



**Queensland
Government**

**Queensland Spatial Information
Infrastructure Council**
QSIIC

"DATA QUEENSLAND"

Report to Council
31st July 2002

Table of Contents

1.	Introduction.....	2
2.	Summary of current status.....	3
3.	Some important and related QSIIS History	5
4.	Some general comments.....	7
5.	Summary.....	8
6.	Recommendations.....	9

Appendix One

Status Report to QSIIC Executive 16th May 2002

AMENDMENT HISTORY

Version	Date	Comments
001	31 July 2002	Project Status report to QSIIC

1. Introduction

Data Queensland is a QSIIS initiative to implement smarter (on-line and in real-time) methods to access, use and integrate spatial data and provide related information services. It has the potential to put into practical operation many of the aims and objectives of QSIIS.

QSIIS (and its predecessor QLIS) has previously completed projects that have contributed to specifying the need for, benefits of, and institutional issues relating to, this initiative. Section Three of this report briefly describes these former projects and their outcomes and relevance.

Data Queensland deliverables must be closely aligned to and support other major State Government activities that have many common purposes: -

- Access Queensland (for streamlined on-line delivery of Government services) and;
- ASAP - SIM (looking at more efficiencies for managing and providing these data and information services).

QSIIC has a critical strategic leadership role to influence and ensure all needed strategic planning and development relationships are implemented to progress this priority QSIIS initiative in conjunction with these other key State activities.

Broader national efforts are also occurring in this space and being coordinated through ANZLIC. Queensland is participating in this national effort through ANZLIC reference committees.

It is recognised that there are many other efforts, particularly in the State and Local Government areas of Queensland, to deliver data and information on-line over the Internet. This is one of the reasons for the notion of a Data Queensland project at this time. It is important however to seek synergies with these activities so as not to duplicate effort but to enhance and streamline methods in a model that will be efficient, flexible, and scalable.

Any data, infrastructure, and application services that may be created to facilitate smarter and more efficient methods, will ultimately need to be available to all sectors, which create and use spatial data and produce related information services. The ownership, management, maintenance and funding stream, for such facilities will be critical business decisions for any success to be achieved.

This report summaries progress so far, discusses related issues and recommends some actions for Council.

2. Summary of current status

- QSIIC endorsed the Data Queensland initiative as a priority for 2002/2003 in its November 2001 meeting;
- Resources in the Department of Natural Resources and Mines to coordinate progressing the initiative could not be allocated until mid May 2002;
- A status report, which presented some background to the initiative and a broad implementation approach, was presented to the QSIIC Executive at its meeting on the 16th May 2002. The Executive endorsed the implementation approach to Step 1(a) in the report (copy of that status report is attached as Appendix One for further background information for Council members);
- A very detailed background discussion paper, which documents research on the aspects, benefits and issues arising from numerous similar initiatives within Australia and throughout the world, has been compiled as a working document to support progressing the Data Queensland initiative (copy can be made available on request);
- A *Data Queensland Concept Paper - Working Draft*, has been compiled and used as a starting point for forming a scope and context for the initiative - it has been distributed for comment at a number of discussion sessions held during mid June to mid July - A copy will be provided to Council members at the July 31 meeting;
- Face to face discussion sessions on the *Concept Paper - Working Draft* were held with: -
 - Each of the three QSIIS committees;
 - Representatives from several State Government agencies who had previously indicated an interest in the initiative (EPA, DLG&P, NR&M)
 - LGAQ Networking the Nation program;
 - ASAP - SIM coordination team in OESR;
 - DIIE - Information Policy, Access Queensland and Government Technology Group;
 - State Development - Emerging Industries Division
 - Some industry representatives who were previously involved with the previous QSIIS Web Atlases project.

The aim of these discussions was to simply introduce the initiative, broadly discuss its possibilities and to seek feedback on the *Concept Paper - Working Draft* so that issues could be raised and considered as part of planning any strategy to progress. Potential relationships to current activities with the various agencies, particularly the major State Government initiatives such as Access Queensland and ASAP SIM, NAP Salinity and Water Quality for Regional Information Services, were sought. Some of these potential linkages were raised in the *Concept Paper - working Draft*.

A full list of discussion sessions and feedback details have been recorded and will be provided to Council members at the July 31 meeting. Feedback has been very slow, particularly from the QSIIS Committees - a coordinated response has come from the Industry Development Committee, one response from the Data and Access Committee and three from the Capacity Committee.

In summary, some of the main points are: -

- Good general support was received in the face to face discussions;
- Is the name "Data Queensland" appropriate - it has already caused some confusion and even some concerns;
- Some members of the QSIIS Industry Development Committee raised concerns regarding some statements in *the Concept Paper - working Draft* - about private sector investment and their perception that some key decisions seem to have already been made for progressing the initiative - a letter from that committee has been forwarded to the QSIIC Chair seeking a meeting to discuss the issues further;
- DIIE showed a good understanding and could see potential linkages to their roles for Access Queensland and broader technology infrastructure and information policy roles, as did the ASAP - SIM coordination team in OESR;
- LGAQ could also see potential linkages to their needs for the Networking the Nation Program and were keen to collaborate further to seek synergies and possible mutual benefit outcomes;
- Industry is keen to be involved;
- Most "non-GIS" users don't need or want raw data, they need final interpreted outputs - don't forget the people/users;
- Limit initial scope - demonstrate real benefits of the outcomes - and for broader spatial data infrastructure benefits for Queensland;
- Get a working example out there asap, get feedback concerning its value using a number of feedback mechanisms;
- Two respondents offered document re-structuring suggestions and asked valid questions about scope, stakeholders, detailed project plans etc. These specific details will be clarified in future planning discussions resulting from these initial conceptual discussions;
- Data Queensland should not be seen as a completely new service - needs to recognise huge amounts of work already occurring - could potentially duplicate efforts occurring in other areas such as DIIE.

3. Some important and related QSIIS History

In considering the proposed Data Queensland initiative at this time, it is useful to look back at the previous work completed through QSIIS and its predecessor QLIS. This work can be regarded as incremental steps leading to and substantiating the need for such an initiative now.

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;
- Determined a positive cost benefit of at least 7:1;
- 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, an 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.

The architecture developed during QUEST and further tested in PIP is consistent with that overviewed in the *Data Queensland Concept Paper - Working Draft*. 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.

4. Some general comments

As a result of the QSIIC decision regarding this initiative in November 20012, it had been intended to develop a prospectus for Data Queensland and to subsequently canvass industry to take the lead to develop the necessary infrastructure and application services as some form of shared services provider model - similar to the strategy adopted by QSIIC resulting from the PIP project.

This idea has been shelved due to earlier discussions with industry representatives and other recent feedback on this issue. The failure to develop the PIP seems to re-enforce this strategy. Research findings from Europe, the USA and Canada also suggest that initial investment by Government is necessary to seed activity. However, as mentioned previously, members of the QSIIS Industry Development Committee raised some concerns regarding some aspects of the *Concept Paper - Working Draft* and are seeking a meeting to discuss these issues further. This meeting has not yet taken place.

Initiation by the State Government, aimed at some small scope of State Government business in the first instance, is still likely to be the most successful first step. Such a strategy does not rule out involvement by the private sector (even in these initial stages) through the provision of needed products, services, applications development etc.

Many agencies throughout the State are already advancing (independently) the delivery of data and information services over the Internet. The QSIIS Web Atlases project reported on these and this ultimately lead to forming the notion of a Data Queensland.

It is one thing to deliver individually to the Internet.

It is another however to have a coordinated process with common data models, open technology, collaborative funding arrangements, policies for open data sharing, and political leadership. These can be seen as critical success factors for long-term viability. As demonstrated by the following reference, numerous independent Portals of data and information may not be the most effective way to find, access, integrate and make available needed data and information services.

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 Chevallerou FTIT April 17 2002, FT.Com].

Several agencies have expressed an interest in participating in the early initiation of Data Queensland: -

- EPA, possibly with their Eco-Maps;
- DLGP with their regional planning needs and GIS environment called IIS;
- LGAQ with their Networking the Nation program;
- DIIE, with regard to their roles in Access Queensland and Government Services Locator initiatives - (LGAQ and DLGP are already canvassing possibilities with DIIE);
- The NAP - Regional Information Services for salinity and water quality is another major initiative with immediate business needs.

Clearly a scope needs to be formed in a collaborative manner. No decisions or plans have yet been decided upon. The detail will come from future discussions following on from collaboration with the *Concept Paper - Working Draft*.

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.

5. Summary

Many of the necessary preliminary investigation and business case specification steps 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.

What seems to be needed now, is actually implementing, in a practical and operational way, the smarter on-line discovery, access and delivery methods to realise these benefits and meet the needs of Queenslanders. Focusing on State Government outcomes in the first instance with a small scope, and doing so in a manner which can be scalable to include any market sector in the future, is likely to be the most successful approach. The State Government, after all, will be a major benefactor. This does not mean that there will be no initial role for the private sector.

A coordinated process with collaborative funding arrangements, policies for open data sharing, political leadership, sets of standards, common data models, open technology, common and shared "middleware services", (such as directories/registries, authentication, security, transaction etc), to facilitate integration and future value adding will maximise benefits and deliver success. Individual Agency Portals are not sufficient.

An integrated governance and business model with workable institutional arrangements are the tricky bits; technology is not the main issue. Determining the ownership, management and maintenance regime for any shared infrastructure and services will be critical.

Strong linkages with major State initiatives Access Queensland and ASAP - SIM will be critical for political awareness and leadership, collaborative funding and outcome development potential. Relevant strategic plans need to recognise these linkages and contain related projects with aligned outcomes accordingly. It will be possible for various agencies to be involved and collectively contribute to the common goals.

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

6. Recommendations

1. QSIIC endorse that Data Queensland is still a priority for 2002/03;
2. QSIIC determine how to establish strategic linkages between outcomes for Access Queensland, ASAP-SIM and Data Queensland, so they can be understood and endorsed by relevant State Government ministers (political endorsement and leadership);
3. QSIIC consider a more appropriate name to reflect the aim and scope for the initiative.

APPENDIX ONE

Data Queensland - Status report to QSIIC Executive

16th May 2002

Background

The Data Queensland initiative emerged from the QSIIS Status Report on Desktop Web ATLAS initiatives for delivering spatial data over the Internet. The report was presented to QSIIC at its full Council meeting in November 2001. 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". The main focus of the report and the discussion at Council was at the Web ATLAS 'front-end' level. QSIIC endorsed three actions: -

1. The QSIIS Secretariat in NR&M, in conjunction with the QSIIC Capabilities Committee, coordinate the development of a business case and an implementation plan for Data Queensland;
2. DIIESRQ to advise QSIIC Executive on potential linkages to the Smart State initiative;
3. QSIIC members to report back to the Council on how they communicated this project in their organisations.

A proposed implementation outline was subsequently formed and discussed at QSIIC Executive (15/2/02) and Council (13/3/02). Some key discussion points from Council Minutes were: -

- The challenge for Data Queensland has been in determining its form and how to develop it;
- It should be a multi-participant activity involving Governments and private sector with funding and technical issues to be worked out - participation to include Local Governments - there might be private sector organisations willing to invest in creating and operating such a shared facility;
- It would be a shared service facility, probably managed by a shared service provider under an owner or owner's Board;
- Fundamental spatial data be put into the facility to be made available;
- The facility should be managed along the lines of a distributed custodianship model;
- QSIIC endorsed the progression of the Data Queensland initiative and the development of a Prospectus.

Status

The QSIIS Secretariat in the Department of Natural Resources and Mines has been unable to provide a resource to coordinate planning activities until early in May 2002. Planning and coordination activities can now be advanced.

The QSIIS Secretariat, through Dr Richard Eden, has discussed the initiative with some private sector representatives to canvass their possible support for and investment in progressing Data Queensland. Consistent feedback was given that the initiative is valid but investment at the present time is NOT feasible and will not be profitable.

The private sector representatives suggested that the State Government should initially focus on developing and delivering something tangible of a limited scope for State Government business needs, make it work, and demonstrate the benefits. Potential private sector take-up in the future must be considered in planning.

As a result, the proposition for progressing Data Queensland has to be re-focused. It is now planned to develop a new Implementation Plan (initially scoped for some limited State Government business needs) with a Coordination Process to facilitate development, and submit this to the full QSIIC Council meeting in July 2002.

Some Implementation Considerations

- There is ample evidence (from previous work), that the State Government will be a huge benefactor, so the idea of an initial limited State Government business focus is sound;
- Developing Data Queensland from this perspective, 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;
- Design and development must consider future take-up by the private sector to link to the infrastructure to develop value-added services to their clients and defined business needs - liaison with the QSIIS Industry Development Committee may provide the necessary conduit;
- Strong linkages to major State initiatives such as Access Qld and Smart State are critical, Data Queensland must be PART OF these initiatives for political and agency recognition, resourcing etc;
- Price Waterhouse Coopers prepared a useful report "Shared Services, Opportunities for the Public Sector" (Aug 2001), which contains considerations and issues for implementing a shared services model;
- Data Queensland should adopt the AQ Governance model, conform to the ten principles for cross agency access for AQ, and use whatever shared infrastructure possible (eg. the Govt Services Locator) and deliver 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;
- The QSIIS Information Definition project will provide a profile of user demand across a range of business interest areas;
- 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);

- 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 Chevalleriau FTIT April 17 2002, FT.Com];*
- Implementing Data Queensland must be aligned to the national effort through ANZLIC to develop a distribution network for spatial data as part of the ASDI (Australian Spatial Data Infrastructure) 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 framework datasets.

The concept and initial scope for Data Queensland needs to be formed in more detail before commencing any specific activity. A document, which enunciates possible architectures, roles for all participants (including Governments, Users and the private sector), needs to be developed and debated.

Previous studies have documented business benefits of better access to and use of spatial data and information. There are many other benefit examples around the world. The following statement from Delaware, USA, Spatial Data Framework reads: -

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.

A possible implementation approach is broadly set out on the next page.

A possible broad implementation approach

