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## Editorial

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**Biographical notes:** Latif Al-Hakim lectures in Management within the Faculty of Business at the University of Southern Queensland, Australia. His experience spans industry, research and development and academic institutions. He was awarded his undergraduate degree in 1968. His Masters (1978) and PhD (1983) were awarded from the University of Wales (UK). He has published extensively in information management and systems modelling. He is the author and editor of six books, several chapters in books and more than 60 papers in various journals and conference proceedings. He has also consulted to a number of major industrial organisations in Australia.

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We are experiencing a transition from an industrial economy to an information economy. The current era is associated with widespread and successive waves of innovations in Information Technology (IT). Technologies such as internet, electronic commerce, World Wide Web (www) and mobile commerce bring with them ubiquitous connectivity, real-time access and overwhelming volumes of data and information. Vast databases holding terabytes of data and information are becoming commonplace (Abbott, 2001). Data and information have become as much a strategic necessity for an organisation's well-being and future success as oxygen is to human life (Eckerson, 2002). In 1999, Bill Gates, the founder of Microsoft, stated:

“The most meaningful way to differentiate your company from your competitors, the best way to put distance between you and the crowd, is to do an outstanding job with information. How you can gather, manage and use information will determine whether you win or lose.” (Gates, 1999)

Gates' statement implies that there are some issues that traditional information management systems have not addressed. One critical issue in particular is the quality of data and information an organisation should gather, manage and use. Almost every activity in which an enterprise engages requires data and information and without adequate quality, the activity may not provide a quality outcome. In addition, quality of data and information is not an option because of various mandatory types of legislation. Organisations are coming to realise that they must provide the quality information expected by their customers “or run the risk of legislation that forces them to provide such quality” (English and Perez, 2003).

There is a strong correlation between information quality and quality of products and services. However, there has been far more significant progress in research and practice of every aspect of product and service quality than has occurred in relation to information quality. There are many international conferences conducted annually and many prestigious journals that deal specifically with quality of product and services.

On the other hand, the research outlets for information quality researchers are relatively limited and do not match the importance of this field. We are honoured to present the *International Journal of Information Quality* (IJIQ) as the only international research outlet at the present time that deals specifically with data and information quality.

The IJIQ editorial members were excited by the interest generated by the announcement of the journal. The call for papers for the inaugural issue was initiated in early July 2006. As a result, 22 manuscripts were received for review and consideration for publication in the inaugural issue for IJIQ. The papers are diverse in scope and theme. The demographics of the papers demonstrate that the quality of data and information has become a global and a multidisciplinary concern.

Manuscripts were initially screened by the editor for fitness to the scope and theme of IJIQ. Three papers were rejected at the initial stage and the remaining papers were each sent to two or three experts in the field for blind review and evaluation. Many of the accepted papers have been revised more than once. Many researchers were unable to revise their manuscripts within the specified time period and requested an extension of the due date. As a result of the number of accepted papers and the eagerness of authors to revise their papers for possible inclusion in the inaugural issue for IJIQ, it is decided to publish the inaugural issue of IJIQ in two editions. This first edition of the inaugural issue comprises six papers.

We open the first edition of the inaugural issue of IJIQ with a paper that critically examines the current approaches for modelling information manufacturing systems. In 'Modelling information manufacturing systems', Thanh Thoa Pham and Markus Helfert assert that existing approaches lack the ability to systematically represent the dynamic changes involved in manufacturing information product. The object-oriented modelling concept presented in the paper focuses on information products and represents processes that consume/produce information as well as organisational responsibilities for the management of these processes. It is suggested that the work represents a framework to evaluate the quality of meta-models for information manufacturing systems modelling.

Maintaining high data quality in data repositories has been recognised as an organisational challenge. The second paper of the inaugural issue, 'Utility-driven configuration of data quality in data repositories' by Adir Evan and G. Shankaranarayanan (Shankar) addresses this challenge from an economic perspective. The authors posit that understanding the costs and benefits associated with data quality can direct and improve implementation of data repositories. Even and Shankar evaluate the economic effects of targeted quality levels – approaching higher completeness and/or accuracy increases the economic-utility, but involves higher costs. Modelling and quantifying these utility-cost effects allows assessment of tradeoffs in quality-configurations for optimising the net-benefit. Using the model, they evaluate different quality-configurations, showing that economics-driven evaluation can change data management decisions substantially when compared with strict technical/functional assessments.

The third paper, 'How to communicate measurement information successfully in small and medium-sized enterprises: a regression model' by Juhani Ukko, Jussi Karhu and Hannu Rantanen, focuses on the predictors that explain the success of the communication of measurement information in Small and Medium-sized Enterprises (SME) operating in the manufacturing industry. The paper employs a quantitative methodology, and the empirical evidence presented in the paper is based on a survey carried out in eight companies. To ensure an overall view, the survey was conducted with

all employees of the studied companies. The paper concludes that the quality of information and face-to-face communication are the main predictors of the success of measurement information communication. The study suggests that SMEs should invest in the quality aspects of measurement information, in its exactness, reliability, intelligibility, and usefulness.

The fourth paper 'Biological data cleaning: a case study' by Katherine G. Herbert and Jason T.L. Wang, discusses issues concerning biological data quality with respect to data cleaning. Biological databases tend to develop data quality issues regarding data legacy, data uniformity and data duplication. Due to the nature of this data, each of these problems is non-trivial and can cause many problems for the database. For biological data to be corrected and standardised, methods and frameworks must be developed to handle both structural and traditional data. The paper presents a framework referred to as BIO-AJAX, to address these issues. It demonstrates how the framework has been applied effectively to phylogenetic, heterogeneous and complex data sets.

Mikhaila S.E. Burgess, Alex Gray and Nick J. Fiddian discuss, in the fifth paper, one of the challenges that is, how to find information that meets consumer personal needs, within an acceptable time frame, and at an appropriate level of quality. One potential method for assisting the information consumer in their quest is to use a personal, explicit, definition of quality to focus information search results. In their paper, 'Using quality criteria to assist in information searching', the authors discuss the feasibility of this approach by showing how a consumer-refined definition of quality can be used to drive an information search. In order to demonstrate, they present their prototype Information Search Environment, with which a consumer can currently search for information within a closed-world environment. This work, and results presented, paves the way for further research in this area by transferring the lessons learned and techniques developed to an open, heterogeneous environment such as the internet. The paper therefore introduces a number of paths for both current and future research in this area.

The sixth and the final paper, 'Developing a data quality framework for asset management in engineering organisations' by Shien Lin, Jing Gao, Andy Koronios and Vivek Chanana investigates the issues emerging from the unique nature of engineering asset data. The paper discusses the various asset management data quality (DQ) issues and presents exploratory research on how engineering asset organisations in Australia are addressing data quality issues based on a large scale national-wide survey. The research findings suggest that while organisations are concerned about the quality of data, there is a disconnect between data custodians and data producers and high level data owners. The majority of organisations still adopt a reactive approach on DQ management, and do not treat DQ problems with high priority. As engineering data itself is quite different to typical business-oriented data, there is a lack of specific DQ solutions available for engineering asset management.

In concluding this editorial, I would like to express my deepest appreciation to many reviewers for their time and effort. Comments and amendments suggested by them were incorporated into the manuscripts during the development process and significantly enhanced the quality of the work.

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