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ORIGINAL

Datamart for the analysis of information in the sales process of the company WC HVAC Engineering

Datamart para el análisis de información en el proceso de ventas de la empresa WC Ingeniería de la Climatización

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ABSTRACT

Introduction: information has become a crucial asset for companies in decision making and performance evaluation. Information technologies, such as Business Intelligence, allow data to be converted into relevant information. The implementation of a Datamart, a specialized database, stands out as a solution to analyze specific data from a business area.
Objective: the main objective is to determine how the implementation of a Datamart affects data analysis in the sales area of the company.
Method: a bibliographic review of various sources was carried out using the PICO keywords. In addition, filters were applied to limit the search to relevant articles published in the last 5 years in Spanish or English. Then, 31 relevant documents that highlighted the implementation of Datamarts in the sales area were evaluated.
Results: predominant Datamart development methods were identified, such as the Kimball and Hefesto methodologies. Likewise, effectiveness was measured through indicators such as processing time, report generation, user satisfaction and availability of information.
Conclusions: in conclusion, a well-implemented Datamart can be a key tool to improve data management and analysis in the sales area of a company.

Keywords: Business Intelligence; Datamart; Analysis of Data; Methodologies; Sales Area.

RESUMEN

Introducción: la información se ha convertido en un activo crucial para las empresas en la toma de decisiones y la evaluación del rendimiento. Las tecnologías de la información, como la Inteligencia de Negocios (*Business Intelligence*), permiten convertir datos en información relevante. La implementación de un Datamart, una base de datos especializada se destaca como una solución para analizar datos específicos de un área empresarial.
Objetivo: el objetivo principal es determinar cómo la implementación de un Datamart afecta el análisis de datos en el área de ventas de la empresa mencionada.
Método: se llevó a cabo una revisión bibliográfica de diversas fuentes utilizando las palabras clave PICO. Además, se aplicaron filtros para limitar la búsqueda a artículos relevantes publicados en los últimos 5 años en español o inglés. Luego, se evaluaron 31 documentos relevantes que destacaron la implementación de Datamarts en el área de ventas.
Resultados: se identificaron métodos predominantes de desarrollo de Datamarts, como las metodologías Kimball y Hefesto. Asimismo, se midió la eficacia a través de indicadores como tiempo de procesamiento, generación de reportes, satisfacción del usuario y disponibilidad de información.

Conclusiones: En conclusión, un Datamart bien implementado puede ser una herramienta clave para mejorar la gestión y análisis de datos en el área de ventas de una empresa.

Palabras clave: Business Intelligence; Datamart; Análisis de Datos; Metodologías; Área de Ventas.

INTRODUCTION

Currently, information represents a valuable asset for most companies around the world, because it allows us not only to understand what is happening in the present, but by having quality information we can measure performance. of the decisions that are made.

For this purpose, information technologies (ICT) provide us with tools for converting data into information and as a complement to these tools, Business Intelligence can be used. On this topic, Haro, Martínez, Nuela, Criollo and Pico mention that Business Intelligence provides support to organizations in choosing strategic decisions, through the generation of dashboards that show a general view of their operations.[1] Furthermore, it can be seen in the research of Viteri and Murillo that business intelligence is a business tool, like any implementation process generates costs for the company, however it is considered a cost benefit due to the results it provides, such as savings. due to erroneous processes, superfluous storage expenses and possible commercial losses due to lack of planning.[2]

One of the solutions that Business Intelligence offers us is the use of a Datamart as a tool for data investigation. In this regard, by Kimball et al.[3] mentions that the Datamart is defined as a specialized database, designed to serve the analytical requirements of a specific area of the company, allowing users to obtain deep and accurate insights into their business area. This characteristic is what provides relevant information about a specific area to organizations.

For this reason, companies choose to implement these advanced and innovative technology solutions with the aim of properly managing and taking advantage of the information accumulated in their data banks, because the decisions made and the success of the business depend on it. However, there are various problems that can affect the quality and accuracy of the information. For example, obsolescence or incompleteness of reports can generate wasted time and wrong decisions, while the lack of organization and structuring of the available information can make it unreliable. Furthermore, delays in data processing can delay decision-making, and inadequate control can prevent knowing exactly the sales made in a specific sector of the company. These are just some of the obstacles that the "WC Engineering of Air Conditioning" corporation located in Santa Anita faces in the task of managing the information obtained from its sales sector.

In this context, it is necessary to have effective tools and strategies that allow information to be managed and used effectively to guarantee the success of projects and the company in general. In this regard, Guzmán tells us that, "if you intend to access information in a pertinent manner, this tool is very useful, since the processes are easier to organize and classify. It is, then, an implementation that generates benefits for each area that uses it and, of course, for the organization in general, because its proper use optimizes each process and is capable of providing optimal results."[4] For this reason, the implementation of a Datamart for data management in the sales process can be a key tool to improve its efficiency and productivity, by making more informed decisions based on accurate data and with a more complete vision of the business.

This research seeks to determine to what extent the implementation of a datamart represents a solution and improvement in the way in which data is analyzed by a specific area of a company. That is, the objective is to evaluate the impact of using a Datamart to analyze the information from the sales area of the company "WC HVAC Engineering".

Consequently, the work will consist of four sections. In the first section, the methodology used to gather the documentation related to the topic being investigated is presented, the PICO questions used in this search are explained, the results obtained with a brief comparison of the similarities between the various sources obtained. In the second section, we have the results, where we delve deeper into the development techniques used to create the Datamart and the ways in which the impact of this solution was measured. In the third, the evaluation of the most notable sources and findings regarding the impact of this type of tools and the best method for their creation is proposed. Finally, there is the conclusions section, which details the conclusions reached with the review of all the research and provides recommendations for future research.

METHODS

During this research, the objective is to analyze the impact of the implementation of a Datamart on the decision-making process of the WC Ingeniería de Climatización corporation. To achieve this, the question was formulated: "What is the impact of the implementation of a Datamart on the analysis of information in the sales area?". From this question, the keywords of each PICO component that will make up the search

equation as detailed below: P ("sales area", "sales process", "sales department", "retail sales"), I ("Data Marts", "Datamart", "Data Warehouse", "Data Analysis", "Data Storage", "Analysis Information", "Business Intelligence") and OR ("Efficiency", "Effectiveness", "Decision Making"), adding the search operator OR and AND for each of them. For this reason, information sources have been identified from various repositories of universities in Peru, in addition to the centralized computer platform that is Alicia, the Scopus bibliographic base in which the equation was applied to information sources. A series of filters were also used to limit or exclude information such as: subject area (Computer Science, Engineering, Decision Sciences, Business, Management and Accounting), language (English or Spanish) and with a publication date of no less than 5 years from the year current, in order to increase the accuracy of the search results and allow the identification of articles relevant to this research topic. In addition, the different investigations carried out will be analyzed, the results derived from the implementation and evaluation of the Datamart will be presented based on other investigations that have a common objective.

Therefore, it is intended to carry out an investigation into the effect that the creation of a Datamart has on the analysis of information regarding the sales area. In other words, the objective is to increase a company's capacity for analysis and decision-making based on data by detecting the common points and differences between the investigations. In order to achieve this general objective, the following specific objectives were established, such as identifying patterns and trends in the data that manage to provide crucial information for decision making, achieving its general efficiency by evaluating the impact of a Datamart in the decision-making process. Likewise, recognize the specific data needs of the different areas and thus be able to implement a Datamart that satisfies those needs, allowing the establishment of a reference framework for the present research.

Next, a critical evaluation of the different approaches that have been taken in previous research is carried out, in order to identify their strengths and restrictions. As a result of the search for sources, a total of 31 documents were obtained that are consistent with the topic of the current research, of which the most notable studies are described.

In the investigation of Dianderas Alcántara et al.[5] the following information was obtained that sought to create a Datamart, through the ETL process, the generation of reports and the integration of data through a source database belonging to the company in study, which was installed in the SQL Server 2017 database engine to be normalized and structured that source database. In comparison to the study prepared by Guadaña Julón et al.[6], whose purpose was to collect reports, with the same Microsoft Power BI tool, in order to obtain data directly from the operational systems for the reason that both works of research are more suitable to be carried out by Ralph Kimball's methodology and that is why both are similar.

While, in the article presented by Guzmán Henostroza et al.[4] the author highlights how a Datamart can provide accurate information efficiently. which is relevant during strategic decision making. In turn, Guzmán Vilela[7] mentions that the technological solution used (Datamart) showed impressive results in increasing sales and there was a high degree of acceptance by managers, since the reports and indicators provided effective support for their decisions within the organization. Similarly, Leva Trujillo et al.[8] considers that Datamart made it possible to generate monthly, quarterly and annual reports on the status of the company in terms of services provided, margins and customer segment. The same occurs in the work of Pereda Medina et al.[9] where it is stated that after the construction of the Datamart, dynamic reports were obtained that improve the interpretation of the information collected from sales, the degree of acceptance. of users and reducing response time. Similarly, in the article by Castillo Chura et al.[10] it was determined that the Datamart reinforced decisions in the sales department, by providing a broader and more reliable vision of the impact of tourism, which facilitated the identification of improvement objectives based on the results of the indicators.

On the other hand, the document by Meneses Mendoza et al.[11] supports the benefits that Datamart provides in the evaluation and forecasting of sales by providing tactical indicators for sales areas. In addition to this, the research developed a datamart to calculate the indicators both in the sales and warehouse area using the Hefesto methodology because a table of facts and dimensions was created with a star schema with the Topi Top database. On the contrary, the thesis developed by Sanchez Leon et al.[12] proposed that the deployment of the Datamart be as a REST service, applying the methodology proposed by Larissa Moss, for the processing of the company's sales data. Orbitum, in this way it was possible to deploy 7 reports to end users in accordance with the requirements of the personnel in this area, reducing the processing time of this data. Likewise, in the work of Paucar Palomino et al.[13] the authors opted for the generation of a new model for the development of their solution based on existing methodologies such as those of Kimball, Inmon and Hefesto, the model presented a total of 7 phases: Business and Process Modeling, Build DataMart , OLTP Systems, ETL, Cubes, and develop Dashboards, thanks to which the support provided to management for sales decisions was streamlined, by reducing the time in creating reports, increasing the numbers of reports generated per day and reducing the time needed to obtain information.

In the case of Cespedes Nuñez et al.[14], Ralph Kimball's methodology was used as a business intelligence

solution for the company Cable Visión Perú, whose problems are based on the delay in reaching a decision in sales management, obtaining results satisfactory. The datamart served as support and improved response times during decision making, since management had access to dynamic reports with relevant information for these decisions. Similarly, the research by Encalada Sarmiento et al.[15] proposes the application of business intelligence with the same approach to streamline decisions by having flexible, organized and reliable information. With this objective, the most significant and relevant data of the studied processes was identified and the personalized datamart model for the Indurama company was built from these. After this, positive results were obtained, since the time used to process data loading and generate reports was shortened by 89 % and 85 % respectively. Furthermore, according to the survey conducted, information accessibility and user acceptance improved significantly by 99 %.

Similarly, Chicaiza Palate et al.[16] highlights that the Kimball-based approach achieved efficient results by exploring the data precisely and obtaining the necessary knowledge for the company thanks to the structure of its phases. In this way, the company obtains a competitive advantage over others by having a visualization of the categories and products with the highest sales, potential customers, provinces and cantons that generated the greatest income, sales area managers will be able to make the right decisions. For their part, Machaca Zapata et al.[17] analyzed the different methodologies and models applicable to the implementation of a datamart. Choosing the method proposed by Ralph Kimball that emphasizes the database architecture for the datamart system because it is versatile and easy to use, in terms of the System Model, the OLAP Model represented 40,5 %, while the Hephaestus Model and the ETL model accounted for 20 %. Therefore, OLAP is the model of choice because it works with any architecture. This development achieved an improvement in decision making by 97 % and an increase in sales by 86 % by providing a tool that provides timely information to the Women's Style Peru sales team.

On the other hand, Zerpa et al.[18] carried out research whose main objective was to create a Datamart based on the star model, focused on agricultural and livestock production. To achieve this purpose, information from all necessary data sources was interpreted to choose the dimensions to be used in the OLAP cube, which helped optimize the process of loading and displaying data in the Datamart. Tools such as SQL Server Management were used to design databases, Visual Studio to execute and design ETL processes, and Power BI to generate dynamic reports of established indicators. In turn, Dahr et al.[19] focuses their study on the design of a decision-making system (DSS) through the development of a datamart, applying OLAP and KPIs as tools for the analytical processing of online data. This web-based system allows managers to navigate reports and graphs, acquiring new knowledge that promotes the development of new strategies for the sales area. Similarly, Bermeo Moyano et al.[20] propose the use of Power BI as a tool to visualize the relevant information that will be analyzed with the generation of the datamart. The purpose of this solution is to facilitate the identification of key points about products and customer preferences, so that sales management can propose strategies and corrections necessary to improve sales.

Adverse to the aforementioned methodologies, Vinueza Morales et al.[21] identify problems in the base worked by the company Frio Norte, to which they propose the generation of a multi-dimensional database through the use of OLAP cubes as a method. to process sales data. This implementation achieves a positive impact, by allowing the observation of reports with relevant information, for the formulation of strategies that boost the profitability of the company. Like Farroñan Carranza et al.[22], using a 6-step methodology, Business Intelligence was implemented. In the first step, a series of questions were formulated that were intended to be answered. In the second step, the keywords necessary to search for the articles were selected. In the third step, the 2 most relevant databases were identified. The fourth step described the search process in detail, applying an inclusion and exclusion technique in the databases. Finally, in the fifth step, the quality of the results was evaluated based on specific criteria, including an identification of gaps in Business Intelligence knowledge regarding the ETL process tools.

In research such as that of Godoy[23] he concludes in a positive influence of the application of business intelligence on the effectiveness, quality and in the marketing area of the company Diario Nuevo Norte because it implemented the Kimball methodology. Like Patnoll Gonzales et al.[24], he carried out his research with the same methodology because it was concluded that implementing it in his research reduced the average time, increased the amount of reporting significantly, the availability of information improved, thus achieving the reliability of information, all of which was mentioned in order to improve decisions for your company in Botica Fortaleza Lambayeque. Likewise Díaz Rojas[25] by applying Kimball, he achieved an improvement in decision-making through management meters of the Farmhouse Restaurant Bar, because the information use requirements were identified, the multidimensional data model was designed for the Datamart, thus carrying out each of its ETL processes, additionally implementing graphical interfaces to highlight the Business Intelligence indicators. Apart from the above, Agüero Zevallos[26] with the same methodology indicated culminated in the fact that to carry out an exploitation of transactional data in the recent sales sector of the organization, a conversion was needed with the ETL processes to be able to transform them. in information for decision making for companies

in the province of Pasco. Abanto Lizarraga[27] identified the business requirements, subsequently the technical architecture was planned and adapting Ralph Kimball's approach resulted in the information processing time decreasing, the number of average work hours for each documentation was limited. In addition to Alvarado Juárez[28], putting Kimball's approach into practice, it was obtained that through the extraction, transformation and loading procedures, with the correct implementation of the Datamart, he contributed with the analysis of its sales and decision making. appropriate decisions for that sector and were solved in the company Benites SRL.

On the other hand, Bregata[29] describes that the procedure for developing a Datamart based on the Kimball and Inmon methodology, results in its creation focused on sales of a fashion organization through an optimal solution of best practices of a ETL process, thereby achieving effective results for future commercial strategies, all displayed in an intelligent and intuitive way. Finally, Valencia Murillo[30], for the impact on the estimates of either profits or losses through the control table and the ETL processes for the company of Flores el Capiro S.A.

In conclusion, based on the information obtained from the research consulted, the pertinent aspects related to improving the evaluation and management of sales through the application of Business Intelligence will be used, concluding that the implementation of a Datamart has had a positive impact on companies, improving sales effectiveness, sales growth and the efficiency of the decisions made. Likewise, the existence of gaps in the literature was confirmed regarding the need to periodically evaluate the requirements, train users in the correct entry of data and verification of its integrity to ensure the long-term success of these implementations. Consequently, this research wishes to contribute to the realization of a Datamart to analyze the information in a sales process, identifying the requirements and objectives of the business to be analyzed, executing a cleaning and normalization of the data to improve its efficiency in the search, the application of information analysis stages in order to reinforce decision-making in companies.

RESULTS

According to the articles and research works consulted regarding the creation of a datamart for the analysis of information, similarities and differences can be seen in terms of methods, measurements, and population. The results found are detailed below:

RQ1: What datamart development methods have been applied?

The most developed methods for the implementation of a datamart according to research sources are the Kimball and Hefesto methodologies, in some they apply the Inmon methodology due to a more global approach in organizations, even a considerable number of times two of them are used to a more determined development.

Table 1. Comparison of methodology focused on business intelligence

Methodology	Kimball	Hefesto	Inmon
Author	Ralph Kimball	Ricardo Dario Bernabeu	Bill Inmon
Oriented architecture	Datamarts	Data Warehouse y Datamarts	Data Warehouse
Implementation complexity	Simple	Complex	Complex
Generalization	Detail to general	Detail to general	General to detail
Oriented to	Mainly process oriented	Business oriented	Oriented to topics
Time of development	Short and medium term	Long term	Long term
Modeling	Dimensional	Relational	Traditional
Usability for the user	High	High	Low
Addressed to	Final users	Final users	IT
Implementation cost	Low	Low	High
Helps with decision making	Tactics	Strategic	Strategic
Development team	Generalists	Generalists	Specialists
Emphasis	It is based on experiments and prototypes and is more flexible and less expensive.	The emphasis is on analyzing the requirements to identify indicators and perspectives and perform data analysis.	The problem to be solved is known in advance. As each phase reaches a higher level of detail, the cost increases.

This table presents a comparison of each method to select the best option within the proposed research

topic, according to the research design[31].

According to the investigations, the conclusion is reached that the authors of the investigations are based mostly on the Kimball methodology and a small percentage on the Hephaestus methodology and only one investigation implemented the Inmon methodology.

Table 2. Implementation of Kimball and Hefesto methodologies according to authors

Methodology	n**	Authors (Citations)
Kimball	16	Dianderas Alcántara[5]; Guadaña Julón[6]; Guzmán Vilela[7]; Leva Trujillo[8]; Pereda Medina & Cabrera Sanchez[9]; Castillo Chura et al.[10]; Cespedes Nuñez[14]; Encalada Sarmiento & Sánchez Crisóstomo[15]; Chicaiza Palate[16]; Machaca Zapata & Aguilar Alonso[17]; Godoy[23]; Patnoll Gonzales & Sánchez Carrillo[24]; Díaz Rojas[25]; Aguero Zevallos[26]; Abanto Lizarraga[27]; Alvarado Juárez[28]
Hefesto	4	Meneses Mendoza[11]; Zerpa et al.[18]; Bermeo Moyano & Campoverde Molina[20]
Inmon	1	Bregata[29]

RQ2: What level of effectiveness did the methods obtain?

The level of effectiveness obtained by the Kimball, Hefesto and Inmon methodology is summarized in the following tables, according to the research sources.

Table 3. Level of effectiveness obtained by the Kimball methodology.

Methodology	Effectiveness level	Authors (Citations)
Ralph Kimball	Presents significant time savings in obtaining reports	Dianderas Alcántara[5]; Guadaña Julón[6]; Leva Trujillo[8]; Chicaiza Palate[16]; Abanto Lizarraga[27];
	Sales increase	Guzmán Vilela[7]; Machaca Zapata & Aguilar Alonso[17];
	User and management satisfaction according to the indicated area or department	Pereda Medina & Cabrera Sanchez[9]; Castillo Chura et al.[10]; Encalada Sarmiento & Sánchez Crisóstomo[15];
	Management indicators for advantage in decision making	Cespedes Nuñez[14]; Díaz Rojas[25]; Aguero Zevallos[26]
	Positively influences achieving objectives, the application of business intelligence	Godoy[23]; Alvarado Juárez[28]

Table 4. Level of effectiveness obtained by the Hefesto methodology

Methodology	Effectiveness level	Authors (Citations)
Hefesto	Identifies indicators of a specific area for decision making, in order to implement strategies.	Meneses Mendoza[11]; Bermeo Moyano & Campoverde Molina[20];
	Obtain graphs to evaluate company productivity.	Zerpa et al.[18];
	Reduces reprocessing because it generated inconsistencies in the data	Valencia Murillo[30]

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Table 5. Level of effectiveness obtained by the Inmon methodology

Methodology	Effectiveness level	Authors (Citations)
Inmon	Achieves a Star Schema strategy, ideal for data visualization, resulting in the Snowflake schema	Bregata[29]

RQ3: What type and size of population, sample, type of case, etc. it was used?

According to the sources consulted, it was evident that the target population in the investigations focused on the sales department as shown in Table 6, and it can also be seen graphically what percentage each department represents in figure 1.

Table 6. Departments or areas chosen as target population per article

Department or Area	Amount	Reference
Comercial	3	Guadaña Julón[6]; Pereda Medina & Cabrera Sanchez[9]; Godoy[23]
Sales	16	Dianderas Alcántara[5]; Leva Trujillo[8]; Sanchez Leon & Sanchez Horna[12]; Paucar Palomino et al.[13]; Cespedes Nuñez[14]; Encalada Sarmiento & Sánchez Crisóstomo[15]; Chicaiza Palate[16]; Machaca Zapata & Aguilar Alonso[17]; Bermeo Moyano & Campoverde Molina[20]; Vinueza Morales et al.[21]; Patnoll Gonzales & Sánchez Carrillo[24]; Díaz Rojas[25]; Bregata[29]; Aguero Zevallos[26] Abanto Lizarraga[27]; Alvarado Juárez[28]
Sales and Others	4	Castillo Chura et al.[10] Meneses Mendoza[11]; Zerpa et al.[18]; Valencia Murillo[30]

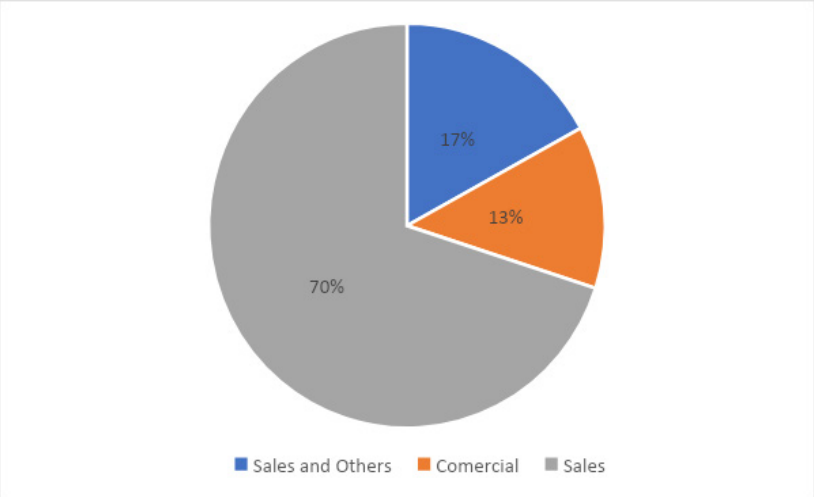

Figure 1. Department or areas that represent the target population

RQ4: What measurements are mentioned around the development and design of datamart?

Regarding the indicators that were measured in the studies, the various articles considered the time taken to process the data and issue the reports as an indicator to measure the impact of the use of datamarts. In addition to these indicators, other studies also consider user satisfaction with the use of the implemented tool, the degree of availability of information and the number of reports issued as shown in the table 7.

Table 7. Description of measurements used in the articles

References	Measurements used in the development of the Datamart			
	Report obtaining time	User satisfaction level	Number of reports per day	Information availability
Dianderas Alcántara[5]	x			
Guadaña Julón[6]		x		
Guzmán Vilela[7]		x		
Leva Trujillo[8]	x			x
Pereda Medina & Cabrera Sanchez[9];	x	x		
Castillo Chura et al.[10];		x		x
Sanchez Leon & Sanchez Horna[12];	x			
Paucar Palomino et al.[13];	x		x	
Cespedes Nuñez[14];		x		
Encalada Sarmiento & Sánchez Crisóstomo[15]	x	x	x	
Godoy[23]	x	x		
Patnoll Gonzales & Sánchez Carrillo[24]	x		x	x
Díaz Rojas[25]	x			x
Abanto Lizarraga[27]	x			

RQ5: Were solutions proposed and developed? Were conclusions reached? Which is it?

The solutions proposed in the different researches consulted were based on the generation of dashboards and dynamic reports taking the developed datamart as a source, reaching the following conclusions as show in table 8.

Table 8. Main conclusions on the impact of the implementation of a Datamart

Conclusion	Detail	References
Efficiency in information processing	The reports necessary for decision making are obtained in less time and with fewer resources, which is why an improvement in this management is identified.	Guzmán Henostroza[4]; Dianderas Alcántara[5]; Guzmán Vilela[7]; Leva Trujillo[8]; Cespedes Nuñez[14]; Encalada Sarmiento & Sánchez Crisóstomo[15]; Godoy[23]; Patnoll Gonzales & Sánchez Carrillo[24]; Bregata[29]; Abanto Lizarraga[27]
Improve data analysis	The data is displayed in an organized manner, which allows it to be viewed from different perspectives and makes it easier to identify the most relevant information.	Guadaña Julón[6]; Pereda Medina & Cabrera Sanchez[9]; Meneses Mendoza[11]; Sanchez Leon & Sanchez Horna[12]; Machaca Zapata & Aguilar Alonso[17];

		Dahr et al.[19]; Bermeo Moyano & Campoverde Molina[20]; Vinueza Morales et al.[21]; Patnoll Gonzales & Sánchez Carrillo[24]; Díaz Rojas[25]; Chicaiza Palate[16]; Bregata[29]; Valencia Murillo[30]
Optimization in decision making	Thanks to the fact that the information shown in the reports is organized, a reduction in the time that users spend in making a decision was observed.	Guzmán Henostroza[4]; Castillo Chura et al.[10]; Paucar Palomino et al.[13]; Sanchez Leon & Sanchez Horna[12]; Vinueza Morales et al.[21]; Valencia Murillo[30]
User satisfaction	The level of user satisfaction is high thanks to the reliability of the information and time savings.	Pereda Medina & Cabrera Sanchez[9]; Paucar Palomino et al.[13]; Cespedes Nuñez[14]; Encalada Sarmiento & Sánchez Crisóstomo[15]

DISCUSSION

In order to evaluate the impact that this development had on organizations, measurements were used on different factors such as time and precision. Some studies focus on measuring the effect in terms of time for data processing and visualization, including even the level of approval of its use by managers by Encalada Sarmiento & Sánchez Crisóstomo and Patnoll Gonzales & Sánchez Carrillo[15,24], through which the decrease in time was confirmed. invested in analyzing the information. While in other investigations its impact lies in the precision and accuracy of the information obtained in the dashboards, after having generated the datamart[19].

Likewise, some investigations had as their main focus the exploitation of transactional data in the sales areas of organizations because it has had a great impact, since it has allowed them to be transformed into useful information for making strategic decisions and also to determine needs. of corporate information. According to Aguero Zevallos[26] this has become an advantage for making important decisions and has been processed to generate management indicators and to identify information use requirements, all through graphical interfaces and based on data obtained in studies [14,25].

CONCLUSIONS

In this study we conclude that the application of business intelligence through a Datamart in key processes of an organization such as the sales sector, represents a favorable impact for the management of said area. Thanks to the fact that it provides valuable information that is usually crucial in the choice of business strategies by managers. For this reason, it is necessary that the information shown in the dynamic reports be reliable, precise and based on the indicators with which the application area works.

With this purpose, we highlight the importance of maintaining effective communication with end users mainly in key processes such as data collection for the correct identification of requirements, as well as in other processes of the development and implementation of the Datamart. In this way, possible additional requirements will be identified that can complement and improve the accuracy of the information obtained in the dashboards.

Likewise, it was also identified that the most efficient methods for carrying out a Datamart in the sales sector is the Kimball methodology because it carries out correct planning for the design and implementation of the data schema, the extraction and transformation of information, and the definition of the fundamental elements of the reports and analysis, such as dimensions and key facts. Therefore, the importance of involving all interested parties in the process and having a team with experience in building Datamarts is highlighted. In summary, the Kimball methodology is an excellent option to achieve a successful implementation of a datamart in the sales sector.

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CONFLICT OF INTEREST

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