Project for its land registry in 2016. The technology involves creating digital vouchers or verification records for digital files, e.g., documents or transactions. These verification records can be considered as fingerprints for the digital files. These fingerprints are saved together in groups into a "block." The block is then linked in blocks where the subsequent block also has a verification record, a "fingerprint" from the previous block. Therefore, it is impossible to add new information to older blocks (links) in the chain without changing the subsequent blocks. The ability of the chain to secure data and history is why it is called "The Trust Machine" by the Economist (Lantmäteriet et al., 2016).

### **Literature Review**

Malaysia practices the Torrens Land System. The core principle under this system is the existence of the Torrens Register and the registration of land dealings via prescribed instruments of dealings (Stilianou, 2009). The primary purpose of registration is to declare indefeasibility of title and interest for every land transaction carried out and perfected by the registered proprietor. Traditionally, the system of registration is by way of manual registration. Upon presenting the instrument of dealings for registration, the land administrator will manually endorse the transactions in the Register Document of Title. The Torrens system ensures secure and accurate registration where titles to the land will not pass if the instruments are tainted with fraud. The security strength of the Torrens System provides valid registration and guaranteed identification of interests in a land so that land can remain as valuable resources in the market system and improve economic efficiency (Griggs, 2008). However, heavy dependence on manual registration by relevant officials opens up the opportunity for corruption to thrive. Zakaria et al. (2020) view fraud within the land administration offices as rampant in the manual-based system as many cases of fraudulent transactions were able to be registered without being detected. A computerized land registration system was regarded as a solution to this problem.

Indeed, technology has changed the process of registration. There has been a migration from a heavily documented land registration process and safekeeping towards automated registration and paperless technology where databases are used to keep the information of land dealings. This migration can be seen in New Zealand and Australia (Low, 2008), even though in Australia, paper documents are still needed for verification purposes. Malaysia, to be in trend with the current changes, developed the CLRS in the mission to digitalize its land registration system. The CLRS was introduced to increase efficiency in the registration of land dealings and was regarded as a mechanism to prevent fraudulent transactions in land due to the mechanical process it adopts.

Unfortunately, the CLRS, which operates only to effect registration of land dealings at the very end stage (i.e., at the land registry), fails to provide an efficient mechanism to counter illegally tampered documents from being presented for registration (Ismail, 2011). Most fraudulent land dealings were present at the preparation stage of land documents, and land administrators that will effect the registration of land documents are not aware of this conspiracy (Low, 2008, 2009; Sin, 2021). On this note, the CLRS registration system in Malaysia is susceptible to fraud (Abdullah, 2017; Abu Bakar, 2016). The weakness of the land registration system is due to the absence of the verification procedures before accepting documents for registration (Abu Bakar, 2019). Utilizing Blockchain technology that revolutionizes the way information is stored can reduce fraud in land registration (Tapscott & Tapscott, 2016).

Using Blockchain to keep a land database is by creating a decentralized autonomous land registration system not dependent on any authority or primary entity (Garcia-Teruel, 2020). The information in the Blockchain is well backed up as it is saved at every node. If one node is, or even several are, compromised, this will not harm the data, which will be kept in total in all the remaining nodes (Spielman, 2016). The blockchain system is an open source-based digital technology that enables the transfer of encrypted digital data (blocks) from one computer to another (peer to peer). It allows the receiving computer, in turn, to transfer the data block to other computers (smart contract), thereby creating a chain of block transfers (Blockchain) (Sandberg, 2021). The whole network is a reliable, autonomous register of the movements of the blocks, distributed across all the members of the network and revealed to all as a distributed ledger (Spielman, 2016). The data in the Blockchain is highly resistant to counterfeit due to its verification system, based on a complex algorithm, to which all the network nodes connect. The weight of one node, and even several nodes, attempting to transmit erroneous data to the network will not suffice, as long as the rest of the nodes do not verify the erroneous information. The information items in a locked block cannot be altered; this includes the time of the transaction and the details of the entity that performed it. Thus, it is timely to utilise Blockchain for keeping land database as found by Petsinis (2018) that the implementation of blockchain technology in land transfer procedure may assist governments, together with the stakeholders and parties in land transaction, in ensuring that the doctrine of indefeasibility attributed by the Torrens System remains supreme. Garcia-Teruel (2020) argued that the implementation of a conveyancing system through blockchain, should include the whole conveyancing process from pre-contractual phase through to the registration of the title or deed or else the implementation of a blockchain to handle only one of the steps (e.g. only the registration) might mean there is no significant benefit for the real estate conveyancing system.

### **Research Objectives**

The objectives of this research are as follows:

- To study the concepts and aspects of Blockchain technology and whether it can be utilised in the land registration process in Malaysia;
- To examine the risks and legal impacts of the use of Blockchain in land registration process in another jurisdiction before the technology could be securely utilised in Malaysia; and
- To evaluate the suitability of the Blockchain technology as a way forward to fight against land fraud under the Malaysian Land Registration System.

### **Methodology**

The paper employs doctrinal legal research to analyse the legal issues relating to registration of instrument under the Malaysian Torrens System. A doctrinal legal research is employed to analyse statutory provisions and cases by the application of power of reasoning (Vibhute & Aynalem, 2009). The CLRS, the computerised land registration system utilised in Malaysia, is not able to thwart fraudulent land activities and this insinuates the weaknesses in the system. The understanding of the law and the working of the land registration in the context of the Malaysian legal system is paramount to see whether it can be aligned with the working of Blockchain to enhance security of the land database. Besides that, comparative based analysis with other jurisdictions is employed to facilitate a more effective law reform (Gutteridge, 1949). For this purpose, as the benchmark, the adoption of Blockchain in its Land Registry by the Land Materiet, the Land Registry of Sweden is examined.

### **Findings and Discussion**

#### **Development of Verification Protocol before Adopting Blockchain in Land Registration System**

Since registration of dealings instruments under the Torrens System considers security, efficiency and cost savings, Blockchain could be a useful technology to employ moving forward (Petsinis, 2018). Essentially, blockchain technology stores information about transactions in blocks on a chain so that every user is able to securely ascertain who owns what at a specific time, ensuring single ownership and decreasing the risk of fraud. Kshetri (2017) explained that a blockchain is a data structure that allows for the creation of tamper-proof digital ledger transactions that can then be shared and signed using public-key cryptography. Once a transaction is signed, it is then stored on a distributed ledger that is almost impossible to alter or hack. The fact that Blockchain is difficult to be tampered with, will likely address the issue of forged documents and verification of parties in land dealings. However, precautionary measures proposed by Petsinis (2018) should be adopted. In order to ensure that the identity of participants is verified, it is possible that an external verification of identity protocol is developed, whereby a human being verifies and checks the physical and electronic identity before access to the Blockchain is permitted.

The Torren system embodied a principle which makes the registration essential for the purpose of divesting interests and ownership in land. As such, the details which are entered into the registry data base is very important in for that purpose. In line with the innovation of technology, the Computerised Land Registration System (CLRS) was introduced in West Malaysia via the inclusion of Schedule 14 in the National Land Code 1965. The introduction of CLRS is to be applauded because it provides a systematic filing of information and makes the work process more efficient and faster. It is also hoped that by the introduction of CLRS the incidents of fraud could be minimised. It is often thought that the computerised system provides more security as compared to storing the information in paper files. Decker (2019) opined that in relation to data access and security, paper ledger has slight advantage since the information stored could not be hacked as compared to computerised information which could be accessed at the comfort of your home. However, in relation to land transactions, the non- compliance in the registration process, particularly with the requirement of attestation has been determined as one factors which gives opportunity to fraudsters to tamper with the information stored into the CLRS (Abu Bakar, 2019).

#### **The Absence of Verification Regime in Conveyancing Law and Practices**

To safeguard the interests and ownership in land, it is crucial that the information keyed in into the system is accurate. The verification process which is the essential stage to detect any forged

documents or imposter at the earliest opportunity during the preparation of document, however, is absence from the National Land Code 1965 resulting in the innocent party failed to obtain indefeasibility of title or interest in land (Abu Bakar, 2019). It should also be acknowledged that sometimes, the land office staff may have made an honest mistake and key in wrong information.

It is the duty of the solicitor when preparing documents for his clients to exercise due diligence in accordance with the provisions in the NLC. Section 211 of the NLC provides that an attestation officer should immediately after the execution of documents by a natural person (parties) sign the attestation clause. Wong (2012) observed that it is an acceptable practice in Malaysia for the solicitors to be absent during the execution of documents by clients which may provide opportunity for fraudsters to impersonate or to usurp proprietor's identity in illegal way and sign the documents (Abu Bakar, 2019). The examples of such incidents can be seen in the cases of (*Hong et al.*, 2010; *Malayan Banking v Tho Siew Wah & Anor*, 2017).

It remains uncertain whether there is a prerequisite duty on the part of parties in land dealings to conduct investigation to determine the authenticity of the documents or the identity of the party (Abu Bakar, 2019). The court in *Liew Yok Yin v AGS Sdn Bhd* (2006) missed the opportunity to clear the matter when it did not clarify the extent is required to conduct 'investigation into the title'. The court nevertheless concluded that the sale without any proper investigation into the title and the person claiming to be the owner. It could, however, be implied from the decision of the court that conducting a land search under section 384 alone is not sufficient to discharge a duty of verification. Likewise, in *Au Meng Nam v Ung Yak Chiew* (2007), the court decided that the parties could be held as negligent if they disregard the obligation to investigate the identity of the proprietors and the authenticity of the documents. Moorsdeen (2002) argued that the duty to investigate into the title as decided by the courts in both cases could compromise the curtain and mirror principle, which formed the basis of Torrens System. Gomez (2008) suggested to impose duty on the parties to investigate into the title based on reasonable suspicions principle, i.e. there is a duty imposed on the parties to investigate whenever he feels the situation is reasonably suspicious or ought to be suspicious.

### **Strengthening the Role of Registrar in Securing an Accurate Land Database**

Another party that could safeguard against fraudulent land dealing would be those at the Land Registry office. It is essential for them, prior to entering the data into the system to ensure the authenticity of the documents and the identity of the party. The role of the Registrar in this aspect is particularly crucial because any mistake on their part could have a far-reaching effect. In *Uptown Properties Sdn Bhd v Pentadbir Tanah Wilayah Persekutuan & Ors* (2012), the High Court ruled that inaccurate land data base will divest the rights and interests in the land. It also ruled that failure on part of the state authority to provide accurate information in the data base affect a citizen's right to property, a right under the Federal Constitution. Inaccurate data base could create uncertainty in the security of tenure which in turn could affect the economy. Without security of tenure, land development may be hampered since investors may not be willing to invest in such uncertainty. Security of tenure is the foundation of market economy and act as catalyst for sustainable market growth (Apiyo, 2010).

In *Poh Yang Hong v Ng Lai Yin & Ors* (2013), the court imposed a duty on the registrar to take all reasonable steps to ensure the registrar contained only and accurate information and failure to do



so is a breach of duty of care to members of the public. Nevertheless, it is unclear whether all reasonable steps here include the investigation of the authenticity of the documents and identity of the person involved. In *Tirai Kristal Sdn Bhd v Pengarah Tanah dan Galian Wilayah Persekutuan* (2018) the court made a distinction between a search under a private search in section 384 of the NLC and an official search in section 385 of the NLC. The case involved a private search under section 384 of the NLC and the court decided that there is no duty imposed on the land registry since a private search has no confirmation or endorsement on the accuracy of the information.

Registrar is another key figure in ensuring good governance of the administration of land system. Good governance contributes to the protection of land rights and adequate enforcement of the national laws (Azadi, 2020). Deininger et al (2011); Magel & Wehrmann (2001), and Teklemariam et al. (2015) argued that good governance can be seen from the security in land tenure. As such, the Registrar as part of the land administration governing body, is expected to comply and perform his duty under the law i.e, the NLC relating to land tenure security (Abu Bakar et al., 2021).

In relation to verification process, section 297 of the NLC accorded the Registrar with a duty to determine the fitness of the documents of registration. The Registrar is also responsible for the lost title under sections 175 and 175A and for making correction on the registrar documents of title in section 380. Other functions of the Registrar include entering a Registrar Caveat under section 320 of the NLC and withdrawing of the same on his own motion under section 321 of the NLC.

When the instrument of dealings is presented for registration as required by section 297 of the NLC, it is the duty of the Registrar to determine that each document is fit for registration. The law requires that in the absence of any irregularity, the document is deemed to have complied with the requirement of the NLC. Hence, the Registrar required by law to accept the instrument for registration. On the other hand, if irregularity is detected, for example there is no supporting documents, the NLC in section 302 requires the Registrar to make inquiries regarding the missing document and steps must be taken for the document to be produced. The Registrar upon satisfactory explanation still has the discretion to register the document despite non production of the supporting documents (Abu Bakar et al., 2021). Comparatively, in other jurisdiction, the certificate of correctness executed by the solicitor is used to verify the authenticity of the documents and parties involved. Section 117 of the Real Property Act 1900 (New South Wales, Australia) provides that the certificate of correctness must be submitted together for the registration of instrument of dealings. The inclusion of the certificate of correctness affirmed by a solicitor was suggested under the Consultation Paper of the Review of the National Land Code 1965 in 2012 but was not incorporated under the amendment of the NLC in 2020.

Duty of the Registrar to determine the fitness of tie instrument of dealings is administrative in nature. Section 303 of the NLC limits the Registrar discretion to determine the fitness of documents in which he shall not inquire into the validity of the documents. Abu Bakar et al. (2021) deduced that the Registrar's discretion is relatively narrow and is limited to determining the fitness of the instruments. To expand the context of Registrar duty in this nature will expose the Registrar to be personally liable for any carelessness and negligence in discharging his duty (*Pow Hing & Anor v Registrar of Titles, Malacca, 1981*). Section 22

provides that the Registrar must exercise due care in making decisions, act in good faith, make decisions and exercise his duty following the law. Abu Bakar et al (2021) argued that the law to certain extent, victimise the Registrar in discharging his duty and to overcome that, the law should be more relaxed with a quasi-judicial function which clarifies the extent of the Registrar's discretion. She also argued that Registrar will be protected from civil suits while performing his duty if the scope of Registrar's duty is made clear.

### **Lesson Learnt from the Swedish Land Authority incorporating Blockchain in Real Estate**

In Sweden, a pilot project of the Swedish land authority to investigate the possibility of using a block chain as technical solution for real estate transactions. The process of land transaction in Sweden now is quite similar to the process in Malaysia whereby the land authority will only take part later in the transaction, namely during the registration process. Similarly, in Malaysia, the registrar will only involve when the documents are presented for registration. Prior to the presentation of the documents at the registry, just like in Malaysia, it is the agent or solicitor who is involved in the transactions from the preparation of documents including the search at the land registry to check the ownership of the land. The report on the pilot project viewed that the inclusion of the land authority or (the *Lantmäteriet*) at an earlier stage would increase the confidence and the transparency in the process.

The report found that the current process in real estate transactions is time consuming because several parties such as the agent who need to verify the identity of the property owner as well as the banks who need to verify the creditworthiness of the parties. There are many documents that need to be prepared and signed. These documents and the identity of the parties need to be verified manually and it is tedious and time consuming. This lengthy process could easily lead the parties to make mistakes.

The proposed pilot project suggests the proprietor could use the app from the land authority to check on many restrictions of the dealing and verifying his identity by using his mobile phone. The seller can then use the same app to contact a real estate agent to make an offer to manage the sale of the property. The current system where the agent will then verify the identity of the owner by checking the data base at the *Lantmäteriet* is now a redundant process since all the information are easily available through the apps and any changes made are updated in the app. The information on the property is also available to the buyer's bank who can provide preliminary approval to the loan. This information is updated via the app and this gives confidence to the seller on the buyer's obligation to pay. In this process, any new information is added via the app and each party will be able to check and verify the information entered are correct. Once the documents are readied, the registration process at the *Lantmäteriet* will take place.

Under the current system, once the documents are signed by both parties, the *Lantmäteriet* will issue the title once it is registered at the land registry. In the new system, the title is already issued by the land authority and the verification process is shorter because the risk of incorrect information being entered is reduced. The usage of digital signature at different stages provides better security that the correct parties signed the documents. As such the risk or errors and fraud are reduced because multiple contact points and multiple signatures are required at different stages. Over the period of time, it creates confidence that the system is more difficult to be manipulated.

One of the important aspects of conveyancing is the identity of the parties involved in land dealings. In this aspect, there must be a provision in the law to impose duty on the land authority to verify the identity of the parties. At the early stage of preparation of documents, the solicitors must also play their role to ensure the identity of the parties and be present during the signing of the documents. The use of technology although could reduce the incident of fraud is costly. It requires the overhaul of the system and the amendment to the NLC. At the moment the parties who are responsible to safeguard the interest of the parties, namely the solicitors and the registrar should amplify their role by taking a proactive step at the verification stage. At this stage, the solicitor must practice due diligence to investigate further if there are some reasonable suspicions in the transaction. The test for due diligence should be the situation he ought to be reasonably suspicious i.e. the objective test. Likewise, the duty should be imposed on the registrar to be step up with his statutory duty in the verification process.

### **Conclusion and Recommendations**

Blockchain system is introduced in commerce without any involvement of the public authority, it has been widely accepted and utilized in supply chain management and business with merchandise and chattels, including medicines. The Malaysian land registration system is under the custodian of the public authority (land authority), which confers the validity to any registration of the instrument of dealings under the National Land Code 2020. Hence, adopting Blockchain technology must be cautiously made. Unlike the commercial system, such as cryptocurrency, there is no public registry (Mirkovic, 2017). The Blockchain Pilot project that was carried out by the Swedish Land Register (the *Lantmäteriet*) preserve the review role of registrars and decide on registration where: "Updates to the land registry are retrieved from the blockchain and are then also checked by Lantmäteriet. Registration in the blockchain is digital and based on the legal requirements, which minimizes errors in the information." (Kempe, 2017). A benefit would be that all parties would also gain instant access to any filing in the register that may affect the legal standing of the rights being traded (Arrunada, 2020).

Given that the introduction of the Blockchain system is costly, it may not be likely to be introduced in the near future. Before the technology can be introduced in Malaysia, it is essential that the provisions of the law to cater for the whole procedures online be made available. To date, the conveyancing system in Malaysia is limited to the Computerised Land Registration System (CLRS) in Schedule 14 of the NLC and e-Tanah in Schedule 16 of the NLC, while other procedures on the preparation, execution and attestation are conducted manually as per the requirement under the NLC. As such, at the moment reliance must be placed on the two stages; the solicitor during the preparation of documents and the Registrar during the registration of documents. At these two stages the documents must be authentic, people must be genuine parties, and database must be accurate to ensure its validity and gain indefeasible title or interest in land. The recent amendment of the NLC in 2020 did not incorporate the digital form of the documents in land dealings. Thus, the full online conveyancing system (paperless system) has to be put on hold until the introduction of the law to cater for the paperless system.

It has been mentioned earlier that the absence of the solicitors during execution by parties in land dealing may give rise to opportunity for fraud to be committed. Therefore, solicitors must be present during the execution in land dealings by parties and must verify the authenticity of documents and the identity of the parties during that time. Abu Bakar (2019) suggested that the solicitor in charge must be imposed with a legal duty to affirm the



authenticity of the documents. There must be a duty of care owed by the solicitors in conveyancing work towards clients, a cost that is chargeable to the client under the legal fees. Only by having this certification from the solicitor in charge can the instrument of dealings be presented for registration. The certificate of correctness is used as an instrument that requires the solicitor in charge in the conveyancing work to be jointly responsible in verifying the identity of the persons executing the instrument of dealings and other legal documents. Should there be any disputes as to the authenticity of the documents or the identity of the parties, the solicitor in question can be subjected to a breach of duty of care. In addition to civil duty, a criminal liability could be imposed on the solicitors, a duty akin to the one imposed on the directors. Thus, despite the advantages of Blockchain, the verification issues and the accuracy of the land database should be resolved before embarking into Blockchain technology to secure the land registration system in Malaysia.

### References

- Abraham, J., Suleeman, J., & Takwin, B. (2018). Psychological mechanism of corruption: A comprehensive review. *Asian Journal of Scientific Research*, 11(4), 587–604. <https://doi.org/10.3923/AJSR.2018.587.604>
- Abu Bakar, N. (2019). *Legal Implications Of Land Fraud On Security Of Tenure Under The Conveyancing Law And Practices In West Malaysia*.
- Abu Bakar, N., Omar, H., Hamid, N. A., Mansoor, M., Abdullah, S. M., Sulaiman, S., & Raof, N. A. (2021). Registrar's Statutory Duties under the Malaysian Land Registration System: A Little Too Much to Handle! *International Journal of Academic Research in Business and Social Sciences*, 11(10), 659–669. <https://doi.org/10.6007/IJARBS/v11-i10/10719>
- Arruñada, B. (2020). Prospects of Blockchain in Contract and Property. *European Property Law Journal*, 8(3), 231–259. <https://doi.org/10.1515/eplj-2019-0014>
- Garcia-Teruel, R. M. (2020). Legal challenges and opportunities of blockchain technology in the real estate sector. *Journal of Property, Planning and Environmental Law*, 12(2), 129–145. <https://doi.org/10.1108/JPEL-07-2019-0039>
- Griggs, L. (2008). Possession, Indefeasibility And Human Rights. *QUTLJ*, 8(2), 286–300.
- Gutteridge, H. (1949). *Comparative law : an introduction to the comparative method of legal study and research*. (2nd ed.). Cambridge University Press.
- Ismail, M. S. (2011). Measures Undertaken To Safeguard Against Fraud In Land Dealings. *Jurnal Pentadbiran Tanah*, 1(1), 85–99.
- Low, R. (2008). *The use of technology to automate the registration process within the Torrens system and its impact on fraud: An analysis*.
- Malayan Banking v Tho Siew Wah & Anor* [2017] MLJU 119 (CA)
- Mirkovic, J. (2017). *Blockchain Pilot Program Final Report*. <https://www.documenters.org/documents/blockchain-pilot-program-final-report-4122/>
- Petsinis, E. M. (2018). A land transfer registration revolution? Exploring the opportunities and limitations for implementing the blockchain in electronic land transfer transactions in Australia. *Australian Property Law Journal*, 27(Part 1), 65–87. [https://www.lexisnexis.com.au/\\_data/assets/pdf\\_file/0003/268302/aplj-27.1.pdf](https://www.lexisnexis.com.au/_data/assets/pdf_file/0003/268302/aplj-27.1.pdf)
- Sandberg, H. (2021). Why Blockchain Technology Will Never Replace The Land Registry Office. *SSRN Electronic Journal*, 1–18. <https://doi.org/10.2139/ssrn.3770126>
- Shuaib, M., Daud, S. M., Alam, S., & Khan, W. Z. (2020). Blockchain-based framework for secure and reliable land registry system. *Telkomnika (Telecommunication Computing*

- Electronics and Control*, 18(5), 2560–2571.  
<https://doi.org/10.12928/TELKOMNIKA.V18I5.15787>
- Sin, I. (2021). When Mortgage Fraud Meets Negligent Solicitors: Illegality Revisited. *SSRN Electronic Journal*. <https://doi.org/10.2139/SSRN.3816815>
- Spielman, A. (2016). Blockchain: Digitally Rebuilding the Real Estate Industry. In *Massachusetts Institute of Technology*.
- Stilianou, G. (2009). *Land titling law and practice in NSW*.
- Tan Yin Hong v Tan Sian San & Anor* [2010] MLJ 1 (FC)
- Tapscott, D., & Tapscott, A. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World*.  
<https://dontapscott.com/books/blockchain-revolution/>
- Tirai Kristal Sdn Bhd v Pengarah Tanah dan Galian Wilayah Persekutuan*. (2018). 6 CLJ 530
- Uptown Properties Sdn Bhd v Pentadbir Tanah Wilayah Persekutuan & Ors*. (2012). MLJU 131
- Vibhute, K., & Aynalem, F. (2009). *Legal Research Methods: Teaching Material*.
- Zakariah, Y., Samsudin, S., & Ngadiman, N. (2020). An overview of the fraud and forgery challenges in land registration system. *European Journal of Molecular and Clinical Medicine*, 7(3), 274–282.