Research Paper

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Evaluation of Critical Success Factors for Accounting Information Systems Data Quality in Gujarat.

Engineering

KEYWORDS :

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Introduction:

Today's organizations are operating and competing in an information age. Information has become a key resource of most organizations, economies, and societies. Indeed, an organization's basis for competition has changed from tangible products to intangible information. More and more organizations believe that quality information is critical to their success (Wang et al.,). However, not many of them have turned this belief into effective action. Poor quality information can have significant social and business impacts (Strong, Lee & Wang,). There is strong evidence that data quality problems are becoming increasingly prevalent in practice (Redman, Wand & Wang,). Most organizations have experienced the adverse effects of decisions based on information of inferior quality (Huang, Lee & Wang,). It is likely that some data stakeholders are not satisfied with the quality of the information delivered in their organizations. In brief, information quality issues have become important for organizations that want to perform well, obtain competitive advantage, or even just survive in the 21st century.

In particular, Accounting Information Systems (AIS) maintain and produce the data used by organizations to plan, evaluate, and diagnose the dynamics of operations and financial circumstances (Anthony, Reese & Herrenstein,). Providing and assuring quality data is an objective of accounting. With the advent of AIS, the traditional focus on the input and recording of data needs to be offset with recognition that the systems themselves may affect the quality of data (Fedorowicz & Lee,). Indeed, empirical evidence suggests that data quality is problematic in AIS (Johnson, Leith, & Neter,). AIS data quality is concerned with detecting the presence or absence of target error classes in accounts (Kaplan, Krishnan, Padman & Peters,).

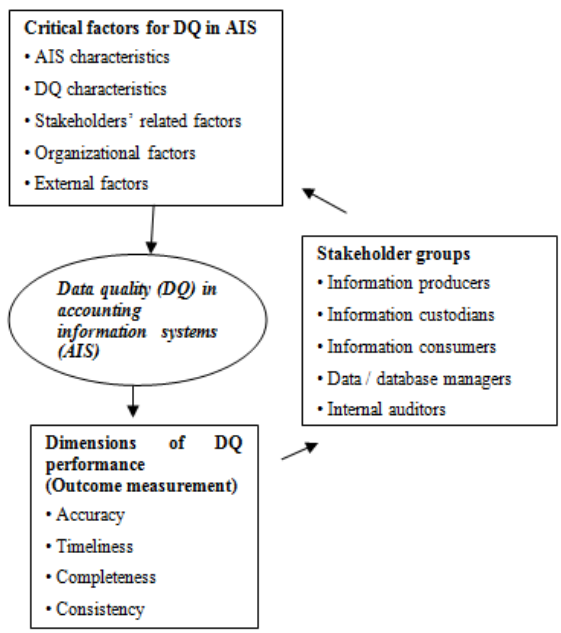
Thus, knowledge of the critical factors that influence data quality in AIS will assist organizations to improve their accounting information systems' data quality. While many AIS studies have looked at internal control and audit, Data Quality (DQ) studies have focused on the measurement of DQ outcomes. It appears that there have been very few attempts to identify the Critical Success Factors (CSFs) for data quality in AIS. Thus, there is a need for research to identify the critical success factors that affect organizations' AIS DQ

Information technology has changed the way in which traditional accounting systems work. There is more and more electronically captured information that needs to be processed, stored, and distributed through IT-based accounting systems. Advanced IT has dramatically increased the ability and capability of processing accounting information. At the same time, however, it has also introduced some issues that traditional accounting systems have not experienced. One critical issue is the data quality in AIS. IT advantages can sometimes create problems rather than benefiting an organization, if data quality issues have not been properly addressed. Information overload is a good example. Do we really need the quantity of information generated by the systems to make the right decision? Another example is e-commerce. Should the quality of data captured online always be trusted?

Data quality has become crucial for the success of AIS in today's IT age. The need arises for quality management of data, as data processing has shifted from the role of operations support to a major operation in itself (Wang, Kon & Madnick,).

Therefore, knowledge of those factors impact on data quality in accounting information systems is desirable, because those factors can increase the operating efficiency of AIS and contribute to the effectiveness of management decision making.

Preliminary theoretical framework of this research



Legend: Rectangles: main components of the framework
Oval: accounting information systems
Arrows: relationships between components and systems

What is data quality?

Traditionally, data quality has often been described from the perspective of accuracy. Nowadays, research and practice indicates that data quality should be defined beyond accuracy and is identified as encompassing multiple dimensions (Huang et al).

However, there is no single standard data quality definition that has been accepted in the field (Klein). Before reviewing the literature, the core term of data quality needs to be clarified. By themselves, information and data are often different, for example, data is a collection of symbols which signify real world system states and are brought together because they are considered relevant to some purposeful activity. Information is an objective commodity carried by symbols and relates to who produced it, why and how it was produced and its relationship to the real world state it signifies (Shanks & Darke). Although data and information are different concepts, data quality is often treated as the same as information quality in some literature and real-world practice.

Therefore, in this research, data quality and information quality are synonymous. The general definition of data quality is 'data that is fit for use by data consumers' (Huang et al). Many data quality dimensions have been identified. Commonly identified data quality dimensions are:

- accuracy, which occurs when the recorded value is in conformity with the actual value;
- timeliness, which occurs when the recorded value is not out

of date;
- completeness, which occurs when all values for a certain variable are recorded, and
- consistency, which occurs when the representation of the data values, is the same in all cases. (Ballou et al.)

What is AIS?
In order to understand data quality issues in AIS in particular, it is important that the term AIS is clearly defined. There are various definitions of AIS. AIS is seen as a subsystem of a management information systems, and its major function is to process financial transaction, as well as non-financial transactions that directly affect the processing of financial transactions (Siegel & Shim; Hall). AIS comprise four major sub-systems that are relevant to this research:

- The transaction processing system, which supports daily business operations with numerous documents and messages for users throughout the organization;
- The general ledger/financial reporting system, which produces the traditional financial statements, such as income statements, balance sheets, statements of cash flows, tax returns, and other reports required by law;
- The fixed asset system, which processes transactions pertaining to the acquisition, maintenance, and disposal of fixed assets, and
- The management reporting system, which provides internal management with special purpose financial reports and information needed for decision making, such as budgets, variance reports, and responsibility reports. (Hall)

Parent discipline one: quality management
With the definitions of the core terms for this research established, this section discusses the theoretical background to quality management and its implication for data quality management. Then the critical success factors of quality management are included. There are some similarities between quality data manufacturing and quality product manufacturing. For instance, both quality data and quality product need to conform to specification, lower defect rates and improved customer satisfaction (Wang, Kon & Madnick,). Therefore, quality management concepts in general and CSFs developed for quality management could aid the development of the theoretical framework of this research.

Quality management in general
Quality management in general has been a major concern of businesses and research for many years (Deming,; Shewhart,), and is managed by using quality measurements, reliability engineering, and statistical quality control (Crosby,; Garvin,). Many attempts have been made to define quality. One of the fundamental definitions for quality is 'fitness for use' that includes quality of design, quality of conformance, abilities, and field service (Juran,). Some focus on the cultural and behavioral aspects of quality, such as, Crosby (Crosby,) identified major steps to achieve quality improvement, which consist of management commitment, quality measurement, cost of quality evaluation, quality awareness, and commitment to the 'zero defects' performance standard. Deming states that 'A product or a service possesses quality if it helps somebody and enjoys a good and sustainable market' (Deming,). His philosophy focuses on bringing about improvements in product and service quality by reducing uncertainty and variability in the design and manufacturing process (Evans & Lindsay,). These qualities management experts identify sets of key variables that are critical to achieve high quality outcomes. For example, Deming has summarized his philosophy in 'a system of profound knowledge (SPK)', which consists of: appreciation of a system, some knowledge of the theory of variation, theory of knowledge, and psychology. He identifies 14 principles of quality management, each of which can be derived from one or more of his SPK parts. According to Deming, all those points cannot be implemented selectively; they are an all-or-nothing commitment.

Table 2.2 Deming's 14 principles of quality management (Deming, 1982)

- Point 1 Create a vision and demonstrate commitment
- Point 2 Learn the new philosophy
- Point 3 Understand inspection
- Point 4 Stop making decisions purely on the basis of cost
- Point 5 Improve constantly and forever
- Point 6 Institute training
- Point 7 Institute leadership
- Point 8 Drive out fear
- Point 9 Optimize the efforts of teams
- Point 10 Eliminate exhortations
- Point 11 Eliminate numerical quotas and management by objective
- Point 12 Remove barriers to pride in workmanship
- Point 13 Encourage education and self-improvement
- Point 14 Take action

Methodology
Research Problem: There is a lack of knowledge of critical success factors for ensuring data quality in accounting information systems.

In order to explore the research problem, the focus of the thesis is on four research questions:

RQ 1. What factors affect the variation of data quality in accounting information systems, and why?

RQ 2. Are there any variations with regard to the perceptions of importance of those factors that affect data quality in accounting information systems between:

RQ 2.1. Different major AIS stakeholder groups

RQ 2.2. Different sized organizations

RQ 3. What is the actual performance level of real-world organizations in terms of the factors that affect data quality in accounting information systems?

RQ 4. Which of these factors are critical success factors to ensure a high quality of data in accounting information systems?

General plan and specific objectives for this research:

Stage one: Exploratory
- o Propose a list of possible factors influencing the data quality of AIS from the literature;
- o Conduct pilot case studies to identify further factors;
- o Identify possible factors that impact on DQ in AIS using the findings from the pilot case studies together with the literature;

Stage two: Confirmatory / disconfirmatory
- o Examine those factors identified by the first stage in real practice use multiple case studies, including the similarities and differences between:
- o different major AIS stakeholders,
- o different sized organizations;
- o Identify a set of general important factors for data quality in AIS from the analysis of multiple case studies findings;

Stage three: Theory testing
- o Use a large scale survey to investigate those factors identified in the second stage, with respect to:
- o The extent of the actual performance of CSFs,
- o The perceptions of importance of CSFs between:

☐ Different stakeholder groups,
☐ Different sized organizations; and

Justification for this research
The proposed research can be justified in terms of:

- o Identify critical success factors in ensuring data quality in

accounting information systems.

1. Gaps in the literature;
2. The importance of data quality issues;
3. Benefits to research and practice.

REFERENCE

In order to achieve the research objectives, the research was structured in terms of the following four phases: | 1. Development of the research model; | 2. Testing of the research model through multiple case studies; | 3. Modification of the research model in response to identification of critical success factors for data quality in AIS; | 4. Further developing and testing of the research model through a large scale survey. | References | Aaker, D. A., Kumar, V. & Day, G. S. 2008, Marketing Research, 6th edn, John Wiley and Sons, New York. | Agmon, N. & Ahituv, N. 2009, 'Assessing Data Reliability in an Information System', Journal of Management Information Systems, vol. 4, no. 2, pp. 34-44. | Anthony, R. S., Reese, J. S. & Herrenstein, J. H. 2004, Accounting Text and Cases, | Irwin. | Ballou, D. P. & Pazer, H. L. 2010, 'Modeling Data and Process Quality in Multiinput, Multi-output Information Systems', Management Science, vol. 31, no. 2, pp. 150-162. | Benbasat, I., Goldstein, D. K. & Mead, M. 2007, 'The Case Research Strategy in Studies of Information Systems', MIS Quarterly, vol. 11, no. 3, pp. 369-386. | Carroll, S. J., Paine, F. T. & Ivancevich, J. J. 2008, 'The Relative Effectiveness of Training Methods-expert Opinion and Research', Personnel Psychology, vol. 25, pp. 495-509. | English, L. P. 2003, Improving Data Warehouse and Business Information Quality: Methods for Reducing Costs and Increasing Profits, John Wiley & Sons. | Hull, R. & King, R. 2001, 'Semantic Database Modeling: Survey, Applications, and Research Issues', ACM Computing Surveys, vol. 19, no. 3, pp. 201-260. | Lawler, E. E. I. 2010, 'Total Quality Management and Employee Involvement: Are | They Compatible?' Academy of Management Executive, vol. 8, no. 1, pp. 68-76. | |