Enterprise Intelligence: A Case Study and the Future of Business Intelligence

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ABSTRACT

This paper examines the key issues associated with current and future implementations of business intelligence (BI). The authors review the literature and discover both the growing importance and emerging issues associated with BI. The issues are further examined with an exploratory, but detailed, case study of organizations from a variety of industries, yielding a series of lessons learned. The authors find that organizations are rapidly moving to an enterprise perspective on BI, but in an unsystematic way. The authors present a prescription for the future of BI called “enterprise intelligence” (EI). EI is described in a framework that combines elements of hierarchy theory, organization modeling, and intellectual capital.

Keywords: Business Intelligence, Enterprise Intelligence, Enterprise Intelligence Molecule, Intellectual Capital, Knowledge Nugget

INTRODUCTION

The origins of this research began somewhat informally and anecdotally with comments from our students in Stevens’ process innovation, knowledge management, and data warehouse and business intelligence courses. Also, we were receiving comments from experts in consulting firms and companies about business intelligence (BI) concerns and trends that we found intriguing from both an academic and practical perspective. Initially, the concerns were centered on centralized versus decentralized BI (Whiting, 2004). However, as we reviewed the literature on BI issues and trends, we saw immediately that a more comprehensive approach was called for.

From our preliminary investigation there emerged two primary research questions:

1. How are major companies organizing their BI approach to meet the demands of their environment?
2. What are the relative roles of IT and the business units in BI?

According to a survey of business technology professionals in 2009, their number one goal is to “plan to train in-house BI experts and power users on analytical tools” (Henschen,
2009). Similarly, the 2010 IBM survey of global CEOs highlighted the usage of “intelligence and analytics to create foresight” to create advantage out of complexity (IBM, 2010). In contrast to this optimism, the Gartner Group describes a consistent gap between “theory” and “practice”; most notably, an over reliance on tools and reporting, unclear responsibility and governance lines, data quality and modeling issues, disconnected project portfolios, and so on (Bitterer, 2010).

In a Financial Times Special Report, “Managing Intelligence: How to make sense of the pieces,” a series of six articles describes both the promise and challenge of BI (Financial Times, 2009). Selected titles reveal those promises and concerns: “The final frontier of business advantage”, “Finding a home for all that data”, “Search goes on for a ‘single version of the truth’”, “Lighting up the road ahead”, “IT aims to overcome the blind spots”, and “Historians asked to become forecasters”. Embodied in the titles are the same advantages and concerns found in the IT literature, but from a business perspective, including everything from managing data to city-center redesign.

In general, our reading of both the trade and academic literature highlights a technology-centric approach to BI. Whether we are speaking about “promises” or “realities”, the questions and answers are typically framed as IT problems. In contrast, we approach BI as an organizational design problem, where, quite often, the same technology issues discussed in the trade press are considered from an organizational perspective.

To investigate these research questions, we decided on an initial but detailed exploratory case study of a small number of selected organizations from a wide variety of industries that we identified as data intensive and technically mature. The combination of a small number of carefully selected organizations with a detailed analysis covering a large number of BI topics allowed us to “initialize” our research and adopt a comprehensive approach, necessary we believe, to better understand both the conceptual and practical issues of BI. The case study and its results are described.

We believe that there are three transformative trends in IT: business intelligence, social networking, and mobile technology for ubiquitous IT. BI must support and guide the other two major trends and be seamlessly integrated with the hundreds, if not thousands of processes that exist both within the firm and between the firm and its partners. For BI to fulfill the promise of a transformative discipline, it must be systematically expansive and deep. Accordingly, we have developed a framework—enterprise intelligence—that synthesizes several viewpoints that we believe are necessary for a transformative approach to business intelligence: systems thinking, intellectual capital, and management perspectives. This paper builds on the case study research and describes our prescription for business intelligence, which entails a more comprehensive view that we call “enterprise intelligence.”

CASE STUDY METHODOLOGY

To the best of our knowledge, there has been no comprehensive study of the issues raised by our two research questions. Thus, the current state of BI in organizations with regard to governance and usage issues remains largely unknown despite the large number of articles in the trade literature as briefly summarized above. We therefore elected to use an exploratory case study approach (Yin, 2003). On the other hand, though exploratory, the case study questions are fairly detailed and address the nitty-gritty of architecture and operations that BI managers confront daily.

The case study included a structured interview of 25 questions (Appendix), followed by one round of Delphi question and answer. The interviewees were all senior level people with responsibility for business intelligence in their respective organizations (Table 1.). All of the respondents were intimately familiar with most, if not all, aspects of BI in their respective organizations. All the organizations were large and represented a variety of industries, including financial services, pharmaceutical, healthcare, legal services, and telecommunications.
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