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Performance evaluation system to support the coordination of bidding processes management in a University Hospital

Sistema de evaluación del desempeño para apoyar la gestión del coordinador de los procesos de licitación de un Hospital Universitario

Sistema de avaliação de desempenho para apoio à gestão da coordenação dos processos licitatórios de um Hospital Universitário

Samuel Souza de Araújo

Master's degree in Accounting from the Universidade Federal de Santa Catarina (UFSC). Campus Universitário Reitor João David Ferreira Lima, PPGC, Trindade, Florianópolis/SC – Brazil, zip code 88970-000. Phone number: 48 - 3721-6608. Identifiers (ID):

Lattes: <http://lattes.cnpq.br/1346754743573562>

ORCID: <https://orcid.org/0000-0002-0446-7578>

E-mail: samuel.souza@ufsc.br

Lucas dos Santos Matos

Doctor's degree in Production Engineering from the Universidade Federal de Santa Catarina (UFSC). Campus Universitário Reitor João David Ferreira Lima, PPGE, Trindade, Florianópolis/SC – Brazil, zip code 88970-000. Phone number: 48 - 3721-4201. Identifiers (ID):

Lattes: <http://lattes.cnpq.br/3343299092005403>

ORCID: <https://orcid.org/0000-0001-6736-7227>

E-mail: l.matos@ufsc.br

Sandra Rolim Ensslin

Doctor's degree in Production Engineering from the Universidade Federal de Santa Catarina (UFSC). Professor of the Accountability and Production Engineering Graduate Program at UFSC. Campus Universitário Reitor João David Ferreira Lima, PPGE, Trindade, Florianópolis/SC – Brazil, zip code 88970-000. Phone number: 48 - 3721-6608. Identifiers (ID):

Lattes: <http://lattes.cnpq.br/8229557451803357>

ORCID: <https://orcid.org/0000-0001-7420-8507>

E-mail: senssln@gmail.com

Abstract

Purpose: The purpose of this research is to structure a model to support the management of the Coordination of Bidding Processes at the Professor Polydoro Ernani de São Thiago University Hospital of Universidade Federal de Santa Catarina (Federal University of Santa Catarina). The main purpose is to build, in its manager, knowledge about the management context, allowing the visualization of the aspects deemed as necessary and sufficient to be taken into account in this process.

Methodology: The Multicriteria Decision Aid - Constructivist (MCDA-C) methodology is used to structure a specific performance evaluation system considering the particularities of the context and its manager. Thus, the research uses a qualitative approach with primary data collection, in the form of a case study, based on interviews with the manager of the Coordination.

Results: The structuring of the system allows the development of a hierarchical structure of value and qualitative performance indicators. The development of performance indicators enables the effectively monitoring of activities developed by the sector, leading to efficient management and better application of public resources. It also allows the visualization of aspects at compromising, market and excellence levels, highlighting the relevant factors for management.

Contributions of the Study: The study contributes to filling the demonstrated gap based on the analysis of the literature on the topic. The system is considered to provide the manager with specific information to make decisions and promotes a discussion, not yet found in the literature, regarding the use of constructivist approaches for the bidding sector in a university hospital.

Keywords: Performance evaluation system; Bidding processes; Decision aiding; MCDA-C methodology.

Resumen

Objetivo: El objetivo de la investigación es estructurar un modelo para apoyar la gestión de la Coordinación de Procesos de Licitación del Hospital Universitario Profesor Polydoro Ernani de San Thiago, Universidad Federal de Santa Catarina, con el objetivo de construir, en su gestor, conocimiento sobre el contexto que administra, permitiendo la visualización de los aspectos considerados como necesarios y suficientes para tener en cuenta en este proceso.

Metodología: Se utiliza la metodología Multicriterio de Apoyo a la Decisión-Constructivista (MCDA-C) para la estructuración de un sistema de evaluación del desempeño específico de las particularidades del contexto y de su gestor. Por lo tanto, la investigación utiliza un enfoque cualitativo, bajo la forma de estudio de caso, con recolección de datos primarios, a partir de entrevistas con el gestor de la coordinación.

Resultados: La estructuración del sistema permite el desarrollo de una estructura jerárquica de valor e indicadores cualitativos de desempeño. La creación de indicadores de desempeño

posibilita un seguimiento efectivo de las actividades desarrolladas por el sector, conduciendo a una gestión eficiente y a la mejor aplicación de los recursos públicos. También permite la visualización de aspectos a niveles comprometedores, de mercado y de excelencia, evidenciando los factores relevantes para la gestión.

Contribuciones del estudio: El estudio contribuye a llenar un vacío evidenciado basado en el análisis de la literatura sobre el tema. Se considera que el sistema subvenciona al gestor con informaciones específicas para la toma de decisiones y promueve una discusión, que todavía no se encuentra en la literatura, sobre el uso de enfoques constructivistas para el sector de licitación de un hospital universitario.

Palabras clave: Sistema de evaluación del desempeño; Procesos de licitación; Apoyo a las decisiones; Metodología MCDA-C.

Resumo

Objetivo: O objetivo da pesquisa é estruturar um modelo para apoiar a gestão da Coordenadoria de Processos Licitatórios do Hospital Universitário Professor Polydoro Ernani de São Thiago da Universidade Federal de Santa Catarina, visando construir, no seu gestor, conhecimento acerca do contexto que administra, permitindo a visualização dos aspectos julgados como necessários e suficientes para se ter em consideração nesse processo.

Metodologia: Utiliza-se a metodologia Multicritério de Apoio à Decisão-Constructivista (MCDA-C) para a estruturação de um sistema de avaliação de desempenho específico às particularidades do contexto e de seu gestor. Assim, a pesquisa utiliza-se de uma abordagem qualitativa, sob forma de estudo de caso, com coleta de dados primários, a partir de entrevistas com o gestor da coordenadoria.

Resultados: A estruturação do sistema permite o desenvolvimento de uma estrutura hierárquica de valor e indicadores qualitativos de desempenho. A criação dos indicadores de desempenho possibilita o efetivo acompanhamento das atividades desenvolvidas pelo setor, conduzindo a uma gestão eficiente e à melhor aplicação dos recursos públicos. Permite, ainda, a visualização dos aspectos em níveis comprometedores, de mercado e de excelência, evidenciando os fatores relevantes para a gestão.

Contribuições do Estudo: O estudo contribui para o preenchimento de lacuna evidenciada com base na análise da literatura sobre o tema. Considera-se que o sistema subsidia o gestor com informações específicas para a tomada de decisão e promove uma discussão, ainda não encontrada na literatura, a respeito do uso de abordagens constructivistas para o setor licitatório de um hospital universitário.

Palavras-chave: Sistema de avaliação de desempenho; Processos licitatórios; Apoio à decisão; Metodologia MCDA-C.

1 Introduction

There is constant criticism regarding the quality of public services offered to the population (Mardale, 2015; Navarro-Galera; Ortiz-Rodríguez & López-Hernández, 2008;

Patrucco; Luzzini & Ronchi, 2016; Ren, Kwaw & Yang, 2012; Srivastava & Agrahari, 2017; Tillema, Mimba & Van Helden, 2010). It is often pointed out as a cause of insufficient financial and human resources (Goh, Elliott & Richards, 2015; Tillema *et al.*, 2010). This fact is also observed in Brazil, where 70% of Brazilians are dissatisfied with the provided services (IPSOS, 2017), despite the high amount spent on government acquisitions which, according to the Government procurement system, Comprasnet, demonstrates that more than 47 billion of reais were handled in just over one hundred thousand acquisition processes during 2018 (Painel de Compras, 2018).

The administrative reforms that took place in the 1990s, which were influenced by the *Nova Gestão Pública* (NGP)/New Public Management (NPM), implemented the regulations for public procurement seeking for efficiency and effectiveness (Araújo & Ensslin, 2018; Brignall & Modell, 2000; Chomchaiya & Esichaikul, 2016; Navarro-Galera *et al.*, 2008; Patrucco *et al.*, 2016; Rendon, 2008). This allowed the development of better issues related to the conscious use of public resources, focusing on economy.

Considering the definition of Performance Evaluation (PE) by renowned researchers in the field (Franco-Santos *et al.*, 2007; Matos, Valmorbida, Martins & Ensslin, 2019), Neely, Gregory and Platts (1995, p. 80) “as the process of quantifying the efficiency and effectiveness of the action”, we can demonstrate how the Performance Evaluation of Public Procurement demand can contribute positively within this area. According to Patrucco, Luzzini and Ronchi (2016), there is a gap between what is intended within public procurement and the real results when the reforms, under the NGP paradigm, are put into practice. It is clear, therefore, that the performance evaluation of public procurement becomes a key element for a medium and long-term sustainable growth, especially in places with high public expenses (Gardenal, 2013). Yet, the need to measure and improve acquisition processes is evident, as advocated by works on the topic (Chomchaiya & Esichaikul, 2016; Patrucco *et al.*, 2016; Rendon, 2008; Srivastava & Agrahari, 2017).

In this context, it is understood that proper management, which enables the acquisition of goods, works and services with a higher quality and at an appropriate price, is essential to meet the needs of the agency and, consequently, of the citizens.

Thus, considering the complexity of the problem and the conflicting interests of the actors, we seek to expand the knowledge of the decision maker about the presented context. Hence, the research question that guides this study arises: How to build a management instrument that allows the public manager to evaluate the performance of the coordination of bidding processes of a public organization?

To answer this research question, the objective is to structure a model to support the management of the Coordination of Bidding Processes at the Professor Polydoro Ernani de São Thiago University Hospital of Universidade Federal de Santa Catarina (HU/UFSC).

The strict regulation and the legally established formality for activities related to bidding processes hinder the speed and performance evaluation of activities carried out by the bidding sector. In this sense, it is understood that a management instrument allowing the visualization of critical aspects of the context, deemed as necessary and sufficient for managers, can contribute to the studied environment. Therefore, the relevance of this research is justified, in view of the need to develop a management instrument that allows the Performance Evaluation of Public Procurement, considers the perception of managers and provides information to stakeholders (Araújo & Ensslin, 2018; Behn, 2003).

The model construction will be guided by the Multicriteria Decision Aid - Constructivist (MCDA-C) methodology (Ensslin, Dutra & Ensslin, 2000; Ensslin, Montibeller & Noronha, 2001; Longaray *et al.*, 2019; Matos, Valmorbida & Ensslin, 2018; Ensslin, Mussi,

Dutra, Ensslin, Demetrio, 2020b) and will be able to promote knowledge for the decision maker, through the Performance Evaluation (Matos, Ensslin & Ensslin, 2019; Ensslin, Mussi, Ensslin, Dutra & Fontana, 2020a; Rodrigues, Welter, Longaray & Ensslin, 2020) related to the coordination of bidding processes, taking into account that this process allows the qualitative measurement of the aspects that are considered necessary and sufficient by the decision maker.

In addition to this introduction, this article is subdivided into the following section, which addresses the theoretical framework of the research; section 3, which deals with the research methodology; section 4, with the results of the case study; and, finally, section 5, with final considerations.

2 Literature Review

The need to measure the efficiency and effectiveness of acquisitions has been studied in the private sector since 1928 by Gushée and Boffey (Patrucco *et al.*, 2016; Schiele, 2005). In the public environment, it is clear that the Performance Evaluation of Public Procurement seeks to accompany the success of the private sector by adopting established methods, such as electronic purchases, Balanced Scorecard (Brignall & Modell, 2000; Chomchaiya & Esichaikul, 2016; Kim, Olivares & Weintraub, 2014; Rendon, 2008; Rotchanakitumnuai, 2013) or sustainable purchases (Reuter, Goebel & Foerstl, 2012).

Although it may be relevant to manage performance in both contexts, there are some substantial differences between them (Behn, 2003; Patrucco *et al.*, 2016). Public organizations, for example, obey stricter rules and procedures compared to the private sector (Patrucco *et al.*, 2016; Srivastava & Agrahari, 2017), mainly because they are limited to carry out only what is legally allowed.

Therefore, there is a strong influence of regulation on purchasing activity in the public sector (Chomchaiya & Esichaikul, 2016; Patrucco *et al.*, 2016; Schapper, Malta & Gilbert, 2006; Srivastava & Agrahari, 2017). The regulation determines the necessary rules and procedures for the public sector. In this sense, it is important to highlight the emergence of legislative initiatives in the 1990s, where there is an increased incentive for public organizations to seek improved performance (Rendon, 2008).

These administrative reforms, under the *Nova Gestão Pública*/New Public Management paradigm, occur through a complex interaction between political, social and economic factors, aiming at the efficiency and effectiveness of public organizations (Brignall & Modell, 2000; Chomchaiya & Esichaikul, 2016; Navarro-Galera *et al.*, 2008; Patrucco *et al.*, 2016; Rendon, 2008; Schapper *et al.*, 2006).

Schapper, Malta and Gilbert (2006) note that these administrative reforms are cyclical, affecting the context of public procurement. According to the authors, these reforms have two movements. First, seeking to improve the performance towards accountability for results and for a greater perceived value to citizens (cost benefit); and second, seeking for a greater compliance with regulations, due to the problems that occurred in the previous process (Araújo & Ensslin, 2018). Figure 1 illustrates this movement.

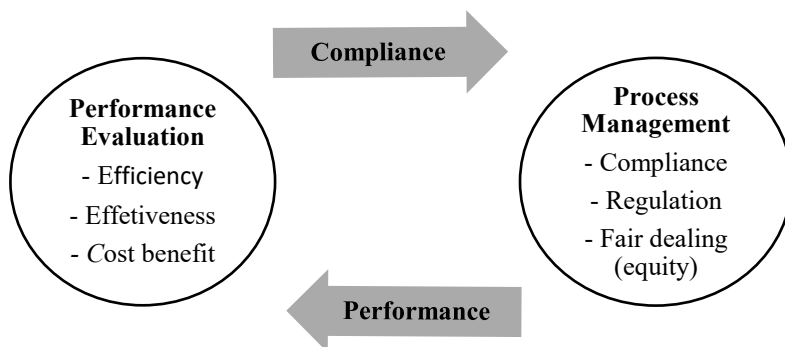


Figure 1 *Cycle of reforms*

Source: Adapted from Schapper *et al.* (2016, p. 14).

These issues may be linked to the tension between performance and compliance (Schapper *et al.*, 2016), low institutional capacity (Chomchaiya & Esichaikul, 2016), high levels of informality and corruption (Schapper *et al.*, 2016; Tillema *et al.*, 2010). Some criticisms also arose from using the NGP to carry out these reforms, such as the excessive reliance on introducing techniques from the private sector and the intragovernmental focus (Navarro-Galera *et al.*, 2008).

Schapper *et al.* (2016, p. 14, own translation) state that “within a performance model for public procurement, the main role of regulation is to establish management principles and objectives, rather than to micromanage processes”. Therefore, a clear definition of the scope and nature of public procurement reduces the tension between performance and compliance. Technology can also help to reduce this conflict, giving space for a genuine reform through a holistic approach, taking into consideration the political and operational realities of public procurement and their strategic significance (Schapper *et al.*, 2016).

The adoption of information technology is taken as one of the pillars of the NGP's philosophy (Chomchaiya & Esichaikul, 2016). Reforms can benefit from the use of these technologies in order to raise levels of responsibility, performance and awareness through a more transparent process (Gardenal, 2013; Schapper *et al.* 2016), providing users with a higher quality of information (Schapper *et al.* 2016; Srivastava and Agrahari, 2017). The main challenges encountered in the use of technology are linked to an inadequate or underdeveloped infrastructure for the adoption of electronic purchases (Gardenal, 2013; Srivastava & Agrahari, 2017), as well as an excessive bureaucracy (Chomchaiya & Esichaikul, 2016) and procedural inflexibility (Chomchaiya & Esichaikul, 2016).

As a conclusion, the importance of a management system to evaluate the procedures related to purchases in the public sector is undeniable. However, although the necessary characteristics for a management system are listed and raised, there are no tools, in the literature, developed specifically to support procurement management in the public sector, in order to meet the managers' information needs, representing the research gap meant to be filled in this study.

3 Methodological Procedures

This research, of an exploratory nature and with characteristics, regarding the issue, framed as qualitative, uses the collection of primary data for its development and for the construction of the results. To this end, the study adopts the Multicriteria Decision Aid – Constructivist (MCDA-C) methodology as an intervention instrument for the development of

the case study, aiming at structuring a model to support the management of the Coordination of Bidding Processes of HU/UFSC.

The MCDA-C methodology seeks to assist managers in their management processes, assuming that contexts involve multiple factors, at first not well understood by the multiple actors involved, whose interests can be conflicting and encompass multiple criteria not yet well defined. These contexts have found in multicriteria methodologies the basis for building an understanding of what is important to evaluate and manage (Ensslin, Dutra & Ensslin, 2000; Matos *et al.*, 2018; Chaves, Ensslin, Ensslin & Bortoluzzi, 2020; Ensslin *et al.*, 2020ab; Rodrigues *et al.*, 2020).

According to the MCDA-C methodology, the development of the model consists of three major phases: (i) the structuring phase, (ii) the evaluation phase and (iii) the recommendations phase (Ensslin *et al.*, 2000), as shown in Figure 2.

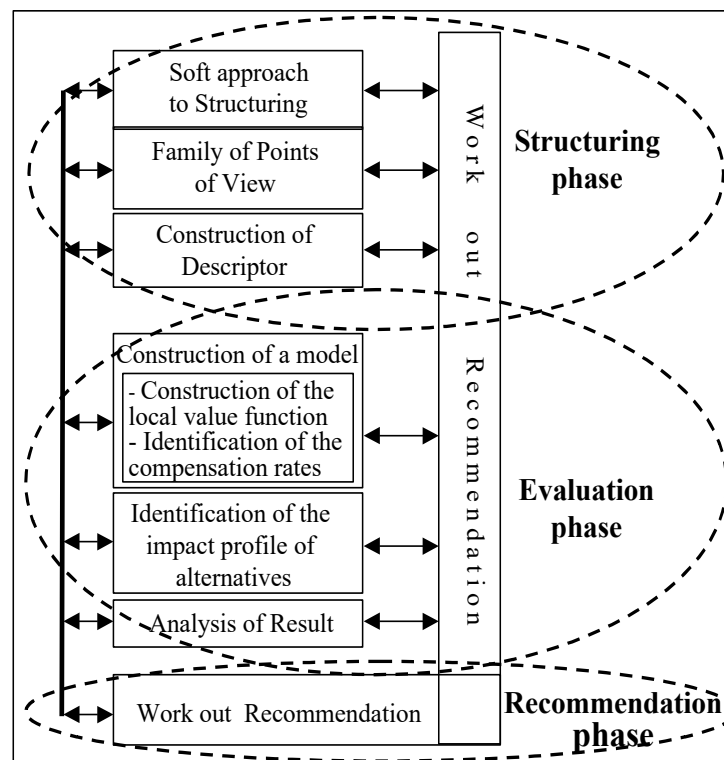


Figure 2 Multicriteria Decision Aid – Constructivist (MCDA-C) methodology Phase

Source: Ensslin, Dutra and Ensslin (2000, p.81).

In order to achieve its defined purpose, this work was limited to executing the Structuring Phase of a management instrument to support the work of the Coordination of Bidding Processes at the Polydoro Ernani de São Thiago University Hospital of Universidade Federal de Santa Catarina. Thus, it will be possible to constitute a system composed of management aid indicators, allowing the manager to visualize the weaknesses, potentialities and opportunities for improvement.

The execution of the Structuring Phase aims to identify the aspects deemed by the manager as essential, necessary and sufficient for the process of monitoring and improving performance, enabling a common language among the actors involved in the environment (Ensslin *et al.*, 2018; Longaray *et al.*, 2018). In this sense, the elucidated concerns provide information for the construction of a representative qualitative model to support the

management of the coordination of bidding processes at HU/UFSC. At the end, it will be possible to highlight a model composed of qualitative performance metrics.

Thus, the intention is to enable the manager responsible for the coordination to build knowledge about the issue to be managed, from the disclosure and visualization of the aspects deemed as essential in a Hierarchical Value Structure (HVS), demonstrating its existing relations (Ensslin, Montibeller & Noronha, 2001; Keeney, 1992). This HVS allows the manager to identify and highlight critical aspects that affect the decision-making context, operationalizing the model from strategic levels, breaking them down to operational levels, where performance indicators are found (Longaray *et al.*, 2018).

4 Results and Analysis

At first, according to the *soft* approach stage, to structure the Multicriteria Decision Aid–Constructivist, it is necessary to contextualize the issue to be managed and the involved actors. The main involved actors are: (i) Decision makers - Head of the Coordination of Bidding Processes and Auctioneers; (ii) stakeholders - Head of the hospital's administrative sector, Administrative Director and Administrative Manager; (iii) facilitators - authors of the work; (iv) acted upon - Other sectors of the hospital, bidding companies, patients and other users. This definition is fundamental for the application of the MCDA-C methodology, since the performance evaluation model will be structured on the concerns of decision makers.

In this sense, a brainstorming process, based on an intense interaction between facilitators and decision makers, starts the process of identifying the essential aspects for the construction of the management tool. From the perceptions of the decision makers, "Management of the Coordination of Bidding Processes" was defined as a label to approach the issue, guiding the works' progress.

The Coordination of Bidding Processes in the University Hospital is responsible for the management of bidding processes, acquisition and contracting services. A large volume of resources is auctioned by the coordination. Acquiring goods, works and services with an acceptable quality and an adequate price are essential factors to meet the needs of the agency and, consequently, of the citizens. Thus, the development of a management tool is justified for an adequate process management, allowing an adequate provision of supplies to the hospital by an appropriate cost.

Considering the need for decision makers to develop knowledge to identify the aspects that should be taken into consideration for the management tool, a script with 26 questions was elaborated and used to guide the face-to-face interviews with the decision makers. Some of the first questions can be seen in Table 1. Similar questions were used in the research by Igarashi, Ensslin, Ensslin and Paladini (2008), based on the works of Keeney (1992) and Ensslin *et al.* (2001).

Table 1

Questions extracted from the checklist to identify the managers' perceptions

-
- 1 – What are the main functions of the Coordination of Bidding Processes (CBP), according to your perception?
-
- 3 – What characteristics of the CBP do you think most affect the performance of the trading sessions?
-
- 4 – What are the characteristics of a catastrophic situation that can occur in a trading session? What situations/factors led to a trading session that performed poorly?
-
- 7 - What characteristics of the CBP most influence the performance of the trading sessions?
-
- 13 – Without considering the given restrictions (financial, human, time), what could be improved in the CBP? What actions could be implemented?
-

14 – For CBP employees, what actions/events could be implemented to improve the trading sessions? How can they be implemented?

15 - What most affects the auctioneers' working quality? What could be improved?

19 – What impacts changes in legislation have on services provided by the Sector?

Source: Developed by the authors (2019) based on Igarashi *et al.* (2008).

From this information, it is possible to identify the Primary Elements of Evaluation (PEEs), which represent the most premature ideas regarding the decision context. Therefore, the conducted interviews based on the questionnaire were recorded so that the facilitators could later identify the Primary Assessment Elements (PEEs). According to Grzebieluckas *et al.* (2011), one should identify the largest number of PEEs at this stage. After analyzing the interviews, 148 PEEs were identified, described during the process of interaction with decision makers.

Seeking to expand these more initial ideas, action-oriented concepts are developed (Eden, 1988) for each of the identified elements. The concepts represent the expansion of the knowledge initially identified and are developed from two different points of view. The first point of view, called the present pole, should direct towards the preference of the decision maker, meaning that it should illustrate what the decision maker desires about a certain object. The second point of view, called the psychological opposite pole, must present the consequences that one wishes to reduce or eliminate with the fulfillment of the objective proposed in the present pole. This way, the embryonic knowledge identified in the PAE is expanded according to the managers' choice, elucidating the concerns that are sought to be mitigated. The present pole and the psychological opposite pole are separated by the use of ellipsis, representing the expression "instead of" (Matos *et al.*, 2018). Table 2 presents examples of identified PEEs and their respective expansion to concepts.

Table 2

Sample of identified PEEs and resulting concepts

PEE	Concept		
15. Infrastructure	Existing processes to improve infrastructure	...	Compromise the sector's performance due to lack of equipment
23. Competition	Stimulate competition between suppliers	...	Frustrating competition in the bidding procedure
36. EBSEH transition	Empower employees before the changes that will occur with the transition to EBSEH	...	Spend more time on process transition
42. Celerity	Promptly complete bidding processes	...	Delay provision of supplies
129. Tools	Work with appropriate tools (equipment, network, digital certification)	...	Provide services with low performance

Source: Research data (2019).

From the developed concepts, strategic areas of concern are identified, grouping and organizing strategically similar concepts (Bortoluzzi, Ensslin, Ensslin & Almeida, 2017; Ensslin *et al.*, 2018; Rodrigues *et al.*, 2018), allowing, albeit in a primary form, the macro view of the model and the areas that explain the concerns of decision-makers. This stage made it possible to identify the areas of concern of decision-makers for the research, as shown in Figure

3, where numbers represent the developed concepts. At this stage, it is still possible to identify the sufficiency of the developed areas of concern.

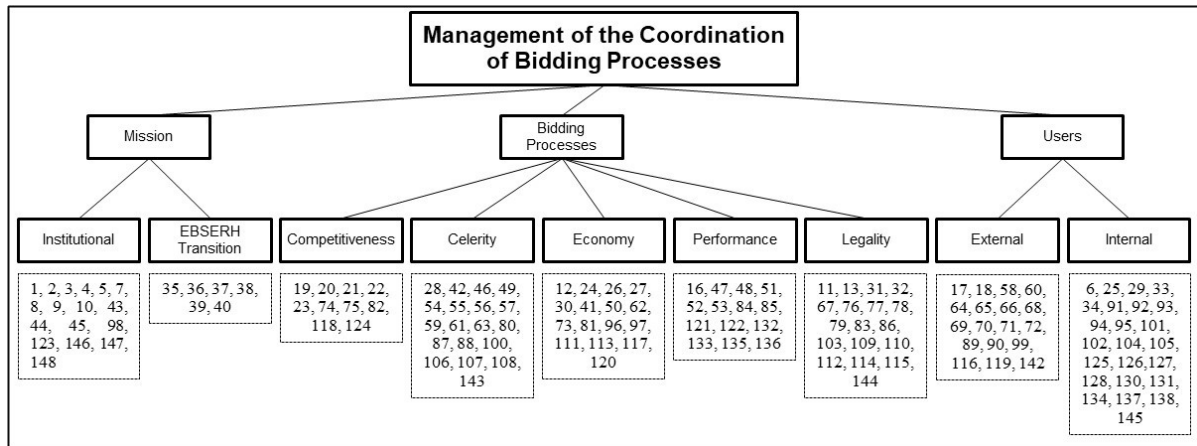


Figure 3 Identification of areas of concern for the model

Source: Developed by the authors (2019).

Subsequently, the facilitators begin a process of connecting the concepts, using means-ends relationships maps (Ensslin *et al.*, 2001; Longaray *et al.*, 2019; Chaves *et al.*, 2020), aiming to translate those strategic concepts, that still do not allow an ordinal measurement, operationally. In this stage, new complementary concepts emerge, developed to allow the construction of the hierarchical value structure, since the initially developed concepts are sufficient to build relations. Thus, strategic concepts, or ending concepts, are directed to the means concepts, which allow operationalization (Ensslin *et al.*, 2000; Longaray *et al.*, 2018; Matos *et al.*, 2018).

When connecting the concepts, through the means-ends relationships maps and the HVS, it is possible to determine clusters that represent and allow the labeling of those relations, giving rise to the Points of View of the model (Kusterko, Ensslin, Ensslin & Chaves, 2018; Matos *et al.*, 2018). In order to exemplify, Figure 4 presents the development of the "Performance" Fundamental Point of View (FPV) focusing on the "Infrastructure" Elementary Point of View (EPV) That way, the "Infrastructure" EPV is broken down into elements to explain it, according to the perceptions of the decision makers.

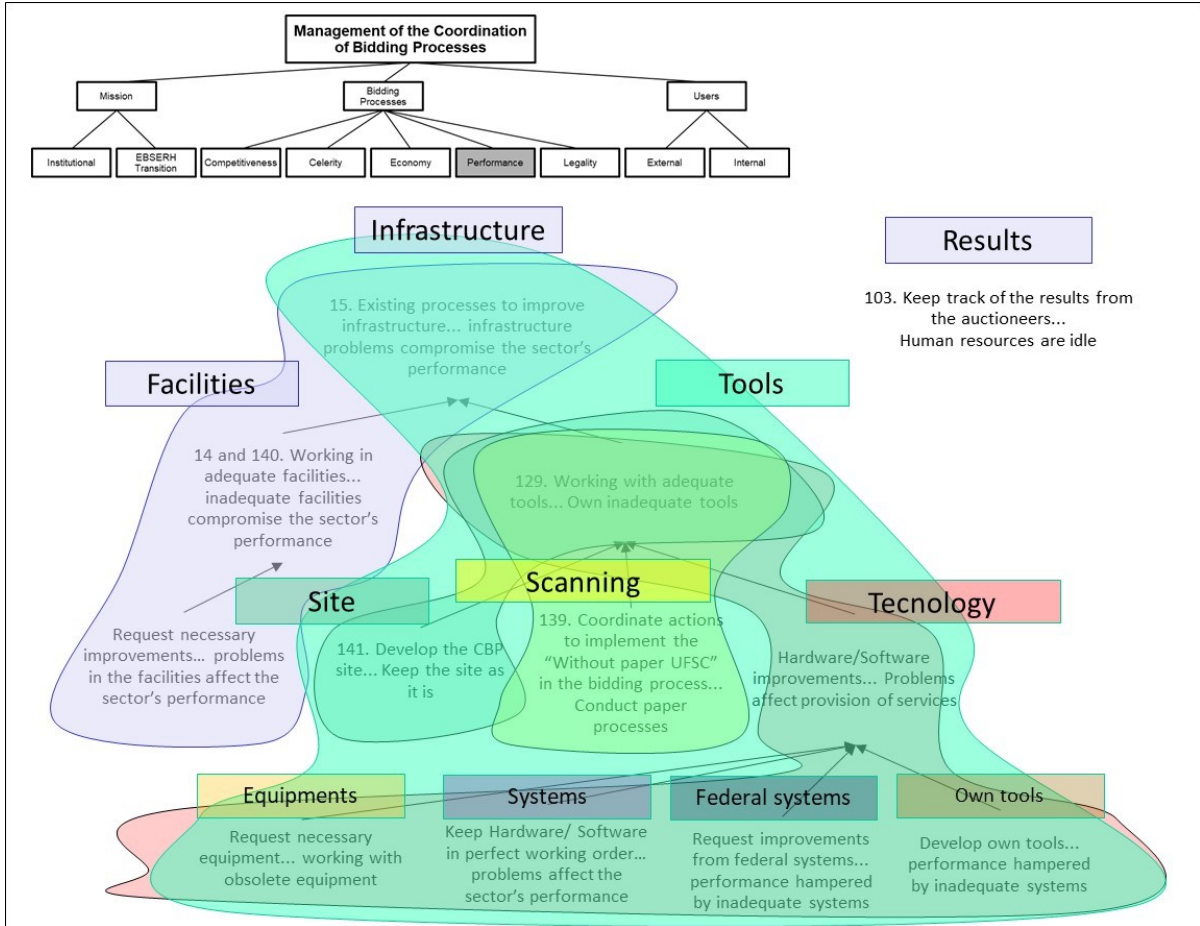


Figure 4 Determination of clusters focusing on the “Performance” FPV
 Source: Developed by the authors (2019).

Thus, the model's HVS, exemplified from the “Performance” FPV, is shown in Figure 5.

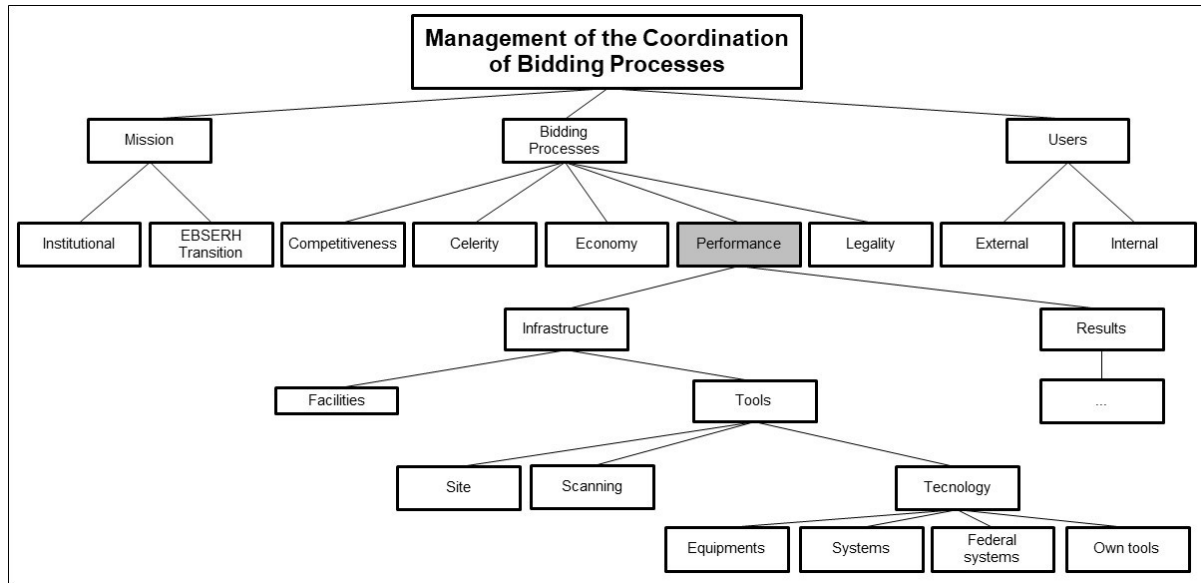


Figure 5 Hierarchical Value Structure - Focus on the “Performance” FPV

Source: Developed by the authors (2019).

To conclude the Structuring Phase of the qualitative management model, the Multicriteria Decision Aid - Constructivist methodology foresees the stage to construct the descriptors (Ensslin *et al.*, 2020a; Kusterko *et al.*, 2018; Longaray *et al.*, 2019; Rodrigues *et al.*, 2018), which aims to develop ordinal scales (Matos *et al.*, 2018; Stevens, 1946) to measure the level of compliance with objectives deemed appropriate by decision makers (Ensslin *et al.*, 2018). Thus, for each operational point of view of the model, a performance indicator must be developed, composed of the objective to be measured, measurement scale, reference levels and anchoring levels - determining the good and neutral levels. The anchoring levels represent borderlines arbitrated by the decision makers, who divide the indicator into excellence, competitive and compromising levels, in relation to the measured performance (Ensslin *et al.*, 2020a; Longaray *et al.*, 2018; Matos *et al.*, 2018).

Once the stage of constructing the descriptors is completed, the performance of the identified objectives is measured, from the *status quo* identification, or current situation (Bortoluzzi *et al.*, 2017; Rodrigues *et al.*, 2018). The visualization of the current situation allows decision makers to build knowledge about critical aspects, through the graphic display of indicators and their relations. For the “Infrastructure” EPV, the indicators and their respective *status quo* are presented in Figure 6.

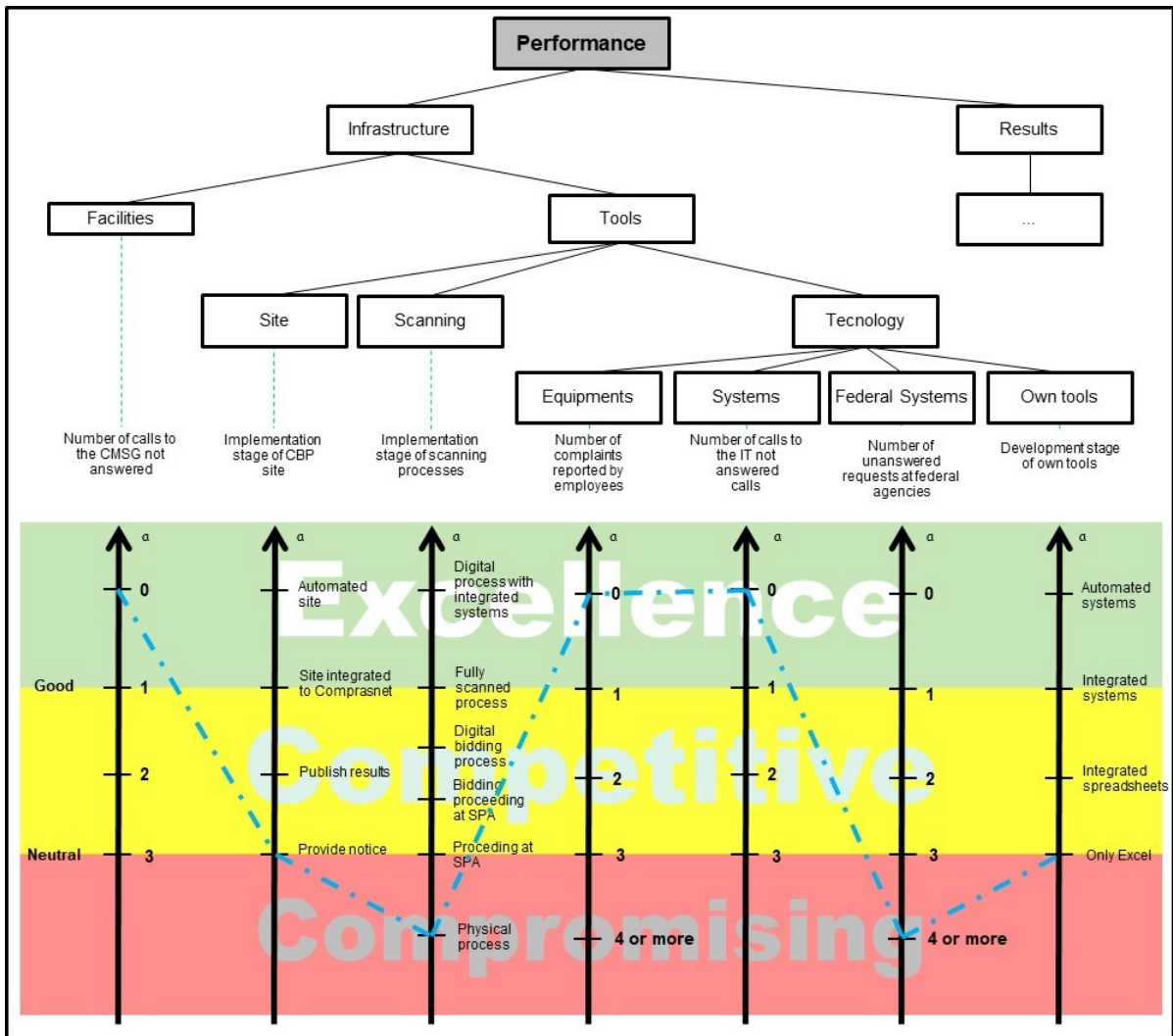


Figure 6 HVS and status quo for the “Infrastructure” EPV
 Source: Developed by the authors (2019).

This fragment presents a part developed for the global model, built on the Structuring Phase guided by the MCDA-C methodology. This model, structured as a whole, represents the limit of qualitative information that can be demonstrated on the raised aspects. Thus, the gathered information can support decision makers to discover opportunities for improvements in the decision-making context, visualizing potential impacts of their decisions on performance indicators. It should also be noted that the built instrument allows the construction of an organized knowledge about the critical points judged by decision makers, which, despite being previously known, did not enable knowledge regarding the relations between them and the explanation of the desired objectives, which have a direct impact on the environment.

In order to exemplify how the decision maker can construct knowledge about the context, it is possible to observe, in the transcribed excerpt from the interview, that, initially, the decision maker's perception was that the infrastructure, related to performance, was reasonably adequate.

Facilitator (F): *What factors characterize high performance?*

Coordinator (C): *We work with electronic trading. In this modality, our greatest performance is when we are able to buy 100% of the products to be auctioned.*

F: *What are the characteristics of CBP that most affect the performance of these electronic auctions?*

C: *What do you mean, that affect the most? In a negative way?*

F: *Positive or negative. What are the most important aspects of the characteristics that affect the most?*

C: *We need good market research, a clear definition of the object (pause). **What else to achieve a good performance? We have adequate facilities, reasonably adequate, we have an adequate infrastructure for that also (pause).** Basically, a well-defined object, a well-defined term of reference and market research (pause). Let me think of other factors that can add to that (pause). The technical area, we have many difficulties with the technical area, especially with materials related to the medical area, support (nursing) reasonably has a commission (permanent commission for assistance materials), but we also need to qualify the technical area to carry out the analyses within time availability. [Emphasis added]*

However, after the construction of the “Infrastructure” EPV, as shown in Figure 6, the manager is able to clearly answer the current situation of the coordination of bidding processes in this area and which indicators are at levels of excellence - facilities, for example, that are really adequate. Additionally, the construction of knowledge is generated during the analysis, when it is possible to relate HU's Bidding Unit (BU) performance at a compromising level to “Scanning” and “Federal Systems”. Thus, it is possible to propose recommendation actions for the BU to improve its performance. Figure 7 demonstrates how to generate improvement actions for the “Scanning” indicator.

EPV: Scanning	
Unit of measure: Implementation stage of scanning processes	
Proposed Action: Scan physical processes within the scope of the acquisition process.	
<ol style="list-style-type: none"> 1. Only accept processes within system proceedings. 2. Forward the processes through the system to the technical area. 	
Necessary resources (material, personnel, monetary)	Employees' working hours
Responsible for the action	Bidding Unit
Deadline for execution	Six months
Frequency of monitoring the action	Monthly
How to keep track	Identify resistances in the digital proceeding of the processes
Impact on the descriptor	Current level: N6; would pass to: Goal level: N2

Figure 7 Recommendation action to improve BU performance in the “Scanning” indicator
Source: Developed by the authors (2019).

It is worth mentioning that the concern relating infrastructure and performance was also noticed by one of the auctioneers in his interview. When asked about the characteristics of the sector that affect the performance of the trading sessions, he replied that in addition to the organizational environment and the work team, the tools, networks and equipment impact on the performance of trading sessions.

5 Final Considerations

Considering the high degree of dissatisfaction with provided public services, it is necessary for public administration to manage the available resources more efficiently. Although it is possible to notice a timid evolution in the performance evaluation of public procurement, especially after the 1990s, due to reforms in public administration that sought to incorporate into the public sector tools used in the private sector, it was found that the manager needed a tool to support his/her decisions within the scope of public administration.

In this sense, this research sought to contribute to the improvement of public management, through the development of a management instrument to evaluate the performance of a bidding unit, a key part of the public acquisition process. The adoption of a multicriteria constructivist approach took into account the complex, conflicting and uncertain hospital environment.

The purpose of the research was met by structuring the proposed model using the Multicriteria Decision Aid – Constructivist (MCDA-C) methodology. In addition, this work contributes to the activities of the manager of the coordination of bidding processes at HU/UFSC by providing a detailed perspective of opportunities for improvement, supporting the decision-making process in a transparent manner. The creation of performance indicators makes it possible to effectively keep track of the activities developed by the sector, leading to an efficient management and to a better application of public resources. It is important to highlight the manager's knowledge generation about the context and that the model was able to express, through its Points of View, the concerns regarding the experienced context at the time of its construction.

Another benefit identified by the researchers from the construction of the model, came from the proposed recommendation for BU to improve its performance regarding the “Scanning” EPV, in Figure 7. It is worth mentioning that this recommendation took place, since, at the time of the interviews, the physical handling of the processes was a unit problem. Until then, UFSC's Administrative Processes System, also known as the “Paperless UFSC” program, was not widely adopted by the Hospital as an administrative practice. The coordinator reflected upon the possible benefits of scanning processes and expressed it in the following excerpt:

Facilitator (F): *Why is it important to implement the “Paperless UFSC”? Or why is it important to avoid conducting paper processes?*

Coordinator (C): *Because of sustainability. For the accountability of the actors in the process [...], as from the moment it is digitally forwarded, it is possible to send it directly to the responsible person. It is easier to demand the return of the process. [...] It's fast [...] For the economy, you won't need to print, paper and ink (pause). Organization, because all of the parts will be saved in the system and organize the process. And security, because it avoids losing some part (of the process), deleting important documents. (pause) See how much we can identify when we start thinking (about it). [...]*

Thus, it is possible to notice the importance of scanning processes for decision makers. Although the “Scanning” EPV has not been directly met by the proposed recommendation - the issue of process scanning has been solved by the implementation of the Sistema Eletrônico de Informações – SEI! (Electronic Information System) at HU/UFSC -, the perception of the problems that scanning processes would solve helped the implementation of the new system in the unit.

It is possible to associate the issue of scanning processes with the issue of dematerialization addressed in the study by Gardenal (2013), through indicators that measure paper consumption and the costs of archiving materials. Despite the fact that the constructed model associates scanning with the result, Gardenal (2013) points out a possible environmental gain with the adoption of electronic purchases and a reduction in paper consumption, as pointed out by the decision makers in the above excerpt.

The theoretical contributions of this work can be evidenced from the proposition of the constructed model, taking into consideration the complex environment, in which it was necessary to recognize the manager's perceptions to support him/her in the decision-making process. Considering that the manager is the one who makes the decision, he/she should be provided with specific information for this purpose. Thus, the structuring of the model allows this contribution, by means of a constructivist instrument that considers the particularities of the decision maker and develops a holistic view of concerning aspects that are of interest. It is understood that the study also contributes to the enrichment of the literature on performance evaluation of public procurement by offering an approach not yet found in the other articles during the literature review, representing a research opportunity.

It is important to emphasize that this is case study, in which a methodology of a constructivist nature was used, and it is limited to the particular characteristics of the coordination and the decision maker, precluding the replication or generalization of the same model in another context. Another delimitation of this study was that it mainly operationalized in the first phase of the MCDA-C methodology, the structuring stage. As a suggestion for future research, it is recommended to advance to the other phases (evaluation and recommendations), enabling the quantitative analysis of the model and adding value to management, contributing to improvement actions presented, in a simplified manner, in Figure 7.

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