ISSN : 1533-1520

GARDEN JOURNALS

Journal of Qualitative Research in Business Law, Eco-Fin, Accounting, and Statistics

Issue 19 . No.1 2019

Proposed Extension Activities for the Library to Promote Health among the Population of the 'Previsora' Polyclinic in Camagüey

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ABSTRACT

A qualitative-quantitative research of participatory action research type was carried out with the objective of promoting health on vector-borne diseases in the population belonging to the family doctor's office No. 7, corresponding to the health area of the "Previsora" polyclinic. , in Camagüey, in the period between March and September 2017. The universe consisted of 1,635 people and a sample of 250 of them was taken through simple random sampling. The study consisted of the application of instruments such as the survey that was carried out on the population under study and observation. The results obtained demonstrated that there is a lack of knowledge regarding which are all the vector-transmitted diseases that manifest themselves and their routes of acquisition. Once the diagnosis was concluded, the system of library extension activities was created. The specialists who were consulted for its evaluation highlighted the feasibility of the proposal

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Journal of Qualitative Research in Business Law, Eco-Fin, Accounting, and Statistics
ISSN : 1533-1520

and its relevance. It is recommended to implement the proposed library extension activities and extend the experience to other health units in the province.

Keywords: Community-institution relations; Health promotion; Information services; medical libraries; Primary health care

INTRODUCTION

The library is synonymous with teaching; It constitutes an important source of instructive resources for society, promotes reading and serves as a way to approach and communicate with the population.

The scientific concept of a library evolves over the centuries as a result of experience with the library reality and the scientific reflections contributed by its specialists and other researchers. Parallel to this reality, the concept progresses as the library does. [1]

In the history of medicine, libraries have played a fundamental role since ancient times, considering that important papyri dedicated to this branch of science were unearthed in the primitive libraries found in the temples of Ancient Egypt. Likewise, it is known that a large part of the contributions made to medicine during the Greco-Roman period could be preserved thanks to the existence of temple libraries. [2)] In the field of medical sciences, libraries are specialized, since their mission is aimed at a group of users with very specific information needs, defined within the field of biomedicine.

From the first decades of the revolutionary triumph, a work of reorganization of library services in the national territory began, which was projected, in turn, towards the community. Two new services were created: the Library Extension Service and the Cultural Extension Service, [3] while each has played a primary role,

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ISSN : 1533-1520

which has given free rein to the librarian's approach to the people who live in the community. Hence, the first is the appropriate means for the medical library to reach out to the community.

The approach of information regarding health promotion and prevention in the community, as one of its purposes, becomes a form of alliance between the library and community actors. Working together with social groups enhances its position, as a place of reference between it and the community factors. [4]

Although health promotion is basically a health and social activity, librarians play an important role in it. In all health units there is a library with trained personnel for the promotion of library services and especially in health promotion to the community. Such is the case of the National Medical Library, which for many years has included the work of the librarian with the community, whether patients of a health institution or recipients of a health prevention policy (BiblioSIDA Community Project), as well as activities related to the promotion of culture (Project “Lo Real Maravilloso” that includes activities such as: campaign in favor of reading, exhibition of paintings and photographs, samples of scientific documents, film-debates, literary gatherings and Marti club “For a sincere friend"). [5)] Cienfuegos develops the project on STIs-HIV/AIDS. Their work is based on prevention, promotion and guidance. The same happens with the community project “There is no need for wings”, from the same province, which is directed in three dimensions with organizational, promotional and cultural actions. [6]

Something similar happens in the California teaching polyclinic, which is located in the San Miguel del Padrón municipality, with a library that, through library

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extension, is responsible for carrying out activities to promote reading and health promotion through the projection of videos, planning conferences on important health problems, promotional campaigns to prevent negative aspects that influence a certain population, meetings with psychologists, sociologists, sexologists and health promoters, as well as training of health promoters who help change the population's attitude towards some diseases and raise the level of their knowledge. [7]

Contributing as health-promoting librarians to the population choosing healthy lifestyles or modifying risk behaviors is more humane and economical than increasing health services to provide treatment and rehabilitation once they have fallen ill. The implementation of health promotion activities is not limited only to the health sector frameworks. The different social and economic sectors and mass organizations participate in it, which determines its intersectoral nature. Today, vector-borne diseases (VTE): dengue, chikungunya and Zika, constitute a major problem for the health of the community. They are considered a global public health problem, due to the ability to emerge where the vector is present and affect a high percentage of the population in a short time. [8]

Current prevention measures, such as: the application of abate, the use of biological control and fumigation, have been ineffective due to the presence of disease outbreaks. Another reason why these measures are not sufficient is the lack of community participation, which makes intersectoral strategies for vector control difficult. Current scientific evidence demonstrates that even under optimal vector control conditions, transmission can be reestablished if the comprehensive participation of the various social actors involved is not sustained, from decision

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makers to affected communities, in order to ensure prevention and control. disease control. [9]

The research carried out on VTE focuses on the need to implement activities that include the active participation of the community for the benefit of their health. For the prevention of these diseases to be possible, promotional activities are needed to raise adequate knowledge about them. Similarly, library outreach activities can be organized so that the community is involved in identifying problems.

The above was what motivated the library staff of the Previsora polyclinic to carry out the research. To achieve these purposes, it is proposed to develop a system of library extension activities aimed at promoting health that lead to the prevention of vector-borne diseases in the Previsora community. The objective of this work was to promote health about vector-transmitted diseases in the population belonging to the family doctor's office No. 7, corresponding to the health area of the “Previsora” polyclinic, in Camagüey, in the period between March and September 2017.

METHODS

The information needs of the population on vector-borne diseases were diagnosed, and it was recommended to develop a system of library extension activities for the health promotion of vector-borne diseases and to assess the effectiveness of the proposed system of activities based on the criteria of specialists. .

A qualitative-quantitative investigation of the participatory action research (PAR) type was carried out with the objective of carrying out health promotion, specifically on vector-transmitted diseases, their exposure or risk factors in the population belonging to office 7 of the doctor of the family corresponding to the health area of the “Previsora” polyclinic, in Camagüey. The Universe was made up

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of 1,635 people; A sample of 250 of them was taken through simple random sampling. The inclusion and exclusion criteria were taken into account. As an inclusion criterion, the population belonging to the family doctor's and nurse's office seven and who gave informed consent to participate in this research was considered; and as exclusion criteria any person who, after starting the research, decided not to continue participating in it and did not give informed consent. Theoretical, empirical and statistical methods were applied to develop this research.

Techniques and instruments

The survey technique (annex 1) was applied through a questionnaire with 9 items to 250 people from the studied population. The observation was put into practice (annex 2). Some areas were subject to observation, such as office No. 7 of the family doctor and nurse and the area where the development of library extension activities for health promotion was the objective. To assess the feasibility and relevance of the proposed proposal, the activities were submitted to the criteria of several specialists (annex 3).

Statistical methods

For the processing and analysis of the results, once the data from the questionnaires had been collected, they were classified and grouped. For this, a Pentium 4 computer with Microsoft Windows XP version 2010 environment was used. The texts were processed in Word XP. The tables were made in Excel and SPSS software, version 15.0.

Operationalization of variables

Independent variable

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Library Outreach Activity System

Scale: Yes/No

Type of variable: Qualitative nominal dichotomous.

Description: They constitute all the actions to be carried out to promote health in a specific population. In this case, they are directed towards the population belonging to office No. 7 of the "Previsora" polyclinic.

Dependent variable

Health promotion

Scale: Yes/No

Type of variable: Qualitative nominal dichotomous.

Description: Refers to the process that allows people to increase control over their health to improve it.

ANALYSIS AND DISCUSSION OF RESULTS

Population survey

Population by sex

The collection of evidence from the population was carried out on women and men from 15 to 65 and over. According to the sampling, 65% of the surveyed population was female and the remaining 35% was male.

Population by age

30% of the surveyed population was over 65 years old; 15% corresponded to ages between 15 and 24 years; 22% corresponded to the ages of 25 to 44 years and 33% were between 45 and 64 years old.

Occupation

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40% belonged to the working population, 20% to the retired, 21% corresponded to students, 12% belonged to the population that was unemployed and 7% to housewives, which showed that it was a population made up mostly of workers.

In the survey carried out among the population in the first dimension referring to knowledge of vector-borne diseases, 100% of the participants stated that they knew about ETVs; However, when asked to mark which ones they were, 40% of respondents responded that they were dengue, Zika and malaria; 20% said they were dengue, chikungunya, Zika and malaria, and the other 40% only identified dengue.

As shown in the results, residents recognize that dengue is an ETV, but they still need to be educated that there are many diseases generated by the vector that can cause serious damage to a community. The World Health Organization says that VTEs constitute diseases of proven socioeconomic importance; Among them are six of the seven most important tropical diseases in the world (malaria, dengue, trypanosomiasis, leishmaniasis, filariasis and schistosomiasis). Likewise, he notes that within this group of diseases there are diseases that, although they do not currently represent serious public health problems, historically decimated the human population, such as the case of the plague, yellow fever or rickettsiosis, which currently constitutes a disease. re-emerging importance in public health. [10]

In relation to the third dimension referring to the ways in which they acquired knowledge about these diseases, 57% of the population surveyed reported learning about them through television, while 22% said they had listened to the radio and 21% said they had been through the written press and others, data that denotes the absence of preventive activities in the community.

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In the fourth dimension dedicated to the conduct to follow if one suspects having an illness and/or fever, 90% of those surveyed reported going to the doctor, while 20% preferred to isolate the patient. This denotes the culture that the population has about what to do if symptoms of a certain disease occur, although there are still people who refuse to go to a hospital.

The fifth dimension mentioned the way these diseases are acquired. 100% of those surveyed stated that the mosquito was the cause of the diseases; However, of that total, 25% indicated that in addition to the mosquito, another form of infestation was water. This indicates that we still have to continue insisting on promoting the health of the population, since there is still a lack of knowledge regarding how to acquire the disease.

In the sixth dimension referring to what causes the disease, 15% said it was a bacteria; 21% said it was a virus; 30% noted that it was a parasite and 34% did not know. Here the researcher speculates that perhaps it could be a misconception that the population presents.

The seventh dimension represents the ways to prevent the spread of diseases. The majority of the population used autofocus, fumigation, and covering storage containers as prevention measures (65%), while 15% did so through the fumigation process and autofocus. Only 32% mentioned putting up mosquito nets, performing autofocus, and fumigating.

In this study, some respondents mentioned the use of mosquito nets as a VTE prevention measure. Studies developed by different researchers show that the use of mosquito nets and canopies on windows reduces the risk of infection by the vector by up to 63%. [11, 12]

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In the eighth dimension, the question was asked about whether mass organizations carried out activities to promote self-focus. 30% said yes, 48% said sometimes and the remaining number (22%) said no.

It is well known that the autofocal, a program established by Commander in Chief Fidel Castro Ruz in response to the proliferation of the *Aedes aegyti* mosquito in 2001, [13] is the individual responsibility of each person; It is the inspection action that each of the cohabitants of a house is capable of carrying out in search of possible breeding sites. The studies carried out in Las Américas, cited by *Jorlén Galiano,* [14] show that its fundamental objective is to provide opportunities for all citizens in caring for their health.

In a general sense, it was possible to verify that ETVs are diseases that are related to the sanitation of the domestic environment and the locality, where the vectors that cause these diseases are produced and reproduced.

In the community studied, it was detected, first of all, that there is a need to promote health in the population; There is a lack of knowledge as to which are all the ETVs that manifest themselves and their means of acquisition.

Knowing the route of transmission of these diseases is the fundamental link in the epidemiological chain to act and avoid diseases; That is why it is vitally important to know these conditions.

Other research carried out in Camagüey, mainly at the "Previsora" polyclinic, shows that the only method to control or prevent the transmission of dengue viruses consists of the fight against vectors. Proper solid waste disposal and improved water storage practices, including covering containers to prevent female mosquitoes from laying eggs, should be encouraged in community programs. [fifteen]

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Structure and dynamics of the activity system

For the preparation of library extension activities, the procedures that serve as a guide for every librarian and found in Methodological Instruction No. 7/2012 Library Extension Service were followed in the information units of the National Information System in Library Sciences. Health. [16] These are the following:

1. Identify the categories and groups of users who will receive the Service.
2. Define the topic to be addressed and the documents or materials (books, magazines, brochures, information sheets, posters, etc.) that will support the Service.
3. If the Service includes the loan of certain documents, locate them in the background and organize them.
4. Coordinate with the areas, departments or institutions involved in the Service the requirements for its implementation.
5. Carrying out Library Extension.
6. Evaluation of the result of the Service.

In addition to following the steps indicated, the participatory method focused on human development (MPCDH) was chosen, [17] an approach that seeks to develop the social energy and internal power of each human being to transform their reality and transcend the conditions in which they live. . It is also known as a learning-by-doing method, a technique oriented and centered on the learner; participatory strategy. Its purpose is to facilitate people to discover and exercise that inner power in constructive actions.

The participatory methodology allows:

- Learning by doing.

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- Exchange experiences and knowledge.
- Motivate to participate.
- Involve the participants in the intellectual-emotional and practical process.

Participatory methods are developed with participatory techniques that:

- They facilitate communication, organization and collective work of a group convened by a common objective.
- They allow reflection-action-reflection in group processes.
- They give rise to collective processes, socialize knowledge and common educational experiences, provide knowledge and facilitate its collective creation (table).

Chart System of activities for health promotion of vector-borne diseases in the community

No.	Activity	Aim	Recipients	Estimated time
1	Update on ETV for the multidisciplinary team	Update the knowledge of the multidisciplinary team about VTE and its forms of prevention	Multidisciplinary team created	60
2	Workshop for medical librarians of Camagüey on Health Promotion	Update the network's librarians in health promotion and community participation	Network Librarians	60 min
3	Resources available to carry out the	Update the multidisciplinary team	Multidisciplinary team	60 min

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No.	Activity	Aim	Recipients	Estimated time
	activities	and librarians about the resources available to carry out the activities	created. Network Librarians	
4	Techniques for investigating prior knowledge about ETVs	Know the information that the adolescent population has regarding ETVs	Clinic population No. 7	60 min
5	"My community without the mosquito"	Promote ETV promotion actions at the community level.	Clinic population No. 7	60 min
6	"Myths and realities of dengue"	Know the information that the patients of clinic No. 7 have regarding the prevention of the transmission of the Dengue virus.	Clinic population No. 7	20 min
7	Your message to the community you live in	Develop skills and abilities for the design of educational material on a health topic or risk factor.	Clinic population No. 7	60 min
8	How to develop educational actions	Raise the level of knowledge to develop	Formal community leaders	60 min

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No.	Activity	Aim	Recipients	Estimated time
	for environmental sanitation?	educational actions for environmental sanitation		

Assessment of the activity system through the criteria of specialists

The criteria of specialists was applied as a method for evaluating the system of library extension activities for health promotion. Ten specialists were chosen intentionally. Both their profession and their level of competence were taken into consideration. The group that was selected was formed as follows:

- Librarians: 4
- Doctors: 2
- Health promoters: 2
- Hygiene and epidemiology workers: 2

Regarding the structure and dynamics of the activity system, respondents thought that it was very appropriate, choosing the MPCDH to carry out promotional activities with the community.

It was considered that the objectives fit the proposed topics and that they are aimed at resolving the difficulties detected in the survey carried out among the population.

In relation to the proposed system of activities, it was classified as very appropriate by 100% of the specialists, who expressed its feasibility and relevance to apply in the selected community.

Regarding the teaching aids applied, specialists report that the use of teaching aids in the proposed activities contribute to carrying out a quality activity.

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The respondents considered, as an additional assessment, the proposed system of activities to be very innovative, and as a suggestion, they proposed the extension of these activities to other communities in the province, in addition to the preparation of educational materials that would support these activities. They also proposed including information about resources to which the replicators of these activities had access for better performance.

CONCLUSIONS

Health promotion from medical libraries involves people, families, organizations, communities and society, in a process that seeks to change the conditions and determinants of health, aimed at reducing risks and improving quality of life to maintain the healthy population; promotes health care and raises the general culture of the population.

A diagnosis and characterization of the scenarios chosen for the investigation was carried out, which revealed the existing insufficiencies in the community of the office No. 7 of the “Previsora” Reparto, in Camagüey.

Eight library extension activities were developed for the health promotion of vector-borne diseases in the community studied, as well as a set of folders that would serve as support for these, based on theoretical-practical bases of health promotion as an essential function. of Public Health.

The effectiveness of the activities was assessed with the application of the consultation method to specialists chosen for their skills. These agreed on the feasibility of the proposal and its relevance. They also made suggestions such as the implementation and extension of the activities to other health units in the province.

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ANNEX 1 - KNOWLEDGE SURVEY OF THE POPULATION

Age - 15-24____ 25-44_____ 45-64_____ 65 and over_____

Sex - Male_____ Female _____

Occupation- housewife_____ Student_____ Worker____ Unemployed_____ Retired ____

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Education- Primary____ Secondary____ High School____ University____

1-Do you know what vector-borne diseases are?: Yes: ___ No: ____

2. If you know them, list some of them:

_____

2-Where did you acquire knowledge about vector-borne diseases?: Radio: ___ Television: ___ Written press: ___ Others: ___

3-When you suspect that you have an illness, what behavior would you assume?

Take aspirin--------- Go to the doctor---------

Wait at home----- Isolate the patient----------

5-How are these diseases acquired?

Mosquito: ____ Cockroaches: ___ Rats: ____ Water ____ Food: ____

Other: ___ Which: ___ Don't know: ___

6-What produces them?

Bacteria: ____Viruses: ___Fungus: ___Parasites: ___ Don't know: ___Others: ___

7-How do you avoid contagion?

Boiling water: ___ Using mosquito nets: ____ Window screens: _____ Repellents: ____ Removing water tanks: ____ Covering storage containers: ____ Others: ____ Don't know: ____

8 **.** Do you know what autofocus is?

But ____

9. The CDR, FMC or other organizations in your area have carried out activities to promote the weekly self-focus.

But_____

ANNEX 2 - OBSERVATION GUIDE

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Objective: Determine the visible problems that affect the community, and the health promotion actions that should be directed at it.

To develop library outreach activities for health promotion that lead to the prevention of vector-borne diseases in the community, the researcher developed the following observation guide:

- Geographic location of the community.
- Environmental conditions.
- Hygienic-sanitary conditions.
- Quality of drinking water received by the population.
- Situation of the drains.
- Location of solid waste micro landfills.
- Housing fund situation.

ANNEX 3 - SURVEY TO OBTAIN SPECIALIST CRITERIA ON THE SYSTEM OF LIBRARY EXTENSION ACTIVITIES FOR HEALTH PROMOTION OF VECTOR-TRANSMITTED DISEASES

Dear specialist:

We submit for your consideration the different aspects of the system of library extension activities for health promotion of vector-transmitted diseases.

We thank you in advance for your valuable contribution.

1. Personal data

a) Specialty _____

b) Work center_____

c) Teaching category._____

d) Scientific degree_____

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2- In order to know your self-assessment about the knowledge you have on the indicated topic, we ask that you:

Mark with a cross (x), in the following table, the value that corresponds to the degree of knowledge you have on the topic. The scale we present to you is ascending, that is, 0 represents minimal knowledge and 10 represents the maximum.

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The Utilization of Information Access Laws in Competitive Intelligence Processes within the Private Healthcare Context in Brazil: An Analysis at SulAmérica Seguros

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ABSTRACT

The use of information and knowledge is essential for the competitive intelligence process to occur in business environments. It is considered that, with the advent of Law 12,527 - Access to Information Law, new perspectives regarding access to information have emerged, considering that all public bodies and private institutions that receive government money must obligatorily make available information from public interest to society. However, many economic segments are unaware of this new legal possibility of obtaining information for the business. From this perspective, the importance of using information made available by public bodies, through the Access to Information Law, in the decision-making process and in activities related to the organizational competitive intelligence process becomes evident. The research is of a qualitative bibliographic nature, whose “Case Study” method refers to the company SulAmérica Seguros, as

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presented at the *7th SCIP Latin America Summit* , a competitive intelligence event aimed at the business sector. As a result, it was clear that the implementation of the Access to Information Law allowed the company to use information from information prospecting and monitoring in its competitive intelligence process, generating important differences for the business.

Keywords: Access to Information Law; open data; competitive intelligence; health information; private healthcare

ABSTRACT

The use of information and knowledge is essential for the process of competitive intelligence to occur in business environments. It is considered that with the advent of Law 12.527, Law of Access to Information, new perspectives have emerged regarding access to information, bearing in mind that all public bodies and private institutions that receive government money must obligatorily do so. that information of public interest is available to society. However, many economic segments are unaware of this new legal possibility of obtaining information for their business. From this perspective, the importance of the use of information available by public bodies is evident, through the Law of Access to Information, in the decision-making process and in activities related to the organizational competitive intelligence process. The investigation is of a qualitative bibliographical nature, whose “Case Study” method refers to the SulAmérica Seguros Company, as presented at the 7th SCIP Latin America Summit, a competitive intelligence event aimed at the business sector. As a result, it became clear that the implementation of the Information Access Law allowed the company

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to use information from prospecting and information monitoring in its competitive intelligence process, which generated important differences for the business.

Keywords: Law of access to information; open data; competitive intelligence; health information; private healthcare

INTRODUCTION

Organizations are based on information and knowledge that, once contextualized, can result in the improvement of individual and collective activities. Thus, by attributing value to these inputs, the organization generates differences compared to those that do not have this perception and, consequently, creates and innovates products and services, obtaining a competitive advantage in the market in which they operate.

However, many organizations do not realize the importance of information and knowledge for their business. In this way, they limit themselves to using information generated within the organizational environment, without seeking information external to the organization.

From this perspective, this article focuses on the (LAI), of November 18, 2011, as an important instrument for lawfully obtaining information generated by other public bodies and private organizations. It is noteworthy that, following the promulgation of the LAI, all public bodies and private institutions that receive government money must make information of public interest available to society, in order to guarantee greater transparency and defend the right to information, as stated in Federal Constitution [1] in its Articles 5, Section XXXIII, Article 37, Section II §3 and Article 216, §2 previously established.

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Any natural or legal person can search for and request for use the information made available by the bodies and organizations mentioned above, either through a formal request or through access to open repositories and databases (open access) . In general, some sectors at the organizational strategic level search for information in different databases, however, they do not analyze and systematize the information to support the decision-making process and the formulation of action strategies, losing the opportunity to obtain a competitive advantage by not using the information efficiently, but in many cases there is a lack of knowledge about the existence of this information.

In view of this, this article aims to highlight the importance of organizations using the information made available at the governmental level by: a) public bodies that are part of the direct administration of the Executive, Legislative, including the Audit Courts, and the Judiciary and the Public Ministry; b) autarchies, public foundations, public companies, mixed capital companies and other entities controlled directly or indirectly by the Union, States, Federal District and Municipalities, in order to subsidize the process of organizational competitive intelligence (ICO).

Therefore, those organizations that need this data for strategic use aimed at their business stand out, such as private health organizations. When considering this type of organizations that offer health plans, it is important to highlight that their markets are different from others, after all, these organizations have very specific characteristics, in which we can highlight that their demand is inelastic, the supply is demand-oriented (*supplier-induced demand*) and the presence of external factors does not normally favor the predominance of market mechanisms. [two]

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Therefore, seeking data with a view to building information, knowledge and intelligence becomes essential for reducing risks and uncertainties provided by the market in which these private health organizations operate. To demonstrate the importance of open data in this scenario, this research describes the case study of the company SulAmérica Seguros, presented at a *Strategic and Competitive Intelligence Professionals* (SCIP) event, *Latin America* edition in 2015, in order to demonstrate the results obtained by said company, regarding the use of open data.

It is observed that it is essential for these organizations to understand what their informational needs are and, based on mapping, seek the required information, through access to open access databases, whose selection, analysis, sharing and use, they enabled the development of competitive differences and, thus, the achievement of a competitive advantage for the organization.

Open data

Access to information and knowledge has become indispensable to support information flows, as well as to guarantee the implementation and execution of the various organizational processes of public or private institutions, that is, it is indisputable that information and knowledge are recognized as elements strategic. From the promulgation of the LAI in 2011 and its entry into force on May 16, 2012, all public bodies and private institutions that receive government money must obligatorily make information and documents available, in order to guarantee access through payment mechanisms. seeks to meet the request standards, thus influencing the change from a culture of informational secrecy to a culture of informational transparency.

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Given this, government bodies, which are the largest producers of data and information of public interest, face the challenge of transforming internally generated data and information into open data and information.

Open Knowledge International [3] defines open data as those "that can be freely used, reused and redistributed by anyone - subject, at most, to the requirement of source attribution and sharing under the same rules" Following this concept, the Brazilian Data Portal Open [4] defines that "data is open when anyone can freely access it, use it, modify it and share it for any purpose, being subject, at most, to requirements that aim to preserve its provenance and openness".

Therefore, the repositories in which these data and information are made available must guarantee the right of access to society in general. The *Technical Booklet for Publication of Open Data in Brazil* , when detailing the national open data policy, argues that they ...] constitute the publication and dissemination of public data and information on the Web, following some criteria that enable their reuse and development of applications throughout society. Most data and information generated or maintained by the government is public. Making data available on the Web is not a recent practice in government, however with an open data policy, the government signals that it intends to standardize and leverage the dissemination of public data across all agencies. The open data paradigm is based on the realization that data, when shared openly, has its value and use enhanced. With this, the government intends to develop a data and information ecosystem that benefits society and enables the involvement of all sectors, including the private sector, the academic sector and the government itself. [5]

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Initiatives aimed at transparency in public management and access to information are dependent and linked to document management, since archival documents are the main source of information regarding government activities, and it is therefore necessary to produce and maintain reliable documents, consistent and accessible. It is essential that archival activities are developed in processes involving open access to data and information, ensuring the provision of reliable information, both for the government itself and for citizens. [6]

From this perspective, adequate archival treatment of documents is a *sine qua non* condition for them to actually be made available. It is worth highlighting that digital documents need to be treated specifically, as there is concern regarding the fragility of the media, rapid technological obsolescence and the ease of manipulating information in a digital environment. In this sense, it is necessary to have a policy for the production of documents in electronic and digital format, covering aspects of production itself, security, *upgrade* and storage, in order to guarantee the reliability of its content; *Rocha* [6] points out that this type of document needs to remain authentic and accessible to actually be usable.

Open data must be made available in digital repositories, whose structure meets basic concerns regarding this type of document. A digital repository is understood as ...] a complex technological environment for the storage and management of digital materials. This environment consists of a computerized solution in which digital information objects are captured, stored, preserved and provided access. A digital repository is, then, a complex formed by hardware elements (storage devices), software, services, collection of digital information and metadata

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associated with these information objects. This entire set aims to support the management of digital materials for as long as necessary. [6]

Repositories need to be reliable and, for this purpose, they must be structured based on the aforementioned concerns, taking into account national and international parameters such as, for example, standards ABNT NBR 15472:2007 'Spatial data and information systems - Reference model for a open information archiving system (SAAI)'; ABNT NBR ISO/IEC 27037:2013 'Information technology - Security techniques - Guidelines for identification, collection, acquisition and preservation of digital evidence'; ISO 14721:2003 " *Space data and information transfer systems - Open archival information system - Reference model,* " among others.

From this perspective, the Open Archival Information System Model (OAIS) is a model that consists of an organizational structure made up of people and systems responsible for preserving information and making it available to a specific community. The growing increase in digital documents at the government level, combined with the challenges of document authenticity, requires the establishment of policies that provide the necessary security and reliability.

It is noteworthy that digital repositories accessed by citizens can contribute, both to the improvement of government administrative processes, and to the improvement of public policies, since government bodies publish data and information, through reports and balance sheets that, by In turn, they can be reused by other institutions. Therefore, the data and information made available must be in formats compatible with open access, enabling the reuse of primary data and information to

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generate new data and information. On the federal government's "Open Data Kit" *website , some advantages of publishing open data are described:*

- *Save time and money responding to access to information requests:* When data is open, citizens can access the data and information they are looking for directly on the *Web* . Freeing your organization from the time and costs associated with responding to information access requests.
- *Avoid duplicate actions:* Improving the organization's data and information management helps prevent the possibility of spending budget on collecting or processing data in duplicate in different initiatives, a fact that usually happens when one department is unaware of the existence of the others' data. Furthermore, it is possible to reduce the scope and cost of new collections based on the ability to reuse or cross-reference available data. Maintaining a central data catalog for your organization makes it easier to understand what data and information is available, and reviewing this catalog before starting any system is a best practice.
- *Discover complementary data sets held by other agencies:* The benefits of transparency in your organization's data sets are enhanced when each agency has its data cataloged in a standardized way. Managers may realize that part or all of the data they need for some initiative is already in the hands of one or more organizations, or that important conclusions can be drawn by combining their data with additional data from other organizations:
- *Positive attention from citizens, media and other bodies:* In recent years, several exclusive events on open data have been held by the various spheres and powers of the state, with media coverage and national attention. The

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more data your organization makes available in easy-to-reuse formats, the more opportunities for positive coverage of open data initiatives and the impact of that data on society.

- *Generate revenue and create new jobs:* It is believed that the publication of open data tends to stimulate the economy, as private economic agents use it to create new business processes and optimize existing processes. The first occurs when companies use public data to generate new services and applications useful to society. The latter may occur, for example, when a merchant decides where to locate a new branch based on demographic information or the existence of certain public services in the location. Therefore, the aim is also to achieve this indirect result by proposing that open data be an interoperability instrument. [7]

Note that the last advantage mentioned above mentions how private organizations can benefit themselves by generating competitive differences and, thus, obtaining a competitive advantage using open digital data repositories.

Despite the existence of Decree No. 7,724, of May 16, 2012, which regulates the LAI, as well as Normative Instruction No. 4, of April 13, 2012, which establishes the National Open Data Infrastructure (INDA), some Organizations still do not have guidelines or even an information policy aimed at implementing digital repositories in order to comply with national legislation. Furthermore, even when an information policy exists, it often does not clearly present the ...] responsibility for publishing open data in formats that can be consumed by the community, nor the knowledge of how to do so or otherwise which technological environments to use to make this type of information available. [8] It is noteworthy that much still

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needs to be done so that there is, in fact, effectiveness regarding the dissemination of open data and information in digital repositories.

Legal regulation regarding open data

Regarding standardization, it is noted that there is no specific legislation that regulates the opening of a database. However, some procedures are followed so that reliability, accuracy, authenticity and accessibility are guaranteed.

Open data repositories promote an extensive circulation of users, therefore, their management is very complex, as several threats that arise from the fragility of digital environments must be combatted.

The OAIS model was approved as an international standard in 2003, and is one of the most important rules regarding digital preservation and digital repositories. It was developed under the coordination of *The Consultative Committee for Space Data Systems* (CCSDS) [9] - Consultative Committee for Space Data Systems - of *The National Aeronautics and Space Administration* (NASA). As previously mentioned, it is a conceptual model that describes a functional information model for the preservation and access to digital documents managed in a repository environment.

The OAIS Model foresees the existence of a series of procedures for creating, controlling and making data available, considering the group of entities that participate in the system environment, namely: the Producer, who provides the information to be preserved; the Consumer, who will use it for different purposes; the Administration, which is the entity responsible for establishing management policies; and the Archive itself, representing the document, object of preservation. [10]

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Finally, it is worth highlighting that, regardless of whether the database is open or not, the origin of the information is an essential issue, in order to guarantee the author's rights, which must be preserved as provided for in Law No. 9,610, 11 of 19 February 1998, when applicable, and also the reliability of the source, one of the essential elements for making open data available.

Therefore, it should be noted that even though the databases are available for access, via the Internet or any other communication channel, the indiscriminate and inappropriate use of the contents is not permitted.

Based on the above, in the next topic, the Competitive Intelligence (CI) process is discussed, in order to later relate the importance of access to databases or open digital repositories for the Competitive Intelligence process.

The competitive intelligence process

Conceptualizing intelligence in the context of organizations becomes the starting point for understanding competitive intelligence as a process. In this sense, *Haber-veja* and *Más-Basnuevo* (12) highlights that:

"Intelligence in the context of organizations is treated, according to the size and context of their practice, under different names (by company, in relation to competitors, environmental, economic, business or competitive monitoring), although recognized as the ability or the quality of the organization is focused on increasing its economic performance and its position in the market, compromising the evaluation of the results of its application, in accordance with its objective".

Miller 12 summarizes the construction of intelligence in organizations, "...] data, when organized, becomes information; information, when analyzed, becomes intelligence." This synthesis proposed by *Miller* 13 demonstrates that intelligence,

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as well as the development of products and services, depends on a systematized process that provides greater consistency in decision-making and the planning of strategic actions in the short, medium and long term.

There are numerous conceptual models aimed at the competitive intelligence process, generally covering four large groups of activities: planning, collection, analysis and dissemination. The development of these activities is understood as a systematized process that aims to support the decision-making of strategic managers in a given organization. Organizational subjects, supported by information and knowledge relevant to the business, decide and plan action strategies which, in turn, when implemented, generate competitive advantages for the organization.

Applied competitive intelligence

Competitive intelligence has been the target of attention from organizational managers. Professionals with competence in competitive intelligence are essential to help organizations develop creativity, innovation and competitive advantages compared to the competition in the market in which they operate. From this perspective, CI activities are basic so that information coming from the external environment in a lawful manner can actually provide the necessary conditions for the organization to obtain a competitive advantage. [13]

The CI process helps organizational subjects to efficiently structure work activities and tasks, as well as to make assertive decisions. *According to Valentim* [13]), the IC process really contributes because all activities carried out in an organization - from planning to the execution of planned actions, as well as the decision-making process - are supported by information and knowledge.

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From this perspective, professionals who work with the IC process are increasingly committed to providing the resources, instruments and tools necessary to generate competitive advantages. *Miller* [13] explains that this is only possible when the organization is able to value information and knowledge as essential elements for the development of organizational activities. When this occurs, the competitive intelligence process develops dynamically, since its purpose is to "...] investigate the environment in which the organization operates, with the purpose of discovering opportunities and reducing risks, as well as diagnosing the internal organizational environment, aiming to establish short, medium and long-term action strategies". [14] In this sense, *Lapa et al*. [15] describe that the competitive intelligence process aims to:

- Support with analyzed information, in a timely manner, the strategic planning process and the organization's key decision-making processes.
- Provide quality information to increase security in decision-making that involves high risk/high cost.
- Assess the impacts of changes (threats and opportunities) in regulatory, technological and socioeconomic policies on the organization's strategy.
- Anticipate possible actions by competitors.
- Identify new market demands/opportunities.

It is evident that information in the organizational environment must be considered a strategic and development factor, whose purpose is to obtain a competitive advantage over other organizations. When organizations are able to realize this, they become able to identify, generate and explore information that they consider

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relevant compared to the competition, ensuring the construction of strategic knowledge that can be used in value-creating activities. [16]

In this scope, it is highlighted that information and organizational knowledge are elements arising from the network of people and the processes of perception, appropriation and use of information, through which organizational subjects create common meanings, generate new knowledge and commit to certain course of action. Organizational knowledge emerges when the three processes: creation of meaning; knowledge construction; and decision making, are integrated into a continuous cycle of interpretation, learning and action. [17]

Table 2 Ways of using information

Mode	Central Idea	Results	Main Concepts
Meaning creation	Interpretive organization: Environmental change (Making sense of ambiguous data through interpretations. Information is interpreted	Interpreted environments and shared interpretations to create meaning	Interpretation, selection, retention
Knowledge construction	Learning organization: Existing knowledge (Create new knowledge through conversion and sharing of knowledge.	New explicit and tacit knowledge for innovation	Tacit knowledge and explicit knowledge. Knowledge conversion.

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Mode	Central Idea	Results	Main Concepts
	Information is converted		
Decision-making	Rational organization: Problem (Seek and select alternatives according to objectives and preferences. Information is analyzed	Decisions lead to rational, goal-oriented behavior	Bounded rationality. Decisional premises. Rules and routines

Source: Choo CW. The Knowledge Organization: how organizations use information to create meaning, construct knowledge and make decisions. São Paulo: Editora SENAC; 2003. (17)

It is observed that the three processes highlighted by *Choo* [17] and demonstrated in table 1 are interrelated, with dependence between them. With regard to the use of information to make sense of changes in the external environment, meaning is created in relation to the organizational context, helping change processes, as well as strengthening and enriching the area of Competitive Intelligence.

The dynamics of the external environment, the uncertainties and transformations that impact organizations constitute a challenge for their managers, therefore, it is necessary to guarantee reliable data, information and knowledge that enable the organization to quickly adapt to changes in the market in which it operates. inserted. From this perspective, intelligence activities meet these needs, enabling them to continually identify risks to the business and opportunities for growth and development.

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METHODS

This research used the 'Case Study' method. *Yin* [18] points out that, "...] the case study contributes, in an unparalleled way, to our understanding of individual, organizational, social and political phenomena". The author further adds that the case study ...] allows an investigation to preserve the holistic and significant characteristics of real-life events - such as individual life cycle, organizational and administrative processes, changes occurring in urban regions, international relations and the maturation of some sectors. [18]

The application of this method is also called method triangulation, and consists of the use of several techniques within a given research problem. The use of different techniques in an investigation provides greater consistency for the research, thus giving greater validity to the data and analyzes carried out.

In this way, data was collected from the research presented at the *7th SCIP Latin America Summit* , the main intelligence event in Brazil. In this sense, the health business unit and the Commercial area of SulAmérica Seguros required the intelligence area to develop a joint plan for commercial expansion. For such a plan, it would be necessary to prioritize actions to improve the network of service providers in health and dentistry. The main objective referred to commercial expansion, however, expansion should be aligned with improving the network of service providers, balancing demand and supply.

Through the exhibition carried out by the company's intelligence professionals, it was possible to observe that the company's intelligence area made use of, "...] documents, archive records, interviews, direct observation, participant observation and physical artifacts" [18] to the construction of the plan aimed at expanding the

commercial area, after all, open databases and repositories were used. The analysts also pointed out that they carried out the direct observation process, in this sense they pointed out that a script was structured that identified specific issues for the construction of the plan.

In the presentation it was possible to identify that the analysts made several contact moments with the areas that required such planning, mainly with the commercial area, where they pointed to making contacts with the aim of better understanding the needs of these demands. In this sense, we can consider that the analysts carried out a series of interviews that allowed them to better understand aspects necessary for the construction.

The strategic use of the access to information law in a competitive intelligence project in the context of private healthcare in Brazil: An Analysis at SulAmérica Seguros

Good practices in relation to the competitive intelligence process are published and disseminated through magazines and scientific and/or professional events. At the professional level, SCIP [19] (Competitive and Strategic Intelligence Professionals) is responsible for promoting several meetings with professionals who work in different countries, focusing on discussing good practices applied to the CI process. SCIP [19] is ...] a global association of professionals working in the field of strategy and competitive intelligence, which has existed since 1986. Through publications, events in various parts of the world and its own network, SCIP has been providing information and knowledge in favor of a better performance of organizations in the face of various market forces, based on action guided by ethics.

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With the aim of expanding the contact of its members inside and outside the United States, SCIP has regional sections, called international chapters, based in important cities on the continents, which aim to promote IC in specific regions. Each chapter is responsible for holding annual conferences and summits that bring together leaders to discuss various aspects of Competitive Intelligence.

At the Latin America Summit (*7th SCIP Latin America Summit*), [20] held in November 2015, in the city of São Paulo, Brazil, several *cases* of application of the competitive intelligence process were presented, including that of SulAmérica Seguros, presented by *João Francisco Resende* and *Layla Machado* , both market intelligence consultants for the company. The presentation entitled, "The use of the Access to Information Law in competitive intelligence activities" caught the attention of the participants, as it demonstrated the practice of the IC process using the LAI as a data and information capture strategy.

Resende and *Machado* [21] highlighted that public authorities are the largest producers and holders of data and information, whose records are administrative, tax, tax, georeferenced bases, in addition to demographic, social, economic statistics, among others. Government data, open or not, are valuable assets to be considered by Intelligence professionals, as sources for their studies and analyses, but also as resources for new business opportunities and activities. [21] The Health Business Unit and the Commercial Area of SulAmérica Seguros wanted to develop a joint commercial expansion plan, for which it would be necessary to prioritize actions, aiming to improve the network of health and dental service providers. The main objective referred to commercial expansion in this line of business, however,

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the expansion should be aligned with the improvement of the network of service providers, balancing demand and supply. [21]

RESULTS

In this way, the intelligence team developed several fronts for the development of the plan (Fig 1). From this perspective, the Intelligence Area acted as a catalyst for actions aligned with the aforementioned objective. *According to Resende* and *Machado* , [21] the process of selecting priority municipalities was based on objective criteria, refining and validating based on the knowledge of specialists from the Health and Dental Unit and the Commercial Area.

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Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. (21)

Fig. 1 SulAmérica expansion plan development strategy.

After the processes of searching, filtering, grouping and analyzing the municipalities, 95 (ninety-five) priority municipalities were classified, making it possible to analyze the competitive scenario, as can be seen in figure 2 . Regarding the analysis, the *market share* of the selected municipalities that had the greatest potential for consumption of their services in the country was observed.

Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. (21)

Fig. 2 Search, filtering and clustering *process* .

SulAmérica's CI team prepared the graph presented in figure 3 , showing the beneficiaries by modality, medical and dental assistance, as well as identifying the

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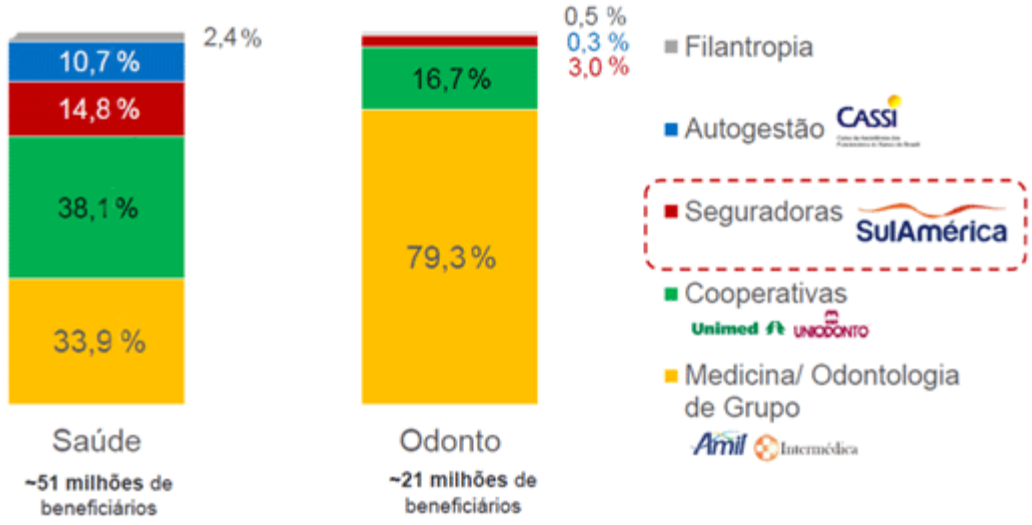
main companies in this segment, the volume of each company in the 95 (ninety-five) selected municipalities . The analysis was based on data from September 2014 from the National Supplementary Health Agency (ANS).



Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. [21]

Fig. 3 Beneficiaries by type. Medical and odontologic assistence. Brazil, 2014.

Resende and *Machado* [21] explain that ANS provides a consultation tool on its portal that makes it possible to identify the number of beneficiaries by Medical and Dental Assistance Operators. This information is updated quarterly with data sent by operators (there are around 1,300 active operators in the country), via the Beneficiary Information System (SIB) [22] of the National Supplementary Health Agency.

The ANS portal provides queries on the number of beneficiaries per operator, according to the federative units and metropolitan regions, however, it does not provide details by municipality. Therefore, the intelligence team found that the information made available was limited and inaccurate for its needs, after all, the

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selected *clusters* did not correspond to the metropolitan regions defined by the ANS. The necessary information was in the ANS database, however, the team had limited information due to the system provided by ANS. In order to access the information they needed, the SulAmérica intelligence team made use of the LAI and requested detailed information by municipality.

The information request procedure was carried out by the Electronic Citizen Information Service System (e-SIC), [23] system provided by the Federal Government, in which it is possible to make requests regarding information held by the government. After the request on e-SIC, the IC team received the database, with the updated number of beneficiaries per operator and municipality within the period regulated by the LAI of twenty days.

Based on the data received, the IC team analyzed and updated information of interest to SulAmérica, making the information more accurate and consistent, in order to generate competitive scenarios by municipality. From the reuse of data and information, it was possible to analyze *market share* by municipality, which enabled the development of strategic actions for each city (Fig. 4).

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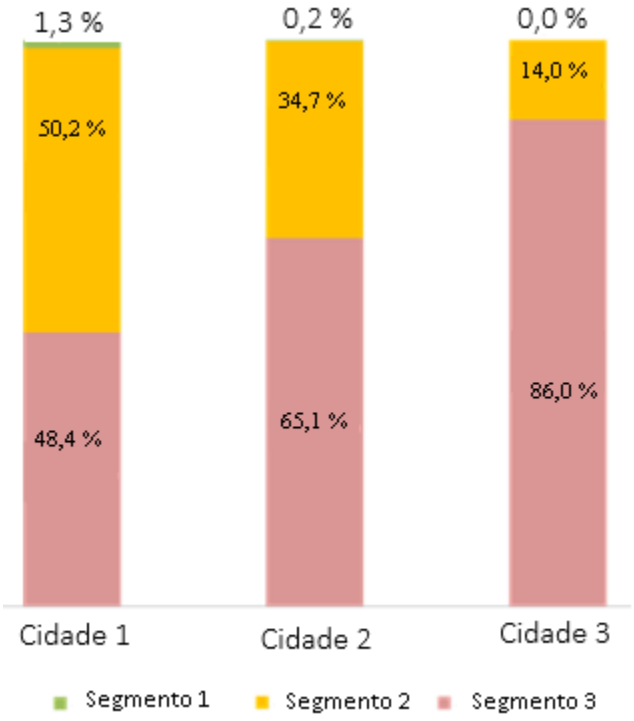

Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. [21]

Fig. 4 Cities by segment offered by SulAmérica - *Market share* analysis .

With the systematized and contextualized information, SulAmérica established an order of priority for the municipalities, considering *market share* and potential according to the local competitive scenario. Through the analyzes carried out by the Intelligence Area, it was also possible to identify the number of beneficiaries classified as " *prospects"* (beneficiaries "to win"). (Table 1).

Table 1 Estimated market potential for SulAmérica in a municipality in the Northeast of Brazil

At the.	**Counties**	**No. of medical assistance beneficiaries**	**Market share (%)**

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At the.	Counties	No. of medical assistance beneficiaries	Market share (%)
1	Total in municipalities	343 420	100
two	Total in SulAmérica's focus segment	88 834	25.9
3	Total for SulAmérica	3 464	1.0
4	SulAmérica market share assumption (projected final stock)	7 107	
5	Beneficiaries to "win" (line 4 - line 3)	3 643	8%

Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. [21]

Planning actions aimed at improving the network were also carried out following the same order of priority, based on SulAmérica's market potential in each municipality. Such actions were only possible to be carried out due to access to the information contained in the SIB database, [22] through the application of the LAI, whose open data received could be analyzed and reused, in order to establish short-term action strategies, medium and long term in each municipality (Fig. 5).

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OBID	Município	Status Rede Saúde [1]	Status Rede Odonto [1]	Potencial de benefi-ciários a ganhar - Saúde	Estoque final de benefi-ciários projetado - Saúde	Abr	Mai	Jun	Jul	Ago	Set	Out	Nov	Dez	Jan	Fev	Mar	Abr	Mai	Jun	Jul	Ago	Set	Out	Nov	Dez	Jan	Fev	Mar
1	MUNICÍPIO 1	SATISFATÓRIA	ÓTIMA	9 166	13 951																								
2	MUNICÍPIO 2	SATISFATÓRIA	ÓTIMA	7 597	13 309																								
3	MUNICÍPIO 3	SATISFATÓRIA	ÓTIMA	7 394	8 102																								
4	MUNICÍPIO 4	ÓTIMA	ÓTIMA	7 105	17 510																								
5	MUNICÍPIO 5	SATISFATÓRIA	ÓTIMA	6 999	8 943																								
6	MUNICÍPIO 6	ÓTIMA	ÓTIMA	4 819	7 862																								
7	MUNICÍPIO 7	RUIM	SATISFATÓRIA	3 484	4 130																								
8	MUNICÍPIO 8	SATISFATÓRIA	SATISFATÓRIA	3 401	5 751																								
9	MUNICÍPIO 9	SATISFATÓRIA	ÓTIMA	3 094	4 048																								
10	MUNICÍPIO 10	SATISFATÓRIA	ÓTIMA	2 802	3 406																								

Source: Resende JF, Machado L. Practical case: the use of the Access to Information Law in competitive intelligence activities; 2015. [21]

Fig. 5 Indications by municipalities for strategic plans and priority delimitation.

Resende and *Machado* [21] showed that data and information generated by public bodies can be very valuable and are available to organizations and, consequently, to their intelligence areas, whether in the form of open data or upon request applying the Access Law the information. The information generated by public bodies must increasingly be the object of prospecting and monitoring, as they are relevant sources for the work of the competitive intelligence professional, that is, it is through access to these sources that it is possible to develop and create new intelligence applications, products and services for the organization.

FINAL CONSIDERATIONS

It is noteworthy that the use of open data and information from government databases and digital repositories, through the application of the Access to

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Information Law, is an important prospecting and monitoring activity for the CI process. This type of source has a wealth of data and information that, when reused, can provide intelligence products and services capable of defining decisive strategic actions for organizations.

It is worth remembering that these databases have no cost to users and can provide important socio-economic information for the development of short, medium and long-term action plans. Furthermore, it is important to highlight its reliability and consistency, after all, it is information fed by multiple government systems, constantly updated as in the case of the ANS, which is updated quarterly. Social information can serve as strategic information for organizational decisions, as in the case of SulAmérica Seguros, which redesigned a new action plan, based on data collected via request to the e-SIC system.

From this perspective, it is necessary to identify what information is necessary to carry out prospecting and monitoring of government sources, as well as to develop specific activities in the strategic, tactical or operational scope which, in turn, are directly related to the type of company and the your goals. Initially, the organization's information needs must be mapped, in each organizational area, as it guides the information search strategy in any repository or database. It is observed how the construction of knowledge occurs, through the interrelationships discussed in this article.

Organizations can take advantage of government databases and repositories on several fronts. The human resources area can identify and analyze salaries, with the aim of valuing intellectual capital in the job market; the commercial area can develop strategies aimed at the consumer market, among countless other

possibilities. Through the access, use and reuse of data and information, organizations are able to build more consistent and reliable organizational knowledge which, in turn, will be decisive in generating competitive differences and obtaining the desired competitive advantage.

In this context, the importance of LAI for access to open data is highlighted, as it brings valuable and reliable information that can be analyzed and reused in favor of the demands and needs of organizational subjects, in order to be applied in short-term actions. medium and long term.

This highlights the importance of using information made available by public bodies, whose access to open data can be direct or through the application of the LAI and whose prospecting activity is part of the competitive intelligence process.

This exploratory study indicates the need to develop other studies that can deepen and validate the reflections presented here, in order to understand the particularities and the real impact of the use of LAI on the use and reuse of open data, as well as how they impact on strategic activities of a given organization.

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ISSN : 1533-1520

Holistic Knowledge Management: Analyzing Adherence to the Rojas, Bermúdez, and Morales Model

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ABSTRACT

The holistic paradigm is an alternative that has been suggested for years for the development of knowledge management models. This approach, called holistic knowledge management, aims to address knowledge management in its entirety so that the management of this asset is achieved comprehensively. In this context, this research aims to analyze the adherence of the *Rojas* , *Bermúdez* and *Morales* model to holistic KM. Through qualitative content analysis as well as quantification of adherence to holistic KM, the aforementioned model was analyzed. As a result, the model by *Rojas* , *Bermúdez and Morales* , proposed for the health area, partially adheres to holistic KM. This shows that a holistic knowledge management model for the healthcare area is still a gap to be overcome, as well as pointing out the aspects that need to be improved. However, this result is not conclusive, as it comes from the analysis of a single model, which is a limitation of this research. Due to this limitation, it is suggested, as future research, the analysis of other knowledge management models proposed for the health area, following the methods applied in this research.

ISSN : 1533-1520
GARDEN JOURNALS
Journal of Qualitative Research in Business Law, Eco-Fin, Accounting, and Statistics

Keywords: Knowledge management; holistic paradigm; holistic knowledge management; content analysis

INTRODUCTION

Knowledge Management (KM) is a field of research covered in several areas, including health. For example, *Mutuwa* and *Maiga* [1] a explore this issue in the pediatric context, positioning knowledge as a vital element for the individual's potential as an adult. Considering a more technological bias, *Sánchez* and *Ponjuán Dante* [2] situate knowledge as a driving element of learning in health, through virtual environments. These perspectives announce the relevance of knowledge and its management in promoting fundamental actions for evolution in this area. Other areas of research besides health, [1,2] such as the business context [3,4] and teaching, [5] are also approached from the perspective of knowledge.

These KM research *loci* have one aspect in common: knowledge management models. A model, also called *framework* or structure, is a schematic representation of reality that elucidates the main elements of GC and its interfaces. [6] These are ways of putting KM into practice and, together, the models constitute a *corpus* of academic study.

When *Fteimi* [7] analyzed 70 GC models and classified them into categories, the researcher corroborated the research by Heisig, [8] *Rubenstein-Montano et al* [9] and *Holsapple* and *Joshi* . [10] All these researchers sought to understand how KM models are similar and dissociated and, among the conclusions, one underlies this research: KM demands a holistic approach.

One of Fteimi [7] 's categories is holistic *frameworks* , which consist of “different KM elements, which must be considered together”. [7] This classification confirms

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the conclusion of *Heisig* (2009), who, when analyzing 160 KM models, concluded: "...] the objective of KM is to implement a holistic approach". [8] Prior to *Heisig* [8] and *Ftemi* , [7] research by *Holsapple* and *Joshi* [10] and *Rubenstein-Montano et al* [9] analyzed 10 and 26 GC models, respectively, and also concluded that GC demands unifying and comprehensive models. By comprehensive *Holsapple* and *Joshi* [10] and *Rubenstein-Montano et al.* [9] indicate a model that covers KM in its entirety, while by unifier, the search for consensus between the elements to be considered in a model stands out. These researchers analyzed a total of 270 models, proposed over time and set in different areas, and concluded that KM must be conducted from a perspective that is broad enough to approach knowledge management in a totalitarian way. This perspective consists of the holistic paradigm, which is called an alternative for the development of unifying, comprehensive and holos-oriented KM *models* .

However, these researchers' studies also concluded that there is no consensus regarding the elements that constitute GC. Furthermore, what constitutes a KM guided by the perspective of the holistic paradigm was also not outlined. In this sense, this research contributes by developing these aspects into a theory that supports the central objective of this study: analyzing the adherence of the *Rojas* , *Bermúdez* and *Morales* [11] model to holistic KM.

The analysis of this model, proposed for the health area, contributes by revealing how adherent its KM structure is to the holistic paradigm. This tends to cooperate with academia by providing evidence that reveals whether the need for a holistic model, identified as *necessary* by the studies mentioned above, has been achieved for the health area. Towards achieving the proposal, which is to analyze the

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adherence of the *Rojas* , *Bermúdez* and *Morales* [11] model to holistic KM, the presentation of this research is divided into sections. The next section defines the scientific methods to be used to analyze the *Rojas* , *Bermúdez* and *Morales* model , [11] as well as the reason for selecting this model. In sequence, an adjustment of KM knowledge to the holistic paradigm and the adherence of the aforementioned model to holistic KM are presented. In continuation, the results of this analysis are presented. Therefore, the conclusions regarding this analysis are highlighted and the REFERENCES, which support this research, are presented, concluding this article. In this context, this research aims to analyze the adherence of the *Rojas* , *Bermúdez* and *Morales* model to holistic KM.

METHODS

This research can be classified as descriptive, which uses the qualitative-quantitative approach and the Content Analysis method. The methodological path to be developed is designed to be carried out in two phases. In the first phase, the model by *Rojas* , *Bermúdez* and *Morales* [11]) is interpreted qualitatively, aiming to identify the presence or absence of the dimensions of holistic KM. In other words, we seek to analyze the adherence of this model to this form of management. The dimensions of holistic KM make up the whole of knowledge management and, therefore, must be addressed together in a holistic model. These dimensions constitute the Content Analysis [12]) recording units and are explained in the theoretical reference, as follows: Strategy, Leadership and support from senior management, Knowledge management team, Resources (financial, human, material and time), Processes and activities, Human resources management, Training and education, Motivation, Teamwork, Culture, Information technology, Measurement and Pilot Project.

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After applying qualitative Content Analysis, aiming to identify the aforementioned dimensions, the second phase (results) begins. In this, the quantitative approach is used to highlight the percentile degree of adherence of the *Rojas* , *Bermúdez* and *Morales* [11] model to holistic KM. Thus, the dimensions identified as existing in the model are calculated in relation to those that do not exist, highlighting the holistic scope of the analyzed structure.

The motivation for choosing this model is based on the area of approach to the model and the scientific means of dissemination. Firstly, the model by *Rojas* , *Bermúdez* and *Morales* [11] is oriented to the health area, encouraging its analysis to identify whether it is a holistic KM proposal in this area. Secondly, the model was released at the seventh International Conference on Knowledge Management in Organizations, a conference that aims to "report the most recent scientific and technical advances in knowledge management in organizations". [13] Therefore, it is believed that this model can present a scientific advance, through the holistic scope of KM in the health field, which encourages its analysis.

It is noted that the result of this analysis is not intended to credit the model with merit or demerit. In fact, we seek to identify whether the aforementioned model filled the gap in a holistic model for KM, specifically for the health area.

Theoretical Reference

This section presents the adjustment of KM to the holistic paradigm and the dimensions that constitute the whole of this form of management. Therefore, the adherence of the *Rojas* , *Bermúdez* and *Morales* [11]) model to holistic KM is presented.

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The dimensions of holistic Knowledge Management

Paradigm consists of a pattern used to address scientific problems. [14] Two paradigms underpin the discussion of holistic KM: reductionism and holism. The reductionist paradigm, also called Newtonian-Cartesian in honor of its proposers *René Descartes* and *Isaac Newton* , determines that a phenomenon must be divided into parts so that it can be understood. [15 - 20]) Through the interpretation of the parts, in isolation, an understanding of the phenomenon was achieved in its completeness.

However, *Weil* , [21] *Capra* , [16] *Pereira* , [22] *Maciel* and *Silva* , [18]) *Flach* and *Behrens* [2] [3] and *Crema* [24]) point out that This paradigm is insufficient to address current scientific problems, as they are more intricate than those existing at the time of Descartes and Newton. Due to this insufficiency, the holistic paradigm is highlighted as a plausible scientific standard to be used by science in its contemporary problems. The holistic paradigm, like reductionism, assumes that the phenomenon is divided into parts. [22] , [25] , [26] However, these paradigms differ in terms of how these parts are understood. While reductionism analyzes them in isolation, holism requires that the parts be analyzed together with the others. In this way, the connections between the parts are maintained and, thus, the phenomenon can be fully understood.

Within the scope of KM models, reductionism is established in structures that propose to manage only one, or a few, dimensions of knowledge management, such as strategy, people and culture. [8] These models address the dimensions (parts) of KM in isolation, as they neglect the other dimensions of this management. In contrast, a KM model guided by the holistic paradigm must encompass all

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dimensions of knowledge management. Thus, the dimensions are considered together with the others, resulting in a holistic understanding of the phenomenon of knowledge management. Therefore, in order to achieve a holistic KM model, it is necessary to know the dimensions (parts) that constitute the whole of this management method. By knowing all the parts, holistic KM can be contemplated in a model that is comprehensive, [9] unifying [10] and, therefore, holistic. [7, 8]

These dimensions were researched through the Critical Success Factors aspect. [27-43] Critical success factors are areas that ensure successful organizational performance. [27] Within the scope of KM, these are areas (dimensions) that must be addressed in order to achieve successful performance in the field of knowledge. Thus, these factors constitute the critical parts (dimensions) for the success of holistic KM. The 13 dimensions of holistic KM come from the consolidation of the critical success factors of knowledge management. [28, 43] Therefore, as they are critical dimensions for the success of KM, they must be considered and, given holism, they must be considered together in a KM model. These dimensions are (table 1):

Chart 1 Dimensions of holistic knowledge management

Dimension	Description
Strategy	The strategy can be characterized as the determination of objectives [(44)] and plans to achieve them, [(45)] to be carried out through actions, [(46, 47)] aiming to lead it towards the desired goal, having to consider the environment in the where the company is located. [(48-50)] The KM strategy must be aligned with the organizational strategy [(28, 30, 31, 34, 39)] and clarified [(32-36)] to the

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Dimension	Description
	organization's members.
Leadership and support from senior management	Support from senior management is essential for GC. [36] Leaders and senior management must support KM through investments, [35] examples and words, [35-42] contributing to a culture conducive to knowledge sharing [31] and a knowledge-creating environment and learning. [34]
Knowledge Management Team	It consists of a team of professionals focused on promoting KM in the organization. [29] consists of specific roles and responsibilities [34,37,41] such as establishing knowledge processes, [32] coordinating, managing [35] and defining the direction to be achieved by KM. [33]
Resources (financial, human, material and time)	KM, as in any organizational initiative, demands resources. [31, 34, 36, 40] Financial resources for specific technological systems, [31,36] KM team, [33] location for installation, [39,43] time to plan and execute activities. [31]
Processes and activities	They express what can be done with knowledge. [33,36] Some, such as identification, creation, sharing and storage, express the intent of GC aimed at such handling [33] and are adopted in several GC models, which are commonly non-linear. [37, 39]
Human resource Management	By working together with people, who possess knowledge, human resources management processes are vital for KM. [37, 39] Recruitment must capture people through knowledge gaps. [33, 34] Development considers the training of individuals,

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Dimension	Description
	through skills and competencies, for later application in the company and achieving the desired goals. [33, 34] Retention consists of ways of keeping the individual in the organization, with career policies being an action to be considered. [33]
Training and education	Employees must be educated on the KM vocabulary, trained to use knowledge tools and made aware of the relevance of their actions to KM. [35] Furthermore, they must be educated regarding the relevance of knowledge sharing [37] and collaborative and team behavior. [28, 33]
Motivation	They are means to encourage individuals to work with KM, [33, 39] resulting in creating forms of rewards for employees to get involved and practice KM, [31, 32] It can include financial returns, rewards, [37] recognition [34, 40] and valuation of the individual. [42]
Team work	Teamwork tends towards cooperation between people and increasing the potential of KM processes and activities, [9] being a fertile means for creating and sharing knowledge. [38]
Culture	It consists of parameters of values, norms and social customs that shape the way people behave. [31] A culture conducive to KM must encourage the sharing of knowledge among other aspects that govern an atmosphere focused on knowledge. [33]
Information Technology	Technology is a relevant facilitator for GC [33] for the manipulation (capture, storage and dissemination) of

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Dimension	Description
	knowledge. [1] However, it should be considered as a means and not as a definitive solution. [34, 36, 37]
Measurement	It results in creating mechanisms that allow KM performance to be measured, [7, 3] through measurable goals for later measurement. [32] It can make use of financial and non-financial measurements [35] due to the intangibility of knowledge and organizational diagnoses. [30]
Pilot project	They must be considered so that KM initiatives are implemented on a smaller scale so that learning from this experience can be learned. [28, 30] This allows for an increase in the potential for success in attacks on an organizational scale. [28, 30]

Since these factors are critical to the success of knowledge management, [28, 43] in view of the holistic paradigm, they must be addressed together in a KM model. [7] Thus, the connections between these dimensions are maintained in a way that allows the complete achievement of knowledge management.

***The Rojas , Bermúdez* and *Morales* model of knowledge management**

Rojas , Bermúdez and *Morales* [11] address KM in the context of health tourism. Health tourism, also called medical tourism, is a process in which people travel from their countries of origin to obtain medical treatments abroad, this practice being common in countries such as Thailand, India, Mexico and Brazil, but still discreet in Colombia . Such treatments may include aesthetic, preventive, curative medicine and physical, mental, emotional, spiritual and social well-being. [11] From an economic aspect, health tourism is an area that moves the fields

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of medicine (clinics, hospitals, health centers), technology (educational centers and research centers) and tourism (air and local transport, food, financial services and hosting) and which has significant growth potential. This potential is expressed by *Rojas* , *Bermúdez* and *Morales* [11] when they show that from 2002 to 2007 Colombia showed 15% annual growth in this area and, in 2008, it obtained revenue of 126 million dollars, with a projected 6 billion dollars of combined revenue in these fields for 2032. [11] Considering this context, the researchers believe that the absence of a KM model "limits the transfer of knowledge and experiences between people involved in the development of health tourism". [11] In order to overcome this limitation, the study proposes a model of "knowledge management ...] based on medical tourism, from the perspective of Information and Communication Technology ...] to achieve competitive tourism throughout the world and to improve decision-making in the healthcare] industry." [11] This model is oriented to the current reality in Colombia.

The model by *Rojas* , *Bermúdez* and *Morales* [11] is composed of five pillars that represent the dimensions of the *framework* , namely: 1) culture, 2) structure, 3) strategy, 4) KM and 5) technology (Fig. 1).

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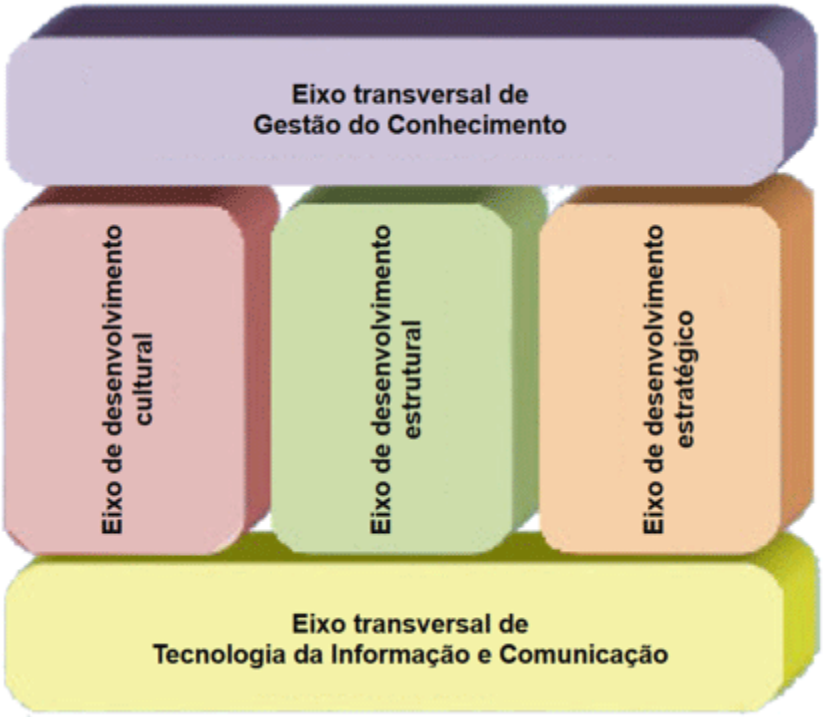

Fig. 1 Knowledge management model in health tourism.

The GC (4) and technology (5) pillars are transversal, as according to *Rojas* , *Bermúdez* and *Morales* [11] they support the three other pillars. The technological axis (5) supports all pillars of the model by providing tools that "capture, record, convert, store, present, manage and transmit all types of information and knowledge, which, ultimately, become means of technical management for health tourism". [11]

This adheres to the "Information Technology" dimension of holistic KM, as technology is an effective facilitator of manipulation (capture, storage and dissemination) of knowledge [31] and its relevance to KM is indisputable. [33] It is worth noting that the study by Wong and Aspinwall [34] found that doctors do not perceive technology as a relevant factor for KM, since they adopt conventional forms of sharing medical knowledge. The perception of those interviewed in the

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study by *Wong* and *Aspinwall* [34] demarcates and emphasizes the role of technology as a mediator in KM, which adheres to the vision of *Rojas* , *Bermúdez* and *Morales* [11] by positioning this pillar as a transversal axis of support for KM.

The pillar relating to culture (1) "aims to create an image that strengthens the project for all parties through identification and commitment to previously defined cultural elements". [11] This pillar adheres to the "Culture" dimension of holistic KM. Culture consists of parameters of values, norms and social customs that shape the way people behave. [31] Therefore, a culture conducive to KM must encourage the sharing of knowledge among other aspects that govern an atmosphere focused on knowledge. [33]

The structural pillar (2) consists of establishing rules and conditions for the development of activities inherent to the tourism sector and is guided by the objective of "creating a series of regulations, both legal and constituent, that become a type of guidance, defining the position and procedures to be followed ...] involves the establishment of clear rules and general conditions" [11] for the activities to be developed in health tourism.

The strategic pillar (3) aims to comply with the health tourism service system, through tactical movements to achieve this objective. [11] Although this pillar is briefly described, it can be inferred that it adheres to the "Strategy" dimension of holistic KM. The strategy can be characterized as the determination of objectives [44] and plans to achieve them, [45] to be carried out through actions, [46, 47] aiming to guide it towards the desired goal, taking into account the environment in which the company is located. [48 - 50]

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The transversal pillar of KM (4) aims to strengthen health tourism through technological means, such as the creation of a KM portal, directly adhering to the "Information Technology" dimension of holistic KM. This portal tends to promote the strengthening of the health tourism *cluster* , allowing all participants in the system to communicate on a single platform, being able to assume the following functions: informative portal, suggested as a tool with advertising purposes to disseminate information regarding the Colombia's tourism and health services; interactive portal, in which users (customers) can actively participate in the program through forums, chats and virtual communities; transactional portal, as a way to register users and allow financial exchange. [11]

In addition to the technological platform of portals, it is suggested by *Rojas* , *Bermúdez* and *Morales* [11] the creation of a customer service center to provide information and technical support to users. Another suggestion is the creation of a supply chain, aimed at health service institutions, as a means of communication, negotiation and acquisition between these parties for the "supply of medicines, surgical and medical material, as well as the supply of equipment and hospital services. [11] A virtual learning system is a recommendation for individuals to learn and be trained in the activities performed by health services in the aspects of "quality, regulatory compliance, customer service, second language acquisition, accreditations and certifications, use of technological tools and creation of innovation and research processes". [11]

The virtual learning system relates to the "Human resources management" dimension of holistic KM, from the perspective of personal development. Development considers the training of individuals, through skills and

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competencies, for later application in the company and achieving the desired objectives. [33, 43] In continuation, virtual medical records are suggested as a technological means that allows all medical institutions to participate in the health tourism program through an *extranet* . The idea is to provide patient history in order to support the services provided. Finally, a health tourism agenda is another technological resource that tends to support the user from leaving their country of origin to receiving clinical care and returning to their homeland. Both adhere to the "Information Technology" dimension of holistic KM.

RESULTS

The model by *Rojas* , *Bermúdez* and *Morales* [11] focuses on technology and demonstrates how this resource tends to be beneficial for knowledge management in health in several aspects. This model presents the following dimensions of holistic KM (table 2):

Chart 2 Adherence of the *Rojas* , *Bermúdez* and Morales model to holistic knowledge management

Dimension	**Presence**	**Considerations**
Strategy	Yes	Present as a pillar of the model and aims to comply with the health tourism service system, through tactical movements to achieve this aim. (11)
Leadership and support from senior management	No	Not specified in the model.
Knowledge	No	Not specified in the model.

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Dimension	Presence	Considerations
Management Team		
Resources (financial, human, material and time)	No	Not specified in the model.
Processes and activities	No	Not specified, as the model focuses on technology for health tourism and does not present KM processes in its schematic structure.
Human resource Management	Yes	The virtual learning system relates to this dimension from the perspective of personal development, as it considers the training of individuals, through skills and competencies, for later application in the company and achieving the desired goals. (33.43)
Training and education	No	Not specified in the model.
Motivation	No	Not specified in the model.
Team work	No	Not specified in the model.
Culture	Yes	Present as a pillar of the model that "aims to create an image that strengthens the project for all parties through identification and commitment to previously defined cultural elements". (11)
Information	Yes	Present as a transversal pillar of the model that seeks

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Dimension	Presence	Considerations
Technology		to strengthen health tourism through technological means, such as the creation of a KM portal, *extranet* and a health tourism agenda.
Measurement	No	Not specified in the model.
Pilot project	No	Not specified in the model.

Considering that all dimensions of holistic KM are critical to its success, [28-43] the model by *Rojas* , *Bermúdez* and *Morales* [11] demands adaptation to dimensions not covered. The dimension "Leadership and support from senior management" plays an essential role,[36] as KM requires investments[35] to be put into practice. The investments, related to the "Resources (financial, human, material and time)" dimension, are equally necessary for the construction of the *extranet* , tourism agenda and all other technological resources presented in the model. Therefore, the "Training and education" dimension must be considered, as individuals must be educated regarding the KM word,[29] trained to use technological knowledge tools - a central point of the *Rojas* , *Bermúdez* and *Morales* [11] model - and made aware regarding the relevance of their actions towards GC. [35] Furthermore, they must be educated about the importance of sharing knowledge[37] and collaborative and team behavior,[28, 33] related to the "Teamwork" dimension.

However, people must be motivated to apply their knowledge. Virtual medical records are suggested by *Rojas* , *Bermúdez* and *Morales* [11] for institutions to participate in the health tourism program as well as the tourism agenda. Therefore, in order to share knowledge, the "Motivation" dimension must be considered to

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create forms of rewards for employees to get involved and practice KM, [31, 32] such as financial returns, rewards, [37] recognition [34, 40] and valuation of the individual. [42]

The scope of the model, as well as its technological inclination, also requires a "Knowledge Management Team" (dimension), made up of a team of professionals focused on promoting KM, [29] with specific roles and responsibilities [34],[37],[41] how to establish knowledge processes, [32] coordinate, manage [35] and define the direction to be achieved by KM. [33]

Therefore, the "Processes and activities" (dimension), which express what can be done with knowledge, [33, 36] must also be considered so that the KM team can coordinate and manage this initiative and, therefore, assess and provide "Measurement" (dimension) of the results and benefits arising from this comprehensive form of management presented to Colombia. Continuing, given that the model is aimed at medical tourism in Colombia, it intrinsically has a broad scope, which highlights the need to contemplate "Pilot Projects" (dimension) so that KM initiatives can be implemented on a smaller scale, aiming learning from experience. [28, 30] This would allow the potential for success in larger scale attacks to be increased, [28, 30] that is, throughout the Colombian country.

The intricate relationship of dimensions not present in the model demonstrates how critical they are to the success of KM. Therefore, not considering these dimensions tends to lead to its non-practical application, which will require significant investments, people dedicated to its promotion, motivational aspects, measurement of the benefits obtained, among other imperative dimensions for the success of holistic knowledge management.

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Journal of Qualitative Research in Business Law, Eco-Fin, Accounting, and Statistics
ISSN : 1533-1520

Through the analysis promoted on the model by *Rojas* , *Bermúdez* and *Morales* , [11] the factors considered above are displayed in Figure 2 , which expresses the adherence of the aforementioned model to the dimensions of holistic KM concerning this research. The presence of a dimension places it at scale 1 (outer end) of the figure and its absence places it at scale 0 (center).

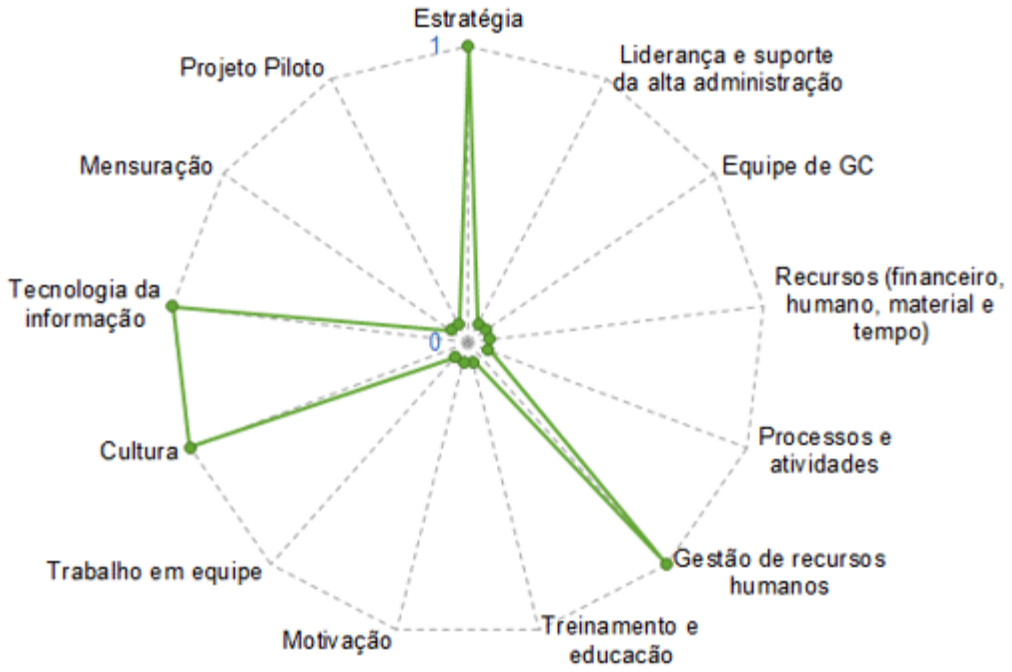

Fig. 2 Adhesion of the *Rojas* , *Bermúdez* and *Morales* [11] model to the dimensions of holistic knowledge management.

Thus, the model by *Rojas* , *Bermúdez* and *Morales* [11] includes the dimensions "Strategy", "Human resources management", "Culture" and "Information technology", leading to a percentage of 30.8% (4 of the total of 13 dimensions) of adherence to what is considered holistic KM, according to the characterization presented in this research.

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Journal of Qualitative Research in Business Law, Eco-Fin, Accounting, and Statistics
ISSN : 1533-1520

CONCLUSIONS

This research was conducted with the intention of analyzing the adherence of the *Rojas* , *Bermúdez* and *Morales* [11] model to holistic KM. As a result, the model by *Rojas* , *Bermúdez* and *Morales* [11] adheres to holistic KM by 30.8 percentage points, that is, it includes 4 of the 13 dimensions. This allows us to infer that KM, specifically in the health area, still demands a model that is developed in light of the holistic paradigm in order to encompass all critical dimensions for the success of knowledge management.

The dimensions of holistic KM not considered in the model reveal how critical they are for the practical application of KM. Therefore, it is suggested that the model be expanded, considering the dimensions highlighted in this research and their relationships. By expanding the model, it is suggested that it be analyzed again, considering the designs proposed by this research. The analysis of other models proposed for health is also a suggestion for future research, as it will allow us to reach a conclusive result regarding the adoption of holistic KM in this area of research, as well as providing support to other researchers for the development of models with this scope.

Authors' contributions

The first author outlined GC's adjustment to the holistic paradigm. All authors analyzed the adherence of the *Rojas* , *Bermúdez* and *Morales* [11] model to the dimensions of holistic KM, wrote and revised the manuscript.

THANKS

To FAPEMIG, CAPES, CNPq and FUMEC for their financial support.

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