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# Hospitals Involved in Mergers and Acquisitions: The VRIO Model

**Sérgio Almeida Migowski[1]*, Cláudia de Souza Libânio[2], Eliana Rustick Migowski[3] and Francisco Dias Duarte[4]**

[1]*Federal Institute of Education, Brazil*

[2]*Federal University of Health Sciences, Brazil*

[3]*Department of Nursing, Federal University of Health Sciences, Brazil*

[4]*Pontifical Catholic University, Brazil*

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***Corresponding author:** Sérgio Almeida Migowski, Department of Business, Canoas, Brazil.

## Abstract

To propose a framework based on the VRIO causality nexus to generate efficiency gains in hospitals inserted in merger and acquisition processes.

**Design/ methodology/approach:** Classical and contemporary academic studies on Resourced-Based View, leadership and Strategic Business Units and mergers and acquisitions have been critically reviewed and applied to support the rationale.

**Findings:** The introduction of the concept of BUs enables the development of the Leadership construct and consequently the Organization attribute. By involving, empowering and granting decision-making autonomy to all those involved in the daily operational processes of an organization, the interruptions in processes, when they are no longer held by the individual but by the organization, are prevented once knowledge is shared. The result is the creation of Value, Rarity, and Imitability, affecting the performance and competitiveness of the organization even after the merger and acquisitions.

**Practical implications:** As hospitals no longer depend on the knowledge of only a few individuals and especially in the health area, they can improve their efficiency after the concentration by replicating the business units during the expansion.

**Social implications:** The efficiency gains obtained are directly related to the quality of the care provided to the society.

**Originality:** The causality nexus by prioritizing the Organization attribute of the VRIO Model, enabling its application in organizations through the implementation of Business Units, avoids losses of efficiency in organizations involved in consolidation processes such as hospitals.

**Keywords:** Healthcare; Efficiency; VRIO Model; Business Unit; Mergers; Acquisition

**Abbrevations:** RBV: Resource-Based View Theory; VRIO: Value, Rarity, Imitability and Organization; SCA: Sustainable Competitive Advantages.

## Introduction

In the 1990s, the Resource-Based View (RBV) Theory was established as a theoretical approach that generates competitive advantage, by coordinating the internal resources as a mean to face external threats [1]. Despite its success, criticism soon came. For Shafeey & Trott [2], the VRIO Model proposed by RBV is too much generic to be applied in any context. Armstrong & Shimizu [3] and Newbert [4]. even pointed to the small number of empirical papers as a sign of weakness of the applicability of the VRIO (value, rarity, imitability, and organization) model. They suggested other attributes to generate sustainable competitive advantages (SCA).

Therefore, this essay aims to propose an ordering of attributes of the VRIO model in a framework to be applied in organizations that are part of high-consolidation environments (mergers and acquisitions) [5]. This includes hospitals with direct impact on society because of the reduction of competition, rising prices, and efficiency loss after a few years of consolidation [6-9]. For RBV, an organization only obtains an above-average performance compared to its competitors if protects and uses certain resources, classified as tangible and intangible [10]. Both tangible (raw materials, equipment, physical structure) and intangible resources (knowledge, relationships, communication) play an important role in creating value and achieving a superior performance [1].

However, since not all resources are equally important for building competitive advantages, the success of an organization lies in creating conditions that allow their identification and an environment favorable for their maintenance and development, so that their potential competitors were unable to copy them [11].

Barney [11]. considers that the firm should have attributes providing it with sustainability over-time: value of the resource, rarity (number of actors that hold such resources), low degree of imitability, and low risk that competitors use similar resources that would enable the creation of similar (non-substitutable) strategies.

These attributes were known by the acronym VRIO, relating the value with the possibility of the organization to adopt strategies for gains in efficiency and effectiveness of their operations. The author added the emphasis on the importance of path dependence and causal ambiguity as factors hindering the imitability. While the first is linked to the organizational values, the improvement of routines, and the development of innovations over time by an organization, enabling the knowledge to be for collective dominance, the causal ambiguity makes it difficult for competitors understand the reasons leading to the generation of those competitive advantages. It could be one or more factors acting alone or the result of their combination in proportions [11]. Years later, Barney [12] replaced "N" by "O" in "organization," thus showing the importance to obtain competitive advantages, and included substitutability on imitability (VRIO).

His study emphasized the importance of the organization to be prone to changes, when the path dependency, the structure, and the difficulties to replicate and to imitate are addressed. In this attribute, resources such as hierarchical composition, formal and informal systems of management control, and remuneration policies would be limited if used alone, but when combined with other resources they could produce an SCA. Moreover, as such a combination could not be patented and, in general, is tacit, it should be incorporated by the organizations, in order to not disrupt their activities [13]. For this incorporation to be successful, the decision-making processes must be decentralized. Barney [12] emphasized the importance of small decisions made by the organization as an element to be imitated by competitors, which is not seen in big decisions, which are easier to be replicated.

Barney [12] places the social complexity (reputation, trust, fellowship, teamwork, and organizational culture) as an element that makes the imitability difficult. The organization appears in that study as the attribute that makes it possible to explore all resources and internal capacities. There is no denying that the greater the complexity of the system is, the greater its vulnerability will be, given the importance that the interdependence of the elements has on its existence [14]. Therefore, assuming that the knowledge needed for decision-making is tacit [15], it must create ways to articulate the tacit areas of knowledge in order to create conditions for better use of these internal resources.

Thus, this article argues that the Organization attribute must be prioritized in the implementation of the VRIO Model and is the cause of the emergence of other attributes. It addresses the formal and informal systems of management control while playing a key role for the best use of scarce, valuable, and difficult-to-imitate resources. These are the management systems that define which resources will be selected and used, by means of decision-making, especially small decisions [12]. This view is contrary to many studies defining other attributes as generating SCA.

The studies of Hsu & Ziedonis [16], King [17], King & Zeithaml [18], and Mosakowski [19] stated that the Imitability attribute is the main contribution of RBV since the difficulty in imitating enables isolation mechanisms when compared to other authors. Foss and Knudsen [20] highlighted the immobility associated with the uncertainty as determining attributes. Bromiley and Rao [21] proposed the elaboration and implementation of routines as generating SCA. Other criticisms were made about the applicability of the model since it did not indicate the causal relationship [20] or which resources should be transformed to generate competitive advantages [22]. The dynamic capabilities address the adaptive capacity of the firm to face the environmental dynamism [23] but criticism of this view soon was shown. Eisenhardt and Martin [24] and Zahra, Sapienza, & Davidsson [25] agreed to pay attention to environmental changes but criticized the studies that did not explain how the resources should be reconfigured and integrated to generate competitive advantages.

This paper disagrees with the criticism of the VRIO Model as the attributes of this model remain valid but agrees that the way it was exposed does not help its applicability. Regarding causal ambiguity, if it is considered an important source of imitability for one organization, on the other hand, it may be responsible for the difficulties this organization has to understand, preserve, exploit, or recreate the advantages arising from it. Such difficulties seem to be related to hospitals' losses both for the society [26-27]. and for its own efficiency [6-28]. in merging and acquisition processes. The excessive dimension caused by the consolidation of hospitals is related to the professionals' feeling of not being seen and not knowing much about their colleagues [29], in addition to generating diseconomies of scale [30-31]. or a decline in cost savings one year after the merger [28]. There is an interdependence between the resource and the context in which it is inserted, which can generate vulnerability when part of a team or its leader is lost, limiting the organization's ability to keep its advantages [14].

To avoid such losses, it is necessary to seek a better efficiency in internal processes, involving the professionals by resetting the formal and informal management systems, since knowledge is a critical resource in the health area and is co-created by several actors [32]. As hospitals are considered complex organizations, they have to live with unpredictability, uncertainty, and many actors dealing with situations that require improvisational behavior [33-34]. By granting autonomy to the operational sectors and changing the management style, the environment of trust and cooperation among the team members is expanded, affecting the concept that quality must be defended by all [35]. They must make the appropriate decisions for choosing strategic resources, which means working with management indicators to assist in the review and shared creation of internal processes that are common to other sectors, thus no longer working as hermetic


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silos [36]. Thus, the integration of the professionals involved in the processes becomes the largest organizational challenge since it prevents information asymmetry and inferior results that are reflected in value loss for the patients [37].

The lack of shared creation of internal processes and the efficiency losses may be related to the way hospital managers view the nursing professionals. Despite the several studies relating the impact of the services provided by the nursing team [38-40], it has been addressed only as a cost center, said to be responsible for 25% of the total operational costs [41] and 44% of the direct costs [42] in a hospital. This view does not consider the degree of attention given by these professionals, leading to the lack of economic visibility [43-44].

Some studies reinforce the relationship between efficiency losses and nursing professionals. Idel. et al. [45] showed that, after the merger was announced, there was a significant increase in emotional stress, especially in the professional performance of the nurses. Bernstrøm & Kjekshus [46] identified a significant increase of work leaves taken by these professionals when they work in an environment with meaningful organizational changes. Fagerström & Salmelas [47] stressed the importance of the dialogue with their direct leadership to reduce conflicts in hospitals through merger processes.

As the patient safety results from the combination of people and processes and both depend on the leadership, it must be the stimulus to create a safe environment [48], including the top management that must support its leaders aiming at a better communication [49-50]. The complexity imposed by the transformation of hospitals into large conglomerates makes these leaderships even more relevant [29].

As the Leadership construct is part of the Organization attribute through formal and informal managerial control systems, it must be made as a priority in the VRIO Model, thus becoming a source of lasting competitive advantages, reflected in the alignment of work processes, retention and sharing of specialized knowledge, and efficient cost management, even in high-turnover environments. The professionals who are part of the hospitals are their most important resource, as the organizations' sustainability results from their satisfaction and commitment in carrying out their activities [51]. It is not coincidental that some studies associate the individual commitment with cost reduction, customer satisfaction, and error reduction [52-53], while others associate the existence of a leadership considered as reliable supporting other professionals thus reducing the number of patients' falling, pressure ulcers, and associated infections [54-55].

When addressing leadership as a resource that integrates and improves patient care, Eljiz et al. [56] suggest the use of the deep smarts model proposed by Leonard & Swap [57] to identify innovative leaders in an organization. Based on 13 strategies proposed by Eljiz et al. [56], these professionals are able to connect multiple individuals, services, and teams, and to deliver better results for the organization [57-58].

However, according to Eljiz et al. [56], there are no empirical studies on their proposal. Assuming that it is not possible to produce individuals with such characteristics [57] or to hire only those with differentiated characteristics [59-60], the organizations need strategies to achieve competitive advantages with the resources available. Therefore, this article proposes that, for the prioritization of the Organization attribute, instead of having 13 subjective strategies, one should use the already consolidated concept of Business Units (BUs) [61] in hospitals, through which the processes are built cooperatively between sectors and do not belong to an individual or to specific groups, this becoming a property of the organization.

Besides, in view of the possibility of intra-firm competition that may occur in this concept [62], it is necessary that Business Units (BUs) adopt the basis of the concept of micro-business units (MBUs) as proposed by Meyer et al. [63]. In this concept, the leaders and their teams act as owners of the organization, simultaneously becoming clients and suppliers of each other and jointly formulating their reciprocal obligations [63]. Thus, when arguing in favor of the causal link of the VRIO Model by the prioritization of the Organization attribute and the implementation of BUs, this paper aims to contribute to the studies of Meyer Júnior et al. [64], and Pascuci et al. [65] as it suggests strategies for complex organizations such as hospitals.

The present article is structured into three sections. After this first introductory section, the second section presents some studies about hospitals following the theoretical perspective of RBV, Leadership construct and concepts about business units. After the theoretical discussion, we suggest a conceptual framework to assist in the academic discussion on the prioritization of the Organization attribute in the VRIO Model. Finally, the main considerations of the essay as a whole, in addition to the assumptions that will be used for future studies are presented.

## Background

### Some studies from the perspective of RBV

Su et al. [66] studied the impact of the human capital and its capacity for innovation in creating competitive advantages. A total of 234 hospitals in Taiwan was analyzed through the National Hospital Services Survey, in 2004. In their conclusion, they emphasized that the human capital is a fundamental strategic resource and its influence on the capacity for innovation has a positive relationship with the performance of the hospitals.

Wu & Hu [67] analyzed the relationship between the assets related to knowledge and the development of specific skills in hospitals. Because of this, they conducted a qualitative survey in 144 hospitals in Taiwan in 2008. They concluded that there is a significant interaction between them. The knowledge that is held by each individual involved in internal processes is improved, as new processes were performed (e.g., physicians and nurses


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start in the hospitals with prior knowledge, but each treatment performed generates new knowledge).

This virtuous cycle, in turn, is reflected in the financial performance of the hospital. Huesch [68] developed a study of coronary artery bypass surgeries performed in 75 hospitals in Florida between 1998 and 2006. The study found a positive relationship between the hospital performance and the quality of its productive resources, which includes the professionals, the processes and the technology involved. Smith [69] conducted case studies at two hospitals in the United States in 2005. Among the intangible resources, considered essential for the organizational performance, were the employees' reputation and expertise.

In a study of three hospitals in Germany in 2012, Zigan [70] found a great link between the financial situation in those hospitals and their intangible resources (intra- and inter-organizational relationships and internal processes). Since they operate in a highly regulated market, which gives little flexibility to the overall management, it was up to the human resource management of those hospitals to facilitate the recognition of their teams, increasing the employees' job satisfaction and the alignment of the work processes between the sectors. As a result, there was a better use of internal resources, affecting the hospital's financial performance.

Patidar et al. [71] analyzed data from 22,717 US hospitals between 2006 and 2010 and identified a positive relationship between the existence of a leadership succession planning and the financial performance of these organizations, which was even more significant when they were part of competitive markets. The authors listed the losses suffered by the hospitals when replacing leaders with no previous planning, thus showing that they should use RBV as a theoretical basis if they did not wish to suffer such losses.

It is no coincidence that the environment created following the style of leadership determines the way the members of a team interact with each other, which may stimulate cooperation and genuine motivation [72]. It is not something easy to implement since the leader must provide individual support, which may be perceived by those led as respect and concern with their feelings and personal needs [73]. In healthcare organizations, the quality of work environments impacts the assistance care because it is reflected in the quality of communication and trust among the team members [74].

## Leadership

This concept has evolved from the old top-down paternalistic model, in which the leader controls and generates the demands for the subordinates for a more collaborative approach as well as seeks to assist the team to develop a systemic vision, giving it autonomy to pursue organizational goals [75]. In health organizations, leadership is regarded as the ability to inspire individual and organizational excellence, creating a shared view in order to achieve the organizational objectives [76]. To this end, it must be able to involve other individuals through a transparent negotiation on the importance of achieving such goals, making them feel supported and motivated to collaborate [77].

The managers can use different types of leadership: autocratic, liberal, democratic, and situational. In fact, there is not a universal style, but the one that is the most appropriate for the situation that is being experienced. It is this perception that makes a professional an effective leader [51] The style of leadership is reflected in the degree of autonomy that is based on the trust built between the individuals. For nursing professionals, the degree of autonomy turns out to be reflected in their ability to make decisions and in their perception that the results obtained in health care activities are directly related to the degree of effort they put [78].

In the hospitals, leadership takes on another dimension, as it has a significant role in restoring the health conditions of the patients since the care highly depends on the coordination of the contribution from several experts [79]. Therefore, a culture of non-punishment of errors or forgetfulness should be stimulated, since only then will all be encouraged to report the failures committed, enhancing the trust between the parties and corrective actions to be taken [48].

Another challenge for hospitals involving leaderships is related to the medical professionals. During their academic education, these professionals are not trained to be leaders or to ponder on their own behavior. They tend to focus more on the outcomes than on the very processes that lead to those outcomes [80].

The pursuit of sustainability requires leaders to develop abilities to act as interpreters of a complex environment and as mediators within an organization [81]. Therefore, organizations inserted in uncertain environments have to use specialized procedures. This requires the flexibility of hierarchical obedience because part of this expertise can be placed in lower hierarchical levels [82]. This causes the bedside professionals to be involved when planning those processes. When they are invited to participate in the process planning, they may not understand how important it is to perform the task requested as well as to perform it in the best way possible [83].

The distance between the strategic and the operational levels was said to be an obstacle to the integration [49-84]. As there is the need to permanently search for a better performance, information sharing is vital between leader and those who are led [85]. Through this sharing, leadership can be exercised by different members and at different levels within the teams [86].

However, it is not a matter of proposing the managers to become servant leaders, as some recent studies suggest [87-88]. In fact, often members of an organization are considered resources, although the speeches of the top management might lead people to misunderstand this [89]. In these cases, the perception that the concept of a servant leader may be just another fad that is not supported by their reality will make those who are led to not commit to the organization [90].


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Therefore, the division of responsibilities within a team extends the commitment and improves the trust between the members. However, it only occurs through communication, coordination and simplification of the managerial structure under the command of a formal leader [68].

## The strategy of the BUs and the MBUs

The Strategic Business Unit (SBU) was initially studied by Chandler [91], noting that it is the structure that follows the strategy. Ansoff [92] described it as a subdivision of the business reality of an organization with relative autonomy, in order to take advantage of the characteristics of the region where it is located. Other authors define it as a corporation with scattered and specialized resources, where the ability to generate several capacities is the source to create competitive advantages.

Thus, each subsidiary would play a different role according to the importance of the location and complexity of the resources and capacities [93]. Thus, an SBU can be defined as a firm's division, a product line, or a profit. It can produce and commercialize a set of well-defined products and services; serves a defined set of clients in a delimited geographical area; and competes against a specific set of competitors. Thus, it is a more basic business unit that forms a firm along with other units [61]. Thus, the diverse sectors of an organization can be compared to the BUs. Through the many processes, they are embedded in an environment with relationships and contribute to achieving organizational strategies. Internally, they are each other's customers and suppliers. From the good relationship and coordination of several teams, the quality provided to the external client service will emerge [63,94-95].

Given these concepts, before the specifics of each sector, a BU can establish specific goals that, together with other sectors, build values for the entire organization. However, when restructuring the management system that offers greater autonomy in decision-making, the top management should encourage the creation of a collaboration culture, otherwise, a competition for results between the BUs [96] and between MBUs [63] will take place. Among the positive effects of adopting this format, there is the quick decision-making and response to customer-oriented services as key factors that are critical to the organizational performance in dynamic environments [97]. In an environment where the inter-sectoral cooperation is reinforced, strategies now belong to everyone, which is in line with Barney's studies [11-12].

## A framework proposal

In this paper, a hierarchy of attributes is proposed by restructuring the roles played by the managers of the organization's sectors. This implies the prioritization of the Organization attribute, which is reflected in the way the sectors are structured. However, for this new management control system to occur, the Leadership construct must be developed in management control systems. To this end, the theoretical framework presented in Figure 1 is proposed.

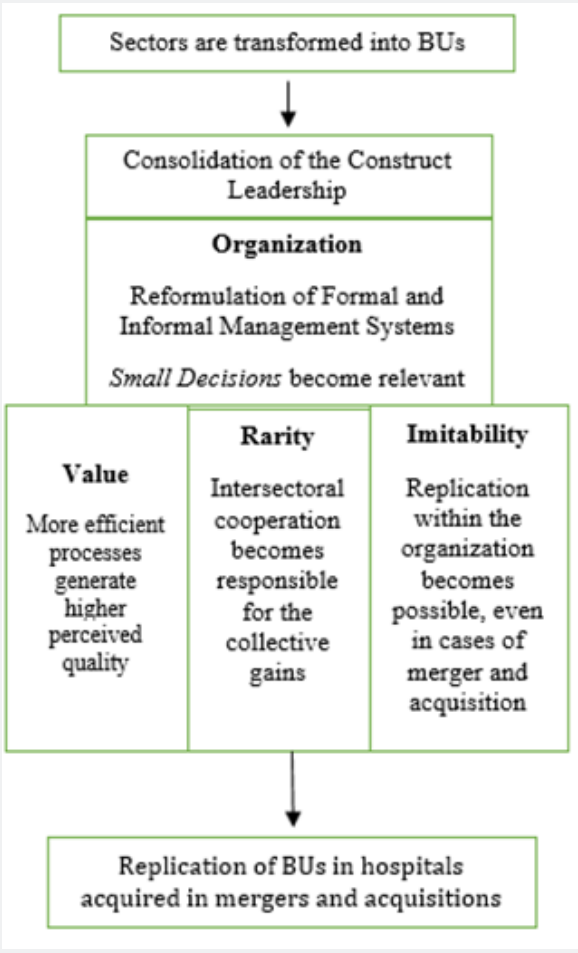


**Figure 1:** Theoretical Framework – Prioritization of the Organization attribute of the VRIO Model.

In order to apply the VRIO Model in organizations, which has been the target of several criticisms for more than two decades, it is proposed to create a causal structure by prioritizing the Organization attribute when compared to the others. This will be possible when the operational sector is seen as part of the decision-making process since many decisions (small decisions) are made there [12] and result from a co-created knowledge [32].

In order to generate flexibility, safety and speed necessaries for the decision-making, disengaging it from the top management, one must first develop the Leadership construct in the operational sector. This action must be planned and supported by the top management since it implies a change in the organizational culture and the decentralization of the decision-making process [49-50].

When professionals from different sectors are trained and invited to participate in this organizational restructuring, they must understand that they will no longer play a passive role to which they are usually relegated. They become part of the improvement of internal processes, which is reflected in the sense of belonging and the individual and organization's performances.


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This is achieved by developing autonomy, enabling the active participation of members from sectors in the decision-making process, and creating strategies [35]. In turn, the leaders of each sector are encouraged to follow a new managerial style, obtaining, as a result, the other team members to build a culture of trust.

Trust triggers a cooperative work, where the main objective is the collective gain [72]. Consequently, many processes become more efficient and tend to yield results with better quality and added value from the customer's perspective [52]. By turning the internal sectors into BUs, they start to be managed by indicators that can measure the efficiency and effectiveness of intersectoral relations and their clients. As a BU, it is possible to establish specific mutual goals; bases are built to obtain competitive advantages; and the management of the value chain both with clients and with other sectors [98]. This step is important because it prevents processes from being discontinued in the case of the turnover of their components [14].

As these changes occur through several actors, one must rely on the causal ambiguity that hinders other organizations to make imitations, which yields the degree of rarity of the services provided. The organization improves its performance and becomes more flexible when facing environmental changes since the decision level is no longer limited to the top management. Moreover, it tends to avoid criticism to causal ambiguity [14], since processes built collectively as BUs can be replicated in other sectors of the same organization, even in cases of expansion or before the merger and acquisition processes. By implementing the concept of BUs in different sectors,

The Leadership construct is developed and then belongs no longer to the individual, but to the organization [36,97], thus creating the conditions to prioritize the Organization attribute of the VRIO Model. The following attributes of the model emerge from the new hierarchical structure, leading to the causality nexus: Value (successful implementation of rare and difficult-to-imitate strategies), Rarity (few competitors have these resources), and Imitability (obtained by causal ambiguity and path dependency). This set of attributes results finally from the VRIO Model, becoming entry barriers for other competitors [12,1]. As changes in management systems take time to be consolidated (learning curve) and result from various causes (causal ambiguity), the difficulty in imitating increases considerably, thus causing the rarity required to obtain SCA [12].

The organizational restructuring would enable more individuals to act autonomously, thus preventing its vulnerability given the social complexity pointed by Le Breton-Miller and Miller [14] and some members leaving the organization. Moreover, prioritizing this attribute would solve the problems of applicability, as pointed out by Armstrong & Shimizu [3] and Newbert [4] and of causality, as pointed out by Foss and Knudsen [20]. This is why this essay is not in line with the studies of Hsu & Ziedonis [16], King [17], King and Zeithaml [18], and Mosakowski [19] according to whom imitability is the main attribute, even with the patent pointed out as one of the key resources to obtain SCA [99]. The patent can be broken by a government decision, as it was the case of drugs used to treat AIDS in Brazil [1] while the management control systems depend only on the organization itself.

In organizations with a more flexible hierarchical structure, it is observed that they have difficulties in maintaining their competitive position when facing environmental changes [35]. Old problems faced individually end up being multiplied after the merger process. Due to the size of the new organization, there are still greater difficulties in solving and managing them [6,9]. Thus, the implementation of BUs before the merger process could make hospitals more efficient, enabling them to replicate the strategy in cases of consolidation, since many professionals have been invited to participate in the planning [83].

## Final Remarks

The introduction of the concept of BUs enables the development of the Leadership construct, consequently prioritizing the Organization attribute. By involving, empowering and granting decision-making autonomy to all those involved in the daily operational processes of an organization, the interruptions in processes, when they are no longer held by the individual but by the organization, are prevented once knowledge is shared. The result is the creation of Value, Rarity, and Imitability, affecting the performance and competitiveness of the organization. When they are no longer perceived only as cost centers, but as an active and integral part of the managerial system, several professionals and sectors create the conditions for building competitive advantages [100].

Finally, this paper as a contribution to the academic discussion proposes a number of assumptions:

a) Hospitals compete primarily more with their inefficiencies than with other actors, which is reflected in their performance due to the lack of autonomy of the operational sectors because of a centralized management control system.

b) The implementation of the BUs enhances the involvement of formal and informal leaders who are essential to improve the organizational performance.

c) When the Organization attribute of the VRIO Model is prioritized, it promotes the restructuring of formal and informal management control systems based on the Leadership construct and enables other attributes to emerge.

d) The cooperative work between sectors after the implementation of BUs enables long-lasting efficiency gains that can be replicated during an expansion.

It is hoped that these assumptions may be useful for new studies. From this research, it may be possible to have an improved efficiency of the hospitals if the needs of the professionals are met, as well as the replication of this framework as an empirical application of the original model proposed by Barney [11,12].


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## Conflict of interest

Declare if any economic interest or any conflict of interest exists.

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