

Presenting Aboriginal knowledge

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Using technology to progress native title claims.



The High Court, in *Mabo (No 2)* (1992) 175 CLR 1 held that although Australia is a settled colony it was not *terra nullius*. Hence the common law doctrine of native title was applicable when British sovereignty was extended over Australia. The Crown could extinguish native title providing the appropriate legislation or executive act embodied a clear and plain intention to do so. The central question is whether the regime of land control established by the act in question, or the disposition/alienation of the particular land, was inconsistent with the continued enjoyment of native title. Hence a major aspect of the determination of a native title claim revolves around whether extinguishment has occurred with respect to the particular area of land under consideration. Information concerning the nature of the occupancy claimed by a group of Aboriginal people will also be necessary to prove that the claimant group is the one with native title rights. A large variety of information types must be analysed and the collated results presented during the claims process. Much of this information will refer to locations in space and hence the efficient and equitable consideration of native title claims requires the use of spatial information in the most effective way possible.

Information needs relating to native title claims may fall into one or more of the following categories:

- information to support common law claims and their determination — in the cases where particular Aboriginal groups decide to take that option;
- information to assist in the negotiation/arbitration of land claims under State legislation and tribunals;
- information needed to facilitate the mediation of a claim under the National Native Title Tribunal (NNTT) system;
- information needs of the National (or State) Tribunal (or court) to facilitate management and mediation of individual cases and the maintenance of appropriate records of past cases;
- information relevant to the negotiations between Aboriginal people and some other group desiring some rights/uses regarding the land in question (for example, minerals exploration). This will probably occur after native title has been approved for a particular piece of land;
- in the event of an agreement being reached for some specific use of a piece of land, an information system could assist in the ongoing management of that use and how it meets any conditions which may be established under an agreement for that use;

information relevant to the effective long-term management of an area of land in terms of land use, environmental management, social issues etc.; and

information regarding potential regional agreements relating to native title and other issues affecting indigenous Australians.

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In each of these situations an information system can be used to facilitate the process. Indeed, a sequence of versions of an information system can operate to fulfil the needs of a claimant Aboriginal group at various stages; for example, an information system developed to support a native title claim may be subsequently adapted to facilitate land use management. The information system can be progressively developed to include different sorts of information (for example, from legal to environmental) while still utilising the results of the earlier stages. Various stake-holders in native title claims have already started using information systems for preparation and assessment of evidence, including geographic information systems (GIS).

Integration of the information from various stake-holders is a potential aspect of claim mediation by the NNTT (or arbitration by Federal or State courts or tribunals). The procedures must ensure a proper separation between shared databases and information which must be kept confidential for cultural reasons as well as for the purpose of negotiation strategy. The required information systems must also be capable of including a wide variety of information formats and be accessible by various types of users from different cultural backgrounds.

Equitable access to information is critical, though difficult to achieve. It may be facilitated through the effective use of meta-data, that is, listings of the information held by various government agencies and procedures for its acquisition. Financial resources are also important since most agencies charge for copies of data. However, the cost of spatial data is likely to be substantially less than other costs associated with land claims procedures. It is also critical that appropriate technical expertise is used so that all potential sources of information are identified and acquisition and collation of the information is managed in an efficient and effective manner.

Maps to present Aboriginal knowledge

Within native title negotiation and arbitration procedures there is usually a requirement (or desire) for Aboriginal groups to display aspects of their knowledge (cultural heritage). Maps can play a significant role in this process. Their design can draw upon both western and Aboriginal mapping traditions and may also be informed by literature regarding the nature of mapping by other indigenous peoples.¹

There are, however, a number of issues regarding the use of maps to present Aboriginal knowledge, including the following:

Technical issues

Technical issues concerning the design and preparation of maps include: how to combine data from different sources; design of appropriate symbols; use of satellite images or aerial photographs; and how quality assessments (map accuracy, completeness, currency of data, etc.) may be made, certified and communicated.

Use of traditional or hybrid designs

There is potential for the use of Aboriginal maps or 'hybrid' maps (combinations of Aboriginal and Western styles). Conventional (Western style) maps may also be based on the interpretation of information contained in traditional Aboriginal maps and other graphics. Non-Aboriginal users may well need considerable assistance in interpreting such maps. This approach also raises questions of the legitimacy of using traditional styles (or even 'hybrid' ones) outside the normal Aboriginal cultural framework.²

Richness of representation

Map makers need to find effective ways to depict traditional concepts, including claim boundaries. There is great potential for the limitation of underlying concepts through impoverished representational form. This may diminish the importance of Aboriginal concepts including articulation of spiritual beliefs. For instance the Tindale maps used only solid and dashed lines to depict language group boundaries of more or less certainty. Davis and Prescott use a definition of boundaries as lines and frontiers as zones.³ This is somewhat more useful but is still unnecessarily constrained by representational form. Ballantyne and Sutherland discuss the use of 'fuzzy' boundaries: because exact positioning of the boundary is not possible and/or not well known; or in order to disguise the exact location of secret/sacred sites.⁴

Cultural sensitivity

The potentially sensitive nature of Aboriginal cultural material necessitates detailed consultations with relevant individuals and groups and may preclude its recording or use in electronic or hard copy form. Michaels discusses areas of sensitivity and suggests approaches to appropriate recording of sensitive information.⁵ He points out that a design may have both public and private versions and that the level of secrecy given to a design may vary for people from different locations (or at different times) and access may be restricted to either men or women. For these reasons it is important to take great care in creating any permanent (hard copy) representation of traditional information. This impacts strongly on the use of traditional Aboriginal mapping techniques and/or the use of images in multimedia presentations. Where such information is stored electronically in an information system, an elaborate set of data protection measures should be implemented to restrict access and to ensure security of the data. The comprehensive technical solutions developed to address these issues in other application domains (for example, banking) need to be applied in a manner which suits the nature of specific Aboriginal organisations. Protection of hard copy outputs is more difficult, especially once the information is tendered as evidence before a court or tribunal.

Content flexibility

How can Aboriginal knowledge be used effectively without compromising the confidentiality of secret/sacred information or inhibiting legitimate negotiation/arbitration strategies? Often Aboriginal groups will wish to provide as little of this sacred information as possible, especially in the context of negotiations. They may, however, decide to release more information to encourage further negotiation in the hope of avoiding legal proceedings, which are not only time consuming and costly, but require the release of more detailed cultural information. Under these circumstances, it is preferable if the content and format of information to be presented can be altered quickly and conveniently.

Power to explain or convince

Use of maps and other graphics may be a powerful way to engage non-Aboriginal participants in negotiation. This may be facilitated by finding ways of integrating multimedia material with traditional map presentations, including animated sequences. In this way cogent graphics can be a strong concrete element in a successful mediation process. Non-Aboriginal stake-holders may be aided in understanding the belief systems which form the basis of native title and thus be encouraged to negotiate more meaningfully.

Admissibility of maps as evidence

Considerable questions arise concerning the admissibility of maps and graphics in legal procedures, especially where the rules of evidence apply. Provision of an audit trail of map information sources and certification of map 'quality' by mapping experts may assist.

Some of these problems may be addressed through the use of GIS.⁶ The Central Land Council in the Northern Territory has utilised GIS technology for a number of purposes for several years and various other Aboriginal bodies (for example, Kimberley Land Council, Western Australia) are currently developing systems for recording of cultural heritage information and the preparation of material for native title claims.

What are geographic information systems?

Computerised geographic information systems (GIS) are combinations of hardware, software, data, procedures and people assembled for the capture, storage, retrieval, analysis and display of spatially and temporally referenced information.⁷ The most important operation is an 'overlay' function which combines different kinds of data at the same location. The software consists of a database to store and retrieve spatial data and a graphical presentation (mapping) package to render the data intelligible to the user.

GIS are used in science, for example to collect, analyse and present environmental data for a particular area. They are also used in administration, for example to maintain property registers or to dispatch emergency vehicles. As mentioned above, GIS are also starting to be used by some Aboriginal organisations for recording of cultural heritage information, for responding to land use proposals (for example, mining exploration licence applications) and for the preparation of native title claims.

GIS were invented in the 1960s when it became apparent that computers could be used to collate spatial data and produce maps. There was much excitement about the potential of computer graphics for cartographic applications, and the first map rendering packages appeared. After several years of experimentation in the 1970s, an increasing number of GIS projects were undertaken in the 1980s and a commercial GIS market became established. The major origins of GIS applications lie in administrative and planning departments of public administrations and in science.

The market for applications of GIS technology is rapidly growing far beyond the original user community of engineers, planners and scientists. While highly educated and specialised technical personnel still represent the majority of GIS users, some social, technical and economic developments in society require that decision makers, politicians, citizens and consumers also have access to GIS. Among these developments are car navigation systems helping drivers find their way in foreign cities or countries, and environmental information laws giving citizens a right to information about the quality of their environment. Based on estimates that in the order of 80% of all decisions in businesses and administrations have spatial aspects, one can expect a further expansion.

Recent research and development has extended the range of analysis functions available in GIS. GIS can incorporate modelling and sophisticated visualisation capabilities, including image analysis and animation. The rich functionality available in current GIS provides wide opportunities for developing multi-dimensional maps for use in mediation and

arbitration of native title claims. All stake-holders should ideally have equitable access to this technology.

GIS and native title

GIS can play a number of key roles in supporting mediation and arbitration of native title claims, including the following:

Type and location of spatial data (meta-data system)

Spatial data sets relevant to native title determinations exist in a large number of government agencies (as well as some corporations and research institutions). To use this information it is first necessary to know the types of information which are potentially available and which agencies are likely to hold the information. The next step is to determine if appropriate information exists for an area of interest and its quality, format, cost, etc. Details of contact people/numbers and ordering procedures are also required. This information about existing data sets is called meta-data. Access to data held by State Government agencies may be best arranged through co-ordinating bodies or specialist agencies, such as the Western Australian Land Information System (WALIS).

Display of spatial information

At a comparatively simple level, GIS can be used to assemble and display point, line and area data. This information can include tenure, land use, tribal and claim boundaries, as well as supporting contextual information such as topography, roads, hydrology and place names (indigenous and non-indigenous).

Representing the distribution of abstract phenomena

At a second and more conceptual level, GIS has the capacity to convey interpretations of the landscape or other abstract phenomena such as the distribution and nature of sacred sites falling within the claim area. While the mechanics of such representations are relatively straightforward, it is appreciated that the availability of information may be restricted and that its interpretation is complex.

Analysis and display of spatial and temporal relationships

The functionality typically found in GIS would fall into three areas: presentation, query and 'what if' scenarios. On the presentation side, the GIS would allow control over access, selection and ordering of information, and its symbolisation. On the query side the system would support a variety of spatial questions of the form 'what and where', such as 'what can be found at this location?', 'where is this feature located on the map?', 'show land ownership abutting this claim', 'list all sacred sites within 100 km of this site'. 'What if' scenarios might display land use options related to potential negotiation outcomes. An example of the display of a temporal relationship might be a series of maps (possibly animated) showing the distribution of Aboriginal inhabitants over the claim area at different times and including related events that affected the demographics of the population (such as migration as a consequence of the granting of a pastoral lease or the introduction of the equal wage).

Recording and explanation of traditional representational forms

GIS also support the storage and management of electronic images. With due respect to cultural considerations,⁸ this allows for the inclusion of images of places, people, paintings, etc as well as legal documents. This may be used to provide easy access to images of Aboriginal representations connected with the claim area. By combining conventional

maps with traditional forms it is possible to use GIS to show the relationship between paintings and designs and their importance with respect to the landscape. Designs often convey the relationships between traditional concepts (Dreamings) and sacred sites and also bear topological links with the landscape. Though not applicable in every case, by making explicit the link between the painting and the terrain, it is possible to convey the sacredness of a site and link its general location to topographic features and cadastral (land tenure) boundaries.

Collection and dissemination of information in the field

Another area of application is the collection and provision of information 'in the field'. GIS on a portable laptop computer, coupled with advances in precise location using global positioning satellites, afford a means of recording phenomena of all types at known locations and a means of conveying the spatial aspects of any decisions to people in remote regions. The need to disseminate the results and to carry consensus to all parties is a critical and vital step in any negotiated settlement. Given that Aboriginal culture is historically oral, the presentation of information in 'meaningful' ways (such as maps and images) at the actual locations may be critical to its understanding and acceptance.

A variety of these uses of GIS could apply to the preparation, submission or negotiation of native title claims by Aboriginal groups. GIS may be used (off-line) to produce hard copy (paper) maps depicting traditional knowledge (or other information) or the maps may be viewed directly on the computer screen by individuals, or by a group via a projection system.

Conclusions

More effective use of spatial information (either as maps or GIS) is important for the efficient and equitable consideration of native title claims. It is also critical that the forms of spatial representation are adequate to express the underlying concepts (for example, the nature of Aboriginal boundaries). For this to be successful it is important that map designs be grounded in the fundamental nature of native title and hence connected with the concepts, traditions and needs of indigenous Australians. Maps need to express the integrated relationship between:

places	not just an arbitrary configuration of physical locations but an assemblage of places connected by meanings associated with traditional belief systems;
people	the specific group/s of people who possess the meaningful relationship with (and are responsible for) those particular places;
procedures	the laws and customs which link the people to the places and sustain their unique relationship (and hence native title);
presentations	the practices and physical manifestations by which the laws and customs and meaning relations between the people and places are expressed (and hence maintained), such as ceremonies and paintings.

At least some of the current constraints on effective presentation of Aboriginal knowledge via maps can be overcome

through the use of GIS. Such an approach offers Aboriginal groups much greater flexibility regarding what information is to be provided and how it is displayed. This could reduce some of the problems related to restrictions on producing hard copy representations of secret/sacred cultural information. Aboriginal groups could assemble complex cultural information in a GIS (with appropriate security measures). During native title negotiations they could decide which information to retrieve (and how to present it) then display this as an ephemeral image only. Once it had performed its role in the negotiation process the image would disappear and the digital file created for its display could be destroyed or stored in a secure manner within the system.

Such an approach requires that Aboriginal groups are able to make sophisticated use of this technology through acquisition of suitable hardware and software and appropriate training programs. This may seem overly optimistic; however, a number of factors indicate that it should be achievable, including:

- significant improvements in the ease-of-use of some current GIS software (for example, ArcView);
- the fact that some Aboriginal people have decided to work in this field and have therefore developed considerable expertise; and
- the enthusiasm with which several Aboriginal organisations have embraced this technology and their willingness to involve non-Aboriginal people (with appropriate technical skills) in the collation of cultural information.

The procedures discussed in this article can help facilitate genuine negotiation by assisting non-Aboriginal stakeholders to understand the basis of native title without infringing the secret/sacred nature of Aboriginal knowledge. The technology can help to represent these concepts in a manner appropriate for all participants without the need for compromise on ethical issues. More research and development is needed to enable this potential use of GIS to be made practical and effective.

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