

Using our Intelligence: the Secrets of a Successful BI Portal

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1. EXECUTIVE SUMMARY

Developing and maintaining an effective business intelligence (BI) environment with limited resources is a challenging prospect. This paper looks at the University of Queensland's BI portal, *The Reportal*, and examines why it and the BI environment in which it sits has been so successful with users and senior executives alike. It discusses strategies employed by Management Information Section (MIS) that have enabled it to support a large number of users with relatively few resources.

1.1. Background

The University of Queensland (UQ) began developing its current BI environment with the creation of a fledgling data warehouse at the end of 1995. Today, more than 2000 staff use its BI systems which include a data warehouse, a BI portal and a series of dashboards. The BI environment contains data collections from all of the operational systems. Users range from relatively junior administrative staff to senior executives and include academic and non-academic staff. The Vice-Chancellor accesses *The Reportal*, often from overseas, to view corporate reports and those designed specifically for him.

In 1997 I presented a paper to the EUNIS conference in Grenoble entitled *Data Warehouses and Executive Information Systems: Ignoring the Hype*. The premise of this paper was that people often get carried away with the hype surrounding data warehouses leading them either to spend a lot on technology or become overwhelmed by the prospect of such a development. The result is that user needs are not met. Successful implementations are those that understand and focus on user requirements. The UQ development has been based on this premise.

1.2. Strategies

UQ has developed a number of strategies across its BI environment to ensure sustainability, adaptability, a high return on investment (ROI), efficiency and support from both its users and the 'owners' of the data. Particular strategies have also been developed for *The Reportal* including measures to minimise support costs, ensure quality, encourage ownership and maximise use.

1.3. Conclusions

The user-focussed approach employed by UQ together with deliberate strategies to bring data owners on board and to market through results has enabled it to deliver an effective BI environment at a relatively low cost. The development and maintenance of such an environment will always be challenging but with careful ongoing attention to appropriate strategies it can be very rewarding for everyone involved.

2. INTRODUCTION

In 1997 I presented a paper to the EUNIS conference in Grenoble entitled *Data Warehouses and Executive Information Systems: Ignoring the Hype*. The premise of this paper was that people often get carried away with the hype surrounding data warehouses leading them either to spend a lot on technology or become overwhelmed by the prospect of such a development. The result is that user needs are not met. Successful implementations are those that understand and focus on user requirements.

2.1. Where we started

Although we had been using an OLAP tool and an in-house Executive Information System (EIS) for a number of years previously, the development of our current BI environment commenced with the creation of a fledgling data warehouse at the end of 1995. It was developed by what was then the Statistics Office with minimal IT support. We concentrated initially on the student data collection and over the next few years added staff, finance, research and other collections. The BI portal, *The Reportal*, was not introduced until 1999 when the Data Warehouse had become a reasonably mature system with strong and widespread support from users.

2.2. Where we are now

Today, we still have a relatively small team in our area which is known as Management Information Section (MIS). There are over 2000 users of our BI systems, including power users performing complex ad hoc queries and those who access standard reports through *The Reportal*. Users range from administrative staff who make regular use of the system as part of their everyday work to academic staff who monitor their research accounts online. The system is accessed by all levels of staff from junior administrative staff to senior executives, including the Vice-Chancellor. Perhaps the most pleasing aspect of the development has been the ongoing strong support of the users who recognise that the focus of the MIS team has always been on their needs rather than the technology.

3. THE UQ ENVIRONMENT TODAY

A diagram summarising UQ's current BI environment can be accessed from the [MIS website](#).

3.1. Data Warehouse and Data Collections

The UQ Data Warehouse contains data collections from all of the main operational systems as well as some peripheral systems. These collections are generally further sub-divided into 'official' data for benchmarking and performance-related purposes and 'current' data used for more operational enquiries.

3.2. Ad Hoc Query Tool - BusinessObjects

Access to the collections within the Data Warehouse is exclusively via the ad hoc query and reporting tool, BusinessObjects. Users can either perform their own ad hoc queries or access a range of standard reports which they can customise, if necessary.

3.3. BI Portal - 'The Reportal'

The UQ BI Portal is *The Reportal*. It is an online repository that includes corporate reports with 'official' data which can also be viewed by external visitors; administrative reports and a 'My Documents' area that users can personalise according to their own requirements.

3.4. Dashboards - Crystal Xcelsius

A series of dashboards and balanced scorecards have been created using Crystal Xcelsius. This is a fairly recent development and one that has received a lot of favourable feedback from within the Australian tertiary education environment and from overseas universities. These can be accessed from the MIS website at www.uq.edu.au/mis

3.5. Other Systems

A small number of other systems have been developed using the Data Warehouse and BusinessObjects, to address specific needs. One of the most interesting is an enterprise bargaining tool used for negotiations with staff unions. University administrators can input a range of parameters and produce a forecast outcome by organisational unit and staff type while at the negotiating table. In addition, staff unions have access through *The Reportal* to reports showing the University's staffing profile against a benchmark year. Another more recent development is a budget forecasting tool that enables users to update forecasts online. Users access reports either via BusinessObjects or *The Reportal*. These reports include alerters to indicate accounts that require attention and interim management reports that show the results of changes to forecasts in real time. This is possible because the forecasting activity is carried out solely through the Data Warehouse.

4. STRATEGIES

A BI environment must be sustainable, adaptable and efficient. It needs to be able to respond to new system implementations, changing user needs and even changing users as its greatest supporters often move on. The following are some of the strategies that we employ to deal with these issues.

4.1. Sustainability

If your BI environment is to thrive, it has to have ongoing funding and to be seen as a strategic priority. It therefore needs to have strong support from senior executives and, in particular your executive sponsor. The best way to achieve this is not by giving presentations promising exciting outcomes but by delivering measurable results. These may take a number of forms such as strong user support filtering upwards or even by direct contact from users. If we receive positive feedback by email I always copy this to our executive sponsor. Two very useful means of showing strong support are the BusinessObjects annual User Forum and the annual User Awards.

As new executives are appointed we make sure that we meet them within the first month to show them what we do and invite them to let us know if they have particular reporting needs. We also work closely with groups such as faculty finance managers.

Tools that provide something special such as the Enterprise Bargaining tool, the forecasting tool or a teaching quality pack, so long as they are attractive to users and intuitive are another way of making the BI area indispensable.

An important factor in relation to sustainability is to ensure that the BI unit does not become too expensive in terms of staffing and other resources. There can be a great temptation to seek significant additional funding. This can be counter-productive in the long run.

4.2. Adaptability and ROI

At UQ the BI environment supports a wide range of operational reporting needs as well as providing benchmarking and performance measurement reports that use 'official' data. This is how we achieve a high return on investment (ROI). This applies across all of the data collections. For example, with HR data, as well as reports that show staffing profiles, staff-student ratios, projected attrition and 5 year demographic profile there are a number of reports used by managers and other administrative staff on a day to day basis such as those that alert them when staff within their area build up excessive leave. In Research, there are a wide range of performance reports with research income, publication and higher degree awards data available through *The Reportal*. *The Reportal* is also used extensively to return operational reports that are refreshed daily, such as those enabling users to track details for individual projects.

As well as the extensive range of operational reports available through *The Reportal*, administrative staff use BusinessObjects and the Data Warehouse to create ad hoc reports, particularly in the student area, to reduce manual processing. Universities have a greater need for these non standard reports than most commercial organisations. By encouraging users to think about how the BI environment can automate processes and provide answers to questions that would normally have been too time-consuming to deal with, the University's ROI is greatly increased.

4.3. Efficiency

The BI unit within MIS supports over 2000 users. It provides help desk support, on site consultancy, training, information sessions and workshops, creates standard reports and maintains a large part of *The Reportal*. Feedback from users is very positive. Yet, in addition to the User Support Manager, the unit has only 2.8 FTE staff. In the IT area, in addition to the IT Manager there are also 2.8 FTE staff. We employ a number of strategies to achieve efficiencies in both areas:

- A well maintained web site designed to provide a number of online resources.
- Remote shadowing of users.
- Where possible, helping users to help themselves.
- Identification and support of BI positions and/or expert users in administrative divisions and faculties.
- The implementation of best practice measures for the development and maintenance of reports.
- Multi skilling within MIS.
- An easy to use in house job register.
- An online 'Control Centre' which has been developed to centralise help desk and IT functions.
- An MS SharePoint intranet, integrated with the Control Centre and the job register, which provides enhanced project management, communication and quality processes.

4.4. User Support

The underlying philosophy behind the UQ BI environment is that it has been established to empower the user. To use a phrase coined by Bernard Liataud, the one time CEO of Business Objects, it is all about 'democratisation of the data'. This philosophy came easily to us in MIS because we started as a user area and were more interested in the data than the technology. We had minimal IT resources so we needed to concentrate on doing things efficiently rather than trying out new technology. Fortunately, the IT staff we did have were not only very good but were particularly user focussed with an excellent grasp of underlying administrative processes. That remains true today with our current IT Manager who has been with us almost since the beginning of our data warehouse development, being highly regarded by our users as well as by those in the IT industry.

Our data collections, our reports, *The Reportal* and our support systems and initiatives are all focussed around user needs. Most importantly, our users know this and trust us.

Important user support strategies include:

- A close connection with our users. We often invite users over to our offices either to get their feedback on new ideas and directions or to help provide them with solutions to reporting needs.
- We regularly visit users, particularly where there is a new head of school or faculty to brief them on what we do and how we can help them.
- Identification and regular communication with key sponsors within the user community.
- BusinessObjects is deployed via Citrix Metaframe which as well as cutting down significantly on maintenance costs, enables us to provide remote shadowing which is very popular with users.
- In most instances, because of our understanding of processes and the way our environment works we can be very quick to respond to user requests such as the addition of new fields to a data collection.
- An annual user forum and awards event.
- Training sessions and workshops using UQ data.
- Data information sessions.

4.5. Data Owners

Implementing and managing a business intelligence environment is akin to navigating a political minefield. Our greatest challenges at UQ have involved bringing the 'owners' of the data on board. We have made considerable progress with this over the years although some challenges are ongoing. This is true of BI in general. Users that show strong support leave, new executives are appointed, new systems where the suppliers may have a vested interest in getting the organisation to use their reporting system, are implemented. The best you can hope for is a number of steps forward and considerably less back. It is important therefore to have a strong foundation which is constantly being enhanced and some areas where the BI environment is indispensable.

There are a number of reasons why data owners may initially view the BI environment with suspicion. Most of them stem from a lack of understanding of how the environment, in particular a data warehouse, operates and its role in user support.

The strategy that we have used is to involve those responsible for the data and develop a sense of partnership. At UQ, staff in our Research division develop and deliver information sessions in conjunction with MIS staff. They create both benchmarking and operational reports which user support staff within MIS refine and check for use on *The Reportal*. In our International Student division, MIS have been involved in the appointment and training of a BI Officer, responsible for managing and coordinating the division's BI needs. There are similar initiatives in other areas.

5. 'THE REPORTAL'

The UQ Reportal is an online repository of standard and interactive reports that can be accessed by UQ staff and, in a more limited format, by external users. It is a customised version of the BusinessObjects BI portal, InfoView.

5.1. What's in a name?

The Reportal got its name by accident. It was a tongue in cheek temporary measure that somehow came to the notice of one of our Deputy Vice-Chancellors. It suddenly appeared in official memoranda that she sent out regarding teaching quality reports. It is in fact, a good name because it describes exactly what the BI portal is and it is meaningful to its users.

5.2. Tour of 'The Reportal'

One of the lessons we learned early on is that it is difficult to structure a BI portal to suit everyone's needs. Even for an individual these needs can change depending upon what their current interest is. We have structured *The Reportal* therefore, so that it can be viewed by data collection (eg student, staff, research etc.) which is the default position or by a grouping such as corporate, indicator or faculty/divisional area. Registered *Reportal* users also have a 'My Documents' area in which they can store reports that they have created in BusinessObjects or copied from other areas of *The Reportal*. This area also enables staff to send documents to other users such as their Head of School.

A tour of *The Reportal* can be found at www.uq.edu.au/mis.

5.3. 'Reportal' Strategies'

MIS has adopted a number of strategies to ensure that the large number of reports within *The Reportal* can be managed efficiently and that *The Reportal* is both credible and attractive to its users.

- Minimising support costs

The Reportal (excluding individual 'My Documents' areas) contains approximately 1500 reports. Some are relatively simple, static documents that only need updating on an annual basis. Others are more complex and require more frequent updating and/or a higher level of maintenance. Those that have been produced by BI representatives within user areas need checking and some reformatting before they can be posted.

To ensure that support costs are minimised, best practice procedures have been developed for the creation and ongoing maintenance of reports. These include standard report styles,

dynamic filters, and checking procedures and documentation. Report metadata that can be accessed directly from within *The Reportal* is entered when the report is posted. This information which includes bring-up dates is stored in a BusinessObjects universe and regular reports are produced. This ensures that user support staff can develop a maintenance schedule and that updates are not missed.

There can be a great temptation to over-produce reports given the flexibility of BusinessObjects and the Data Warehouse. It is important to be disciplined because of the support costs. An annual review is carried out to cull those reports that are no longer useful. If users require a report that is similar to one that already exists they are shown how to download it and adapt it to their requirements.

- Ensuring quality

The system described above that shows when reports require updating is an important measure in ensuring data quality. For complex reports, MS SharePoint is used to store documentation relating to their creation and ongoing maintenance. This includes extensive checking procedures for key reports such as those used by senior executives in budget planning and review. Standard styles are used to create a consistent look and feel. Where applicable, notes explaining how data should be used and any assumptions that have been made in creating the reports are included in an introductory section.

- Encouraging ownership

Faculties and other areas use BusinessObjects and the Data Warehouse extensively to create or view reports that are of interest to them. Some of these reports are pertinent to particular areas; others have a more widespread appeal. In order to allow organisational areas to have a facility that can be tailored to their needs without having to develop and maintain the infrastructure, MIS has created portals for each faculty and for administrative areas such as the International Education Directorate and the University Library. Some senior executives including the Vice-Chancellor and the Deputy Vice-Chancellors also have their own portals.

Administrative areas such as the Research and International Education divisions work closely with MIS to provide a wide range of reports for faculties and other areas. *The Reportal* provides them with the capacity to push out reports to individual faculty portals and, if necessary, monitor their usage.

- Maximising use

MIS runs information sessions to enable users to get the most out of *The Reportal*. The user support area also visits special interest groups to discuss their needs and to suggest ways in which *The Reportal* can be used to share information. As mentioned earlier, senior executives have their own portals where they can view reports specific to their areas of responsibility as well as university wide reports. They also make use of their 'My Documents' area. In this way *The Reportal* has strong visibility from the top down.

6. RESOURCES THAT COMPLEMENT THE BI ENVIRONMENT

In addition to individual contact, MIS uses a number of resources to communicate with and support its BI users. These assist in keeping support costs down and provide additional ways to attract and encourage staff to make the most of the environment.

6.1. The Resource Centre

UQ users can access a 'Resource Centre' on the MIS web site. This centre stores BusinessObjects standard reports and report packs that can be downloaded to the user's PC. It also provides user guides, best practice documents, tips and tricks, information on universe updates and online tutorials.

6.2. MIS Web site

The [MIS web site](#) has been specifically developed as a support resource. It provides information on the Data Warehouse, its contents and how to access it, details of training sessions, summary statistics and a range of other advice for users. It provides direct access to *The Reportal*, the Resource Centre and the Xcelsius dashboards.

6.3. Newsletter

A [newsletter](#) providing information on updates to each of the data collections and user support initiatives is sent to users three or four times per year.

6.4. Information Sessions and Workshops

In addition to basic and advanced BusinessObjects training courses, MIS offers data information sessions and 'how to' workshops. The workshops show users how to make use of more advanced formatting features and techniques such as linking data across universes.

7. CONCLUSION

The success of your BI environment depends on how much it is used. It is not surprising therefore that a strong user focus and an understanding of user needs are critical to whether it succeeds or fails. It is important to ensure that the environment is underpinned by a strong and flexible technological platform but this should support rather than drive development.

7.1. Critical Success Factors

The following are some of the more important critical success factors that will help in the development and maintenance of your BI environment and portal:

- Identify key user sponsors
- Empower staff by providing an easy to use environment
- Communicate with users and gain their trust
- Market through results
- Adopt an iterative approach with constant feedback
- Keep your executive sponsor and other senior executives happy
- Develop strategies to ensure that support costs are contained
- Institute quality measures
- Think like a user
- Never rest on your laurels

7.2. Common Pitfalls

It can be just as useful to be aware of pitfalls that can jeopardise your development. These are some of the more common ones:

- Designing your BI environment around a difficult reporting requirement
- Creating a 'bells and whistles' system that requires specialised skills to operate
- Making the system expensive to maintain
- Over-promising and under-delivering
- Failing to communicate with your users and senior executives
- Ignoring the data owners
- Trying to over-plan and do too much at once

7.3. A Final Comment

Managing a BI environment can be very rewarding. There are the inevitable frustrations but if you get it right you will get strong support from your users and senior executives, the chance to make a real difference and improve staff morale despite the funding challenges in today's higher education environment.