



**Queensland
Government**

**Queensland Spatial Information
Infrastructure Council
QSIIC**

DATA QUEENSLAND
Concept Paper

Second Working Draft
August 2002

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Issued By: Graham McColm, Principal Advisor, Information Policy Unit
Department of Natural Resources and Mines

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2.0	30th August 2002	Second Working Draft
3.0		

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1. Introduction

At its November 2001 meeting, QSIIC, the Queensland Spatial Information Infrastructure Council determined that there be a 2002/2003 priority initiative to implement smarter on-line real-time methods to access, use and integrate spatial data and provide related information services.

This initiative has been called Data Queensland. It has the potential to put into practical operation many of the aims and objectives of QSIIS.

A first *Working Draft Data Queensland Concept Paper* was compiled and distributed within the QSIIS Forum during June 2002. This initial version (Version 1.0) intentionally, only broadly discussed the Concept and its possibilities so as not to present any *fait accompli* structure or process. It was intended to simply list and summarise some initial thoughts to initiate discussions for forming the scope and structure of the Concept, and to assist assessing how best to progress it.

During June, July and August 2002, discussions within the QSIIS Forum were held and feedback on the first working draft Version 1.0 collated.

Previously completed and related QSIIS projects were not detailed in Version 1.0. It was assumed that the relationship of this how this body of work could contribute to the priority for a Data Queensland initiative in 2002/03 would be understood. Due to the many changes in recent times of personnel involved in the QSIIS Forum, this has proven not to be the case.

This new version of the *Data Queensland Concept Paper, Working Draft Version 2.0*, embellishes the first draft based on feedback received and contains information on the previous QSIIS projects to help understand their linkages to the initiative now.

Appendix One contains a broad implementation plan which was endorsed by the QSIIC Executive in late May, 2002 and suggestions on a process to proceed and some limited initial scope.

End of Section

2. Background

There have been three main influences for the Data Queensland initiative being a QSIIIS priority for 2002/03: -

- Current data management and access environment;
- Numerous individual developments of Web Atlas facilities (or Spatial Portals);
- Other completed QSIIIS projects, which contribute to the need for Data Queensland.

2.1 Current data management and access environment

The present environment is typified by:

- Numerous Memoranda of Understanding and data licences/agreements between State Government agencies most often focused on individual projects and initiatives;
- Numerous data licences/agreements between State Government agencies and Local Councils, Private Industry companies and community groups;
- No online facilities through which State Government agency staff can easily discover what data exist within their own agency and other State Government agencies; what these data sets contain, and how they can be accessed.

The former Queensland Spatial Information Directory (QSID) and the current Queensland node of the Australian Spatial Data Directory (ASDD) have attempted to address this problem. Both are dependant on agencies to provide and maintain metadata, which does not always occur. The ASDD, is also seen as being too complex and cumbersome to search.

The Register of Strategic Information under ASAP/SIM may help to overcome this problem in Queensland - as long as all required Metadata is completed, supplied and regularly maintained, (as was the plan for QSID and is the plan for the ASDD).

Comment - A possible solution is for Providers to create and maintain their own Catalogues (to a defined standard) and link to a Registry facility for distributed searching - this aspect, which is in line with international trends, is discussed later in the paper.

- Often *ad hoc* arrangements for supply of updates of data between State Government agencies, with limited automation of such processes;
- Multiple copies of some data sets are being maintained within different State Government agencies - leading to potential risk exposure through planning and other decisions being made on outdated (non-point-of-truth) data. This also results in unnecessary duplicated costs for storage and management of data across Government.

Increasing demands are being placed on State Government agencies to make their data more easily discoverable by and accessible online to other State Government agencies, Local Councils, private industry and community groups. For example, the National Action Plan for Salinity and Water Quality will place an added burden on data managers within State Government agencies. This is but one limited example of the potential impact of a high demand business driver on the current situation.

2.2 Web Atlases

Numerous (and rapidly growing number of) individual Web Atlases and Spatial Portals are appearing on the Internet as a mass of independent Web Site resources.

The main aim of these individual initiatives is to provide better access to spatial data and information, using the Internet as the delivery channel. The existence and availability of individual web sites is often very difficult to find amongst the masses of URL's. Searching and assessing available content for fitness for purpose and subsequently initiating access to data and or information services can often be difficult and become overwhelming. Individual Portals, whilst they are helping get data and information out from individual locations (and sometimes many locations from within the same organisation), are not sufficient. The continued proliferation of so many independent Web Atlases / Spatial Portals is not proving to be the most effective mechanism to identify and provide access to needed data and information services.

As a result of many similar initiatives in Queensland, QSIIC initiated a research project to help identify possible synergies for Queensland and if any coordination measures could provide benefits and reduce duplication. A report, *Current Trends in Web Atlases, A Desktop Audit, Aug 2001*, was compiled and presented to QSIIC at its November 2001 meeting. The Minutes of that meeting recorded, "to avoid the consequences of ad hoc development, there was a need to work out how to provide in a smart way seamless integration of a lot of this fundamental spatial information".

An initial options discussion report on Data Queensland was compiled by the (former) QSIIS Capabilities Committee and presented to QSIIC at its November 2001 meeting. This report, which was compiled in parallel with the Web Atlases report, essentially looked at six options for "creating a Web Atlas for Queensland" and made seven recommendations, the main ones being: -

- To seek potential linkages to Smart State initiatives;
- To use the National Action Plan (NAP) for salinity and water quality as initial business drivers;
- The QSIIS Capabilities Committee to develop an implementation plan.

QSIIC endorsed the approach and Data Queensland became a priority. However no progress through the QSIIC Capabilities Committee was made. This was due to the fact that there were no available resources within the QSIIC Secretariat in the Department of Natural Resources and Mines to coordinate the work. Resources became available during May 2002, resulting in a summary status report to the QSIIC Executive and the initial Draft Concept Paper Version 1.0.

2.3 Other related QSIIS Projects

These projects have essentially specified requirements for, identified the benefits of, analysed business cases for and raised important institutional issues, related to the need for smarter on-line and in real-time methods to access, use and integrate spatial data. The aims and outcomes of these projects contribute to the need for progressing the Data Queensland initiative.

QLIS Foundation Information Standard (Nov 1995)

- Identified 31 core groups of spatial data needed to underpin business activity - a formative demand side user needs profile (interestingly this list is STILL very consistent with similar specifications of fundamental spatial data from other parts of the world);
- Specified base level specifications for these data in 4 levels of accuracy depending on location;
- Attempted to influence initiating a coordinated data capture program of core foundation data by relevant custodian agencies. No such coordinated data capture program has been implemented.

QLIS Technology Architecture project (last quarter of 1995 and first quarter of 1996)

- Linked in real time, the BLIN environment in the former Department of Natural Resources and the MERLIN environment in the former Department of Mines;
- Demonstrated real-time on-line integration potential as a model to progress the QLIS initiative;
- Raised a series of institutional issues to be addressed if such facilities were to become operational;
- Was never implemented due to problems with institutional issues.

QLIS Benefits Study (Mar 1997)

- A very detailed study of spatial data needs to support Government policy areas;
- Listed a wide range of information products and services required;
- Assessed the benefits to the State from past investments in spatial information technologies and identified a strategy to address deficiencies;
- Provided a detailed business case and determined a positive cost benefit of at least 7:1 - *(the findings of this business case are still valid for and applicable to the data Queensland initiative in 2002/03)*;
- Recommended a number of key actions for the State Government including: -
 - Establish the spatial information component of a State Information Infrastructure;
 - Sponsor development of essential State spatial information products;
 - Commit resources to expedite development of the infrastructure;
 - Implement new spatial information coordination arrangements;
- Discussed and made recommendations on a number of key points regarding: -
 - QLIS investment, QLIS benefit, diffusion of Spatial Information Technology, forming a Queensland Spatial Data Infrastructure, recognition of the value of spatial information, targeted applications with potentially high benefits, stakeholder support, purchaser/provider model, re-directing resources to achieve increased benefit.

Property Interests Product (PIP) specification and business case (Apr 1998)

- Project resulted from recommendations in the QLIS Benefits Study;
- Identified data needs, market alignment, with a very positive benefit / costs assessment;
- Provided a very detailed user needs and demand profile.

QUEST - Queensland Electronic Services Trial (Jul 1998)

- A cooperative research project to design, assess and test a technical architecture suitable for electronic services delivery of spatial data and information services in the concept of an electronic market place;
- Technical expertise provided jointly by the DSTC at University of Queensland and the Spatial Research Centre from CSIRO in Canberra;
- Included a detailed technical report, a market assessment and alignment assessment with the State Government's Queensland On-Line initiative (now Access Queensland);
- Was the first detailed assessment of this type in Australia (the research also suggested probably in the world as well).

Property Interests Product - cooperative research project (completed at the end of 1999)

- A significant and very detailed joint venture project between five State Government Departments, some Local Councils, in partnership with the CSIRO and private sector collaborators;
- Adopted and implemented the QUEST architecture;
- Specified and developed a number integrated information services based upon the land property and land development market;
- Integrated (in real time) data and produced information services from five State Government Departments and the participating Local Councils;
- Provided a very detailed market analysis and positive benefit business case;
- Listed the following challenge: - *"Unquestionably the PIP project has been a success. It has supplied important institutional, informational and technological learnings. The Queensland Spatial Information Infrastructure Council (QSIIS) determined that development of such a product should be driven by the private sector, consistent with the QSIIS vision. QSIIC remains committed to resolving the institutional issues identified, so that industry will be stimulated to take such a development further"*.
- Implementation has not (yet) been taken up by the private sector.

NOTE

The architecture developed during QUEST and further tested in PIP is consistent with that overviewed for Data Queensland in this Concept Paper. It is also consistent with broader Australian Spatial Data Infrastructure efforts being coordinated through ANZLIC.

Since QUEST and PIP have been completed, the technical tools, particularly those related to Internet technologies, have matured and newer standards, especially international standards through the OGC and ISO, have been developed and are continually emerging.

Information Definition Project (due early Aug 2002)

- Market survey being conducted by McDonnell Phillips - report is due in August 2002.
- Will provide spatial data needs for various market sectors;
- Will further clarify demand side drivers aligned to various market sectors;
- Will assist updating foundation spatial data needs as defined in the 1995 QSIIS Foundation Information Standard.

2.4 In summary

Many of the necessary preliminary investigations and business case justifications have been completed. QSIIS has already: -

- Identified foundation spatial data and will soon update the demand side drivers;
- Defined and provided benefits of, and market needs for spatial data, which are consistent and encapsulate the aims and benefits of Data Queensland (for smarter online discovery, access and delivery);
- Researched, described and tested a technology architecture and made it work with a set of high demand information services;
- Identified a wide range of critical institutional issues that require policies and processes;
- Implemented a set of data licensing agreements that have been endorsed by Crown Law.

As well, the Queensland Government is currently progressing two major, related Whole-of-Government initiatives - Access Queensland and ASAP / SIM. Implementing Data Queensland requires strong linkages with these initiatives as many mutual benefits can be realised. Relevant strategic plans need to recognise these linkages and contain related projects with outcomes that are aligned.

QSIIC has a critical strategic leadership role to influence and ensure all needed strategic planning and development relationships are implemented.

End of Section

3. What is Data Queensland

The aim for Data Queensland is to implement smarter on-line ways to discover, access, use and integrate, publish and un-publish data and information services for business needs. The QSIIS community is saying it needs these smarter mechanisms to become part of normal daily operations. These aims are consistent with national and international trends for developing spatial data infrastructures and with the general objectives for QSIIS itself.

Data Queensland will not attempt to initiate or focus on data collection programs. The basic functionality for the smarter mechanisms required will facilitate access to and delivery of data or information services to be made available (within agreed access and use arrangements).

International research and trends for similar activities are showing that to facilitate implementing these smarter methods, a coordinated process is necessary to maximise benefits and deliver successes to all Users and Providers. Such a process should comprise and foster: -

- Political leadership;
- Collaborative funding arrangements;
- Policies for open data sharing;
- Sets of standards;
- Common data models;
- Open technology;
- Common and shared "middleware services", (such as directories/registries, authentication, security, transactions etc).

Data Queensland is therefore seen as a means of providing such a collaborative process to: -

- Reduce current complexities and inefficiencies being experienced to identify and access appropriate data and information for use in a wide range of government, private and community sectors;
- Increase the capacity of Queensland State and Local Government agencies, private industry and community groups to efficiently access data and information via the Internet;
- Contribute to Queensland's social and economic development by providing timely access to data and information that will aid better planning and management across a range of issues;
- Significantly contribute to the practical delivery of the QSIIS aims and objectives, including industry development;
- Significantly contribute to implementing an operational spatial data infrastructure for Queensland.

A detailed working draft *Data Queensland Background Discussion Paper*, which presents some functionality, benefits, and a wide range of similar initiatives from Australia and around the world, has been compiled.

This paper should be used as an added background reference for the Data Queensland initiative. The DRAFT paper is available upon request from the QSIIS Data Queensland project team - (contact Graham McColm phone 3405-6959 or email graham.mccolm@nrm.qld.gov.au).

3.1 Functionality for Data Queensland

This Section summarises functionality that may be required for Data Queensland. The functionality is discussed in more detail in the working draft *Data Queensland Background Discussion Paper* and it is consistent with numerous similar initiatives within Australia and around the world: -

- Easy search and discovery mechanisms where Users do not need to know individual locations and Web addresses for Providers
- The ability to initiate searches using both keywords and spatial extents with some form of spatial Keymap;
- The ability to download data for local processing needs;
- Real-time access to data and information services;
- A facility to allow Providers to list and de-list their data and information services to be made available (Publish and un-publish them in a "Registry" facility);
- Various levels of User authorisation as needed;
- Front-end Web Atlas viewing facilities
- Back-end data management "stays where it is" (data are accessed from the relevant providers not uploaded into one warehouse);
- Charging, billing, data licensing implementation functionality as required;
- Links to various text reports as necessary;
- Eventual community access and engagement
- Uploading and updating data to Providers (e.g. allow community groups who collect data during collaborative projects, such as NAP, to pass data to appropriate agencies).

Any implementation plan would scope a small number of important functions in the first instance and progressively deliver added functionality incrementally.

Section 8 contains a proposed implementation process and initial scope for Data Queensland.

The functionality summarised above, is focused to support a typical user session, which would require: -

- An easy to find "central contact point" for searching for information services and data on the Internet across all sites and portals - (some form of central Registry?);
- An easy login/access procedure to available individual sites/portals;
- A common look and feel at the 'front-end" to facilitate searching, discovery and basic viewing;

- The ability to search for available data and or information services through an effective on-line Registry service (could be linked to various metadata directories, Thesaurus etc) - search by spatial extents, regions and /or selectable keywords;
- The ability to view metadata, and
 - Make a selection of the appropriate/desired dataset or service
 - Check the quality of the data for fitness for purpose
 - Check the version and lineage of the data;
- The ability to view and / or download needed data locally for project work/analysis;
- Access all available (and linked) outputs and services from all Providers;
- Clear cost structures and charging access processes - i.e. easily understood mechanisms for either free or charged access and use;
- The ability to easily initiate local viewing, analysis and output requirements such as
 - Direct access to desired analysis tools (be they GIS software, Decision Support Systems, modelling tools, etc)
 - Ability to produce various output types (maps, reports, printouts of views etc).

An environment that is "end-user friendly" is highly important to encourage continued and growing usage - one with a definite people focus. Important issues are:

- Design and ease of use of the "front-end" user interface
- Logical and easy access and use of functions and processes
- Controls for access and security transparent to the user after an easy login procedure.

3.2 How might Data Queensland work?

It is anticipated that there will be: -

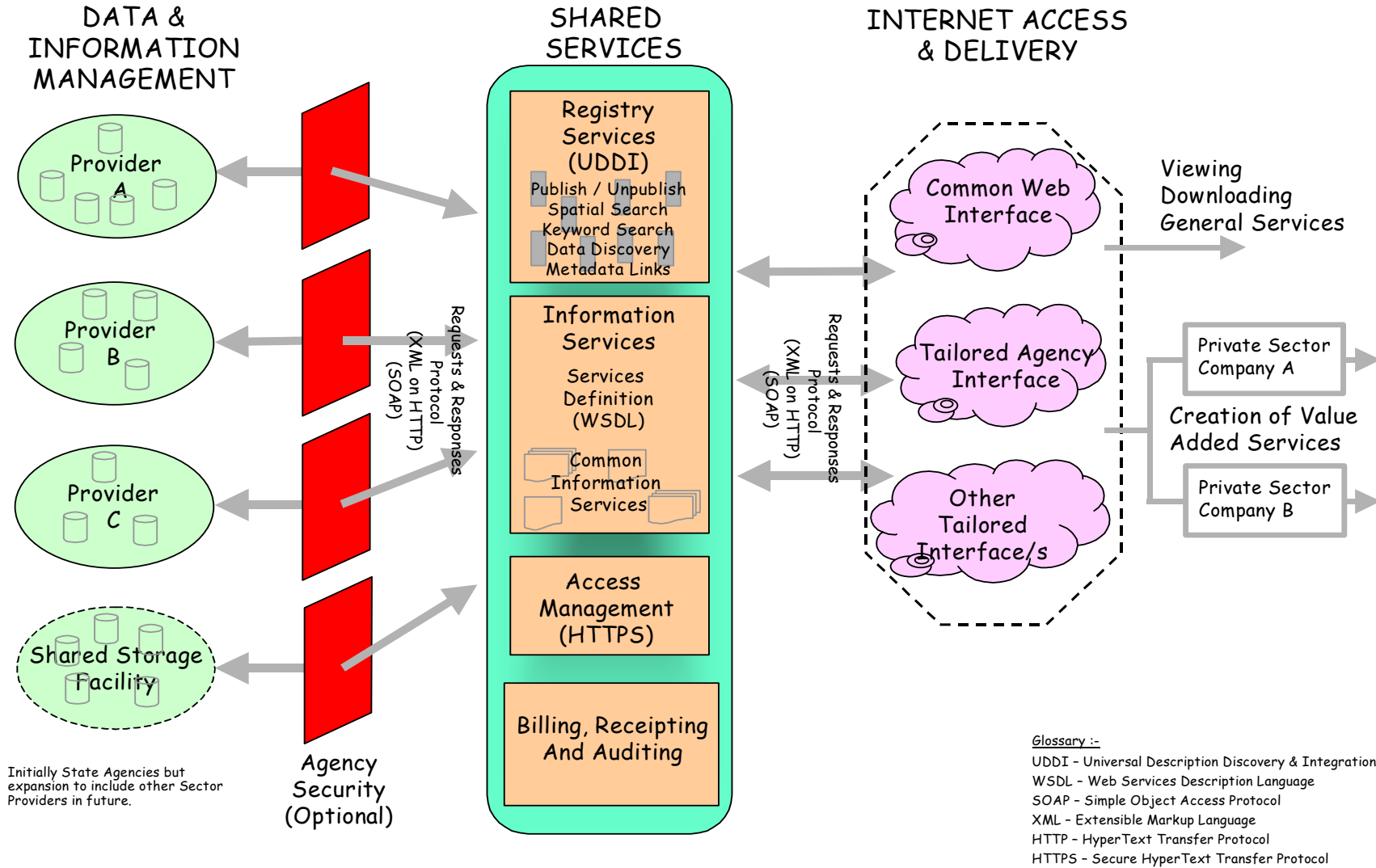
- Many different Providers of data and information services;
- Many different Users of the "provided" data and information services;
- Some (optional) shared data management and storage facility / facilities for those Providers who either do not have suitable facilities of their own or would rather use an alternative facility to provide access to their data (e.g. - a group of small Local Councils, a group of private sector companies);
- Some form of common/shared infrastructure and services, which aid smarter discovery of, connection and access to, data, and information services from Providers.
- Many Value-Added Services Providers.

Note: - Many Providers will also be Users of other Providers data and information services

The Diagram (on the next page) shows a high level *DRAFT* conceptual model for Data Queensland.

DATA QUEENSLAND

Conceptual Model - On-line Data & Information Services, Access & Delivery



This *DRAFT* model is intended as a starting point to foster discussion on what might be possible and how the components might interoperate. The model and contains: -

- Providers: - who create data and information services for their own business needs, make them available and deliver those data and services to Users who request them. Providers can be anyone, including Government agencies (Federal, State, Local), private sector companies, individuals, community groups etc. Providers will list their Data and information services availability to a "Registry Service" to aid discovery and access;
- Value Added Services Providers: - create new or more complex services from data or services from other Providers for specific market needs. Value Added Service Provider's are generally private sector companies but could also be anyone who has the ability and need to create value added services. Various business and data licensing arrangements with Providers may apply);
- Users: - request and obtain available data or information services from any Provider or Value-Added Services Provider. A User can be anyone with a Web Browser. A Provider or Value Added Services Provider can also be a User of someone else's data or services;

- Infrastructure Services: - provide discovery and access mechanisms including: -

- *Registry Service* - common mechanisms to classify, register, describe, search, maintain and access information about data and information services to facilitate discovery and access. Searches can be through: -
 - specifying a geographical extent in text form via gazetteers;
 - keymap facilities to searching by spatial location on a map and view data;
 - thesauri to facilitate searching of standardised keywords;
 - metadata directories including the ASDD and other Catalogues of available data and information services.

A Registry enables Providers to list their available resources and to also de-list them if the service is no longer available as well as functions for users to download data.

- *Shared Information Services* - which provide some common information services to all Providers and Users. Some examples might be: -
 - A service to check and report on metadata to be listed are in conformance with the agreed metadata standard (e.g. ISO 19115 and the Australian profile for spatial metadata);
 - A service to display certain data according to some common/agreed presentation rules for those specific data;
 - A service to re-project data from one map projection into another;
 - A geo-coding service to relate a street address to an x/y coordinate location;
 - A generic application to link data from different Providers to display a high demand specific view (based on clearly defined business rules).

All services need to be defined - *Services Definition* - to specify the type and expected content of each listed Service, if any costs or other access requirements are needed, and the location details to facilitate directly obtaining the data or service - there is an emerging standard language for defining such services.

- *Optional Services* - to provide for access management, security, charging and billing etc if necessary - these would generally reside within an individual Provider or Value Added Services Provider's home environment or they could be shared by a group of collaborators (such as Agencies within the State Government, a group of Local Authorities or private sector companies etc). Providers can choose to implement some or all of these services.

Note -

- Some physical infrastructure and services can possibly be created and maintained as shared facilities for all participants, and others located and maintained "locally" in individual Provider environments;
- One *core* Registry Service and Shared Information Services Definition module will be necessary to be the principal connection and discovery point;
- Within the State Government, the Government Services locator and implementations through Access Queensland and the emerging Smart Service Queensland are examples of sharing of infrastructure and services.

The *DRAFT* model is consistent with the architecture arising from the previous QSIIS initiated QUEST research project (summarised in Section 2). It is also consistent with broader national and international spatial data infrastructure architectures and Web Services Delivery models.

The model shows some example technical standards and protocols to facilitate the smarter methods and processes. A detailed technical architecture, which describes these components, standards and protocols, will be required for implementing Data Queensland.

3.3 Relationship with the ASDI-DN architecture

ANZLIC are coordinating the development of a technical architecture for Internet Framework for the Australian Spatial Data Infrastructure Distribution Network (ASDI-DN). It is essentially a generic Web Services architectural model to allow communication over the Internet between spatial data sources and applications that use those data. There is a clear separation between data hosting, serving, and presentation functions. This is the key principle allowing data to be served once and used many times.

Implementation of the ASDI-DN will adopt international specifications and standards developed by the Open GIS Consortium (OGC), the World Wide Web Consortium (W3C) and the International Standards Organisation's ISO 19100 series for geographic information and the ISO 23950 - Z39.50 protocol. Adoption of other appropriate standards and specifications can be implemented as needed. All data and information services providers can pursue their own implementations at their own pace knowing that access to data will be facilitated across the distribution network facilitated by the adoption of the standards and specifications.

The ASDI-DN draft architecture has the same principles and concept as should be adopted for Data Queensland. This ASDI-DN architecture, when finalised, will provide detailed technical guidance and identification of appropriate standards and protocols for Data Queensland and assist its implementation.

3.4 Summary

Implementing Data Queensland will therefore require: -

- Common technical protocols for access and provision;
- Common data management requirements;
- Common data models for fundamental data;
- Common framework for business arrangements and Governance for shared infrastructure and services;
- Common business framework for all participants.

Ultimately, all spatial industry sectors will be capable of participating in, and using this model, including industry value-added services providers.

As a result, an operational spatial data infrastructure for Queensland will be developed and implemented, one where Government data in particular will be far more available and accessible using the Internet as the delivery channel.

How this infrastructure can be linked to, and / or build upon, infrastructure for the Access Queensland and Smart Service initiatives for the State Government, requires further investigation and collaboration.

End of Section

4. Benefits

This Section summarises some benefits for Data Queensland. These benefits are discussed in more detail in the *Data Queensland Background Discussion Paper Working Document* and are consistent with numerous similar initiatives within Australia and around the world. Many significant and positive benefit/cost ratios (which all describe similar benefit types and savings for implementing Data Queensland) are presented in the background paper.

Also, as discussed in Section 1 of this paper, the previous QLIS benefits study and business cases also enunciate numerous benefits, which are still valid for Data Queensland today.

Another very relevant initiative in the USA is the Geospatial One-Stop program. The Federal Geographic Data Committee (FGDC) prepared a detailed report on this program, Feb 4 2002, for the USA National E-Government initiative. The report describes a wide range of specific benefits, with downstream benefits of access and using spatial data and information services and includes details of cost benefits from within the USA and around the world (including Australia). All are consistent with and further substantiate the Data Queensland initiative. Some benefits for implementing Data Queensland are: -

- Data Queensland can contribute to the QSIIS vision of easy access to relevant and reliable integrated spatial information for Queensland;
- There is ample evidence (from previous work), that the State Government will be a huge benefactor, so the idea and benefits are justified and an initial limited State Government business focus is sound;
- By providing seamless access to Queensland Government spatial information, Data Queensland has the potential to contribute to major spatial information industry strategies such as the Spatial Information Industry Action Agenda and the Queensland Industry Development Plan;
- Other sectors, including the Education sector (Primary, Secondary and Tertiary), will be major beneficiaries of Data Queensland through being able to readily access spatial information. This has the potential to help further progress other QSIIS initiatives such as the GIS in Schools project;
- There are numerous similar initiatives around Australia (eg CANRI, NSW; SARIG, Vic Regional Data Net; and throughout the World (eg Delaware DataMIL, USA, GeoSpatial One-Stop, USA FGDC, UK Government Gateway, Government Services Broker, Ireland) each of which have detailed benefit statements and business case justifications which substantiate the need for a coordinated Data Queensland;
- The following quote from the Delaware, USA, Spatial Data Framework initiative is particularly relevant - *Dependable and accurate spatial data are essential to planning, assessment and many other operations in different levels in Government and the private sector. Spatial datasets can be expensive to produce and maintain. Most Delaware state agencies, county agencies and local governments produce GIS datasets that must be fully shared and integrated to reap the full value of spatially enabled information. An uncoordinated approach to the development and use of spatial*

data wastes taxpayer money and reduces the value information generated by the use of that data. It is wasteful and duplicative for different agencies and levels of government to invest time and money in the creation and maintenance of the same datasets

Data Queensland will contribute to helping Queensland solve similar problems and to facilitate effective access mechanisms for the various levels of government, private sector and private citizens.

End of Section

5. Some General Considerations for progressing Data Queensland

- Design and development must consider future take-up by the private sector to link to the infrastructure to facilitate the development of value-added services for their specific clients - liaison with the QSIIC Industry Development Committee will be an important communication and liaison forum;
- Experience from similar initiatives from around the world indicate that initial investment by Government, to develop and make work some initial infrastructure for Government business needs, is needed to spark expansion activities and broader take-up by other sectors;
- Developing Data Queensland, should be regarded as both a demand and supply effort using technology to initiate some needed core infrastructure, and not a supply side technology driven process;
- Strong linkages to major Queensland State Government initiatives such as Access Queensland and Smart State are critical, Data Queensland must be PART OF these initiatives for political and agency recognition, resourcing etc;
- Data Queensland should align with the Access Queensland Governance model, the principles for cross agency access, and share whatever appropriate infrastructure (eg. the Government Services Locator) for access to and delivery of services (through the emerging Smart Service Queensland facility?);
- Do not focus only on Web front-end delivery issues; back-end data management is a critical factor. Front-end delivery and back-end data management must be separate from each other;
- Individual agency "Portals" do not necessarily provide the most effective model for access and integration, particularly in a so-called "seamless" access manner -
Technology can be used to "join" services so they work like a single virtual organisation. However a generic way and common framework needs to be defined for integrating services across organisational boundaries and disparate applications in order to deliver them over different channels. This means defining a set of standards, data models, and common and shared "middleware services", (such as directories/registries, authentication, security, transaction etc), to facilitate integration and future value adding. Individual Agency Portals are not sufficient. [Francois-Xavier Chevallerau FTIT April 17 2002, FT.Com].
- Jack Dangermond, (a leading world figure in the spatial arena), suggests several success factors for effective integrated services delivery and use of spatial data: -
 - form common data models
 - adopt open GIS technology
 - develop collaborative funding arrangements
 - develop policies for open data sharing
 - develop expertise and capacity for contributors and users
 - need political leadership.

- Implementing Data Queensland must be aligned to the national Australian Spatial Data Infrastructure (ASDI) initiative and use/adopt ASDI principles, architectures and emerging international standards through ISO (International Standards Organisation) and OGC (Open GIS Consortium);
- Custodianship roles and responsibilities are critical for managing and maintaining the datasets and information services;
- Pricing, especially for fundamental spatial data is very important - world experiences are showing that data costs can be a major inhibitor to take-up and limit general economic benefit and job creation (lower purchase price is better);
- As well, the name "Data Queensland" may also not be the ideal "brand name" for this initiative as it has already given perceptions of much a broader scope and caused some confusion and even raised some concerns, particularly with scope for a relationship with Access Queensland.

End of Section

6. Related Business and Institutional Issues

An integrated governance and business model with workable institutional arrangements are critical to successfully implementing Data Queensland: technology is not the main issue. There are several critical business and institutional aspects: -

- Determining the ownership, management and maintenance arrangements and funding model for any shared infrastructure and services;
- Resolving on-going costs to participants to use any shared infrastructure and services;
- Streamlining institutional arrangements, data licensing, access costs and charges;
- Initiating strong strategic linkages with two major whole of State Government initiatives, ASAP/SIM and Access Queensland: -
 - ASAP/SIM (Strategic Information Management) is seeking to implement efficiencies for managing and supplying Government data and information services to its clients. This strategic information management focus could include helping to resolve data access arrangements between Government agencies, particularly where one agency is required to create (for external delivery) an information product or service which contains data, integrated from more than one State agency;
 - Access Queensland is seeking to deliver Government services on-line and in real time to the Governments clients - Data Queensland could enhance the delivery content to include specific spatial data and information services in collaboration with Access Queensland. This initiative is developing whole of State Government Governance Arrangements to manage the delivery of these services;
- Forming a collaborative planning process for mutually beneficial outcomes for all stakeholders;
- Establishing a collaborative funding process to resource development activities;
- Gaining commitment across all sectors and stakeholders to implement Data Queensland.

There are also a number of other current activities in the State Government arena, which have a potential impact on progressing the Data Queensland initiative: -

- The review of IS 33, Government Standard for Information Access and Pricing, (which is currently based upon a cost of provision model);
- On-going Treasury budgeting processes.

Whilst there has been progress through QSIIS to address institutional issues through custodianship principles and the Crown Law endorsed licence agreements, effective implementation into every day operations is still to be satisfactorily achieved. Feedback on the first Working Draft Data Queensland Concept Paper, Version 1.0, strongly re-iterated this viewpoint and concern.

QSIIC and its Committees have a critical leadership role to assess, clarify and resolve these business issues, otherwise real and practical implementation of Data Queensland will fail.

The timing is right to do something real now - there are the business drivers, the major whole-of state government initiatives focused at the same "space", technology tools for Internet access and delivery have matured greatly and are continuing to do so, and suitable standards are either available now or are close in the pipeline.

Collaborative planning and resourcing with suitable institutional and business frameworks are the main challenge.

End of Section

7. Progress with Data Queensland - summary to Date

During the first quarter of 2002, several informal discussions and meetings on the scope and implementation considerations were held with various stakeholders in State Government, Local Government and the private sector.

These discussions have indicated that: -

- Investment by the private sector to create Data Queensland was not profitable at this time;
- Initial investment should come from the State Government as it is a major benefactor - *international trends also indicate the initial development by government provides necessary impetus for subsequent industry take-up;*
- The initial scope should be to provide access to limited State Government data and deliver some limited but real State Government business outcomes;
- Future access and use by the private sector to create value added-products and services be planned after the initial facility is successfully working and its benefits are being demonstrated;
- Future access and use by Local Governments be planned;
- Future access and use by citizens and the community groups be planned;
- Some sort of shared service provider model be considered;
- Strong linkages to whole of Queensland Government initiatives - Access Queensland, Smart Service Queensland, and ASAP / SIM be established;
- Access Queensland governance model be closely aligned to or completely adopted;
- Where possible, Access Queensland and the emerging Smart Service Queensland infrastructure be adopted or shared to avoid unnecessarily duplication of facilities and infrastructure (for example - a Registry Service / Services Locator used for discovery, linking to data and services and allow publishing and un-publishing of data and services).

The thrust of discussions seemed to be mainly aimed at the "front-end" delivery to a Web Browser using the Internet.

It should be remembered that a critical element in efficiently delivering spatial data and information across the Internet is the need for effective and suitably structured "back-end" data management environments, which provide the storage facilities of known quality content. Front -end delivery cannot be efficiently achieved without suitable data management and storage environments.

Since the Version 1.0 document was released and discussions on it taken place, some QSIIC Industry Development Committee members have raised concerns over the statements summarised above regarding private sector involvement and participation. Letters were sent to the Chair of QSIIC, seeking a meeting to discuss industry participation further.

As well, the minutes of the recent August 13 meeting of the QSIIS Industry Committee, reported: -

- Spirited discussion on the Data Queensland concept and the potential implications flowing from it;
- It was agreed that Government should be encouraged to publish its data through an on-line atlas;
- There may be a role for Government to provide some services to the industry's end users to stimulate demand;
- Discussions tended towards a position which represented a potential policy change for the private sector and further investigation on the points raised was necessary;
- The Committee is to investigate other State's models and discover what level of value-adding or industry growth they had provided and also investigate industry view of the models in other states.

This situation and debate is very healthy and will result in broader ownership of the initiative through desired collaboration.

Some State Agencies who have indicated an interest in being involved in the initial establishment of Data Queensland are: -

- Office of Economic and Statistical Research (OESR) with respect to their ASAP/SIM projects, including the register of Strategic information (ROSI) and the Data Hub project for viewing and accessing statistical data from the ABS;
- Environmental Protection Agency (EPA) with their Ecomaps facility;
- Department of Local Government and Planning (DLGP) with their Integrated Information System (IIS), which is a set of GIS applications for urban and regional planning needs;
- Natural Resources and Mines (NR&M) with respect to NAP data needs.

As well, other informal discussions regarding the Concept (version 1.0) have taken place with: -

- The Department of Information Innovation and Economy (DIIE) with regard to their Access Queensland, Smart Service Queensland, Whole of Government information policy and technology infrastructure roles;
- The Local Government Association particularly in regard to the Networking the Nation program and the Integrated Planning Act (IPA) roles for local government agencies.

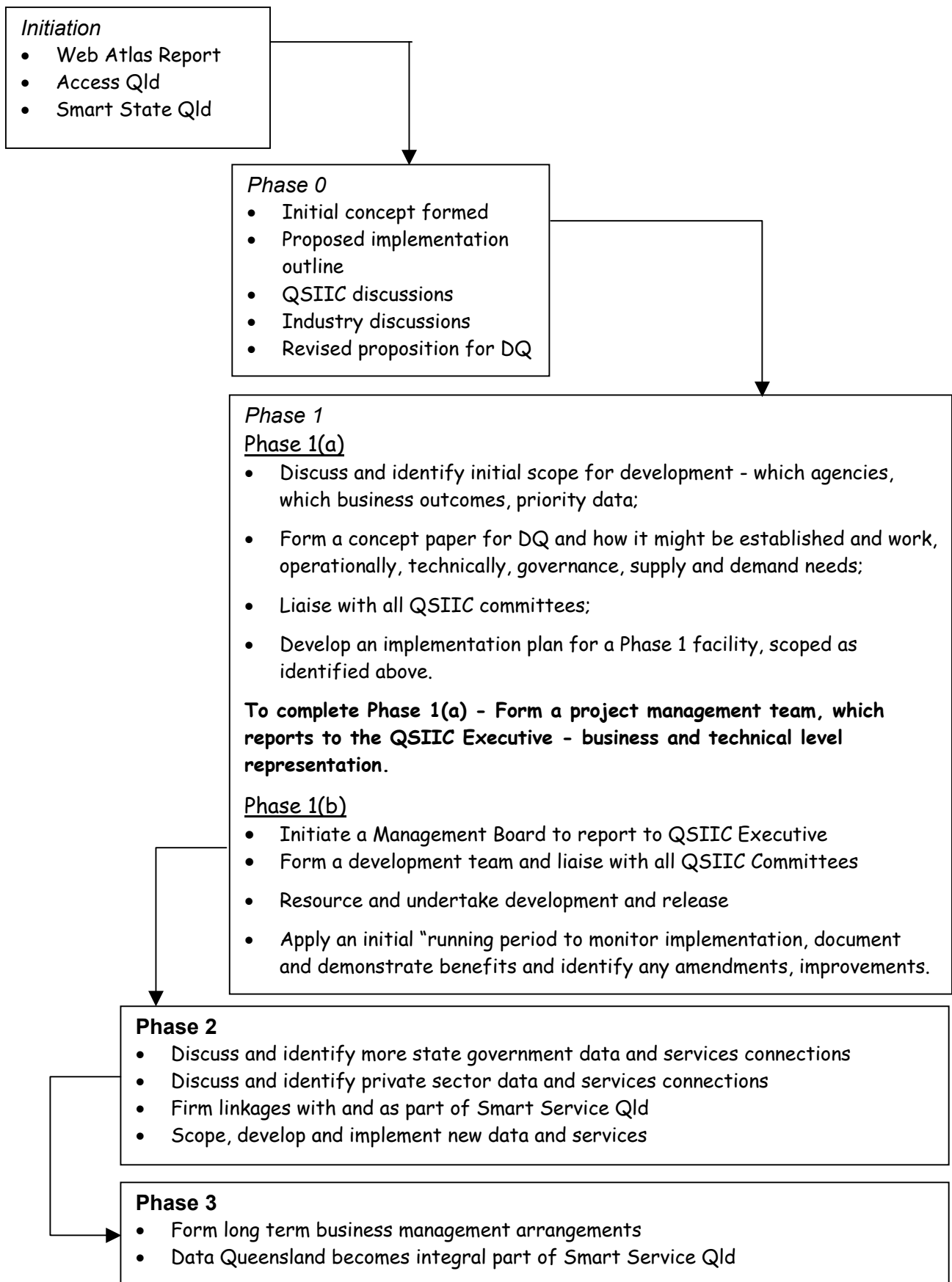
Note: - DIIE have also been having discussions with both EPA and DLGP with regard to possible linkages between them and particularly with the LGAQ Networking the Nation Program.

QSIIC has a critical strategic leadership role to influence and ensure all needed strategic planning relationships are implemented to progress this priority initiative and to gain political leadership through making effective links with the key State activities, ASAP / SIM and Access Queensland.

End of Section

8. A possible method to progress Data Queensland

In Late May 2002, the QSIIC Executive endorsed the following approach to the completion of Phase 1 (a). Phase 1 (a) has commenced with preliminary discussions in progress.



Focusing on some limited State Government outcomes in the first instance, and doing so in a manner which is scalable for future industry value adding services creation for any market sector, is likely to be the most successful approach to progressing Data Queensland. Such an incremental development model, using government funds to initiate and spark further industry activity, is also consistent with trends from around the world.

The initial scope should focus on: -

- Spatial data for which the State of Queensland is the custodian;
- Some limited State Government information services requirements;
- The necessary infrastructure and delivery mechanisms (within the initial scope) for better enabling access to data and integrated services delivery using the Internet.

Once the infrastructure can be successfully implemented and used, its benefits can be demonstrated, accurately quantified and then provide the basis for expansion into other sectors and services, including private industry.

Some planning steps will be to: -

- Discuss and form concept with:
 - Possible State Government collaborators
 - All QSIIC committees (which have private sector and local government input)
 - Local Government Association of Queensland
- Form initial business goals and scope based upon some limited State Government business needs - requires agency representatives to form a business planning project team;
- Form a technical development strategy - need to involve:
 - Government Technology Group in DIIE
 - Various Agency Information and IT Managers and technical experts
 - Access Queensland technical infrastructure representatives
 - Spatial Industry and research groups;
- Develop an implementation proposal to submit to QSIIC (need to complete something tangible this 2002 / 2003 financial year);
- Seek approval and resources.

End of Document