Notes from the Field

Knowledge Discovery
Empowering Australian Indigenous Communities

Abstract
This article explores how Australian Indigenous communities can be empowered through knowledge discovery from institutions with Indigenous cultural collections. It reports on original case study research involving eight diverse Australian cultural institutions with valuable Indigenous cultural heritage collections. The research sought to provide a state of the art review of the role, nature, and organization of these collections, with particular emphasis on provision for digital discovery and access. These cultural institutions have a pivotal role to play in restoring memory of cultural heritage, but face many technological, resourcing, and other challenges in the process.

1. Introduction
If there is truth in the adage “knowledge is power,” access to knowledge holds a key to the empowerment of disadvantaged social groups, including Indigenous peoples. Australian museums, libraries, art galleries, and public record depositories are institutions with rich collections of Australian Indigenous materials; some cultural institutions overseas also have important collections of Australian Indigenous objects. These collections are complemented by Aboriginal objects found in situ at heritage sites in the Australian landscape. Such Indigenous material objects and information resources are integral to the cultural integrity and memory of Aboriginal Australians.

This article focuses on the role that Australian cultural institutions can play in the empowerment of Indigenous Australians through facilitating knowledge discovery of their cultural heritage. The rediscovery of cultural heritage can transform the lives of Indigenous people through recovering identity, assisting in the process of healing, and building an individual and collective confidence and pride. The article reports on original case study research of eight diverse Australian cultural institutions involved with Indigenous cultural heritage collections. The research sought to provide a state of the art review of the role, nature, and organization of these collections, with particular emphasis on provision for digital discovery and access.

Section 2 introduces the research area by exploring the concepts of empowerment and disempowerment in relation to Australian Indigenous communities. To assist international readers in understanding the complex historical context and background of current Indigenous disadvantage in Australia, as well as the historical role of cultural institutions in (inadvertently) perpetuating this disadvantage, the section traces issues of dispossession of Indigenous peoples since the late 18th century. It then
examines some key events and actions in more recent Australian history aimed at reversing this disadvantage and empowering Indigenous peoples. A particular focus of this section is on the potentially positive role of cultural institutions in this process of empowerment.

Section 3 reports on findings of the case study research undertaken in eight Australian cultural institutions involved with Indigenous cultural heritage collections. At each institution, managers or professionals responsible for these collections were interviewed, collections were reviewed, observations were recorded, and where relevant, software demonstrations were provided. Major foci of interest included the following: governance responsibility, institutional mission/philosophy, collection types, geographic coverage, means of facilitating knowledge discovery, technological challenges, cataloging, metadata, constraints, collaborations/partnerships, approaches to working with Indigenous communities, and the potential of the cultural collections to empower Indigenous Australians. Findings provided a rich picture of institutional practices, challenges, and constraints in these areas, ultimately identifying further opportunities for the empowerment of Indigenous Australians through the facilitation of access to knowledge about their cultural heritage.

The final section draws conclusions on the role of cultural institutions in facilitating empowerment through knowledge discovery, identifies contributions of the research, and suggests areas for further research.

2. Empowerment and Australian Indigenous Communities

2.1 The Notion of Empowerment

Empowerment means to give authority or power to a group of people, to put them in control of their future. Empowering such people implies that the group has previously suffered disempowerment. In Mick Dodson’s words, “the empowerment of Aboriginal people” means that they “can take responsibility for their own situation and then act to change it” (Dodson, 1995, p. 143). This contrasts with the feelings of helplessness of a people disempowered through generations of unjust government policies, which Tim expresses as follows:

[W]e have been made to feel incapable of thinking well enough to help develop good, just policies. The belittlement of our thinking abilities begins in our childhoods and continues through school years and our work lives. . . . we are made to feel insignificant and powerless. (2003, p. 29)

This article explores ways in which cultural heritage institutions can act as catalysts for Indigenous empowerment by restoring memory of Indigenous cultural heritage and aiding the reclamation of identity through the reconnection of individuals with their communities.

Eades, in Finding Your Story (PROV, 2005), encapsulates well the value of records in the process of Indigenous empowerment. In relation to the recovery of memory of “the Stolen Generation,” he writes:

Access to records is a crucial issue for Indigenous people. [It] . . . has the potential to change the lives of individuals, families and communities . . . [and is] the crucial first step in each person’s own journey of healing. Despite the pain and sadness of the stories they can tell, we need to manage and preserve these records and respect their value. For many people, these records can hold the key to identity. A detail in a register, a name on a case file; the smallest pieces of information in the records documenting children’s lives away from their families can have a huge impact on someone’s life. (ibid., p. 3)

Indigenous workers have long recognised that access to past records is critical in assisting children separated from their parents to discover their true identity, locate family members and begin the process of reunion. (ibid., p. 7)

2.2 Profile of a Disempowered People

With the British colonization of Australia, beginning in 1788, came a Eurocentric worldview. Colonization disempowered and dispossessed Indigenous Australians. A rich Indigenous history of over 50,000 years was devalued and treated as pre-history. British explorers and surveyors mapped the land and assigned European names to places and geographic features. This was justified legally through a philosophy of terra nullius (“land with no people”). The process of colonization not only displaced Indigenous people from their traditional lands, but it also involved the denial of Indigenous voices (Gibson & Dunbar-Hall, 2000).

One driver of the 18th and 19th centuries’ colonial expansion was “the notion of researching far-
flung lands and their peoples” (Smith & Jackson, 2006)—conquering unknown worlds, asserting domination, and returning home material proof of the conquests. Hence, European national history museums accumulated collections of Indigenous material objects. Indigenous cultures were appropriated by others and broadcast, with little cultural sensitivity or respect for the secret or sacred nature of objects. Besides being displaced from their land and subjected to external political and economic control, the dispossession of Indigenous Australians was reinforced through the destruction or deliberate undervaluing of their culture, art, beliefs, and oral traditions, as well as through the conscious elevation of European traditions. Smith and Jackson (2006) explain how language played a pivotal role in this process, embedding mental control of the colonizer, privileging one voice (the “civilized” culture and written language of the dominator) and polarizing the other (the “primitive” culture and oral tradition of the subservient people). British colonists adopted the term “Aboriginal” to imply homogeneity of Australian Indigenous peoples—stripping the distinctive identity from a diverse set of more than 600 groups, each of which had its own political system, laws, and language.

The land has special spiritual significance to Australian Indigenous people, and it forms the basis of their identity. Their dispossession from their traditional lands through “development” had a disastrous impact on their psyche. Many were relocated to missions and reserves, with “Indigenous nations . . . jumbled together, irrespective of their different laws and responsibilities for country” (Farley, 2003, p. 55).

From early settlement, the British passed laws for the “management” of Indigenous peoples. Under government assimilation policies, Aboriginal and half-caste children were removed from their families and culture, and they were placed in missions or with white families. This continued until the latter half of the 20th century. Whitlock (2001) claims that, from 1910–1970, 10%–30% of Indigenous children were forcibly removed from their families and communities.¹

The consequences of their dispossession and erosion of culture have been dire for Indigenous peoples. They have been, and continue to be, significantly disadvantaged in terms of key social and economic indicators—poverty, rampant unemployment, and dependence on welfare; alcohol addiction and substance abuse; high levels of crime, violence, juvenile detention, suicide, and self-harm; low levels of education and high drop-out rates from school; major health problems and a life expectancy of 20 years less than non-Indigenous Australians. Nonetheless, the situation is not without hope, as is explained in the following sections.

2.3 Tackling Indigenous Disadvantage
With growing understanding of the nature and underlying causes of Indigenous disadvantage, there have been some recent positive steps toward tackling this disadvantage and empowering Indigenous peoples to control their future. Some of these moves and key events are outlined in this section.

2.3.1 The Royal Commission into Aboriginal Deaths in Custody and Its Aftermath
Soaring rates of Indigenous deaths in detention, especially of juveniles, prompted a major legal inquiry, the Royal Commission into Aboriginal Deaths in Custody, which ran from 1987–1991.² This inquiry was a pivotal turning point for government policy concerning Indigenous peoples. It detailed the impacts of such government policies as the forced removal of Aboriginal children from their families and communities, and it recommended many initiatives to redress this disadvantage. The need for rediscovering identity and culture was emphasized. One crucial dimension was making records of Indigenous peoples held by government and other institutions more accessible. Helping Indigenous people rediscover their history was an important role for archives. From the early 1990s, Australian and state archives organizations produced various indexes and guides to Indigenous records as a means to facilitate this process. One notable guide was My heart is breaking (Australian Archives, Victorian Branch, 1993). It is a research guide for Koories³ who wish to trace their family history through the records held by the state (Public Record Office Victoria) and commonwealth.

¹ These were called “the stolen generations.”
² A guide is available (Nagle & Summerrell, 1996) to the Royal Commission records held by the Australian Archives.
³ Koories are the Indigenous people of Victoria.
archives. This was a model for other states, and it is still widely consulted.

Such ventures have highlighted the pivotal role that archives can play in facilitating the rediscovery of Indigenous identity, community, and culture.

2.3.2 The National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families and Its Aftermath

Another highly significant government inquiry that triggered empowering changes for Indigenous peoples was the Human Rights and Equal Opportunity Commission’s (1993) National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families, 1995–1996. Inputs included over 500 personal stories of forced removal from families and another thousand written accounts. The inquiry’s report, *Bringing Them Home* or *The “Stolen Children” Report*, was tabled in Federal Parliament on May 26, 1997, during the Australian Reconciliation convention. The anniversary of tabling this report is now commemorated as “National Sorry Day.” The power of the Stolen Children testimonies was comparable to South Africa’s Truth and Reconciliation Commission, underway at about the same time. Both of these produced a drip feed of testimony and confession which dominated print, radio and television journalism . . . and . . . demonstrated the extraordinary power of new media technologies, such as the Internet, in circulating testimonies to a large international readership. (Whitlock, 2001, p. 201)

There were increasing public calls for the Australian Federal Government to “say sorry” to Indigenous peoples for their mistreatment over generations from misguided government assimilation policy. While the Howard Liberal government consistently resisted this call, refusing to take responsibility for the actions of previous administrations, the Rudd Labor government did so on National Sorry Day, 2008. Rudd’s public apology on behalf of the Australian people was a significant symbolic event, a very emotional day for Indigenous Australians.

After the release of the *Bringing Them Home* report, consultations with Indigenous communities about priority projects identified the urgent need for an index of names of Indigenous peoples referred to in archival records. The resultant National Archives of Australia’s *Bringing Them Home Name Index* (1997) was a labor-intensive project, involving collaboration between national and state archive bodies, which took until 2004 to complete. Including over 250,000 names of Indigenous people, as well as other people and organizations (such as missions and stations) associated with them, it is an invaluable tool for identifying and locating family members separated for decades by government child removal policies, and for re-creating communities.

State archives and records agencies have also been involved in similar projects. After collaboration between the Public Record Office Victoria (PROV), Aboriginal Affairs Victoria, and the Koorie Records Taskforce, PROV published *Finding your story: A resource manual to the records of the Stolen Generations in Victoria* in 2005 (PROV, 2005). This manual is more than a guide to records; rather, it is presented as a step-by-step personal journey for a Koorie finding his or her story. It alerts searchers to issues they are likely to encounter, such as the often patronizing, offensive, and racist nature of comments contained in earlier government records. Russell (2005) articulates well the emotional journey of Indigenous people seeking to reclaim their family histories through archives and libraries. Knowing who and what you are is something that most people take for granted, but the Stolen Generation lacks those connections to family, community, land, culture, and language. Russell observes that Indigenous people can have very different feelings in their reaction to the records—feelings that range from excitement in finding and sharing their story to anger at the nature of the records kept, which make them feel humiliated or “like a criminal.”

Melissa Brickell, from the Yorta Yorta clan, recounted her experience in finding her story as follows:

When I got my records, it helped me to answer some of the questions, raise other questions, reflect on certain events, name someone that I’d dearly love to see or find out about, and reopen the wounds. The records returned me to my childhood experiences, and contributed to my facing the issues of removal for myself. Eventually I was better able to tell my story, and to share my story with others, including my family and community. I was able to begin to put my life into some sort of perspective. Aboriginal people are still experiencing the burden and trauma of those govern-
ment policies and practices which removed Aboriginal children and families from their families and homes. For many individuals and communities there remain physical, emotional, cultural and spiritual wounds to heal. Knowledge can help lead to healing. Just by knowing who your mob are, where your mob comes from, and why and where you fit into all of it—can lead you to be better enabled to move on, move forward, and know exactly where you’re going—for the rest of your life. (PROV, 2005, p. 9)

Many of the new generation of Indigenous youth are moving forward with confidence, excelling academically, and taking up active roles in their chosen professions. For instance, according to a recent media report, 23-year-old Rebecca Richards is the first Indigenous Australian to be awarded a Rhodes Scholarship. An anthropology graduate and Indigenous cadet project officer with the National Museum of Australia, she is travelling to Oxford University to study for a PhD in material anthropology and museum ethnography.

2.3.3 Overcoming Indigenous Disadvantage: Key Indicators Reports

In 2002, the Council of Australian Governments commissioned the Productivity Commission to report on key indicators of Indigenous disadvantage. Their report Overcoming Indigenous Disadvantage: Key Indicators (2003) has established a framework for regular reporting on the progress and effectiveness of government initiatives to reduce key indicators of Indigenous disadvantage. Follow-up reports on these indicators have appeared biennially since 2003. This is an important mechanism for ensuring that government initiatives for Indigenous people are well targeted, and that they achieve “positive outcomes for Indigenous people.”

2.4 Helping to Realize the Vision of Confident, Empowered Indigenous Communities

Of late, there has been a growing awareness that overcoming Indigenous disadvantage necessitates recreating cultural identity and pride; ensuring supportive family and community environments; and reversing a welfare culture mentality through the creation of opportunities for Indigenous wealth creation, employment, and economic sustainability.

Self-determination is a vital element—it is critical that Indigenous peoples are in the “driving-seat” of programs that affect them. Governments and researchers alike are learning through experience that successful outcomes are contingent on effective partnerships and genuine consultation. The things that external bodies think will be beneficial for Indigenous people are often not what they want.

In contrast to the pervasive sense of helplessness and desperation of a dispossessed people, Tim (2003) welcomes a mounting groundswell for change, seeing some positive signs of a strengthening of Indigenous families and communities, and of the development of Indigenous capacity and leadership at the local level.

There have been encouraging recent examples of successful partnerships in land agreements, where Indigenous peoples have reclaimed control of their land through successful native title claims, reaching agreement with government authorities, national parks, mining companies, pastoral interests, or tourist operators on the conditions under which they will collaborate. Such arrangements provide a source of income and employment for these communities.

An excellent example is Nitmiluk, in the Katherine region of the Northern Territory, now owned and managed by the Jawoyn people. Gibson and Dunbar-Hall reveal how empowering their successful land-claim has been for the Jawoyn people, and how they are symbolically reclaiming their land and cultural identity through popular music—re-inscribing “Aboriginal spatial identities after colonial experiences of appropriation and contempt” (2000, p. 39).

Similar issues are raised in research involving Indigenous communities. While such research has a long history, Indigenous communities have often felt exploited by researchers “who fly into their communities, conduct research on their people and fly out again with the results under their arms” (Hecker, 1997, p. 784), never to be seen again. Fortunately, university ethics approval requirements are reducing some of these excesses, in terms of respecting privacy and intellectual property, and ensuring the dissemination of research results in ways that are useful for the “researched” communities. Gaining approval from Indigenous communities to use an image, story, or other piece of intellectual property,
and courteously acknowledging their ownership, is vital in presenting such material. That sort of acknowledgment is empowering, as it recognizes and validates Indigenous authority over their own knowledge systems (Smith & Jackson, 2006).

Building strong, respectful relationships is critical for researchers involved in research with Indigenous communities. Within such relationships, there is trust and mutual obligation; genuine reciprocal dialogue; and a willingness to listen, share insights, and learn. Here, Indigenous people are treated as equal partners, rather than as research objects (McKemmish & Piggott, 2002). Fruitful research partnerships can take years to build and develop, and they require ongoing cultivation and nurturing. Monash University, in its Trust and Technology research project, has been collaborating with archive bodies, as well as with local Indigenous interest groups and communities, to develop ways to enable Koorie communities to archive oral memory. This partnership has involved a strong learning process for all parties, and researchers have had to modify their original ideas along the way when their planned outputs were not what the Indigenous communities actually wanted.

There are some exemplary projects involving collaboration between cultural institutions and Indigenous communities. Nakata et al. (2007) review a project focused on providing a public library service to remote indigenous communities. The Northern Territory Library (NTL) has developed a community-centered library services model that has “the capacity to incorporate local Indigenous knowledge” (ibid., p. 219). It allows access to the NTL library system, and it also has “local knowledge database facilities for local storage and access to this knowledge and the capacity to link communities through a regional knowledge network.” The NTL Our Story software is given a local Indigenous language name by each community, which “has its own database and adds its own content” (ibid.); this content can be annotated by community members.

Spurred by the digitization of collections, there have been calls for much greater collaboration or even convergence between major “institutions of memory,” such as museums, galleries, libraries, and archives (Nakata et al., 2008). Huggins (2005) argues that bringing such institutions together would ensure greater communication between them and lead to greatly improved services to Indigenous communities.

Increasingly, the need for formal protocols to guide the development of services and systems for Indigenous peoples and interaction with Indigenous communities has been recognized. Roles and responsibilities of cultural institutions in the face of cultural sensitivities and the complex legal and other issues associated with ownership and access to Indigenous knowledge need to be clearly understood (Anderson, 2005). For well over a decade, various protocols have been proposed and developed (Barty & Moyle, 2008; Byrne et al., 2000; Garwood-Houng, 2005; National and State Libraries Australasia, 2007).

3. Facilitating Knowledge Discovery in Australian Indigenous Cultural Heritage Collections

3.1 The Case Study Research and Participating Institutions

The qualitative research forming the basis of this paper involved interviews in Australian institutions with Indigenous cultural heritage collections or research initiatives. Additional sources of data included review and observation of collections, perusal of internal documents and websites, and software demonstrations. At each institution, individuals interviewed were managers or professionals responsible for Indigenous heritage collections. Interview topics and questions were distributed at the time of inviting institutions to participate in the research, so that interviewees would be aware beforehand of the scope of the discussion. With interviewees’ permission, interviews were recorded and subsequently transcribed. Transcriptions were sent to each interviewee for validation and comment. The finalized transcriptions were then uploaded for qualitative data analysis.

Six of the cultural institutions under discussion are located in Victoria (Aboriginal Affairs Victoria, Melbourne Museum, Koorie Heritage Trust Cultural Centre, State Library of Victoria, Public Record Office Victoria, and National Gallery of Victoria), and two in the Australian Capital Territory (ACT) (the Australian Institute of Aboriginal and Torres Strait Islander Studies and the Centre for Cross-Cultural Research, Australian National University). Collectively, these institutions are empowering Australian Indigenous communities by making their collections accessible and facilitating knowledge discovery of Indigenous cultural heritage.
The Victorian state government is responsible for five of the six participating Victorian institutions; the Koorie Heritage Trust is an independent body. The Australian Institute of Aboriginal and Torres Strait Islander Studies, a relatively young institution, is federally funded, and it plays a major role in Indigenous affairs. The Centre for Cross-Cultural Research is university-based, relying on federal research grants.

The interviews undertaken excluded the separate oral history units of the Australian Institute of Aboriginal and Torres Strait Islander Studies and Koorie Heritage Trust. In Victoria, the Koorie Heritage Trust has responsibility for oral history, and institutions such as the State Library of Victoria refer inquiries to the Koorie Heritage Trust, rather than attempting to maintain their own collections of Indigenous audio- and video-recordings.

Table 1 provides a summary of the comparative profiles of each institution in relation to key characteristics and issues pertinent to the research. The rest of the paper elaborates on these issues.

### 3.2 Institutional Mission and Philosophy

Each cultural institution has its own distinctive function; collectively, these institutions enable access to recorded knowledge of Australian Indigenous cultural heritage. Aboriginal Affairs Victoria, the Koorie Heritage Trust Cultural Centre, and Public Record Office Victoria have a focus confined to Victoria.

Aboriginal Affairs Victoria works to protect in situ (in the landscape) Indigenous cultural heritage objects, such as a tree from which a canoe has been cut, rock painting, or sacred sites where remnants of past activities are visible. Aboriginal Affairs Victoria manages archaeological digs, uncovering Aboriginal artifacts. The contractor/researcher may be working with the local Indigenous community. Community members care for some of the finds; some remain in situ; others go to the Melbourne Museum.

The Koorie Heritage Trust Cultural Centre collects Koorie artifacts, pictures/paintings, and photographs. Collection acquisitions, whether donated or purchased, must contribute to understanding the Koorie way of life, past and present. Its heritage collection is being enlarged and enriched by contemporary objects to record the development of Aboriginal culture over time. The Public Record Office Victoria collects and preserves official documents emanating from Victorian Government departments and agencies, for official and public use. Its mission is of broad scope, and the nature of government business and the handling of records elude any neat subject categorization of Indigenous matters.

Aboriginal documentation is dispersed throughout the collection, and it must be sought in the records of relevant government departments.

From the 1850s, the other three Victorian institutions (Melbourne Museum, National Gallery of Victoria, and State Library of Victoria) formed a “cultural triangle” within one Melbourne city block. Later, the Museum and the Gallery moved to other locations, allowing expansion for the Library’s growing collection. Unlike Aboriginal Affairs Victoria, the Koorie Heritage Trust Cultural Centre, and Public Record Office Victoria, the collecting activities of these other institutions are not restricted to Victoria.

Melbourne Museum’s history reflects the strengths of staff interests in collecting Aboriginal artifacts, while working in the field well beyond the Victorian boundary. Within 50 years of settlement, European culture had a dramatic impact on Indigenous Victorians. By the time the Museum opened, there was little of the original Victorian Indigenous cultural landscape remaining to add to the Museum’s collection. While there are collections of Aboriginal anthropological information and artifacts from various parts of Australia, the strength of the collection is outside Victoria. The Museum has a collection of artifacts of archaeological importance. It is active in returning human remains, collected by Victorian institutions, to Indigenous communities. Collecting human remains for “scientific” purposes was once a common practice globally. The Museum’s mission is to build a representative Victorian Indigenous collection of appropriate museum objects but not to the exclusion of other Australian geographic areas. The State Library’s philosophy is similar.

The State Library of Victoria strives to collect documents, pictures, photographs, and manuscripts which reflect Victoria’s Aboriginal history anthropologically, culturally, and socially. The Library has built a strong Indigenous collection, which is an essential resource for Indigenous Victorians and researchers. It maintains a less developed collection for other parts of Australia, which are the province of the other state libraries. The Gallery is a collector of paintings and objects relevant to the Indigenous artistic culture Australia-wide.

Unlike the Victorian institutions, the Canberra-based Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Library and the Centre for Cross-Cultural Research at the Australian
### Table 1. Profile of Participating Institutions

<table>
<thead>
<tr>
<th>ISSUES</th>
<th>Aboriginal Affairs Victoria</th>
<th>Australian Institute of Aboriginal and Torres Strait Islander Studies</th>
<th>Centre for Cross-Cultural Research, ANU</th>
<th>Koorie Heritage Trust Cultural Centre</th>
<th>Melbourne Museum</th>
<th>National Gallery of Victoria</th>
<th>Public Record Office Victoria</th>
<th>State Library of Victoria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Mission / Philosophy</td>
<td>In situ preservation of Victorian Aboriginal cultural heritage</td>
<td>To support knowledge discovery and scholarship of Aboriginal Australians and Torres Strait Islanders</td>
<td>To foster research through institutional collaboration of Aboriginal Australians and Torres Strait Islanders</td>
<td>Ongoing Koorie support and preservation of their cultural heritage in Victoria</td>
<td>To collect, preserve, facilitate knowledge discovery and research, and to negotiate repatriation of Australian Aboriginal culture</td>
<td>To collect, preserve, and facilitate knowledge discovery and research of Aboriginal Australians and Torres Strait Islanders</td>
<td>To collect, preserve, and make accessible official records from Victorian government departments and agencies</td>
<td>To collect, preserve, and provide access to images, manuscripts, and printed material of Victorian Aboriginal culture</td>
</tr>
<tr>
<td>Collection Type</td>
<td>Landscape</td>
<td>Documents</td>
<td>Ideas (Research)</td>
<td>Artifacts, pictures, photographs</td>
<td>Artifacts (archaeological &amp; anthropological), human remains, manuscripts</td>
<td>Art works, paintings, artifacts</td>
<td>Records</td>
<td>Documents, pictures, photographs, manuscripts</td>
</tr>
<tr>
<td>Geographic Coverage</td>
<td>Victoria</td>
<td>Australia</td>
<td>Global</td>
<td>Victoria</td>
<td>Australia</td>
<td>Australia</td>
<td>Victoria</td>
<td>Australia</td>
</tr>
<tr>
<td>Means of Facilitating Knowledge Discovery for Indigenous People</td>
<td>Regional database on CD</td>
<td>Web access to library catalog with detailed metadata application</td>
<td>Facilitating research partnerships with between institutions</td>
<td>Exhibitions and availability of library for public use, Indigenous employees</td>
<td>Exhibitions, displays, educational seminars, Web-accessible information sheets, assisting individuals' inquiries</td>
<td>Photographing collection for Web access</td>
<td>Printed collection guides, detailed indexing of collection, specialized staff for assistance to the public, Indigenous employees</td>
<td>Exhibitions, Indigenous employees, working with the Koorie Heritage Trust to facilitate use of the Library. Color images available on the Web catalog and Picture Australia</td>
</tr>
<tr>
<td>Technological Challenges</td>
<td>Upgrades of software and moving to controlled Web-based access</td>
<td>Online Web thesaurus available free for global application</td>
<td>Web access of digitized resources</td>
<td>Connecting Australian Indigenous collections worldwide for easy access</td>
<td>Home-grown software and terminology. Concern for future network interoperability</td>
<td>Using the full potential of the EMu software, which promises uniformity with central database administration</td>
<td>Implementing the Vernon software with Web access to the collections. Potential for complex database discovery</td>
<td>Keeping abreast of upgrades to the database software and the digitization of records for Web access</td>
</tr>
<tr>
<td>Cataloging</td>
<td>Local mapping with ArcView; prescribed database fields</td>
<td>Detailed contents description</td>
<td>Not applicable</td>
<td>In-house rules. Backlog</td>
<td>Traditional museum practice since 1850s</td>
<td>Basic. Backlog</td>
<td>Broad, not detailed</td>
<td>AACR2 and LC subject headings</td>
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<tr>
<td>Metadata</td>
<td>Archaeological terminology, not Aboriginal</td>
<td>In-house thesaurus</td>
<td>Not applicable</td>
<td>In-house lists of descriptive terminology</td>
<td>In-house lists of descriptive terminology</td>
<td>Added by the Cataloging Section</td>
<td>Lodging institutions. On-site indexing projects</td>
<td>Library of Congress (LC) subject headings</td>
</tr>
<tr>
<td>Constraints</td>
<td>Web access not developed; limited resources</td>
<td>Limited resources</td>
<td>Limited resources; reliance on grants</td>
<td>Customized software; in-house development</td>
<td>Lack of resources, historical perspective</td>
<td>Limited resources to develop Vernon database</td>
<td>Information difficult to identify and locate</td>
<td>Limited resources</td>
</tr>
<tr>
<td>Collaboration/Partnership</td>
<td>National and State Libraries</td>
<td>Networking with interested institutions</td>
<td>Not developed. For example, see Titles Office</td>
<td>Koorie Heritage Trust with the SLV</td>
<td>Research institutions</td>
<td>Not covered in the interview</td>
<td>Koorie Heritage Taskforce; National Archives</td>
<td>Koorie Heritage Taskforce; Melbourne Museum</td>
</tr>
<tr>
<td>Working with Indigenous Communities</td>
<td>Regional officers and consultants</td>
<td>Indirectly by liaising with research staff</td>
<td>Research with communities</td>
<td>Not developed for KHT Cultural Centre, (unlike KHT Oral History Section)</td>
<td>Workshops; returning human remains</td>
<td>Not covered in the interview</td>
<td>Locally to improve access</td>
<td>Koorie Heritage Trust</td>
</tr>
<tr>
<td>Possibilities for Empowering Indigenous Australians</td>
<td>Use Aboriginal terminology. Collaboration/partnership</td>
<td>Digitization of resources for Web use</td>
<td>Access global resources on the Web</td>
<td>Cultivate liaison with Melbourne Museum, SLV, and Koories</td>
<td>Research and catalog the collection. Work with KHT</td>
<td>Web access with images of Indigenous resources</td>
<td>Greater Web access and detailed indexing</td>
<td>Use of AIATSIS thesaurus terms for federated searching</td>
</tr>
</tbody>
</table>
National University (ANU) have a national focus. While primarily collecting resources for AIATSIS staff, the AIATSIS Library is a specialist library for Aboriginal Australian and Torres Strait Islander studies. By default, it is the national resource center for library materials and the leader in this culturally significant field. It is frequently consulted by the state library as a complementary resource to its own collection. The AIATSIS Library mission is for Australia-wide resource coverage, including the Torres Strait Islands.

The research center at the ANU is not restricted geographically. Its research projects pertaining to Indigenous topics develop from well-grounded preliminary investigations and discussions with those active in the field inside and outside Australia. Museums throughout the world have collections of Australian Indigenous artifacts (one example is the Pitt-Rivers Museum in Oxford, England). The research center explores ways to facilitate knowledge discovery for Indigenous Australians, irrespective of the location of the cultural heritage objects/materials.

Today, Arnhem Land in the Northern Territory provides opportunities for the Museum and the Gallery to engage with Indigenous communities in their traditional ways. Overall, European culture has had less of an invasive impact on the traditions of these societies than it has in Victoria. Many remote Indigenous communities grapple with the destructive effects of alcoholism and drug addiction, as the youth confront cultural tensions between their traditional lifestyle and the dominant Western culture. A key to tackling these social dysfunctions has been the restoration of pride in their Indigenous cultural heritage. The rise of local tourism and the establishment of Indigenous cultural centers (which liaise with other Australian cultural institutions) have provided opportunities for remote Indigenous communities to engage with the wider world. ICTs have been integral to this development.

3.3 Facilitating Knowledge Discovery for Indigenous People

3.3.1 Technological Challenges

Rapid technological advances have provided the impetus to achieve remarkable feats in knowledge discovery for Indigenous people. Without current ICTs, accessing dispersed collections of Indigenous objects would be impossible. These cultural institutions are making tentative steps toward opening up their collections for knowledge discovery from remote locations. This section summarizes both the technological challenges facing the eight institutions and the ways in which they are facilitating knowledge discovery for Indigenous Australians.

Aboriginal Affairs Victoria’s Heritage Registry database is made available by region for use by local Indigenous communities for their cultural heritage programs—enabling information access at the regional office level. Aboriginal Affairs Victoria does not provide access to the public, so the development of Web-based access is a timely approach for incorporating changes (and replacing the former quarterly produced CDs). Upgrades to its ArcView software, the capability of 3-D presentation, and the ongoing application of ArcView’s GIS module for geographic representation of the Indigenous landscape are ever-present challenges.

Similar technological challenges are evident for all other institutions. ICTs are a vital component for facilitating knowledge discovery for Indigenous people. The Koorie Heritage Trust Cultural Centre is developing home-grown software, which is unusual today, with the plethora of software packages available off-the-shelf. The sophistication of the software increases in tandem with the growth of the collection. (It appears that this approach is seen as a convenient way to go in a self-contained institution.) It presents a concern for future network interoperability for knowledge discovery where there is ad hoc development for a particular institution. The exhibitions at the Koorie Heritage Trust gallery, the engagement of Aboriginal employees, and the availability of a library for public use provide support to those searching for knowledge about the Koorie cultural heritage.

The Melbourne Museum is addressing an enormous technological challenge: centralizing the database administration from sectional control and implementing the EMu software. EMu offers unprecedented complexity of search discovery and control over its collection. Some of the ways the museum is assisting knowledge discovery for Indigenous people are through exhibitions and displays, educational seminars, Web-accessible information sheets, and assisting individual inquiries.

Similarly, the National Gallery of Victoria is facilitating knowledge discovery about its collection by implementing the Vernon software. It has completed photographing its Australian Indigenous Col-
lection to input into the database, which will allow Web access to its collection. The Vernon software, like the EMu software, offers great potential for complex questioning of the database for knowledge discovery.

The Public Record Office Victoria (PROV), as all the institutions with custodial collections, has the ongoing challenge of system upgrades. Access to the collection is facilitated by provision for advance online bookings of records at its website, and for subsequent use at PROV at a specified time. PROV has specialized staff to assist the public in knowledge discovery, with some Indigenous employees facilitating communication with Aboriginal Australians.

The State Library of Victoria uses the popular Voyager library system and needs to keep abreast of upgrades to the database software. It is challenged by its digitization program aiming for access to collection resources online on the Web. In its online Web catalog, color images of pictures are available for access. The state library is a participant in the popular National Library of Australia Picture Australia database. It is opening up picture resources throughout Australia, thereby enabling remote access for Indigenous people via the Internet.

The Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Library’s Web-based catalog with detailed metadata application is available via the Internet. Libraries Australia, the National Library of Australia’s online union catalog of holdings of contributing Australian libraries, complements the AIATSIS catalog by suggesting other library locations closer to home. Two areas proving technologically challenging for AIATSIS are making its online Web thesaurus available free for global application, and facilitating Web access to digitized resources.

The Centre for Cross-Cultural Research addresses the ongoing challenges of technology in its research strategy. It has a vision of global access to institutional custodial collections worldwide. This encompasses connecting Australian Indigenous collections for easy access from one Web location, such as a portal, and using the Internet as the vehicle to facilitate access to the digitized resources.

3.3.2 Cataloging and Metadata
The quality of cataloging and the application of metadata elements (subject, author, etc.) within the collection’s catalog records are crucial in the application of sophisticated software for complex discovery of resources. The gallery has the Vernon software, which has great potential for resource discovery, but first, the foundations need to be laid to accommodate this development. There is a cataloging backlog, and the institution has historical challenges with cataloging practice and terminology, all of which need to be corrected and aligned for optimal discovery of resources by the advanced software.

The same can be said for the Melbourne Museum and the State Library of Victoria, with their collections dating from the mid-1800s. The museum has in-house lists of terminology, which need to be researched in conjunction with the historical records contemporary for the times. The State Library of Victoria cataloging and terminology has evolved over 150 years, with existing records not updated at the time of major changes. It is hoped that the state library will adopt the AIATSIS thesauri now that the Library of Congress has recognized these subject-headings lists and advocated their use. The Library of Congress subject headings were underdeveloped for use for Australian Indigenous resources, which had posed a problem for many years.

Given its relatively recent origins, the Koorie Heritage Trust Cultural Centre does not have such a historical backlog of records to address in its online catalog. However, its in-house cataloging practice, including metadata application from its own lists, is a concern in that it is developing in isolation from similar institutions in the field.

The Public Record Office Victoria has its own set of problems in facilitating knowledge discovery because of the nature of official records and the way these are handled. The lodging institutions provide broad, but not detailed cataloging and descriptive terms for their documents. More detail is provided by organizations lodging electronic records. PROV is addressing this issue by undertaking indexing projects, and when Indigenous information is uncovered by chance, it is indexed. Published guides to the collection that assist Indigenous people with finding family connections are particularly useful.

Aboriginal Affairs Victoria is unique among the institutions in dealing with resources in the landscape. It relies on consultants and archaeologists to provide detailed descriptions of these resources on prescriptive forms. Interestingly, the Indigenous communities assisting in these ventures use archaeologi-
cal terminology and European place names, rather than their own language terms. Aboriginal heritage is couched in European language to bring it in line with scientific practice. This is unfortunate, as the Aboriginal language names for objects and places peculiar to an area/particular Indigenous community could be lost. Language is an integral part of any culture. To lose the Indigenous names for locations goes to the very heart of undermining the cultural heritage and memory of an Indigenous community. This needs to change so that both of these aspects are recorded officially.

3.4 Constraints to Knowledge Discovery

The major constraint to facilitating knowledge discovery for Indigenous Australians at the eight institutions studied was limited human resources. The impact of working with insufficient resources is felt most by the large institutions, such as the museum and the gallery. These institutions are grappling with the implementation of new systems for their collections and the challenges of transitioning to improved technology to achieve the optimal outcome for their requirements. Grappling with the enormous relocation of museum collections to a new building ensured that boxed artifacts remained so. A hold was placed on promoting the inquiry service, as insufficient staff members were available for handling an increase in inquiries.

Unregistered and uncataloged backlogs are evident at both the museum and the gallery. The implementation of the Vernon software at the gallery cannot fulfill its potential until the system’s foundations are in place. Detailed subject indexing of resources is needed to make use of the power of resource discovery that the new technology offers. At the Koorie Heritage Trust Cultural Centre, the uncataloged photographs are boxed for future attention when resources are available. The state library and Australian Institute of Aboriginal and Torres Strait Islander Studies require financial assistance to expand their digitization programs to enable Internet access to important resources Australia-wide and globally. The research center needs financial resources so that its dream of interconnected worldwide access to Australian Indigenous objects can be realized.

Both Aboriginal Affairs Victoria and the Public Record Office Victoria would be able to develop areas of knowledge management for Indigenous communities more satisfactorily with additional resources. Land titles need to be annotated with Aboriginal Affairs Victoria information so that, when a title is transferred, a new owner, at the time of purchase, is aware of any culturally significant areas on the land. The Public Record Office Victoria has moved to new premises. While its collection is linear in arrangement by government departments and agencies, access to detailed information is possible by indexing. This is greatly needed to facilitate knowledge discovery by Indigenous communities.

3.5 Addressing Issues and Constraints in Knowledge Discovery

To address issues and constraints of knowledge discovery and empower Indigenous communities, cultural institutions need to collaborate with each other and with Indigenous communities. Aboriginal Affairs Victoria is not an active participant in developing lines of communication with other institutions (as are the research center, museum, public record office, and state library), although it has worked with Indigenous communities on special projects. For example, in its Lake Condah Fish Traps project, Aboriginal Affairs Victoria worked directly with the local Indigenous community in western Victoria to develop 3-D software to demonstrate how the ancient fish traps worked; this involved looking at water levels and how water would move through the traps. At the Koorie Heritage Trust Cultural Centre, networking is not developed, although the Koorie Heritage Trust Oral History Section is reliant on networking for the success of its work with Koorie communities. The public record office and state library are active members of the Koorie Heritage Taskforce, which has been responsible for publishing the guide for assisting in discovering cultural heritage memories and family relationships. The public record office networks with the Canberra-based National Archives and other state record offices. The state library works with the museum and the Koorie Heritage Trust. The Koorie Heritage Trust is the center for Victorian Indigenous oral history. The state library does not collect in this area by mutual agreement. As the Koorie Heritage Trust is responsible for maintaining this resource area, all inquiries at the state library for the use of this
resource are sent to the Koorie Heritage Trust Oral History Section.

The Australian Institute of Aboriginal and Torres Strait Islander Studies Library works indirectly with Indigenous communities by liaising with AIATSIS research staff, who have direct contact with Aboriginal communities and Indigenous employees. It has cultivated relationships with the National Library of Australia and the state libraries. The museum collaborates with research institutions, including universities. It works with Indigenous communities through workshops and answering individual inquiries. Museum collection objects are being reproduced for repatriation to communities in digitized form, at the request of the communities. Also, the Museum is actively engaged with Indigenous communities over the return of human remains from its collections to those communities. The research center networks with institutions throughout Australia and abroad, undertaking research with Indigenous communities.

Findings highlighted several important issues in developing systems for knowledge discovery by Indigenous Australians; two of these are discussed below. One concerns the importance of systems and services being sensitive to Indigenous cultural values. Recently, most Australian cultural institutions have adopted protocols and policies to govern the development of services for Indigenous people, as well as guidelines for interaction with Indigenous communities (e.g., National and State Libraries Australasia, 2007). Formally implementing such protocols raises awareness of these issues and helps to ensure valuesensitive design of systems and services for Indigenous peoples. All interviewees revealed great sensitivity to the need for their institutional systems to respect Indigenous cultural values—for example, in relation to the treatment of “secret” or “sacred” objects and who could have access to them.

Another significant issue relates to the need to develop systems that reduce reliance on human gatekeepers. This is particularly critical in this sector, given the severe resourcing constraints faced by most cultural institutions. The public record office had made some progress in this area with special projects for indexing Indigenous resources—normally, finding Indigenous materials in a public records depository is highly labor intensive, requiring specialist knowledge.

3.6 Possible Future Directions for the Indigenous Cultural Heritage Collections

There has been a remarkable change in community attitude toward Indigenous Australians since Prime Minister Kevin Rudd made an official public apology to Indigenous Australians in 2008. The 2009 Australian of the Year was Professor Mick Dodson, from the Australian Institute of Aboriginal and Torres Strait Islander Studies, who has been a vocal advocate for the Indigenous community. Such attitudinal changes act as a catalyst for programs aimed at empowering Indigenous Australians through institutional knowledge discovery and education.

Aboriginal Affairs Victoria can be more proactive in this area by adopting Aboriginal terminology for use in its Heritage Registry database alongside its current use of archaeological terminology. Developing collaborative ventures/partnerships, such as with the titles office, would help Indigenous Australians to connect with their past. A positive step for the Koorie Heritage Trust Cultural Centre is cultivating liaisons with the museum, the state library, and Koorie communities. It needs to catalog its collection of boxed historic photographs. The museum has an enormous task of registering, cataloging, and researching a collection spanning over 150 years so that the new discovery software can be applied optimally. The museum and the Koorie Heritage Trust need clarification on collection policy for Victorian objects, and in particular, on policy concerning those appearing at auction. By opening up the custodial collections, pathways are provided for restoring memory and repatriation of objects, helping to empower communities through knowledge discovery of their heritage.

While the gallery is grappling with system and cataloging issues, its aim for Web access to records for Indigenous resources with attached images is a policy moving in the right direction. The public record office is working to provide greater transparency to its collections by digging deep. Through information mining and indexing of Indigenous resources, its Web-based resources can be enriched by future enhancements. The state library and the museum are moving toward Web access to their resources to make their collections available to distant users. Again, this is a positive step, although these are long-term projects. The state library needs to reassess its indexing terminology for Indigenous

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resources, now that AIATSIS thesauri terms are being supported by the Library of Congress. Uniformity of terminology use by institutions is a step toward federated searching\(^5\) and interoperability on the Web. The vision for empowering Australian communities through knowledge discovery is laid out by the research center. Digitization can penetrate institutional walls so that there is global access to Indigenous Australian objects on the Web.

4. Conclusions and Suggestions for Further Research

The case studies reported here have shown how museums, libraries, archives, and galleries are, in a range of ways, valuable institutions of memory for Indigenous Australians. Such cultural institutions provide an opportunity to both explore the past and understand the present. At an individual level, they hold the key to a family's history. Understanding the past and finding one's heritage are of the utmost importance to an individual's ability to both develop a sense of belonging and self-respect, and to move forward with confidence.

Since the 1990s, the rapid development of ICTs has revolutionized the way these cultural institutions perceive their role. Increasingly, they are utilizing digital technologies to open up access to their Indigenous cultural heritage collections, both within and outside of institutional walls. These technologies are also enabling fundamental policy changes in relation to the ways these institutions interact with Indigenous communities. For instance, by capturing digital images of Indigenous cultural objects, the original object may be repatriated to the particular Indigenous community from which it was taken. Similarly, the digital capture of an Indigenous heritage archaeological site may facilitate its preservation.

There is great potential for empowering Indigenous Australians through knowledge discovery of their cultural heritage. However, the case study findings highlight the multiple constraints facing cultural institutions in realizing this vision. First and foremost is the resourcing issue—finding ways to fund Indigenous knowledge discovery projects and to maintain required funding over the longer term after initial project funding has run out is paramount. Digitization projects are highly resource-intensive. The lack of needed human resources is a perennial issue, for example, to catalog and organize current and historical institutional collections according to approved standards. Different taxonomies used in institutions can pose problems for knowledge discovery, inhibiting federated searching. One success in standardizing Indigenous terminology has been the Library of Congress's adoption of the AIATSIS thesauri for describing Australian Indigenous topics; this will encourage adoption of this standard terminology in libraries worldwide.

Important ways forward for these institutions are the following: to develop partnerships more fully, and to collaborate with one another at a national and regional level; to build respectful relationships with Australian Indigenous communities by encouraging two-way discussions with institutions; and to support the training of Indigenous people to work in Australian institutions to break down communication barriers. It is by working together and understanding each other's cultures that empowerment of Australian Indigenous communities can be possible.

The current research has provided a state of the art review of how a cross-section of Australian cultural institutions with Indigenous cultural collections manage and organize their heritage materials to facilitate knowledge discovery by Indigenous Australians. It has provided a starting point or foundation on which subsequent researchers can build. The findings highlight several important fields of further inquiry.

At the local level, it would be desirable to undertake a longitudinal study by revisiting these cultural institutions over time and tracing their progress toward achieving the goal of empowering Indigenous Australians through knowledge discovery of their cultural heritage. Of particular interest is how these institutions are applying emergent ICTs, especially social technologies, in creative ways to facilitate knowledge discovery. Also of value would be expanding the scope of investigation geographically, to cultural institutions in other states, and by type of memory institution, such as war memorials. In terms of particular problem areas, research is needed to evaluate both the success of programs for the repatriation of Indigenous objects to Indigenous communities and schemes for the management of in situ Indigenous heritage materials; and in particular, to

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5. Federated searching is where the resources of several institutions are searched simultaneously.
examine how ICTs can facilitate the process (for example, through digital capture of images of Indigenous objects). An important area for follow-up research is broadening the scope of investigation internationally, to find how cultural institutions outside Australia are dealing with similar issues. For instance, how are ICTs being applied to facilitate knowledge discovery of cultural heritage with other indigenous peoples or disadvantaged communities?

As Indigenous communities are developing the confidence to inquire about their culture, cultural institutions have a pivotal role to play in restoring the memory of Indigenous heritage through institutional knowledge mining. While there are significant constraints, through the development of effective partnerships and collaboration between governments, institutions, and Indigenous communities, substantial progress can be made toward achieving the vision of empowered Indigenous communities.

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