THE IMPORTANCE OF GOVERNANCE IN THE IMPLANTATION OF A PROJECT BUSINESS INTELLIGENCE APPROPRIATE TO THE REQUIREMENTS OF THE LAW SARBANES-OXLEY

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─Abstract ─
The constant quest for return profitable investments is a practice commonly used. Investors are known as people who know recognize the identification of opportunities in business, and seek by undertakings which refunded safety in the treatment of their capital. The safety of return on investments generates a great responsibility in firms, and makes these worry develop strategies aimed directly to sustainability. Facts such as those that occurred at the end of 90s, where some undertakings north-American, who traded their roles in New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotations (NASDAQ), changed its financial results, generated a negative impact worldwide in the degree of confidence of investors. These facts led one the largest financial reforms of history north-american, was created Sarbanes Oxley (SOX) as a regulatory body of audit firms, ensuring the integrity of the information and the criminal liability of high administration. The SOX generated a great impact in the area of Information Technology (IT) envolving the architecture of Business Intelligence (BI). This work aims to analyze, assess and discuss the importance of Governance in the implantation of a project of BI, in order to ensure the appropriateness of this project to the requirements of law SOX.

Key Words: *Business Intelligence, Governance, Sarbanes-Oxley Law, Investment, Safety*
JEL Classification: M48.

1. INTRODUCTION

The search for profitable outflows of investments is a widespread practice, which occurs in both corporate and personal domains. Companies survive and sustain themselves in the globalized world with a tough competition, do to their positive and meaningful outflows as a result of their strategic plans drawn from the *Business Intelligence (BI).*

Investors are known as people of an exquisite flair for business opportunities identification, and search for, on regular bases, companies that show reliability in dealing with their capital. The safety of positive outflows on investments generate a great responsibility to companies and make them worry about developing strategies aimed directly to sustainability and growth of their businesses, factors that help more and more the growth of relationships with investors, transmitting to them reliability.

This relationship suffered a huge impact in late 90s, when the frauds were found in the financial results of some U.S. companies that commercialized their roles in the *New York Stock Exchange (NYSE)* and *National Association of Securities Dealers Automated Quotations (NASDAQ).* The manipulation of such information was intended to generate an image of financial stability, in order to continue the relationship between the investors with the companies, ensuring their investments. Such shock in the market generated a negative impact worldwide on the degree of investor confidence, casting doubts on the whole corporate governance of companies.

These facts led to major financial reforms in the U.S. history. It was created the *Sarbanes-Oxley (SOX,)* as a regulator institution of auditing firms, ensuring the integrity of information and the criminal responsibility of senior management on them (Anand,2006:1). It was generated a series of adaptations in the Information Technology (IT) area, directly involving both the IT governance and architecture of BI, both regarded as pillars of support to the corporate governance.

The research has been developed through bibliographies references related to the topics discussed and a case study in a company which is part of the financial area, where the information was obtained. The company name was omitted on request. This analysis aims to analyze, evaluate and discuss the importance of governance in the implementation of a BI project in order to guarantee its adaptation to the SOX law. To achieve such a goal, the job is divided as followed: In Section 2 the concepts of corporate governance will be introduced, in section 3 the BI Governance will be discussed, in Section 4, the study will present the history and

concepts of U.S. law Sarbanes-Oxley, in section 5 the methodology will be introduced, in section 6 the analysis of the results will be made and in section 7 the final comments of this analysis will be presented.

2. CORPORATE GOVERNANCE

Introduced in the United States and England in the late 90s, the concept of ruling refers to how companies are managed, regulated and controlled. Governance is to ensure the ethics of the organization in the generation and protection of benefits for all the investors, which is known worldwide as corporate governance. It deals with the ways in which corporate investors will ensure that they will have significant outflows on their investments (Du,2009:3).

Corporate governance has a great ally: IT governance. They determine the procedures to the structure and computerized processes so that they can ensure the support and guarantee reliable information to the organization's strategies (Shleifer,1997:9).

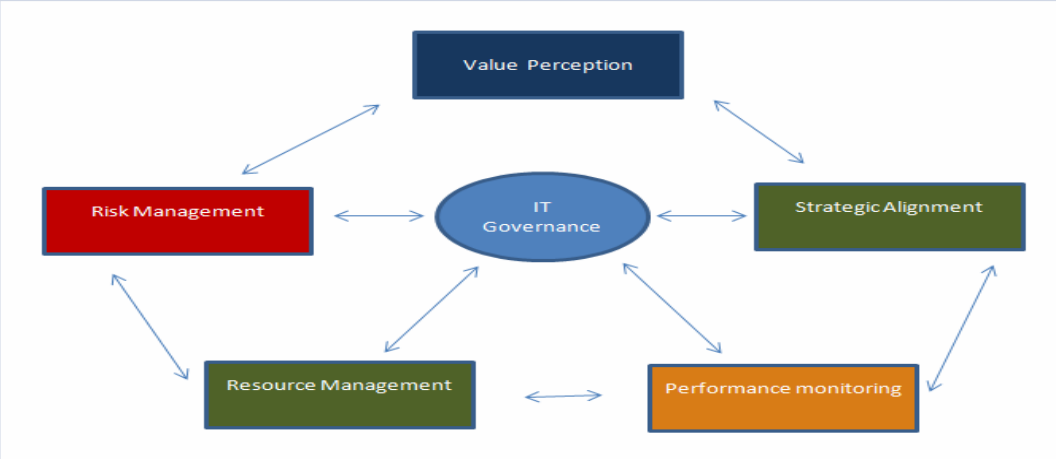
For such structure, it is based on a tripod composed of IT professionals and users, computerized processes and technology. Its main objectives are:

- Ensure control and maintain corporate information in safety;
- Optimize the use of available resources in order to reduce the costs of processes, minimize risks to the information in order to ensure an effective support for strategic decisions of the companies.

The desirable behavior is the one aligned with the mission, strategy, values, norms and the company culture (Weill,2004:11). The effective connection between the IT governance and the enterprise BI architecture reinforces and bases corporate governance (Cheong,Chang,2007:2).

IT governance seeks to share decisions with other leaders of the organization, as well as establish rules, organization and processes, determining how the IT must provide services for the company and keeping the alignment with BI governance. Figure 1 illustrates the basic structure of the IT governance.

Figure-1: Basic structure of the IT governance.



Source: ITGI: 2011:5.

3. BUSINESS INTELLIGENCE GOVERNANCE

The *Business Intelligence* term was named by the Gartner Group, and refers to the business intelligence that companies handle their information, extracting from them the necessary knowledge to support decision made by their managers. The procedures, rules and policies for such knowledge led to the BI governance.

BI should be applied to all sections of the companies because, by analyzing the profiles of many levels of information and search for points within the business processes that can be used as a competitive advantage (Petrini,Pozzebon,2009:8). This is how executives get knowledge about the market and customers, in order to anticipate changes and actions of their competitors (Lee,2001:7).

The competitive advantage is expressed through the way organizations react to constant markets changes and for this speed to be competitive, selective storage of information is essential to generate knowledge.

The areas in companies store information in their database. In a second moment, only important information is taken to another database, with more corporate focus. The databases of specific areas in business are called the *Data Mart (DM)*, and can provide information to knowledge generation (Inmon,1996:4).

The DM send information to corporate databases, called *Data Warehouse (DW)*. They store only important information about the company's operations, in order to

assist decision making (Vicente,2009:10). DW helps managers with the incorporated knowledge and understanding the market demands (Lawyer,Chowdhury,2004:6). Extracting important information from DW, with the goal of being able to focus on new business opportunities, has become a differential factor for companies(Vicente, 2009:10).

Facts like those, which happened in the late 90s, to some big U.S. corporations, casted doubts on the whole corporate governance. The concern to ensure and guarantee effective governance in organizations, led to the creation of the Sarbanes-Oxley Act, with exclusive focus on recovering investors' confidence and the market in general.

4. SARBANES-OXLEY (SOX)

Prepared by U.S. Senators Paul Sarbanes and Michael Oxley, the law was enacted on July 30, 2002. Known as SOX, it aimed to restore and increase investor confidence and the sustainability of corporations. Its determinations affected the way public companies now report their financial transactions, imposing criminal liability on senior management.

SOX is the corporate governance sphere of companies, and it has generated a significant impact on IT. Its applicability has been imposed on public companies whose shares are traded on the *New York Stock Exchange (NYSE)* and *National Association of Securities Dealers Automated Quotations (NASDAQ)* and also on some foreign corporations that trade American depositary receipts of shares of foreign companies (American Depositary Receipts - ADRs) not negotiable in their country of origin.

The enforcement for security and control practices in the information systems, applications and networks, and strict criteria for the use of third-party applications by companies under the law context (Anand,2006:1).

Companies must certify the adoption of process control and preventive measures, both coordinated in its information in both systems and applications that handle financial information.

There are two key points that should be observed, as far as the use of information systems and applications within the scope of SOX:

1 - Security: the SOX content application should occur among all the communication chain of the company (processes), especially in resources related to the financial management information systems.

2 – Records Control: Like any other process designed to be audited, the law is based on the information record and for this reason several generations of files relating to movement records, streams, programs, system libraries, must be kept.

The application of these two points in the information systems and applications, meets the applicability and importance of governance in the implementation of a BI project suitable for SOX. Factors such as security and controls are directly aligned with the direction of any governance.

5. METHODOLOGY

The job has been developed through a biographical search on the current literature of the targeted themes: corporate governance, BI governance, *Sarbanes-Oxley* law.
It was adopted a case study as a basis for analysis of governance in the implementation of a BI project to suit the requirements of SOX. The analysis is being developed in the validation of the control processes of the BI aligned to those required by SOX in a multinational company in the financial sector. For the case study, information was raised from a systems analyst in the billing area, specialized in collection and expert responsible for validation of the sequence of processes audited by SOX. The information was gathered in 1.5 and 0.5 hours meetings, respectively, on the implementation of an information system, creating the need to adapt two programs: one classified as SOX and another not, called "normal." SOX programs are classified as those that handle financial information and can influence the amounts that make part of the earnings of the company.
The case study is based on analysis of the adequacy of the procedures for SOX and the other one, called "normal".

The objective of it is to analyze the importance of controls, SOX and the appropriate set of governance, an SOX adaptation program, contained in a implementation of an information system belonging to a BI architecture and compare it to an adaptation of a “not SOX ", program called in this process of "normal ".

6. RESULTS ANALYSIS

The implementation of an information system belonging to a BI architecture of the collection area of a company, created the need for adaptation of two programs: one classified as SOX and another called "normal".

The program is classified as SOX because it manipulates financial information and is able to change them. The program called "normal" handles business information, but at no time manipulates the outcome of financial information. The information obtained refers to the procedures of code-source change of the two mentioned programs.

The program classified as SOX is part of the process of loading of a *Data Mart* that generates the *Data Warehouse* of the collection. The "normal" program is part of a daily routine control of payments financing company. Both programs were developed in the programming language COBOL II to mainframes.

Standard procedures established for changing the source code of a program "normal" are:

1. Access the library of production schedules on the mainframe computer;

2. Identify the version of the program that will go through changes in its source code;

3. Copy the version of the program for the area of the programmer responsible for the change;

4. Changing the source code of the concerned program;

5. Cataloging the program in the library's program development environment;

6. Test the running of the new version of the program development environment;

7. Validate the results of tests with the product area users;

8. Generate evidence of tests performed in the development environment;

9. Request “I agree” via email, from the manager of the collection to catalogue the new version of the program in the program library of the production environment;

10. Cataloging the program in the production library with the new version.

Standard procedures established for changing the source code of a program SOX are:

1. Request permission via *email*, from the collection area manager to start the program changes;

2. Access the library of production schedules on the mainframe computer;

3. Identify the version of the program that will go through changes in its source code;

4. Copy the version of the program for the area of the programmer responsible for the change;

5. Changing the source code of the concerned program;

6. Request permission via *email*, from the program manager to catalog the library's program development environment;

7. Cataloging the program in the library's program development environment;

8. Test the running of the new version of the program in the development environment;

9. Validate the results of test with the users of the product area;

10. Generate evidence of tests performed in the development environment;

11. Forward via *email*, the evidence of tests performed in the development environment to the area manager;

12. Request “I agree” via *email*, of the user regarding to the tests performed;

13. Request “I agree” via *email*, from the manager of the user area regarding to the tests performed;

14. Request “I agree” via email, from the manager of the regarding to the tests performed;

15. Request “I agree” via email, from the superintendent of the collection area to the cataloging of the new version of the program in the program library of the production environment;

16. Cataloging the program in the library production with the new version.

The analysis shows that the steps contained in the SOX program procedures are registered and require managers’ sequential permits of the areas involved and at the end of the procedure it is requested a permit from the superintendent of collection area. The procedures of the program called "normal" is depends on the collection manager’s permission, only at the end of procedures.

The procedures analyzed reveal the direct allocation of responsibility of managers and superintendent of the areas involved in appropriate procedures to SOX. It is seen the need of evidence generating and permit documentation, as feasible evidence in auditing moments.

7. CONCLUSION

Showing security to their investors is the goal of any publicly-traded corporation so they are concerned about developing strategies aimed directly to the sustainability. These strategies involve the applicability of corporate governance, BI projects and IT governance.

For companies that commercialize their roles in the *NYSE* and *NASDAQ*, the IT alignment to external regulatory frameworks such as SOX ensures the integrity of information to investors. The SOX law had a great impact in the IT field, forcing the adequacy of information systems with the creation of many process controls.

This process is in development, however, the analysis leads to the conclusion that governance has an important role in the deployment of a BI project suitable for SOX, as their rules and procedures regulate the activities involved in these processes.

The analysis of the two processes involved in the case study, show that under SOX compliance to the law, the governance requires that more procedures should be recorded controlled and are lacking in commitment from managers from different hierarchical layers in business, specific features of auditable processes.

This paper has the limitation of research to the implementation of a BI project in the area of collection of a company's finance segment. Further research should be done in companies of different branches of activity, as well as in various internal areas of collection.

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