

# LESSONS FOR FEDERAL COUNTRIES THAT HAVE STATE LAND REGISTRIES - THE AUSTRALIAN EXPERIENCE

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## Abstract

*The federation of Australia and her states have significantly improved land information management and integration since 1982: cadastral systems were digitized, land registries computerized, web based GIS was incorporated, and SDIs developed. However, the risk of a 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 proposed national eConveyancing system represents the first step. Many more initiatives will follow. This paper presents a new multi-purpose vision for Australia's land registries. The state based systems 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 simply systems for conveyancing. They are multi-purpose tools with the capacity to service society with the information needed to respond to our most pressing challenges, increasingly with a national focus. Future work must focus on building agreement for this national vision, undertaking a major cost-benefit analysis, comparing existing technical platforms, and creating awareness at higher levels of Australia's significant land information achievements.*

**Keywords:** *land administration, spatial data infrastructure, land registration, land registry, multi-purpose land registry*

## 1 INTRODUCTION

Land registries create and maintain a precious resource: property rights. Land registries secure land tenure, facilitate land transactions, usually underpin land taxation, and provide important land information: all essential elements of successful land markets and prosperous economies (Dale and McLaughlin, 1999; Zevenbergen, 2002). In Australia, state governments understand and appreciate the importance of the land registry, but in many cases, the operative vision is narrow and only focuses on registration functions. Why use a pocket knife as a corkscrew, tweezers, toothpick, or screwdriver, when it is already doing an excellent job as a knife? There are good reasons for this narrow focus: history, risk aversion, poor understandings of the significance of land 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.

Forward planning requires a high level national 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. The paper concludes by identifying future research requirements and actions that need to be taken by governments and coordination agencies.

## **2 AWAKENING THE SLEEPING LAND REGISTRY GIANTS**

Over the last thirty years in Australia, digital cadastral databases (DCDBs), geographic information systems (GIS), spatial data infrastructures (SDIs), web mapping services, and spatial enablement (Rajabifard et al, 2010) 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 (Rajabifard, 2007). The path has not been straightforward: privacy, contracts, licensing agreements, technical interoperability, organisational structures, institutional silos, and data standards must all be dealt with. Nevertheless, the charge towards spatially enabled societies continues<sup>1</sup>.

Making spatial land related 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 or at least easy 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. It has very high integrity and usually has legal status. This, arguably, is the most important data in government in democracies that depend on transparent markets and perform according to good governance principles. In Australia, land registries hold information that should be available for decision makers and government policy makers at state and national level. However, they rarely communicate the value of this information to existing or potential stakeholders. Decision makers at higher levels and across governments are often 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

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<sup>1</sup> Spatial@gov Conference, 6-8 October 2010 Canberra, Australia was attended by a wide range of agencies and businesses. The land administration sector was represented by NSW.

- 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, a focus on revenue generation, 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 small proportion 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, Registries of Scotland and the Dutch 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 not sort spatial information. They sort ordinary information according to location. It is spatial enablement of information (Rajabifard et al, 2010).

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. 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.

The Dutch Kadaster uses the underlying key register infrastructure to extend its 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 key principle 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 MULTI-PURPOSE VISION FOR AUSTRALIA'S LAND REGISTRIES**

A national vision for land registries in Australia 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 (Wallace *et al*, 2010). 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 1 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 in 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.

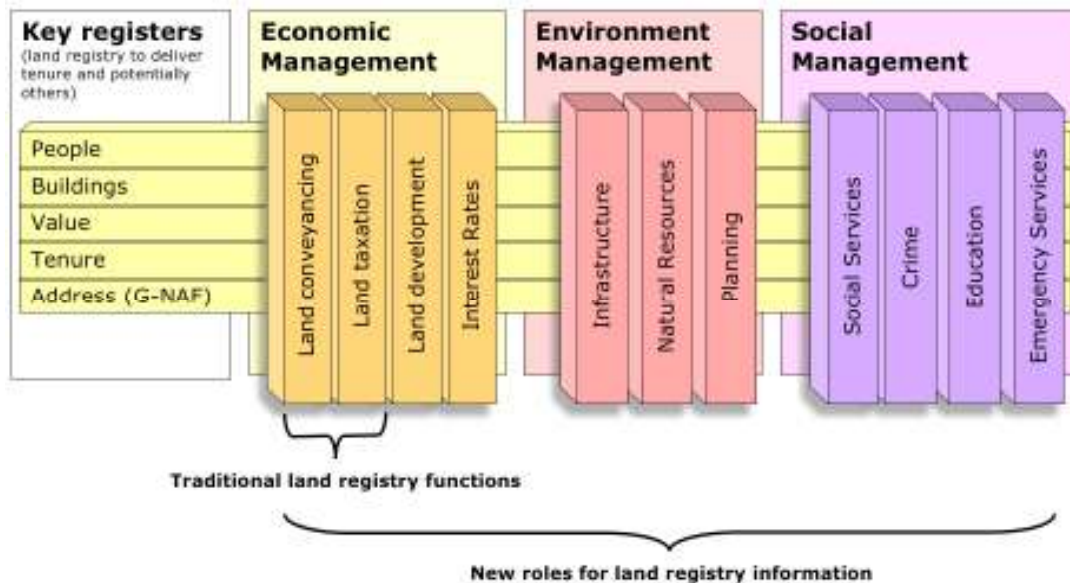


Figure 1: Key registers in the Australian context

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 Limited<sup>2</sup> or NECDL<sup>3</sup> style business model.

Technically, the vision would require people, building, value, tenure, and address information at a national level. Address data (G-NAF<sup>4</sup>) would be used to link people information with the

<sup>2</sup> Originally known as the 'Public Sector Mapping Agencies – Australia' (Grant and Hedberg, 2001; Holmes 2006), PSMA Australia Ltd. is a company, the shareholders of whom are the state jurisdictions. It aggregates state datasets into national datasets.

<sup>3</sup> National eConveyancing Development Limited was established in January 2010. It is a stand-alone company initially funded by the state governments of Queensland, Victoria, and New South Wales. It aims to drive the delivery of a national eConveyancing system.

<sup>4</sup> G-NAF: Australia's Geocoded National Address File. Compiled and maintained by PSMA Australia Ltd.

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 Shared Land Information Platform SLIP in Western Australia (WA) (Bennett *et al*, 2008, Wallace *et al*, 2010), New South Wales's SIX (Watkins and Harris, 2010), or PSMA Australia's LYNX (Paull, 2009; Abhayaratna, 2010).

With respect to human resources and capacity building, collaborative or relationship building techniques should be used when building national key registers. An increased level of technical capacity needs to be established within the registry and higher levels of government. As the key register grows in popularity, business and 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. However, 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 FUTURE RESEARCH DIRECTIONS**

A national approach to key registries and spatial enablement for land registries in Australia 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 even though the need is not in question- it is essential for the future growth of the nation. 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 much 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 its 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 Australian Capital Territory, Tasmania and Northern Territory 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 Ltd. also provides underlying datasets such as Cadlite (a national parcel geometry file), 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 Dutch Kadastre or Registrars of Scotland should be part of the analysis.

Whatever technical platform is decided upon, going national requires making better use of the significant Australian achievements to date. Land registries share their cadastral information with PSMA Australia, where it forms the national digital cadastre (Cadlite). 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 Australian Research Council 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 New South Wales, Victoria, and Western Australia, 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.

## **5 CONCLUSIONS**

Australia and her states have covered much ground in the realm of land information management since 1982, however, the risk of a land information Babel still remains, particularly in the realm of land registries. Australia is only just now entering the era of national approaches to land registration. The national eConveyancing system is a first step, however, it is envisaged that many more initiatives and services 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 pocket knives, 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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