

# Endeavor in Management Process by Executive Dashboards: The Case of the Financial Directorship in Brazilian Navy

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**Abstract**—The objective is to identify the contributions from the introduction of the computerized system deal within the Accounting Department of Brazilian Navy Financial Directorship and its possible effects on the budgetary and financial harvest of Brazilian Navy. The relevance lies in the fact that the management process is responsible for the continuous improvement of organizational performance through higher levels of quality in their activities. Improvements in organizational processes have direct effects on costs, quality, reliability, flexibility and speed. The method of study of this research is the case study. The choice of case study attended, among other demands, a need for greater flexibility to study processes related to a computerized system. The sources of evidence were used literature, documentary and direct observation. Direct observation was made by monitoring the implementation of the computerized system in the Division of Management Analysis. The main findings of the study point to the fact that the computerized system may contribute significantly to the standardization of information. There was improvement of internal processes in the division of management analysis, made possible the consolidation of a standard management and performance analysis that contribute to global homogeneity in the treatment of information essential to the process of decision making. This study has limitations related to the fact the search result be subject exclusively to the case studied, and it is impossible to generalize to other organs of government.

**Keywords**—Process Management, Management Control, Business Intelligence.

## I. INTRODUCTION

THE organization is a set of processes that require networking. In this context, the process management emerges as a routine employed by an organization in pursuit of improvement and optimization of the process chain, to meet the needs and expectations of stakeholders, through minimum use of resources coupled with maximum hit rate. It represents the union of business management to information technology with a primary focus on the optimization results through improved business processes. Brazilian Navy Financial Directorship as Brazilian Navy Sector Accounting spotted the convenience of developing a corporate system for planning, evaluation and control of the providing military service

organizations. In this context, appears a computerized system designed to monitor providing military service organizations economic performance, powered by managerial reports and information from the Brazilian Integrated System of Financial Administration.

The paper's objective is to identify the contributions coming from the introduction of the computerized system under the Accounting Department of the Brazilian Navy Financial Directorship, as well as its possible effects on the budgetary and financial area of Brazilian Navy.

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This paper consists of the following sections: theoretical reference, methodology, analysis and discussion, closing remarks and references.

## II. THEORETICAL REFERENCE

### A. The Systematic of Providing Military Services Organizations

The reformist approaches in the federal public administration were influenced by managerialism, a movement that advocated the adoption of management practices from the private sector as a reference for the public sector [8], [9]. The New Public Management, observed in the 1980s and 1990s, buoyed the Master Plan for the Reform of the State Apparatus, responsible for the management reform of 1995 and the new Brazilian public management [16]. At that time, it was tried to adjust the low effectiveness of the public administration to new times, especially in the following areas: quality, motivation, accountability, effectiveness, efficacy, efficiency and projects administration [11].

The Brazilian Navy has aligned itself to the reforms proposed by the Federal Government in search of a new public management and has also implemented tools to perfect their administrative processes continuously. In this context, it was very relevant the adoption of strategic planning by providing military service organizations in Brazilian Navy [20].

The providing military service organizations system was implanted in the Brazilian Navy in order to meet the needs of high Admiralty regarding the measurement of the costs of industrial military organizations and service providers. There was a concern with the following facts: a) recurring financial

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deficits of these organizations; and b) lack of other economic and equity positions that allow the identification and proper evaluation of the various activities undertaken in these organizations [13].

Conceptually, providing military service organization is the military organization responsible for providing services to other military organizations, and eventually, extra-Navy organizations in one of the following areas: industrial, science and technology, hospital, supplies and special services, promoting charging for services rendered, from the costs and expenses incurred by it [13].

The Brazilian Navy Financial Directorship is an integral organ of the Brazilian Navy Internal Control System and aims to conduct activities related to financial management, accounting and staff payment. The Brazilian Navy Financial Directorship promotes technical guidance of providing military service organization and permanent updating of the rules governing the cost accounting in Brazilian Navy as well as has fostered research of issues that contribute to the improvement of providing military service organizations systematic.

In this scenario, Brazilian Navy Financial Directorship saw the necessity to implement a corporate system for planning, providing military service organization evaluation and control, which will aid in evaluating the systematic performance and in generating information for decision making, activities undertaken by the Management Analysis Division. The proposed implementation of the corporate system is consistent with the strategic planning of the Brazilian Navy Financial Directorship, which provides for the improvement of the existing methodology of planning, providing military service organization evaluation and control aiming to guide and monitor the performance of those organizations and improve the process of cost accounting. Furthermore, this proposal is consistent with the character finalistic - efficiency control and administration of results - conferred by the Federal Constitution of 1988 to the Public Administration.

#### *B. Intrapreneurship: Identifying Opportunities for Improvement in Management Analysis*

The term intrapreneurship has been used in Brazil as corporate entrepreneurship and emerged in 1978, as an abbreviation of the concept of intra corporate entrepreneuring. At that time, were presented arguments and concepts that support the idea that a professional does not need to abandon their craft in a large corporation to become an entrepreneur [17].

Entrepreneurship is no longer only an attitude of initiating a new company or a venture and turned into a desired attribute of a professional from any organization which aims to grow and stand out. Entrepreneurial attitudes in organizations every day are more valued. The creative ability is sprayed throughout the organization; each employee thinks, identifies opportunities for change and may be able to undertake them. Therefore, an entity that you want to stand out as an innovator needs to handle this force spread throughout the organization [12].

The search for the "entrepreneurial spirit" in corporations occurs steadily; organizations are currently developing and training its employees in order to stimulate skills and entrepreneurial skills; are encouraging them to intrapreneurship. It should be noted that there is no "entrepreneurial personality" or intrapreneurial, but common to these people, such features as: autonomy, self-confidence, flexibility, independence, creativity, leadership, among other [10]. The intrapreneur is one who within the organization takes the responsibility to promote the innovation of any kind, at any time, in any place of the enterprise [7]. This is an individual skilled to work in any sector of the company, wherever it has proposed a new project, especially by its involvement with the proposed objectives and the identification of new opportunities that are able to benefit the organization [15].

When talking about intrapreneurship in a Brazilian public organization, it sounds just like another buzzword that is quickly extinguished. However, in a democratic way and almost unnoticed, intrapreneurs act in a very special way in the realization of their projects, someone acts without knowing that they are intrapreneurs, while others are aware of their actions and the risks they face [24]. To Roberts [19], public entrepreneurship is the generation of innovative idea, the design and implementation of this idea in the public sphere. Osborne and Gaebler [14] identify these individuals as agents who employ the available resources and build new ways to maximize productivity and organizational effectiveness.

Military organizations, despite being endowed with an organizational structure founded on values such as hierarchy, discipline and tradition, are also able to promote intrapreneurship. The proposed development of a Business Intelligence system geared to providing military service organizations managerial analysis arose internally, after successive meetings attended by the leader of the institution, officials and Researchers at Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering at Federal University of Rio de Janeiro. The next section will discuss aspects of process management and relevant business intelligence to this paper.

#### *C. Process Management and Business Intelligence*

The future will belong to organizations that are able to exploit the potential centralization of priorities, actions and resources in their process [4]. Modify the organizational structure of the company to a structure by processes involves defining responsibility for the progress of the process, minimize transfers, maximizing the grouping of activities and decrease energy expenditure. The relevance of the use of the concept of process increases as organizations deal with increasingly intellectual content. The techniques and management practices will need to adapt to organizations that are structuring themselves by processes. Currently, there is a tendency to focus on individual skills and activities, leading to vision loss of process and skills of the group. There is a necessity of the model the monitoring of enterprises performance be refurbished so they can be useful in the

management of these organizations [6].

The technology impact on job execution contemplates since changes in the embodiment of individual work until the way in which companies work together in inter-organizational processes, through redefining the way in which groups of individuals perform their tasks [5].

The decision support systems, including business intelligence, have an important role in business and in contemporary society, by allowing the conversion of primary data on facts and representative forms, ie, producing executive and intelligent information [18].

Business intelligence, besides being a tool, is a concept that encompasses the corporate fitness to explore, analyze and use distinct information from several different bases, which will be crucial in the decision making process. This information treatment contributes to a favorable analysis of large volumes of information, and the relations of cause and effect, converting the entries of the databases into useful and strategic information to business activity [1] [2]. To Turban [22], Business Intelligence is "an umbrella term that includes architectures, tools, databases, applications and methodologies".

The Business Intelligence has four major components: a data warehouse with their source data, business analysis, a meeting of tools to manipulate and analyze data in data warehouse, including data mining; Business Performance Management for monitoring and performance analysis; and a user interface (as a dashboard) [23]. The Table I, adapted of Turban [23], presents an overview of the four Business Intelligence macro components.

TABLE I  
BUSINESS INTELLIGENCE MACRO COMPONENTS

Component	Feature
Data warehouse	Database structured to support managerial decision-making data. This type of database contains a variety of elements that lead to building a coherent picture of the conditions of the organization in a given period in time. The main idea of a Data Warehouse is to provide a data infrastructure that is always online and contains all the information of the company's operating systems, including historical data.
Tools	Tools are any types of software that allow the user to create reports and queries on demand, besides perform data analysis. These tools originally came up with the name of Online Analytical Processing.
Business Performance Management	It is considered the final component of the Business Intelligence process. This uses the analysis, the generation of reporting and Business Intelligence queries with the goal of improving the overall performance of the organization.
User interfaces	Represent visualization tools that present information in an understandable manner to users. These can be dashboards (provide a friendly and comprehensive view of key performance indicators, trends and exceptions), multidimensional data cube and even virtual reality in some cases.

To Eckerson [3], the use of business intelligence can provide distinct benefits, especially; time-saving, single version of the truth, better strategies and plans; better tactical decisions, more efficient processes, and cost savings. In addition, Thompson [21] states that the most significant benefits of business intelligence are generation of reports

faster and more accurate, better decision making, better customer service, and increased revenue.

### III. METHODOLOGY

The method of study of this research is the case study. The choice of case study attended, among other demands, a necessity for greater flexibility to study processes related to a computerized system. The sources of evidence used were bibliographic, documentary and direct observation. The bibliographical and documentary evidences were raised through consultations to books, magazines, researches, academic papers, laws, standards, manuals, documents, magnet files and internet. Direct observation was carried out by monitoring the implementation of the computerized system in the Management Analysis Division of the Brazilian Navy Financial Directorship.

### IV. ANALYSIS AND DISCUSSION

The dashboard used by Management Analysis Division is the result of a cooperation agreement between the Brazilian Navy Financial Directorship and Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering at Federal University of Rio de Janeiro for conducting joint projects of research and development to improve business processes in the Management Analysis Division, reporting to the Brazilian Navy Financial Directorship Accounting Department. In that agreement, it was proposed that the work would be coordinated by the Laboratory of Database of Program Graduate in Computer Systems and Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering at Federal University of Rio de Janeiro, in such a way that would enable the transfer of knowledge and technology, created through this partnership, to military designated by that Directorship to monitor the project. The joint research work aimed to develop a corporate system responsible for optimizing business processes through the establishment of a new process for managing information according to the following routines: (1) analysis of business processes; (2) technical feasibility of information management through mechanisms of acquisition, storage and display of data; (3) implementation of analytical models to support business intelligence processes; (4) implementation of models for future analysis.

Throughout the work done together to improve internal processes in the Management Analysis Division, it was studied the feasibility of implementing a more efficient management model driven by a business intelligence platform. About the obstacles highlighted throughout this paper, it was observed that the main need would be to improve the current approach to information management.

Regarding the area of process management, the Brazilian Navy Financial Directorship, based on information extracted from the Brazilian Integrated System of Financial Administration, issues an Economic and Financial Report of the providing military service organizations with the purpose of providing the High Admiralty subsidies on the financial

performance for decision making at the strategic framework. In addition to a demonstrative with pre-stipulated indicators, this management report, drawn from indicators pre-stipulated by the highest levels of the Navy, includes the following demonstratives relating to providing military service organizations managed by the Brazilian Navy Financial Directorship: income demonstrative for the period; demonstrative of labor; e demonstrative of medium term renewal of stocks.

The income demonstrative for the period highlights the economic performances of providing military service organizations Industrial, Science and Technology, and Hospital in the period under review, usually every quarter. The demonstrative of medium term renewal of stocks represents, in days, the average time that the providing military service organizations leads to renew their stocks, due to the growing need of inventory that is not linked solely to the prices paid for your purchase, but fundamentally the levels of inventory held. Ultimately, the demonstrative of labor of the providing military service organizations enables better monitoring of employment of its workforce, as well as a better understanding of the influence of labor on economic outcomes of these organizations.

The Brazilian Navy Financial Directorship identified that the flow of these information suffered limitations by the use of Excel spreadsheets to consolidate the information extracted from Brazilian Integrated System of Financial Administration. With the advent of computerized dashboard system, it was possible to monitor the providing military service organizations economic performance, through the transformation of the indicators in charts and graphs generated from information from, mostly, from management accounting and Brazilian Integrated System of Financial Administration. Thus, this new system allowed a more accurate monitoring, and in the shortest time, of providing military service organizations performance with visualization more current and critical of economic situation of those organizations, allowing the Brazilian Navy Financial Directorship reached simultaneously the effective control of all of Brazilian Navy providing military service organizations in real time and can fix timely any inconsistencies that are presented in daily.

Before implementation of the computerized system, data extraction was performed by analysts, who extracted and manually put them in excel spreadsheets. With the advent of this joint research work, the system automatically performs the extraction of these data from Brazilian Integrated System of Financial Administration in ".txt" files, and promotes direct sending to your database, minimizing the occurrence of errors and optimizing the work and time spent on this task, besides being a data platform endowed with greater security. Finally, it is planned to establish a pattern of management and performance analysis to ensure homogeneity in the overall treatment of information necessary for the formulation of rules and standards more reliable analysis to Brazilian Navy.

The lack of a corporate model for performance analysis, forced Brazilian Navy Financial Directorship to seek a model that could be deployed and used internally and subsequently

employed in other Brazilian Navy Specialized Directorships. The formalization of the partnership with Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering at Federal University of Rio de Janeiro enabled the consolidation of a standard of management and performance analysis to guarantee homogeneity in the overall treatment of information necessary for the formulation of rules and standards more reliable analysis to Brazilian Navy. Therefore, the implementation of a standardized approach of controlling internal processes culminated in the development of a model of management information provided with quality and reliability, resulting from the use of modern techniques of extraction, processing and storage of data.

#### V.CLOSING REMARKS

The paper's objective is to identify the contributions coming from the introduction of the computerized system under the Accounting Department of the Brazilian Navy Financial Directorship, as well as its possible effects on the budgetary and financial area of Brazilian Navy.

The main findings of the study point to the fact that the computerized system may significantly contribute to the standardization of information. There was improvement of internal processes in the Management Analysis Division; made possible the standard consolidation of management and performance analysis that contribute to the homogeneity in the global treatment of essentials information for decision-making.

This research has limitations related to the fact the search result to be listed exclusively to the case studied, being impossible to generalize to other organs of government, which would require specific monitoring and evaluation of those organizations. This fact does not preclude future research be recommended in other organs of government in order to assess the level of acceptability of data generated from such computerized systems by the decisorial sphere of those organ.

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