1 Introduction

The purpose of this paper is to define and inform about 'data governance' and initiate discussion about institutionalizing data governance at USQ within the context of a university-wide reporting framework.

USQ embarked in a data warehouse/business intelligence (DWBI) initiative. According to Pant (2009), data governance is an essential component in any DWBI effort and information management.

2 Overview

Effective data management within an organization includes data governance. Data governance aims to assign the management, responsibility and ownership for data to stewards across the organization. This ensures defined policies for access, use and maintenance [from creation to integrity to retirement] of data, in addition to considering information as an asset as well as achieving data quality.

According to Smith (2007), 'data management is the management of: data, access points to that data and management of its metadata' and argues that data governance is a 'process exercising control over the data within a corporate alignment'. Pant (2009) defines 'data governance as the combination of processes, policies, people and technology for ensuring data quality'.

Cochrane (2009) proposed a data governance framework wherein processes, policies, people and enterprise technology fit together. The framework is illustrated in Appendix Data Governance Framework on page 8. Thomas (2008) designed a more detailed framework comprising of ten components, focused on implementing data governance programs.

Smith (2007) adds 'data governance encompasses the people, corporate processes and procedures that ensure data value, data quality improvement, development and maintenance of single shared definitions for all data, and availability of the right data at the right time to the right people in the right format'. The author quotes (Source: IBM Security and Report: Data Governance Council) that 'data governance is the process by which companies govern appropriate access to their critical data, by measuring and mitigating operational and security risks associated with access to data'.

3 Data Governance and DWBI

Data governance is considered a pre-requisite for the successful execution of data warehouse and business intelligence (DWBI) projects (Pant 2009). Being a component of a DWBI strategy, data governance increases the confidence of decision makers and information workers that data is accurate and reliable. It further states that the organization is committed to make relevant data available to all stakeholders from a single source.

USQ has embarked on its DWBI initiative. Its ability to provide relevant, timely and accurate data for informed decision making and for the monitoring of quality improvement is essential in the effective management of the University. The DWBI initiative would strengthen the University decision support capability.

The key objective of the DWBI project is to build and maintain in-house the DWBI capability. The DWBI platform would consolidate and transform data from core operational systems into information. The DWBI capability

will provide a single source of the truth for the whole University which is crucial for decision makers to have confidence in the data.

4 Data stewardship and business roles

Data stewardship promotes trust in shared databases and institutes data governance at organization level (English 1999). In large organizations, data governance has a business focus.

At USQ, data stewardship is distributed across the University – a decentralized model. Stewardship is allocated by business area, namely Students, Staffs, Finance, Research and Facility management and includes a data steward and data custodian. Loshin (2001) defines the data steward and data custodian roles as follows:

> The *data steward* manages all aspects of a subset of data with responsibility for integrity, accuracy and privacy.

> The *data custodian* manages access to data in accordance with access, security and usage policies. He or she makes sure that no data consumer makes unauthorized use of accessed data.

Loshin (2001) states that stewardship roles are 'integrated in the reporting structure with clear lines of responsibility corresponding to degrees of ownership'. Luftman *et al.* (2004) mentions that key processes in an organization use a 'core' set of common data. In sharable databases such as data warehouses, wherein relevant data from different sources are consolidated, transformed and made available from a single source, responsibility of ownership would be shared unless a data steward is

assigned the care of the same information. Loshin (2001) suggests "in any environment where there is a shared data ownership, the degree of ownership is driven by the value that each interested party derives from the use of that information. It is likely that the quality of data would be high when it is entrusted to someone who has a stake in the value of the data."

5 Duties of Data Stewards/Custodians

According to Loshin (2001), the responsibilities of the data stewards and/or custodians include, but are not necessarily restricted to, the following:

Data Definition

The steward/custodian understands 'what' information is transferred to the data warehouse, assign the meaning to data and participate in constructing the data model. He or she is also responsible for new data requirements that may arise.

Access and security

The steward/custodian defines the security and authorization policy for access, validates and provides for its enforcement.

End-user support

Stewards/custodians ensure that users are granted access rights, documentation and training to effectively use the system. This includes defining a service level-agreement.

Data maintenance

Information is maintained by managing the data input process to creating data extraction and loading processes.

Business rules

All data processing operations have business rules.

Metadata management

The steward/custodian is responsible for ensuring that data sets conform to the agreed standard form. When information is shared, for example, there needs to be agreement on the format for that data. A data standard is defined when multiple parties agree to a representation format.

Supplier management

Data from external database may be required. In this case, the steward/custodian is responsible to negotiate, determine data delivery agreements, and define sets of data quality criteria and enforcing requirements and arrangements with each supplier.

6 Recommendations and Conclusion

Information is a shared and important asset for any successful organization. Information drives decision-making processes and it's imperative that decision-makers and information workers are confident about the quality of data.

This paper aims to initiate discussion about establishing a formal data governance framework at USQ. Data governance assigns the management, responsibility and ownership for data and data-related issues to steward(s) across the organization.

The cross-functional impact of the University DWBI program recommends that data-related decisions are made within a governance framework. Data governance would focus on data quality and enforce policies for data access, use and maintenance within the context of a university-wide reporting environment.

Beyond being an essential component for the successful execution of DWBI initiative, data governance ensures effective data management at enterprise-level. It is recommended that the University institutionalizes a data governance framework which would demonstrate its cross-functional and collaborative efforts in achieving a single source of the truth.

7 References

Cochrane, M. March 2009, *5 Steps to Data Governance*, Information Management Magazine, <http://www.information-management.com/issues/2007_56/10014953-1.html>.

English, L.P. (1999), *Improving Data Warehouse and Business Information Quality: Methods for Reducing Costs and Increasing Profits*, John Wiley & Sons.

Loshin, D. 2001, *Enterprise knowledge management - The data quality approach*, San Diego, Calif., Morgan Kaufmann.

Luftman et al. 2004, *Managing the IT resource, Leadership in the Information Age*, Pearson Education, p.157.

Pant, P. August 2009, *Essential Components of a Successful BI Strategy*, Information Management Special Reports, < http://www.information-management.com/specialreports/2009_155/business_intelligence_bi-10015846-1.html>.

Smith, A.M. March 2007, *Data Governance Best Practices – the Beginning*, Enterprise Information Management Institute, Vol. 1, Issue 1, < http://www.eiminstitute.org/library/eimi-archives/volume-1-issue-1-march-2007-edition/data-governance-best-practices-2013-the-beginning>.

Thomas, G 2008, *The DGI Data Governance Framework*, Data Governance Institute, <http://www.datagovernance.com/fw_the_DGI_data_governance_framework.html>.

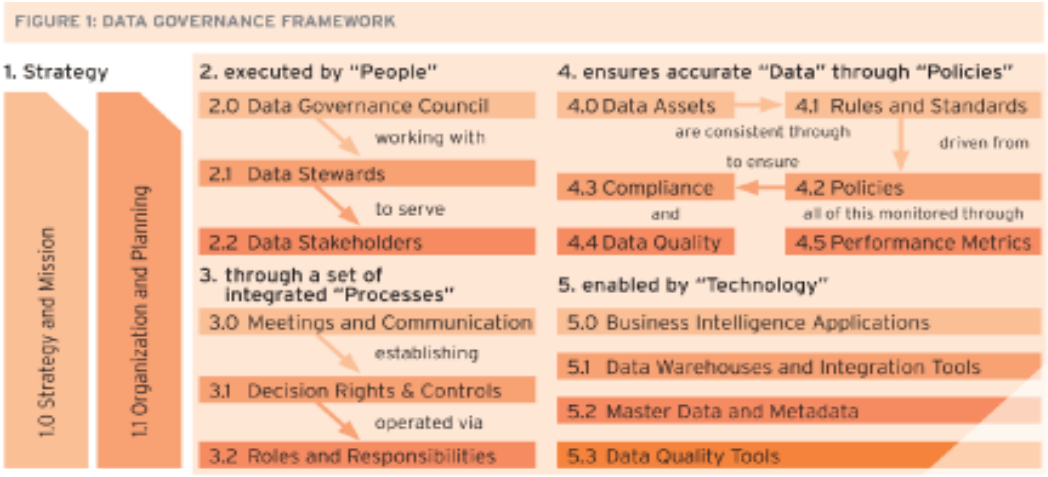
Other related materials

Adler, S. May 2007, *Six Steps to Data Governance Success*, <http://www.cio.com/article/114750/Six_Steps_to_Data_Governance_Success>.

IBM Data Governance Maturity Model October 2007, <http://www.ibm.com/ibm/servicemanagement/data-table.html>.

8 Appendix Data Governance Framework

Cochrane (2009) suggested an operational framework to institute data governance in the organization. Figure 1 below illustrates the proposed framework.



The data governance framework encompasses five components, namely:

Strategy and planning. Create a clear mission and goals.

People. Establish a data governance council and an ongoing data stewardship competency.

Integrated processes. Define and establish processes, the communication protocols, roles, responsibilities and accountability

Data policies. Focus on data standardization, compliance regulations and quality controls. Measure the overall effectiveness of the program.

Technology. Implement tools to better manage data and to ensure data quality. Define who will use the tools and how they will use them.