Articles

Information source observatories: Concepts and theoretical review

Observatorios fuente de información: Conceptos y revisión teórica

Martínez Albarracín Carlos Eduardo*
Bolívar Salgado William Ernesto*
Gutiérrez Salgado Nohelia Marcela*

ABSTRACT

Nowadays, information is a fundamental tool to improve competitiveness and success in organizations. Observatories through technological surveillance and competitive intelligence are a source of knowledge management. In Colombia there is a multiplicity of topics in the observatories as a valuable support for decision makers of companies and institutions of public or private character and mixed economy. What criteria do the observatories implement as sources of information in the search for reliable data to their stakeholders, taking into account that these particularize the variables in the creation of new knowledge, helping the actors (public, academic and business) to make the best decisions in the development of the regions in particular in the area of influence of UNIMINUTO Zipaquirá regional center? This paper identifies concepts and makes a theoretical review of observatories in order to argue the feasibility of creating a competitive intelligence observatory in UNIMINUTO Zipaquirá regional center.

Keywords: Competitive intelligence, observatory, information, technology watch, knowledge management.

* Master in Organizational Management, Corporación Universitaria Minuto de Dios, Zipaquirá/Cundinamarca /Colombia carlos.martinez-a@uniminuto.edu.co, https://orcid.org/0000-0002-0867-8209
* Master's Degree in Education, Corporación Universitaria Minuto de Dios, Zipaquirá/Cundinamarca /Colombia, wbolivarsal@uniminuto.edu.co , https://orcid.org/0000-0003-4839-83566
* Business Administrator, Corporación Universitaria Minuto de Dios, Zipaquirá/Cundinamarca /Colombia, ngutierre18l@uniminuto.edu.co, https://orcid.org/0000-0002-8642-2524

JOURNAL OF BUSINESS and entrepreneurial studies
ISSN: 2576-0971

https://doi.org/10.37956/jbes.v5i3.178

Journal of Business and entrepreneurial
July - September Vol. 5 - 3 - 2021
http://journalbusinesses.com/index.php/revista
e-ISSN: 2576-0971
journalbusinessentrepreneurial@gmail.com
Receipt: 22 March 2020
Approval: 12 Febrary, 2021
Page 15-26

Journal of Business and entrepreneurial studies
ISSN: 2576-0971
http://journalbusinesses.com/index.php/revista

RESUMEN
En la actualidad la información es una herramienta fundamental para mejorar la competitividad y el éxito en las organizaciones. Los observatorios por medio de la vigilancia tecnológica y la inteligencia competitiva son una fuente de gestión del conocimiento. En Colombia se presentan multiplicidad de temáticas en los observatorios como un valioso apoyo para los tomadores de decisión de las empresas e instituciones de carácter público o privado y de economía mixta. ¿Qué criterios implementan los observatorios como fuentes de información en la búsqueda de datos confiables a sus Stakeholders, teniendo como antecedente que estos particularizan las variables en la creación de nuevos conocimientos, coadyuvando a los actores (público, académico y empresarial) a tomar las mejores decisiones en el desarrollo de las regiones en particular en la zona de influencia de UNIMINUTO centro regional Zipaquirá? Esta ponencia identifica conceptos y hace una revisión teórica de observatorios con el ánimo de argumentar la viabilidad en la creación de un observatorio de inteligencia competitiva en UNIMINUTO centro regional Zipaquirá.
Palabras clave: Inteligencia competitiva, observatorio, información, vigilancia tecnológica, gestión del conocimiento

INTRODUCTION

Nowadays, organizations have a dynamic of exponential growth of permanent and rapid change, leading to the creation of organizations that compile and require open data or research of their interest, or organizations that process them, as is the case of observatories. Having the clarity that these have the function of capturing, processing and disseminating information through a knowledge management system as expressed by Medina-Nogueira, Nogueira-Rivera, Medina-León, Medina-Nogueira, & El Assafiri-Ojeda (2018), where this statement is the axis of development of competitiveness and success organizations, where information is a fundamental tool for decision makers. For the authors Villarroel G, Comai, Karmelic-Pavlov, Fernández O, & Arriagada V (2015) state that the Design and implementation of an observatory with a unit of technological surveillance and competitive intelligence in this society, which provides data and information for use, which provides a better understanding of the environment.

However, the lack of knowledge of the different organizations and individuals of the activities and products generated by the observatories does not allow them to make assertive and advanced decisions within the framework of their environment, losing the possibility of using data and reliable transforming information by making use of new knowledge. The observatories should generate spaces that allow them to dynamize their function as a contribution to their interest groups and to the knowledge society, in general to whoever is interested in the topics of their lines of research in the use of the data and reports generated. Giving academic support in the creation of a competitive intelligence observatory in UNIMINUTO Zipaquirá Regional Center, in addition to the

above, 42 observatories located in Colombia are recognized and identified, particularly in Bogotá, central savannah in Cundinamarca. An own methodological proposal is formulated, which facilitates the construction of knowledge in their daily life, pertinent to the characteristics of the interests of this new observatory.

MATERIALS AND METHODS

To achieve our general study objective and answer our research question, the study team was based on three questions: What are the sources and quality criteria of information required by observatories to generate new useful information for their stakeholders; What is an information system for an observatory; How do senior management of organizations incorporate the information provided by observatories into their decision making process; and How do they incorporate the information provided by observatories into their decision making process? It began with the search and review of documents on observatory concepts, it was carried out between June 2019 and April 2020, taking as an example the initiative of Moreno & Mantilla (2016), who used different databases such as Redalyc. Scielo, Dialnet, Scopus, Science direct, proquest, Ebesco. Using as keywords observatory, information sources, knowledge management. A study of this type makes it possible to trace different contexts in which the concept of observatory is defined. Ferreira, (2002) cited in the study by Lilian, Ferneda, & Hercules Antonio, (2018). In sum, to the above, the methodology was applied under the concept "research that studies research" employed by Slongo (2004). where the academic production and its different approaches are systematized and analyzed.

The articles selected in this study were characterized by identifying the author's credibility or experience in the subject and the methodological quality in the construction of the information; in parallel, portals of 40 observatories located in Colombia were searched on the web, particularly in the Central Savannah in Cundinamarca and Bogotá DC, allowing a characterization of the observatories as sources of information. In this sense, García Orozco (2010) citing Adam (1973) uses the word "information" from classical Latin. The term information is a substantivation of the verb informare, which, being transitive, finds its greatest generality in the expression aliquid informare. The latter literally means to give form to an object and points to the development of a process, i.e., to management; therefore, in its very genesis there is a relationship between the two terms.

In their study Eneida & León, (2014), point out information as a strategic resource, which is inherent to any organization. The use of it is linked to the specificities required by each institution and society in general to face the dynamics of the economy, the evolution of technologies and the development of social life (Contardi 2005).

Similarly, García Orozco (2010) defines the concept of information management, citing Ponjuan (2004), as the process by which basic resources (economic, physical, human or material) are obtained, deployed or used to manage information within and for the society it serves. It has as a basic element the management of the life cycle of this resource and is developed in any organization.

A matrix was designed where the different observatory concepts are presented as an object of theoretical analysis. It shows a scarce use of repositories and observatories as tools to manage knowledge. In their study conclude Medina-Nogueira, Nogueira-Rivera, Medina-León, Medina-Nogueira, & El Assafiri-Ojeda, (2018) on the effective management of knowledge through observatories.

From this information management model and the proposed methodology presented by Guerrero & Erichsen. (2017) to identify the factors that influence social observatories in Brazil, from the perspective of information management. which we take as a reference to design a new proposal of information management system where search tools are integrated, analysis, and dissemination of information, and facilitates decision making based on useful, relevant and reliable information. It requires as input variables: the needs and demands of the target public, the priorities of the organization, the unstructured information, and the computer supports for its management.

Finally, the analysis of the concept matrix and the proposed information management system model showed how observatories are sources of data processing, manage knowledge, and provide tools for senior management decision-makers of their stakeholders.

RESULTS

The definition of observatory according to the study by Pírela, Almarza, & Pulido (2018) is related as a set of actions organized with the purpose of interpreting realities, objects, actors, reconstructing situations, variables, indicators in order to process and generate information and data, which fertilize and support decision making.

It is worth highlighting the contributions of Angulo (2009) who argues that observatories are a structured and organized system in permanent search of quality information, validating its origin, making analysis of the environment, monitoring it, building a new one, motivating its use in the design of strategies on the other hand Soares, Ferneda, & Do Prado(2018).cite Silva (2014) who complements by stating that observatories or knowledge centers must go beyond being databases or repositories, they must assume a proactive and multifunctional position in articulation with knowledge. (Tellez & Rodríguez, 2014) . In this regard, it is important to define that an observatory is an organization created by a collective in order to follow the evolution of a phenomenon, usually of an economic or social nature, from a favorable position. (Sarmiento, Delgado, & Infante, 2019. P. 33). Observatories according to De la Vega, (2007) are a tool to perform technological surveillance, it identifies changes in the domain of data transformed into processed information as a result of the management and objectives of what is observed. As a result of this transformation and understanding the phenomena and identifying trends of the variables, anticipating future behavior and generating reliable products to the receivers. In short, the observatories group knowledge or collective learning, compiling data and experiences, associated with the objectives in the construction of knowledge Correa & Castellanos (2014), generating added value by empowering the human being in the organizations being this a collaborative and

cooperative strategy that when put into practice increases the volume and quality of information for observatories and stakeholders in the information. (Angulo, 2009)

With all and the above, it is evident for knowledge management the application of a conceptual model, which integrates tools for search, analysis and dissemination of information that facilitate decision making Moreno-Espino, Carrasco-Bustamante, Rosete-Suárez, & Delgado-Dapena (2013) , based on Deming's continuous improvement cycle to create products and services in which value is added to the information. (Medina-Nogueira, Nogueira-Rivera, Medina-León, Medina-Nogueira, & El Assafiri-Ojeda, 2018)

According to Moreno, Rosete, Carrasco, Hadfeg-Fernández, & Delgado-Dapena, (2014), conceptualize on the tools of knowledge management because they process, measure, evaluate, project, associate technology in search of facilitating the work through information on specific topics generating reports as stated, De la Vega (2007), in his research Typology of Science and Technology Observatories. The cases of Latin America, in which findings, summaries, alerts are disclosed in order to facilitate the understanding of these topics by the interested parties to make decisions.

Knowledge management according to Jiménez et al. (2019) states that it is at a level that does not allow identification and socialization of tacit knowledge, Godoy Espinoza et al. (2017 p. 671) considers it as a systematic process that enables the conversion of knowledge of individuals and teams into collective knowledge in a way that allows obtaining sustainable competitive advantages. However, for Herrera, (2019 p.392). there cannot be a knowledge society in which there is a divorce between the university, society, private enterprise and the public sector, this interaction generates according to Gómez-Bayona et al, (2020 p. 15). models of intellectual capital that stimulate companies to improve and develop new value creation processes, Medina, et al, (2020 p.18) affirm that knowledge has become the most important intangible asset in the development of organizations.

Regardless of its nature, for Pachon, (2014) every observatory seeks two basic purposes, to investigate and socialize, in the research part of a topic or problem of interest, reviews information, makes a description and characterizes, makes processes of comparison and contrast, infers, making information transfer that through the different open media in search of socializing the findings so that the user infers appropriating this and generates a series of debates permeating the construction of knowledge networks (Correa & Castellanos, 2014).

In addition, this concept of networks has mutated and depends on the topic and the phenomenon to be observed Zarate, (2017), in some cases to virtual observatories on the web, having as background that develop the same objectives supported by the different tools facilitating the organization , classification and processing of information in virtual learning environments, building research networks on particular topics, stimulating users to share arguments that consolidate or not the products socialized on specific topics . (Peralta & Vargas, 2015, p. 32).

It should be remembered that a technological observatory captures external information with the purpose of transforming it into specific knowledge that leads its users to make decisions. For Medina-Nogueira, Nogueira-Rivera, Medina-León, Medina-Nogueira, & El Assafiri-Ojeda (2018) state that this knowledge is supported by a technological support in a virtual platform allowing users to share research results or technological watch of interest (Delgado, et al, 2011)a promoting the application of diagnostic tools in technological watch for organizations and their projection. (Delgado, M & Arrebato, 2011).

Likewise, organizations such as the network of University Observatories, conceive them as informative universes that analyze the realities from the strategy in spaces of reflection, visualizing their management through articles, essays, pepear, accompanied by the conceptual theoretical background supported by their bibliographical references socialized in the different media in specialized areas of the concert.

As evidenced the observatories are points of convergence of interests (vocation of the observatory and interest groups) sharing motivations and perhaps objectives often conform as a narrowed and specialized version of academic communities and virtual forums (Rocha-Jiménez, Rueda-Lizarazo, & Chaparro-Guevara, 2016). . Internet observatories are also a space for the dissemination of a certain way of analyzing the topic that motivates it; that is, they constitute an editorial window of the group or organization that gives it life, with respect to the topic they decide to "observe" (Prieto, 2003, sp).

It should be noted that observatories are open research systems based on objectives, interests, time, methodology and resources, in order to build primary information as expressed by Pirela, Almarza, & Pulido, (2018) which processing it is a reliable source by testing it before the community receiving feedback as a result of the analysis and interpretation of the same motivating reflection, criticism generating other studies from their results. (Correa & Castellanos, 2014)

It can be seen that 21% of the observatories are oriented to the subject of politics and democracy. Seventeen percent correspond to the social sector and 12% to the business sector. It is also found that the observatories with the themes of communications and astronomy have the lowest percentages (2% and 5%, respectively). It can be deduced that the topics of economic development, regional and business development in the department of Cundinamarca are not widely dealt with in the observatories under study.

The following is an analysis of the classification of the thematic areas of the 42 observatories identified in the geographic environment of Bogota and central Sabana.

Education: these observatories seek to promote and interact with the actors of knowledge and its transfer, in accordance with the academic context and the development of the substantive functions, research, teaching and extension in their work. The products generated are disseminated through the Academic Magazine, newsletters, and job boards for students, teachers and graduates.

Social: These observatories promote the development of social projects aimed at the most vulnerable communities in order to transform and improve their quality of life,

helping to create and strengthen public policies in search of the welfare of the general population with impact projects.
The products generated in this thematic area include: quality of life reports, trend reports, territorial characterization, technological surveillance, databases, infographics, georeferenced maps, presentations, newsletters, systematization of experiences and structuring of social technologies.
Politics and Democracy: These observatories seek to follow up and monitor regulations and jurisprudence in the different state bodies in order to reduce corruption and increase the effectiveness of government actions in their decisions, these are located at 100%. In the Special District of Bogota. The products generated in this thematic area are: Legislative and Judicial Follow-up Report, analysis of reports generated by the different entities, Newsletters, quarterly magazines.
Health: The objective of these health observatories is to formulate, follow up and monitor the different factors that affect public health, the environment and their impact on the communities, supporting the creation of public policies in the Ministry of Health and Social Protection, in particular the products generated in this thematic area are bulletins, reports, documents, analysis and synthesis on topics related to the management of drugs, inclusion, the disabled, orphan diseases, among others.
Technology: These observatories characterize and monitor the e-commerce ecosystem in Colombia. They also analyze the phenomena, objects, events, relationships, dynamics and effects linked to the use and application of information technologies in contemporary reality. The products generated in this thematic area are documents oriented to the use of media and technological mediations in articles of indexed journals.
Business: The business observatories are characterized by compiling useful, timely and accurate information on the impacts of the country's economic policies and their impact on companies, monitoring trade agreements, analyzing pros and cons in the different sectors and sharing public policy guidelines. The products generated in this thematic area include employability databases, market studies, articles, newsletters, reports and events.
Labor: In general, environmental observatories seek to rigorously monitor biotic systems and their effects of human interaction, to learn about and participate in cases of socio-environmental conflicts, corroborating compliance with established norms and the proposal of government policies in favor of the quality of life of fauna and flora and the protection of nature in general. The products generated in this thematic area are documentaries, reports, databases, statistics, communication between interest groups and public and private companies.
Communication: The Media observatory is an institutional project whose purpose is to contribute to the identification, analysis and discussion of problems inherent to communication (in its broadcasting, circulation and reception processes) and, above all, the way in which the informative function is fulfilled in Colombia's mass media. The products generated in this thematic area are media analysis, audience formats and bulletins.

Astronomical: The astronomical observatories seek social appropriation of science and technology through the creation of training and research strategies in space sciences. The products generated in this thematic area are training courses in astronomy and training and disciplinary research seedbeds.
The Centro Progresa EPE is a unit of academic management, administrative management of UNIMINUTO that contributes to the social projection. The strategies of the Centro Progresa EPE are derived from the Educational Project of Uniminuto and the Social Projection Policy. its purpose is to provide extension services and open opportunities for the consolidation of the life project of the Students and Graduates, through more education, more opportunities in entrepreneurship, employability and professional practice as the experience of the first job.
In order to carry out this task, the Zipaquirá Regional Center has been negotiating a series of inter-institutional agreements with businessmen in the area with a view to incorporating the needs of the companies and the training processes taught in the classrooms.
The most important subsectors as strategic allies are the Services Sector with a share of 20.3%, the Education Sector with a share of 19.2%, the Solidarity Economy Sector with 16.9%, and the Financial, Health and Transportation Sectors with the lowest share. In the table above indicates the percentage level of companies in the service sector identifying that it is equivalent to 71% and the manufacturing sector 20% and the primary sector 9%, identifying that the tertiary service sector is may be the stakeholders or Stakeholders.

DISCUSSION

After reviewing the theoretical concepts, it can be affirmed that observatories are a source of information transformation that gathers contextual phenomena and generates reports for decision makers. From the analysis of the 42 observatories in Bogota and central savannah, no observatories oriented to the productivity and competitiveness of small and medium-sized entrepreneurs in terms of competitive intelligence were identified. It is proposed the creation of an observatory that meets the interests of small and medium-sized entrepreneurs and contributes to their permanence over time.
There is no real organizational culture in the companies of the region towards competitive intelligence and innovation by the managers of the organizations, which implies that many of them are not aware of the existence of observatories or entities that provide key information inputs for decision making. By their nature, observatories promote multidisciplinary bibliometrics in their research, making use of statistical, sociological and informatics tools, managing the fulfillment of research objectives using databases in open access documents.

CONCLUSIONS

The authors define the concept of observatories as open research systems that capture information, integrate search tools, using methodologies and technological resources, organizing, classifying and processing data in convergence with the interests of stakeholders (internal and external to the organizations), promoting collective learning, supported by technological surveillance and competitive intelligence to transfer information, making use of knowledge management tools that lead their users to make better decisions.

REFERENCES

Angulo, N. (2009). ¿que son los observatorios y cuales son sus funciones? *Innovación Educativa*, 5-17. Recuperado el 19 de abril de 2020, de http://www.redalyc.org/articulo.oa?id=17941489 5002

Contardi, S. (2005). Reseña de "Gestión de información: dimensiones e implementación para el éxito. *Información, cultura y sociedad: revista del Instituto de Investigaciones*, 100-102. Recuperado de https://www.redalyc.org/articulo.oa?id=263019687007

Correa, G., & Castellanos, I. C. (2014). Observatorios académicos:hacia una cultura en el uso de la información. *Revista de la Universidad de la Salle, 64*, 131-140. Recuperado el 15 de febero de 2020, de https://ciencia.lasalle.edu.co/ruls

De la Vega, I. (2007). Tipologia de los observatorios de ciencia y tecnologia.m los casos de América latina y europa. *Revista española documentos cientificos*, 545-552. doi:https://dx.doi.org/10.3989/redc.2007.v30.i4

De la Vega, I. (2007). Tipología de Observatorios de Ciencia y Tecnología. Los casos de AméricaLatina. *Revista Española De Documentación Científica, 30*(4), 545-552. Recuperado el 11 de mayo de 2020, de https://www.redalyc.org/pdf/3604/360433595006.pdf

Delgado, M., Infante, M., Abreu, Y., Infante, O., Díaz, J., & Martínez, J. (2011). Vigilancia Tecnológica en una Universidad de ciencias técnicas. *Ingenieria Industrial, 32*(1), 69-75. Recuperado de https://www.redalyc.org/pdf/3604/360433575010.pdf

Delgado. M, & Arrebato, L. (2011). Diagnóstico integrado de la vigilancia tecnológica en organizaciones. *Ingenieria Industrial, 32*(2), 151-156. Recuperado el 19 de abril de 2020, de https://www.redalyc.org/pdf/3604/360433576009.pdf

Eneida, Q., & León, F. (2014). la información y la comunicación en la gestión organizacional. *retos en el contexto universitario, Biblioteca Anales de investigación*, 54-

67. Recuperado el 6 de Febrero de 2020, de https://search-proquest-com.ezproxy.uniminuto.edu/docview/2245716692?accountid=48797

García, J. (2010). *Gestión de la información y el conocimiento. Observatorio para la educación en ambientes virtuales.* Mexico: Universidad de Guadalajara. Recuperado de http://biblioteca.udgvirtual.udg.mx/jspui/handle/123456789/1587

García, M. M., Bermúdez, G., Li, Z., & Parra, F. (2018). Modelo de administración de marcas:un enfoque teórico basado en la teoría general de sistemas. *Esic Market Economics and Business Journal, 49*(1), 93-117. Recuperado el 18 de mayo de 2020, de https://www.researchgate.net/profile/Manuel_Martin11/publication/323898361_Model_for_the_management_of_trade_brands_a_theoretical_approach_based_on_the_General_Systems_Theory/links/5af075d10f7e9ba366415f9d/Model-for-the-management-of-trade-brands-a-theore

Guerrero P, L., & Erichsen.N, M. (2017). Fatores de influência na avaliação dos observatórios sociais do brasil sob a perspectiva da gestão de informação. *informação & sociedade, 27*(3), 31-48. Recuperado de https://search-proquest-com.ezproxy.uniminuto.edu/docview/1983991922?accountid=48797

Herrera, Z. D. (2019). La Gestión del Conocimiento en las Universidades experimentales de Venezuela. *Revista Scientific, 4*(11), 380-395. doi:https://doi.org/10.29394/Scientific.issn.2542-2987.2019.4.11.20.380-395

Jiménez, D.(2019). Gestión del conocimiento organizacional en instituciones de educación superior: un estudio de caso. *Praxis, 15*(2), 153-162. doi:https://doi.org/10.21676/23897856.3309

Medina-González, V., Almansa, A., & Castillo, A. (2020). Gestión del conocimiento en las universidades: Comunicar en entornos digitales. *InMediaciones De La Comunicación, 15*(1), 41-66. doi:https://doi.org/10.18861/ic.2020.15.1.2957

Medina-Nogueira, D., Nogueira-Rivera, D., Medina-León, A., Medina-Nogueira, Y. E., & El Assafiri-Ojeda, Y. (septiembre- diciembre de 2018). Modelo conceptual para la gestión del conocimiento mediante el observatorio. *Gestión del conocimiento*, 283-290. Recuperado de https://www.researchgate.net/publication/331010433_Modelo_conceptual_para_la_gestion_del_conocimiento_mediante_el_observatorio

Moreno, G. E., & Mantilla, J. F. (2016). Una revisión del concepto observatorio social: hacia una comprensión de sus objetivos, alcances, métodos y finalidades. *Psicogente*, 347-359. doi:doi:http://dx.doi.org.ezproxy.uniminuto.edu/10.17081/psico.19.36.1303

Moreno-Espino, M., Carrasco-Bustamante, A., Rosete-Suárez, A., & Delgado-Dapena, M. D. (2013). Apoyo a la toma de decisiones en un Observatorio Tecnológico incorporando proactividad. *Ingeniería Industrial, 34*(3), 293-306. Recuperado el 18 de mayo de 2020, de https://www.redalyc.org/pdf/3604/360433595006.pdf

Pachon, A. (2014). El papel de la investigación en un observatorio de seguridad alimentaria y nutricional. Experiencia en el departamento de Caldas, Colombia. *Revista de la Facultad de Medicina, 62*(1), 89-93. doi:https://doi.org/10.15446/revfacmed.v62n3sup.43981

Peralta, E., & Vargas, P. (20 de 10 de 2015). Creación de un observatorio virtual de responsabilidad social corporativa basado en tres empresas locales en la ciudad de Cuenca. *Trabajo de titulación de licenciado en Ciencias de la comunicación Social en Comunicación organizacional y Relaciones Públicas*. Ecuador. Recuperado de http://dspace.ucuenca.edu.ec>bitstream>Tesis

Pirela, J. E., Almarza, Y. M., & Pulido, N. J. (2018). Propuesta de observatorio sobre formación profesional en Ciencias de la Información para Iberoamérica y El Caribe. *Revista Cubana de Información en Ciencias de la Salud*, 1-15. Recuperado el 20 de abril de 2020

Ponjuan, G. (2004). Gestión e la información: dimensiones e iplementación para el éxito organizacional. *Nuevo paradigma*, 14. Recuperado el 5 de agosto de 2019, de https://s3.amazonaws.com/academia.edu.documents/50166336/SISTEMAS_DE_INFORMACIN_PRINCIPIOS_Y_APLI20161107-26854-awp091.pdf?response-content-disposition=inline%3B%20filename%3DSistemas_De_Informacion_Principios_y_Apl.pdf&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-

Prieto, R. (2003). Observatorios en Internet. *seervicio de observacion en internet*, sp. Recuperado de www.observatoriodigital.net/bol240.htm#observatorio

Rocha-Jiménez, D., Rueda-Lizarazo, H., & Chaparro-Guevara, R. A. (2016). El modelo de acción del Observatorio de Innovación Social en el marco del Parque Científico de

Innovación Social. *Cooperativismo & Desarrollo*, 109. doi:doi: 10.16925/co.v24i109.1509

Sarmiento, Y. R., Delgado, M., & Infante, M. B. (2019). Observatorios: clasificación y concepción en el contexto iberoamericano. *Revista cubana de información en ciencias de la salud, 30*(2), 1-28. Recuperado el 19 de abril de 2020, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2307-21132019000200007

Slongo, I. I. (2004). A produção acadêmica em ensino de biologia: um estudo a partir de teses e dissertações. *tese (doutorado) Universidad Federal de Santa Catarina*. Florianopolis,SC, Brazil. Recuperado de http://repositorio.ufsc.br/xmlui/handle/123456789/88012

Soares, L. C., Ferneda, E., & Do prado, H. A. (2018). Observatórios: um levantamento do estado do conhecimento. *Journal of Information Studies: Research Trends*, 86-110. doi:doi:http://dx.doi.org.ezproxy.uniminuto.edu/10.5016/brajis.v12i3.7958

Tellez, J., & Rodríguez, M. (2014). Observatorio en Emprendimiento: una postura desde la Facultad de Ciencias Administrativas y Contables de la Universidad de La Salle. *Revista Universidad de La Salle, 64*, 111-130. Recuperado el 20 de abril de 2020, de http:// revistas.lasalle.edu.co/index.php/ls/article/ view/3229

Villarroel G, C., Comai, A., Karmelic-Pavlov, V., Fernández O, A., & Arriagada V, C. (2015). Diseño e implementación de una unidad de vigilancia tecnológica e inteligencia competitiva. *Interciencia, 40*(11), 751-757. Recuperado de https://www.redalyc.org/pdf/339/33942541004.pdf

Zárate, E. J. (2017). Los Observatorios y la Coordinación Universitaria de Observatorios. *UVserva*(3), 105-109. Recuperado el 12 de abril de 2020, de uvserva.uv.mx/index.php/Uvserva/article/view/2535