

Universidad de Guadalajara

Environmental, Social and Governance Strategic Approach for Competitiveness



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Tania-Elena González-Alvarado
(Coordinators)**

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Organizational Change in Intelligent Organizations: the Collective Effort

Bellon-Álvarez, Luis Alberto

Organizational Change in Intelligent Organizations: the Collective Effort

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INTRODUCTION

Humanity since its origins has been characterized by being in permanent evolution, which is why the world is also well-known for being in a continuous change process; although certainly in recent decades, we have witnessed how these changes that have been happening in society are progressively more vertiginous.

This phenomenon also affects the business world, so companies must also be prepared for such changes and have the ability to adapt to them. Above all, because the markets around the world are characterized by being increasingly competitive, firms to be successful and stand out in these markets must have the ability to adjust to the changes in the markets.

That is why the managers of every organization have a central role in the companies they lead since they are the ones who define the way to follow, that is why they must be able to have a clear future vision of what they want their company to be and the path to follow to achieve it.

For all this, the study of the process of organizational change in corporations is of great importance, since this allows knowing what factors influence the process of change, as well as knowing the obstacles that have to be resolved to achieve it, such as among other things, resistance to change, which is a widespread phenomenon that occurs among company personnel.

The point of view of the Organizational Intelligence study perspective reveals that changes are a kind of mutation that the company presents, and intelligent organization helps its people adapt to change, thanks to the fact that they can react more quickly to them, and in this way, they can anticipate those

changes. Thus, the knowledge base of companies is becoming a fundamental aspect for companies in today's business world.

THEORETICAL FRAMEWORK

The procedure by which any process of organizational change is established turns out to be quite complicated since business firms need to face a variety of obstacles of different kinds that hinder or make their implementation impossible.

Therefore, carrying out an analysis of organizational change is of the utmost importance. Furthermore, companies are in an incessant metamorphosis; therefore essential to understanding as well as possible how companies change and the reasons why these changes are consumed or not.

How an organizational change is carried out implies a much work since any change must face a series of problems that make its implementation difficult. Therefore, the importance of conducting this type of research. Furthermore, just as the world is constantly changing, companies are also changing for the aforementioned reasons. Consequently, it is necessary to understand how companies change and why these changes.

Organizational intelligence is described as the ability of organizations to carry out their daily activities and make decisions about unexpected conditions in a global environment characterized by change and dynamism. So, the companies that can resort to this are intelligent organizations.

Among the writers who study the organizational change from the study perspective of Organizational Intelligence are Senge (2006), Keskin and Balak (2020), Van Knippenberg, Dahlander, Haas and George (2015), Jarrahi (2018), Ansari, Hold and Khobreh (2020), Rahdarpour and Sheykhi (2016), Al Shobaki, Abu Naser, Abu Auna and El Talla (2018), Schafer (2009), Holba, Bahr, Birx and Fischler (2019); that were examined in this document.

Organizational intelligence refers to the source of market advantage, which can be developed by the organization but cannot be successfully copied by others. This resource provides the following opportunity: for the company to develop, at the same time as the market develops, to predict the change and development of the market, and achieve a competitive advantage in the market.

Organizational intelligence includes a capability within the back end of an organizational system. For Kahkha, Purgaz and Marziyeh (2015), organizational intelligence is a combination of human intelligence and artificial intelligence that allows an organization to perform related tasks make important and rational decisions, which improve the performance and efficiency of the organization. While for Tang & Sivaramakrishnan (2003), organizational intelligence is defined as the mental strength to respond effectively to environmental issues.

It should be noted that organizational learning is a fundamental component of organizational intelligence. The organizational intelligence of an organization is based on the ability of that organization to learn and adapt (Gonzalez & Gonzalez, 2019). However, even if organizations can learn and adapt, this does not guarantee an increase in organizational intelligence. Organizational intelligence implies the interaction and harmony between the intelligence of the company members and the organization's technological infrastructure (Neyisçi & Erçetin, 2020).

The factor that facilitates people's activities within the organization is all their brainpower. In this way, organizational intelligence refers to the ability of a company to mobilize all the brainpower (Mahmoudi & Asgari, 2013). Therefore, the point of origin for organizations that want to capture change was intelligence, so the creation of intelligent organizations based on the characteristics of intelligent individuals has come on the agenda.

According to Karl Albrecht (2002), a company's success requires intelligent people, competent teams and innovative organizations. Albrecht also recommends organizational intelligence to prevent the group from slipping. Intelligent tools and intelligent human resources play an essential role in business performance. Therefore, the decision-makers in organizations use mechanisms that strengthen organizational intelligence today (Mahmoudi & Asgari, 2013).

Thus, organizational intelligence is an organizational capability that supports strategic decision-making. Intelligence and intelligent behavior are essential to business success in today's competitive world. Being thoughtful requires making the best strategic decisions for an organization, and intelligent behavior requires implementing these strategic decisions.

Therefore, intelligent organizational behavior removes all the complexities, competitive pressures, and inability to respond to environmental impacts that endanger the survival of an organization (Pazireh, Rahimi, Irani, & Bohlouli, 2019). The use of the concept "intelligent" in organizations gives them a competitive advantage, mainly because of the flexible and competitive circumstances that create the conditions they have and express their point of technological power (Kirn, 1995).

The concept of intelligent organization emerged in response to increasing environmental change, resulting from the rapid response of organizations to the changing digital economy. Keskin and Balak (2020) mention that innovative organizations can quickly adapt to the environment to face challenges.

In turn, Schafer (2009) stated that an intelligent organization must have three qualities. It is about having a clear strategic vision, a culture of merit that respects the idea of each person, and incentive programs that support them

(vision and culture). Schafer points out that these three qualities are necessary but not sufficient to create an intelligent organization. High organizational intelligence emerges when the right people to do the job gather around these three qualities (Schafer, 2009).

An intelligent organization is Internet-based and information-oriented, and can quickly adapt to new organizational challenges. The three dimensions of intelligent organizations, effective virtuality in information and communication technology, the ability to create organizational teams and bridge information, complexity, and rapid economic evolution confer their solution to environments (Filos, 2008).

So leadership into the intelligent organization must be thoughtful, in the sense that the organization's mood is understood, and silent signs of change are also detected. It requires foresight and sensitivity for leaders and managers to show a new kind of understanding.

This sensitivity does not simply equate to the difficulties associated with decision making but rather the environment in which leaders and managers recognize changing contexts and changes in operating environments and the leadership style required in different contextual settings. So it is observed that innovative organizations work constantly and develop the ability to adapt to unpredictable environments.

Embracing uncertainty in innovative organizations requires awareness that the future is full of uncertainties. Members of an intelligent organization also know how to deal with uncertainty and integrate it into reasoning processes. Therefore, uncertainty in an intelligent organization is understood, transmitted, and managed. (Matheson & Matheson, 2001).

The characteristics of intelligent organizations that Matheson and Matheson (2001) included in their work and that innovative organization must-have. They are collected into three main themes: goal achievement, understanding the external environment, and resource mobilization.

Achieving the goal is the culture of creation; generating is mainly that an intelligent organization needs to know the reason for its existence. The intelligent organization demands the proactive creation of new alternatives and does not take strategic measures before creating and converting multiple alternatives (Matheson & Matheson, 2001).

In Matheson & Matheson (2001), it is observed that implementing the principles of organizational intelligence correlates positively with business performance; and that intelligent organizations do not have the same level of intelligence that they observe works best. In this regard, Keskin & Balak (2019) point out that the intelligence levels of organizations are increasingly complex,

and the multidimensional structure and the presence of intellectual power capacity are increasing.

The future will increasingly belong to innovative organizations because it requires adapting capabilities to a constantly changing business environment. Increased competition, increased threats from new entrants, and substitute products; organize their organizational intelligence as an integral result of processing the intelligence of all the people who lead development (Bratianu et al., 2006).

The essential member characteristic of intelligent organizations are related to the interaction of the members involved in the field. Therefore, organizational intelligence needs to be examined as a more systematic force that organization members create together rather than the sum of their intelligence (Neyişçi & Erçetin, 2020).

Consequently, information and communication technologies are an influential factor in organizational exchange and innovation, and the effects of all this on the industrial exchange chain. Therefore, it is crucial to understand innovative organizations and the elements that contribute to them. Therefore, considering organizations' social and complex aspects, empirical studies examining the relationship between organizational intelligence and intelligent organizations in different industries and examples, will contribute to a good understanding.

To summarize, according to researchers of the study perspective of organizational intelligence, changes should be made in the company's management and its organizational systems only when necessary. They also point out that companies have to evolve until they reinvent themselves, which implies that what already exists is not modified, but instead that something new has to be created, which does not exist.

Therefore, managers must also reinvent themselves and their companies, developing a new environment that guides its members to accept a new future that was not supposed to be possible. In turn, according to the point of view of the organizational intelligence perspective, the ability to change is not bought.

The company must learn it on its own (Gonzalez & Gonzalez, 2019). The company's employees are the ones who create and change the company through the learning that is achieved when a change process is carried out that follows the perspective of organizational intelligence, which begins with its executives, who have a transcendental role in the said process of change in the company.

METHODOLOGY

In order to carry out the present study work, three phases had to be carried out: 1) a theoretic one, where the theoretical part of the topic is examined; 2) A

bibliometric study on the relationship between organizational change and organizational intelligence.; 3) An empirical analysis was carried out. As part of the empirical analysis, a compilation of the information obtained in this research project was made, for which a questionnaire was designed, which was made up of a series of closed questions, which covered the response alternatives to each questioning, being that questionnaire the research instrument used for this investigation.

This research was carried out using the method of bibliometric analysis, which consists of examining the semantic content of the bibliography of the topic to be studied in order to be able to make inferences from the coincidences in text bodies, keywords, authors, or the entire document in general, among others (van Raan, 2019).

According to Kulkarni et al. (2009) and Bar-Ilan (2008), to the application of the bibliometric analysis, the Scopus academic database, is one of the most used databases to carry out bibliometric analyzes (Olczyk, 2016); it allowed in this research to identify the most critical topics in the works found in that academic database, which was consulted.

To perform the search in the Scopus academic repository, the keywords used were: "organizational change" and "organizational intelligence". Therefore, to search the database, a search was refined using different criteria.

The search was done in all the fields of the publications. In this way, the following criteria were used for the general search: "Organizational Change" and "Organizational Intelligence" to provide a framework on the existing state at the time of the present investigation on the work approaches those topics. The VosViewer software also showed the maps with the connections between the publications found.

Unit of Analysis

Within the present study project, business organizations with the characteristics of being: 1) MSMEs were investigated. (1 to 250 employees). 2) Entities of the commercial sector and 3) Located in the Metropolitan Area of Guadalajara (Guadalajara, Zapopan, San Pedro Tlaquepaque, and Tonalá).

Sample

For this research, a non-probabilistic sampling was used, for which the questionnaire was administered as a research tool to 78 individuals who are part of the workforce of 78 Small and medium-sized firms in the commercial sector, who had an organizational change procedure.

Operationalization of Variables

Within the present investigation carried out, the variables were operationalized using graduated questions on the Likert Scale, which uses statements that indicate the attitude, positive or negative, concerning each

question. Furthermore, for the study, the people surveyed were asked to externalize their level of agreement or disagreement on each statement to establish how favorable or unfavorable their point of view is on the issues that were the object of study.

Problem Statement

This research aims to determine the effects and factors inherent to organizational intelligence, which influence the process of implementing an Organizational Change in commercial organizations installed in the AMG, whether they favor or hinder the said process. Therefore, for this project, the research questions formulated are:

What factors related to organizational intelligence intervened in an organizational change in commercial companies of the AMG?

What effects does organizational intelligence have on organizational change in commercial companies of the AMG?

Research objectives

To determine what factors inherent to organizational intelligence intervened in an Organizational Change in commercial companies of the AMG.

To find the effects of organizational intelligence on Organizational Change in commercial companies of the AMG.

Hypothesis

H1: Organizational intelligence contributes to implementing a process of organizational change in commercial companies of the AMG.

H2: The company's knowledge base favors organizational change through organizational intelligence in commercial companies of the AMG.

H3: Employee education helps to carry out an organizational change process in commercial companies of the AMG

Collection and processing of information

For this work, the investigation tool used was a questionnaire carried out according to the information obtained in the bibliography consulted. It was intended to determine which aspects associated of organizational intelligence influenced an organizational change in commercial companies. Therefore, a questionnaire of structured questions makes it possible to find those factors. Once the information was obtained, the results were examined and classified.

Cronbach's Alpha was used to verify the consistency and reliability of the research instrument. The KMO Sampling Adequacy Measure and the Bartlett Test were also obtained to determine that the variables are linked and viable to perform factor analysis.

For the empirical study of this research that aims to establish how organizational intelligence intervenes in an organizational change, the degree of significance of the ANOVA (analysis of variance) was determined, by linking

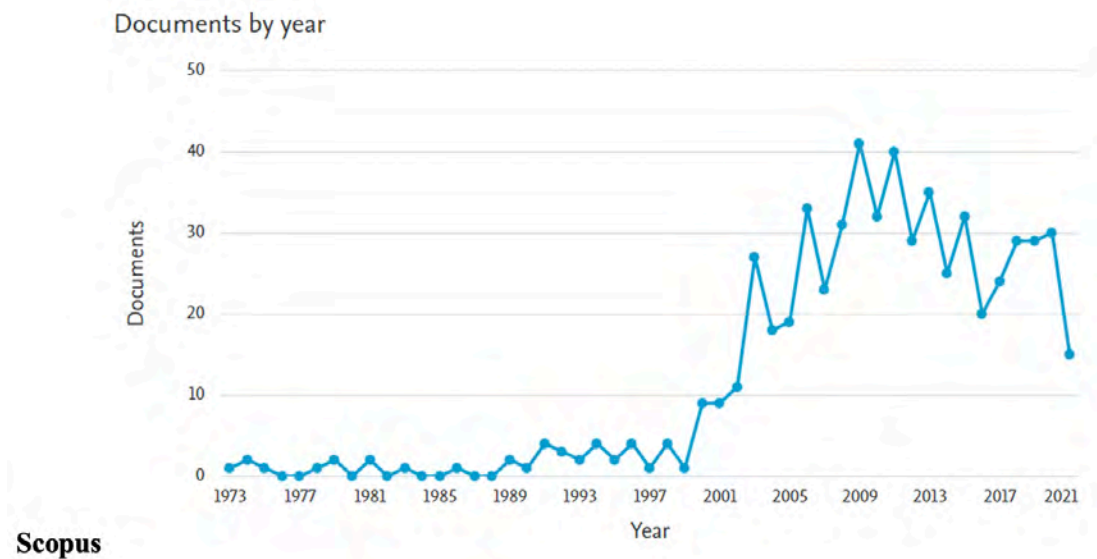
variables concerning organizational intelligence, with the effects that they could have in an organizational change, and with specific factors that contribute or obstruct the execution of a change of organizational culture.

RESULTS AND DISCUSSION

The Scopus academic repository shows as of July 9, 2021, a total of 600 scientific documents (333 articles, 53 book chapters, 37 conference documents, 90 books, and 37 reviews) that have the terms of the topics under study, either in the title, the abstract or as a keyword, or in some other part of the document.

In addition, the Scopus database offers the possibility of downloading the bibliographic records of the patterns analyzed in various formats, which offer the possibility of carrying out an analysis on different platforms. The VOSviewer software was used for the information analysis, allowing visualizing the co-occurrence networks of the information obtained from the bibliographic records. (van Eck & Waltman, 2010).

Figure 1. Scientific production on Organizational Change and Organizational Intelligence in Scopus



Source: Own elaboration based on Scopus statistics.

With the relationship between organizational change and organizational intelligence, there are six hundred documents in the Scopus database with production from 1973 to 2021. As shown in figure 1, a significant increase in the publication of articles in the year 2003, having an increase in the year 2006,

reached its maximum point in 2009, although it had a significant reduction in 2016.

On the other hand, the main articles, taking the number of times, were cited as a reference for said classification. The article with the most citations is "Introduction: Epistemic communities and international policy coordination" which has 4014 citations and was published by the International Organization magazine in 1992, by Haas, who states, based on his analysis, that control over knowledge and information is an essential dimension of power and that the spread of new ideas and data can lead to new patterns of behavior.

The second most cited article is: "Reconceptualizing organizational routines as a source of flexibility and change", with 1886 citations, by Feldman and Pentland, published in 2003 in the Administrative Science Quarterly, points out that the variation, selection and retention of new practices and action patterns within routines allows them to generate a wide range of results, from an apparent stability up to a considerable change. It has implications for a wide range of organizational theories.

The third most cited article with 1014 citations is by Leidner and Kayworth, published in 2006 in the journal MIS Quarterly: Management Information Systems, and entitled "Review: A review of culture in information systems research: Toward a theory of information technology culture conflict" it indicates that understanding of culture is essential to the study of information technology in that culture at various levels, including national, organizational, and group, and can influence the successful implementation and use of information technology. They develop propositions about three types of cultural conflict and its outcomes. Finally, they suggest that the reconciliation of these conflicts results in a reorientation of values (table 1).

Table 1. Most cited articles on organizational change and organizational intelligence in Scopus

Author	Article title	Year	Number of citations
P.M. Haas	Introduction: Epistemic communities and international policy coordination	1992	4014
M.S. Feldman & B.T. Pentland	Reconceptualizing organizational routines as a source of flexibility and change	2003	1886
D.E. Leidner & T. Kayworth	Review: A review of culture in information systems research: Toward a theory of information technology culture conflict	2006	1014

Source: Own elaboration based on Scopus statistics.

For this project, it was decided to generate bibliometric maps based on co-occurrences, which are determined according to the number of times the keywords appear in the documents that were downloaded from the search made in the Scopus database and said data was used to create a network.

The indexed keywords were chosen when running the VOSviewer program; these keywords are automatically selected. It is worth mentioning that it is preferable to use this kind of keywords since in this way there is a clearer and complete of how is the dynamics that occurs in the field of study that is being analyzed since in this way they are not limited only to the keywords indicated by the author.

For this research, it was determined to carry out an analysis and counting procedure of co-occurrences based on the indexed keywords, choosing a minimum number of co-occurrences in the keywords ≥ 5 , the choice of this threshold was determined taking into account that the result of co-occurrences was 1870 keywords, so if a lower threshold was chosen, the map would have too many matches, which would prevent an adequate analysis, since the labels would overlap with each other.

Table 2. Relationship of keywords by the importance of appearances and link strength

Keyword	Occurrences	Total Link Strength
Knowledge management	63	153
Organizational learning	46	101
Innovation	47	92
Societies and institutions	19	67
Organizational intelligence	23	53
Competition	11	44
Organizational change	25	44
Organizational cultures	8	44
Industrial management	10	41
Organization	12	35
Competitive advantage	9	33
Leadership	18	32
Organizational structures	9	32
Article	9	31
Project management	9	29
Surveys	6	29
Design/methodology/approach	7	27
Human	9	27
Organizational structure	8	26
Research	10	26

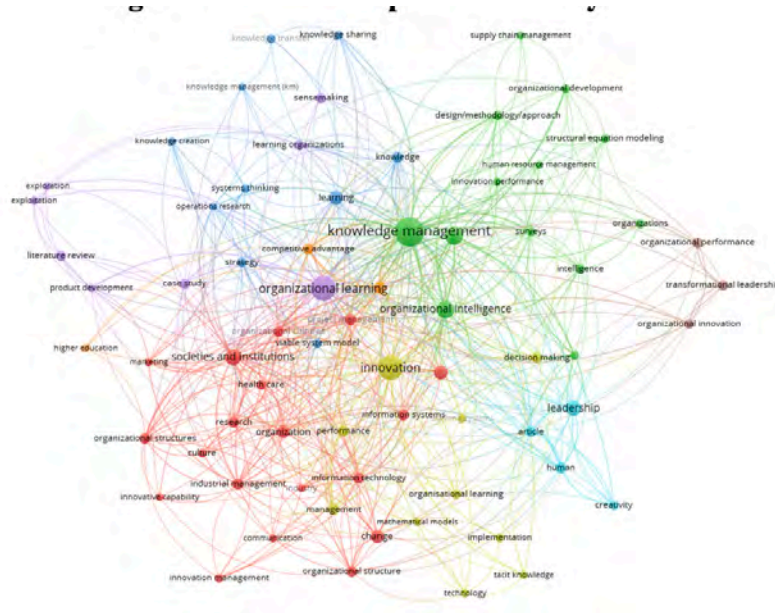
Source: Own elaboration based on VOSviewer

In figure 2, the keywords with the highest co-occurrence are observed since the VOSviewer highlights them with a larger label than the others. In this case, those that stand out the most are: "knowledge management", "organizational learning", and "innovation", which are strongly related to the keywords used for this research. In this manner, the map shows how the words are grouped and which cluster they belong to, which are indicated with colors.

In contrast, the overlay visualization map illustrates which subjects have been worked on over time and specifies which ones continue current. The years are represented by diverse colors. The themes that have been investigated in the

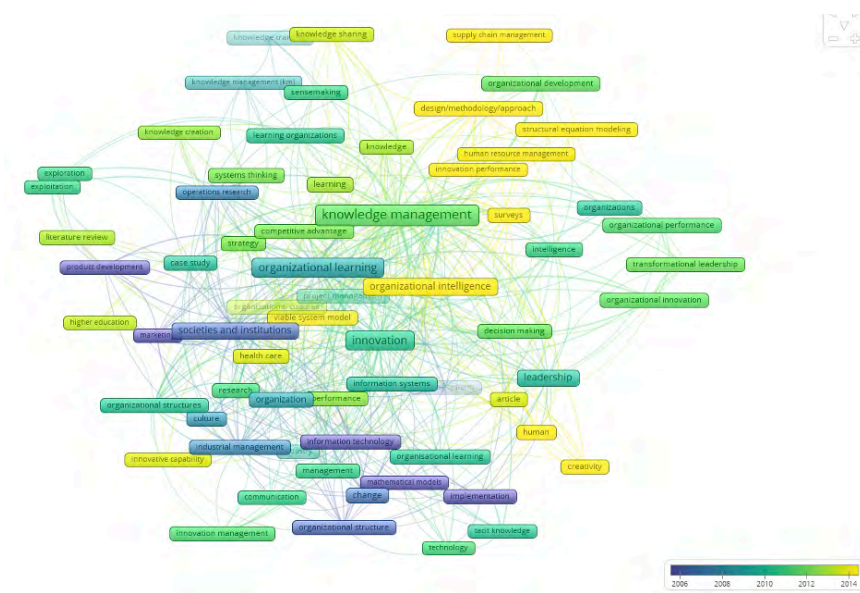
last 5 to 8 years appear in red, orange, and yellow, while the subjects with more than ten years are presented in green and blue (Fergnani, 2019).

Figure 2. Network map of indexed keywords



Source: VOSviewer 2020 software

Figure 3. Overlay visualization Map by Keywords



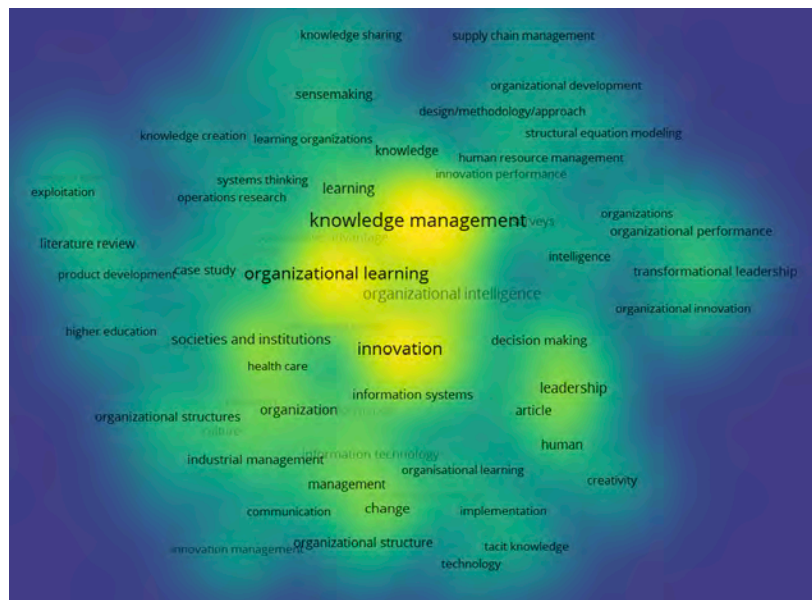
Source: VOSviewer 2020 software.

Figure 3 again demonstrates the keyword network; but, in this case, with a timeline view that reveals how the study of organizational change and organizational intelligence has advanced, the data found from the Scopus database indicate research results between 2006 and 2014.

Some of the study topics shown in figure 3 that are trending in contemporary years are organizational intelligence, human creativity, surveys, human resource management, supply chain management, innovation performance, structural equation models, design/methodology/approach, among others. For its part, change is a topic that has been studied for a long time but is still being studied nowadays.

In the density map, the VOSviewer software illustrates the intensity of work that each one of the keywords has according to the number of times they appeared in the documents consulted. The colors show which are the most mentioned keywords; red shows those with the highest intensity and blue those with the smallest amount of research; revealing the information in this way allows us to clearly appreciate which are the most important issues on the map (Fergnani, 2019; Van Eck & Waltman, 2010).

Figure 4. Density Map by Keywords.



Source: VOSviewer 2020 software.

Figure 4 shows the density map of the keywords that are most relevant based on the number of publications in which they appear, in which, as in the network visualization map, it can be seen that the most relevant are knowledge

management innovation, then comes organizational learning, followed by the word organizational change and organizational intelligence.

Clusters

The VOSviewer software also classifies the groups of keywords shown in the bibliometric maps and calls them a cluster; in figure 2: “Network map of indexed keywords”, the clusters are shown with different colors, since each group of keywords that make up a cluster, the software assigns them a color. A group or cluster is a series of elements that belong to a map and whose feature is that they cannot be part of different clusters at the same time, the keywords that exist in a cluster determine that it is an attribute, and these are enumerated according to the clusters that emerge from the density map. (Van Eck & Waltman, 2018).

The clusters are concentrated in such a way that the keywords that include them are more likely to cite them in the same document or article; since the different clusters are identified, the line of study that they follow is determined according to the keywords that they integrate it because these can be interpreted as macro-areas of research, which is why they are named according to the field of study to which the most important keywords within the group correspond. (Skute et al., 2019).

In this way, the clusters were generated according to the results of the Scopus database and were processed in the VOSviewer program; the search words used being: “organizational change” AND “organizational intelligence”, the Bibliometric map created 8 clusters, which serve as a guideline to know how the research object proposed for this research work is studied.

Cluster 1. This cluster has 19 items where the indexed keywords with the greatest weight were: change, industrial administration, innovative capacity, innovation management, organizational culture, organizational structure. So it can be determined that this line of research focuses on studying organizational culture.

Cluster 2. The works of this cluster have 13 items where the most relevant indexed keywords were: organizational change, organizational development, organizational intelligence, knowledge management, human resources management; the trends being investigated in this cluster are related to organizational change and organizational intelligence.

Cluster 3. This cluster has ten items of which the indexed keywords are: knowledge, knowledge management, knowledge creation, knowledge sharing, knowledge transfer. This cluster focuses on studying knowledge management.

Cluster 4. This cluster has ten items, and the most important indexed keywords are decision making, implementation, innovation, management,

organizational learning, learning systems, performance. This cluster is oriented to study business administration.

Cluster 5. In this cluster, there are eight items, the indexed keywords being: learning organizations, organizational learning, product development, exploration. This cluster studies learning organizations.

Cluster 6. In this cluster, there are four items; the indexed keywords are article, creativity, human, leadership. This cluster studies leaders in organizations.

Cluster 7. This cluster contains three items, the indexed keywords being: competition, competitive advantage, leadership. This cluster focuses on studying competitiveness.

Cluster 8. In this cluster, there are three items, and the indexed keywords are organizational innovation, organizational performance, transformational leadership. This cluster analyzes organizational performance.

FIELD RESEARCH RESULTS AND CONCLUSIONS

As part of this research work, a study of organizational intelligence was made as a current study that examines the process of organizational change; and within the research instrument that was used, certain questions that analyze the organizational change from the perspective of organizational intelligence were considered in that questionnaire.

This study was carried out through personal surveys with employees who participated in the process of organizational change in the companies considered; they were administered the questionnaire that was made for this work and that was used to study the exposed hypotheses. Therefore, for the study, certain questions related to the perspective of organizational intelligence were considered. Additionally, Cronbach's Alpha was determined, as well as the Bartlett Test and the KMO.

According to the statistical result of reliability, Cronbach's Alpha turns out to be highly consistent, 83.8% of reliability, because it is close to number 1, in addition to the fact that the variables of the instrument were applied consistently, that is, that the general trends and correlations can be explained. In-depth through multivariate analysis, for which it is necessary to understand the level of adjustment between the groups following a KMO factorial analysis and Bartlett's test.

Table 3. Cronbach's Alpha of the Organizational Intelligence variables. Reliability statistics

Cronbach's Alpha	Number of elements
.838	16

Source: Own elaboration based on the results of SPSS.

Table 4. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sample adequacy.		.718
Bartlett's Sphericity Test	Approximate Chi-Square	358.430
	df	120
	Sig.	.000

Source: Own elaboration based on the results of SPSS.

If. Sig. (p-value) <0.005 H0 is accepted (null hypothesis) > factorial analysis can be used.

If. Sig. (p-value) > 0.005 H0 is rejected > factorial analysis cannot be used.

The results indicate that the level of significance obtained when being zero is representative since the closer it is to zero, the more satisfactory the test will be.

Table 5. Communalities

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Benchmarking intensity	850					
Benchmarking Frequency	831					
Intensity of Education in the employees		775				
Shared Vision Frequency		710				
Shared Vision Intensity			687			
Frequency of Education in employees			685			
Team Learning Frequency			684			
The staff has access to all the information they need to do their job of the change			663			
Team Learning Intensity			661			
The organization is becoming more aware of its knowledge base			653			
The change followed a learning orientation instead of handing it over to an authoritarian leader			652			
Learning organizations were an important factor in effecting culture change			631			
Change in the company is the result of organizational learning				564		
As a result of the change, the employees developed new skills and abilities				551		
This company is a smart organization				523		
There is a learning approach within the organization					422	

Source: Own elaboration based on the results of SPSS

The most significant variables are the Benchmarking Intensity, followed by its frequency, which indicates that Benchmarking significantly benefits an

organizational change process that is carried out through organizational intelligence. The frequency and intensity of the Shared Vision, on the other hand, are also significant variables with respect to organizational intelligence since both staff and managers are required to have the same focus in the process of change in companies.

The interviewees were asked if they think that their company is an intelligent organization with a focus on learning in order to determine if this was a determining factor when deciding that the company made the organizational change.

This when considering that due to the changes that have occurred in society, culture, technology, and international markets, they have been aspects that have served to generate innovative ways of operating a company, due to the growing importance of the fact that companies constantly increase their knowledge base, since this contributes significantly to managers being able to make better decisions.

Additionally, the interviewees were also asked if the knowledge base of the organization was a factor that influenced the decision to make a change in their organizations and to what extent it helped to carry out such a change. Since, according to the perspective of organizational intelligence, it is necessary to have a deep knowledge of the markets; in order to have elements to be able to predict the future, which allows for better management of the change process in the company.

In the instrument used, certain hypotheses and questions were taken into account that examines organizational change from the perspective of the current study of organizational intelligence, and they are:

H1: Organizational intelligence contributes to the implementation of a process of organizational change in commercial companies of the AMG.

According to the results obtained, an existing relationship was discovered between the company is an intelligent organization with: the organization has values that reinforce its identity, good human resources; the change had a learning orientation instead of giving a command to an authoritarian leader, the change in the company is the result of organizational learning; adequate information is available; and concluding that, as a result of the change, it is important that workers develop new skills and abilities.

This indicates that those factors related to organizational intelligence influence the implementation of organizational change. Therefore, H1: Organizational intelligence contributes to the implementation of a process of organizational change in commercial companies of the AMG, is accepted. (See Table 6).

Table 6. This company is an intelligent organization; that is focused on learning and constantly increases its knowledge base

ANOVA						
		Sum of squares	gl	Quadratic mean	F	Sig.
The organization has values that reinforce its identity	Between groups	11.604	2	5.802	15.024	.000
	Within groups	22.783	59	.386		
	Total	34.387	61			
Good human resources	Between groups	9.399	2	4.700	7.008	.002
	Within groups	39.569	59	.671		
	Total	48.968	61			
Adequate information is available	Between groups	5.825	2	2.912	5.753	.005
	Within groups	29.869	59	.506		
	Total	35.694	61			
As a result of the change, the employees developed new skills and abilities	Between groups	5.541	2	2.771	7.915	.001
	Within groups	20.653	59	.350		
	Total	26.194	61			
The change followed a learning orientation instead of handing over to an authoritarian leader	Between groups	6.215	2	3.108	7.196	.002
	Within groups	25.478	59	.432		
	Total	31.694	61			
Change in the company is the result of organizational learning	Between groups	4.675	2	2.338	10.877	.000
	Within groups	12.680	59	.215		
	Total	17.355	61			

Source: Own elaboration based on the results of SPSS.

Regarding this aspect, one of the biggest management challenges is how intelligent organizations are created and managed (Rahdarpour & Sheikhi, 2016). Filos (2008) stated that the intelligent management of the organization requires a more "fuzzy" approach to manage intelligent resources such as people, available information, the knowledge base, and creativity. Smart business organizations today consider customers, suppliers, regulators, and even competitors who can make significant contributions to their success as stakeholders.

One of the most important challenges of organizational intelligence for companies trying to create a sustainable environment based on profit is the use of human intelligence, trust, and interaction within the organization. It is suggested that this problem can be solved with human intelligence, which includes knowledge and skills and self-regulatory mechanisms offered by culture (Vveinhardt & Minkute-Henrickson, 2005).

On the other hand, collaborative organizational work involves human resources and machine-based problem-solving tools. An organizational intelligence model was developed that combines human and machine computing capabilities and problem-solving (Kirn, 1995).

Organizational intelligence, which is the intellectual power capacity of an organization, is seen as the next limit to separate winners from losers. The ability to make smart decisions and quickly adapt to changing situations is one of the greatest competitive advantages of the 21st century. Organizations that are

strongly rooted in the principles of intelligent organizations can adopt best practices for decision making, and those who implement them can produce better results. (Matheson & Matheson, 2001).

In fact, the intelligence of an organization is not only to adapt to situations. It must be able to influence and shape the environment, restructure itself and achieve the sustainability of a larger whole embedded in it, which includes abilities such as power contribute (Schwaninger, 2019). Therefore, organizational intelligence and learning orientation are considered to influence intelligent organizations.

Table 7. The organization is becoming more aware of its knowledge base

ANOVA						
		Sum of squares	gl	Quadratic mean	F	Sig.
Accept taking calculated risks	Between groups	7.506	2	3.753	6.879	.002
	Within groups	32.188	59	.546		
	Total	39.694	61			
Shared vision	Between groups	8.472	2	4.236	7.242	.002
	Within groups	34.512	59	.585		
	Total	42.984	61			
Competitively, the company is performing better than before the change	Between groups	7.014	2	3.507	9.229	.000
	Within groups	22.421	59	.380		
	Total	29.435	61			
There is a learning approach within the organization	Between groups	3.940	2	1.970	7.803	.001
	Within groups	14.898	59	.253		
	Total	18.839	61			
Difference between what is said and done	Between groups	7.923	2	3.962	49.239	.000
	Within groups	4.667	59	.080		
	Total	12.590	61			
The change followed a learning orientation instead of handing over to an authoritarian leader	Between groups	7.631	2	3.815	9.355	.000
	Within groups	24.063	59	.408		
	Total	31.694	61			
Change in the company is the result of organizational learning	Between groups	3.422	2	1.711	7.245	.002
	Within groups	13.933	59	.236		
	Total	17.355	61			

Source: Own elaboration based on the results of SPSS.

The responses of the respondents show that intelligent organizations are a very important factor that must be considered if an organizational change is sought. For this, it is required that companies have an approach towards learning and generate mechanisms to increase their knowledge base, as well as knowing how to put all that information to good use. (See Table 6).

H2: The knowledge base of the company favors organizational change through organizational intelligence in commercial companies of the AMG.

In accordance with the results obtained in this study, it was discovered that there is a relationship between the organization is increasingly aware of its

knowledge base with: Accept taking calculated risks, Shared vision, Competitively the company is working better than before the change, It has a learning approach in the organization, The change is a result of organizational learning, The results of organizational culture change are measured, The change was oriented towards learning instead of giving a command to an authoritarian leader.

This shows that the knowledge base generated by a company that is characterized by being an intelligent organization favors the implementation of organizational change; For this reason, it is essential that the company's management enter into the process of organizational change and that they train the personnel, so that they have all the information and adequate training to be able to correctly carry out their functions and so that they can actively participate in the process of change in their organizations. For this reason, H2: The knowledge base of the company favors organizational change through organizational intelligence in commercial companies of the AMG, is accepted. (See table 7).

Risk management is a key indicator of intelligence: smart organizations focus on risks and develop adequate adaptation mechanisms for them by calculating how to deal with those risks. In terms of strategic human resource management, organizational intelligence offers a radical challenge. If the company's knowledge base is increased, it becomes an asset in terms of organizational competitiveness (Argyris, 2010). The ability to manage competencies is at the heart of any intelligent organization (Fernández & Rainey 2006; Fernández & Pitts 2007).

H3: Employee education helps to carry out an organizational change process in commercial companies of the AMG.

The results found in this research show that there is a relationship between Employees education with: Employees were willing to change, Employees reaction to the change was favorable, Change agents in this organization can deal with simple problems, Good human resources, Adequate information is available, Shared vision, Accept taking calculated risks, Anticipate the future and its changes, Adaptation, The organization faced many pressures to achieve change.

This reveals that those variables related to organizational intelligence help the establishment of organizational change. For that reason, H3: Employee's education helps to carry out an organizational change process in commercial companies of the AMG, is accepted. (See Table 8).

Table 8. Employee education

ANOVA						
		Sum of squares	gl	Quadratic mean	F	Sig.
Employees were willing to change	Between groups	11.599	3	3.866	7.101	.000
	Within groups	31.578	58	.544		
	Total	43.177	61			
Employee's reaction to the change was favorable	Between groups	10.006	3	3.335	6.680	.001
	Within groups	28.962	58	.499		
	Total	38.968	61			
Change agents in this organization can deal with simple problems	Between groups	8.202	3	2.734	5.443	.002
	Within groups	28.131	56	.502		
	Total	36.333	59			
Good human resources	Between groups	9.661	3	3.220	5.707	.002
	Within groups	32.726	58	.564		
	Total	42.387	61			
Adequate information is available	Between groups	8.052	3	2.684	5.631	.002
	Within groups	27.642	58	.477		
	Total	35.694	61			
Shared vision	Between groups	8.230	3	2.743	5.009	.004
	Within groups	31.770	58	.548		
	Total	40.000	61			
Accept taking calculated risks	Between groups	263.927	3	87.976	7.714	.000
	Within groups	661.509	58	11.405		
	Total	925.435	61			
Anticipate the future and its changes	Between groups	11.493	3	3.831	6.660	.001
	Within groups	33.362	58	.575		
	Total	44.855	61			
Adaptation	Between groups	11.027	3	3.676	5.817	.002
	Within groups	36.651	58	.632		
	Total	47.677	61			
The organization faced many pressures to achieve change	Between groups	7.660	3	2.553	5.286	.003
	Within groups	28.017	58	.483		
	Total	35.677	61			
		263.927	3	87.976	7.714	.000

Source: Own elaboration based on the results of SPSS.

The results of this research indicate that an intelligent organization encourages the participation of workers in the decision-making process to achieve the necessary understanding to make the alignment of objectives and authorization effective (Matheson & Matheson, 2001).

The final element in resource mobilization in a smart organization is the open flow of information. An open flow of information is needed for the design and development of innovative products, services, and processes. The knowledge base flows rapidly within a more permeable organization, and this flow of information in the organization can be improved by applying standards of competence and excellence.

The increasing demands of consumers force organizations to be more efficient and competitive, which causes such companies to be more open to changes that occur in the company and in the market.

CONCLUSIONS

The business world that exists today has the characteristic that it is in constant change. What can be observed when seeing how competition is increasing in all markets and industries worldwide. This favors the decision-making power of buyers since they increasingly have a greater variety of options to choose from, which in turn translates into an increase in consumer expectations.

Therefore, it is essential that companies are increasingly efficient in their processes. Therefore, this world characterized by these continuous changes causes great uncertainty in the markets and businesses, and companies must know how to deal with these changes and anticipate them thanks to the knowledge base that they have as a result of the learning obtained through his experience in the business.

Continual changes in the corporate environment reveal the unpredictability of business. This generates that considerable changes must be created in companies, develop new production processes, devise new products that exceed customer expectations.

Organizations cannot remain stagnant. They have to continually learn because if they don't, competitors will overtake them. The most successful companies are characterized by anticipating changes, and even promoting them, in order to become leaders in the market, forcing competitors to adapt to changes. Carrying out an organizational change can be costly, but if it is carried out correctly, its benefits will be greater, which will make companies more efficient, reduce costs, and make the organization more competitive.

The results of this study allow us to conclude that the three hypotheses are accepted:

H1: Organizational intelligence contributes to the implementation of a process of organizational change in commercial companies of the AMG.

H2: The knowledge base of the company favors organizational change through organizational intelligence in commercial companies of the AMG.

H3: Employee education helps to carry out an organizational change process in commercial companies of the AMG.

In this research that relates the influence of organizational intelligence with a process of organizational change, it was found that organizational intelligence needs management efficiency, adding a change in the direction of the new logic of the digital economy era. An unpredictable environment implies that companies adapt and anticipate changes, which will help them to carry out the organizational change.

In turn, they were found as factors that benefit organizational change from the point of view of organizational intelligence: the change is the result of

organizational learning, the change had a learning orientation instead of giving a command to an authoritarian leader, the base knowledge of the company and learning organizations were important factors in effecting culture change.

Thus, the organizational intelligence perspective indicates that a company changes when its people behave differently. The employees are the ones who have to create and change the company through learning and using their education and knowledge base. This starts with the management since they have a fundamental role within the company itself.

Research shows that organizational intelligence is an increasingly present factor and that it contributes to the process of implementing organizational change. This phenomenon influences all types of companies to carry out an organizational change since organizational intelligence requires business firms to have a focus on learning, so they must constantly be looking to increase their knowledge base.

The companies will be more competitive as they increase their knowledge base and take advantage of all the information they have in order to make better decisions, which will allow them to improve the performance of the company and be more competitive. In turn, organizational intelligence is a highly relevant instrument with which corporations can improve their operations and business performance, providing better service, being more efficient in their processes, and achieving greater competitiveness.

There is no way to predict what will happen in the future, but it is feasible to prepare for what the future brings. Correct preparation of the companies will allow them to face those challenges that the future holds. Every organization must be able to adapt to changes. Making an organizational change is a way of subsisting that companies adopt to continue in the markets.

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