

## Structural Integrity of Strategic Intelligence: an Assessment in a Cooperative Corporation

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### ABSTRACT

The process of transforming information into useful and dynamic knowledge has different structural levels that can determine the development of strategic intelligence (SI) in an organization. That is, the way an organization develops and organizes its intelligence actions characterize the structural integrity of the process and can determine its strategic role. This article aims to analyze the relationship between the structural integrity of the processes of SI and its strategic dimension in a group of 44 companies that are part of a large cooperative of companies in the Autonomous Community of the Basque Country in Spain. Data were collected from the general managers, R&D directors and innovation directors. To measure the SI constructs, a multi-item scale was adopted from prior studies. To identify a typology of companies, cluster analysis was performed. This study confirms that the more solid and organized the structure of the process of strategic intelligence is, the greater the strategic potential of the activity will be.

**Keywords:** Strategic intelligence. Structural integrity. Knowledge. Intelligence. Strategy.

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## 1 INTRODUCTION

**M**any studies pertaining to the field of management have recognized the benefits of intelligence activities aimed at improving the decision-making process. Such studies note that a thorough understanding of the organizations involved in a decision-making process and their environments is essential to the integration of strategic intelligence at various organizational levels (VIITANEN; PRITTIMAKI, 2006). The benefits of intelligence activities have also been recognized by the business world, as illustrated empirically by the accelerated development of such activities. Depending on the environment, however, intelligence activities develop with distinctive characteristics that are influenced by geographical, cultural, economic and other natural conditions (for scholarly work exploring these differences in depth, especially between countries, see CALOF; VIVIERS, 2005; FLEISHER; WRIGHT, 2009; MARTRE, 1994).

Despite the influence of contextual variation, some studies have demonstrated that organizational practices are a determinant of intelligence. In a recent work aimed at defining “intelligence” by means of a synchronic exploration of the use of competitive intelligence (CI) in different organizations, Brody (2008) concluded that “An examination of parameters of CI suggests a boundary-spanning field. It is represented (...) as a body of varying practices, as apposed to a body of practices and process; as a body of knowing, a body of practice, or a body of acting rather than a body of knowledge.” In other words, intelligence activities can be measured as an evolving process, even as they are situated within and influenced by environments that are subject to change.

Following that logic, in order to understand how the CI practices of a specific company are organized, it is necessary to check how its intelligence processes are structured. However, for such understanding to make sense in a determined reality, or even for an organization to be able to examine itself with respect to its activities, it is necessary to carry out an assessment over a body of knowledge that considers the intelligence practices as a structural base of the process. That is, the way an organization develops and organizes its intelligence actions characterize the structural integrity of the process and can determine its strategic role.

Thus, in order to study this statement, this article intends to analyze the relationship between the structural integrity of the processes of intelligence and its strategic character in a

group of companies that are part of a large cooperative of companies in the Autonomous Community of the Basque Country in Spain.

## **2 STRATEGIC INTELLIGENCE**

Currently, the intelligence literature uses distinct denominations: competitive intelligence, business intelligence, strategic intelligence, economic intelligence, marketing intelligence. The difference among the expressions is much smaller than the conceptual convergence (FACHINELLI et al., 2010). An analysis comparing the intelligence systems around the world, carried out by Henri Martre (1994), already indicated the use of different denominations for the intelligence activity. Even so, convergence exists and it happens in the recognition of the importance of strategic engineering information to deal with competitive forces (MARTRE, 1994). In this sense, and assuming the conceptual convergence of denominations, here we use the strategic intelligence (SI) concept since it seems to be more appropriate when talking about the strategic attributes of the information process (FACHINELLI et al., 2010).

Strategic intelligence (SI) refers to the interpretation and use of information for a specific purpose as well as the continuous relationship between types of information and their roles in generating functional strategies (GUILHON, 2004; JAKOBIAK, 2004; LEVET, 2001; FAYARD, 2000; BESSON; POSSIN, 1997). SI organizes intellectual resources into an information process. In other words, in analogy with human intelligence, it is differentiated and creates relationship between various types of information that are used to identify solutions for different situations. In more functional terms, it is the gathering, processing, analysis, and dissemination of useful information for economic players and is strongly related to its context (MARTRE, 1994). More specifically, SI serves the highest level of decision making by enabling reflection in uncertain situations (BESSON; POSSIN, 1997). However, as a subject of research, despite being based on well-established concepts, SI needs to progress beyond its theoretical-scientific fundamentals. One of the debates in this field is about the process-product distinction. There is a tendency to characterize SI as a process (MILLER, 2001; KAHANER, 1996), that is, a set of methods structured in sequence in well-defined chronological periods. In addition, studies show that SI is a dynamic process that evolves with the environment while also evolving its own definitions of activities. Actually, according to Comai (2004, p. 407) “the more systematic the function, the more formalized the function will be”. The SI process is related to the process of defining needs and collecting, analyzing and distributing the intelligence to decision makers (COMAI, 2004). Thus, the

more solid and organized the structure of the process of strategic intelligence is, greater the strategic potential of the activity will be. Therefore,

*H1: Structural integrity is positively related to the strategic character of the processes of strategic intelligence*

Despite the development of research in recent years, epistemologically SI can still be considered a non observable phenomenon, or as similar to a group of latent variables, because it requires a definition that consolidates its components in order to be understood. Therefore, assessing the structural integrity of the process of strategic intelligence is necessary to seek their “constructs,” which Edwards & Bagozzi (2000) define as a conceptual term used to describe a phenomenon of theoretical interest. When the need arises to measure a construct, it becomes necessary to involve various dimensions and to use multiple scales. With this in mind, this study has been designed to examine the major stages of the SI process (DOU, 1995; FULD, 1995; GUILHON, 2004; MARTRE, 1994; ROUACH, 1996) by using the existing literature to develop a valid conceptual framework to define the SI construct (FOLINAS, 2007; JAWORSKI, MACINNIS; KHOLI, 2002; KERR et al., 2006; SAAYMAN et al., 2008; WRIGHT; CALOF, 2006).

A second hypothesis of the current study is that when evaluating the structural integrity of SI processes, it is possible to characterize the typology of groups of companies within a larger group. Existing studies that create typologies of companies with regard to their use of SI tend to be limited to the principal attributes of the SI that was applied: attitude, gathering, use, and location (WRIGHT et al., 2002). Here we extend such analyses to define a typology based on the level of structure present in the processes of SI within the parameters of a conceptual scale. Therefore,

*H2: In a collective assessment, analysis of structural levels of SI processes is positively related to the definition of a typology of groups of firms.*

### **3 METHOD**

Data were collected from the general managers, R & D directors and innovation directors of the 44 industrial companies of a group of enterprises belonging to a cooperative corporation located in the Autonomous Community of the Basque Country in Spain. This group is the most important economic group in the Basque Country, and the seventh largest in Spain. It is a cooperative corporation with 111 cooperatives divided into four areas: Finance,

Industry, Distribution and Knowledge. The group currently employs more than 85,000 people. The demographic characteristics of responding firms are presented in Table 1.

**Table 1 - The Demographic Characteristics of Responding Firms**

Age of firms	
Less than 20 years	9
21 - 51	30
Over 52	3
Number of employees	
Fewer than 100	17
100 – 500	20
Over 500	7
Annual revenues (million euros)	
Less than 40	28
41 – 200	10
Over 201	6
Number of exporting firms	
Exporting firms	31
Others	13

Source: Prepared by the authors.

Furthermore, in 32 companies, the questionnaires were answered by directors in the field of R&D, innovation and management projects. In 24 of these 32 cases, these executives had been employed by their respective companies for over 10 years.

To measure the constructs, a scale was adopted from prior studies (FACHINELLI et al., 2010). This instrument coincides with the levels of development scale proposed by Churchill (1979) and Rossiter (2002). The individual items of the scale were derived from a body of theoretical knowledge and structures based on the principal stages of the process of SI (DOU, 1995; FULD, 1995; GUILHON, 2004; MARTRE, 1994; ROUACH, 1996) and from the constructs and frameworks used in recent works in the field (JAWORSKI; MACINNIS; KOHL, 2002; WRIGHT; CALOF, 2006; KERR et al. 2006; FOLINAS, 2007; SAAYMAN et al., 2008). The instrument was adapted to accommodate the cultural and linguistic characteristics of local companies after consulting with various experts. The instrument included 28 items in addition to the descriptive variables mentioned above. The 28 items that form the instrument were measured based on five-point Likert scales (Appendix 1).

To evaluate the validity and reliability of the measurement instrument for this study, we performed principal components analysis and analysis of internal consistency. The analysis of the principal components was done with varimax rotation. The components with an eigenvalue greater than 1 were dropped. Five components were identified that explain 75.111% of the total variance. Table 2 shows that the first two components accounted for

58.849% of the total variance. In fact, the first component alone accounted for 51.175% of the total variance.

**Table 2 – Key Factor Variance**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative	Total	% of Variance	Cumulative	Total	% of Variance	Cumulative
1	14.329	51.175	51.175	14.329	51.175	51.175	6.767	24.168	24.168
2	2.149	7.674	58.949	2.149	7.674	58.949	4.892	17.472	41.639
3	2.005	7.162	66.011	2.005	7.162	66.011	3.616	12.914	54.554
4	1.320	4.713	70.724	1.320	4.713	70.724	3.517	12.560	67.114
5	1.228	4.386	75.111	1.228	4.386	75.111	2.239	7.997	75.111
...									
28	0.018	0.063	100.00						

Extraction Method: Principal Component Analysis

Source: Prepared by the authors

In the analysis of internal consistency, Cronbach's alpha was calculated.

**Table 3 - Internal Consistency**

Dimension	Nº of items	Cronbach's Alpha
D1 – The strategic character	11	0.944
D2 – Structural integrity of the SI process	6	0.909
D3 – Corporate character of the SI process	4	0.844
D4 – Information as a support for the decision-processes	4	0.843
D5 – The spontaneous character of the IE processes	3	0.733

Source: Prepared by the authors

#### 4 ANALYSIS

In order to calculate the one-to-one relationship between the strategic character and the structural integrity of SI, we calculated the correlation between the variables that comprise factor 1 (strategic character – D1) and factor 2 (structure – D2). The result was 0.718 ( $p < 0.001$ ) indicating that H1 is supported.

With that result, we can show the distributions of the variables and their corresponding dimensions, pertaining to factor 1 and 2 (Figure 1), and also the distributions of the individual companies between these two factors (Figure 2).

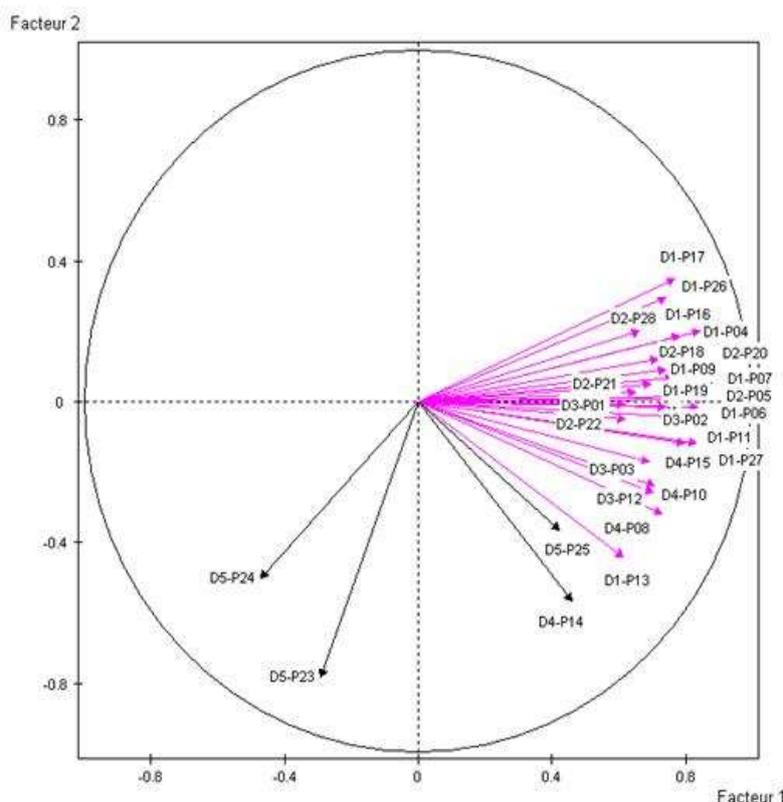


Figure 1 - Variables Distributed in Factors 1 and 2

Source: Prepared by the authors

The analysis of the distribution of the variables in the first two factors demonstrates the following:

-The first factor contains both the characteristics that refer to the presence of a high structural level of SI (corporate character, strategic character, structural integrity of the SI process, and the use of information as a support for the decision-making process) and their opposites, characteristics of spontaneous, rather than structured, SI. It is clear that this first factor represents the principal characteristics that differentiate the sampled companies in terms of their structural levels of SI.

-The second factor contrasts the strategic character (high structural level) to the spontaneous character (low structural level) of SI processes. This factor also, although to a lesser extent, contrasts the organization and registration of information to the use of information as a support for the decision-making process.

The distribution of the individual companies in these two factors can be visualized in the figure below.

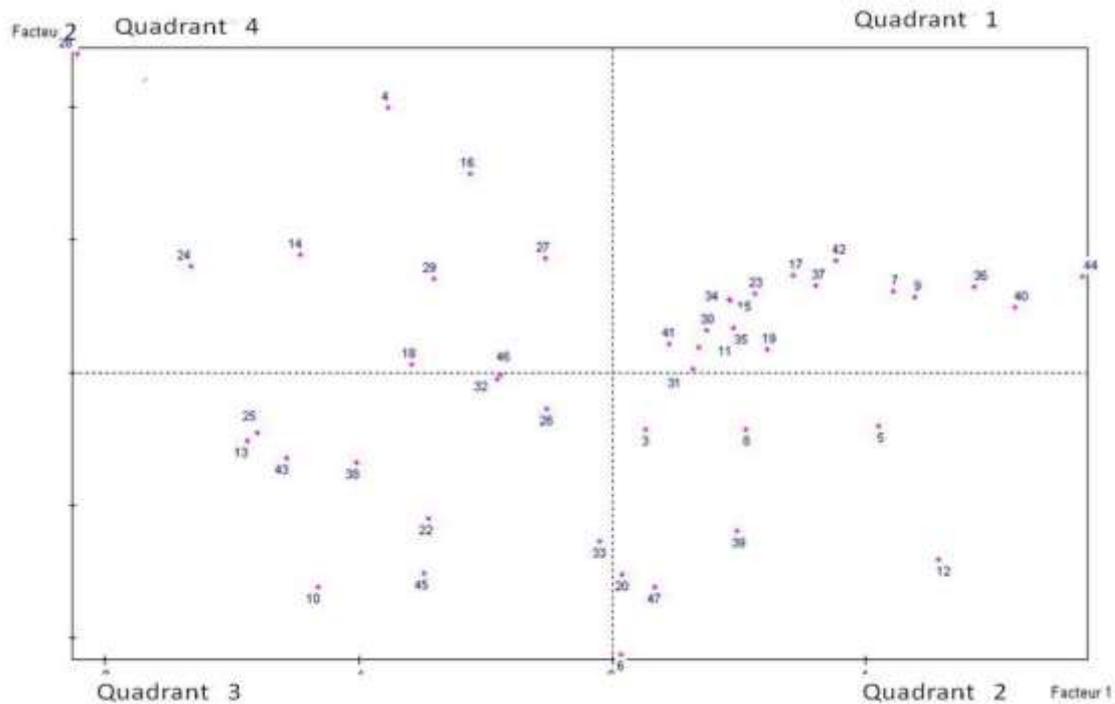


Figure 2 - Individual Companies' Distribution over Factors 1 and 2  
Source: Prepared by the authors

The first quadrant of Figure 2, consisting of positive values of factors 1 and 2, represents the strategic character and high structural level of SI. The companies found in this quadrant use information as a support in the decision-making process and organize and register this information within SI processes that have a corporate character.

The second quadrant consists of positive values of factor 1 and negative values of factor 2. There is a high structural level of SI; however, the spontaneous character of the process dominates the strategic character. Therefore, information is used as a support in the decision-making process to a lesser degree than in the first quadrant. The companies found in this quadrant have a good structural level of SI, taking into account information in their decision-making processes, but need to make progress in the strategic orientation of the SI activity.

The third quadrant consists of negative values of factors 1 and 2. This indicates lower structural levels of SI, and in this quadrant the spontaneous character of the process dominates the strategic character of SI. The companies found in this quadrant use information as a support in the decision-making process, but they organize and register this less than do companies in the first two quadrants. The corporate character of SI also has less importance to companies located in this quadrant.

The fourth quadrant consists of negative values of factor 1 and positive values of factor 2. Although this quadrant shows a structural level of SI activities that is lower than in the first

two quadrants, its processes of SI do have a strategic character. The companies found in this quadrant use information as a support in the decision-making process to a relatively low degree, and the corporate character of SI is relatively unimportant. On the other hand, the importance given to the organization and registration of information can be seen in the more strategic, rather than spontaneous, characteristics of their SI processes.

The second hypothesis of the current study is that when evaluating the levels of structure of the processes of SI, it is possible to characterize the types of groups of companies within a larger group. To create the typology that would allow this, we performed cluster analysis to organize the relevant data into significant structures. The groups were formed by the significant differences between the means from the companies in the group and the means from the sampled companies. Five groups of companies were identified (see Appendix 3). In addition, to verify the behavior of the factors in the groups of companies, we conducted analysis of variance (see Appendix 5), which indicates there are significant differences ( $p < 0.05$ ) between groups in factor 1 (strategic character) and factor 2 (structural integrity), except between G2 - G4 in factor 1 and between G1 - G2 and G2-G4 in factor 2 ( $p > 0.05$ ). Such results support the cluster analysis and confirm H2, i.e., the analysis of structure enables the collective assessment of firms and the definition of the SI typology.

**Table 4 – Differences between groups in factor 1 and factor 2**

	G1	G2	G3	G4	G5	Total
Factor 1	3.814	3.040 <sup>a</sup>	4.457	2.663 <sup>a</sup>	1.857	3.229
Factor 2	3.321 <sup>b</sup>	3.100 <sup>b,c</sup>	4.285	2.484 <sup>c</sup>	1.476	2.947

a, b, c = Significance level  $p > 0.05$

Source: Prepared by the authors

- *Group 1*

This group is composed by fourteen companies - 17, 41, 11, 30, 34, 35, 8, 37, 23, 42, 3, 15, 19 and 31. The results indicate a significant difference between the means of the questions from this group and the general means of the sampled companies (Appendix 4, Table 4). In these companies, the structural level of SI has a strategic character. There is an organized effort, managed by a specific person or department, that is dedicated to the structuring of information within the organization. This person or department searches for information proactively, defines the information sources according to the themes of the company's current strategic interests, and consults information sources in a systematic manner. The characteristics that emerge in this group are the collective and systematic nature of the SI process.

- *Group 2*

This group is composed by the companies 47, 20, 39, 6 and 33. The results indicate a significant difference between the means of the questions from this group and the general means of the sampled companies (Appendix 4, Table 5). These companies are characterized by a low level of orientation in their SI processes. In their case, the process of searching for information is not organized by the corporation. Nobody within the organization is designated to carry out such processes. Outside information is searched for when individuals in the corporation deem such a search necessary. However, these companies have a broad understanding of the capabilities of their channels of execution and take this into account in their decision-making processes. The characteristics that emerge in this group are the individual and spontaneous nature of the SI process.

- *Group 3*

This group is composed by the companies 7, 12, 5, 9, 36, 40 and 44. The results indicate a significant difference between the means of the questions from this group and the general means of the sampled companies (Appendix 4, Table 6). This group is characterized by the highest level of structured SI in the sample population. In these companies, the structuring of information has a strategic character, and its operational character is very deliberate. The information is organized, and adequate information search systems are in place. The strategic character of SI in this group is illustrated by its organizations level of SI and by the employment of specialists dedicated to information management. These specialists make use of information networks to gather relevant information. The companies in this group are able to make use of data gathered through SI processes in the execution of their strategies. In addition, these companies believe that the information acquired through SI processes also stimulates the creation of knowledge and innovation within their organizations. At the operational level in these companies, management acts on the basis of the acquired information, and this information is distributed to involved workers at both the management and non-management levels. These companies have internal departments that manage information from the first stages of the information search to its application via software and other specialized tools. The characteristic that emerges in this group is that SI is a corporate, strategic, systematized, and collective process.

- *Group 4*

This group is composed by the companies 26, 46, 27, 16, 22, 45, 32, 18, 10, 29 and 38. The results indicate a significant difference between the means of the questions from this group and the general means of the sampled companies (Appendix 4, Table 7). This group is characterized by a low level of SI, where the flow of information is neither systematized nor determined. At the strategic level, there is a lack of specialists within the organization dedicated to the analysis of information. At the operational level, these companies do not distribute relevant information among involved workers. They also lack a system by which to obtain and retain information. The characteristic that emerges in this group is that they have a spontaneous and relatively unstructured SI process.

- *Group 5*

This group is composed by the companies 24, 13, 28, 25, 4, 14 and 43. The results indicate a significant difference between the means of the questions from this group and the general means of the sampled companies (Appendix 4, Table 8). This group is characterized by having the lowest level of structure in their SI processes. At the strategic level, there is a lack of specialists within the organization dedicated to the analysis of information. No information is pursued in a consistent manner. No use is made of existing networks to gather information, and these companies therefore do not consider information to promote knowledge and innovation. At the operation level, these companies have very little understanding of the capabilities of their channels of execution and do not take this into account in their decision-making process. Their executives do express the belief that information is not distributed among involved workers, and they comment that they do not have a systematized process of information management. They do occasionally use the internet as a source of information. In this group, it is not easy for individuals to consult information within their own companies, which may be due to the lack of a system of registration, a lack of planning, or limited access to information software. This group is characterized by a low structural level of SI processes and a lack of systematization.

Furthermore, it is interesting to note there is coherence between the formed groups and the distribution of the individual companies in the two factors.

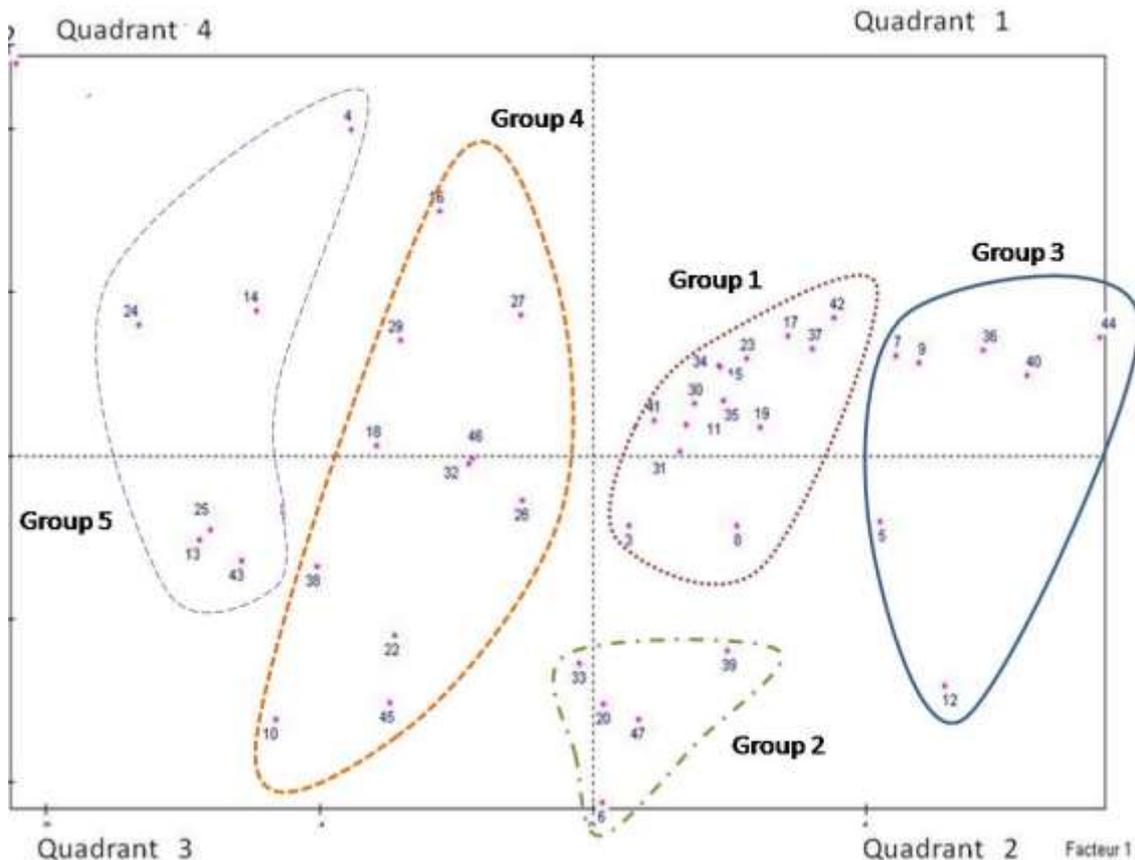


Figure 3 - Formed Groups and the Distribution of the Individual Companies over Factors 1 and 2  
Source: Prepared by the authors

## 5 DISCUSSION

In terms of SI, both in the analysis of individual companies and in the typology of the groups, important differences can be observed among the participating companies. Some show advanced development in their SI processes, whereas others are still in a very early stage of their use. Nevertheless, the result of the correlation analysis among strategic character (D1) and Structural integrity of the SI process (D2) was 0.718 ( $p < 0.001$ ), which indicates that H1 is supported. Such findings show that the strategic character of the SI process is related to its structural integrity. The literature on SI asserts that the more systematic the function, the more formalized the function will be (COMAI, 2004). This study goes further and reveals that the more solid and organized the structure of the process of SI is, the greater will be the potential of strategic activity.

By assessing the structural integrity of the SI process, it was possible to characterize the typology of groups of companies within a larger group. The analysis of variance (Table 9) indicates there are significant differences between groups in terms of strategic character and structural integrity of the SI process, a finding that supports the cluster analysis and confirms H2. The assessment of the structural integrity of the SI process enables the collective

assessment of firms and the definition of the SI typology for the studied group. The results of our study enable us to extrapolate the analysis of the typology of groups from certain attributes already identified in the literature as attitude, gathering, use, and location (WRIGHT et al., 2002). We could extend the analyses to define typology based on the strategic character within the parameters of a conceptual scale for the SI process. Moreover, it is clear that the group as a whole, because of the high level of development observed in some of the companies, has room for the endogenous development of an SI culture, which is possible thanks to a collective assessment and a definition of a typology of groups.

In general terms, other aspects emerge and should be highlighted. The size of the company did not determine the level of SI use in this study. In the companies of Group Three, the best positioned regarding level of SI use, three out of seven companies have annual revenues of less than 20 million Euros and employ fewer than 100 employees. Only two companies in that group have more than 500 employees. This lack of influence of size may be due to characteristics endemic to the surveyed companies and their current efforts to develop a culture of appreciation for knowledge and innovation. However, it still is necessary to further investigate the role of size, because other studies have indicated that smaller companies have more difficulty implementing SI processes than do larger ones (MCKENNA, 1996; DANET, 2006).

With regard to the processes of SI, the results are generally positive (Appendix 2). The image that has arisen from the group of companies involved is that the higher means show that information is fundamental to the creation of knowledge (3,841) and that the decisions take into consideration the companies' competence to execute them (3,864). On the other hand, those companies with the lowest means make little use of intelligence software to search for information. Even for these companies, however, the search for information is not an individual process realized by a particular person, but a group effort. This is a positive indication for future SI development, given that SI is much more the product of a culture of corporate information and projects than the result of individual initiatives.

## **6 CONCLUSION**

One of the principal characteristics of all companies, regardless of their product or size, is their concern with developing competitiveness within a context that has no frontiers. It is therefore imperative that these organizations develop an understanding of the environments in which they exist, since management practices must be based on an expanding vision of the current phenomena that determine the challenges to information and innovation. In other

words, management must take multidisciplinary action, developing operational flexibility as well as speed and precision in information-gathering. In this context, SI becomes an important conceptual and methodological resource for processing information. In fact, fundamental and profound knowledge of the organization about itself and about its environment is essential to the integration of intelligence into the strategic levels of the organization. If this is true for individual organizations, it is also true for groups of companies. In this case the vision is collective and refers to the concepts of collective intelligence.

Thus, it is important to consider that the convergence of representations of individual actors and collective actors contributes to the development of a group identity, which leads to greater cohesion and reliance. That is, the collective dimension of intelligence is intermittently built by meeting identity and project with the added value of knowledge and innovation (BOURRET, 2008).

Therefore it is important to consider as a perspective for new studies, the relationship between the levels of structure in SI and innovation. This study found out elements about the relationship that need to be more explored. In the statistical means (Appendix 2), the highest score refers to the use of the results of SI processes to promote innovation (3,659) and the knowledge creation process (3,841). The results also show that these two means are higher than the mean of the question on the use of results of the SI processes to execute strategies (3,545). The relation between SI and innovation can also be seen in the characteristics of Group Three, which consists of the companies with the highest structural levels of SI. In this group, the information obtained through companies' environments stimulates the creation of knowledge (4.7) and innovation (4.7). Furthermore, current research shows that from the viewpoint of the evolution of practices, theories, and policies of innovation, five crucial factors can be identified for the management of its processes: (1) management of the interfaces; (2) systems of (de-)construction and organization (innovation); (3) the existence of a platform for experimenting and learning; (4) the infrastructure of SI; and (5) the articulation of the stimulus for demand, strategy, and vision (SMITS; KUHLMANN, 2004). SI can be an important conceptual and methodological asset for innovation processes, from the initial phase to the evaluation of the feasibility of the product, in either the individual or group of companies.

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## APPENDIX 1

Mark with an X your level of agreement or disagreement with each of the statements below, always considering the situation within your company.

### Response Categories:

1= Strongly disagree

2= Disagree somewhat

3= Do not agree nor disagree

4= Agree somewhat

5= Strongly agree

Questions	Disagree					Agree				
	1	2	3	4	5	1	2	3	4	5
1. In our company, we have tools (software) for systematic information searches on the internet.	1	2	3	4	5	1	2	3	4	5
2. In our company, we have a formal structure (sector, software, responsible person, etc.) to systematize information search, analysis, and dissemination.	1	2	3	4	5	1	2	3	4	5
3. In our company, most information flows are mapped in the organization sectors according to pre-determined objectives.	1	2	3	4	5	1	2	3	4	5
4. In our company, there is a group of specialists from different areas who analyze information from our business environment.	1	2	3	4	5	1	2	3	4	5
5. In our company, we have a system to register information from our business environment.	1	2	3	4	5	1	2	3	4	5
6. In our company, we have an organized information-source system that we consult systematically and periodically.	1	2	3	4	5	1	2	3	4	5
7. In our company, information is always analyzed by experts on the subject before being used in the decision-making process.	1	2	3	4	5	1	2	3	4	5
8. In our company, we disseminate strategic information to employees from sectors that are related to this information.	1	2	3	4	5	1	2	3	4	5
9. In our company, we define sources to be consulted based on strategic interest themes.	1	2	3	4	5	1	2	3	4	5

Questions	Disagree					Agree				
	1	2	3	4	5	1	2	3	4	5
10. In our company, decisions are based on the results of the information search and treatment process.	1	2	3	4	5	1	2	3	4	5
11. In our company, information from our business environment is used to foment innovation.	1	2	3	4	5	1	2	3	4	5
12. In our company, information collection and treatment allow us to learn from our business environment.	1	2	3	4	5	1	2	3	4	5
13. In our company, information from our business environment is fundamental to the knowledge creation process.	1	2	3	4	5	1	2	3	4	5
14. In our company, the analysis process results in a decision that takes into consideration the competencies of the people responsible for its execution.	1	2	3	4	5	1	2	3	4	5
15. In our company, managers are guided to act according to information obtained from a systematic process of collecting and treating information.	1	2	3	4	5	1	2	3	4	5
16. In our company, we systematically look for information pertaining to strategic interest themes.	1	2	3	4	5	1	2	3	4	5
17. In our company, the information search process is systematic and the responsibility of at least one person.	1	2	3	4	5	1	2	3	4	5
18. In our company, we have survey or intelligence software to monitor our interest environments	1	2	3	4	5	1	2	3	4	5
19. In our company, we look for strategic information by means of a relationship network we have constructed for this purpose.	1	2	3	4	5	1	2	3	4	5
20. In our company, we have a database for all documentation that refers to our environment and to the agents involved.	1	2	3	4	5	1	2	3	4	5
21. In our company, it is easy to consult the archived materials that refer to our environment and to the agents involved	1	2	3	4	5	1	2	3	4	5
22. In our company, we have organized a database for the information that comes from our sales organization, upper management, suppliers, etc.	1	2	3	4	5	1	2	3	4	5
23. In our company, the information search is an individual process, done by any person in need of information on an individual basis.	1	2	3	4	5	1	2	3	4	5
24. In our company, the flow of information is spontaneous and is not strictly guided by specific objectives.	1	2	3	4	5	1	2	3	4	5
25. In our company, information search is a collective process of constant environmental observation.	1	2	3	4	5	1	2	3	4	5
26. In our company, information search is a process conducted by a group of experts focused on strategic interest themes.	1	2	3	4	5	1	2	3	4	5
27. In our company, we primarily seek information that is relevant to the execution of our strategies.	1	2	3	4	5	1	2	3	4	5
28. In our company, the search for information is a planned activity resulting from the directives from upper management.	1	2	3	4	5	1	2	3	4	5

Company: \_\_\_\_\_

Sector: \_\_\_\_\_

Company foundation year: \_\_\_\_\_

Annual turnover (in Euros):

- More than 300 Million  
 From 200 to 300 Million  
 From 100 to 200 Million  
 From 50 to 100 Million  
 From 40 to 50 Million  
 From 30 to 40 Million  
 From 20 to 30 Million  
 Less than 20 Million

Number of employees:

- 1 to 9  
 10 to 49  
 50 to 99  
 More than 100  
 More than 500

Target market (market distribution of sales in %):

- ( ) Regional  
 ( ) National  
 ( ) International

Data of person interviewed

Position: \_\_\_\_\_ Years in the Company: \_\_\_\_\_

Education completed:

- ( ) None  
 ( ) Primary education  
 ( ) High school education  
 ( ) Post high school professional education  
 ( ) College degree

## APPENDIX 2 - ITEM-TOTAL STATISTICS

Active Variables	effective	mean	standard deviation
A formal structure (sector, software, responsible person, etc.) is in place to systematize information search, analysis, and dissemination.	44	2.864	1.455
The organization has a system to register information from the business environment.	44	3.023	1.357
The organization has an organized information-source system that is consulted systematically and periodically.	44	3.000	1.128
Information is always analyzed by experts on the subject before being used in the decision-making process.	44	3.250	1.047
The organization disseminates strategic information to employees from sectors related to this information.	44	3.545	1.054
Decisions are based on the results of the information seeking and treatment process.	44	3.159	0.903
Information from the business environment is used to foment innovation.	44	3.659	0.851
Information collection and treatment are informed by the business environment.	44	3.409	1.030
Information from the business environment is fundamental to the knowledge creation process.	44	3.841	0.952
The analytical process results in a decision that considers the competencies of the people responsible for its execution.	44	3.864	0.919
The organization systematically searches for information on its strategic interest themes.	44	3.500	1.215
Information seeking is systematic, and at least one person is responsible for the process.	44	3.068	1.528
The organization has survey or intelligence software to monitor its interest environments	44	2.705	1.455

The organization seeks strategic information by means of a relationship network constructed for this purpose.	44	2.955	1.224
The organization has a system to register information from the business environment.	44	3.091	1.203
It is easy to consult the archived materials that refer to the environment and to the agents involved.	44	3.000	1.279
The organization has a database for the information that comes from its sales organization, upper management, suppliers, etc.	44	2.932	1.175
Information search is an individual process done by any person in need of information on an individual basis.	44	2.682	1.257
The flow of information is spontaneous and is not strictly guided by specific objectives.	44	2.773	1.145
The information search is a collective process of constant environmental observation.	44	3.159	1.127
The information search is a process conducted by a group of experts on strategic interest themes.	44	2.886	1.247
The organization primarily seeks information relevant to the execution of the strategies.	44	3.545	0.964
The search for information is a planned activity resulting from the directives from upper management	44	2.932	1.232
<b>Illustrative variables</b>	<b>Effective</b>	<b>Moyenne</b>	<b>Ecart-type</b>
Years in business	42	4.000	1.363
Revenue	43	6.023	2.298
Employees	44	3.568	1.009
Years in the company	37	3.865	1.773
Education	44	4.864	0.457

**APPENDIX 3**

Classification hiérarchique directe

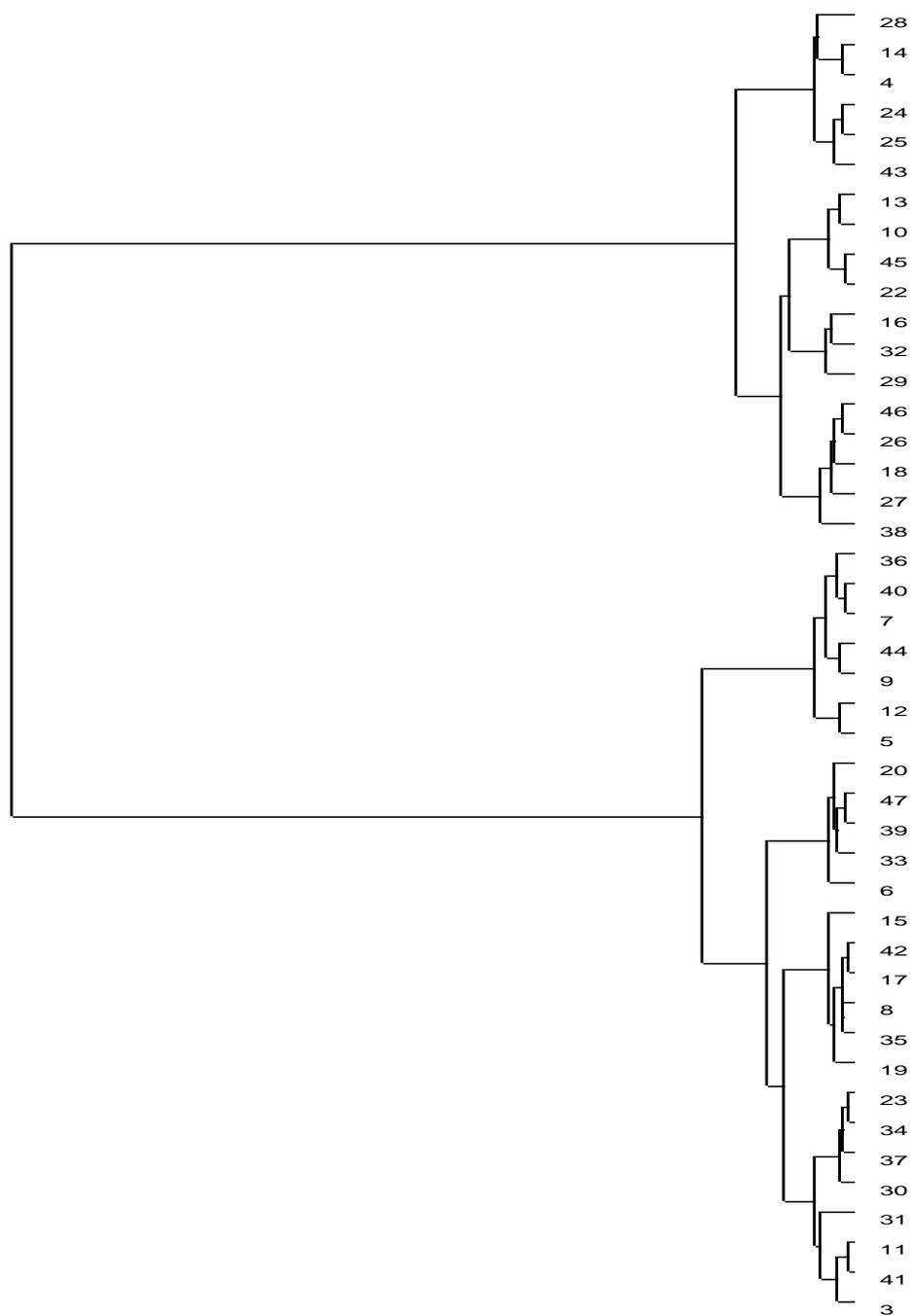


Figure 4 - Dendrogram

**APPENDIX 4 - GROUPS OF COMPANIES****Table 5 – Group 1 Company Means**

<b>Dimension/questions</b>	<b>Means - group</b>	<b>Means-sample</b>	<b>Probability</b>
D1-P17. In our company, the information search process is systematic and the responsibility of at least one person.	4.0	3.0	0.002
D1-P16. In our company, we systematically look for information pertaining to strategic interest themes.	4.2	3.5	0.002
D1-P26. In our company, information search is a process conducted by a group of experts focused on strategic interest themes.	3.6	2.8	0.003
D1-P06. In our company, we have an organized information-source system that we consult systematically and periodically.	3.6	3.0	0.005
D1-P09. In our company, we define sources to be consulted based on strategic interest themes.	3.8	3.2	0.008
D1-P04. In our company, there is a group of specialists from different areas who analyze information from our business environment.	3.6	3.0	0.009

Source: Prepared by the authors

**Table 6 – Group 2 Company Means**

<b>Dimension/questions</b>	<b>Means - group</b>	<b>Means-sample</b>	<b>Probability</b>
D4-P14. In our company, the analysis process results in a decision that considers competences from people responsible for its execution.	5.0	3.8	0.002
D5-P23. In our company, the information search is an individual process, done by any person in need of information on an individual basis.	4.2	2.6	0.002

Source: Prepared by the authors

**Table 7 – Group 3 Company Means**

<b>Dimension/questions</b>	<b>Means - group</b>	<b>Means-sample</b>	<b>Probability</b>
D1-P04. In our company, there is a group of specialists from different areas who analyze information from our business environment.	4.5	3.0	0.000
D3-P03. In our company, the information flows are mapped mostly in the organization sectors, according to pre-determined objectives.	4.5	3.3	0.000
D3-P02. In our company, we have a formal structure (sector, software, responsible person, etc.) to systematize information search, analysis, and dissemination.	4.7	2.8	0.000
D2-P05. In our company, we have a system to register information from our business environment.	4.7	3.02	0.000
D1-P11. In our company, information from our business environment is used to foment innovation.	4.7	3.6	0.000
D2-P20. In our company we have a data base for all documentation that refers to our environment and to the agents involved.	4.5	3.0	0.000
D1-P19. In our company, we look for strategic information by means of a relationship network we have constructed to do so.	4.4	2.9	0.000
D1-P07. In our company, information we have are always analyzed by experts on the subject before they are used in the decision-making process.	4.4	3.2	0.001
D4-P15. In our company, managers are guided to act according to information from a systematic process of collecting and treating information.	4.2	3.1	0.001
D4-P10. In our company, decisions are based on the result of the information seek and treatment process.	4.1	3.1	0.001
D1-P17. In our company, information seek is systematic on the responsibility of at least one person.	4.7	3.0	0.001
D1-P27. In our company, we seek primarily relevant information to enable us the execution of our strategies.	4.5	3.5	0.001

D1-P06. In our company, we have an organized information-source system that we consult systematically and periodically.	4.1	3.0	0.002
D3-P01. In our company, we have tools (software) for systematic information search on the internet.	4.8	3.6	0.002
D2-P21. In our company is easy to consult the archived materials which refer to our environment and to the agents involved.	4.2	3.0	0.002
D1-P16. In our company, we systematically look for information on the strategic interest themes	4.7	3.5	0.002
D3-P12. In our company, information collect and treatment allow us to learn from our business environment.	4.4	3.4	0.002
D2-P18. In our company, we have survey or intelligence software to monitor our interest environments	4.1	2.7	0.002
D4-P08. In our company, we spread out strategic information to employees from sectors that are related to this information.	4.5	3.5	0.003
D1-P13. In our company, information from our business environment is fundamental for knowledge creation process.	4.7	3.8	0.004
D2-P22. In our company we have organized a data base for the information that comes from our sales organization, upper management, suppliers, etc.	4.0	2.9	0.005
D1-P09. In our company, we define sources to be consulted based on the strategic interest themes that serve for information.	4.2	3.2	0.005
D1-P26. In our company, information search is a process conducted by a group of experts on strategic interest themes.	4.0	2.8	0.005
D2- P28. In our company, the search for information is a planned activity resulting from the directives from the upper management.	4.0	2.9	0.007
D5-P24. In our company, the flow of information is spontaneous and is not strictly guided by specific objectives.	1.5	2.7	0.001

Source: Prepared by the authors

**Table 8 – Group 4 Company Means**

Dimension/questions	Means - group	Means-sample	Probability
D5. P24. In our company, the flow of information is spontaneous and is not strictly guided by specific objectives.	3.8	2.7	0.000
D1-P07. In our company, information we have are always analyzed by experts on the subject before they are used in the decision-making process.	2.5	3.2	0.005
D4-P08. In our company, we spread out strategic information to employees from sectors that are related to this information.	2.8	3.5	0.005
D1-P04. In our company, there is a group of specialists from different areas who analyze information from our business environment.	2.1	3.0	0.003
D3-P03. In our company, the information flows are mapped mostly in the organization sectors, according to pre-determined objectives.	2.6	3.3	0.003
D2-P05. In our company, we have a system to register information from our business environment.	2.0	3.0	0.002
D3-P02. In our company, we have a formal structure (sector, software, responsible person, etc.) to systematize information search, analysis, and dissemination	1.6	2.8	0.001
D3-P12. In our company, information collect and treatment allow us to learn from our business environment.	2.4	3.4	0.000

Source: Prepared by the authors

**Table 9 – Group 5 Company Means**

<b>Dimension/questions</b>	<b>Means - group</b>	<b>Means-sample</b>	<b>Probability</b>
D3-P01. In our company, we have tools (software) for systematic information search on the internet.	2.7	3.6	0.010
D1-P17. In our company, information seek is systematic on the responsibility of at least one person.	1.7	3.0	0.006
D3-P02. In our company, we have a formal structure (sector, software, responsible person, etc.) to systematize information search, analysis, and dissemination.	1.5	2.8	0.006
D1-P04. In our company, there is a group of specialists from different areas who analyze information from our business environment.	1.8	3.0	0.002
D2-P21. In our company is easy to consult the archived materials which refer to our environment and to the agents involved.	1.7	3.0	0.002
D1-P19. In our company, we look for strategic information by means of a relationship network we have constructed to do so.	1.7	2.9	0.002
D1-P07. In our company, information we have are always analyzed by experts on the subject before they are used in the decision-making process.	2.1	3.2	0.001
D4-P14. In our company, the analysis process results in a decision that considers competences from people responsible for it execution.	2.8	3.8	0.001
D2-P28. In our company, the search for information is a planned activity resulting from the directives from the upper management.	1.5	2.9	0.001
D1-P16. In our company, we systematically look for information on the strategic interest themes.	2.1	3.5	0.001
D5-P25. In our company, information search is a collective process of constant environment observation.	1.8	3.5	0.000
D2-P22. In our company we have organized a data base for the information that comes from our sales organization, upper management, suppliers, etc.	1.5	2.9	0.000
D2-P18. In our company, we have survey or intelligence software to monitor our interest environments	1.0	2.7	0.000
D2-P05. In our company, we have a system to register information from our business environment.	1.4	3.0	0.000
D1-P13. In our company, information from our business environment is fundamental for knowledge creation process.	2.7	3.8	0.000
D4-P08. In our company, we spread out strategic information to employees from sectors that are related to this information.	2.2	3.5	0.000
D2-P20. In our company we have a data base for all documentation that refers to our environment and to the agents involved.	1.5	3.0	0.000
D4-P10. In our company, decisions are based on the result of the information seek and treatment process.	2.0	3.1	0.000
D4-P15. In our company, managers are guided to act according to information from a systematic process of collecting and treating information.	1.8	3.1	0.000
D1-P06. In our company, we have an organized information-source system that we consult systematically and periodically.	1.4	3.0	0.000
D1-P26. In our company, information search is a process conducted by a group of experts on strategic interest themes.	1.1	2.8	0.000
D1-P09. In our company, we define sources to be consulted based on the strategic interest themes that serve for information.	1.5	3.2	0.000
D1-P11. In our company, information from our business environment is used to foment innovation.	2.4	3.6	0.000
D1-P27. In our company, we seek primarily relevant information to enable us the execution of our strategies.	2.1	3.5	0.000

Source: Prepared by the authors

## APPENDIX 5 - ANALYSIS OF VARIANCE

Dependent Variable		(I) grup	(J) grup	Mean Difference (I-J)	Standart Error	Sig.		
Dimension 1	factor 1	Dimension 2	1,00	Dimension 3	2,00	,77429 <sup>*</sup>	,21737	,008
					3,00	-,64286 <sup>*</sup>	,19314	,015
					4,00	1,15065 <sup>*</sup>	,16810	,000
					5,00	1,95714 <sup>*</sup>	,19314	,000
					2,00	-,77429 <sup>*</sup>	,21737	,008
		Dimension 3	3,00	-1,41714 <sup>*</sup>	,24430	,000		
			4,00	,37636	,22503	,462		
			5,00	1,18286 <sup>*</sup>	,24430	,000		
			3,00	,64286 <sup>*</sup>	,19314	,015		
			2,00	1,41714 <sup>*</sup>	,24430	,000		
	Dimension 4	4,00	1,79351 <sup>*</sup>	,20172	,000			
		5,00	2,60000 <sup>*</sup>	,22301	,000			
		1,00	-1,15065 <sup>*</sup>	,16810	,000			
		2,00	-,37636	,22503	,462			
		3,00	-1,79351 <sup>*</sup>	,20172	,000			
	factor 2	Dimension 2	5,00	Dimension 3	1,00	-1,95714 <sup>*</sup>	,19314	,000
					2,00	-1,18286 <sup>*</sup>	,24430	,000
					3,00	-2,60000 <sup>*</sup>	,22301	,000
					4,00	-,80649 <sup>*</sup>	,20172	,002
					1,00	,22143	,35376	,970
Dimension 3		2,00	-,96429 <sup>*</sup>	,31432	,030			
		3,00	,83658 <sup>*</sup>	,27358	,031			
		4,00	1,84524 <sup>*</sup>	,31432	,000			
		5,00	1,62381 <sup>*</sup>	,39759	,002			
		1,00	-,22143	,35376	,970			
Dimension 4	2,00	-1,18571 <sup>*</sup>	,39759	,037				
	3,00	,61515	,36623	,458				
	4,00	1,62381 <sup>*</sup>	,39759	,002				
	1,00	,96429 <sup>*</sup>	,31432	,030				
	2,00	1,18571 <sup>*</sup>	,39759	,037				
Dimension 5	3,00	1,80087 <sup>*</sup>	,32830	,000				
	4,00	2,80952 <sup>*</sup>	,36295	,000				
	1,00	-,83658 <sup>*</sup>	,27358	,031				
	2,00	-,61515	,36623	,458				
	3,00	-1,80087 <sup>*</sup>	,32830	,000				
Dimension 6	4,00	1,00866 <sup>*</sup>	,32830	,030				
	5,00	-1,84524 <sup>*</sup>	,31432	,000				
	1,00	-1,62381 <sup>*</sup>	,39759	,002				
	2,00	-2,80952 <sup>*</sup>	,36295	,000				
	3,00	-1,00866 <sup>*</sup>	,32830	,030				

Source: Prepared by the authors