

# **National Land Information Infrastructure through a Collaborative Framework**

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## **SUMMARY**

Australia is being faced with issues which demand a national focus. These issues include natural resource management, land markets, trading in commodities such as water and carbon, and the development of national policies for housing and infrastructure. Businesses also are demanding a more national approach as an increasing number of businesses now operate nationally. This is reflected in the Australian Bureau of Statistics figures which show the number of businesses operating in all states and territories increased by 70% between 2003 and 2007.

Over the past several years considerable effort has been directed by the Australian Government towards the development of a “seamless economy” to improve productivity across its federated system of government. In this environment, Land administration in Australia is also jurisdictionally based with no national infrastructure capable of delivering the land information necessary to meet Australia’s needs. In the past, this jurisdictional based approach to land administration has satisfactorily served Australia in an environment where the vast amount of service delivery by both business and government was state focused. Each jurisdiction has taken advantage of the ongoing technological developments to enhance their respective systems and it would appear that many of the needs at a jurisdictional level continue to be met.

Whilst land administration has not featured specifically in this reform several of the nominated projects involved land in some form. To respond to the national drivers, this paper aims to introduce a collaborative framework for the implementation of a national land administration infrastructure which relies on the state and territory based systems as its primary source of information.

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## **1. INTRODUCTION**

As a federated county, Australia's land administration systems are state and territory based. These systems which record information pertaining to land ownership, land tenure, land use and land valuation have supported and continue to support the requirements of the respective states and territories. Increasingly however, as initiatives which have a national focus (e.g. carbon trading, environment issues, etc) come into play, the limitations in gaining current reliable land administrative data at a national level become apparent. Many businesses also are more nationally focused as evidenced by the 70% growth in businesses operating across state borders between 2003 and 2007 (OECD, 2010).

A number of initiatives have been commenced over the past years which have met some of the land information requirements however there remains a need for a cohesive, more complete, more current and cost effective approach to supporting Australia's need in this regard. The challenge facing Australia is how does it take advantage of the good land administrative systems operating at the state and territory level such that that same information can be viewed from a national perspective.

This paper discusses why such a system is required and why only a collaborative approach involving all the Governments of Australia can successfully deliver on this requirement and in doing so improve the efficiency and effectiveness of the current situation.

## **2. BEYOND STATE AND TERRITORY BORDERS**

The push to operate more effectively nationally has certainly increased over the past decade. This was clearly evident when in 2009 the Council of Australian Governments (COAG) initiated the concept of a seamless national economy (COAG Reform Council 2009). This resulted in some 27 projects aimed at reducing regulation which was impacting the efficiency of doing business in Australia. Whilst only two of these projects would directly affect land administration in the state and territories, this COAG initiative clearly demonstrated the growing need for many of the systems which were state based to either be replaced by national regulations or achieve similar outcomes through the implementation of an overarching system which would draw together the state based systems to form a national view.

One of the projects undertaken under the COAG initiative was the personal property security register. Personal property generally speaking, being all forms of property except real estate. The Personal Property Securities Register (PPSR) is the register where details of security interests in personal property can be registered and searched (Attorney General's Department

(2012). Each state and territory previously operated their own systems however for many years a national approach had been under consideration. A Law reform commission report in 1990 recommended such an approach and draft legislation was prepared but it never came to fruition (Australian Law Reform Commission, 2010) until January 2012 when the national PPSR commenced and the state based systems ceased to exist.

Another of the project was the national electronic conveyancing system. For a number of years prior to being nominated as a COAG project as part of the seamless national economy initiative, several States had been endeavouring to bring about a national electronic conveyancing system. It is anticipated that in the near future, a national electronic conveyancing system will be available. Currently four states are involved in this new system which will be operated by a company owned by these four States. The agreement provides for the other States and territories to join in the future as the system develops. The four major banks will also take up minority shareholding in the company. This system will overlay the state based land registry which will continue to operate unlike the national personal property register (NECDL, 2012).

### **3. THE NEED FOR LAND INFORMATION VIEWED FROM A NATIONAL LEVEL**

The need for national approach to gathering land information has been around for a while. In 1992 the Australian Bureau of Statistics (ABS) tendered for an organisation to provide spatial data at a national level to support the 1996 census. This included topographic and cadastral data. As a result of this initiative, the states and territories formed an agency called the Public Sector Agency of Australia (PSMA). This organisation subsequently built the national spatial datasets required to meet ABS's requirements for the 1996 census using the information sourced from all the states and territories. Since that time PSMA has continued to build national spatial datasets namely the transport, administrative boundaries, land tenure and addresses. These datasets are updated quarterly and are marketed to users through a value added retail (VAR) network. In 2001 PSMA became an incorporated company with the shareholders being all the governments of Australia (Holmes, 2006). This model is not that dissimilar to that adopted in 2009 for the building of the national electronic conveyancing system.

Whilst the national spatial datasets produced quarterly by PSMA have met some of the requirements with regards national land administrative datasets, many remain to be satisfied. For example, currently ABS is proposing to build a Land Account dataset ABS (2010). This will require not only the cadastral and address data currently sourced from PSMA, it will also require land use and valuation data held by each of the State and Territories. A pilot study has been completed over part of Queensland (i.e. an area encompassing the Great Barrier Reef) (ABS, 2012).

Further examples of Commonwealth Government agencies sourcing land administrative information directly from the States and Territories as well as from PSMA Australia to meet their own particular requirements are also evident. For example, Geoscience Australia is sourcing building related information from state and local governments to assist in the development of the National Exposure Information System (NEXIS). This system provides

information on the location and characteristics of the built environment that can be incorporated into multi-hazard risk analysis. (Geosciences Australia, 2012). Under the Building Energy Efficiency Disclosure Act 2010 where office spaces over 2000 square metres must have current Building Energy Efficiency Certificate, the Commonwealth Department of Climate Change monitors as part of its compliance regime lease and sub lease transactions as well as advertisements in print and online media (CBD, 2012). The Reserve Bank of Australia (RBA) is also collecting property sales and related information to assist in setting its monetary policy. The Australian Tax Office also needs land ownership data to support compliance with capital gains taxes (Tambuwalla, et al 2011). Many other examples exist.

It is likely that some of this data collection by the various commonwealth departments is being duplicated many times over. This need to have access to national land related datasets is not limited to Commonwealth Departments. In 2010, a commonwealth funded research was initiated to build an Australia Urban Research Network (Sinnott, et al, 2012). This information network would allow all researchers to access information required to support their research through a single logon. \$20M was made available to this project. Part of the information planned to be available for access across this network includes the various components of Australia's land administrative information. This is not dissimilar to the aggregation being undertaken by ABS for its Land Account. This project not only demonstrates the need for a national land administration information framework to support urban researchers but also the need for a more focussed approach to building infrastructure to collate land information held by the States and Territories.

#### **4. MOVING TOWARDS A NATIONAL LAND INFORMATION INFRASTRUCTURE**

Assuming the need exists for a national land administration information infrastructure, how could this best be built. As previously mentioned land administration data in Australia is essentially a state and territory based environment where their systems support their respective land development processes as well as generating revenue. Given this situation it would appear the most feasible option available to achieve a national infrastructure is to build an overarching environment that consumes the key elements of the land information held by these systems. This can only be achieved through a collaborative effort between all the governments of Australia.

Successfully bringing about a sustained collaborative effort requires however an agreed collaborative model or framework to assist in guiding the process. This is recognised in the National Information Sharing Strategy which was commissioned by the Council of Australian Government's (COAG) Online and Communication Council in July 2000. This strategy includes the use of a national collaborative framework which is essentially the toolkit for establishing a collaborative framework for projects across jurisdictions. (Dept of Finance and Regulation 2009). The national collaborative framework covers aspects such as governance, project control, data management etc and includes document templates to assist in the process. The value of a collaborative model is also outlined in McDougall's work (2006) where he sets out the key issues which are part of a successful collaborative process. Whilst his investigations were based on partnerships and land information sharing arrangements between

local and state Governments, his collaboration model would also appear to be applicable to collaboration at a national level. In his data sharing partnership model, he outlines how factors such as shared goals, defined business needs and leadership play a significant role in the collaboration process. He also argues that the contextual factors such as political and economic issues will have a measurable impact on the success of the collaborative effort.

In reality, this collaborative process has already commenced as PSMA Australia has been operating successfully for 15 years building national spatial datasets from state and territory information (Paul, 2009) and NEDCL is currently building the national electronic conveyancing system (NECDL, 2012). To some degree what has been lacking is an overall vision and plan for an infrastructure that encompasses the full range of land administrative data generated by the states and territories capable of being delivered to users in a timely and cost effective manner.

As the key user of national spatial datasets the requirements of each commonwealth government department and agency are fundamental to the process of establishing a national infrastructure. In 2011, the commonwealth government set about to identify its requirements and to develop strategies and policies to ensure the commonwealth had access to the spatial data it required. This included the establishment of the Office of Spatial Policy (OSP) which had been recommended in a review of Geoscience Australia (Commonwealth of Australia, Department of Finance and Deregulation, 2011). OSP has been established with direct reporting to the Secretary of Department of Resources, Energy and Tourism (RET) and as such is in position to directly influence the direction of the respective departments with regard to the acquisition and use of spatial data. In October 2010, the commonwealth government also commissioned a report into the spatial capability of Australia. This work was undertaken by Dr. Vanessa Lawrence, Director General of Ordnance Survey, United Kingdom. The brief included the recommendation of policies, implementation models and governance arrangements to support Australia's requirements (Scott, et al 2011). This report has not been released to date. Another initiative has been from the APS200 which has been established as the new senior leadership forum for the Australian Public Service. It comprises the most senior commonwealth public servants and has commissioned seven studies to provide to provide some leadership in various areas. One project was entitled "Location" which reviewed the importance of location to the commonwealth government and considered aspects such as governance, policy and investment (Scott, et al 2011). These initiatives clearly show the intentions of the commonwealth government with regards to national spatial datasets and that progress is occurring in the development of a thorough understanding of the commonwealth government's requirements and strategies to ensure the availability of the national datasets.

It could be argued however that the establishment of a vision and plan for national land information infrastructure has also commenced, albeit in recent times. In August 2011, the peak government body in Australia and New Zealand with the core responsibility for the stewardship of spatial information (ie ANZLIC), agreed to develop a national policy for the use of national fundamental spatial data themes in Australia. Twelve data themes were agreed including key land administrative datasets such as the cadastre, addresses and land

tenure. A working group is currently developing details of what each of the twelve fundamental dataset should contain (ANZLIC, 2012a). In 2010, ANZLIC also initiated work into the development of a spatial marketplace. It was envisaged this spatial marketplace would enable both the government and private sectors to make available data to users. One of the key elements to the vision was the “Transition from sectoral and jurisdictional silos to a single integrated regional Spatial Marketplace for Australia and New Zealand”. A demonstration system is currently being built (ANZLIC, 2012b). This spatial marketplace envisaged by ANZLIC could be seen as part of the initial foray into a national access and delivery infrastructure.

These two initiatives could be considered key elements to facilitate the establishment of a national land information infrastructure. As the peak Government body for spatial information in Australia and New Zealand with representatives of all the States and Territories and Commonwealth governments, ANZLIC is well placed to provide leadership and to draw these initiatives into an overarching vision and strategy.

From the many initiatives that have occurred over many years and now more recently, it seems evident that Australia’s national land information infrastructure has been slowly evolving. It is one which is essentially built on a collaborative model between all the governments of Australia. Given the scope of the information to be compiled to national level, it appears that the infrastructure which evolves will be involve a network of players. Already PSMA Australia collates a number of datasets to a national model (Paul, 2009). NECDL is now embarking on the national e conveyancing system which has the potential to make a wide range of information held by the respective land registries available at a national level (NECDL, 2012). Other players may evolve over time to meet specific requirements and as such any framework developed must be able to accommodate this if required.

Beyond the difficulties of establishing an appropriate collaborative framework, the delivery of timely land information data at a national level also poses its own challenges in that whilst each state and territory collects similar data, the data structure, naming conventions, etc are different. Bringing the data together into a single data model without diminishing the data integrity must be a specific focus of any strategies. Whilst PSMA Australia currently brings together the data from the eight States and Territories for cadastre, transport and administrative boundaries at the moment this is must only support a three monthly update cycle. There is little doubt that in the future users will be seeking near real time currency for the respective datasets. PSMA Australia is already using software to programmatically to build some of its national datasets based on various predetermined rules however this still takes many days to complete (Dixon, 2010). Research work being undertaken in various countries tends to suggest that the use of ontologies may provide the answer in the future to “joining” up systems that essentially perform the same functions but with differing structures and processes in different states without impacting the underlying systems. For example, in a paper by Hess and Devries (2008) they hypothesise how a person living in England could sell land in Greece without understanding the local real estate jargon and operations.

The use of ontologies together with the continuing work of ANZLIC of encouraging the States and Territories towards common data models remain a key part of any future strategy.

## 5. CONCLUSION

The various initiatives directed towards integrating state based spatial data over the past twenty years tend to indicate that Australia's national land information infrastructure is slowly evolving. These achievements have been based on the collaborative efforts across all levels of government. Perhaps in a federated country such as Australia where land administration essentially is the responsibility of the states and territories, this approach represents the most plausible and sustainable approach to achieving this important national infrastructure.

The challenge remains however in drawing the existing initiatives into cohesive long term plan and ensuring other future government initiatives whether they be at commonwealth or state level recognise the need for an integrated national land information infrastructure. Unless this can occur Australia will not maximise the benefits that an efficient and effective land information infrastructure can deliver.

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