



Towards Government 2.0

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Contents

Executive Summary	4
Introduction	6
Key Questions	8
Key Issues and Concepts	19
Industry Facts	20

Executive Summary

1. SIBA recommends that COAG be encouraged to establish an **Information Agenda Ministerial Council**. With the Commonwealth and each state and territory in the process of appointing an information commissioner (or similar authority), this could form the nucleus of the 'officer' component of the proposed Ministerial Council. This proposal is not inconsistent with the **Federal Geographic Data Committee (FGDC)** in the USA, which includes within its membership representatives from the Executive Office of the President, and Cabinet level and independent Federal agencies. Numerous stakeholder organisations participate in FGDC activities representing the interests of **state and local government, industry, and professional organisations**.
2. SIBA recommends **mandating the use of alternative, minimal, and automatically generated metadata for spatial datasets** as one of the key mechanisms for making more government data searchable and usable, including legacy data.
3. SIBA further recommends that the Government:
 - Mandate the delivery of the data in **standard formats**.
 - Create a National Spatial Data Infrastructure (NSDI) to facilitate the discoverability process.
 - Adopt copyright provisions that encourage the use of data in value added applications (such as Creative Commons).
 - Making all data available by default unless a case to the contrary is sustained.
 - Making the data accessible at no cost to third parties.
 - Provide exemplars both for sharing/publishing and using the information.
 - Reward best practice.
 - Implementation Web 2 applications and services that can be shared across government agencies.
4. The **default position of government should be one of open access** to Public Sector Information.
5. Governments must **appropriately fund** the acquisition and maintenance of data.
6. There is **currently no minister within any level of government with the appropriate policy governance** responsibility for spatial information so policy tends to be ad hoc.

7. SIBA recommends **mandating the use of alternative, minimal, and automatically generated metadata** for spatial datasets as one of the key mechanisms for making more government data searchable and usable, including legacy data.
8. SIBA believes that governments must make **mandatory provision of spatial data in interoperable formats by all Government organizations** a top priority as it is the key to its consumption by others.
9. SIBA believes that is arguably better to **'just publish'** on the basis that any data is better than no data.
10. SIBA supports the Report the Productivity Commission (2001) that 'in some cases, **cost recovery charges may act as barriers to the market entry of new firms** or products. This may occur because the lack of property rights over regulated products creates 'free rider' problems.
11. SIBA has long believed that governments do not take advantage of the extensive expertise that exists in business and professional associations. There is no hope that government will extract value from community engagement if it cannot engage with established 'think tanks' within the Third Sector - particularly business and professional associations. **These bodies harness significant untapped (by governments) intellectual talent.**

Introduction

The Spatial Industries Business Association (SIBA) is the peak body representing spatial information industries in the private sector. The Association was formed in response to the recommendations of the Spatial Information Industry Action Agenda, which was completed in 2001.

SIBA represents the 'spatial industries interests on issues specific to spatial businesses. Its members are significant producers, managers and users of spatial data infrastructure. They provide data collection and value-added services to government, industry and the community. However, the industry and its productive relationship with the Australian community is facing some serious constraints to developing and using spatial data. These constraints should be addressed, urgently. The Government Web 2.0 Taskforce Review provides such an opportunity.

Since the formation of [A]SIBA in 2001 the issue of access to public sector information – specifically spatial information – has been a cause for concern and friction. In fact this very issue may be at the root of much of the suspicion that exists between government agencies and the private sector.

It is arguably the case that the root cause of the drive for cost recovery for public sector information is based more on the failure of governments to adequately fund information programs than on a desire to profit from the sale of data products.

The reality is that public sector data is increasingly a significant component cost for many new and exciting technologies and products.

A report by the Productivity Commission in 2001 noted that agencies are increasingly turning to cost recovery to fund their activities and products. It also noted that where new agencies are created that they have a presumption in favour of cost recovery. The Report estimated that cost recovery revenues were in excess of \$3 billion in 1999-2000 and that it had grown by 24% in real terms since 1995-1996.

A more recent study by ACIL Tasman of the economic impact of spatial information to the economy noted that cost recovery mechanisms have the potential to distort the allocation of resources in the economy and ultimately reduce living standards. As with the earlier Report by the Productivity Commission, ACIL Tasman concluded that these arrangements can often create perverse financial incentives that are incompatible with overarching government objectives including reducing competition and innovation; and encouraging regulatory creep and cost padding by agencies.

It is our view that government policy has failed to keep pace with a rapidly changing technologically connected world. Furthermore, if this is not addressed as a matter of urgency the consequences for Australia's competitive advantage could be eroded and our future job creation irreparably harmed.

In contrast to Australian, the USA (where public information is, by law, provided at the cost of distribution) has seen the development of a thriving spatial industry based on open access and no cost of spatial data. This industry includes, among others, organizations that value add to the government supplied data, consultants who are able to provide cost effective services to private and public sector organizations, and technology providers that benefit from a higher demand, which is a direct result of availability of data and the willingness to use such resource.

Key Questions

Q1. How widely should policy be applied to optimize the openness of public sector information? Should it be applied beyond government departments and, if so, to which bodies, for instance government business enterprises or statutory authorities?

The Victorian Parliamentary Inquiry into Improving Access to Victorian Public Sector Information and Data recommended that the **default position of government should be one of open access to Public Sector Information (PSI)**. SIBA is strongly in support of this position.

The application of open access to PSI should **include all levels of government (national, state and local) and include Government Business Enterprises (GBE) and statutory authorities** unless it can be demonstrated that such availability is not in the public interest. Many GBEs hold monopoly positions and freedom of access to information is the only way that a GBE can be held accountable for its decisions. GBE's exist within state governments and tend to leverage monopoly positions that are contrary to the fostering of a strong industry. They also tend to pursue revenue at the expense of satisfactorily meeting their 'public good' obligations.

Failure to include GBEs in a general opening up of access to information would serve to encourage shifting of PSI to GBE control or to establish a plethora of new GBEs as a mechanism for avoiding compliance.

The spatial industry already feels the constraints and market distortion effects of GBEs within the sector. These bodies have the potential to (and some do) operate in a predatory manner that hinders innovation, adds cost, and delivers unfair competition and increased costs to the private sector.

Q2. What are the ways in which we build a culture within government which favours the disclosure of public sector information? What specific barriers exist that would restrict or complicate this and how should they be dealt with?

One important action government can take to ensure wide application and use of spatial data is to establish a national advisory committee, similar to the Federal Geographic Data Committee in the USA.

'The FGDC is a 19 member interagency committee composed of representatives from the Executive Office of the President, and Cabinet level and independent Federal agencies. The Secretary of the Department of the Interior chairs the FGDC, with the Deputy Director for Management, Office of Management and Budget (OMB) as Vice-Chair. Numerous stakeholder organizations participate in FGDC

activities representing the interests of state and local government, **industry, and professional organisations**.¹

The Committee would promote the **coordinated development, use, sharing, and dissemination of spatial data on a national basis**. This nationwide data publishing effort is the National Spatial Data Infrastructure (NSDI). The NSDI is a physical, organizational, and virtual network designed to enable the development and sharing of Australia's spatial information resources.

At present, in Australia, there is **no coordinating body for spatial information** within the national government. The formation of a coordinating body must include private sector representation if it is to forge a cooperative and efficient response to Web 2.0.

Government agencies require **incentives to ensure that data is made available to the wider community**. One way could be to provide funding incentives to not only capture and maintain data but also, as part of the development process, publish the data on the Internet/Intranet.

Agencies should be encouraged to search for available online resources to determine if the data they need already exists in an online published form. If it is available from another source then there should be a requirement for the agency to subscribe to the service, rather than acquire a copy of that data and host it themselves. This is 'Information as a Service' model (IaaS).

Governments must appropriately fund the acquisition and maintenance of data. This is best done through a whole of government policy based on data standards. It is not necessary to hold data in a central repository. Rather, data can remain as close as possible to its 'point of truth', typically the custodial agency, and the Internet becomes the connection mechanism, which is supported by interoperable standards.

Solutions for the capture and maintenance of [spatial] data are typically developed in 'stovepipe' environments that arise from **insufficient funding allocations** to encourage open access, and a lack of any government policy to support and encourage a data sharing culture. The results are that we perpetuate stovepipe solutions and, as a result, are encouraging an inefficient culture of data replication and redundancy.

The Shared Land Information Platform (SLIP) model in use in Western Australia is an example of Government successfully deploying information as a service. Each contributing agency remains the custodian of their data set, and they publish it to

¹ The Federal Geographic Data Committee, *Organisational structure and purpose*, www.fgdc.gov

SLIP as a web service. It is accessible to all and the latest information is always published.

There is currently no minister within any level of government with the appropriate policy governance responsibility for spatial information so policy tends to be ad hoc. The leadership vacuum is often filled by agencies intent on building commercial capacity to increase revenues. The Productivity Commission² in 2001 noted that agencies are increasingly turning to cost recovery to fund their activities and products.

It is **important that governments realize and respond to the perceived risks** in the creation of an open access policy for Public Sector Information (PSI). There would appear to be a number of **cultural barriers to open access** to PSI:

- A firm commitment within agencies to the truism that ‘knowledge is power’ rather than the concept that ‘the application of knowledge is power’, which is best achieved through open access for the community.
- Agencies develop policy, processes and responses based on information only they hold. Therefore, there is strong reason to not make information available so that counter arguments are less effective.
- Information held in control means that it can be interpreted, selectively quoted and manipulated to sustain a particular position.
- Agencies do not see themselves as part of a ‘whole of government’, therefore jealously guard **their** data, which has been funded from **their** limited resources.

Q 3. What government information should be more freely available and what might be made of it?

The question might better have been posed as: “what [spatial] data should arguably be excluded from being made available freely, why, and how could any barriers be removed?”

All fundamental spatial and associated/selective aspatial data should be available to the community, other agencies and business in its raw form, from which value added products can be developed and traded to end users. Typical data sets of value include cadastre, topography, administrative areas and points of interest.

Delivery of this spatial data is best managed through a National Spatial Data Infrastructure (NSDI), which will form the basis for many new and innovative applications. A good example of this is www.numaps.com.au, which is a value added service that could be built atop of an NSDI, but is currently publishing ABS data in an NSDI format to deliver its value added services.

² Productivity Commission, *Cost Recovery by Government Agencies*, August 2001

Q 4. What are the possible privacy, security, confidentiality or other implications that might arise in making public sector information available? What options are there for mitigating any potential risks?

The creation of appropriate rules governing the release of PSI to the public is essential to protect privacy, security and confidentiality. To a large degree these rules already exist in relation to the Freedom of Information legislation. Education and awareness raising can assist in assessing the severity of any 'potential risk' (no government activity is ever risk free).

The Australian Bureau of Statistics (ABS) has appropriate methods for distributing potentially confidential and privacy related information through the of grouping of information. It is arguable that the ABS maintains some of the most potentially significant private information yet is still confident in the level of protection provided to individual households.

Perhaps the most concerning aspect of privacy, security and confidentiality relates to information collected during a significant event in which property or lives are lost. To release information before an appropriate investigation is carried out either by police or the Coroner would be detrimental to persons involved. This information must be protected.

This should not limit the availability of general information about potential or imminent threats to enhance survivability and limit loss of property or life. Such information need have no analytical content but be merely factual. Appropriate metadata should accompany this data.

Q 5. What is needed to make the large volume of public sector information (a) searchable and (b) useable? And in each case, what do we do about legacy information in agencies? How might the licensing of on-line information be improved to facilitate greater re-use where appropriate?

In the case of spatial data, a certain level of 'metadata paralysis' can be observed - where agencies focusing on completing full ANZLIC/ISO metadata as an absolute prerequisite before publication. The ANZLIC/ISO metadataset is a highly complex, complete metadata schema. Collecting and populating such metadata, especially for legacy datasets, is a sheer impossibility and a very expensive exercise.

For the majority of datasets, much simpler metadata (Dublin core, AGLS) sets serve the key use-cases of human discovery and usage, and can be largely automatically generated at creation, or from legacy datasets using automatic (spatial) indexing technologies.

SIBA recommends mandating the use of alternative, minimal, and automatically generated metadata for spatial datasets as one of the key mechanisms for making more government data searchable and usable, including legacy data.

Q 6. How does government ensure that people, business, industry and other potential users of government information know about, and can readily find, information they may want to use, for example, the use of a consolidated directory or repository for public sector information?

There are a number of ways of achieving this outcome. From a spatial perspective, the most powerful way is to ‘put it on a map’. Most citizens will be interested in information pertaining to their neighborhood, national park, etc. Making sure all **published government information has at least a location tag**, allows the public and/or aggregators to make the information geographically discoverable. As raised in the response under Q5, automated spatial indexing technologies are mature and widely available to assist in this process.

Q 7. Should governments mandate that information should be only kept and stored in open and publicly documented standards? Could such a stipulation raise costs or reduce flexibility?

Mandating that the format for data storage be ‘open’ will benefit organizations in the medium term. However, it is not essential to the provision of the data, provided that it is possible for the information to be supplied or served in a standards-based format. But, the storage of data in proprietary formats may hinder its cataloguing and subsequently the discoverability process itself.

The **mandatory provision of spatial data in interoperable formats by all Government organizations** must be a top priority issue as it is the key to its consumption by others.

There are several well defined standards applicable to the delivery of spatial data and the technology chosen for such implementation must be compliant with all of them in order to guarantee access to data for different purposes and not just for viewing. Standards to deliver data for consumption into value adding processes must be fostered by Government as a means by which to stimulate economic activity and growth.

Q 8. What approaches should the Government use to allow information to be easily shared?

- Mandate the delivery of the data in standard formats.
- Create an NSDI which will facilitate the discoverability process.
- Adopt copyright provisions that encourage the use of data in value added applications (such as Creative Commons).
- Making all data available by default unless a case to the contrary is sustained.
- Making the data accessible at no cost to third parties.
- Provide exemplars both for sharing/publishing and using the information.
- Reward best practice.

Q 9. How can the initiatives and ideas of agencies be harnessed for the benefit of agencies across government? How can duplication of effort be avoided?

The implementation of an NSDI. The release of data at no cost to third parties. Implementation Web 2 applications and services that can be shared across government agencies. All of which will result in the reduction of infrastructure and human resource costs.

Q 11. What should government do to foster a culture of compliance with information and records management policies and best practice?

Instigate accountability for non-compliance with mandated standards.

Q 12. What recordkeeping challenges are posed by both the re-use of government information, and in the mechanisms of development of government policy and practice through interactive citizen engagement?

This will depend on how restrictive the license to re-use information is. The less restrictive the policy adopted the less record keeping, and the more economical the process will be. Maximizing the re-use of data will foster economic activity and growth.

Q 13. How does government manage the costs and risks of publication of inaccurate information?

The dissemination of the information is a fundamental mission of government and must be implemented as such. The cost of the require infrastructure will be paid back by the returns gained from increased economic activity.

Q 14. What criteria might we adopt in ensuring that agencies make data available in a reasonable time-frame? (And how might we define a 'reasonable time-frame'?).

Once the infrastructure is in place, there should little delay between acquisition and dissemination. However, this delay could be used by agencies that are reluctant to change to keep information out of the public domain.

A small **arbitration body** with representatives of government and business organizations should be created to resolve disputes.

Accountability at management level in Government organizations will be a key factor in the prompt delivery of data to the public.

Q15. It often takes quite some time to compile and create consistent and reliable data – especially for large data sets. When is it appropriate to release limited and possibly less accurate data and where is it appropriate to wait for higher quality and more extensive data?

Published data should be accompanied by quality indicators (metadata) that describe the data's currency, lineage and, in the case of spatial data, its spatial

accuracy. From these indicators the responsibility for use moves to the consumer. User beware principles apply.

This also means that data quality can be variable but can improve with subsequent releases. The **metadata** becomes the key vehicle for these indicators and should be consulted during the data discovery process.

Q15 cont. Where various principles are in some tension with each other, for instance quality and cost or timeliness, how should trade-offs be made?

It is arguably better to 'just publish' on the basis that any data is better than no data. The onus is therefore on the consumer to ensure that the acquired data is fit for purpose.

Q17. What sort of public sector information should be released under what form of copyright license? When should government continue to utilise its intellectual property rights?

Digital rights management (DRM) is an area of pressing interest, as the internet has become the primary means of access and the distribution for digital data of all sorts, including spatial information.

In the spatial information area the Open Geospatial Consortium (OGC) is one of a number of organisations developing digital rights management architectures for spatial information. An important development that is gaining widespread support is the development of a Government Information Licensing Framework (GILF).

The GILF offers the prospect of a legal environment of standardised terms and conditions within which all government information transactions would occur. One avenue of facilitating information sharing across jurisdictions that is being developed is the Creative Commons licensing regime. Creative Commons defines a spectrum of licensing possibilities between full copyright – all rights reserved – and the public domain – no rights reserved. This regime potentially provides another legally effective information licensing framework to facilitate the sharing of information.

The Queensland Government has developed such a Creative Commons license template for potential adoption across Australia. This may provide direction for a national approach. There is a need for national leadership to develop a fully national licensing framework to achieve a seamless national economy as envisioned by COAG (COAG, 2 October 2008).

Q 18. When should agencies charge for access to information?

If there is a failure of the private sector to build value added products from fundamental spatial data sets, the Government should be able to charge for the value added products it builds. However, they should also encourage the private sector to develop applications in this space and retreat once the private sector provides an

equivalent or better value added service. The risks associated with this development should reside in the private sector not in government.

It must be noted that the main cause hindering the private sector in the development of commercially viable value added products has been the high cost and copyright restrictions on data imposed by Government organizations.

Q 18. Should agencies charge when they are providing value-added services?

The Productivity Commission³ stated that, in all cases, ‘cost recovery should not be implemented where:

- it is not cost effective;
- it would be inconsistent with policy objectives; or
- it would unduly stifle competition and industry innovation (for example, through ‘free rider’ effects).’

In general, government agencies should not be ‘in the business’ of providing value-added service. However, if this is an appropriate action in a particular circumstance then the change should reflect commercial realities.

Q 18. What might constitute ‘value added services’ (e.g. customisation of information)?

Web applications that use the fundamental data, plus other data, which deliver functionality that is specific to a particular process or part of a process. For example, Google Maps is an application that presents Government data within a responsive online mapping viewer. Governments have collected the raw spatial data for statutory purposes (for their own needs) and Google has produced contextual maps. Just as government agencies should not duplicate data collected or produced by other agencies, nor should they replicate the products already developed by the private sector.

In a Web 2.0 environment, applications that enable untrained users to generate reports requiring complex data analysis can be carried out through standard “Web Processing Services” (WPS). WPS is a way of encapsulating complex processes and exposing them to untrained users through interactive Web services. For example, cross country mobility maps could easily be accessed on demand by Scout groups or 4x4 drivers planning their next adventure.

Q 18. In what circumstances should agencies be able to recover the costs of obtaining the information or providing access?

Where a government agency is asked to generate a spatial product for a customer, and in the absence of a credible private sector supplier/provider, then there is a case for an agency to charge for a data product on a cost-of-delivery plus

³ Productivity Commission, *Cost Recovery by Government Agencies*, August 2001

basis. However, it is generally considered not to be a function of a government agency to engage in commercial activity at the expense of its statutory obligations.

SIBA sees cost recovery as a small step to engaging in commercial activity. A Productivity Commission Report in 2001 stated that 'cost recovery arrangements generally lack the attributes of good policy' and that most 'are ad hoc and lack transparency'. It goes on to say that 'the processes demonstrate poor accountability and review mechanisms'.

In its Report the Commission noted that 'in some cases, cost recovery charges may act as barriers to the market entry of new firms or products. This may occur because the lack of property rights over regulated products creates 'free rider' problems.

'Even where the absence of property rights is not an inhibiting factor, the level of cost recovery may prevent or discourage firms' entry into markets. Cost recovery also has the potential to impede the entry of new, more technologically advanced products into the market'.

Q 19. How can government take advantage of public private partnerships to increase access to public sector information without unduly constraining opportunities for third parties to use and reuse the information?

There may be opportunities to partner with private sector associations to achieve both objectives.

Q 20. What international activities relevant to this Taskforce should the Taskforce be considering and what needs to be done to improve cross-border use and interoperability of information?

The mandatory adoption of standards for the publication and consumption of spatial information will facilitate information use and interoperability.

Q 23. How can government capture the imagination of citizens to encourage participation in policy development and collaboration between citizens and government?

Spatially enabled applications are clearly a way of engaging the general public. The "Google Maps" case is proof of concept. The City of Melbourne will soon launch a website using spatial information in a contextual framework, which is another example of this type of engagement.

Innovative Web 2.0 applications encourage greater community engagement (e.g. Rabbitscan). Spatial applications uniquely enable forms of data dissemination and collection/verification (e.g. crowd sourcing), offering rapid turnaround, and, whilst recognising the limitations of such an approach, powerful ways of adding to our collective knowledge of the world.

Q 25. How can government make it easier for people to engage on policy and other issues and make sure the opportunities are as open and accessible as possible?

SIBA has experienced a strong resistance to business participation in public policy. This despite the fact that our involvement resulted in a positive policy outcome that has been said to be 'world leading' by the OECD. This is clearly a cultural and turf issue. The value of the expertise provided by two bodies to this process is significant, and demonstrated the value of seeking community input - accepting that community input is not restricted to individuals.

Q 26. What trade-offs must be considered between government using commercially available and popular online platforms and ensuring inclusive participation with all members of society and how should those tradeoffs be made?

Government must be wary of contracting services out to companies that must respond to the laws of their countries of origin. For example, US Law can force a US headquartered company to reveal any data installed in a cloud they own, disregarding the country where the physical location of the data is.

Q 29. What are the barriers to fostering a culture of online innovation within government? Which of those barriers should be maintained in any Government 2.0 initiatives? Which of those barriers should be removed? How should this be achieved? What different norms can or should apply to Government 2.0 efforts?

Own versus share mentality. Just like the private sector becomes a consumer of the published data services so should government users. Government users will build applications for internal purposes (either by themselves or outsourced to private sector) that are used in operational circumstances within departments and even across departments. An example is a single geocoding service that is accessed by any government application that collects address data from end users. The geocode location is then stored against each address stored or updated. This service could be provided by a government agency or by the private sector for all government departments to share. A culture of sharing as opposed to owning should be policy rather than voluntary.

Q 30. To what extent can government assist the uptake of Government 2.0 by centrally providing standard business management guidance and tools to avoid agencies having to 'reinvent the wheel' when considering their own online engagement guidelines?

Q 31. How can government engage with individuals and stakeholders to support the development of innovative policies, programs, practices and service delivery? Are there good examples of where this is happening?

Engage in a real and meaningful dialog with industry and professional associations who can muster significant community intellect, which will provide government with options in policy development. This expertise can often be harnessed at little cost and at great speed to ensure government has access to a wide variety of expertise and opinion. This would require that agencies opened the gates

to information access to ensure arguments are balanced and supported by the same (or better) facts.

Q 32. To what extent can we promote such an approach in the public sector and are there any examples of emerging practice?

Breaking down of long-held barriers is difficult. Leadership by a forward thinking Minister and senior bureaucrat would be invaluable. The first task is to demonstrate that the government is serious.

Key Issues and Concepts

Fundamental Spatial data includes:

- Cadastre
- Topography
- Administrative Boundaries
- Landmarks/Points of Interest

Web 2.0 is all about:

- Network-centric applications
- Interoperability
- Data sharing
- Collaboration
- Fundamental Spatial data strong candidate for data sharing
- Used inside government with huge potential productivity benefits

Characteristics of SDI:

- Data stays closest to 'Point of Truth'
 - Reduced inefficient Duplication
 - Retains original credibility of data
- Standards-based
 - Interoperability
- Distributed web resources
 - Data
 - Geo-processes
 - Discovery
- Platform for Value Added Web 2.0 Applications
- Accessible internally and externally

Private Sector:

- Software design/development/sales services
- Hosting & Publication service
- Value Added Applications
- Platform for the commercialisation of government Spatial Data
 - Geomatics Industry development
 - Greater opportunities for independent mashup developers
 - Leverage greater value from spatial data into a broader community
 - Private Sector Innovation should not be hampered by high Cost of Access to Spatial data
 - Government Spatial Data should have a low Wholesale price
 - Private Sector free to charge for Value Added Services at retail level

Industry Facts

In 2005, international market analysis by IDC⁴ forecast a market characterized by the following:

- Increasing emphasis on enterprise issues such as data quality, security, and process-based integration in both government and commercial sectors;
- Increasing emphasis on geospatial master data within enterprise systems (organizations worldwide will maximize and exploit their spatial data and technology across their enterprises and external organizations);
- Increasing geospatial capabilities from large Internet providers like Google, Yahoo, MSN and AOL – vendors that will continue to freely expose their geospatial functionality to the broader developer community;
- Sharply increasing effects of location-determining technologies such as Global Positioning Systems (GPS), radio frequency identification (RFID), wireless LAN (WLAN), intelligent networked sensors and cellular networks – technologies that are rapidly becoming ubiquitous;
- Increasing systems and data integration opportunities focused on spatially-enabled enterprise information systems.

The analysis above has proved correct. Indeed, it has arguably underestimated the growth of new adjunct technologies and concepts such as the Locata technology and relatively new concepts such as social networking, which will increase demand for spatial data.

Spatial Interoperability

The Spatial Interoperability Demonstration Project (SIDP) was a collaborative initiative between the public and private sectors of the Australian Spatial Information Industry. The main purpose of the project was to demonstrate that Spatial Interoperability is real and can help solve real-world problems. Aims and objectives of the project were to add real value to the end user community, working with organisations in the sectors of Emergency Management, Insurance and Utilities.

What is spatial interoperability and on-demand?

Information represents a substantial asset for today's organisations, and much of this information has a spatial component in a geographic context. We call this spatial information.

Spatial Interoperability is the ability to link together spatial data, information and processing tools between different applications, regardless of the underlying

⁴ IDC International, *Market Analysis – Worldwide Spatial Information Management 2005-2009*, (2005)

software and hardware systems and their geographic location (ANZLIC 2005, www.anzlic.org.au).

On-demand spatial information means being able to access the desired spatial information, in its most current state, with correct presentation (symbology) and attribute information on your desktop when you need it.

Conceptually, interoperability and on-demand are very similar concepts, and are often used interchangeably. There is however a subtle difference. Whereas on-demand describes the characteristics of a service, spatial interoperability, describes the mode of the service. On-demand access to spatial information is made possible by the implementation of spatial interoperability. Spatial interoperability has been enabled by standards based interfaces and data encoding protocols developed by the Open Geospatial Consortium (OGC)—a non-profit organisation and a supporter of the SIDP.

Why spatial interoperability?

Many organisations are constrained by the lack of flexibility and incompatibility of their spatial information systems. What they most often encounter is spatial data that is highly dispersed, not easily accessible, and not conforming to a standard which, when coupled with complicated technologies and bureaucratic management and support components, do not make decisions dependent on spatial information any easier.

Spatial information has developed enormously in the last decade with managers now leveraging their Geographic Information Systems (GIS) and Information technology (IT) systems and the use of the Internet. This means organisations are motivated to make better use of their information assets. They look towards spatial interoperability to help:

- Reduce costly data acquisition, maintenance and processing.
- Provide direct, on-demand access that reduces time and costs.
- Encourage vendor-neutral flexibility and extensibility of products.
- Save time, money and resources.
- Enhanced decision-making.

Metadata

The major uses of metadata are:

- organize and maintain an organization's internal investment in spatial data,
- provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages, and
- provide information to process and interpret data received through a transfer from an external source.