The Effect of Indefeasibility and Error Correction on the Registration Process

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Key words: LADM, Registration, Correction, Title, Deeds, Error.

SUMMARY

Conventional wisdom indicates that there are two forms of register: a Register of Title and a Register of Deeds. However, we agree with Zevenbergen & Ploeger (2019, p. 7) when they state that in reality most systems are neither purely deeds or Title based and lie on a spectrum between the two poles. As binary concepts, the terms Title and Deed register are poorly suited at representing the reality of this spectrum. We recognise that registers have a need to represent both state and state change, and would argue that a Registrars stance on indefeasibility and error correction is a more nuanced way to both classify and understand registration systems.

We argue that the issue is not about whether a jurisdication operates a Deed register or a Title register, rather, we hypothesise that the critical issue is where a jurisdiction places *good root of Title*: the point in the chain of deeds between the original grant and the current transaction at which the jurisdication deems the rights to be *indefeasible*. We have called this the *point of indefeasibility*. Any errors in the deeds prior to the *point of indefeasibility* are termed *register errors* and as such can not be corrected. Any errors after the *point of indefeasibility* are termed *transactional errors* and as such can be corrected under the general law of property. Traditional Registers of Deeds place the *point of indefeasibility* at the original grant. This means the whole chain of deeds must be verified for every transaction. This is a costly overhead. Registers of Title place the *point of indefeasibility* at the last transaction, the opposite end of the spectrum. This severely limits the ability to correct errors. Hence, Registers of Deeds and Registers of Title represent poles on a spectrum of indefeasibility. Based on its own needs a jurisdiction can choose where to place the point of *good root of title* in the deeds sequence. This produces a hybrid approach which requires elements of both deed and title registers.

This is exactly what occurs in Scots law. Scotland places the *point of indefeasibility* prior to the last transaction and introduces a statutory time limit. This allows the last transaction to be corrected if there is a *transactional error*. It also provides the acquirer with a sense of certainty as, apart from their own transaction, any errors on the register will become *register errors* and not affect their possession. If, for example, a claim for a fraudulent transfer was undertaken for a deed that was registered prior to the *point of indefeasibility* the successful claimant will receive compensation and not the property.

Combining elements of a deed and title register can produce remarkably flexible results. The ability to demonstrate *good root of title* is simplified while preserving broad ranging powers

to correct errors. It protects owners and acquirers against errors in a manner which is perceived to be socially acceptable. O'Connor (2010, p. 197) states that "*In some of these jurisdictions, statutes which had long been assumed to incorporate either immediate or deferred indefeasibility have been judicially interpreted to embody the opposite rule*". If law makers can not accurately predict the type of indefeasibility their laws represent then there is significant legal uncertainty. In the proposed model a jurisdiction can frame whether it becomes a register of deeds, a register of title or an in-between hybrid based solely on a policy decision concerning the position of the *point of indefeasibility*. This provides some resilience to the issues identified by O'Connor (2010, p. 197).

This paper provides structured arguments for this approach which, by necessity, requires a detailed introduction to Deeds and Title registration systems. Our work is substantially influenced by the seminal review of the Torrens system by Professor Mapp (1978) and the approach to Land Registration adopted in Scotland (LRSA, 2012; Reid & Gretton, 2017; Reid, 2020).

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1. INTRODUCTION

Land Registers formalise the private conveyancing process and, in many cases, make the conveyancing process public. Originally Land Registers recorded deeds: *the legal facts of a transaction*. For example, sale of registered land (legally represented by a deed of transfer) is a transaction that transfers the whole, or part, of the ownership right from Party A to Party B. For such a transaction to be successful the party-right-land triple that uniquely defines the registered right-in-land held by a party should be unambiguously identified along with the nature of the associated party-right-land change so that when the register is searched the impact of the transaction on a Title can be efficiently identified and interpreted.

A deed describes a transactional state change that affects the state of a party-right-land triple. As stated by Zevenbergen & Ploeger (2019, p. 5): (a deed) "*indicates that the parties have created a legal fact with the intention of having a certain legal consequence, and decided to have it registered*." This means that, as stated by Simpson (1976, pp. 14-15): "*a deed in itself does not prove title; it is merely a record of an isolated transaction*." Title is the consequences of the relationships between registered party-right-land triples framed through owned land. This is demonstrated by examining the sequence of prior deeds back to a '*good root of title*'. Each deed in the sequence describes facts that result in a party-right-land state change. The consequence of each fact in the chain of deeds that constitute title needs to be interpreted. This chain, which gets longer with the passage of time, needs interpreting every time Title is derived. The responsibility for interpretation is left to the deriving parties. The "true" owner of the Title is the person who ought to be owner when all the deeds are interpreted. While Title can be derived, the Title is legally subordinate to the facts articulated in the deed.

This means every derivation of title is a discrete event: each derivative requires the re-interpretation of the chain of deeds taking in to account any changes to the surrounding property law or corrections applied to the deeds themselves. Changes to registered deeds are the consequence of error correction where minor issues in a deed are rectified or, if there are major issues, then the whole transaction represented by the deed is void. Titles are derived to demonstrate true ownership, indefeasibility, and the beneficial and encumbering rights relationship associated with owned land.

As described by Reid (2020, p. 117): "*A title is 'indefeasible' if it is immune from competing claims, whether from a competing owner or from the holder of some derivative right such as a mortgage*." Indefeasibility is important as it demonstrates to the buyer what third parties hold interests in the land they are intending to buy. In a Register of Deeds indefeasibility is said to be deferred due to the fact that indefeasibility is calculated each time Title is derived.

A Register of Deeds is based on general property law which tends to include a range of provisions which protect owners. These provisions include the concept of *nemo dat*: 'you can not sell what you do not own'. This means the registered owner is reassured that property law will, in general, defend their ownership rights even when they and a *good faith purchaser* are defrauded by a third party. This is an example of a no-consent transaction: while the grantee is acting in good faith, the right holder did not give their consent for the transaction (Reid, 2020, pp. 117-118).

The effectiveness of a Register of Deeds is dependent on whether the register is indexed in a manner which supports the efficient determination of *good root of title* and any associated rights derivation. As described by Mapp (1978, p. 46): "*the administrative efficiency of an instrument registration system, and* ***its indexing in particular*** *is of enormous consequence to lawyers, other professional title searchers, and the public*."

Where an instrument registration system is inefficient there are consequences. In 1858 the South Australian instrument registration system was seen as: "*complex, cumbrous, and unsuited to the requirements of the said inhabitants*" (RPASA (1858, p. 143), also see Torrens & Gawler (1859)). The consequence was reform and the introduction of the Real Property Act (RPASA, 1858) which introduced real property registration law to South Australia. This was the first legislation to describe *Title by registration* which has subsequently become a dominant approach to land registration.

There are many approaches to *Title by registration* although they are commonly referred to as *Torrens' registration* after Sir Robert Richard Torrens the architect of the 1858 legislation. *Title by registration* means that the consequences of the changes articulated in a deed are registered rather than the deed itself (although the deed can also be recorded as part of the archive). Title passes by the act of registration, rather than by the deed of conveyance between parties. Specific registration legislation is required that grants powers to the Registrar that extends the ordinary law of property. The transactional deed is only interpreted once: by the Registrar at the point where they register the changes on the Title. Hence, *Title by registration* has far reaching consequences.

There is no need to determine *good root of title* from a series of related deeds. Theoretically, one can simply understand all rights related to a parcel of owned land by examining the Registered Title. This is referred to as the *curtain principle*: the register is the sole source of information about the legal title and is both complete and accurate (Lord Eassie et al., 2004, p. 5). The "true" owner of the Title is the party who is narrated as owner on the register irrespective of any evidence to the contrary described in supporting deeds. This is referred to as the *mirror principle*: the title is, by definition, a true reflection of the legal facts (Simpson, 1976, p. 22). *Indefeasibility* of Title is ascribed at point of registration and is said to be immediate. *Immediate indefeasibility* is key to *Title by registration*: at registration it removes the ability to correct errors and provides the new owner with immunity from attack by adverse claims (O'Connor, 2010, p. 196). This clearly benefits the acquirer. By benefitting the acquirer, the previous owner can be permanently dispossessed by human error or fraud. Hence, *Title by registration* systems tend to have an associated fund to provide compensation.

This is referred to as the *insurance principle*: where there is loss caused by errors on the Register (a '*flaw in the mirror*') compensation is provided (Lord Eassie et al., 2004, p. 5).

Title by registration proved to be popular. In England and Wales a pamphlet distributed by Her Majesty's Land Registry (HMLR) stated that: "*Registration of title is the only method known to civilisation by which the State can secure that its chief asset, the land, may circulate among its subjects speedily, simply, cheaply, and with safety*" (Simpson, 1976, p. 163). Whilst many see the benefits of *Title by registration* as self-evident, this is not universally embraced. There are many jurisdictions which continue to provide security of tenure exclusively using *Registers of Deeds* (e.g. France, South Africa and the Netherlands (Zevenbergen & Ploeger, 2019)). Where there is an incumbent deeds system the implementation of *Title by registration* has proven to be notoriously difficult. McLaughlin & Williamson (1985, p. 96) describe approaches to introduce *Title by registration* in the United States as an *'abject failure'*. In a 1957 report a member of the New South Wales property law revision committee, Baalman, demonstrated their concern with *Title by registration* as follows: "*What is wrong with the Torrens System which makes it necessary to compel Old System owners to accept its benefits?*" (quoted in Simpson (1976, pp. 72-73).

Both a Register of Title and a Register of Deeds are based on the general law of property and, in normal circumstances, there should be no difference between how rights are resolved. However, differences are observed when there is an error on the register. The key issue is dependent upon which legal framework is used to resolve the error. If the error is resolved under the general law of property then equality is maintained between general property law and registration law. If, however, the error is resolved under the registration law and that leads to a different response to the general property law then a bijural inaccuracy ensues (Lord Eassie et al., 2004, p. 3; O'Connor, 2010).

A bijural inaccuracy means that given the same transactional legal facts one can get different answers depending on the legal framework used. By valuing ease of transfer over security of ownership, *Title by registration* provides immediate indefeasibility that, by design, favours the acquirer. This can disposses a "true" owner of what would be their legitimate rights under a deeds system. As pointed out by Zevenbergen & Ploeger (2019, p. 4) this: "*seems to be an inversion of the original intent of the mirror principle*." In 1954 the Canadian Pacific Railway Company was deprived of land of a value in excess of five million dollars, leading them to describe the Alberta Torrens system as "confiscatory legislation" (Head, 1957). This highlights the most obvious impact of *Title by registration*: the erosion of the high degree of ownership security afforded by deeds (Mapp, 1978, p. 41; Lord Eassie et al., 2004; O'Connor, 2010; Reid, 2016; Reid, 2020). As summarised by Reid (2016, p. 6): "*To make life easy for acquirers is also to make titles to land less secure*."

While the Torrens' system was clearly deemed suitable for some jurisdictions in the 19th and 20th Centuries, the social, political and technological landscape within which 21st Century Registrars operate is very different (see also McLaughlin & Williamson (1985)). The present day conveyancing context is fundamentally different in three key areas:

1. advances in digital technology in relation to data storage, retrieval, and indexing,
2. changes in consumer and policy expectations, especially in relation to:

- the development of digital conveyancing and automated land registration systems,
- the potential increase in registerable rights and overriding interests,
- the role land register data plays within the context of a spatially enabled society (Steudler & Rajabifard, 2012).

3. the challenges of error, fraud, identity fraud and cybersecurity.

This has been recognised by *legal architects* who reposition the social and political role of Land Registers. The recent volume *Land Registration and Title Security in the Digital Age: New Horizons for Torrens* provides an academic view of the challenges facing modern Land Registrars. The editors recognise that "*the move to automation challenges Torrens principles by the need to reorientate the structure and operation of the system to accommodate what is now possible*" (Grinlinton & Thomas, 2020, p. 47). It is within this context that we would like to reappraise the issues surrounding Land Registration and error correction in the light of the LADM.

Conventional wisdom indicates that there are two forms of register: a Register of Title and a Register of Deeds. However, we agree with Zevenbergen & Ploeger (2019, p. 7) when they state that in reality most systems are neither purely deeds or Title based and lie on a spectrum between the two poles. As binary concepts, the terms Title and Deed register are poorly suited at representing the reality of this spectrum. We recognise that registers have a need to represent both state and state change, and would argue that a Registrars stance on indefeasibility and error correction is a more nuanced way to both classify and understand registration systems. We hypothesise that the critical issue for a jurisdiction is where in the chain of deeds they position *good root of Title*. We argue that the position of *good root of Title* frames indefeasibility and defines how errors are resolved. We would go further and state that such understanding is key to determining how to model the register itself and therefore critical to the resilient implementation of LADM concepts in any single jurisdiction. Our work is substantially influenced by the seminal review of the Torrens system by Professor Mapp (1978) and the approach to Land Registration adopted in Scotland (LRSA, 2012; Reid & Gretton, 2017; Reid, 2020).

2. ADVANCES IN DIGITAL TECHNOLOGY IN RELATION TO DATA STORAGE, RETRIEVAL, AND INDEXING

Modern land registers are digital: data needs to be structured and managed effectively so that services can be efficiently delivered. Viewing the register, and the associated registration process, as a data storage, indexing, and retrieval problem is crucial. The need for effective indexing is well understood: all registers need to consider efficient information retrieval whether they are paper-based or digital. Ineffective indexing leads to costly retrieval and, as argued above, is one of the reasons behind the introduction of *Title by registration*.

Land Registers are implicitly spatial: each registered element has a reference to somewhere in space either through geometry or a verbal description. Where rights are described using spatial geometry a spatial index can be used to support spatial analyses. This allows

encumbering rights to be determined by their spatial relationship with owned land. Such spatial indexing underpins the Spatially Enabled Society approaches to Land Administration (as described by Steudler & Rajabifard (2012)). A *Spatially Enabled Society* makes use, and benefits from, a wide array of spatial data, information, and services as a means to organise its land and water related activities and to make better decisions. In a *Spatially Enabled Society* products and services derived from Land Administration will be woven into the fabric of the government, research, business, and other citizen ecosystems. By incorporating accurate, well indexed, up-to-date data from a Land Register third parties can improve their decision making process. Likewise the Land Register can include appropriately licenced third party off-register data in their products (such as zoning restrictions held by a local authority). In this manner overriding, and other, interests can be easily included into Titling products. The problems of overriding interests are well described by Simpson (1976, p. 18). Overriding interests are legally valid interests held by third parties but not recorded on the Land Register. This means that without such spatial indexing they do not appear on any Title or search product. Hence, their impact may be hidden from an owner or prospective purchaser reducing the relevance of the *mirror principle* (Dale & McLaughlin, 1999, p. 39) leading to the need for separate searches such as from local government. Overriding interests are an essential policy tool: it is expected that they will be used to address a range of national and global issues including climate change. Hence, we are likely to see more rather than less overriding interests (contra Dale & McLaughlin (1999, p. 43).

Where rights '*run with the land*', such as a *right of access* over a neighbouring property, a real right in land is held by a party in their capacity as *owner of land*. Conceptually, the right is registered as a benefit to the dominant, right holding, cadastral unit acting as a proxy party for the real owners. When the dominant cadastral unit is sold the benefit automatically travels with the land and becomes a benefit to the new owner. The ability to define 'owned land' as a party is a powerful way to efficiently index these '*praedial*' relationships which '*run with the land*'.

Highly efficient party and spatial indexing are part of the modern database technology stack. Such technology is supported by standards. Parties, rights and land are themselves core concepts in the Land Administration Domain Model standard (LADM (ISO TC/211, 2012)). LADM is a conceptual model which supports the modelling of social relations with land articulated through *rights*. Within LADM there are party-right-land triples which describes the party (*the who*) that has a rights relationship (*the what*) with a plot of land (*the where*). As an abstraction the party-right-land model makes it easy to conceptualise the *state* of *real rights held in land*.

General conveyancing practice tends to be based on legal instruments (deeds): *in personam* contracts between a granting party (normally a right holder) and a grantee (benefitting) party. By alienating '*use and service*' rights and granting them to third parties, owners can develop nuanced governance and transformation strategies associated with land. Rights granted in this manner could be considered as the equivalent of *sticks* in the *bundle of sticks* model (see Baron, 2013; Simpson, 1976, p. 7; Merrill & Smith, 2011, p. 10).

A deed describes real right transactions that result in the *creation, variation or discharge* of a *party-right-land* triple. In order to undertake *state change* the party-right-land triple which is to be changed must be unambiguously referenced. Party, right, land and deed indexing provides an unambiguous way to directly reference each element of the party-right-land triple. Henssen (1995, p. 7) refers to the unambiguous referencing of registered elements as the *specificity principle*. Once the party-right-land triple which is to change is identified, then the nature of the party, right or land change (or changes) must be articulated. In this manner a deed describes the *creation, variation or discharge* of a party-right-land triple which in turn creates a *state change* on a land register.

Land Registers have a requirement to articulate *state* (the consequences of change: Title) and *state change* (the facts of change: Deeds). LADM party-right-land primitives supports state change (through the *creation, variation or discharge* of party-right-land relationships) and state determination (deriving rights relationships through the use of structured data and indexing). A well indexed Land Register will allow different party-right-land views over the data. A Title could be considered as a view which is framed through *owned land*. Likewise a deed could be considered as a view which is framed through a right holding *party*.

3. STATE CHANGE AND THE REGISTRATION PROCESS

The *registration process* represents how the Registrar implements the relationship between *state change* (e.g. deeds and applications) and *state* (e.g. products, such as derived searches and Title). When a submitted deed is deemed to be registerable the Registrar will either:

- *record* the legal instrument (e.g. deed) that describes the **fact** of the legal rights change (in a *Register of Deeds*). Title can be derived from the *Register of Deeds*.
- *register* the **impact** of the legal instrument (e.g. deed) contained in the application against a Title (*Title by registration*).

In a *Register of Deeds* approach, *legal change* data is required in order to publicly record the **fact** of the rights change. The **impact** of the legal change can be seen in a Title derivative or through a search of the deeds. Therefore, it can be argued that theoretically there is no need for a materialised *Register of Title*.

In a *Title by registration* approach, *legal change* data is required in order to register the **impact** of any rights change on the Title. However, once registered, the **fact** of the *legal change* is generally no longer needed as the Title should describe everything that would be in a *Register of Deeds* Therefore, it can be argued that theoretically there is no need to maintain a *Register of Deeds*.

While theoretically the different types of register can operate independently, it is also clear that the two elements of *State* and *State Change* are fundamental to every Land Register irrespective of the approach taken to registration. Prior to any deed being transacted, the seller must demonstrate the indefeasibility of their right in order to support a safe and successful transaction.

4. INDEFEASIBILITY AND ITS IMPACT ON ERROR CORRECTION

Indefeasibility is simply where there is no legal ambiguity concerning ownership. Defeasibility is where the *chain of title* allows for legal ambiguity: there is potential for *competing ownership*. Competing ownership refers to a legally incorrect transfer of ownership which results in two different parties (the *original owner* and the *purchaser*) believing they are the legal owner at the same time. Competing ownership arises due to a registration error, malicious tampering or fraud.

In a Deed Register, Title is demonstrated by examining the sequence of prior deeds back to the original grant or 'good root of title'. Interpretation of the deeds is required for each Title search and is based on the ordinary rules of property law. The "true" owner of the Title is the person who ought to be owner, taking in to account void and other deed errors. In a Deed Register *indefeasibility is deferred* and can be determined whenever the Register is queried.
If a fraudulent transaction occurs then, upon examination, the Register reports that the 'fraudulent party' is the owner. However, the dispossessed 'true owner' can raise a dispute and, if successful, the fraudulent deed is made void: the transaction never occurred. Upon re-examination, the Register will report that the 'true owner' is still the owner and has been the owner since the original transfer. As described by (Mapp, 1978, p. 41) '*The virtue of the common law was that it provided security of ownership to a very high degree, and the vice was that it did so at the expense of the facility to transfer*.' Proving indefeasible Title from a Deed Register was seen by Torrens' to be expensive and time consuming. As we have argued above: that is partially a reflection of the indexing tools available at the time. Hence, *Title by registration* in a Title Register was seen as the solution to this problem.

In a Title Register, Title passes by the act of registration, rather than by conveyance between parties. Titles represent the *consequences of the legal facts represented in deeds*. This means that the transaction is only interpreted once, by the Registrar, based on the ordinary rules of property law and associated registration law. The "true" owner of the Title is the person named on the Register, irrespective of any void or other deed errors. In a Title Register *indefeasibility is immediate*.

By necessity, the *Title by registration* approach is less flexible to error correction. The very essence of *Title by registration* is that acquirers can rely on what they see, or do not see, on the register irrespective of the background transactions (the *curtain principle*). The person identified as the owner on the register **is** the *owner*: no further search is required. This approach was designed to support rapid transactions. The cost is that it is difficult to claim back property after a fraudulent transaction: a move from protecting owners to protecting acquirers. This can result in situations where a "true owner" is dispossessed of their land by a fraudulent transaction (the BBC reported on such an event in England in November 2021). Whilst the dispossessed owner can claim compensation they do not always get the property back (money rather than mud). The unfairness to owners is self-evident.

The work of O'Connor (2010) on immediate and deferred indefeasibility and the resolution of bijural ambiguity within courts in Australia, Ontario, British Columbia, Malaysia, and Singapore is important in this regard. O'Connor (2010, p. 197) states that "*In some of these*

jurisdictions, statutes which had long been assumed to incorporate either immediate or deferred indefeasibility have been judicially interpreted to embody the opposite rule". If law makers can not accurately predict the type of indefeasibility their laws represent then there is significant legal uncertainty. This has significant technical and operational implications, the database structuring and indexing requirements of a dedicated Register of Deeds is very different from that of a dedicated Register of Title. If change is required such a switch places significant pressure on the Registrar.

5. REGISTRATION OF NON-OWNERSHIP RIGHTS

So far we have mainly considered ownership rights. What happens when we consider **non-ownership** real rights in land?

In a *Register of Deeds* approach non-ownership real rights are registered as part of the deed. In fact a Land Registration deed can be considered to conceptually comprise of *spatio-rights bundles* and their transactional party relationships. All *spatio-rights* can be spatially indexed. Hence, when a Title is derived from an ownership right any encumbering non-ownership rights are identified through their spatial relationships with the owned land. The inference being that any registered right which has a spatial overlap relationship with a cadastral unit encumbers that cadastral unit. This highly efficient method of spatial indexing and retrieval was not available to registrars in 1858. The *spatio-rights bundles* themselves are uniquely identified through their deed references so can be referenced if the rights are changed or discharged.

In *Title by registration* there is, conceptually, no need for an independent deed store describing *spatio-rights bundles*. If this is the case then the only place where non-ownership rights can be registered is against each individual Title. If the spatial extent of a non-ownership right is not coincident with the cadastral unit then what happens? If the non-ownership right is spatially contained by the cadastral unit then the non-ownership right can be efficiently stored against the cadastral unit. However, this relationship would need managing to ensure that when the cadastral unit is subdivided the relationships are still valid. If the non-ownership right partially overlaps the cadastral unit or the cadastral unit is a proper part of the non-ownership right then the non-ownership right affects multiple cadastral units. During *Title by registration* the encumbering right is recorded against every Title it spatially affects. This requires inefficient duplication and introduces both a management and financial overhead that can affect the integrity of the register. Serious issues are observed if the non-ownership right needs to be discharged. There is no longer a single deed that represents the full extent of the right. Instead the impact of the deed is fragmented and recorded against multiple titles (potentially hundreds of titles), this is known as rights fragmentation. This means that the right needs to be discharged against every affected cadastral unit. If the cost of discharge of a non-ownership right is £20, then that, depending on the number of affected cadastral units, could be a very expensive process.

6. REFRAMING THE DEBATE: DEFINING THE RELATIONSHIP BETWEEN STATE, STATE CHANGE, THE POINT OF INDEFEASIBILITY, REGISTER ERRORS, AND TRANSACTIONAL ERRORS

In this section we will reframe the debate. We have already establised that a Land Register needs to articulate *state* and *state change* as part of the registration process. Within this framework the Registrar should undertake error correction in a manner determined by the jurisdiction. Registrars need to be able to derive rights relationships framed through owned land to provide social and economic value. One of these derivatives is the ability for the granter (seller) to demonstrate they have *indefeasible Title* by articulating the chain of ownership to a '*good root of title*'. A '*good root of title*' is a point at which ownership is unambiguous.

To put it another way, the point at which ownership is unambiguous is the *point of indefeasibility*. Framed in this way, the major difference between a Register of Deeds and a Register of Title is due to the position at which they place this *point of indefeasibility*. In an idealised Register of Deeds the *point of indefeasibility* is with the original grant. To transfer ownership the owner should demonstrate an unbroken chain of deeds with valid transactions from the original grant to the transaction which granted them ownership. We shall call the deeds in this chain *transactional deeds*. By interpreting the *transactional deeds* the current state of indefeasibility can be interpreted (taking in to account legislation changes, void and other deed errors). Therefore, when analysing *transactional deeds* indefeasibility is said to be *deferred*. As Torren's was aware *deferred indefeasibility* can be difficult, time consuming and expensive to calculate. However, corrections can be made against any of the *transactional deeds*. Any errors which exist in *transaction deeds* can be disputed and, where the dispute is upheld, corrected under the general law of property. We shall call these errors transactional errors (a more general interpretation of the term used in Scotland (Lord Eassie et al., 2004, p. 24; Reid, 2016, p. 9).

In an idealised Register of Title the *point of indefeasibility* is coincident with the last transaction. One simply needs to look at the registered Title in order to determine ownership and indefeasibility. No transactions need to be analysed as, by definition, there are no *transactional deeds*. All deeds before the *point of indefeasibility* we call *register deeds*. Therefore, there is no ability to correct errors. Any errors which exist in *register deeds* can be disputed and, where the dispute is upheld, financial compensation will be paid under the *insurance principle*. We shall call these errors register errors (a more general interpretation of the term used in Scotland (Lord Eassie et al., 2004, pp. 24-25; Reid, 2016, p. 10).

Hence, two types of error can exist: *register errors* or *transactional errors* Register errors occur before the *point of indefeasibility* and *transactional errors* occur after the *point of indefeasibility*. Clearly a Register of Deeds and a Register of Title are polarised. The *point of indefeasibility* for an idealised Register of Deeds is the *original grant*. Hence, an idealised Register of Deeds can only comprise of *transactional deeds*. Errors in a *transactional deed* can be only resolved under general property law. Title *state* needs interpreting from the *transactional deeds* every time indefeasibility is derived. Hence, indefeasibility is *deferred*. The *point of indefeasibility* for an idealised Register of Title is the *last transaction*. Hence, an

idealised Register of Title can only comprise of *register deeds*. Errors in a *register deed* can only be resolved under registration law. Title *state* is taken directly from the register as no *transactional deeds* exist (so no further interpretation is required). Hence, indefeasibility is *immediate*.

A middle ground clearly exists: to do this a jurisdiction would need to change where in the chain between the *original grant* and the *last transaction* the *point of indefeasibility* occurs. By moving the *point of indefeasibility* away from either end means that the chain of deeds comprises of a mix of *register deeds* and *transactional deeds*. If a deed is in error then the approach to correction is dependent upon whether the error occurs in a *register deed* or a *transactional deed*. For a *register error*, error correction is not allowed: compensation is the only redress. For a *transactional error*, error correction is allowed: and is resolved under general property law. This is exactly the approach taken in Scots law.

7. SCOTS LAW: A HYBRID TITLE

The forty year parallel use of a register of deeds and a register of title means that Scotland offers a unique perspective on land registration (Reid, 2020). The *Register of Sasines*, a national record of deeds, was established in 1617. The *Land Registration etc. (Scotland) Act* (LRSA, 1979) initiated the transition away from the Register of Sasines to a *Land Register* based on *Title by registration*. The original land registration law (LRSA, 1979) was thoroughly reviewed (Lord Eassie et al., 2004; Gretton et al., 2010) with new legislation (LRSA, 2012) coming into force on 8th December 2014. The Register of Sasines is due to be superseded by 2024 as part of a *Land Register completion* exercise.

LRSA (2012) frames land registration in a novel way by recognising that registration does not need to be an either / or process (i.e. deeds OR title). Reid & Gretton (2017, p. 56) state that LRSA (2012) requires a *Register of Title*, a *Register of Deeds* and a *Register of Plots of Land*. This hybrid model provides some useful characteristics. The *Register of Plots of Land* creates a spatial index of owned land for the "*uniform system for identification of properties*" which Zevenbergen & Ploeger (2019, p. 3) state is a core requirement of a high quality deeds system. All owned land can be managed in the *Register of Plots of Land* and used as a reference index. The *Register of Title* articulates the parties who hold owned land (i.e. records indexed by the *Register of Plots of Land*). All other registerable rights can be managed in the *Register of Deeds*. As these non-ownership rights are either described using geometry or as verbalizations against a cadastral unit a spatial index can be used to cross reference between the two. This allows significant flexibility for the creation, variation and discharge of non-ownership real rights. This is especially important for securities (mortgages) and for transactional management in a digital system.

Scotland places the *point of indefeasibility* prior to the last transaction and introduces a statutory time limit. If a registered *transactional error* has been undetected for over a year and is further *transacted on in good faith* by a new *buyer* then the *transaction error* becomes a *register error*. *Transactional errors* are errors which arise as part of the current transaction. The general principal under the ordinary rules of property law is that the owner is protected

against a *transactional error*. Good faith acquirers are protected against register errors: buyers are reassured that the validity of their possession will not be affected. If, for example, a claim for a fraudulent transfer was undertaken for a deed that was registered prior to the *point of indefeasibility* (a *register error* on a *register deed*) the successful claimant will receive compensation and not the property.

To be sure of an indefeasible title, the register must be checked to ensure that the seller is named on the register as proprietor, but also that the seller has been in possession for a year. This is hardly onerous. Further checks are required if the seller has been in possession for less than a year.

By combining elements of a Deed and Title register, this hybrid approach to registration still provides effective recording, guaranteeing and enforcing of real rights in land, but also allows for greater flexibility in register management and error correction. Those 'true' owners that are subject to fraud can claim 'mud' when the error is a *transactional error* and 'money' when the error is a *register error*. The *transactional deeds* needed to determine 'good root of title' is limited to a single transaction. This dramatically limits searches and improves the 'facility of transfer'.

8. CONCLUSION

The key is, surely, to have a system that works in the social, economic and political climate that it governs, rather than one that cleaves to preconceived ‘principle’. (Dixon, 2020, p. 56).
The traditional view is that a Land Registration system is either a Deed or a Title system. This is clearly an oversimplification which has removed nuance from the debate, and led to misunderstanding and bias (see also Zevenbergen & Ploeger (2019, p. 7)). This is exemplified by Simpson (1976, p. 105) who wanted to classify the Deeds recording system of South Africa as a Title system as it was so effective and efficient. Such mental gymnastics are not helpful and as described by Zevenbergen & Ploeger (2019, p. 8) represents a: "*biased opinion towards deeds systems*". This misunderstanding is inhibiting the development of digital registration systems. *Title by registration* possesses an approach to error correction that some groups would describe as unfair. Such unfairness may become socially unacceptable with the advent of automated registration and any associated rise in cybercrime or identity theft. In addition, and depending on implementation, *Title by registration* have a propensity to fragment the representation of non-ownership rights. This can impact on the ability to discharge such rights efficiently, and cost-effectively. *Registers of deeds* are effective systems of registration, with nuanced approaches to error correction. However, they require efficient indexing to be truly effective.

We have argued that the issue is not about whether a jurisdication has a Deed register or a Title register. Rather, the critical issue is where a jurisdiction places *good root of Title*: the point in the chain of deeds between original grant and current transaction at which the jurisdication deems the rights to be *indefeasible*. We have called this the *point of indefeasibility*. Any errors in the deeds prior to the *point of indefeasibility* are *register errors* and as such can not be corrected. Any errors after the *point of indefeasibility* are *transactional*

errors and as such can be corrected under the general law of property. Traditional Registers of Deeds place the *point of indefeasibility* at the original grant. This means the whole chain of deeds must be verified for every transaction. This is a costly overhead. Registers of Title place the *point of indefeasibility* at the last transaction. This severely limits the ability to correct errors. Hence, Registers of Deeds and Registers of Title represent poles on a spectrum of indefeasibility. Based on its own needs a jurisdiction can choose where to place the point of *good root of title* in the deeds sequence.

This is exactly what occurs in Scots law. Scotland places the *point of indefeasibility* prior to the last transaction and introduces a statutory time limit. This allows the last transaction to be corrected if there is a *transactional error*. It also provides the acquirer with a sense of certainty as, apart from their own transaction, any errors on the register will become *register errors* and not affect their possession. If, for example, a claim for a fraudulent transfer was undertaken for a deed that was registered prior to the *point of indefeasibility* the successful claimant will receive compensation and not the property.

By combining elements of a Deed and Title register Scotland has adopted a strategy which is remarkably flexible. It protects owners and acquirers against errors in a manner which is perceived to be reasonable. The modelling is more complex as elements of deeds and title registers need to co-exist. However, efficient patterns will emerge as the registration community uses LADM to solve such problems. Under a well structured database Scotland can, conceptually, adopt any position on the spectrum between a Register of Deeds and a Register of Title by changing the position of the *point of indefeasibility*. A jurisdiction can frame whether it becomes a register of deeds, a register of title or something in-between based solely on a policy decision concerning the position of the *point of indefeasibility*. Critically, it is possible that this can be implemented without migrating to a new data structure. This would make any register resilient to the registration uncertainties identified by O'Connor (2010, p. 197). This provides technological resilience while maintaining social relevance.

There are clear advantages in this approach for those with a *Title by registration* system as errors can be resolved in a manner which more closely reflects social expectations. There are fewer advantages for those with a highly efficient Register of Deeds system. However, as legislation changes and registers grow in size, the efficiency of indexes on a register change.
By recognising that a register needs to represent *state* and *state change* we see that a register requires components that are equivalent to traditional Deeds and Title registers. The approach outlined in this paper requires a jurisdiction to define a *point of indefeasibility* on the chain of deeds. In turn the *point of indefeasibility* defines the Registrars response when an error is identified based on whether the error is classified as a register or transaction error. We believe this allows policy makers the flexibility to adapt their legal process to reflect social need without changing the registration system. It adopts the middle ground. As stated by Dixon (2020, p. 59): "*..there is nothing to criticise with a system that occupies a middle ground, not because it is the middle ground, but because it suits the legal, economic and social environment in which it operates.*"

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BIOGRAPHICAL NOTES

Ordnance Survey is the national mapping agency for Britain, and a world-leading geospatial data and technology organisation. Accurate location data is used for smarter solutions to the world's most complex problems including resource management, urbanisation and population growth. As a trusted partner to government, business and citizens across Britain and the world, our expertise and technology helps customers in government, business and infrastructure deliver efficient services.
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Anthony BECK is a geospatial and analytics professional with a strong mix of technical, commercial, academic and policy skills. He has experience of delivering repeatable solutions using an inclusive and interdisciplinary approach, involving GI-Science, Knowledge Engineering, and Data Modelling. One of Anthony's key skills is demonstrating the link between concepts, data, policy, and practice. Anthony is a Concept and Data architect. He is lead author on many academic journal publications that cover different domains: these include land administration, utilities, heritage, smart cities, and addressing. He holds a PhD in heritage remote sensing applications and advises specialist, policy, and standards bodies. He has won a number of industry awards including work on the integration of underground utility assets and the PAS128 utility standard. He was short-listed for the Institute of Civil Engineers entrepreneur of the year award. Anthony is fluent with ISO19152 (Land Administration Domain Model (LADM)) and is contributing to the ISO19152 version 2 revision. He is interested in approaches that improve registration automation and first-order logic modelling of the registration domain.

Duncan MOSS has over thirty-five years' experience working for world-renowned national mapping organisation Ordnance Survey (OS).Based in Edinburgh, Scotland (UK) Duncan is currently a Principal Consultant within OS's Consultancy & Technical Services Team where he focuses on supporting public sector organisations around the strategic and operational use of geospatial technology and information to deliver positive impact as part of the Public Sector Geospatial Agreement. Duncan has worked closely with Registers of Scotland on many projects from 2000 onwards and has a keen interest in land administration. He has also acted in an advisory capacity to OS's international customers in a range of areas such as; major events, resilience, geospatial intelligence and land administration. Duncan is very active in his professional body the Royal Institution of Chartered Surveyors (RICS) where he currently serves as a member of its Global Land & Resources Sector Advisory Forum and as part of the Boundaries Expert Working Group. He also represents RICS as Head of UK Delegation to the Council of European Geodetic Surveyors (CLGE), where he is elected Vice-President.

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