Land Registry Futures

A vision for the role of tomorrow’s land registries

(…or another view of the cathedral¹)

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“We in Australia run the risk, for want of appropriate commitment, leadership and perception of the real economics involved, of creating for ourselves a special Land Information Babel”

Justice M.D. Kirby, 1982²

Summary

Australia and her states have significantly improved land information management since 1982: cadastres were digitized, land registries computerized, GIS was incorporated, and SDIs developed. However, the risk of a special land information babel as espoused by Justice Kirby in 1982 still remains, particularly in the realm of land registries. Australia is now entering the era of national approaches to land registration. The national eConveyancing system represents the first step. Many more initiatives will follow. Australia’s land registries need to continue collaboration in order to build a coherent national vision based around key registries, spatial enablement, and shared services. The power inherent in all land registry information must be unleashed. Land registries are more than mere pocketknives for conveyancing. They are multi-purpose tools with the capacity to service society with the information needed to respond our most pressing challenges.

1. Introduction

Land registries create and maintain a precious resource: property rights. Land registries secure land tenure, facilitate land transactions and underpin land taxation: all essential elements of successful land markets and prosperous economies. Governments understand and appreciate the importance of the land registry, but in many cases, the operative vision is narrow and focuses on registration functions. Why use a pocketknife as a corkscrew, tweezers, toothpick, or screwdriver, when it is already doing an excellent job as a knife (Figure 1)? There are good reasons for this narrowness: history, risk aversion, poor understandings of the significance of information, and general organizational inertia. These barriers need to be overcome: land registries will be essential multipurpose infrastructures for the decades ahead. They will underpin macroeconomic policymaking, mega-city management, coastal zone planning, health service provision, food security measurement, and many of societies most pressing challenges.

² Australian Urban and Regional Information Systems Association, Proceedings of the 10th Annual Conference, Opening Address, Sydney, December.
Forward planning requires a high level vision for the future of land registries, particularly suited to the Australian context. To develop this vision, the importance of land registries and the special nature of their information are outlined. The need to make the information available and more accessible is highlighted. Second, elements of the vision need to be defined. Key elements are described below including key registers, spatial enablement, and shared national services. Third, the opportunities of the vision are explored by through consideration of emerging property rights, restrictions, and responsibilities. Future research requirements and actions that need to be taken by governments and coordination agencies also need to be identified.

2. Awakening the sleeping land registry giants

Over the last thirty years digital cadastral databases (DCDBs), geographic information systems (GIS), spatial data infrastructures (SDIs), and spatial enablement garnered much attention. The general theme was that all information could be brought together using computers and spatial attributes (i.e. coordinates). Integrated information would deliver better decisions and services across all arms of government, wider society and commerce. The path has not been straightforward: privacy, contracts, licensing agreements, technical interoperability, organisational structures, and data standards must all be dealt with. Nevertheless, the charge towards spatially enabled societies continues.

Making spatial information available is simple for some agencies: often information creation is an offshoot from a particular project or line of work. There is no inherent value in the data. There is no imperative or business model attached to the data. If not made freely available, the information would otherwise sit unused on a hard disk somewhere. A vegetation classification dataset for a portion of a state, or data collected...
about a marine park provide examples. In these cases it is often desirable to provide free access to the data by incorporating it into a state maintained SDI. The agency removes the distribution cost it may incur should a third party request the data.

Land registries are different. The land information, owner/parcel information, transaction information and property commodity information, they create and maintain is significant. This, arguably, is the most important data in government in democracies that depend on transparent markets and perform according to good governance principles. Land registries hold information that should be available for decision makers and government policy makers. They do not communicate the value of this information to existing or potential stakeholders. Decision makers at higher levels and across governments are unaware of the importance of registries’ information and tend to take their registration processes for granted. Registry information is:

- Essential for land markets and the wider economy
- Legally authoritative
- Insured by government
- Spatially accurate (in that it is verified by the cadastral plans)
- Highly dynamic
- Maintenance intensive
- Large scale
- Often central to the business models of the land registry
- Sensitive in terms of privacy
- Spatial in nature
- In demand

These characteristics make involvement by land registries in spatial enablement and SDI initiatives challenging. Land registries have more responsibilities than other creators and providers of land information. This, coupled with traditional risk aversion management regimes and general organizational inertia, means land registries concentrate on their core business: supporting land transactions and the conveyancing processes. In reality, these core tasks represent only a tiny fraction of the utility of land registry information: the power of this data is not being unleashed as well as it could be.

Some land registries, for example, Scotland and Netherlands Kadaster, are tackling these challenges. They have reconstructed themselves and are going in one direction: to take advantage of new information capacity. They make use of emerging tools that offer location as a sorting tool. These tools do no sort spatial information. They sort ordinary information according to location. It is spatial enablement of information. Figure 2 provides an example of the potential of spatial enablement in action. It demonstrates how land registry information such as mortgage data, when spatially enabled, could be used to deliver an early warning system for events such as the global financial crisis.

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Good governance in land administration is increasingly demanded by international agencies. The good governance criteria, notably accountability and transparency, are not always achieved by advanced economies.
In the Netherlands the notion of key registers have strong support from the Interior Ministry. These are datasets that are legal, authentic, authoritative, comprehensive, and verifiable. Kadaster is heavily involved and is the custodian of two of these datasets: cadastre and topography. Kadaster also acts as the national portal for several of the other key registers. The growing list of registers includes (Zevenbergen, 2010):

- Natural Persons
- Legal Persons
- Buildings
- Addresses
- Basic Register Cadastre
- Maps [Topographical Base Map (TBM)]
- Registration Numbers (for vehicles)
- Wage, Employment and Benefit Relationships and
- Income and Assets
- Large Scale Base Map of the Netherlands and
- Subsoil geo-data (DINO)
- WOZ (tax) value of real properties

In general, requirements for a key register include that the (Besemer, 2006):

- Registration is regulated by law.
- The clients have an obligation to report.
- All public institutions are obliged to use the basic register.
- Clear accountability.
- Costs are within reason and clearly allocated.
- Transparency about the scope and content of the registers is achieved.
- Firm agreements and procedures underpin collection
- Clear procedures for accessing the basic registers are public.
- A strict regime of quality control is established.

Data from the key registers is interoperable and linked through a data model (Figure 3). Globally, address is a key linking attribute between people and property. There appear to be opportunities for Australian land registries to learn from this approach.

![Diagram](Figure 3. Linking information in the Netherlands key registers (Zevenbergen, 2010)](Figure 3. Linking information in the Netherlands key registers (Zevenbergen, 2010)

Kadaster uses the underlying key register infrastructure to extend it’s traditional land registration services. Their Land Mobility Reports and Neighbourhood Monitor provide prominent examples. People information is linked with property information to enable Kadaster to deliver spatial planning services. Privacy is not an issue because the information is provided to policy makers as generics: average age of homeowners, average prices, mortgages, and house-business ratio in a neighbourhood. These examples show the effectiveness of doing registration and mapping functions in the one agency.

Registers of Scotland provides another example of an innovation in the land registry domain. They derive value added products and services from traditional registry information. The mentality is that land registration is no longer solely about registering property rights. It is about organizing access to information that has been registered. Registers of Scotland makes clever use of emerging technologies to deliver localized house price services, customized reports, and spatial data.

Land registries must embrace the potential provided by spatial enablement. The benefits to the registry itself, whole of government, and wider society are undeniable. Land registries that do not embrace the opportunity will have an increasingly diminished role, as other agencies take on the role of delivering key register information and authoritative spatial information infrastructures. A shared vision for the future role of land registry information in Australian land registries is not evident and is increasingly needed.
3. A multipurpose vision for our land registries

A national vision for land registries is required. While the registration process will inherently and constitutionally always be state based, a coherent national approach will create scale of economies, critical mass in terms of capacity, and a more coherent voice when dealing with the government and the public. Australia’s land registries are already working towards national implementations such as a national eConveyancing system. A vision for more of these shared systems, spatial enablement, and the development of the state and national key registers appears to be the logical next step.

The key register concept is an innovation Australia can readily adopt. Figure 4 demonstrates how an initial implementation of the concept could occur. Key registers would include people, buildings, value, tenure (including the cadastral parcels), and address. These are considered the basic key registers for enabling modern governance regimes. Together, they cut across the economic, environmental, and social management priorities of all levels and arms of government. The registers will reduce duplication and enhance data accuracy resulting better, timelier decision-making by government, business, and citizens. The key registers are information which is collected once and used many times through all functions and levels of government: local, state and national.

![Figure 4. Key registers in the Australian context](image)

Land registries are well placed to deliver the tenure key register. They also have the institutional capacity to understand and manage other key registers. In the Australian context, authoritative registers for buildings and people do not necessarily exist. The information is disaggregated across various planning, valuation, and social function agencies. Land registries could play a leadership role in maintaining or delivering these.

Implementation of the key register concept will require policy, legal, institutional, administrative, technical, and human resource support. Minimal change is envisaged for
existing policy and legal systems. Information about land must be seen as a public good by all levels of government and must be made easily accessible. Standard ways for recording government information should be mandated (e.g. metadata standards), however, data publication by agencies should not be legislated, rather encouraged.

Institutionally, again, minimal change is suggested. However, creation or empowerment of an existing national body to act as an overseer of state and national key registries would be required. Additionally, the bulk of information required to develop key registers sits at state level. The short-term goal would be to develop complete registers at state level based on an agreed set of national standards. The longer-term view should be to see these datasets aggregated through some form of cooperative arrangement or potentially a PSMA Australia or NECDL style business model.

Technically, the vision would require people, building, value, tenure, and address information at a national level. Address data (G-NAF) would be used to link people information with the land layers (buildings, value, and tenure). The land information layers would be parcel objects and require spatial enablement (i.e. coded with coordinates). Other data layers such as property restrictions and responsibilities could be added as other layers of objects and attributes. The infrastructure would be Internet enabled to allow users to act as both publishers and suppliers. These design objectives could be achieved by utilizing existing state based SDI platforms, particularly Landgate’s SLIP (WA), NSW’s SIX, or PSMA Australia’s LYNX.

With respect to human resources and capacity building, collaborative or relationship building techniques should be used when building national key registers. A level of technocracy needs to be established within the registry and higher levels of government. As the key register grows in popularity, citizens will demand that their state contributes to the concept.

The vision provided here is intended as a starting point for dialogue on how to begin to implement key registers, shared national services, and spatial enablement in the Australian context. Arguably the vision does not go far enough. At any rate, the starting points described will provide a platform permitting development of additional opportunities to Australia’s land registries, such as publication of emerging property rights, restrictions, and responsibilities (RRRs).

4. Beyond the basics: incorporating RRRs into the vision
The proposed vision would setup the framework for beginning to deal with the property rights, restrictions and responsibilities problem. An RRR is any interest in land that is backed by the laws of a jurisdiction. RRRs are also sometimes called:

- Property rights, restrictions and responsibilities
- Property rights, obligations, and restrictions (RORs)
- Property Objects
- Legal Land Objects
- Real property (as apposed to personal property)
- Land rights
- Property interests
- Interests in land
- Land tenure

The term RRRs is used by land administrators when discussing the need for the aggregated management of land interests. The general public is more likely to hear and talk about specific RRRs such as:

- Land ownership
- Encumbrances on land
- Building regulations
- Leases
- Water rights
- Native Title
- Mining Tenements
- Fishing Licences
- … and hundreds of other specific variations

At the most basic level all RRRs have five attributes (Bennett and others, 2007):

![Figure 5. All property objects or RRRs share five key attributes.](image)

There are now hundreds of RRRs legislated in Australia at federal, state, and local levels. These relate to all sorts of land and marine activities. Research shows the number of RRRs is increasing (Bennett and others, 2007). The RRRs are created, managed, and held by a diverse range of government departments, agencies and individuals. There is no overarching governance of RRRs. No individual can possibly hope to understand the complete legal situation of land in Australia. Conveyancing integrity and efficiency is a major issue in the mind of the public, but it is not the biggest one.
The multitudes of RRRs and their disparate management create uncertainty in land management in general. This uncertainty increases as the number of RRRs increases. If there is too much uncertainty about land the economic, social, and environmental foundations of a country begin to erode. Built and natural environments cannot be effectively managed. Property market efficiency and transaction costs reduce the wealth of governments and people. Reform is needed to curb uncertainty relating to the hundreds of RRRs that exist.

A number of approaches are available to solve the problem. The traditional method is to use the Certificates of Title maintained by land registries. All Australian land registries use property titles to record and secure some RRRs. The type and number of RRRs recorded varies from state to state. Examples include ownership, mortgages, leases (some states), easements, caveats (some states), and covenants. There are problems though. While these systems are well known, they only record a tiny fraction of RRRs. Additionally, the solutions suggested are primarily focused on conveyancing, not the wider realm of land administration and land management. Moreover, the registration programs are now digitized, though they were converted using 19th century paper based administration paradigms. Finally, Certificates of Title relate to parcels and not all RRRs are parcel based.

Some states impose vendor disclosure of information, for example by Vendor Statements. To combat the small number of RRRs recorded on titles jurisdictions such as Victoria, South Australia, and New South Wales created legislation that required property sellers to provide a minimum set of RRRs to prospective buyers. The UK recently introduced a similar scheme, and then retracted it to reduce transaction costs in the context of a massive residential property market recession. Vendor disclosure suffers from the same problems as titles: only a tiny fraction of RRRs are disclosed, the focus is on conveyancing, and the systems are generally parcel based.

Recently, jurisdictions began legislating to require organizations creating and managing RRRs to make the information publicly available. Western Australia considered this approach. The Netherlands and Switzerland already have legislation in operation. The EU through EULIS is heading in a similar direction. The problem here is that enforcement of the legislation is hard to achieve. Moreover, a mechanism for integrating and maintaining the RRRs information for the public is still required. In the Netherlands the cadastre is used as one of these linking mechanisms.

Another approach is private title insurance. The title insurance approach transfers the risk of RRRs adversely affecting a property to an insurance company in return for a premium paid by a buyer or a mortgagor. This method is heavily favoured in the United States. The approach has a number of problems: it does not address legislative sprawl of RRRs, does nothing to promote better governance of land, and it is unclear whether the insurance programs cover all the different types of potential RRRs. Private title insurance is increasingly encroaching on jurisdictions with excellent land administration: Quebec’s world best practice deed based system is now operating parallel with aggressive selling of
private title insurance policies and Australians are increasingly asked to pay for title insurance in the context of government guaranteed titles.

The emerging option is to spatially enabled RRRs. All RRRs have a spatial footprint (e.g. parcel, polygon). As already discussed GIS and SDIs provide the platforms for integrating information using the location attribute (e.g. coordinates). This idea was first introduced conceptually in Cadastre 2014 (Kaufmann and Steudler, 1998). In practice the approach requires the development of a single infrastructure for integrating, publishing and accessing RRRs information. This infrastructure already exists in a number of Australian states (see SLIP in WA and SIX in NSW). Over time individual RRRs can be spatially enabled and added to the system. Some problems are evident, the approach does not address legislative sprawl of RRRs and not all RRRs and their management are currently spatially enabled. Additionally, the approach still involves considerable technological investment upfront.

Selection of the best approach should be based on criteria. In this case the following criteria are suggested:

- Greatest reduction in uncertainty relating to RRRs for all activities relating to land management (not just conveyancing)
- Integrated provision of RRRs information
- Cheapest to implement
- Fastest to implement (including least institutional/legal changes).

It is to be expected that by using these criteria the Spatially Enabled RRRs option will be best in most jurisdictions. Several of the larger states have already built and implemented systems to facilitate spatial enablement of RRRs. There appears to be the opportunity to utilize these systems in other jurisdictions. This would decrease overall costs and enhance interoperability.

This where the national vision for land registries could be of use:

- All states suffer from the same RRR problem
- All states have similar legal and institutional systems
- A single national system would be cheaper to build than eight state and territory systems
- Most states do not have the financial capacity to tackle RRRs on their own
- Increasingly federal agencies require access to state based RRRs
- Increasingly the federal government is creating RRRs
- There are already processes in place related to building national datasets including parcels, addresses, and other core datasets
- The following activities are becoming increasingly ‘national’ in their approach. These activities require national datasets and services
  - Banking (notably the RBA)
  - Welfare support
  - Statistics collection
There appears to be a strong case for a national approach to managing RRRs spatially. Figure 6 illustrates how RRRs could be incorporated into the national vision for land registries. The same requirements as for other key registers would apply to the RRRs layers. Other RRRs may not require such legal authority or spatial representation.

It is important that, like conveyancing and land transaction fees, RRRs are only one part of land information management. In the ideal future world, agencies that create information about land, especially those who generate restrictions, should spatially enable their information so that it seamlessly layers over the cadastral layer, and allows enquiries based on address to produce comprehensive and automatic information about the status of the land. This way, spatial enablement would assist all regulatory agencies in their business processes. It would not be a mere conveyancing tool.

5. Future research directions

A national approach to key registries and spatial enablement for land registries is made difficult because each jurisdiction has legacy technology, legislation barriers, diverse arrangements between levels of government and so on. However a national strategic plan is needed to create registries capable of servicing land policy of all levels of government. This paper only intends to be a starting point. A debate over the future role and design of land registries is needed at the national level including input from government, peak bodies, business, citizens, and experts. Whatever the strategic direction chosen, buy-in from all states will be essential to develop and refine the national vision.
The vision outlined above is immensely difficult to implement in Australia’s federated and institutional context. Land registries do not have budgets or legal authority to “move outside the square”. Their core functions are regarded as their only functions, with the consequence that the inherent value of their information is lost. Convincing governments to pay for spatial enablement of registry generated land information (owner/parcel files) is difficult. A major cost benefit analysis is needed, similar to the one being done to justify Queensland’s extension of CORs network.

The most appropriate technical basis also needs to be established. Various efforts in eConveyancing and ePlan are continuing without consideration of the larger question of conversion of information into location-enabled systems. However they will force changes – especially in the need to verify owner identification and authority to deal. Elimination of paper titles is also essential in the modernization process. Australian states provide a range of web enabled solutions including NSW’s SIX platform and Centre Register of Restrictions (CRR), built up over decades; WA’s SLIP platform, a coordination of web based services that underpins the Interest Enquiry service, or Victoria’s centralized web portal for accessing PDF land information documents for conveyancing purposes. Other states have varying capacity. Small jurisdictions, like ACT, Tasmania and NT benefit from potential to change, an opportunity lost to larger states that depend on legacy technology. However, smaller states encounter the difficulties associated with funding. PSMA Australia also provides underlying datasets such as Cadlite, G-NAF, and its LYNX data integration infrastructure. How these existing infrastructures are utilized needs to be determined. International solutions, such as those emerging from leaders including the Netherlands or Registrars of Scotland should be part of the analysis.

Whatever technical platform is decided upon, going national requires making better use of the great Australian achievements to date. Land registries share their cadastral information with PSMA Australia, where it forms the national digital cadastre. This in turn underpins another major national achievement of a geocoded national addressing system (GNAF). GNAF is a first class innovation that relates back to cadastral verification of the parcel (where a one to one relationship is involved). It can form the basis for spatial enablement of registries. These achievements have, as yet, made no difference to the ways registries undertake their processes and they are under appreciated at all levels of government. These quiet achievements deserve much higher profiles and work should be undertaken in this area.

The research directions outlined above are important. A number of them are already being pursued through the ARC Linkage Project: A National Infrastructure for Managing Land Information (NIMLI). The project is run by the Centre for SDIs and Land Administration at The University of Melbourne. Project partners include the land registries of NSW, VIC, and WA, and PSMA Australia. Current research streams focus on the role of land registries in underpinning macro-economic management, housing provision, and the organization of RRRs information. Each of these services would be supported by the national vision provided in this paper. The NIMLI project can be seen as another starting point for enabling a national approach for land registries.
6. Conclusions

This paper concludes where it began: In December 1982, Justice M.D. Kirby declared:

“We in Australia run the risk, for want of appropriate commitment, leadership and perception of the real economics involved, of creating for ourselves a special Land Information Babel” (Kirby, 1982)

Australia and her states have covered much ground in the realm of land information management since 1982: cadastres were digitized, land registries computerized, GIS was incorporated, and SDIs developed. However, the risk of a special land information Babel still remains, particularly in the realm of land registries. We are only just now entering the era of national approaches to land registration. The national eConveyancing system represents the first step. Many more initiatives will follow. Australia’s land registries must collaborate now in order to build a coherent national vision based around key registries, spatial enablement, and shared services. The power inherent in all land registry information must be unleashed. Land registries are more than mere pocketknives, they are multi-purpose tools with the capacity to service government and society with the information needed to respond our most pressing challenges.

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