Cogent Social Sciences

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/oass20

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To cite this article: Kai-Jie Yong, Eng Siang Tay & Dennis W. K. Khong | (2022) Application of blockchain smart contracts in smart tenancies: A Malaysian perspective, Cogent Social Sciences, 8:1, 2111850, DOI: 10.1080/23311886.2022.2111850

To link to this article: https://doi.org/10.1080/23311886.2022.2111850

Published online: 16 Aug 2022.

Yong et al., *Cogent Social Sciences* (2022), 8: 2111850
https://doi.org/10.1080/23311886.2022.2111850

cogent social sciences

LAW, CRIMINOLOGY & CRIMINAL JUSTICE | RESEARCH ARTICLE

Application of blockchain smart contracts in smart tenancies: A Malaysian perspective

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Received: 13 July 2022
Accepted: 08 August 2022

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Abstract: The advancement in blockchain technology has enabled smart contracts to automate the execution of tenancy obligations, known as "smart tenancies". This paper analyses the legal issues on the adoption of smart tenancies within Malaysia using legal doctrinal research method. We seek to answer these questions: (1) whether smart tenancies are enforceable in Malaysia; (2) whether parties to a smart tenancy can apply for an endorsement of tenancy under the National Land Code; (3) whether the legal profession can claim exclusivity in offering and maintaining smart tenancies services; and (4) whether there is room for self-help in resolving tenancy disputes using smart tenancies in Malaysia. The key findings are as follows: (1)(a) smart tenancies can and should be stamped when the user interface stipulates the information required for calculation of stamp duty; (1)(b) smart tenancies service provider have to comply with the Electronic Commerce Act 2006 to ensure that the system is reliable to attribute the electronic signatures to the contracting parties; (2) once the print-out of a smart tenancy is stamped, the tenant and landlord have an option to apply for endorsement of tenancy with the land registry under the National Land Code (Revised 2020); (3) the Legal Profession Act 1976 does not restrict the marketing, operation and maintenance of smart tenancies services to be done by law firms exclusively; and (4) there is no room for self-help eviction of a tenant in Malaysia, and the eviction process ought to be enforced with a court order.

Subjects: Contract Law & Tort; Information Technology Law; Land Law

Keywords: blockchain smart contracts; smart tenancies; National Land Code; legal profession in Malaysia; stamp duties

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1. Introduction

The emerging practice of using smart contracts on blockchain changes the way contracting parties perform their agreements. Smart contracts automate the performance of contractual obligations, with the relevant contractual clauses executed by software programs without human intervention (Guadamuz, 2019). The history of the term "smart contracts" can be traced back to 1994 when Szabo (1994) introduced "smart contracts" as "a computerized transaction protocol that executes the terms of a contract". A smart contract program is designed to passively wait for the conditions precedent to be fulfilled before the system performs the predetermined transfer of assets (Law Commission, 2021, p. vii). Notwithstanding that the concept of smart contracts was introduced in the 1990s, it was not widely adopted in the industry until after blockchain technology gained traction in 2008.

Smart contracts exist on blockchains—a general-purpose platform that records data in a decentralized manner—in the form of computer-readable language (Filatova, 2020). The consensus algorithm from the participating "nodes" timestamps and registers the data in the form of blocks (Almakhour et al., 2020). Each block of data is encrypted with codes generated by a hashing technique that splits large chunks of data into smaller blocks and each block is hashed until it reaches the root hash (Buchwald, 2020). The decentralized nodes and hash features improve the security of data recorded on the blockchain by increasing the difficulty to conduct unauthorised access or configuration onto a decentralized blockchain platform. Smart contracts operating on blockchain possess three fundamental characteristics: immutable, automated and distributed (Cole, 2019, p. 855). This means that once a smart contract is deployed on the blockchain, it cannot be changed or reversed ("immutable"), while the software program automatically perform the instructions if the conditions are met ("automated"), and register the outcome of the execution on the decentralised blockchain network ("distributed").

Various industries have been experimenting with the application of smart contracts in their respective trades such as education (Steiu, 2020), automotive (Hornyak & Alkhoury, 2020), construction (Ahmadisheykhsarmast & Sonmez, 2020), shipping (Perkusic et al., 2020), and others (Hamledari & Fisher, 2021; Yong et al., 2020). The real estate sector is also experiencing disruption from blockchain and smart contracts (Garcia-Teruel, 2020; Nasarre-Aznar, 2018; Veuger, 2017), including tenancy or property rental. There is a growing movement in the market to develop applications known as "smart tenancy agreements" using smart contract technology to automate the performance of tenancy obligations. Among others, one advantage of using smart tenancies is its ability to avoid the inherent problems associated with the uncertainty in the performance of contracts between landlords and tenants, such as preventing any arbitrary increase of rental by the landlord, avoiding delayed rent payment by the tenant, minimising costly contractual enforcement mechanisms through dispute resolution forum, and resolving any potential dispute on refund of rental deposits (Del Ceno et al., 2015; Kibet et al., 2019).

The objective of this research paper is to analyse the legal issues relating to implementing blockchain smart tenancies in Malaysia. This paper defines "smart tenancies" as smart contract applications capable of performing tenancy obligations and terminating tenancy agreements without being reviewed by a person, whereas "smart tenancy agreements" as oral or written tenancy agreements that are automated in whole or in part using smart tenancy applications, or that the terms of the agreements are represented in a computer-readable form.

The term "smart tenancies" is a portmanteau of the expression of "smart contracts" and "tenancy", specifically referring to the use of smart contracts in property rental-related activities. This leads to the discussion on how "smart contracts" are defined in the first place. At the point of writing this article, the proper definition of "smart contracts" remains open and is a subject of contentious debates without resolution. Nevertheless, some references can be made to definitions proposed by some key literature as a basis for discussion.

In the report published by the United Kingdom Law Commission in November 2021 titled "Smart Legal Contracts: Advice to Government", the Law Commission defined "smart contracts" as "computer code that, upon occurrence of a specified condition or conditions, is capable of running automatically according to pre-specified functions" (Law Commission, 2021, p. vii). This definition is in line with the explanation by Nick Szabo, the person who coined the term "smart contracts". Simply, Szabo (1994) defines a "smart contract" as "a computerised transaction protocol that executed the terms of a contract". The idea that smart contracts are event-triggered computer programs is further reinforced by statutory definitions from a few jurisdictions, including Arizona and Tennessee in the United States (Arizona House Bill 2417, s 2(E); State of Tennessee Public Chapter No 591, s 1(47–10–201)), and Belarus (Ferreira, 2021). As such, this paper primarily uses the definition of "smart tenancies" on this premise that it is a computer program capable of executing tenancy obligations.

On the definition of a "smart tenancy agreement", it was Cuttell (2017) who first used this terminology in his student project at the Department of Computing in the Imperial College London. Unfortunately, Cuttell (2017) did not offer a definition for the phrase "smart tenancy agreement". Nevertheless, it is possible to infer, through the juxtaposition of the terms "smart tenancy" and "agreement", that there is a legally enforceable agreement in relation to the use of a smart tenancy.

The structure of this paper is as follows. Part II introduces the literature review on tenancy practice in Malaysia and the concept of smart tenancies. Part III explains the legal doctrinal research methodology. Part IV analyses the application of Malaysian law on smart tenancies. Specifically, Part IV explores four issues, namely (i) whether smart tenancy agreements are enforceable in Malaysia; (ii) whether smart tenancy agreements can satisfy the requirements for endorsement under the National Land Code (Revised 2020)[1]; (iii) whether the legal profession in Malaysia has exclusivity in providing smart tenancy services by offering and maintaining matters concerning land law; and (iv) whether self-help in contract enforcement using smart tenancies is legal in Malaysia. Part V offers recommendations with a conclusion. This paper is novel in conceptualising smart tenancies and its potential legal issues in Malaysian jurisdiction, with potential contribution to other jurisdictions sharing similar legal principles in resolving similar legal issues.

2. Literature review

A tenancy, under Malaysian land law, means "a species of licence to which are attached the covenants for quiet enjoyment and for exclusive possession" (*Devi v Francis* [1969] 2 MLJ 169) of immovable property for a period not exceeding 3 years (National Land Code, ss. 221 & 223). For rental exceeding a 3-year period, the National Land Code recognises it as a "lease". Registration of leases is a more involved process and are excluded from the discussion in this article. A tenancy relationship typically involves three stages: the creation of a tenancy agreement, the performance of tenancy obligations, and the termination of the tenancy agreement.

2.1. Creation of tenancies

The formation of a tenancy agreement is subject to satisfaction of all elements of formation of a contract under the Contracts Act 1950 (Sufian, 2012, p. 16). According to section 10(1) of the Contracts Act 1950, a valid and enforceable agreement must be consented to by both parties with the capacity to form a contractual relationship for a lawful purpose with a lawful consideration. The parties have the freedom to decide whether to enter into an agreement in writing or orally. A written tenancy agreement may be prepared either by a solicitor, by the parties themselves or by a real estate agent. Although the National Land Code does not dictate the content of a tenancy agreement, parties commonly use a standard form agreement incorporating salient terms widely accepted by the public, and the parties are free to amend the clauses in a standard form agreement accordingly. Typically, the steps for entering a tenancy agreement in writing are as follows:

(1) If a solicitor is involved, parties may instruct the solicitor to draft the tenancy agreement incorporating the terms of the tenancy. Alternatively, if parties prepare the agreement by themselves or employ the service of an estate agent, relevant information such as the details of the parties, tenancy duration, rental amount, option to renew, and property details ought to be included in the standard form agreement.

(2) After reading and verifying the terms of the agreement, both parties sign and date the agreement in the presence of a witness or witnesses. Thereafter, the parties need to submit the agreement to the Inland Board of Revenue for adjudication and payment of stamp duty.

(3) Upon paying the stamp duty by way of a process known as "stamping", each party will retain a copy of the tenancy agreement.

(4) The existence of a tenancy may be recorded on the land title through a process known as "endorsement on the register document of title". An endorsement is an act of making a note by the official registrar on the register document of title with the words "exempt tenancy claim" or its equivalent to the same effect (*Registrar of Titles, Johore v Temenggong Securities Ltd* [1976] 2 MLJ 44). If both parties agree to endorse the tenancy on the title, the solicitor will present the stamped copy of the tenancy agreement together with the original issue document of title and other relevant documents to the land registry for endorsement purposes.

The endorsement of the tenancy on the land title gives extra legal protection to the tenant (National Land Code, s 316(1); *Ong Beng Cheng v Chiu Weng Wa* [1993] 4 CLJ 591). An "endorsement" is distinguishable from a "registration", where a registrable interest are transfers, leases and subleases for a term exceeding 3 years, charges and easement (*Registrar of Titles, Johor v Temenggong Securities Ltd* [1976] 2 MLJ 44). If a tenancy is not endorsed, the tenancy will not be binding on any subsequent owner should ownership of a rented property changes hands (*Hotel Ambassador (M) Sdn Bhd v Seapower (M) Sdn Bhd* [1991] 1 MLJ 404). However, endorsement of tenancy is rarely exercised in practice for primarily three reasons: firstly, an endorsement is not mandatory and proprietors (or any other person capable of granting the tenancies, but for simplicity, this article refers to the "landlord" to include all other categories) are not keen on endorsement as it would entail further cost; secondly, if the property at that time when the tenancy is created is subjected to a charge, the chargee's consent is required before an endorsement can take place, and often, the owner does not inform the chargee of the existence of a tenancy (National Land Code, s. 226(1); *Tan Chee Lan & Anor v Dr Tan Yee Beng* [1997] 4 MLJ 170); and thirdly, an endorsement on the register document of title makes it less attractive to the potential buyer, more so for buyers that expect to get vacant possession immediately. Unless the potential buyer agrees on a novation of tenancy and allows the existing tenant to occupy the property, it is generally foreseeable that it could incur further delay and cost to complete a sale and purchase transaction which has an endorsement of tenancy on the register document of title. The delay and cost are partly related to giving termination notice to the tenant and fulfilling the termination notice period or compensation in lieu of the notice period, thus making it less attractive to prospective buyers.

2.2. Performance of tenancy obligations

Typically, the tenant is expected to pay an upfront security deposit in cash as a form of guarantee to the landlord for any damage done to the property. In general, a security deposit is made up of two to 3 months' worth of rental (Sufian, 2012, p. 20). Alternatively, the landlord may purchase an insurance to cover losses for non-payment of rent or property damage caused by the tenant (See, 2020). During the tenancy, the tenant is obliged, among others, to pay rent on time, while the landlord is obliged to grant the tenant peaceful occupation of the property (*Al-Madinah International Foundation (M) Sdn Bhd v Al-Madinah International (M) Sdn Bhd* [2021] MLJU 2456). At the end of the tenancy, upon inspection of the property and after the landlord is satisfied with the condition of the property, the landlord is obligated to refund the security deposit in full to the

tenant. At times, the landlord may agree to set-off the last two or three months of rental payment with the security deposits.

2.3. Termination of tenancy agreements

Under general circumstances, at the expiry of the tenancy, or if either party defaults on any material tenancy obligations and fails to remedy the default upon being notified, the tenancy agreement is deemed to have terminated. However, not all tenancy relationships can be terminated in this manner. If the tenant rented the property and invested money on the property by relying on the expectation encouraged by the landlord, the court will exercise equity to "compel the landlord to give effect to such promise or expectation" (*Ramsden v Dyson* (1866) LR 1 HL 129). In the event that the tenant is granted an option to renew his tenancy, the tenant shall exercise the privilege strictly in accordance with the terms of the agreement, or risk losing the right to renew the tenancy (*Voo Min En v Leong Chung Fatt* [1982] 1 LNS 47). An option to renew is a privilege afforded by the landlord to the tenant to renew the tenancy for a further stipulated period upon the expiry of the original tenancy.

2.4. The new paradigm for smart tenancies

This section discusses the dynamics between smart tenancies and the law. There could be different motivations for innovating smart tenancies. Yeung stipulates that there are three classes of blockchain applications (Yeung, 2019, p. 215): (i) applications designed to evade the law—the "hostile evasion"; (ii) applications used to improve compliance to existing rules—the "efficient alignment"; and (iii) applications to improve coordination between multiple parties—"alleviating transactional friction". Based on Yeung's postulation, smart tenancies applications possess the potential to be considered as a "hostile evasion" innovation if the application of smart tenancies includes self-help tenant eviction features prohibited under the law, such as using a smart lock to automatically deny entry for tenants when tenants defaulted a periodic rental payment without resorting to court process. On the flip side, the smart tenancies innovation may provide an efficient alignment to facilitate compliance with the existing laws, and alleviate transactional friction between tenants and landlords by reducing the existing bureaucracy involved in a tenancy transaction (Cuttell, 2017, p. 1). A computer program that offers smart tenancy services may offer several features to its users such as one or more functions in relation to the formation vide electronic agents, performance and termination of a tenancy agreement. Yet at its core, a smart tenancy should be able to independently perform predetermined term(s) of the tenancy agreement. In addition, it is foreseeable that a smart tenancy may constitute evidence to prove the existence of tenancy for issues relating to relevant disputes if both parties did not sign a written tenancy agreement. As smart tenancies are relatively new, there is a lack of reported decision illustrating how smart tenancies are being tendered as evidence in court, and the how judges evaluate and interpret such evidence.

A smart tenancy program can be programmed as a decentralised application, also known as "DApps", functioning on a blockchain platform. The design methodologies may vary among these applications. For blockchain-based smart tenancies in general, Karamitsos et al. explain that the setup entails designing the one-to-many application template (Karamitsos et al., 2018). The application allows the landlords to act as the "Contract Owner" responsible for fixing the variables in the tenancy relationship, while the tenants are required to create an Ethereum wallet to access and participate in the relevant application. With the application template in place, the users are allowed to create and deploy smart contracts transactions or to send messages.

The extant literature discusses several smart tenancies pilot projects, proofs-of-concept, and studies. This paper notes that there are other website or application-based technologies in assisting or automating tenancy practice, such as PlaceToRent, Rentberry, SmarRent, SpeedHome and others. However, the main limitation of this research in explaining features and usability of a smart tenancy application varies from one project to another, with most service providers often do not publish or explain their software operation in detail. As such, the authors experience difficulties in

evaluating some of these software due to insufficient publicly available material. Hence, this article only examines four smart tenancy projects that publish relatively adequate materials:

(1) Midasium (undated), a London-based start-up, has developed a smart tenancy proof-of-concept on a privately owned blockchain network, for "independent landlords or property managers to manage the cash flow of their property portfolio". Midasium's website claims that its key features include securing rental bonds throughout the tenancy period, monitoring rental payment and reconciling with the payment ledger, and making payments for property maintenance using the rental bonds paid (Deloitte, 2017, pp. 14–15);

(2) Karamitsos et al. (2018, p. 186) present a design for smart tenancy applications operating on the Ethereum blockchain as a form of decentralised application (DApp) to ensure that "the rental agreement is signed, the rental amount is paid on time, and the termination of the contract is executed correctly." The primary function is to provide a platform to sign the rental agreement by both parties remotely and to collect periodic rent from tenants. Upon termination, the application automatically triggers the security deposit refund to the tenant;

(3) Kibet et al. (2019) propose a framework for the potential use of blockchain in the commercial real estate industry "for management of real estate property by eliminating middlemen in the management process" in the form of DApp. The proposed framework involves designing a system where both landlord and tenant are required to register as users on the application that share access to provide input to the application template, thereby ensuring neutrality in setting the variables related to the tenancy. Among others, the main function is to allow both parties to pay and withdraw periodic rental by interacting with the DApp; and

(4) Cuttell (2017) develops a prototype for an Ethereum blockchain-based smart tenancy application called "Acropolis" as his student project. The prototype allows tenants and landlords to closely monitor the performance of their tenancies and automate part of the process such as "issues reporting, notice creation, and dispute resolution." The prototype features recording periodic rental payments using an oracle to send payment information into the blockchain and other ancillary features. An "oracle" is a certification device that sign the script to confirm the real-world information fed to the blockchain is accurate (Mik, 2017, p. 295).

Table 1 compares the above four smart tenancy projects.

This paper further examine these projects from their respective features, particularly in relation to the three stages of formation, performance and termination of the tenancy contract.

2.5. Formation of contracts

Overall, those smart tenancy prototypes in question do not feature property listing. It is common for prospective tenants to compare potential properties at property listing sites for selection. The potential tenant may opt to conduct an on-site inspection before confirming his choice. Both parties may be required to sign a hardcopy tenancy agreement, but at times, parties may opt for oral agreements on salient terms only such as quantum of the rent payment, tenancy period and others. Karamitsos et al. (2018, p. 187) suggest parties signing the smart contract as the rental agreement, where the smart contracts containing the agreed "rental value, payment frequency and landlord and tenant's details." Midasium project (undated) provides the same working mechanism, with the landlord creating a "smart tenancy contract" embodying the salient terms. Cuttell's prototype also relies fully on smart contracts (Cuttell, 2017). Parties electronically sign the smart tenancy through a user interface using a public-private key mechanism.

Notwithstanding technical papers use the term "contract" to refer to snippets of machine-readable codes that perform a specific function on the blockchain, it is not to be confused with a legally enforceable agreement. For instance, Kibet et al. (2019, p. 321) refer to different programs

Table 1. Comparing features of smart tenancy projects

	Formation of Contract	Performance of Contract			Termination of Contract	
	Signing Smart Contract as the Tenancy Agreement	Auto Periodic Rent Payment	Maintenance Management System	Securing Rental Deposit Through Tenancy Term	Auto Refund of Security Deposit	Dispute Resolution
Midasium (undated)	X	X	X	X	X	
Karamitsos et al. (2018)	X	X		X	X	
Kibet et al. (2019)	X	X		X	X	
Cuttell (2017)		* Manual periodic rent payment option preferred	X	X	X	X

in their proposed model to include "database contracts, controller contracts, contract managing contracts" and others. This confusion is partly contributed by the misnomer from the "smart contract" terminology started by Nick Szabo (Mik, 2017, p. 273). One solution to mitigate the confusion is by separating smart contracts intending for agreements to be categorised as "smart legal contract" (Law Commission, 2021). As such, this paper refers "smart tenancy agreement" to mean the automated performance of tenancy agreements using a smart tenancy application.[2] It is also important to distinguish smart contracts from electronic agents, where the former is not designed to form contractual relationships automatically.[3]

2.6. Performance of contracts

The common feature for smart tenancy applications is to introduce one or more forms of automation into the tenancy. The custodial nature of smart tenancies is the ability to secure the rental deposit with its self-execution feature. Some smart tenancies also function as contract compliance monitoring software that record and organise the status of periodic rent payments. The system logic of a smart contract also acts as an escrow account that ensures the rental deposit is properly secured. Smart tenancies applications operating on blockchain, including the model proposed by Cuttell (2017) and Karamitsos et al. (2018), cater to the option for tenants to pay rent or security deposits in Ether—a cryptocurrency carrying fiat value on the Ethereum blockchain. In considering whether periodic rent payments should be automatically or manually paid in smart tenancies, Cuttell (2017, p. 29) explains that although an automatic periodic payment is preferred, the risk of a programming error or any other malicious attack may lead to losses that can be mitigated by manual periodic payment. A non-blockchain-based smart tenancy allows users to pay using fiat currency, thus offering a choice for the tenants to pay using either fiat currency or cryptocurrency.

Practically, the authors find that it is unlikely that tenants will adopt the cryptocurrency payment method as that may require upfront payment for the whole rental sum to be deposited in the blockchain. Even if the full upfront payment is not required, the volatility of cryptocurrency would result in the practical difficulty of calculating the cryptocurrency equivalent of fiat money for periodic rent payment, potentially causing disputes in the conversion rate. This is in addition to other challenges including the willingness to accept cryptocurrency as a mode of payment and the legality of using cryptocurrency as a legal tender. Instead, a fiat currency payment method is preferred such as giving standing instructions through banks for the payment of monthly rental.

There are other ancillary features in smart tenancy applications. Prototypes from Midasium (undated) and Cuttell (2017, p. 32) have built-in features to allow tenants to report maintenance issues. The landlord or property managers, upon being notified through the system, has the option

to either engage a contractor of their own or consent to reimburse the tenant for the fixing cost. These features are effectively online rental management platforms for monitoring contract compliance. In addition, there are issues of whether the information related to the tenancies are stored on a blockchain or a centralized server off the blockchain. Cuttell (2017, pp. 32–34) remarks that the application can adopt a hybrid approach, by storing some sensitive information on a centralised server, with other publicly accessible data stored in a distributed ledger system.

2.7. Termination of contracts

At the termination of the tenancy, the smart tenancy program automatically refunds the security deposit to the tenant, upon handing over vacant possession of the property to the satisfaction of the landlord. The amount of security deposit stored in smart tenancies can be adjusted if the landlord incurs repair costs upon discovery of damage to the property (Karamitsos et al., 2018, p. 188). Del Ceno et al. (2015, p. 164) observe that disputes on the refund of security deposits often involve interpreting subjective standards such as "fair wear and tear" and "clean" in the tenancy agreement. For instance, it is common for tenancy agreements to ensure the tenants keep the premises in clean and good repair conditions, with fair wear and tear exceptions, failing which landlords may be entitled to deduct the security deposit as repair and clean up cost. Unfortunately, even with the use of smart tenancies, the problem of subjective interpretation on what constitutes "fair wear and tear" remains.

To prevent the system from being abused by either party, Cuttell (2017, p. 54) suggests to use a neutral adjudicator to resolve any dispute between landlords and tenants. The adjudicator can be appointed at the start of the tenancy, or at any time thereafter. When disputes arise, parties can refer the dispute for adjudication, and the adjudicator is empowered to directly enforce any decision by instructing the smart tenancy program to issue payment to the rightful party, if necessary. However, this suggestion contravenes the whole purpose of using smart contracts, that is to minimise the need to enforce the contractual clauses through third-party sanction or court enforcement since the parties intend to rely on the immutability of smart contracts to achieve enforcement and compliance cost-saving. Sklaroff (2017) argues that the immutability of smart contracts comes with a cost when flexibility is desirable in some situations. To sum up, the parties have a choice to choose which tenancy arrangement to be automated to suit their respective transactional needs to avoid pitfalls brought by the immutability of smart contracts. A smart tenancy need not necessarily require the whole agreement to be automated. Other features of smart tenancies include a smart door lock which can be programmed to deny access in the event of delayed rent payment until payment is made (Lingwall & Mogallapu, 2019, p. 289). This form of technology-assisted contractual enforcement is possible with the aid of programmable hardware known as Internet of Things (IoT). However, this form of technological self-help that evicts tenants is likely to be illegal in Malaysia under section 7 of the Specific Relief Act 1950, because to recover possession of property from a tenant requires a court order. The authors observe that there is a gap in existing literature in identifying and analysing the potential legal issues faced in implementing smart tenancies in Malaysia. As such, this paper is novel in answering the legal-related research questions on the enforceability of smart tenancies.

3. Research methodology

This article employs the legal doctrinal methodology by scrutinising legislation, case laws, scholarly literature and other secondary sources to achieve the research objective. In general, a doctrinal legal study, or known as "legal-dogmatic" approach (Vranken, 2012), is a common research methodology in legal scholarship that entails "systematic study" of legal rules with reference to the primary and secondary sources of law (Taekema, 2021, p. 45). Primary sources are binding, authoritative text consisting of legislation and case reports;[4] while the secondary sources are non-binding, guiding literature such as textbooks, academic journals and guidelines. The interpretation on primary sources largely relies on how courts interpret and apply the legislative text. The doctrinal approach is also known as the "internal approach", that is by seeking answers to legal issues from within the legal sources internally as an "insider in the system" (Hutchinson, 2010,

p. 36). By "insider" it means the "participants in a legal system", who submit to the authority of the relevant laws (Schwartz, 1992, p. 180). An "external" method refers to the extra-legal study from the perspective beyond the textual meaning of authoritative text.

To understand doctrinal research better, the word "doctrine" is a derivative word from Latin "doctrina", which refers to "instruction, knowledge or learning" (Hutchinson & Duncan, 2012, p. 84). When the word "doctrine" is used in legal context, it generally refers to applicable law and legal principles, including authoritative non-binding secondary sources. The term "doctrinal" also has a special meaning in common law jurisdictions, where it is closely associated with the doctrine of binding precedent arising from judgment of a higher court bind the lower courts on a similar legal issue. As such, doctrinal study is a textual analysis on primary sources (or known as "hermeneutics"), forming reasoned arguments to propose answers to the legal issues. The doctrinal legal study is almost unique to legal scholarship. The skill required to conduct a doctrinal study closely resembles the thought process of a judge in evaluating facts of the case and applying relevant applicable law (Hutchinson & Duncan, 2012, p. 107). Lawyers, judges and legal academics are trained under a similar legal education stream in law schools, and it comes as a second nature to refer to primary and secondary sources in order to find solutions for a particular legal problem (Siems, 2008, p. 158). The law academics organise, reflect and narrate the current state of applicable legal principles by reconciling legal principles in reported case decision.

4. Results and discussion

4.1. Whether smart tenancies are enforceable in courts

A legally enforceable agreement carries the authority of the court to ensure contracting parties fulfil their respective obligations under a contract. The enforcement mechanism relies on court order in granting remedies including damages and specific performance. Theoretically, smart tenancies are "self-enforcing" in the sense that it automatically executes the transfer of crypto-currency (or crypto-assets) upon the fulfilment of defined events. By applying the "self-enforcing" character in a contract setting, it is alleged that smart contracts eliminate human discretion to comply with contractual obligations by relying on the immutable feature of a blockchain. The parties to the contract are prevented from, either intentionally refusing to comply with the agreed term or failing to perform as a result of human negligence. This, in turn, is said to prevent contracting parties from breaching the terms of the contract after the smart contracts are deployed on the blockchain (Ortolani, 2016). However, the idea of "self-enforcing" smart contracts has been heavily criticised. Mik (2017, pp. 280–281) argues that the term "enforcement" under the concept of "self-enforcing" is used in a wrong context, since "enforcement" refers to state-sanctioned protection of the parties' right in a contractual relationship under the contract law. Hence, Mik (2017, p. 281) concludes that "enforceability" and "guaranteed performance" are two separate and distinct concepts and cannot be equated with one another.

In addition to Mik's (2017) criticism above, tenancy relationships may involve competing rights and interests over immovable properties, at times concerning third-party to the tenancy agreement. A purportedly "self-enforcing" smart contract between the contracting parties is unable to determine and adjudicate competing rights and interests involving a third party. To illustrate this, when the ownership of a tenanted property is transferred to a third party without the tenant's knowledge and consent, disputes over the rights of the tenant inevitably arise when the new owner issues a notice to quit on the tenant (*Cheo Lean How v Fock Fong Looi* [1985] 2 MLJ 440). The tenants may argue that their tenancy is protected by equity or equitable estoppel (*Cheng Hang Guan & Ors v Perumahan Farlim (Penang) Sdn Bhd & Ors* [1993] 3 MLJ 352; *Mok Deng Chee v Yap See Hoi & Ors* [1981] 2 MLJ 321; *Devi v Francis* [1969] 2 MLJ 169). A smart tenancy, albeit automated, is incapable of resolving disputes such as this. Hence, when such disputes happen, it is inevitable that the parties will litigate, with the "self-enforcing" feature appearing to be irrelevant.

The issue of whether smart contracts are legally enforceable contracts has been discussed by some legal scholars in various jurisdictions (Ferreira, 2021; Filatova, 2020; Veerpalu et al., 2020), including Malaysia (Mohd Zain et al., 2019; University of Malaya, 2018). The Legal Statement made by the UK Jurisdiction Taskforce (2019, p. 31) examined whether "a smart contract [is] capable of giving rise to binding legal obligations, enforceable in accordance with its terms". The UK Jurisdiction Taskforce (2019, p. 31) concluded that the requirement for an agreement to be legally enforceable under the English law is a three-fold objective test: the terms offered and accepted are sufficiently certain; the parties intended to enter into a legal relationship; and, there is an exchange of consideration. Hence, for smart contracts to be enforceable, the parties are not exempted from satisfying the usual standard applicable to contracts in general.

The three-fold test summarised by the UK Jurisdiction Taskforce above applies to common law jurisdictions, including Malaysia. However, under Malaysian law, the prerequisites for an agreement to be enforceable in court are subjected to the Contracts Act 1950. Section 10(1) of the Contracts Act 1950 stipulates that all agreements are enforceable if competent parties freely consented to an agreement with "a lawful consideration and with a lawful object, and are not hereby expressly declared to be void." The Contracts Act 1950 does not prescribe any formality for a contract to be in a specific form. Abdul Malik Ishak J in *Sulisen Sdn Bhd v Kerajaan Malaysia* ([2006] 7 CLJ 247, p. 271) held that:

> A simple contract requires little formality. A contract may be written; it may be partly written and partly oral; it may be wholly oral and may even be implied from the actions of the parties. The essentials of any contract are the rights, duties and liabilities that arise from the promise or promises made by the parties.

Based on the existing smart tenancies prototypes and proof-of-concepts, there are currently no fixed formats for smart tenancy agreements. The smart tenancy applications and written agreement are not mutually exclusive, where parties are not obliged to pick solely a smart tenancy or a written agreement. Instead, the contracting parties are free to execute tenancy agreements in writing and thereafter utilise a smart tenancy application. Other service providers may find it sufficient for a smart tenancy application containing salient agreed information presented in a user-friendly interface as "contracts". Notwithstanding that, the enforceability of a smart tenancy agreement requires the parties seeking remedies from the court to prove to the satisfaction of section 10(1) of the Contracts Act 1950. The form of a smart tenancy agreement, albeit immaterial in establishing a legally enforceable contractual relationship, may influence the admissibility of the said agreement as evidence in court, which is discussed in the following section.

4.2. Whether smart tenancy agreements are admissible in courts

The concept of "admissibility" and "enforceability" are two distinct legal concepts, as the former concerns tendering a piece of document in the court as evidence, while the latter refers to the court sanctions in upholding the law. If it concerns an agreement in writing, the written agreement must first be stamped by paying a fee before the agreement can be tendered in the court as evidence (Stamp Act 1949, s. 52(1)). Any unstamped written agreements may be impounded by officer of a public office (Stamp Act 1949, s. 51(1)), and cannot be admitted as evidence in a civil action, but the relevant party can pay the stamp duty chargeable together with the late penalty before the instrument can be tendered as evidence (Stamp Act 1949, s. 52(1)).[5] The following discussion is not applicable to oral agreements. Proving an oral agreement in court entails sworn witness testimonies and other circumstantial evidences, such as communications between the parties, to convince the judge on the existence of such oral agreement.

There are generally three hurdles to be cleared before stamping a smart tenancy agreement: (i) whether a smart tenancy agreement can be considered as a "written" agreement; (ii) whether it is mandatory to have the signature from both parties on the smart tenancy agreement before it is

stamped; and (iii) how to stamp a smart tenancy agreement if the agreement exist solely on a blockchain.

4.2.1. Whether a smart tenancy agreement can be considered as a "Written" agreement?
Stamp duty is imposed on an "instrument" under the section 4 of the Stamp Act 1949, and "instrument includes every written document" (Stamp Act 1949, s. 2). According to section 3 of the Interpretation Acts 1948 and 1967, "writing" or "written" includes … electronic storage or transmission or any other method of recording information or fixing information in a form capable of being preserved.' Reference is made to section 2 of the Electronic Commerce Act 2006, where the Act applies to "any commercial transactions conducted through electronic means". A "commercial transaction" refers to the "communication of a commercial nature, whether contractual or not" (Electronic Commerce Act 2006, s. 5). Incidentally, the Electronic Commerce Act 2006 does not say that real estate matters are excluded from the purview of the Act. To ascertain whether a particular electronic communication can be regarded as "in writing", section 8 of the Electronic Commerce Act 2006 states that "where any law requires information to be in writing, the requirement of the law is fulfilled if the information is contained in an electronic message that is *accessible and intelligible* (emphasis on our own) so as to be usable for subsequent reference".[6]

While it is acknowledged that the law does not require a tenancy agreement to be in writing, it is helpful to understand the legal standard for "in writing". If a smart tenancy agreement exists solely in the form of machine-readable codes on the blockchain, it remains uncertain whether it can be regarded as "intelligible" within the meaning of section 8 of the Electronic Commerce Act 2006. The Oxford English Dictionary defines the meaning of "intelligible" to mean "capable of understanding (not by senses) that may be apprehended by intellect" (*Public Prosecutor v Harmenderpall Singh a/l Jagara Singh* [2007] 3 MLJ 433). This is less of an issue in *Yam Kong Seng v Yee Weng Kai ([2014] 4 MLJ 478)*, where the Malaysian Federal Court held that a short messaging system written in plain, ordinary natural language which is able to be comprehended by a layperson can be considered "intelligible" within the meaning of Electronic Commerce Act 2006.

The report published by the Law Commission of England and Wales on Law Commission (2001) further illustrates what constitutes "intelligible" in the common law jurisdictions. The Law Commission (2001, p. 8) found that messages in Electronic Data Interchange, a structured transfer of information in the form of electronic messages between commercial entities, cannot satisfy the meaning of "writing" when it is not "words in a visible form". Subsequently, the Law Commission (2019, pp. 15–16) in their following report on "Electronic Execution of Documents" published in 2019 reinforced the previous Law Commission's position that Electronic Data Interchange cannot be considered "written" under the Interpretations Act 1978 in the United Kingdom because "they are not intended to be read by any person and are not in the form which can be read". Nevertheless, the Law Commission (2019, p. 16) endorsed e-mails and web pages to be legally recognised as "in writing" for the reason that they are in a human-readable form.

Notwithstanding that the UK Law Commission's position has yet to be adopted by the Malaysian courts, the two proposed tests by the Law Commission: "whether it is intended to be read by any person" and "whether the language exists in a readable form", ought to be considered in Malaysian context. The user interface assisting smart tenancy application is meant to be a human-readable medium, akin to a webpage, written in natural language. Although the printouts from a smart tenancy user interface do not resemble a formal agreement drafted in legalese, it should not affect the admissibility of such documents to prove the existence of the tenancy. In addition, the tenancy agreement is not subjected to any formality requirements imposed under the law. The salient terms of the tenancy which are legibly presented in the user interface fulfil the standard set by Law Commission to be intended to read by a person.

This discussion also relates to contracts coded in a machine-readable language. It is rare, if not exceptional, for an agreement to exist solely in computer codes without a natural language counterpart (Mik, 2021). When such a hybrid agreement is coded, the court would first examine the contracts written in natural language as a source of obligation (*Moschi v Lep Air Services Ltd* [1972] 2 All ER 393; Burrows, 1998, p. 111). In the event that the issues before the court require a detailed examination of the computer codes, the court is usually assisted by expert witnesses to interpret the relevant computer program (*Bates and others v Post Office Ltd* [2019] EWHC 3408). In a widely-discussed decision by Lord Denning in *Thornton v Shoe Lane Parking* ([1971] 2 QB 163), the court was less concerned with the computer codes that operated the boom gate and the car park machine. Instead, the notice board near the machine that displayed the relevant terms and conditions for the use of the car park constitutes the source of obligations between the car park management and users, while a further exclusion clause not prior visible to the users was held not to be part of the contract. The Court of Appeal in *Thornton* further held that any amendments or additions in a contract ought to be given due notice to the respective contracting parties before such changes can be part of the agreed terms. Based on this principle, if the computer codes in a smart contract remain obscure to the contracting parties, operating in a black-box where the parties have no opportunity to examine those codes, it is arguable that the parties have no notice on the machine-readable codes and these codes may be excluded as evidence before the court adjudicating issues relating to whether computer-codes are part of an enforceable contract.

4.2.2. Whether it is mandatory to have the signature from both parties on the smart tenancy agreement before it is stamped?

According to section 41 of the Stamp Act 1949, all written tenancy agreements need to be signed before stamping. Traditionally, hand-drawn "fanciful or stylised mark" can be affixed to a document to satisfy the requirement of signing (*Yam Kong Seng & Anor v Yee Weng Kai* [2014] 4 MLJ 478). The importance of technology-assisted remote signing has been acknowledged in UNCITRAL Model Laws of E-Signatures and E-Commerce, which recognises the distinction between "digital signature" and "electronic signature". A digital signature relies on asymmetric public-private key cryptography, while electronic signature is a technology neutral term that refers to other modes of affixing signature remotely apart from cryptography technique. This form of digital-electronic signature dichotomy exists in Malaysia in Digital Signature Act 1997 and Electronic Commerce Act 2006.

Notwithstanding that blockchain uses cryptographic public-private keys to sign and authorise transactions, there are fundamental differences between the decentralised blockchain system and a digital signature system authorised by a centralised certificate authority recognised under the law. The Digital Signature Act 1997 in Malaysia adopts a certification-centric approach on digital signature. A digital signatory is required to subscribe to a certificate issued by a statutory-recognised certification authority (Digital Signature Act 1997, s. 2).[7] The purpose of issuing a subscriber certificate is to verify the identity of the signing party before authorising the use digital signature. Meanwhile, the public blockchain platform does not undertake the responsibility to verify and ascertain the identity of all the users (Veerpalu et al., 2020). Section 4 of the Digital Signature Act 1997 only authorises licensed certification authorities to issue certificates to subscribers. There are statutory requirements to qualify as a certification authority in Malaysia (Digital Signature Regulations 1998, r. 6), and these constitute a substantial hurdle for a global decentralised public blockchain platform to gain legal recognition locally. Among others, the Digital Signature Regulations 1998 requires the applicants to be a company incorporated in Malaysia with sufficient working capital, willingness to submit any personal guarantee imposed by the Malaysian Communications and Multimedia Commission, fulfil technical requirements and other obligations. Regardless, it is still possible for a local privately owned blockchain consortium to comply with such requirements and attempt to obtain a certification authority license.

Another alternative available is the electronic signature under the Electronic Commerce Act 2006, as equivalent to a signature of a person on a document. An "electronic signature" is defined

as "any letter, character, number, sound, or any other symbol or any combination thereof created in an electronic form adopted by a person as signature" (Electronic Commerce Act 2006, s. 5), on the condition that the following principle-based requirements are fulfilled (Electronic Commerce Act 2006, s. 9):

(1) The electronic signature must be "attached or logically associated with the electronic message";
(2) The electronic signature "adequately identifies the person and adequately indicates the person's approval of the information to which the signature relates"; and
(3) The electronic signature is reliable, which means the system supporting the electronic signature must be able to function in such that the means of creating the electronic signature is linked to and under the control of that person only, and any alteration made to the electronic signature or the document after the time of signing is detectable.

Other ways to "sign" a smart tenancy agreement include printing out a hard copy of the agreement for the parties to physically sign. The Inland Revenue Board of Malaysia (IRB) currently allows for online assessment and payment of stamp duty by scanning and uploading a copy of the instrument in graphic or pdf format. Alternatively, by applying section 9 of the Electronic Commerce Act 2006, an electronic signature associated with the digital version of the smart tenancy would be sufficient to satisfy the requirements for a signature.

4.2.3. The agreement is stamped in one of the legally recognised methods

Sections 2 and 7 of the Stamp Act 1949 statutorily recognises three ways of stamping an "instrument". First, it can be done by pasting an adhesive revenue stamp on the instrument and cancelling it by an authorised person; secondly, by affixing the stamp duty payment receipt to the instrument; or, thirdly, by attaching the stamp certificate generated online after stamp duty payment is made on the instrument. In the case of a tenancy agreement, only an agreement with an annual rent of more than RM2,400.00 is chargeable with stamp duty (Stamp Act 1949, Sch. 1, item 49). One of the issues involving smart tenancies is how such smart tenancy agreements can be properly stamped.

Currently, the online stamp assessment and payment system platform does not require the presentation of the original instrument. Instead, scanned graphics or PDF files can be uploaded to an online system for stamping purposes. In the case where smart tenancy technology is used to automate some of the essential terms of a tenancy agreement with a conventional hardcopy agreement, such agreement will be duly stamped by uploading a scanned copy of the signed agreement onto the online stamp assessment and payment system. It is only when there is no physical signing of a hardcopy agreement, then there is a question of how such smart tenancy agreements can be properly stamped. The missing technology is a fully automated end-to-end mechanism from the Inland Revenue Board for a smart tenancy to complete the process automatically. This can be achieved if there is an application programming interface (API) provided by the Inland Revenue Board to connect an external system to the Inland Revenue Board's system. To summarise, smart tenancy agreements can be admitted in court if the service provider complies with the stamp duty, electronic commerce, and electronic signature laws. Wijaya et al. suggest that regulators could, in future, consider using blockchain technology to administer stamp duty payment *in situ* to improve the efficiency of stamping electronic agreements (Wijaya et al., 2019). For the time being, until the Inland Revenue Board adopts such a massive revamp of their system using blockchain, it is possible to stamp smart tenancies using existing legal frameworks under the Stamp Act 1949.

4.2.4 Whether a smart tenancy agreement can be endorsed under the National Land Code?

There is a mechanism in the National Land Code to protect the interests of the parties to a tenancy by way of an endorsement of the tenancy on the land title. This means that a note is recorded in

the land title indicating the name of the tenant and the duration of the tenancy. Endorsement is not mandatory, but an endorsement can bind the subsequent purchaser of the tenant's interest in the property (National Land Code, s. 316(1); *Macci Fashion & Sales Centre Sdn Bhd v Stable Properties Pte Ltd & Others* [2002] MLJU 351). The endorsement can be done by way of submitting a duly stamped tenancy agreement together with the register document of title and other supporting documents in writing to the satisfaction of the land registrar of the existence of a tenancy relationship (Sufian, 2012, p. 14). It is however unclear whether smart tenancy agreements in digital format which are signed using digital signatures under the Digital Signature Act 1997 or electronic signature under the Electronic Commerce Act 2006 could be presented for endorsement. Furthermore, there is no technology available yet for an end-to-end automated system from a smart tenancy system to the land office's information system for the application of the endorsement of tenancies.

Furthermore, the National Land Code does not prescribe the requisite forms, principles or procedures for an endorsement of tenancy. Thus, it largely relies on the individual land registrar's prerogative and discretion to determine, on a case-to-case basis, whether to accept an application for endorsement. It is foreseeable that if smart tenancies are printed on hardcopies clearly indicating the essential tenancy terms, particularly information relating to the relevant property, parties concerned and tenancy duration, among others, together with sufficient proof that both parties have consented to the tenancy, the land registrar may allow an endorsement on the register document of title by using smart tenancies.

4.2.5. Whether the legal profession can claim exclusivity in offering and maintaining smart tenancy services?

The penultimate issue concerns whether the legal profession can claim exclusivity in preparing tenancy agreements. Although section 37(2)(a) of the Legal Profession Act 1976 states that any unauthorised person is prohibited to "draws or prepares any document or instrument relating to any immovable property", the law does not prohibit anyone from preparing the tenancy agreement if it is not done for financial gain or the person preparing is a party to the transaction himself. An unauthorised person is defined as a person who is not an advocate and solicitor in the High Court of Malaya with a valid practising certificate (Legal Profession Act 1976, s. 36(1)). Violation of section 37(2) of the Legal Profession Act 1976 is a criminal offence. Based on the provision, the issue is whether smart tenancy services not offered by an advocate and solicitor would infringe the said provision. Reference can be made to the Singaporean High Court's decision in *Law Society of Singapore v Mahadevan Lukshumayeh* ([2008] SGHC 106), where one of the respondents, a lawyer who failed to maintain a valid practising certificate, was found guilty of misconduct for advising "a client on a tenancy and had drafted a tenancy agreement at a time when his practising certificate had expired". The relevant provision, namely section 33(2)(a) of the Singaporean Legal Profession Act 1966 is almost identical to section 37(2)(a) of the Malaysian Legal Profession Act 1976.

The preparation of a legal instrument by an unauthorised person may also violate the provision of the Legal Profession Act 1976. In *Majlis Peguam Malaysia v Euro Prestasi & Partners (M) Sdn Bhd* ([2015] MLJU 2055), a debt recovery service provider who purportedly, among others, prepared a debt settlement agreement for debtors to sign was held to have violated the newly inserted section 37(2A) of the Legal Profession Act 1976, which states that any person who "does or solicits the right to do any act which is customarily within the function or responsibility of an advocate and solicitor … ". Unfortunately, the *Euro Prestasi* decision does not invoke section 37(2)(a), therefore, it gives no instruction on the interpretation of the phrase "draws or prepares" and a clear explanation on what amounts to "document or instrument related to immovable property". In addition, the facts in *Euro Prestasi* are unclear on whether the defendant furnished the debt settlement agreements to the debtors for (i) debtors' only signatures, (ii) debtors' and creditors' signature, or (iii) debtors' and the defendant debt recovery service provider's signature.

As provided by the Legal Profession Act 1976, a party to the agreement can prepare an agreement without engaging the service of a solicitor and this is not infringing the Act. An adverse interpretation from the decision against the defendant in *Euro Prestasi* suggests that the act of filling up the details of the debtors in debt settlement agreements, notwithstanding that the template for the agreements was prepared by qualified solicitors, among other actions, falls under the customary function of solicitors in preparing such agreements.

A broad interpretation of "draws or prepares" may suggest that the phrase includes filling up a template agreement with the parties' details even though the actual legal document was drafted by a solicitor. It is the contention of this article that "draws or prepares" can be distinguish from the "fill-in-the-blank" in a standard contract template. Selling a printed tenancy template to the public at large should not be considered as a violation of section 37(2)(a) of the 1976 Act. In an article, Sin (2001, p. 487) explains that tenancy agreements in standard forms are widely available for purchase from local stationers in Hong Kong, allowing the parties themselves to fill in information in the space provided. It is also common for construction industry in Malaysia to adopt a general form of contract known as "PAM Contract" issued by the Malaysian Institute of Architects, and such practice is not considered to be infringing the exclusivity of advocates and solicitors.

It is argued that the *Euro Prestasi* case cannot be interpreted to mean that advocates and solicitors have exclusivity in preparing any form of agreement. Although the court in *Euro Prestasi* held that drafting contracts, among others, is customarily performed by an advocate and solicitor, such principle ought to be confined to the facts of the case. The defendant company in *Euro Prestasi* was primarily a debt recovery company where their employees have had intimidated the members of the public by falsely representing themselves as legally qualified person, and on occasions wrongfully threatened the victims with allegedly criminal charges. In contrast, a company providing smart tenancies services can be seen as providing a standard form tenancy template, where parties keen to automate tenancy terms can sign up for such services. More so, it is likely that the parties themselves fill in the requisite tenancy information onto the smart tenancies, and arguably, the public has the right to draw and prepare any agreements for their personal use. Hence, the *Euro Prestasi* decision ought to be confined to the unscrupulous conducts of the defendant.

4.2.6. Whether there is room for a smart tenancy to enforce tenancy terms by way of self-help in Malaysia?

Self-help remedies for breach of contract refer to private initiatives to seek redress without recourse to a formal legal process (Gergen, 2009; Taylor, 1998). In the context of tenancy, usually where the tenant defaults in rental payment or occupies the premises after the expiry or termination of the tenancy, self-help allows the landlord to enforce his contractual rights quickly by either forfeiting the deposit sum or evicting the tenant without seeking court proceedings. Under Malaysian law, if the tenant breaches any of the tenancy obligations, or refuses to surrender vacant possession of the property upon the expiry of the tenancy, the general principle is that the landlord is required to serve upon the defaulting tenant a notice to remedy the breach within a reasonable time and a notice to quit thereafter (National Land Code, s. 235). If the tenant fails to comply within the prescribed period, the landlord need to apply an eviction order from the court against the tenant.

As a result of an amendment in 1992 to the Specific Relief Act 1950, landlords no longer can resort to self-help methods to evict tenants who continue to remain in occupation after the end of their tenancy (Specific Relief Act 1970, s. 7). The statutory amendment ousted the principle laid down by the then Malaysian Supreme Court in *Trustees of Leong San Tong Khoo Kongsi (Penang) Registered & Ors v Poh Swee Siang* ([1987] 2 MLJ 611) which held that the word "may" in the pre-amended section 7 of the Specific Relief Act 1950 signifies that it is not mandatory for the landlord to obtain a court order for repossession of their land. Instead, the current position after amendment is that landlords must go to the court to obtain an eviction order known as a writ of

possession. It is also mandatory to obtain the leave of the court prior to issuing a writ of possession unless it is a summary application for possession of land against trespassers (Rules of Court 2012, o. 89).

Once a writ of possession is issued by the court, the landlord is entitled to obtain the possession of the property with the help of court bailiffs. If the premises are locked, or if the request to enter the premises peacefully is refused by the tenant, the court bailiff may exercise reasonable force to enter the premises. The bailiff then instructs the tenant to leave the premises and surrenders possession back to the landlord. As such, section 7 of the Specific Relief Act 1950 precludes the use of any technological self-help method such as locking the tenant out of the premises to enforce a smart tenancy agreement. The Malaysian courts treat any attempt of locking the tenant out of the premises without resorting to court order seriously, prohibiting the landlord from "taking the law into their own hands", which may constitute a tortious act (*Dr Harjit Singh v Suhaimi bin Samat* [1995] 1 LNS 62). Germany and the United Kingdom also share a similar legal position (Housing Act 1988, s. 7), requiring landlords to obtain an eviction order from the court.

A writ of distress is a court permission allowing the landlord to seize and auction the tenant's movable property found in the rented premise to recover rental arrears (Distress Act 1951, s. 5). In contrast to the writ of possession, a writ of distress is an *ex parte* application by the landlord without any notices to the tenant to "preserve the element of surprise" (Halsbury, 1999, para. [280.090]). Upon hearing an application, the judge may authorise the court bailiff to enter the premises, take possession of the tenant's property and subsequently auction them to satisfy the rent arrears. The difference between a writ of distress and a writ of possession is that the former does not necessarily entail eviction of the tenant from the premise. If the rent arrears are satisfied from the execution of a writ of distress, the tenant may continue to stay on the premises.

In contrast, any other monetary claims owed by landlords to tenants may have some room for self-help without resorting to legal action, on a condition that both parties agree on the proposed settlement. For instance, a tenant may offer to deduct the upcoming rent due for reimbursement of maintenance cost incurred, or off-setting the monthly rent towards the end of a tenancy period with the security deposit. As such, it is permissible for smart tenancies to program instructions authorising set-off from periodic rent or security deposit, if agreeable by both parties, for reimbursements to tenants. Traditionally, clear express terms and conditions in the tenancy agreement are required if the landlord wishes to deny the utility services such as water and electricity supplies to the rented property as a form of self-help to evict tenant. In the case of water supply, section 89 of the Water Services Industry Act 2006 provides instances for disconnection of water supply under paragraphs(2)(a) to (e), and among others, the default in settling the water bill within 30 days. In the case of electricity supply, an electricity supplier may disconnect the electricity if there is a default of payment under section 32(4) of the Electricity Supply Act 1990. The landlord has the right to instruct the disconnection of water or electricity supplies if the service is registered in the name of the landlord when the tenant defaults in the payment of the bills.

In the case of default payment of the maintenance charges to the management corporation, the parcel proprietor, i.e. the landlord (and his tenant) may be denied access to the parcel if there are clear by-laws (or House Rules) made under section 150 of the Strata Management Act 2013 to the strata property. Section 70(3) of the 2013 Act provides that such by-laws shall bind, among others, the management corporation, the proprietor (landlord) and also the tenant. The defaulting party may also be denied access and enjoyment of the car park and other common facilities (Strata Management (Maintenance and Management Regulation 2015, Sch. 3, item 6(4) & item 6(5)). In the case of a guarded neighbourhood that is not governed by the Strata Management Act 2013, the Federal Court in *Au Kean Hoe v Persatuan Penduduk D'villa Equestrian* ([2015] 4 MLJ 204) held that the use of boom gate at the public road leading to the guarded neighbourhood as an obstruction merely caused an inconvenience to the entry into the property by the plaintiff who had failed to pay the service charges and such obstruction did not amount to nuisance and was not actionable. With smart

tenancies, self-help enforcement of tenancy agreement may include both denials of services and access when the tenant breaches a condition. However, the Specific Relief Act 1950 outlaws any form of denial of access using any means, including the use of smart tenancies technology. In summary, notwithstanding that the parties to the tenancy agreement uses smart tenancies to automate part of their obligations, technology self-help eviction in smart tenancy remains largely illegal in Malaysia.

5. Recommendation and conclusion

The main contribution of this article is defining smart tenancies to mean applications that automate tenancy obligations using blockchain smart contracts and analyses the legal issues for adopting smart tenancies in Malaysia. The findings can be summarised as follows:

(1) It is shown that the enforceability of smart tenancy in Malaysian courts is subjected to complying with the Stamp Act 1949 and Electronic Commerce Act 2006;

(2) A stamped smart tenancy can be submitted to the land registry for endorsement of tenancy to better protect the interest of the tenant;

(3) The smart tenancies service provider ought to be prudent on the exclusivity of lawyers in preparing documents related to immovable property. Nevertheless, if the smart tenancies are primarily a standard form requiring the parties to the tenancy to fill in the necessary information, it is unlikely that such services will be considered to have infringed the Legal Profession Act 1976; and

(4) The laws in Malaysia prohibit smart tenancies from acting as a self-help eviction tool for the landlord in a tenancy relationship, but allow flexibility in off-setting money due and owing between landlords and tenants.

Regulators ought to perceive the use of smart tenancies applications as less of a hostile innovation, but instead more of an efficiency enhancement tool in a tenancy relationship. The current study indicates that existing smart tenancies proofs-of-concept and pilot projects are made to improve the management of tenancies. There is little, if not no evidence to suggest that smart tenancies are made to circumvent any laws. Regulators should also consider enacting enabling laws, for clarification and avoidance of doubt on the status of smart tenancies.

Acknowledgements
This research is funded by the Ministry of Higher Education of Malaysia through Fundamental Research Grant Scheme (FGRS) No: 180464–207817 (Reference Code: FRGS/1/2017/SSI10/MMU/02/1) and Perdana Cyberlaw PhD Scholarship by Yayasan Universiti Multimedia. The authors would like to thank the sponsors. Any mistake in this paper remains on our own.

Funding
This work was supported by the Ministry of Higher Education, Malaysia [FRGS/1/2017/SSI10/MMU/02/1]; Yayasan Universiti Multimedia [Perdana Cyberlaw PhD Scholarship].

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Citation information
Cite this article as: Application of blockchain smart contracts in smart tenancies: A Malaysian perspective, Kai-Jie Yong, Eng Siang Tay & Dennis W. K. Khong, *Cogent Social Sciences* (2022), 8: 2111850.

Notes

1. Hereinafter referred to as the "National Land Code". It is formerly known as National Land Code 1965.
2. For further explanation on "smart tenancy agreement", see, section I of this article.
3. The authors are aware of Lord Denning's decision in *Thornton v Shoe Lane Parking* [1971] 2 QB 163 (CA). In another working paper, the authors note that by solely referring to vending machine to conclude smart contracts capable to form contractual relationship autonomously is incorrect. A vending machine is made up of two components, an electronic agent that serves as a hardware display as an offer to the public, while the smart contract components are responsible to automatically execute the mechanics of the vending machine.
4. Note that international public law may refer to other authoritative text such as reports, conventions and others.
5. Note that this rule is subjected to exceptions stipulated under the same section, that the rule does not apply to criminal court and contracts involving Government of Malaysia or State Government.
6. This interpretation is adopted by the Malaysia Federal Court in the case of *Yam Kong Seng v Yee Weng Kai*

[2014] 4 MLJ 478 in deciding whether a message from a short messaging system (SMS) is considered "written".
7. See definition of a "valid certificate" under section 2 of the Digital Signature Act 1997.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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