

The John Marshall Journal of Information Technology & Privacy Law

Volume 26
Issue 3 *Journal of Computer & Information Law*
- Spring 2009

Article 1

Spring 2009

Enterprise Systems and Corporate Governance: Parallel and Interconnected Evolution, 26 J. Marshall J. Computer & Info. L. 359 (2009)

Themistokles Lazarides

Maria Argyropoulou

Dimitrios N. Koufopoulos

Follow this and additional works at: <https://repository.law.uic.edu/jitpl>



Part of the [Computer Law Commons](#), [Internet Law Commons](#), [Privacy Law Commons](#), and the [Science and Technology Law Commons](#)

Recommended Citation

Themistokles Lazarides, Maria Argyropoulou & Dimitrios N. Koufopoulos, Enterprise Systems and Corporate Governance: Parallel and Interconnected Evolution, 26 J. Marshall J. Computer & Info. L. 359 (2009)

<https://repository.law.uic.edu/jitpl/vol26/iss3/1>

This Article is brought to you for free and open access by UIC Law Open Access Repository. It has been accepted for inclusion in The John Marshall Journal of Information Technology & Privacy Law by an authorized administrator of UIC Law Open Access Repository. For more information, please contact repository@jmls.edu.

ARTICLES

ENTERPRISE SYSTEMS AND CORPORATE GOVERNANCE: PARALLEL AND INTERCONNECTED EVOLUTION

THEMISTOKLES LAZARIDES*
MARIA ARGYROPOULOU**
DIMITRIOS KOUFOPOULOS***

INTRODUCTION

Today's business requirements have moved Enterprise Systems ("ES") governance into the focus of attention as they are necessary in supporting business processes in many organizations. Corporate Governance ("CG") and ES constitute two seemingly dissimilar research areas that attract the interest of completely different academics as well as practitioners. However, at a time when there is an increasing focus on CG practices and the impact of ES on corporate performance, these topics are tightly connected and complimentary. Given the fact that ES can contribute positively in achieving business objectives, it is imperative to discuss the relationship of CG and information technology ("IT"). Moreover, we argue that good CG depends on effective management and integrity of information within an organization. This shift is being accelerated and influenced by the passage of the Sarbanes-Oxley Act (SOX) of 2002 in the United States ("U.S.") and the Organization for Economic Co-Operation and Development ("OECD")¹ principles in Europe.

* Corresponding author Tel.: +302462087691; Fax: +302462087691. E-mail address: tlazarides@teiko.gr. Department of Applied Informatics in Administration and Economy, Technological Institute of West Macedonia, GR- 51100, Grevena, Greece.

** Brunel Business School, Brunel University London/UK.

*** Brunel Business School, Brunel University London/UK.

1. *OECD Principles of Corporate Governance*, OECD (Paris 2004), available at <http://www.oecd.org/dataoecd32/18/31557724.pdf> [hereinafter *OECD Principles*].

CG AND THE USE OF ES

CG is defined as the structure and processes among directors within the board of directors, shareholders, top management, and other stakeholders that involves the objectives of assuring accountability and improving performance.² Gillan and Starks define CG as the system of laws, rules, and factors that control operations in a company.³ Shleifer and Vishny adopt a more financial point of view and argue that “CG deals with the way suppliers (principals) of finance assure themselves of getting a return on their investment.”⁴ Finally, Monks explains that CG is a process of effective accountability of management to informed and active owners.⁵

Within the CG literature, an issue of great importance concerns agency theory and is based on the premise that there is an inherent conflict between the interests of a firm’s owners and its management.⁶ In line with agency theory, the central problem of CG is determining how shareholders ensure that self-seeking executives (agents) act in the shareholders’ (principals) interests rather than in their own.⁷

Agency theory is concerned with aligning the interests of owners and managers and addresses the issues that may arise when owners (principals) relinquish control of the firm to managers (agents) that are hired to administer the firm’s activities.⁸ This separation of ownership from con-

2. ALEX DUNLOP, *CORPORATE GOVERNANCE AND CONTROL*: (CIMA Publishing 1998); ELAINE STERNBERG, *CORPORATE GOVERNANCE: ACCOUNTABILITY IN THE MARKETPLACE*, 10 (The Institute of Economic Affairs, 2d ed. 2004), available at <http://www.iea.org.uk/files/upld-book227pdf?.pdf>; R. IAN TRICKER, *INTERNATIONAL CORPORATE GOVERNANCE: TEXT, READINGS AND CASES* 265 (Prentice Hall 1994).

3. Stuart L. Gillan and Laura T. Starks, *A Survey of Shareholder Activism: Motivation and Empirical Evidence*, 2 CONTEMP. FIN. DIG. 10-34 (1998).

4. Andrei Shleifer & Robert W. Vishny, *A Survey of Corporate Governance*, LII J. OF FIN. 737, 738 (1997), available at <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN018934.pdf>.

5. Robert A. G. Monks, *Equity Culture at Risk*, 11 CORP. GOVERNANCE: AN INT’L REV. 164 (2003).

6. Eugene F. Fama and Michael C. Jensen, *Separation of Ownership and Control*, 26 J. OF L. & ECON. 301-25 (1983), available at <http://www.business.uiuc.edu/~shelley1/readings/seponrshpctrl.pdf>; Kathleen M. Eisenhardt, *Agency Theory: An Assessment and Review*, 14 ACAD. OF MGMT. REV. 57-74 (1989), available at <http://pcbfaculty.ou.edu/classfiles/MGT%206293%20Strategic%20Management/Week%202%20Grab%20Bag%20of%20Theoretical%20Perspectives/eisenhardt%2089%20amr%20gov%20agency%20review.pdf>.

7. J. Hendry, *Beyond Self – Interest: Agency Theory and the Board in a Satisfying World*, 16 BRIT. J. OF MGMT. 60 (2005).

8. Eugene F. Fama, *Agency Problems and the Theory of the Firm*, 88 J. OF POL. ECON. 288-307 (1980), available at <http://astro.temple.edu/~tub06197/Wk5FamaAgencyProblemsandthetheoryofthefirm.pdf>; Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. OF FIN. ECON. 305-60 (1976), available at <http://venus.unive.it/pelizzon/Jensen&Meckling.pdf>; Miron Stano, *Mo-*

trol is potentially problematic as principals and agents may have different sets of goals, and agents typically possess far more information than principals about both the firm and their own activities. This imbalance in the distribution of information between principals and agents is referred to as information asymmetry.⁹ Agents may maintain their dominant position using their competitive advantage of information within the company over that of the owners. The principals are not able to monitor, to exert control, or, if necessary, to discipline managers who have goals or take actions not aligned with theirs.¹⁰ Information asymmetry is a vitally important concept in the logic of agency theory, as agency problems are unlikely to occur when information is equally distributed because principals are able to directly monitor agent behavior and thus prevent agents from acting opportunistically.¹¹ In order to prevent agency problems, principals may design and implement contracts designed to align the interests of principals and agents, or principals may take steps to reduce information asymmetry by increasing the amount of information they possess.¹²

Managers may control the information flow because all information is forwarded to them and then disseminated to the Board of Directors (“BoD”), shareholders, and at the General Shareholders’ Meeting. That leaves these groups without any direct access to the ES database. Furthermore, some other interested parties, such as potential investors and other stakeholders, are left out of the informational loop. The adoption and effective implementation of ES can alleviate the problem of information asymmetry by providing to the board the necessary information they need to possess in order to protect the interests of shareholders. This is because modern ES can provide the technological means for capturing, processing, disseminating, and analyzing information across the enterprise.¹³

ES can influence corporate performance, especially due to the integration of business processes and the ensuing information sharing along the company value chain.¹⁴ The ESs or any other information systems

nopoly Power, Ownership Control, and Corporate Performance, 7 BELL J. OF ECON. 672-79 (1976).

9. Eisenhardt, *supra* note 6, at 57-74; Daniel Levinthal, *A Survey of Agency Models of Organizations*, 9 J. ECON. BEHAV. & ORG. 153-85 (1988).

10. Stephen Bernhut, *Sumantra Ghoshal on Leadership, Management and Good Governance*, IVEY BUS. J., March/April 2004, at 3, available at http://www.iveybusinessjournal.com/view_article.asp?intArticle_ID=479.

11. Levinthal, *supra* note 9, at 185.

12. Eisenhardt, *supra* note 6, at 59.

13. DANIEL O’LEARY, *ENTERPRISE RESOURCE PLANNING SYSTEMS: SYSTEMS, LIFE CYCLE, ELECTRONIC COMMERCE, AND RISK 3* (Cambridge University Press 2000).

14. Chuck C.H. Law & Eric W. T. Ngai, *ERP Systems Adoption: An Exploratory Study of the Organizational Factors and Impacts of ERP Success*, 44 INFO. & MGMT. 419 (2007).

constitute essential tools in regulating the collection, production, and flow of information within, around, and out of the firm. The topic of information gathering and usefulness to BoDs has been discussed in the past, and prior studies have linked information quality with both information usefulness and decision accuracy, both of which are likely to be important when considering BoDs' attempts to reduce information asymmetry.¹⁵

CG REFORMS

There has been an escalation of research interest in CG due to the crash of technology stocks in the late 1990s and the proliferation of corporate accounting scandals a few years later.¹⁶ These scandals have revealed the inefficiency of top management to monitor procedures, leading to financial losses for stakeholders.¹⁷ Consumer activists, institutional shareholders, and government regulators have advanced proposals to reform corporate boards, notably their structures and processes, thus directing companies to demonstrate sound CG policies and practices. Most of these initiatives were featured prominently in developed countries such as the United States, the United Kingdom, Germany, France, Italy, and Spain among others.

Regulatory reforms in the U.S., such as SOX, have exerted pressure in the United Kingdom,¹⁸ Germany,¹⁹ France,²⁰ Italy,²¹ and Spain²² for

15. George S. Low & Jakki J. Mohr, *Factors Affecting the Use of Information in the Evaluation of Marketing Communications Productivity*, 29 J. ACAD. MKTG. SCI. 70, 75 (2001); O'LEARY, *supra* note 13, at 8.

16. CORPORATE GOVERNANCE 6 (K. Keasey, S. Thompson & M. Wright eds., 1999); Valter Lazarri, et al., *Is Corporate Governance Delivering Value?*, 5 EUROPEAN ECON. FORUM 5-27 (2001), available at http://findarticles.com/p/articles/mi_hb4779/is_5/ai_n28892708/?tag=content;coll; The McKinsey Quarterly, *The State of the Corporate Board: A McKinsey Global Survey*, http://www.mckinseyquarterly.com/The_state_of_the_corporate_board_2007_A_McKinsey_Global_Survey_2011 (last visited Sept. 12, 2007).

17. See, e.g., Thomas Clarke, *Accounting for Enron: Shareholder Value and Stakeholder Interests*, 13(5) CORP. GOVERNANCE: AN INT'L REV. 598-612 (2005); Louis Lavelle, *Enron: How Governance Rules Failed*, 21 BUS. WK. 289 (2002), available at http://www.businessweek.com/magazine/content/02_03/b3766045.htm; A. Parker, *The Man Who Put Auditing First Accounting Regulation: William McDonough, Outgoing Chairman of the Watchdog Set Up in the Aftermath of the US Corporate Scandals*, 1053 FIN. TIMES 17 (2005); Steven T. Petra, *Do Outside Independent Directors Strengthen Corporate Boards?*, 5 CORP. GOVERNANCE: AN INT'L J. OF BUS. IN SOC'Y 55-64 (2005); Caspar Rose, *The Composition of Semi-Two-Tier Corporate Boards and Firm Performance*, 13 CORP. GOVERNANCE: AN INT'L REV. 691-701 (2005); Willy A. Sussland, *The Board of Directors: A Referee or a Coach?*, 5 CORP. GOVERNANCE: INT'L J. BUS. SOC'Y 65-72 (2005).

18. ADRIAN CADBURY, THE FINANCIAL ASPECTS OF CORPORATE GOVERNANCE: REPORT OF THE COMMITTEE ON THE FINANCIAL ASPECTS OF CORPORATE GOVERNANCE (Gee Publishing 1992), available at <http://www.ecgi.org/codes/documents/cadbury.pdf>; RICHARD GREENBURY, DIRECTORS' REMUNERATION: REPORT OF A STUDY GROUP CHAIRED BY SIR RICHARD GREENBURY (Gee Publishing, July 15, 1995), available at http://www.econsense.de/CSR_INFO_

companies to rethink issues regarding governance structures alongside a firm's performance. The next two sections summarize the key elements of two basic recent reforms placing an emphasis on the importance of Information Systems for compliance with CG principles.

A. CRITICISM ON CG PRINCIPLES

The CG principles that apply to information systems concern mainly privacy, data integrity, systems availability, and delivery of accurate financial reporting. The SOX and the European Union's 8th Directive specifically demand that boards and senior executives understand IT implementation and risks. There are certain points of criticism, however, regarding the implementation of SOX and OECD. These are briefly discussed in the subsequent paragraph:

The reforms impose a complex system of control and monitor over the corporate system of governance and hence they vitiate financial and functional efficiency.

They do not provide real time disclosure due to time lag between the time of the actual event (material or not) to the time of disclosure (via a report).

Achieving and maintaining compliance can be costly and time consuming, although noncompliance can prove even more costly.²³

The firm may not realize the scope and benefits of the legal or other initiatives.

Too strict legal provisions might affect overall performance. There is no room for strategic flexibility.

SOX can be used as a pretext to "raise anti-takeover measures that protect incumbent managers and large shareholders."²⁴

Furthermore, SOX uses terms like material, fairly, timely, officer's knowledge, rapid, and current basis. All these terms are vague or at least are subject to interpretation. Also, there is the problem of aggregation of

POOL/_CORP_GVERNANCE/images/greenbury_report.pdf; RONNIE HAMPEL, COMMITTEE ON CORPORATE GOVERNANCE: FINAL REPORT (Gee Publishing 1998), available at http://www.ecgi.org/codes/documents/hampel_index.htm.

19. CROMME COMMITTEE, GERMAN CORPORATE GOVERNANCE CODE (2002), <http://www.corporate-governance-code.de/eng/kodex/1.html>.

20. DANIEL BOUTON, PROMOTING BETTER CORPORATE GOVERNANCE IN LISTED COMPANIES, (2002) http://www.ecgi.org/codes/documents/rapport_bouton_en.pdf.

21. COMM. FOR CORPORATE GOVERNANCE OF LISTED COMPANIES, CODE OF CONDUCT (1999), available at http://www.ecgi.org/codes/documents/code_of_conduct.pdf.

22. *The Governance of Listed Companies*, SPECIAL COMM. TO CONSIDER A CODE OF ETHICS FOR Co. Bd. OF DIR. (Madrid, Feb. 26, 1998).

23. Microsoft, *Creating a Systemized Approach to Regulatory Compliance at Microsoft*, <http://www.microsoft.com/technet/itshowcase/content/regcompliance.mspx> (last visited Jan. 20, 2007).

24. Alvaro Cuervo, *Corporate Governance Mechanism: A Plea for Less Code of Good Governance and More Market Control*, 10 CORP. GOVERNANCE: INT'L REV. 84, 84-93 (2002).

information leading to information loss. Finally, no provision is made for the channels of information dissemination. Traditional channels of communication with stakeholders, such as annual reports, should be supported by other channels of communication, taking into account the complexity and globalization of financial markets and the impact of technology²⁵ according to the principle of “equality of disclosure.”²⁶

In light of the foregoing, it seems that information dissemination and information control are critical in achieving compliance with SOX and OECD principles. The effort and cost of compliance cannot be justified in terms of financial performance.²⁷ Many of the weaknesses of SOX and OECD practices, as they were described in the previous paragraph, can be improved with modern ES. “[A]ccuracy and timeliness of financial reporting relies heavily on a well-controlled IT environment. In other words, IT management has suddenly shifted from being an eventual goal or ‘one of those pesky IT problems’ to being a business requirement.”²⁸ Then why not have IT people participate in the compliance effort?

According to a survey for top Fortune 100 companies, most executives viewed compliance with SOX as a finance issue and they considered it premature for the Chief Information Officer to be involved.²⁹ In addition, many corporations have not yet begun to address their SOX obligations in a serious way, and are therefore unaware of the critical need for IT involvement in SOX compliance processes.³⁰ Corporations that do not consider IT as a valuable component of SOX compliance will find themselves at high risk.³¹

25. United Nations, Conference on Trade and Development, 2006, *Guidance on Good Practices in Corporate Governance Disclosure*, New York and Geneva, available at www.unctad.org/TEMPLATES/webflyer.asp?docid=7084&intItemID=2068&lang=1.

26. *Id.*

27. CHRISTIAN LAHTI & RODERICK PETERSON, *SARBANES – OXLEY IT COMPLIANCE USING COBIT AND OPEN SOURCE TOOLS* 31-56 (Syngress 2005).

28. HP, *HP ITSM AND HP OPENVIEW: AN APPROACH TO ATTAINING SARBANES-OXLEY COMPLIANCE*, (2004), http://h20229.www2.hp.com/regions/americas/initiatives/sarbanes_oxley_wp.pdf.

29. Ben Worthen, *Your Risks and Responsibilities*, CIO, May 15, 2003, available at <http://www.cio.com/archive/051503/rules.html>; William Brown, W. & Frank Nasuti, F., “*What ERP systems Can’t Tell Us About Sarbanes-Oxley*”, 13 INFO. MGMT. & COMP. Soc’y, 311, 321 (2005).

30. Lane Leskela & Debra Logan, *Sarbanes-Oxley Compliance Demands IS Involvement*, GARTNER, 2003, <http://www.gartner.com/resources/117800/117873/117873.pdf> (last visited Jan. 4, 2007).

31. ALTIRIS INC., *THE SARBANES-OXLEY ACT FROM AN IT PERSPECTIVE* (2004), <http://hosteddocs.ittoolbox.com/altiris010306a.pdf>.

B. TRANSPARENCY- DISCLOSURE AND COMPLIANCE

The terms information quality, cost channel form, and time have become parameters of disclosure and transparency. OECD principles use the term transparency, whereas SOX sections use the word disclosure.³² In 2003, Alan Greenspan distinguished disclosure from transparency when he stated:

[t]ransparency implies that information allows an understanding of a firm's exposures and risks without distortion. The goal of improved transparency thus represents a higher bar than the goal of improved disclosures. Transparency challenges market participants not only to provide information but also to place that information in a context that makes it meaningful. Moreover, transparency challenges market participants to present information in ways that accurately reflect risks. Much disclosure currently falls short of these more demanding goals. Despite the substantial room for progress with regard to transparency, we should not underestimate the barriers to achieving it. Managers no doubt have to struggle with selecting and organizing data in a meaningful way.³³

Minority shareholders and stakeholders receive information about the firm's value and performance mainly through the firm's financial statements. Financial reporting grasps only a small number of the economic events that affect the firm (see Figure I). This leaves them with limited information that can be tampered with by the executive managers and/or the dominant shareholders.

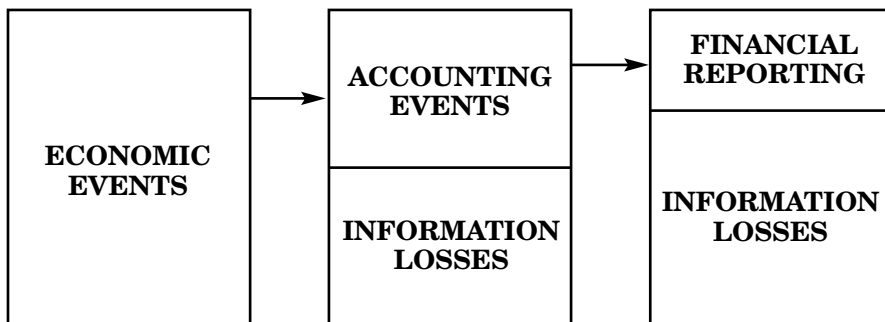


Figure 1: Information Losses Through the Chain of Information Recording and Reporting (Lazarides and Drimpetas, 2008)

32. *OECD Principles*, *supra* note 1.

33. Alan Greenspan, Chairman, Remarks at the 2003 Conference on Bank Structure and Competition (May 8, 2003), available at <http://www.federalreserve.gov/oarddocs/speeches/2003/20030508.htm> (last visited Sept. 3, 2007).

Information has become a critical component of good CG. The functions of control, supervision, monitoring, and accountability, which are closely related with CG, call for an information system that can deliver information to the controlling parties (shareholders – stakeholders). A fundamental organizational implication of CG is the creation of a reverse pyramid (see Figure 2). The reverse pyramid and the classical organizational one, have a common area. The common area is the main field of power. The non-common area contains the field of monitor, control, and accountability. Due to the fact that the monitoring, controlling, and accountability areas and the corresponding groups are outside the official organizational structure they are deprived of information and rely on the cooperation (trust), tools, and “weapons” provided by laws, regulations, and internal rules.

Managers are positioned at the top of both pyramids and hence they are in control of information flow and dissemination; they may have more than one role in the pyramid. That is why the boundaries between the BoD and the executive managers are not clear (see Figure 2). CG has not created a new balance of power, per se, within the firm but a new power delegation and control mechanism.

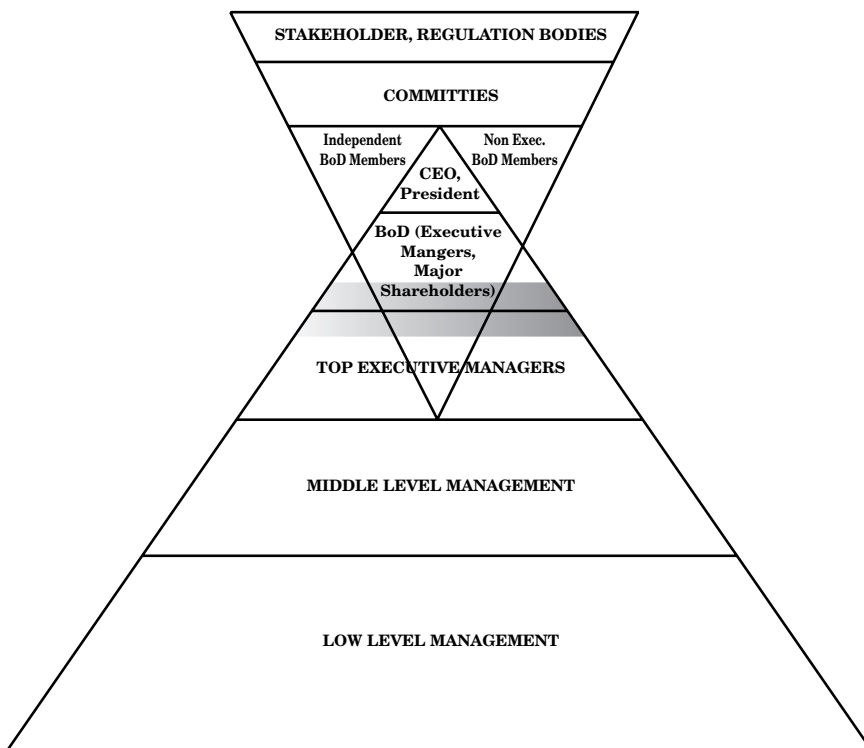


Figure 2: The Dyadic Role of Executive Managers

The accumulation of control and monitor layers (not directly linked to stakeholders) outside the firm does not facilitate information analysis and process by the main stakeholders and shareholders and hence the feasibility of control. On the contrary, the accumulation of control and monitor layers results in organizational turbulence. Stakeholders (other than the ones that already control information flow within the firm) can retrieve and use only a certain amount of processed information; they do not have the means to access the full records and drill down the registered data of the firm's information system, thereby reducing their control.

Stakeholders (everyone with a real or psychological 'stake' in an organization)³⁴ have reasonable grounds and incentives to ask for compliance with SOX or OECD principles: capital market committees and general monitoring institutions must be unbiased when they impose rules and penalties upon those that they monitor. That is why they must have well-defined guidelines and benchmarks – lines of acceptable and not acceptable behavior. Investors (institutional or not) and minority shareholders may also seek for accurate and timely information. Empirical evidence analyzing the relationship between CG and liquidity indicates a tradeoff between monitoring and liquidity.³⁵

In an era where financial results, integrity and accuracy are questioned, transparency and accessibility to information and corporate knowledge are crucial for raising funds and attracting investors. "The motivation behind SOX was to restore investors' trust in the reliability of financial data that companies publish about themselves, and to mitigate the risk of false financial statements."³⁶ That leads to another SOX disadvantage: SOX only takes into account formal contracts, for instance, financial information or internal control assessment.

It is conventional wisdom that transparency, openness, and full disclosure make for efficient financial markets and exemplary CG as market participants digest the same information at the same time, thereby causing sharp single direction swings in the market. In spite of this, Welch and Rotberg question whether full, immediate, and widespread disclosure of material corporate events will always lead to volatility in

34. Gerald Vinten, *Shareholder Versus Stakeholder - Is There a Governance Dilemma?*, 9 CORP. GOVERNANCE: INT'L REV. 36 (2001).

35. Mike Burkart, Denis Gromb, and Fausto Panunzi, *Large Shareholders, Monitoring and the Value of the Firm*, 112 Q. J. ECON. 693 (1997), available at [http://www.faculty.london.edu/dgromb/papers/BurkartGrombPanunzi\(QJE1997\).pdf](http://www.faculty.london.edu/dgromb/papers/BurkartGrombPanunzi(QJE1997).pdf); Cuervo, *supra* note 24, at 84.

36. P.J. Jakovljevic, *Thou Shalt Comply (and More), or Else: Looking at Sarbanes-Oxley*, Feb. 21, 2007, http://www.technologyevaluation.com/Research/ResearchHighlights/ERP/2007/02/research_notes/prn_EV_ER_PJ_02_21_07_1.asp (last visited Jan.5, 2007).

market reaction by creating a “herd instinct.”³⁷ Nonetheless, this article argues that shareholders should be the real proprietors of corporate information (financial or other kind of information) and that timely and accurate information is necessary for investment decisions.

THE SUCCESS OF ES AND GS - A VIEW AHEAD

Many studies regarding ES and CG success have a common element: the greater percentages of failure cannot be attributed to IT or to IT governance per se, but rather to an inefficient CG system that does not consider the four cornerstones: transparency,³⁸ integrity,³⁹ accountability,⁴⁰ and efficiency.⁴¹ The basic fallacy is that managers and IT specialists tend to face even sophisticated and complex information systems, like ES, only with IT terms, and evaluate their implementation and function only with IT benchmarks. Above all else, ES implementation success involves a change in culture.⁴²

CG and legal regimes may fail. ES and IT governance may fail as well. The analysis of CG and modern ES shows that there are some synergies or complementarities (the disadvantages of one can be vitiated by the right usage of the other). There are several gaps in the design and architecture of the current enterprise system which are necessary in order to meet the requirements of the SOX and OECD. Some possible solutions involve a change in the IT governance, but this is a broad subject with multiple disciplines: information technology, risk management, strategy, intellectual property, business design, project management, compliance, and so on.

A new holistic approach is needed and some new tools must be incorporated in the ES adoption. An innovative enterprise system design is necessary to incorporate key components of Business Intelligence (“BI”).

37. Theodora C. Welch & Eugene H. Rotberg, *Transparency: Panacea or Pandora's Box*, 25 J. MGMT. DEV. 937, 937-941 (2006).

38. Zabihollah Rezaee, Kingsley Olibe, & George Minmier, *Improving corporate governance: the role of audit committee disclosures*, 18 MANAGERIAL AUDITING J. 530, 530-537 (2003).

39. Gerry H. Grant, *The Evolution of Corporate Governance and Its Impact on Modern Corporate America*, 41 MGMT. DECISION 923, 923-924 (2003), available at <http://www.emeraldinsight.com/Insight/viewPDF.jsp?contentType=Article&Filename=html/Output/Published/EmeraldFullTextArticle/Pdf/0010410909.pdf>.

40. Laura F. Spira, *Enterprise and Accountability: Striking a Balance*, 39 MGMT. DECISION 739, 739-748 (2001), available at <http://www.emeraldinsight.com/Insight/viewPDF.jsp?contentType=Article&Filename=html/Output/Published/EmeraldFullTextArticle/Pdf/0010390905.pdf>.

41. Gordon Walker & Mark Fox, *Corporate Governance Reform in East Asia*, 2 CORP. GOVERNANCE 4, 4-9 (2002).

42. Carl Marnewick & Lessing Labuschagne, *A conceptual model for enterprise resource planning (ERP)*, 13 INFO. MGMT. & COMP. SEC. 144, 144-155 (2005).

BI applications are decision support tools that enable real-time, interactive access, analysis, and manipulation of mission-critical corporate information.⁴³ Users (stakeholders) are able to directly access (without using mediators that may have conflicting interests with them) and leverage vast amounts of information, to analyze relationships and to understand trends that ultimately support business decisions. These tools prevent potential loss of knowledge within the enterprise that results from a massive accumulation of information that is not readily accessible or in usable form.⁴⁴ That will be a major challenge, encompassing predictive analytics following a proactive approach to corporate information governance as well.⁴⁵

CONTRIBUTION- LIMITATIONS - FUTURE RESEARCH

Consistent with the well established literature, CG principles can be advantageously implemented with the use of a modern ES. Thus, guaranteeing that the stakeholders who legally or ethically demand information can get it, and that CEOs and managers effectuate their fiduciary duty as conductors of information through and outside the firm. Information handling is at the core of the problem of CG itself. The constant flow of quality information, provided by the ES, stabilizes the efficiency of the CG mechanisms (implicit and explicit contracts, reputation and trust) and creates a coherent corporate network that reduces conflicts. In turn, this can ameliorate the implicit conflict between agents and principals.

The new approach provided in this article triggers new concepts aimed at enhancing the ability of stakeholders to participate in the governance process. It is broader in scope than previous approaches, and suggests that the design and implementation of ES, according to modern CG principles and guidelines, can help all parties to make rational decisions (through the power of logic and not through the logic of power) and to facilitate the market for corporate control. The whole argument, however, is rather new and needs further analysis and empirical testing. Moreover, no ES can itself promise the success of any corporate endeavor and undertaking.

ES and CG are both based on cultural change, and culture is based on knowledge. The modern ES systems are able to store non-structured information. But how can they exploit this information? Can the modern

43. SearchDataManagement.com, *Business Intelligence*, http://searchdatamanagement.techtarget.com/sDefinition/0,,sid91_gci213571,00.html (last visited Sept. 18, 2009).

44. Marnewick, *supra* note 42, at 144-155.

45. Mukhles Zaman, *Predictive Analytics; the Future of Business Intelligence*, TEC DAILY NEWSLETTER, . 8, 2005, available at http://www.technologyevaluation.com/Research/ResearchHighlights/BusinessIntelligence/2005/12/research_notes/prn_TU_BI_XMZ_12_24_05_1.asp, (last visited December 12, 2006).

ES encapsulate the corporate social and cultural capital? Is it able to store, explore and potentially create a competitive advantage stemming from corporate knowledge and culture? Two basic questions remain for future research: a) who is the proprietor of the information and knowledge, and who has a legitimate right to demand it?; and b) how can anyone, with a legitimate right, obtain this information securely, timely, at a minimal cost, and in the right format? All these questions are CG questions, and they have been partly addressed in recent CG principles. Nonetheless, the foregoing analysis reveals that there is still room for further improvement in the implementation of ES and GC practices.