

THE IMPORTANCE OF DECISION MAKING FOR INNOVATION AND CHANGE IN ORGANIZATIONAL ENVIRONMENTS: BUSINESS INTELLIGENCE AND COMPANY RESOURCE PLANNING (ERP) AS STRATEGIC FACTORS

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SUMMARY

This article presents a study on the different theories that define Business Intelligence, the importance of decision-making for organizations, and resource planning as a strategic factor for the development of new actions that promote change management. A qualitative literature review was conducted with the aim of identifying the main concepts on the topics of the current discipline and their applicability to the proposed work. The study provided a conceptual analysis of the contents on Qualitative and Quantitative Methods for decision-making, allowing the identification of the tools used and their practical applicability for projects that involve innovation through the insertion of new technologies. The research, conducted in an exploratory manner, provided important results such as the synthesis of actions already carried out by different professionals, which serve as a reference for new work, highlighting the challenges that can be faced and the contribution of Business Intelligence to the development of organizations. **Keywords:** Business Intelligence, Organizations, Planning, Decisions.

ABSTRACT

This article introduces a study about the different theories that describe Business Intelligence, the importance of decision making to organizations and the resource planning as strategic factor to develop new actions that promote change management. It was a literature review of qualitative way, with the objective of identifying the main concepts about the subject of course taken and their applicability to proposed work. The study provided a conceptual analysis of contents about Quantitative; Qualitative Methods for Decision Making, allowing to identify the main tools used and its practical applicability to projects that involve innovation through the insertion of new technologies. The search it was made of exploratory form provided to get important results as synthesis of actions already accomplished for different professionals, that serves as reference to new works, with spotlight to challenge that can be faced and the contribution of Business Intelligence to organizations' development.

Keywords: Business Intelligence, Organizations, Planning, Decisions.

1 INTRODUCTION

The research contributes to the definition of the main concepts, the importance of decision-making in organizational environments and the strategies that can be adopted to

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implement ERP (Enterprise Resource Planning) as a support tool for generating and selecting data and information.

It helps in the analysis of experiences already adopted by companies to redefine actions and practices that generate significant changes and that can serve as a basis for the planning and execution of projects that involve teams and interested parties in the implementation of new information technologies for the management of these companies. "Data analysis leads us to the information; technologically, information systems make this bridge, delivering relevant information to the end user, allowing time savings." Ceci (2012, p. 17).

The research raised important questions about the main changes generated by decision-making based on new investments in technology and their applicability by teams and managers. It highlights practices that drive innovation through projects designed based on knowledge management and team training to achieve the expected results.

The work was written based on research and bibliographic studies that report on the theoretical concepts presented in the discipline of Qualitative and Quantitative Methods for Decision Making, analyzing data and information that contribute to the development of actions in the process of innovation and change management in organizations. The research methodology used was a descriptive bibliographic review with a qualitative approach.

2 THE CONTRIBUTION OF BUSINESS INTELLIGENCE AND RESOURCE PLANNING TO THE DEVELOPMENT OF ORGANIZATIONS

2.1 BUSINESS INTELLIGENCE AND DECISION MAKING

At a unique moment in human history, global society faces several challenges, seeking to overcome difficulties and generate new opportunities in the face of the scenario imposed by the COVID-19 pandemic. The global crisis has caused profound changes in people's lives, altering daily routines and market practices, demanding a lot of creativity from companies and their managers. The activities carried out until then already pointed to the need for change in different aspects in the most varied sectors of the national and international economy, requiring efforts from professionals and organizations to reorganize the structures and means necessary for the evolution of the global market. To this end, these

organizations go through different processes that involve innovation and business strategies necessary for good performance in the presented scenario:

Innovation gains importance due to its close relationship with competitiveness. Typically, the more innovative a company is, the greater its competitiveness and the better its position in the market in which it operates. This high capacity for innovation transforms ideas into innovative products, services and processes quickly and efficiently. As a result, innovation allows the company to profit more [...]. Understanding these elements enables the company (of any size and segment) to adequately manage a systematic and continuous process of Innovation Management. Carvalho *et. al.* (2011, p. 11).

The year 2020 was marked by the transformation in consumer relations, conditioned by social distancing and the limitations generated by the safety protocols required by the competent authorities, challenging companies and their managers regarding the need for resources and the supply of products and services.

This new moment is marked as a time of change and paradigm shifts necessary for the transition process and economic recovery for all organizations. "Although corporate governance is implemented through different models, good corporate governance allows organizations to work efficiently and productively, minimizing abuses of power and ensuring transparency of managerial responsibility in both private and public sector organizations." Akabane (2012, p. 49). Therefore, it is necessary to rethink new attitudes and new concepts, allowing reflection on the future and on true human needs, using IT and corporate governance tools as possible solutions for these new challenges imposed by the market. When evaluating the different factors that influence the development of new practices, it is possible to observe the permanence of activities considered essential and the need for planning means, observing multicultural spaces and the level of learning resulting from the challenges imposed by the current moment, especially the new desires of post-pandemic society.

Many transformations are expected in the coming years, requiring radical changes in systems considered obsolete and outdated, with the urgent need to reevaluate the different forms of management and the introduction of new business strategies. Companies, in general, need to make changes. In fact, this is the key to innovation: the search for change, to do things better, faster, more accurately, at a lower cost, etc. Eventually, these changes imply radical transformations. However, change usually consists of gradual improvements or small initiatives to improve products,

services or processes. Unlike the portfolio management item, in change management small companies usually have more facilities than large ones, as they respond more quickly to market needs. Carvalho *et. al.* (2011, p. 86).

Therefore, changes in systems become an integral part of the package that involves new procedures and contributes to restructuring different processes, whether physical or personnel-related. The complexity of these systems requires a thorough analysis of the companies' positioning in the market and the changes needed to anticipate new trends, organizing their structures to serve their customers and expand their field of activity. Given all the challenges that may be faced in the field of technology and innovation practices, it is necessary to understand the contribution of Business Intelligence to organizations, its specificities and critical points in the adoption of new strategies capable of transforming organizational environments through these innovations. Carvalho *et. al.* (2011), report that "innovation gains importance due to its close relationship with competitiveness. Normally, the more innovative a company is, the greater its competitiveness and the better its position in the market in which it operates".

Organizations must be prepared to conduct processes that involve all departments and allow discussions between different teams, promoting reflection on the paths that can be taken and achieving a common goal for everyone, which is the success of the company and the satisfaction of its customers and employees.

With teamwork and management based on strategies that promote discussion about decision-making, it is possible to achieve the proposed objectives, considering the different variables and critical points for the activity developed. The collection, analysis and processing of data and information becomes an urgent factor, regardless of the segment or size of the organization. When carrying out the proposed readings and the different indications of concepts and theories presented by the authors, the need for research that contributes to gathering important information about Business Intelligence and its practical applicability in organizations becomes evident. The topic becomes relevant for the study when we analyze the different means that can use business intelligence to develop their activities in companies and implement different strategies capable of transforming data that are presented in a linear and fragmented way, reorganizing this data and transforming it into relevant information for the development of shared actions in the organizational environment. According to Filho (Entre 2010 e 2020, p. 06), "The BI environment is part of a decision support system model, clearly capable of supporting the formulation of corporate strategy. In general terms, business administrators

want to identify threats and opportunities, accelerate business processes and increase the capacity and speed of response to changes”.

The importance of this topic raises many questions about the theories presented and their practical applicability through processes that contribute to the innovation of systems, as well as the renewal of professional practices mediated by different technological means. Botelho; Filho (2014, p. 56), contribute to the reflections on Business Intelligence and emphasize the importance of clarifying that, “as it is a current subject, the object of countless researches, discussions and, still, little implemented in organizations (especially in Brazil), there is no other intention than to bring questions to be discussed and deepened through academic debate and that represent a stimulus to those interested in this field of study”.

Business intelligence is becoming an object of attention due to the various opportunities it generates for those interested, whether they are students, managers or even entrepreneurs dedicated to their business, regardless of the sphere of activity. To do so, it is necessary to understand the different concepts and theories that define this theme. For Antonelli (2009, p. 02), “From the 1990s to the present, there has been a great evolution in all sectors, including the information technology sector and the business environment. Given such progress, the tools of *software* regained greater scope and importance, and the term itself *Business Intelligence* gained worldwide recognition.”

The study contributes to the understanding of the different meanings of this term and how it can be used in organizational environments, either implicitly or defined in the strategic planning of companies. With this, we intend to enlighten the reader about the practical applicability and its importance for the processes facilitated by the introduction of these tools for correct organizational management. This evolutionary process can be observed when we analyze the use of data and information throughout history, as described by Antonelli (2009, p.80):

In practical terms, BI was already used by ancient peoples, the Phoenicians, Persians, Egyptians and other Easterners, who in their own way already used Business Intelligence, cross-referencing information such as, for example, the behavior of the tides, position of the stars, rainy and dry periods, all in order to facilitate decision-making. The need for information capable of helping in choosing the best decision is therefore shown to be ancient, since the individual who manages any process needs useful information, capable of detecting trends, analyzing possibilities, facilitating the decision to be made.

Thus, we can understand that the search for information that can help in the diagnosis and planning of actions in organizations dates back to the time when

Technology was perceived as something rudimentary and applied to the simplest tasks for reasons of survival and war tactics, concentrating efforts on making the best decisions, according to the needs of different peoples, serving as an effective example for today's companies.

The different theories presented converge with the practical needs and actions required for companies to perform well in an increasingly competitive scenario that transcends borders and territories, greatly enabling commercial practices aided by technologies and promoted by business intelligence.

In this context, theorists and scientists in the field present different arguments and techniques considered strategic for obtaining promising results that will contribute to operations and processes that facilitate the field of big data. It is important to consider the different experiences aggregated by managers and technical teams that operate to produce results that are increasingly reliable to the purpose of organizations.

The studies contribute to understanding the importance of Business Intelligence in management practices and the levels of change that can be achieved when making decisions based on the analysis and study of concrete data that are obtained and processed to better intervene in these actions. For Bezerra; Siebra (2016, p. 235), "BI aims to define rules for the appropriate formatting of data generated by companies, transforming them into structured information repositories, in addition to supporting business managers in the strategic decision-making process".

According to the work carried out by the authors, many challenges and obstacles are faced by organizations due to the lack of knowledge and experience of their managers, but facing these challenges can bring positive results, contributing to such development:

Due to the competitive environment that surrounds them, companies have begun to develop strategies aimed at their development, with the aim of obtaining advantages in the business world. In this scenario, information systems and tools such as BI can assist in the internal and external processes of a corporate environment, adding value and serving as analytical intelligence, in the search for better results. In fact, BI can be essential for business rules to result in information that may be useful for the decision-making process, in order to ensure greater management of this information and knowledge in the organization. However, to do so, it is necessary to consider not only technological resources, but mainly the involvement of people, the survey of processes and culture. Bezerra; Siebra (2016, p. 240).

When considering the various contributions generated by the research, a process of constant evolution is noted even in the terms used to define the practices that involve the management of technology in generating value for companies through data and information.

from the organizational environment. According to Ceci (2012, p. 54), "In general, it is clear that some BI practices were already used long before the invention of the computer, and that this approach is still widely used and researched by organizations and universities. It is clear that the BI 2.0 and BI 3.0 proposals are responses to events that organizations experience."

In information management, it is necessary to consider the volume of information and the different ways used to process data that will make a difference in the decision-making process of companies. With data provided correctly and in a timely manner, the decision-making process becomes more efficient and assertive, with competitive advantages for all sectors, especially for management actions that promote creativity, based on data analysis and mining.

"Information and knowledge are increasingly playing a role important for organizations. Currently, with the large amount of digital documents, emails and data in databases, there is a gigantic source for the generation of information and, subsequently, for the discovery and extraction of knowledge". Ceci (2012, p. 19).

According to Antonelli (2009, p. 83), "BI tools can bring great benefits to the organizations that use them, but it is important to emphasize that the way in which the tool is implemented in these organizations will dictate its success or failure. Therefore, implementation is fundamental in this process".

In this sense, we need to understand that assertive decisions depend on the work of planning and executing responsible actions, which involve each employee and which allow communication in an integrated manner in all processes, using all resources for the final result.

The implementation of Business Intelligence involves highly complex procedures and tasks, requiring a great deal of responsibility from managers and teams, as it depends on factors that will determine the continuity of work, as well as the change of routes to meet the purposes of organizations. According to Bezerra; Siebra (2016, p. 238):

During planning, it is necessary to make it very clear how the project will be initiated, executed, concluded and monitored. The culture existing in the organization, the people involved in the activities, the processes and the necessary investments must also be taken into consideration. In addition, it is necessary to manage the risks of the project. Furthermore, it was observed that one of the major factors, perhaps the main one, for the success of the BI tool is that people need to buy into the idea and work together, aiming at the growth of the organization, in order to obtain a greater competitive advantage. It is necessary to take into account that the understanding and implementation of a new concept, a new way of working and/or new technologies in an organization present certain challenges that need to be well understood by people. Hence the great importance of them being involved in the process from the beginning.

The greatest contribution highlighted in the research and which contributes to the understanding of the main concepts and applicability is precisely the importance of people in the implementation of new projects, as it is through them that problems and deficiencies are raised, providing those responsible with the opportunity to develop measures that will intervene and improve production processes and commercial relations established through research and processing of information that will be transformed into business knowledge.

2.2 RESOURCE PLANNING IN ORGANIZATIONS

Business spaces present multiple relationships built through different work environments and commercial activities, with the main objective of meeting the demand in the area in which they operate. These established relationships contribute to defining parameters capable of sustaining the production chain and overcoming the challenges imposed by global competition.

When we analyze the level of data and information generated from these activities, we understand the importance of defining strategies and business planning to manage all the knowledge and the contribution of the human factor to the success of the activities, thus strengthening the image and credibility of companies in the operating scenario through governance in information technology. According to Akabane (2012, p. 63):

Implementing an IT governance strategy, policy and action plan ensures that IT governance is managed more effectively. Thus, establishing a continuous cycle to measure performance against objectives allows for the management and redirection of activities and changes in objectives if necessary. The establishment of solid IT governance ensures best practices, guidelines and directions for issues involving IT.

Given the challenges presented for the post-pandemic period, it is necessary for everyone involved to think of new projects and actions that involve teams and promote collective collaboration, objectively assisting in the production and processing of information that can be decisive for organizations. The study on resource planning and the importance of innovation management contribute to the proposed academic work.

It is extremely important for studies on quantitative and qualitative methods, as it helps in understanding the definitions presented in the bibliography, as well as the tools identified that can be implemented in practical information management actions for new businesses. Initially, it is necessary to understand the different definitions

for the theme and its applicability for companies, not limited to the concepts and characteristics of the object of study, but the opportunities that can be generated through its practical applicability. According to Limas (2009, p. 69), "There are several definitions and characteristics attributed to ERP systems, under various aspects. They are integrated information systems, marketed as software packages, whose definitions can be grouped according to their technological or business focus". Expanding the field of understanding about ERP systems and their different functionalities, it becomes necessary to present theories that specify in a clearer and more objective way the scope of the terms, as presented below:

ERP (enterprise resource planning) systems can be defined as integrated information systems, acquired in the form of a commercial software package, with the purpose of supporting most of a company's operations. They are generally divided into modules that communicate and update the same central database, so that information entered into one module is instantly made available to the other modules that depend on it. ERP systems also allow the use of planning tools that can analyze the impact of manufacturing, supply, finance or human resources decisions throughout the company. Souza (2000, p. 11).

To better understand these definitions, we have a large number of authors and scientists who are dedicated to researching the subject, with analysis, testing and application of tools used in the most varied processes, transforming the routine and activities developed with the help of these methods, whether quantitatively or qualitatively for the business management system. Costa *et. al.* (2016) contribute to the analysis of these concepts:

. . . the adoption of an ERP system entails major changes in all areas of the organization, such as technological, structural and behavioral changes. Considering that these changes have an impact on employees, and since employees are the organization's most valuable asset, the possible impacts of this implementation on them must be managed in the best possible way, since the success and future of the company depend on the good management of these changes and the performance of its employees.

It is important to consider the topic of innovation as a determining factor for the performance of small, medium and large companies, since they need to invest in technology and specialized training for their teams to overcome challenges and offer quality products and services to their customers.

The company may initially implement innovations limited to the internal environment, such as developing and implementing a product/service already adopted by competitors, which, in the entrepreneur's assessment, is worth investing in. In this case, there will be innovation for the company itself. Likewise, when introducing a new process, a marketing method or a management technique for the first time in the company itself, even if it already exists on the market or

If the necessary knowledge is already disseminated elsewhere, process, marketing or organizational innovation will be occurring. For example: an industry introduces new equipment into its industrial process. This process innovation increases production speed and adds value to the organization. Therefore, it has innovated for the company. Carvalho et. al. (2011, p. 35).

With the need to innovate, organizations require their managers to develop effective leadership skills to manage processes and people, preparing different spaces for projects that integrate teams and facilitate processes involving innovation. Organizational change will involve managers, employees and other stakeholders in the process of acquiring new technologies to face the pressure for greater profitability and, consequently, greater competitiveness for the expanding market.

Organizational practices require research that provides substantial elements on new trends and changes for the coming years, with the analysis of organizational structure and culture being an important tool for a new positioning mediated by new technologies and strategies involving Business Intelligence.

Change management involves factors that are critical to the success of the enterprise, with special attention to conflicts arising from multiple relationships built and specific objectives involving human resources. According to Ceci (2012), people produce data involuntarily every day, such as using the internet, online music, social networks, among other activities. Valuable information can be obtained from the multiple use of this data. Therefore, it is necessary to reflect on the complexity of operations and processes, strategic and financial planning that support all these relationships, and the challenges posed to teams and managers in the process of producing and selling products and services. The analysis of references helps to raise important questions about ERP (enterprise resource planning) systems as a factor of transformation in organizations and their importance as a strategy for defining new actions in search of better results for the activities developed. According to Costa et. al. (2016, p. 09):

When using ERP systems, companies expect to obtain several benefits. Among the benefits presented is, mainly, the integration of systems, a factor already discussed in this study that allows control of the company as a whole, technological updating, cost reduction and the provision of quality information in real time for decision-making. When a company implements an ERP system, a great attraction is the possibility of integrating and standardizing information, each of which is provided by a specific information system, also allowing the standardization of systems in different areas of the company. ERP integration avoids the hassles of an often problematic and extremely costly integration between different systems.

Likewise, critical factors for the success of its implementation must be considered, such as operational difficulties for maintenance, costs, complexity of versions and resistance from employees and teams involved in the processes, due to the requirements and integrity of data and information.

When an organization implements an ERP system, it needs to redesign its organization, adapting its processes to the new system. This redesign needs to take into account the people involved in the process, requiring a redefinition of the human profiles needed to perform the new functions designed. These changes in work processes require a strategic connection between people and technology. Costa et. al. (2016, p. 10). There are many benefits that can be identified through the experiences and studies carried out in different organizational environments, which objectively contribute to companies and managers in the phase of change and innovation in their activities, as reported by Souza (2014, p. 244):

With the implementation of the ERP system, the company's activities become interconnected online. In this way, the information generated by these activities is immediately used as input for the following activities in a process. For this reason, it is necessary for them to be properly recorded in the system (i.e., correct information entered at the appropriate time) so that the other activities that depend on them can be performed. This has the following consequences: 1) an improvement in the quality and accuracy of the information available in the system, since all data must be recorded in the system for the activity to be performed; 2) greater control over all activities that depend on the system, since in order for them to be performed, the information must be recorded at the appropriate time and in accordance with the system's determinations; 3) the activities of the departments become "transparent", since the information they generate is made available to the entire company online, and problems or errors in their operations are immediately noticed by the other areas. The main benefits of integration are, therefore, the quality and availability of online information, the control that can be exercised over tasks and the elimination of errors and shortcomings that can be "hidden" in departments. In companies where previous systems were isolated and there was a need to re-enter data, in addition to the benefits mentioned, reductions in labor were obtained.

On the other hand, it is necessary to consider the difficulties in implementing systems and training teams to use and integrate information, facing the challenges caused by resistance to change and adaptation to the new way of operating and promoting knowledge equally for all involved.

FINAL CONSIDERATIONS

The business world is undergoing profound transformations amid the crisis caused by the pandemic, with special attention to the recovery of the global economy, requiring

Managers and businesspeople require a lot of work and professionalism, with an urgent need to define new strategies that involve innovation and change management. Understanding the different processes is part of the critical construction of the activities carried out by organizations and the relationships built by people to serve people. In the middle of these relationships are the processes that involve planning actions, generating and processing information, investments in technology and specialized training to work with the tools used in the different processes.

Another determining factor is the communication channel with the customer, as it is through their responses that it will be possible to implement improvements and, consequently, enhance activities to serve the consumer market efficiently and within the time expected by their customers.

It is essential to evaluate processes and reformulate strategies when considering the factors that involve the use and processing of information, since the amount generated and the diversity of information require technical preparation and experience to conduct such activities. It is suggested that research continue due to the importance of the topic for academics and professionals, as well as for organizations, providing new reflections and practical guidelines for decision-making involving different innovation environments.

One of the biggest challenges for managers and entrepreneurs is the lack of professionalism in their teams, which generates conflicts and resistance when they are involved in innovation projects and the implementation of new technological platforms. By introducing new technologies and adopting ERP in projects, the organization has the opportunity to change the scenario through collective learning, with the adoption of new practices and new accumulated experiences, turning its employees into skilled professionals who are qualified to lead processes involving innovation and future changes in business management.

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