

**Association for Information Systems
AIS Electronic Library (AISeL)**

SAIS 2007 Proceedings

Southern (SAIS)

3-1-2007

The Discourse of Large Scale Organizational Policy: A Content Analysis of Annual Reports

Hirotoshi Takeda
htakeda@cis.gsu.edu

Duane Truex

Cherie L. Long

Follow this and additional works at: <http://aiselaisnet.org/sais2007>

Recommended Citation

Takeda, Hirotoshi; Truex, Duane; and Long, Cherie L., "The Discourse of Large Scale Organizational Policy: A Content Analysis of Annual Reports" (2007). *SAIS 2007 Proceedings*. 46.
<http://aiselaisnet.org/sais2007/46>

This material is brought to you by the Southern (SAIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in SAIS 2007 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

THE DISCOURSE OF LARGE SCALE ORGANIZATIONAL POLICY: A CONTENT ANALYSIS OF ANNUAL REPORTS

Hirotoshi Takeda
Georgia State University
University of Paris Dauphine
htakeda@cis.gsu.edu

Duane Truex III
Georgia State University
dtruex@gsu.edu

Cherie L. Long
Clayton State University
cherie@cherie-long.com

Abstract

This study examines the signaling of anticipated organizational futures in shareholder annual reports of large scale technology organizations is the signaling of anticipated organizational futures. In revealing policy and technology change, these reports are predicting likely outcomes in their own corporate trajectory. With influential and large technology firms those predictions also impact the movement of industry change. This study subjects twenty years of the IBM Corporation's annual reports, specifically the Letter to the stockholders from the CEO, to an intensive content analysis. We identify trends in these data and posit causal relationships between actual events and the foretelling of these events in the letter from the CEO.

Keywords: Content Analysis, Annual Report, Stakeholder, Signaling Theory.

Introduction

To achieve large scale organizational policy change executives need to enroll the support of a set of organizational stakeholders. One key stakeholder community includes the financial markets commonly referred to as stockholders. This community is naturally concerned with the firm's performance and with the impact performance has on stock price. One standard means of communication with the financial markets is via the annual shareholder reports provided by any publicly held corporation. Corporate annual reports are known to report historical financial and stock performance following each fiscal year and provide essential data in updating the historical record of past performance. The financial data provide important information about how the firm performed relative to promised or predicted goals. But stockholders are naturally concerned with likely future stock price performance. So those parts of an annual report that give some glimpse of how the firm intends to deport itself in future periods are also taken into account when estimating likely future firm and stock performance. From such data investors can decide to sell, hold or increase stock holdings. The future oriented insights are typically provided in the narratives given by the firm's top executives. Hence viewing the annual report only from the perspective of the financials and audit report is focusing on the past, whereas a more balanced view must incorporate the expectations and descriptions of expected firm's performance as presented in the CEOs narrative.

There are, of course, many other stakeholder communities each alert for various types of signals that may be carried in a corporate annual report. Typically in an annual report the chairman or CEO will address the stockholders with a letter that tries to give an overview of the company and where its policies are taking the company. The language within the letter to the stockholders can hold keys to what the company is trying to accomplish. We have observed that there are two directions often taken in the letter to the stockholders. One direction is to reiterate and explain how

the firm accomplished relative to promises or inferences as laid out in the letter the previous year. The second is to take a different direction than outlined in the letter of the previous year. In any event readers look for signals to changes that may affect them. Signaling theory (Bird & Smith, 2005; Spence, 2002) suggests that in asymmetric communication environments certain signals when given and understood by listeners influence the listener's behavior. In financial markets or general competitive settings signals may be fraught with difficulty and on occasion deception. Hence savvy listeners look for domains where the signals may be considered to be unpolluted. By virtue of the closely monitored and ruled governed nature of the annual corporate report, it is thought that astute stakeholders seek to discern important signals in the annual reports. Given that other stakeholder communities also include suppliers, employees, customers, and competitors the language of the executive's reports have the potential to impact everything from employee morale and turnover to the competitive strategy of other industry players.

This study analyses our mapping of the many proposals, promises and prognostications communicated in a large longitudinal historical set of annual reports from one of the most influential IT companies in the world. Given its sheer market size, product line scope and historical position in the history of computing the actions and plans of IBM have been closely followed by all of the stakeholder communities identified earlier. In this study we submitted 20 years of annual report data (1985-2005) to rigorous content analysis. The first report was during the leadership of John Akers. IBM experienced wrenching competitive market changes in the late 1980's and early 1990's leading directly to the appointment of its first 'outsider', Lou Gerstner, to the role of CEO in 1993. IBM was facing a tougher competitive market and, for the first time in history, saw its market dominance turn to \$11 billion loss. IBM was trying to cut costs and even shaved their workforce by one-third. The new CEO, Lou Gertsner, was a voice for change at IBM and conveyed this change to the stockholders using the letter from the CEO in the annual reports. What followed was a radical transformation at IBM. Using this data, we see patterns allowing us to trace a trajectory of both corporate and technology change. We posit that an analysis of those trajectories may provide a hint to the future of IBM and of the industry as a whole.

Content Analysis

Content analysis can be described as "the process of determining or establishing a fuller, detailed meaning of a portion of document, manuscript, speech or any type of communication in a way which is both reliable and replicable" (Remenyi, 1992). Formally, content analysis is defined as 'a research technique for the objective, systematic and quantitative descriptions of the manifest content of communication' (Berelson, 1980). Content analysis tries to find out what is being said and how often it is being said. Content analysis tries to get meaning and intensity from communication (Remenyi, 1992). Thus, content analysis is a technique used for making replicable and valid inferences from data.

Content analysis has been used in different studies within information systems (IS) and outside of IS studies for more than thirty years. For example within IS there have been research on IS job skills and how they are called for in IS job postings (Todd, McKeen, Gallupe, 1995; Gallatin et al., 2004), strategic IS planning (Remenyi, 1992), expert systems in production and operations management (Wagner, Chung, Najdawi, 2003), and on web content (Salinas, 2006). One of the most famous applications of this technique led to the publication of Naisbitt's best-selling *Megatrends* books (Naisbitt 1984; Naisbitt & Aburdene 1991), in which the author systematically coded newspaper articles from selected newspapers in several U.S. regions. Given that the ratio of space allocated to news versus income-generating advertising remains stable over time, the premise in Naisbitt's work was that space assigned to various news topics was a type of zero-sum game. That is, when one topic receives coverage in print media, another topic is displaced. Therefore, by tracking the relative frequency, and longevity of topics in a large sampling of news media, Naisbitt was able to track various social and political trends.

For computer aided support we used hyperResearch, a textual based analysis tool that allows the researcher to identify specific themes in multiple textual files. HyperResearch counts the number of times a theme is identified. The code frequencies may be analyzed allowing the researcher to attach a notion of intensity along with the identified themes. The tool has rule-based expert system inferencing capabilities so that codes may be compared, grouped into meta codes and recombined based on hypothesized relations in the text. Thus, hyperResearch is a tool to support systematic analysis on empirical text data providing both qualitative and quantitative measures.

Methodology

The organization identified in this study is the IBM corporation. As in all historical analysis we used multiple sources of data in this study. We used the internal journal ‘Think’, white papers, as well as annual reports from IBM. However the primarily focus of our content analysis was on IBM’s annual reports to the stockholders 1985-2005 the most current available. We employed a traditional form of content analysis whereby we approached the data with a predefined set of content variables through which the data were interpretively filtered (Andren, 1981; Carney, 1972). We developed content variables to describe various classes of utterances we would expect to have found in the CEO reports. The approach used in this study was *not* a grounded theory approach. Further methodological details on content analysis for the interested reader may be found in a variety of sources on content analysis (Krippendorff, 1980; Lindkvist, 1981; Stone et al., 1966). We did not approach the data as if it were *tabla rosa* expecting to find themes and codes arising spontaneously from the data. Indeed it was quite to the contrary. We first approached the data set from a number of different theoretical foundations.

Table 1. Initial Codes and Codes that Survived

Initial Code List	Codes that appeared in Data
All of us	All of us
Business Trend	Business Trend
Client Server	
Communities	Communities
Competitors	Competitors
Customers	Customers
Employees	Employees
Government	
Hardware generically	Hardware generically
IBM the company	IBM the company
ICT in general	
IT industry	IT industry
Last year I said	
Open standards	
OpsMainframe	
OpsMidRange	
OpsPCs	
Partners	Partners
People as deployable assets	
ServiceConsulting	ServiceConsulting
ServiceEducation	
ServiceFacilityManagement	
ServiceMaintenance	
ServiceMan and Develop	
ServiceResearch	ServiceResearch
ServiceSADD	
Software	Software
Stockholders	Stockholders
Technology	Technology
Transformation goals	Transformation goals

For instance, in early analysis we used a variation of Agency Theory (Jensen and Mekling, 1976) called *Stakeholder Agency Theory* (Hills and Jones, 1996; Monod and Truex, 2002) to examine how other stakeholders were present in the CEO utterances. In Agency Theory (Jensen and Mekling, 1976) the behavior of a management as an organizational actor can only be understood by considering it to be an “agent” serving on behalf of one particular type of external actor called the “primary”, e.g., typically the shareholder. But Stakeholder Agency Theory holds that management as agent serves a larger set of stakeholders beyond the owners, including customers, employees, suppliers, and local communities. Because managers sit at the center of various contractual arrangements and decision-making; they have forward-seeing information other stakeholders do not possess. None-the-less, other actors do exert influence. For instance, employees are advocates for issues such as employment continuity, work conditions, work life quality and the like. Customers are advocates for price, quality, customer service and so on.

Suppliers advocate for contractual issues, quality, delivery, and so on. So Stakeholder Agency Theory recognizes that there are multiple relevant and ‘valid’ narratives that describe an organizational transformation.

After the content variables were derived from our understanding of the relevant literature, they were tested against the texts for efficacy. We coded each report and counted the frequencies of the codes present in the text and the set of texts. The reports were reviewed iteratively by the coders and then by the lead researcher to check for agreement and coding accuracy and consistency. Even when using a well-developed set of content variables, such coding requires making judgment calls. We employed a single coder, rather than dual coders, consistent with prior studies (Slaughter & Ang 1995, 1996; Gallivan et al., 2004), although we employed various measures to ensure reliability and validity of results. In some cases where there were possible ambiguities regarding the appropriate code, the coders collaborated with the authors to negotiate a proper code assignment. There were times particular statements that seemed in the context of the text and previous texts to carry a weight that needed to be recognized in a code, yet the statement did not fit exactly in our initial set of content variables. In those cases we used our judgment whether to add a new code, or simply to code it as “other” and to see if the theme it suggested appeared in future texts. In all cases we sought to maintain consistency in the code assignments. In terms of frequency, the number of these ambiguous or emergent codes was small, but the coding set did, never the less evolve in the multiple and successive passes through the data set. The initial code set and the codes that survived are represented in table 1.

Data source and Criteria for Unit of Analysis

Content coding is a brute force, iterative and labor-intensive activity even with computer aided tools to assist in the process.¹ HyperResearch requires its input to the tool must be in .txt (text) format. Several years of the annual report were available in archival format online as .pdf files easily convertible to .txt. Others were only available in hardcopy that required scanning into an electronic format by using OCR and word processing tools to convert to .txt format. Some characters and carriage returns were not transferred correctly requiring manual cleaning of the .txt file.

When reading an annual report, one starts to recognize several themes that come up from time to time. We tried to identify these themes in the unit of analysis. We first identified 30 different codes identified in table 1. We could put these into categories of: Technology, IBM as a company, and the business world outside of IBM. During the coding phase the qualitative meaning of the data needed to be extracted. For example the code of ‘employee’ may be looking for an instance of the word ‘employee’ or may be identified by the CEO talking about an employee. Below is an example where the word ‘employee’ is found so the coding on this part of the text is fairly easy:

“At the same time, and with the essential cooperation of IBM employees, we continued to maintain our tradition of full employment” (1987)

More difficult to code were times when the data does not specifically say the word ‘employee’ but the meaning in the text implies employees. Below is an example of text being coded as ‘employees’ but the word does not appear:

“it was especially gratifying to have two researchers in our Zurich, Switzerland, laboratory - Dr. Gerd Binnig and Dr. Heinrich Rohrer - share the 1986 Nobel Prize in physics for their invention of the scanning tunneling microscope. This recognition speaks well of their joint achievement and of the vitality of IBM's research” (1987)

Results: A Brief Illustration of the Technique

The graph (see figure 1) illustrates the relative frequencies of coded content variables in total and according to the reign of each of the three CEOs during the study period. The frequencies are interesting and suggest relative importance to the CEO and firm during his tenure. Examining these frequencies and contrasting them to statements

1. There is a substantial literature on early attempts at automated coding of content variables. The earliest of the computer-aided content analysis tools, a mainframe based system called *The General Inquirer* (Stone et al. 1966) required the development of extended lists of concordances against which words and short idiomatic phrases were tested. The system then mapped the occurrence of the words or idioms to content buckets. But it was quickly established that because words, like tools have meanings established in use, the context of any but the most trivial coding exercises required human interpretation. Tools such as Microsoft Excel and HyperResearch among others have aided in the management, recall, organization and analysis of the data once coded. Kelly et al (1995, 1997) provide two fine sources on various software tools that can help with the task. But the coding of text to content variables remains a labor-intensive process requiring human intervention and interpretation.

and expectations voiced in the financial and popular press at the time provide a few surprising results, described below. The frequency counts, of course provide only one look at the whole story. We have completed a more detailed mapping of themes and meta themes over time and by CEO tenure. Space limitations do not allow a full explication of the analysis process or the results and insights. So to conclude we provide a short illustration of three, somewhat surprising points arising from initial analysis of the frequencies.

In the first two we find an interesting dichotomy with the change in leadership in 1993 from John F. Akers to Lou Gerstner. First, we find that Akers seemed more focused on stopping the damage and appealing to stockholders that IBM was in good shape. Second, we find Gerstner taking IBM into a new direction of a more technologically service oriented company. Third when we look at the overall data, several of the stakeholder communities—employees, stockholders, competitors, customers, and the technology industry—all receive mention in the CEO letter.

John F. Akers was the chairman studying 1985. During this time IBM was facing major threats in the computer industry from upstart new companies. Akers seemed to be more concerned with appeasing the concerns of the stockholders rather than deal with moving IBM in a new direction. The content analysis reveals that Akers was emphasizing stockholder issues (24.7%), more than any other issue in his letter to the stockholders. The next closest narrative was of ‘IBM the company’ at 14.6% of the time. One statement shows the notion of reassuring stockholders in the value of the company a second illustrates his efforts to reduce costs and restructure.

‘These results, and the restructuring actions we have taken, give us confidence that IBM will be the stronger, more competitive company it must be to prosper in the '90s and to provide enhanced value to the company's shareholders.’ (1989) *‘Over the past four years, we have taken a series of actions to reduce our costs, expenses and structure, and to sharpen IBM's competitiveness worldwide. We have consolidated manufacturing capacity’* (1989)

Lou Gerstner was widely touted as being the turnaround artist for IBM. In contrast to Akers, Lou Gerstner’s CEO messages, despite his media-celebrated meetings focus on Wall Street analysts, was not unilaterally focused on the stockholder community. Gerstner mentions employees the most (17.8%) with technology a close second (16.6%). For Gerstner stockholder is mentioned much less (10.8%) and is in fifth place. From the onset, with his first letter in 1993, Gerstner states his technological vision for IBM. This is especially interesting because he explicitly denied that IBM needed attention to the “V” (vision) word. But over his tenure as CEO he proved to be a grand visionary.

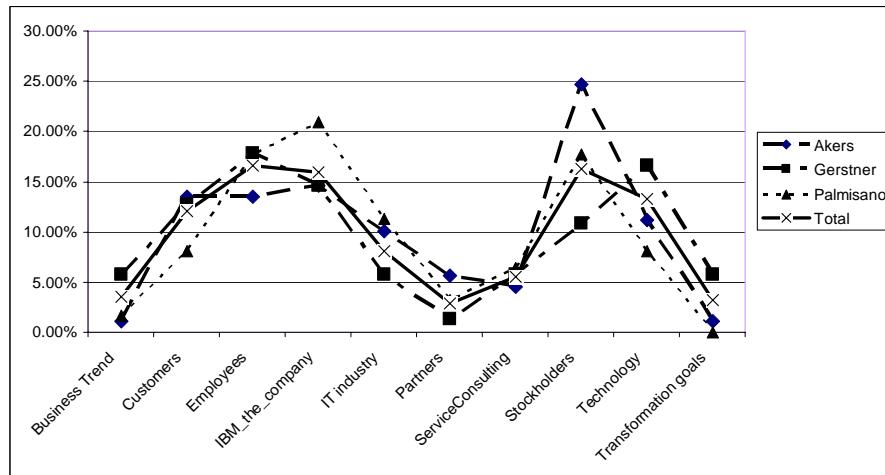
‘At our core, we are a technology company, and our technology is probably our greatest strength. IBM invented, created or developed most of the innovations in our industry. In a sense, we invented the industry itself: and from what I've seen in our R&D labs, we've got what it takes to lead the industry well into the next century.’ (1993)

The final finding indicates what communities matter the most to IBM combining all three CEO narratives. The communities important to IBM are the employees, stockholders, customers, competitors and the industry. The three top themes to come out of the data are grouped close together and are employees (16.6%), stockholders (16.2%), and ‘IBM the company’ (15.9%). The next three narratives fall off with technology (13.3%), customers (12.0%), and the IT industry (8.1%). This tells us that IBM is concerned about the employee and financial community with the first two themes. The third theme ‘IBM the company’ shows what IBM is doing and what IBM is going to do and can be seen as addressing the customer, industry, and competitor communities. The fact that ‘IBM the company’ is repetitively mentioned combined with the fact that customers and the IT industry is mentioned in the top six indicates that these communities are also integral to IBM.

Conclusion and a Look Ahead

Analyzing twenty years of the CEO’s letter to the stockholders we haven take a longitudinal look at the corporation during a set of organizational and technological transformations. In examining the intensity and frequency of recurrent themes comes up in the CEO letter have been able to map policy both incorrect predictions and unsuccessful changes as well as some that foreshadowed important changes for the firm and in the competitive landscape. Space forbids an extended presentation of the analysis and findings. Follow on work and the conference presentation will elaborate on both.

Figure 1. Graph of Frequencies of Topics via CEO



References

- Andren, G. (1981). Reliability and Content Analysis. In K. E. Rosengren (Ed.), *Advances In Content Analysis* (Vol. 9, pp. 43-68). London: SAGE.
- Berleson. (1980). Content Analysis. In K. Krippendorff (Ed.), *Content Analysis: An Introduction to Its Methodology*. Beverly Hills: Sage Publications.
- Bird, R. B. and E. A. Smith, "Signaling Theory, Strategic Interaction, and Symbolic Capital," *Current Anthropology*, 46, 2, (2005),
- Gallivan, M., Truex, D. P., & Kvasny, L. (2004). Changing Patterns in IT Skill Sets 1988-2003: A Content Analysis of Classified Advertisements. *The Database for Advances in Information Systems*, 35(3 Summer), 64-87.
- Hills, C., & Jones, T. (1992). Stakeholder-Agency Theory. *Journal of Management Studies*, 29(2, March), 131-153.
- Jensen, M., & Meckling, W. (1976). The Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics*, 3, 305-360.
- Krippendorff, K. (1980). *Content Analysis: An Introduction to its Methodology*. Beverly Hills, CA: Sage.
- Lindkvist, K. (1981). Approaches To Textual Analysis. In K. E. Rosengren (Ed.), *Advances In Content Analysis* (Vol. 9, pp. 23-42). London: SAGE.
- Mintzberg, H. (1979). *The structuring of organizations : a synthesis of the research* , . Englewood Cliffs: Prentice Hall, NJ.
- Monod, E., Truex, D., & Baskerville, R. (2002). The Discourse of a Large Scale Organizational Transformation: The Reengineering of IBM 1989-1994. In E. Whitley & E. Wynn (Eds.), *Discourse Theory in IS Research* (pp. 249-272). Berlin: Kluwer Academic Press.
- Naisbitt, J. (1984). *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books.
- Naisbitt, J., Aburdene, P., & Aburdene, p. (1991). *Megatrends 2000: New Directions for Tomorrow*. New York: Avon Books.
- Remenyi, D. (1992). Researching information systems: data analysis methodology using content and correspondence analysis. *Journal of Information Technology*, 7, 76-86.
- Salinas, R. (2006). A content analysis of Latina Web content. *Library & Information Science Research*, 28, 297-324.
- Slaughter, S., & Ang, S. (1995). Information systems employment structures in the USA and Singapore: a cross-cultural comparison. *Information Technology & People*, 8(2), 17-36.
- Slaughter, S., & Ang, S. (1996). Employment Outsourcing in Information Systems. *Communications of the ACM*, Vol. 99 No. 7(July), 45-54.
- Spence, M., "Signaling in Retrospect and the Informational Structure of Markets," *The American Economic Review*, 92, 3, (2002), 434-459.
- Stone, P. J., Dunphy, Dexter C., Smith, Marshall S. and Ogilvie, Daniel M. (1966). *The General Inquirer: A Computer Approach To Content Analysis*. Cambridge: The MIT Press.
- Todd, P., McKeen, J. D., & Gallupe, R. B. (1995). The Evolution of IS Job Skills: A Content Analysis of IS Job Advertisements from 1970 to 1990. *MIS Quarterly*(March), 1-27.
- Wagner, W. P., Chung, Q. B., & Najdwi, M. K. (2003). The impact of problem domains and knowledge acquisition techniques: a content analysis of P/OM expert system case studies. *Expert Systems with Applications*, 24, 79-86.