BLIN

BASIC LAND INFORMATION NETWORK

CAPITALISING ON OUR INFORMATION RESOURCE

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ABSTRACT

BLIN is the Queensland Department of Natural Resources' Basic Land Information Network. BLIN creates an integrating environment supporting information sharing between computerised databases. This allows clients to access information from key departmental databases from a single access point. The business rationale behind this application is to make more effective use of spatial data currently held within the various separate departmental databases. The results to date include improved client service and streamlined service delivery processes. BLIN is not viewed as merely a technology solution. Importantly, it provides a platform, which will allow the Department to springboard into a greatly improved market position resulting in greater revenue returns. The Department has a plan to establish a network of information brokers who will package products and services to the various market sectors allowing the Department to focus primarily on the collection and management of the information asset.

INTRODUCTION

BLIN is the Queensland Department of Natural Resources' Basic Land Information Network. BLIN creates an integrating environment supporting information sharing between computerised databases. BLIN has been operational as an integrating environment since March 1996 and allows departmental clients to access information from several key departmental databases from a single access point. In the past in Queensland, as in other places, if you ever had to search for land information, be it for the sale or purchase of a property, you would experience the pain of having to go to separate buildings, separate departments, separate service centres in those buildings, perhaps even to separate computers in the same service area. This information often came in the form of lists or reports annotated with jargon and focused to departmental information needs and not to the needs of clients. In short information was "difficult" to get to, and to understand. Through BLIN, our organisation has met the challenge to provide client focused products and services.

This paper will discuss the background to the BLIN concept of access to spatial information, and how BLIN has removed many of the past information access difficulties. It will discuss how BLIN works, its impact on the organisation and its clients, where this network fits in the bigger picture and where it is heading into the future.

BACKGROUND

To speak of the current situation and how it has come about one needs to go back to the principle factor which has provided the impetus to the development of BLIN, that is the merging of government Departments and the expectation for resulting process efficiencies. The rationale for merger focused on building on synergies relating to our human, physical and technical resources. In 1989 the new Department of Lands was formed which was an amalgamation of Lands, Geographic Information, Freehold Titles & Valuations, all previously separate Government Departments.

A challenge for the new Department was to streamline the internal process and create synergies between previously autonomous and separate functions. In order to facilitate this process, the need to develop interfaces between the various technology systems was a critical initiative. An investigation into each system which at that time were still in development phases, resulted in specific interfaces between individual systems being progressed.

The Department of Lands had expended considerable effort in the formative years towards enabling computerisation support to functional processes. Queensland now has a fully computerised Toren's titles register, a seamless cadastral base, a sophisticated tenure administration system for state owned lands, and a sophisticated valuations and sales system. All laudable achievements in their own right resulting in significant

functional process reforms. However the information contained within these systems could be described as islands, isolated, containing uncontrolled information duplication and redundancy, with products and services focused only to their target audience. It was realised that a different approach was needed if significant reform was to be achieved. There needed to be a single interface through which staff could extract "composite" information to obtain a corporate information view. The BLIN environment establishes this integration of information across the wide range of systems. For the first time spatial and textual information retrieved from the various source databases are presented in the form of products tailored to specific needs. E.g. Property interests, cadastral maps. The timing of the technology development required to pull all of this together has also been most opportune. Only 3 years ago the technology would not have been capable of networking what we are now able to do and at that time several of our state wide information bases were still under development, e.g. the Digital Cadastral Data Base, Automated Titles System (ATS), Valuations and Sales System.

BLIN has provided the catalyst for improved client services, streamlined service delivery, new products and an improved information management regime for the organisation. It is now a network that links the key data sets of former separate Departments involved in Land Administration. The amalgamation of those separate organisations has brought together the logical amalgamation or linking of information about land. The spin off of this is a new integrated information resource, which is much more valuable than the sum of its component parts. BLIN is an information asset, which provides a range of new integrated information products, which are becoming a new revenue resource for the organisation.

SO WHAT IS BLIN?

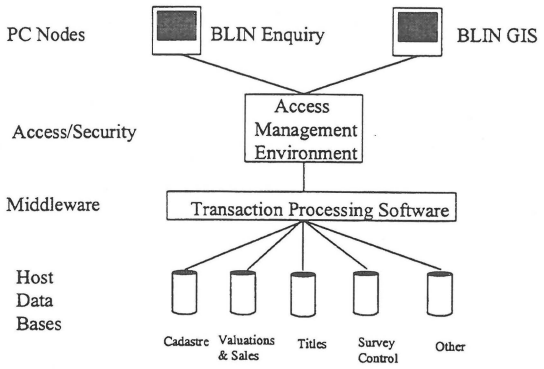
The Basic Land Information Network (BLIN) is a linking network bringing together a selection of key elements from different databases within the Department of Natural Resources. At this point in time, databases networked include the state's entire cadastre (Digital Cadastral Data Base - DCDB), the state wide valuations and sales information system (Integrated Valuations and Sales System - IVAS), the state wide Titles Registry (Automated Titles System - ATS), the state survey and geodetic control information (Survey Control Data Base - SCDB), the entire imaged database of surveyor's plans (Computer Inventory of Survey Plans - CISP). These databases deal with information covering more than 1.6 million parcels of land in the State. It is intended that natural resource (soils, water, vegetation) and other land administration databases will be included into this environment over the next year or so, and existing ones will have upgraded services written to provide further business process re-engineering opportunities.

The information accessed by BLIN may be displayed spatially in relation to the cadastre from the DCDB or in some cases it can be displayed as text reports. Two distinct BLIN applications have been developed within the BLIN environment;

- BLIN Enquiry - a simple to use enquiry system which provides online enquiries of the connected databases and automated production of integrated mapping products; and
- BLIN GIS which is a Geographic Information System (GIS) with full analysis and manipulative capabilities to allow professionals to process, display and analyse the information retrieved from Departmental databases.

The following diagram displays the BLIN concept in simple terms:

BLIN - Basic Land Information Network



BLIN Enquiry was developed specifically to be the low cost enquiry engine, which is available to all 3,500 departmental staff. It provides the ability to make common land information enquiries by concurrently accessing cadastral, valuations and title information, to display that information on the screen, to print a condensed textual report of that information and request a map showing that information spatially. A copy of the surveyor's plan over any area of interest can also be produced. From BLIN Enquiry, a number of standard products - Cadastral, Surveying, Valuation and Property Purchase products can be produced. There is also a facility to customise a client request to meet specific client information requirements. BLIN GIS utilises the full functionality of the GIS environment and is designed for the professional who requires the ability to analyse large volumes of data over specific geographic areas, and the capacity to link with additional information layers.

The BLIN network began operations in March 1996 and is now available at Department of Natural Resources' offices in more than 40 centres across Queensland, from Brisbane to Cairns and west to Longreach and Cunnamulla. The technical system architecture for BLIN utilises a proprietary TUXEDO Transaction Processing software environment to create business objects, which provide the navigation paths for various queries. Business objects can be assigned to user groups, which facilitates the security of access to approved queries only. BLIN has a "user friendly" graphical interface written using a combination of Visual Basic and Visual C++. It is a Windows based system providing the user with a systematic format of icons and menus guiding the user to the required information and to the desired output map product.

The Basic Land Information Network (BLIN) supplies clients with accurate, up-to-date information about their land. While clients may have a comfortable familiarity with their own house block, farm, or property, information about the entire neighbourhood such as ownership, boundaries, valuation, and sales are generally not known. Within minutes, and from a single personal computer BLIN at any departmental service outlet, can make land information enquiries for interested

clients. It can supply clients with a map of the locality in which they are interested, showing the chosen property in the middle of a map containing a selection of the land information mentioned above for each parcel of land in the map area, depending on choice.

BLIN on-line clients are currently restricted to government agencies with BLIN products being sold at DNR service centres across Queensland. Clients use BLIN

- to make simple enquiries about any specific block of land in the state, or
- to obtain a computer derived map of any area of interest in Queensland.

Clients launch the search by using familiar information they already know, such as the name of the street where they live. Then BLIN leads the client to that neighbourhood and offers a choice of land information. Clients may also search by zooming and panning to the area of interest by use of a keymap, which covers the entire state. A selection of information can then be gathered automatically from linked, major databases and integrated into map form at the point of enquiry by BLIN. BLIN also has the ability to tailor an information product to client requirements by selecting the information the client wants to see on the face of the map, and colouring or shading the map as required.

Clients have commented on the ease of using BLIN and are satisfied with the detail and information that BLIN provides. Client needs and the attractive pricing of BLIN products has created a market pull for the products. It is often the case that governments have a monopolistic position in the provision of a majority of Land Information. As the provider of this information, there has been a criticism that the products available reflect the capacity of the provider to deliver and not the needs of the clients. Providers are often seen to be operating on the principle of market push. Sales of BLIN products are increasing now at the rate of 4.5% compounding monthly (68% over the past 12 months) and this growth has been achieved through local marketing. This was deliberate, as the impact of the increased volume of enquiries on our systems and networks were unknown and therefore a cautious approach was adopted, wholesale release could have resulted in significant degradation in service performance. Subsequent statistics have shown that the BLIN environment posed very little additional overhead on the systems environment, in fact it provides efficiencies in many cases due to its use of the transaction processing environment and its capacity to multi-task.

ORGANISATIONAL IMPACT

From a corporate point of view, the Department has moved its focus through BLIN from a disparate selection of information systems, toward establishing a fully integrated environment supporting on-line information sharing between computerised databases and their business operations, providing a new corporate perspective for information management. This has provided the added efficiency of providing a single access point to land related Departmental information resources. The business rationale behind this new environment is to make more effective use of the expanse of natural resource data within the Department and a desire to understand the volume, need for and resultant management response to redundant data. Consequently, BLIN is not viewed as merely a technology solution and not merely another technical application, rather BLIN is the beginning of a new "operational" environment for our organisation, an integrated, online, corporate spatial information environment to which all staff have access. It is the tangible and operational example, which is spurring our organisation toward improved information management practices. No longer is information management merely just desirable concept or principle, but rather an operational functionality from which the Department is able to foster the establishment of a working information environment.

In physically establishing this integrated information environment with BLIN, the Department is now able to seriously consider the key principles and issues of information management. Issues like data duplication, data integrity and data custodianship. What's more, the organisation is now able to tangibly deal with them! No longer are they merely "nice to have" concepts and principles to be bandied about, but they can be operationally dealt with. In producing integrated information products for sale through BLIN, products which have been derived from information extracted from several data bases, the Department has been compelled to put in place internal arrangements for pricing and revenue distribution and for revenue retention to support BLIN systems maintenance and enhancements. Privacy issues are also being considered as well as the provision of on-line access for external clients. External requests for on-line access has driven the development of an Access Management Environment (AME) for the whole department which will provide the organisation with an appropriate on-line-security, an audit trail of transactions, and an automated billing of the transactions made by external clients. The provision of this on-line access to BLIN for our clients opens up the Department's information to the world offering us a choice of service delivery options which will eventually include the Internet as well as other third party on-line information brokerages arrangements. This potential means that the Department has now had to make a decision as to whether it wants to be in the wholesale or retail market with its information. The Departmental approach is to establish a network of third party information brokers who will package products and services to the various market sectors and the idiosyncrasies of those market's clients. This will allow the Department to focus primarily on the collection and management of its information asset. Once again, BLIN is compelling the adoption of basic information management principles, ensuring that we manage information as a strategic resource in recognition that information is this organisation's lifeblood.

CLIENT IMPACT

The two years spent in developing BLIN has resulted in a superior, more accessible land information system which is available to people across Queensland through the Department of Natural Resources Land Service Centres. To external clients, BLIN represents value for money. The BLIN derived valuations & sales product, which is an A4 cartographic quality map product, contains approximately 30 parcels of information. Previously to search such information would have cost $300 (Australian). ($10/Search/land parcel). Now through BLIN the Department is charging $14. It is anticipated that the lower cost

coupled with the ease of access to this information is creating higher volume.

For internal clients, enhancements to BLIN are now being made for internal business re-engineering purposes. Internal clients have realised that an efficiency benefit gained by using BLIN in internal Departmental processes equates to savings in the time it takes to complete everyday tasks, which equates to savings in staff time ultimately enabling the redirection of staff resources to other priorities. For example, a typical lease application process now undertaken using BLIN equates to a saving of 3.5 hours per lease application. With 2250 such jobs completed each year, this equates to a saving of 8000 person hours. This should be significantly improved as additional relevant databases are made accessible through BLIN. The Department has an everyday role to process numerous transactions of this kind and such savings are being realised in varying degrees across the entire organisation.

CHALLENGES/FUTURES

Importantly, BLIN provides a platform, which will allow the Department to springboard into a greatly improved market position resulting in greater revenue returns. The Department is moving from agency based delivery of information services to market based delivery. Progressively over the next few years, it can be seen that the organisation should be able to deliver product sets focused to commercial activities such as:

- conveyancing - drawing together current property and ownership details but also planning and development restrictions;
- farm management - drawing together property details, soil and vegetation profiles, production capacities for carious crop alternative, climatic profile, drainage and water profiles; and
- land development - drawing together property and ownership details, topography, demographics, soil & vegetation profiles, cultural feature locations e.g. Shopping centres, schools, transportation infrastructure etc.

The paper has thus far highlighted how BLIN has brought benefits to the Department by integrating data from various sources. The Department of Natural Resources is also lead agency in Queensland responsible for the Queensland Spatial Information Infrastructure Strategy (QSIIS), which will develop a network of information sharing between information systems, ultimately providing access to a wide range of spatial information spanning Queensland Government Departments and Local Authorities. The vision of the QSIIS is "*Industry, the community, government and others doing business in Queensland have easy and available access to integrated, relevant and reliable spatial information*". The responsibility for ensuring the development and delivery of QSIIS rests with the Queensland Spatial Information Infrastructure Council (QSIIC). The council membership consists of senior executives from State Government department and Local Governments, with membership of industry and the community being consider in the near future. For QSII to develop, government, industry and the community must participate and collaborate. Government has many data sets that form part of the spatial information infrastructure. These datasets are fundamental to the business of government. The private sector has the expertise to create information and technology products that are focused to specific market needs. It also has the marketing expertise that ensures effective delivery for the benefit of the community and industry. The community has the responsibility to inform information providers of their information and service requirements.

A recent benefits study in terms of the benefits and impacts of the development of the Queensland Spatial Information Infrastructure has been completed, and the study reported that a benefit:cost ratio of around 7:1 or higher could be achieved with careful planning and sound management to avoid duplication and maximise return on investment across government by adopting a whole-of-government focus on projects and technologies.

The study has also recommended a Products approach to the development and delivery of integration of data. Twenty-two priority products have been identified and effort is underway to complete the product specification. Producing these 22 products will require commitment in an ever-changing environment, but sponsorship from relevant agencies and involvement of the private providers will move Queensland to this integrated solution.

Electronic delivery of government services is a clear priority of the Queensland Government. Through the Queensland On-Line Project, a prototype of an electronic spatial marketplace will be advanced to provide on-line services to the marketplace. New Internet technology is emerging which will make data integration much easier and faster. This new technologies' relevant to the QSII is being explored through a sub-project which will involve the development of a prototype with the title of Queensland Electronic Services Trial (QUEST). The purpose of QUEST is to assess Spatial Internet Marketplaces (SIM) as a basis for electronic services delivery for QSIIS. SIM can be conceptualised as providing the functionality of a village marketplace where providers make available their products and services and the consumer chooses the product and service best suited to their needs. The SIM will provide the interactive environment, which allows the connection between the consumer and the provider and the delivery of spatial information products and service. The priority is to provide government services through this marketplace, however the concept naturally extends more broadly to the commercial provisions of products and services. QUEST will particularly examine issues relating to:

- the technical feasibility of building a SIM;
- the problems likely to be encountered in the context of the policy and operational framework in Queensland;
- the value to Queensland Government service providers and clients; and
- the likely risks, costs and schedule for a full systems development and deployment.

This research project involves collaboration between 3 State Government agencies, the Commonwealth Government's science body (CSIRO) and a research organisation the Distributed Systems Technology Centre (DSTC). The objective of QUEST is to develop an access environment which is non-proprietary, business/service oriented, catering to service

providers who are driven by market requirements, whilst encouraging of value-adding and an environment where key suppliers of data (i.e. Government) are able to concentrate on the supply of raw quality data leaving the rest to the market. The objective is to have an "open systems" approach, which encourages inclusion of existing applications minimising the conversion/linkage requirements for connection of these applications by providers.

Through QSIIS the experiences and learnings of the BLIN development within the Department of Natural Resources can now be explored on the higher, state level platform. QSIIS is now capitalising on the experiences and benefits realised by BLIN by integrating data from several Government Agencies.

The Internet development proposed through QUEST involves the developing of an environment that leverages off our investments – an environment that is not to be a proprietary solution. Quest will be a demonstration of what is coming, of the future

There are significant issues to be overcome. As well as the numerous business and technical difficulties associated with data integration e.g. Standards, formats, network linkages, accuracy, currency, custodianship, intellectual property, remuneration, storage, location, there is also the issue of the data custodian's management of data quality. How do we ensure that the data custodian maintains a suitable standard of quality for their data sets and how do we communicate that quality standard to the marketplace such that the data is used in the appropriate manner?

CONCLUSION

We do not have the answers to all these challenges, but as many of you we are progressing our understanding and seeking to implement solutions. The challenge is to link with other parties who can provide an insight into their developments and approaches so that we can share our experiences. If you are interested in finding out more then I would direct you to the Internet site HTTP:*www.qsiis.qld.gov.au, or send an email to qsiis@dnr.qld.gov.au.*

The next challenge for the Department, through the Queensland Spatial Information Infrastructure Strategy (QSIIS) is to progress to develop the whole of government information products tailored to meet the needs of government, business and the community. The QUEST prototype will provide a demonstration of the future, providing a clear definition of the concepts of a spatial information marketplace and an identification of the problems associated with it.

I believe that BLIN has been the catalyst for a new mindset for what is possible. We have learned significantly about information integration and information management from the development of BLIN. With the Department of Natural Resources, the boundaries are progressively coming down from across business groups. Evidence of the success of BLIN has been the ease with which the newly merged departmental functions have adopted BLIN as a tool for their own processes. Already demand is growing to expand the range of databases to include data from water, soils, forestry, climate and other sources which all now exist within the one Department.

The challenge now is to remove the boundaries between agencies across Government and the Private Sector, apply what we have learned from BLIN and partner together in creating our information futures through the QSIIS initiatives mentioned above. The challenge continues…..

About the Author

Margaret Berenyi is a Senior Executive within the Department of Natural Resources with experience in a variety of business areas including Valuations; Surveying and Mapping; Land Titles; Land Sustainability, Technology and Information Management.

Until recently Margaret had responsibility for the Queensland Spatial Information Infrastructure Strategy which aims to provide tangible information products and services which present an integrated view of spatial information held across levels of government. The main challenge in delivering integrated information products and services is in creating an institutional framework which promotes partnerships across government and a commitment to the corporate objectives, as well as the challenges involved with information and technology management.

In her new role, Margaret has responsibility for the development and facilitation of community participation in natural resource management processes, as well as providing the framework for the development and management of external funding opportunities.

Margaret has a Bachelor of Business from Queensland University of Technology, a Masters of Administration and a Masters of Technology Management degree from Griffith University.