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REDEFINING INTEGRATION FOR DATA QUALITY PRACTICE: IMPLEMENTING INTEGRATION TECHNOLOGY FOR DISTRIBUTED BUSINESS STRATEGY

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Abstract

Implementing integration technology is accepted as a common strategy for transforming a disconnected and rigid business practice into an agile and well-coordinated practice. Research on integration technology reports incongruities between strategy and implementation, while organizations continue to experience costly endeavors with anticipated benefits of improved business performance. This research examines strategy development and implementation of integration technology using a new lens, data quality practice perspective. Specifically, we aim to redefine integration by examining how organizations define and solve integration problems using data quality practices as a feedback mechanism. We study integration practices in twelve organizations to redefine integration by analyzing their development and implementation of integration strategies.

Keywords: Integration, strategy, implementation, data quality, feedback

Introduction

Implementing integration technology is accepted as a common strategy for transforming disconnected and rigid business practices into agile and well-coordinated practices. Research on integration technology implementation reports various difficulties. At the same time, organizations continue to experience costly endeavors with anticipated benefits of improved business performance (Lee and Madnick, 1992)(Leonard-Barton, 1988)(Madnick, 1999)(Tsoukas, 1996). While researchers disagree on how to reduce the gap between strategy and implementation, some report on the power of feedback systems devised through reflection-in-actions (Beer, 1981)(Argyris and Schon, 1996)(Schon, 1983).

This research examines how organizations devise and use innovative feedback systems to reduce the gap between strategies and their implementation. We investigate a specific integration technology, “Integrator” (pseudonym) as a core example. We apply a new lens, a data quality practice perspective (Huang, Lee, and Wang, 1999)(Wang, Lee, Pipino, and Strong, 1998)(Strong, Lee, and Wang, 1997) to understand how organizations devise and use the feedback mechanism, namely organizational data practices. The data quality practice perspective argues for consumer-based data quality improvement and it rejects the conventional systems-processing view. Until data that are fit for data consumers’ business use are delivered, no systems integration is complete, successful, or meaningful. We argue that practical integration is achieved through using various feedback systems and by fine-tuning strategic objectives and principles involved in implementation. We examine how twelve organizations define and solve integration problems in practice.

Research Problem

Organizations, particularly successful ones, evolve from small to large and simple to complex in their size and nature. The evolution in business typically coincides with the evolution of the technologies these businesses implement and use. As portrayed

by many, inconsistent “islands of data” support autonomous business entities. These units or entities of business are to be integrated as distributed business entities. The integration includes various combinations of horizontal and vertical integration within or between organizations. The assumed benefits from implementing integration technology lie in the assumption that integrating disparate information processing achieves connected business processes, which in turn, improve business performance. Depending on scope and boundaries, implementing integration necessarily impacts how entities within and between organizations perform. It impacts how business processes and information systems are aligned. It also determines the quality of data delivered to data consumers. Frameworks and models are developed to assist organizations in implementing integration strategy.

Two streams of approaches dominate the conventional understanding of implementing integration technology. One is the process school of thought, emphasizing socio-political and behavioral issues during the implementation stage. The issues reported range from politics among stakeholders, different sense-making by multiple units, to mis-aligned IS and business strategies. The other is the systems school of thought, emphasizing the technical solution aspects of information systems. Both approaches have important merits in advancing discussions and solutions for improved integration strategy and implementation. Most organizations, however, are faced with following the two major approaches for two separate stages: strategy development and implementation stages.

We posit that innovative organizations (Van de Ven, 1992)(Tushman, Anderson, and O'Reilly, 1997) have a practical way of making sense of the two separate stages, the strategy development and the implementation stages. Innovative organizations devise pseudo-feedback mechanisms or systems as a reference point in order to link the two seemingly separate stages. One powerful feedback system is organizational data practice. The success of integration is assessed based on the quality of data generated from the now integrated systems. We study twelve organizations that implement integration technology for their distributed business strategy. Particularly, they use the quality of organizational data as the feedback reference point to assess integration efforts and to engage in revising the implementation process that is congruent with the objectives of the strategy. Organizations fine-tune implementation and strategies in iteration until the desired level of quality of organizational data are generated: data that are fit for improved business performance.

Research Questions

Based on the above-mentioned research problem, we ask the following questions. How do organizations define integration? What is involved in integration? Do integration technologies such as *Integrator* adequately solve organizations' integration problems? How do innovative organizations deal with the gap between implementation strategies of integration technology? What conflicting views and principles are involved in integration? How are feedback mechanisms developed and used? How effectively are these systems or mechanisms used to reduce the incongruities between strategy and implementation? By answering these questions we attempt to redefine what integration means in practice.

Research Plan and Method

We apply the embedded case analysis in conjunction with grounded theory to study the aspects of IS integration strategy & implementation gap (Yin, 1994)(Lee, 1989)(Glaser, 1999)(Strauss, 1987). We visit and interview members of twelve organizations that have gone through IS integration strategy development and implementation.

To make this study conducive for comparative analysis, we choose one integration technology solution that is used in all twelve organizations. For the purpose of our study, we call the commercially available integration technology, *Integrator*. We will interview cross-functional stakeholders at various levels within each organization as well as strategy consultants and technology vendors who introduced *Integrator* to each organization. The twelve companies are in industries such as finance, healthcare, manufacturing, communication, and education. The common IS strategy in all twelve organizations is explicitly stated as integration.

Conclusion

The gap between strategy development and implementation has a long history. This intractable problem, however, has rarely been articulated with practical and innovative solutions for organizations to adopt. Visiting the old problem with a new lens, -- data

quality practices, in a new context--integration technology, our research promises to contribute meaningfully to both practice and research.

For researchers, we extend the research in data quality in broader theoretical contexts: innovation, organizational learning, and strategy development and implementation. We also provide a specific new development in the area of feedback mechanisms and systems. For practitioners, we anchor innovative feedback systems in a specific context of integration technology for them to experiment with and adopt.

We plan to conduct more interviews and preliminary analysis upon the submission of this research-in-progress. We plan to report some of the results from the initial interviews in Dallas, AMCIS 2002.

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