

DOMINANT APPROACHES IN THE FIELD OF MANAGEMENT

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This paper tries to find out the different research fronts that have recently defined the scientific area of organizational studies. These fronts represent the paradigms or theories that the current research in the most relevant journals is based on. A study of how trends develop in those journals is also done. Quite different from other typologies, this work has used an empirical method of analyzing the literature references found in the articles published in some of the most relevant journals in this field in recent years.

New studies in the literature often aim at identifying and analyzing the main research trends in the wide and very diverse field of management. They tend to be the result of the expert reflections based on accumulated knowledge. Our work follows the same research line, but contrasts with most of the studies mentioned by using an objective and inductive procedure consisting of the examination of the research conducted in the study of organizations. Our analysis identifies the dominant paradigms or research fronts, the interconnections, and also allows an insight into their dissemination by the main scientific journals in this field.

In our process we use the literature references cited in the research works which are an acceptable indicator for the different information sources used (Culnan, 1986) and also reflect the ideas that scientists have linked, associated, and organized (Garfield, 1963). The analysis of the references can be used, as it has been since the 1960s, to study the research fronts (Price, 1965) and to define the cognitive structure of a scientific discipline (Garfield, 1963). Within the field of bibliometry, this research study uses the co-citations or joint citations method developed during the early 1970s (Small, 1974). This method is based on the fol-

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lowing: whenever two works are frequently cited in ulterior research works, it is possible to infer that there must be some link between them. By statistical techniques these links between sets of authors or documents allow the discovery of the most closed-linked authors, and it let us define the schools, research fronts or invisible colleges (Moya, Jiménez, & Moneda, 1998).

Research works based on the examination of citations have been criticized for the poor attention of many scientists when citing their references: excessive self-citing, formal and informal influences not specifically stated, large dissemination of literature references between studies, etc. (Cawkell, 1976; Stephens, Kelley, Johnson, & Siefers, 1995). Nevertheless, and without denying those criticisms, it is necessary to acknowledge that anomalies in the citations account for only a small disturbing effect if we can detect strong repetitive signs (Cawkell, 1976). This is why they are used in many disciplines connected to ours: macro-economics (McCain, 1983), information systems (Culnan, 1986), international management (Stephens et al., 1995), etc.

In applying the co-citations method to our study field, we are aiming at the following objectives. First, we intend to identify the main research trends or fronts in this study field. The result will not be very different from other reflection-based studies since there is sound evidence of the high correlation between citation methods and judgments by experts (So, 1998). This allows us an easier and sounder interpretation of outcomes. Second, we will try to determine the relationship and relative positions of these paradigms, as well as their relevance within the study field. Finally, we will conduct an individualized analysis of these research trends for each journal and a study of the geographical diffusion of the different approaches.

The work is then structured as follows: the second section briefly discusses the bases and operation of the co-citations method. In the third part we carry out a brief revision of the paradigm concept and its application in the field of management showing the functionalist paradigm predominance. Next, the methodology used in this research work will be explained. The last part lists the most important results obtained and we will finish by presenting the main conclusions and potential research lines.

The Co-Citation Method

The bibliographical references of a research work represent the theoretical and empirical background on which it is based. These references or citations establish research links have given rise to networks of scientific documents. Some experts in bibliometry indicated the possibility of analyzing those networks in order to get to know the structure of science of a certain study field (Garfield, 1963; Price, 1965). Since then, the representation (mapping or diagramming) of that structure has become one of the most relevant and challenging questions for bibliometry researchers (Small, 1993; Garfield, 1979). Their analysis has produced a diversity of methodologies, in which the co-citation or joint citations method is significantly relevant, based on the count of the number of times that two documents or authors are cited jointly by the same work. This method aims to identify

groups of documents or authors who are closely related and which, consequently, can be affirmed as belonging to the same *research front* (Price, 1965).

These groups or research fronts define the cognitive or intellectual structure of science and the scientific specialties (Small, 1974; Cawkell, 1976; White & Griffith, 1981), but its interpretation has been subject to permanent debate (Zitt & Bassecoulard, 1996). What really do those research fronts obtained from the bibliographical references represent? Firstly, they represent assemblies of authors or scientific documents that share some subject, theory, or common methodology (Garfield, 1993) and describe current investigation (Zitt & Bassecoulard, 1996). The authors who often cite the same documents have the same collective representation of their investigating activity; consequently, the higher the co-citation is among them (Garfield, 1979), the more coherent and integrated is the scientific community determined by the method (Callon, Courtial, & Penan, 1995). This link between research fronts and scientific communities led Small (1974) to establish a link between the co-citations method and the paradigm notion proposed by Khun (1962). This is why the concept of research front has been frequently assimilated with that of the paradigm, but this synonymous use is worth reflecting on.

Although Khun (1962) himself uses the term "paradigm" in many different ways (Masterman, 1970), it can be affirmed that a paradigm sets out the way of seeing the world and how it should be studied, and that this view is shared by a group of scientists who live in a conceptual community marked by a language, who seek to build upon a shared conceptual structure and who maintain a very defensive political posture towards outsiders (Burrell, 1999). There are, anyway, terms that are used with a similar meaning that, however, are not exactly synonymous (theories, schools of thought, research trends, etc.). Fabian (2000) establishes a clear distinction between the concepts of theory (any coherent description or explanation of observed or experienced phenomena), paradigm (the acceptable beliefs and assumptions for generating theories about phenomena) and discipline (the common focus of a set of researchers who might perform research in varied paradigms and/or theoretical perspectives). Due to this variety of concepts, we must reformulate the previous question: what do the determined research fronts obtained by bibliometrical methods (theories, paradigms, schools of thought, disciplines, etc.) represent? To answer this question it is necessary to understand that bibliometrical analysis, of co-citation in this case, can be made at different aggregation levels (Garfield, 1993). Two main ones are usually distinguished (Small, 1993): macrolevel (analyses of science as a whole or large scientific areas) and microlevel (studies focused on certain scientific specialties or, even, on research fronts within them). Consequently, the meaning of the groups (clusters) of authors or documents is going to depend on the level at which the analysis is made: at the macrolevel, the research fronts will represent scientific specialties or disciplines (Small, 1993; Garfield, 1979); on the other hand, at the microlevel, the identified groups may mean paradigms, theories, investigation specialties, schools of thought or, simply, geographic areas of common subjects or groupings (Rowlands, 1999). The researcher's knowledge of the study field will allow the determining of the correct nature of each of the identified groups.

In this work, considering that it is a microlevel study, i.e., the bibliographical analysis of a specialty or determined subspecialty, the generic word *research front* will be used without distinction, along with most specific words such as *paradigm*. In the interpretation of the results, the terms of theory or area of common subjects will also be used depending on the nature of the group or research front identified.

The co-citations method stands on a general principle (Small, 1974): the more two authors or documents are jointly mentioned in the scientific works of a field of study, the closer the link between them will be. When two authors or documents are cited together in one article, the coincidence can result from the topic discussed or from a personal reflection of the author. Yet, if there are many articles that cite both authors or articles together, this frequency denotes the relationship or proximity between them. Thus, the method is to count the number of times (articles) both documents are cited together (co-cited) over a certain period of time. Starting from the number of co-cites, it is therefore possible to identify groups of authors or documents belonging to the same school or research front and which therefore fall within the same paradigm (Culnan, 1986). In this article we will use the document co-citation method (books or articles in journals) rather than the author method, since the former enables a more precise identification of the research fronts (White & Griffith, 1981), as well as a determination of the key works on which the dominant paradigms are based.

Research fronts have a visible part and an invisible one. The former is made up of the works or references—source works—that are widely co-cited in a certain research field and are used to set out the dominant paradigms. The latter is composed of all authors who have cited those source works in their papers. These researchers belong to the research fronts and their research develops the paradigms (Callon et al., 1995; Moya et al., 1998).

The application of the co-citation method implies a five-stage process (Callon et al., 1995). First, we must determine a set of articles defining the field studied. This means we must specify the journals or other published material in which the research in this field appears. Second, we have to select a set of documents (articles and books) to serve as paradigm-determining sources. The most widely used criterion is the number of cites, and so we take the most significant works representing the study field to be those more frequently cited during the period analyzed. The third step is the construction of the co-citation matrix, showing the number of times two documents are cited together in the period analyzed. Both the columns and the lines in the matrix represent the source works, and each box shows the number of times—articles—in which two documents have been cited together. In fourth place, we apply multi-variant analysis techniques to simplify the information contained in the co-citation matrix. The results will identify the different research fronts. This process should lead to the establishment of groups of significant works or documents very frequently co-cited by the different research fronts in their literature references. The usual criterion is to ascribe an article to a certain paradigm if it cites at least two source works defining the relevant trend (Zitt & Bassecou-lard, 1996; Culnan, 1986). It is not infrequent for some articles or research works to be based on more than one trend or paradigm. From this assignment it is possible to analyze the dissemination of the different research fronts in the main journals

of the relevant field. These stages for this work are specified in the following section.

The Paradigms in the Field of Management

Khun's ideas, expressed in his work "The Structure of Scientific Revolutions" (1962), were quite rapidly assimilated by some researchers of the organizations studies who, during the seventies, tried to analyze the discipline in terms of paradigms. The work of greatest impact was published at the end of the decade by Burrell and Morgan (1979) with the explicit title of "Sociological Paradigms and Organizational Analysis." They used two criteria (subjective-objective, radical change-regulation) to classify the field and identify four paradigms in the study of the organizations: functionalist, interpretative, radical humanist, and structuralist (Burrell & Morgan, 1979). The authors recognized the clear predominance of the functionalist paradigm (an approach based on assumptions concerning the unitary and orderly nature of organizations). Functionalist research emphasizes consensus and coherence rather than conflict, dissensus, and the operations of power. The key concept is that of the organization as a "system" which is functionally effective if it achieves explicit goals formally defined through rational decision-making. The management's task, according to this view, is to define and achieve these goals; the researcher's task is to collect objective data concerning the way in which the organization functions concerning goal orientation and maintenance (Clegg & Hardy, 1999), but they also pointed out a certain decline of this paradigm since the end of the 60s, though the legitimacy of alternative perspectives was still in doubt. As will be seen later, such an opinion was severely criticized by some defenders of functionalism.

The diffusion of Khun's ideas and the impact of the Burrell and Morgan book gave rise to intense debates in the field of management concerning two relevant questions. The first is, the discipline's paradigmatic nature, that is to say, if the study of the organizations could be considered to be preparadigmatic or multiparadigmatic—the former implying the need to promote unity to advance *normal science*, whereas the latter means a recognition of multiple paradigms being necessary to accommodate the kind of science being pursued (Fabian, 2000; Ritzer, 1975). Secondly, the paradigms showed incommensurability—the concepts, terms, and methods of one paradigm not being translatable into those used by another paradigm, etc. leads to the mutual exclusivity of paradigms (Burrell, 1999). An intermingling of these two subjects of discussion has been developed throughout the two last decades and is still a current question (Fabian, 2000; Clarke & Clegg, 2000).

Throughout the 80s, some reputed authors were inclined towards a multiparadigmatic approach in the study of organizations and proposed taxonomies of paradigmatic perspectives within organization theory. Among the most-used proposals Astley and Van de Ven's (1983) and of Scott's (1987) can be mentioned. Opposing these opinions, and due to the concern about the functionalist paradigm decline announced by Burrell and Morgan (1979), Donaldson (1985) carried out an enthusiastic defense of the dominant paradigm, identifying it with the true organization

theory, whereas the alternative paradigms were included within Organization Sociology and alternative programs. Donaldson's (1985) work, as well as other contemporary works holding a different position (Reed, 1985), gave rise to an interesting discussion that even led to a monographic volume on the subject in one of the main journals of the discipline (*Organization Studies*, 1988). Two recurrent ideas in those discussions are relevant for the present work.

Firstly, there was a certain unanimity about the belief of the predominance of the functionalist paradigm in organization theory. The discussion took place concerning the convenience or not of this predominance and its stability. Aldrich (1988), one of the participants in the discussion, carried out a simple bibliometric study to verify that the presence of the main approaches in the most important journals of the area was very small and that, therefore, Donaldson's concern about the threat of the alternative paradigms was not justified. Along with Aldrich (1988) other authors (Hinings, 1988; Clegg, 1988) indicated, however, the necessity of carrying out more complete analyses of bibliographical references to examine the diffusion and the predominance of the functionalist paradigm. Nevertheless, few studies of a bibliometrical nature have taken over that purpose in the discipline of management.

Secondly, it was also recognized that the predominance of the functionalist paradigm was especially intense in North America, where organization theory is clearly more separated from other disciplines (established separately with a generally-accepted framework of the kind outlined by Donaldson) and has spread through a diversity of journals dealing solely with organization theory issues. In his list of journals, Hinings (1988) includes nearly all the journals used in the present investigation. On the other hand, in Europe theoretical diversity was to a greater extent due to the continued ties of its organizational analysis to sociology and its lack of institutionalization outside those disciplines at that time. This entailment of the paradigms within the geographic zones has been recently indicated by other authors (Burrell, 1999; Clarke & Clegg, 2000), talking about a diaspora of the constructors of the organization theory (the diaspora of builders), with alternative approaches and criticisms of the dominant paradigm, in such a way that North America (and in general the North Atlantic) no longer represents the undisputed geopolitical center of organization theory as it once did (Burrell, 1999).

However, as opposed to this geographic and paradigmatic spread, a territorial expansion of the functionalist paradigm, dominant beyond the borders of North America, can also be observed due to the frequent presence of researchers from all over the world in North American universities, (increasing the spread of the main American journals of management, and creation of associations filial or similar to the Academy of Management in diverse geographic zones, etc.). Some studies about the geographic diversity of the authors who publish in the management journals (Baruch, 2001; Bhlül & Pasadeos, 1995), confirm the preceding commentaries, although their methodology and objectives differ from those included in the present work.

During the 90s, the discussion about paradigms was suddenly reactivated by Pfeffer (1993), who affirmed the convenience of the existence of a dominant paradigm in organization theory because such a situation has beneficial effects on

knowledge accumulation and the discipline's social development. To get to this point, Pfeffer (1993) emphasized the importance that elites may have to obtaining and maintaining a consensus within the discipline. Pfeffer's ideas were quickly answered and criticized by Canella and Paetzold (1994). They defended the plurality of visions to maintain a discipline's vitality and at the same time rejected the role of the elites as conductors of scientific development. The discussion was open and the 1995 annual meeting of the Academy of Management included a symposium debate about the attractiveness of the "paradigm/paradigms/ Pfefferdigm" alternatives for management disciplines. The debate has continued through to now with a huge number of articles, readings and monographic numbers of prestigious journals such as *Academy of Management Review*, *Organization* and *Organization Studies*.

In a recent article, Fabian (2000) offers a frame for the development of that debate by means of a typology of approaches of the discipline (disciplinary approach: the organizational system preferred by a researcher for identifying, supporting, and/or legitimizing research in a discipline) and the identification of conflicting pressures that act to move the management field toward one disciplinary approach or another). Based on those pressures, an opinion about the nature and situation of the discipline of management predominates in one period of time. However, beyond these epistemologic debates on the paradigmatic character of the field of study, the published articles and documents show an unquestionable reality: the revision of the research published in three important journals of management (*Administrative Science Quarterly*, *Academy of Management Journal*, and *Journal of Management*) has shown that the methods and principles of the functionalist paradigm keep on dominating the study of the organizations (Scandura & Williams, 2000).

But, which theories or approaches can be included under the umbrella of functionalism? The book published by Clegg, Hardy, and Nord in 1996, *Handbook of Organization Studies* (partially reedited in 1999 by Clegg and Hardy with the title *Studying Organizations: Theory & Methods*), brings together an extensive analysis of the main theoretical trends in the study of organizations. Although a formal and explicit classification of the different approaches is not carried out in these works, in the introduction their publishers set down those theories that have been developed under the umbrella of functionalism and which are analyzed in some of the chapters of the book (Clegg & Hardy, 1999): *Contingency Theory*, *Organizational Ecology*, *Institutional Theory and Resource Dependence*, and *Organizational Economics*. In the chapter dedicated to the latter, Barney and Herterly (1999) include the Transaction Cost Theory, the theoretical Agency Theory and the theoretical developments that integrate the discipline of strategic management: Structure-Conduct-Performance paradigm in industrial organization economics and resource-based view of the firm. In a more systematic way, these are the main theoretical trends that Fernández (1999) and Hoskisson, Hitt, Wan, and Yiu (1999) identify and analyze in their revisions of organization theory, and strategic management, respectively.

The present work aims to give a quantitative and empirical answer to the diverse questions that have been set out in the preceding commentaries. Via a bib-

liometric co-citation analysis, we try to find out the existence and relative importance of the dominant paradigms in management, their diffusion in the main journals of the field, as well as the geographic diversity of the authors who publish and develop their research in those paradigms and dominant theories. Considering the predominance of the functionalist paradigm, we expect the results obtained (based on the method used that primes the fronts of investigation of greater diffusion) to show the theoretical trends that are integrated within this frame and indicate each one's relative position.

Method

Management science is a very comprehensive and wide-ranging field of study, whose limits are difficult to determine. In this work we have opted for using the articles published in the most important journals in the field. The selection of the journals was based on the classification proposed by Tahai and Meyer (1999). We have selected the first ten journals in the influence ranking, and we have analyzed the eight years period ranging from 1992 to 1999. The list of journals included is shown in Table 2. The number of articles analyzed was 2,911 and the total number of cites was 155,150.

We have used the *Social Sciences Citation Index* (SSCI) database to select the most frequently cited documents during the period under study. We established a minimum threshold of 50 cites, a similar figure to that used in other studies considering the period studied and the number of articles covered (Culnan, 1986). We obtained 92 documents (articles and books) which were cited more than 50 times in the interval under study. These works were filtered following Rowlands' (1999) recommendations in order to reduce the number of zeros in the co-citation matrix. The application of these rules brought down the number of source documents to 54. They are shown in Table 1.

Afterwards, and using the SSCI database again, we proceeded to create the co-citation matrix, whose values came from the count of the number of articles that cited both sources together. The values of the main diagonal are zeros (the same work cannot be cited twice in the literature references of an article) and the matrix is symmetrical. However, according to the meaning of the co-citations—topics similarity—the boxes in the diagonal should have the maximum value, since the co-citation of a work with itself would mean that the topics are identical. For this reason we assign to those boxes with value higher than any other value in its column or line. Nevertheless, this value should not cause any difficulty in the estimation of correlation quotients since a too-high value could cause errors in the estimates. For this reason we decided to take as the value for the diagonal the result of the addition of the three highest values in the corresponding line divided by two (White & Griffith, 1981; Culnan, 1986).

Based on the co-citation matrix we employed Pearson's correlation matrix. These correlation quotients are an indicator of the similarities between the co-citation profiles of two source works. This process has two important advantages (Moya et al., 1998; Rowlands, 1999): on the one hand it allows us to standardize the results by preventing the scale effects caused by the difference in number of

Table 1
Factor Analysis

Author or Authors	Year	Journal or Editors	1	2	3	4	5	6	7	8	9
Dierickx, J.; Cool, K.	1989	Management Science	.95								
Barney, J. B.	1991	Journal of Management	.95								
Amit, R. J.; Schoemaker, P. J. H.	1993	Strategic Management Journal	.94								
Wernerfelt, B.	1984	Strategic Management Journal	.94								
Peteraf, M.	1993	Strategic Management Journal	.93								
Barney, J. B.	1986	Management Science	.92								
Conner, K. R.	1991	Journal of Management	.90								
Rumelt, R. P.	1984	Prentice-Hall	.88								
Penrose, E.	1959	John Wiley & Sons	.88								
Lippman, S. A.; Rumelt, R. P.	1982	Rand Journal of Economics	.87								
Prahalad, C. K.; Hamel, G.	1990	Harvard Business Review	.80								
Nelson, R. R.; Winter, S. G.	1982	Harvard University Press	.78								
Kogut, B.; Zander, U.	1992	Organization Science	.73								
Cohen, W. M.; Levinthal, D. A.	1990	Administrative Science Quarterly	.62								
Hannan, M. T.; Freeman, J.	1984	American Sociological Review		.90							
Hannan, M. T.; Freeman, J.	1977	American Journal of Sociology		.88							
Stinchcombe, A. L.	1965	Handbook of Organizations		.86							
Tushman, M. L.; Romanelli, E.	1985	JAI Press		.82							
Hannan, M. T.; Freeman, J.	1989	Harvard University Press		.76							
Tushman, M. L.; Anderson, P.	1986	Administrative Science Quarterly		.63							
Cyert, R. M.; March, J. G.	1963	Prentice Hall		.56							
Lawrence, P. R.; Lorsch, J. W.	1967	Harvard University Press			.92						
Burns, T.; Stalker, G. M.	1961	Tavistock Publications			.90						
Galbraith, J. R.	1973	Addison-Wesley Publishing Co.			.87						
Eisenhardt, K. M. A.	1989	Academy of Management Review			.65						

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Table 2
Paper Assignment

Journals	Total paper	Author 0	Author 1	Factors	1	2	3	4	5	6	7	8
<i>Academy of Management Journal</i>	315	152	64	2	44							
<i>Academy of Management Review</i>	266	112	51	3	46	40						
<i>Administrative Science Quarterly</i>	151	37	29	4	55	20	28					
<i>Industrial & Labor Relations Review</i>	207	191	13	5	30	56	45	28				
<i>Journal of Applied Psychology</i>	466	420	43	6	27	22	12	6	16			
<i>Journal of Management</i>	228	131	35	7	62	28	42	23	28	12		
<i>Organization Science</i>	266	87	76	8	5	7	7	17	16	1	3	—
<i>Organizational Behavior and Human Decision Processes</i>	457	440	16	Total	240	145	162	160	187	67	146	68
<i>Personnel Psychology</i>	193	185	8	Number of factors	1	2	3	4	5	6	7	
<i>Strategic Management Journal</i>	362	56	79	Number of papers	363	212	87	21	12	3	1	

Note: Factors: 1 = Resources Based View, 2 = Ecology, 3 = Contingent Approach, 4 = Transaction Costs, 5 = Institutional Theory, 6 = Learning Approach, 7 = Strategy, 8 = Agency Theory

cites of each document and, on the other hand, it reduces the number of zeros in the matrix.

The co-citation and correlation matrixes are the starting point for the statistical analyses that will allow us to identify the research fronts in the field. We have used three multivariate analysis statistical techniques to reduce the number of dimensions and obtain the groups of documents that define research trends as well as graphic representation for an easier interpretation. These techniques are: multi-dimensional analysis (MDS), which enables us to generate an object map to detect the proximity of source documents by means of the identification of the dimensions best explaining similarities and differences among the variables; cluster analysis, from which we obtain a series of groups of documents representing the different research fronts; and factorial analysis of correspondences, which identifies the documents integrating each factor and their contribution or load as an approximate idea of their relative influence within each paradigm or research front. This analysis allows a more precise definition of the research fronts obtained by the cluster analysis.

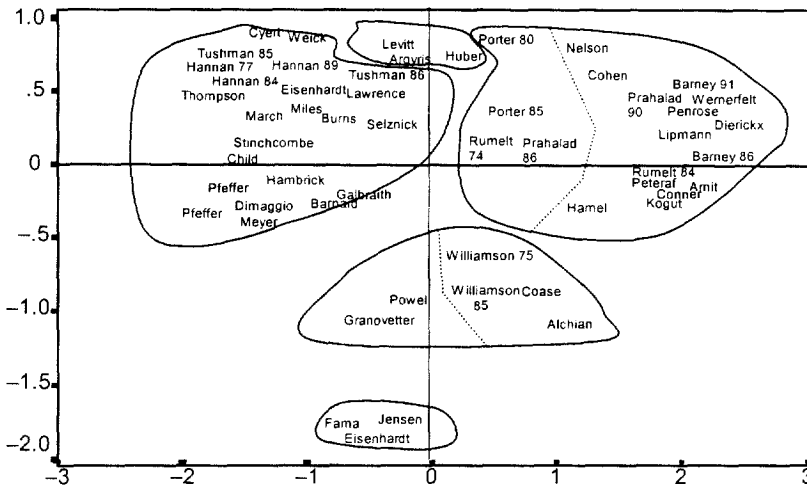
Taking the results of factorial analysis as a starting point, we proceeded to assign the papers studied to the different research fronts or trends which were determined by the factors resulting from the analysis. We considered that a paper used a certain paradigm or research trend as a theoretical basis if it cited at least two of the source documents for that factor. This is a relatively strict process to assign papers to research fronts (Zitt & Bassecouard, 1996). Certainly, we cannot state that the papers that have not been assigned to any research front are not really integrated within any of the paradigms defined by these research trends since some of the works defining the paradigm might have been cited, but not the central or the most frequently cited ones. However, we can state that all the ones we mention are part of the paradigms, but the opposite is not always true. In any case, the sample used is a good representation of the study field and enables an analysis of the degree of dissemination in journals of the different paradigms.

Results

A first approach to understanding the theoretical structure of the field of management is to draft a map establishing the source documents different links. In order to obtain this map we performed a multidimensional scaling (MDS) (Rowlands, 1999; McCain, 1986). This analysis consists of the projection of the different source documents on a two-dimensional map. Entry data are taken from Pearson's correlation matrix, obtained from the co-citation matrix. The more similar the co-citation profiles of two authors, the closer they will be displayed in the map; thus, the documents linked to many other source documents will be located in areas close to the map's center (McCain 1986). The result of this analysis has been obtained by the ALSCAL routines of the SPSS statistical program and is shown in Figure 1. The values obtained in the statistics that show the adjustment goodness (Kruskal stress formula 1 = .099) and the percentage of variance contained in the disparity matrix (RSQ = .95) allow us to state that analysis is a good approach to reality (Luque, 2000; Cuadras, 1981). The groups obtained from the cluster analy-

sis using Ward's hierarchy method appear surrounded by lines in the figure. The resulting number of groups is five. Yet, two subgroups have been identified and they are displayed surrounded by dotted lines within the main groups.

Figure 1
Multidimensional Scaling



As the figure shows, the different works are grouped together depending upon their proximity. The five resulting groups represent different theoretical trends within the study field. The first one includes the different contributions that have been labeled as *Organizational Theory* (Cyert & March, 1963; Weick, 1979; March & Simon, 1958; Pfeffer, 1981). The second group is made up of those focusing on *Organizational Learning* (Argyris & Schön, 1978; Levitt & March, 1988; Huber, 1991), and the third one is made up of all authors making their contribution from the *Strategic Management* approach. The latter can be broken down into two clearly-differentiated subgroups: the works that started and developed the *Resources and Capabilities Theory* and those we could label as "Basic Works in Strategic Management." Furthermore, the figure shows that *Organizational Learning* serves as a link between the first and third groups in the analysis. The fourth group includes the most relevant works of the *Transaction Costs Theory*, separating the most characteristic works in this trend (Williamson, 1975, 1985; Coase, 1937) from those that are more critical or that provide links with other trends (Powell, 1990; Granovetter, 1985). Finally, the fifth group includes the most outstanding works of the *Agency Theory*.

Despite the arbitrary construction of the axes, the position in the map of the different groups lets us suggest that the horizontal axis represents the approach of the different trends: from a more "internal" vision of the studies (as in the case of the *Organizational Theory*, the *Agency Theory* and the most critical works in the

Transaction Costs Theory) to a more "external" approach (*Strategic Management and Transaction Costs Theory*). Again the *Organizational Learning Theory* group appears as an intermediate element between both visions.

Regarding the positions of the different groups and documents, we can highlight the fact that there is no work or group of works located in the center of the map: works that could be considered as key ones in the field of study because of their relationship with others. Only Rumelt (1984), Selznick (1957), and Galbraith (1973), examples of three important approaches in the field of management, are relatively close to the central position. Likewise, we can see that the *Agency Theory* is the research line furthest away from and the one with less links to the other ones. This distance reflects the low correlation of the key works in this theory with all other documents, with the unique exception of the *Transaction Costs Theory*.

Another statistical technique we have used in our study is the factor analysis of correspondences with varimax rotation, due to the low correlation among factors and the pursued objectives of this work, which is to include each variable in only one factor. Following previous research works and to avoid the effect of negative loads (more complex to analyze), we have used the co-citation matrix as a starting point (Culnan, 1986; Moya et al., 1998; Rowlands, 1999). From the results we can identify the authors that make up each factor. The work load is a representation of the influence of each work within a scientific trend. In order to consider a work important, and therefore to include it in the factor, we established a load equal or above .5. Values above .7 show a relevant contribution of the work to the corresponding factor.

Table 1 shows the results obtained. As we can see, all the information is summarized in nine factors that account for 85.7% of the total variance. As we could expect, the way works are grouped together is coherent with the standardization attempts of the different theories (Fernández, 1999; Hoskisson et al., 1999). This should facilitate the interpretation of results. However, in some cases it is necessary to analyze the literature and the papers in order to explain their location.

Most of the source works have a relevant weight (above .7), which shows the strength of those documents in the research front, as well as the homogeneity of the resulting groups. There are few works that have a considerable load for more than one factor. As compared to the core of each trend, these will allow us to establish the possible links or bridges existing between the different research fronts.

The first factor brings together the most relevant authors of the thriving *Resources and Capabilities Theory*. This is the most numerous factor and reflects the relevance of this approach in recent papers. The second factor includes the most relevant authors of the *Population Ecology* with a special importance of the works by Hannan and Freeman. This factor also includes authors focusing their studies on analyzing organizational change.

The third factor corresponds to the contributions made by the *Contingent Approach*, showing that despite its age, it is still an active research trend nowadays. The fourth factor considers the contributions of the *Transaction Costs Theory*, among them those made by its most relevant author: Williamson. The fifth factor includes two of the most important research trends coming from the field of *Sociology*: the institutional theory and the resources dependency theory. The links

between these paradigms have been evidenced by some studies (Tolbert & Zucker, 1996) inasmuch as they pointed out their confluence when explaining structural change.

In the sixth factor we include those works focusing on analyzing *Organizational Learning*, one of the first alternative approaches to functionalism. The seventh factor includes a set of contributions linked to *Strategic Management* even though it does not define a clear theoretical trend. The eighth factor includes the most representative authors of the *Agency Theory*, such as Jensen and Fama, as well as the explanatory paper by Eisenhardt. The last factor does not really represent a research trend in the sense this term is used in scientometrics, since just one author has a significant load on it.

Finally, we highlight the works that have a higher weight in more than one factor, since they represent the possible links among the different research fronts. This is the situation of the contributions by Porter (1980, 1985), which evidence the links existing between the dominant trend in Strategic Management during the 1980s and the *Resources and Capabilities Theory*. Likewise, the work of Alchian (1972) distributes its load between the *Transaction Costs Theory* and the *Agency Theory*. On the other hand, Miles and Snow (1978) distributes its load between *Strategic Management* and the *Contingency Theory*. A plausible explanation for this relationship is that the latter's contributions within the contingency theory come together with organizational configurations. The works of both Levitt (1988) and Cyert (1963) (although the second has a load just below .5) reflect the relationship between the group of *Population Ecology and Change* and *Organizational Learning*, based on the analysis of organizational change. This link is also appreciated by the MDS analysis in which the work of Tushman (1985) is located very close to the contributions made by the most representative authors in this latter trend. Likewise, the work of DiMaggio (1983) reinforces the relationship among the different trends originated in the field of sociology.

Finally, we must underline the particular situation of Hambrick's work which, according to the factor analysis, is located with the representative works of *Strategic Management*, while MDS puts it in a position closer to the research works linked to the *Contingency Theory*. This situation is totally clarified when analyzing the work of this author, in which he states the need to approach his research from a multidisciplinary perspective. This would include the contributions both of *Sociology* and of *Strategic Management*. Furthermore, we must consider that this author presents an important load (below .5, however) with these other research trends.

Once the different research fronts have been identified, the next objective is to analyze the profiles of the journals used in the study. For this purpose the starting point was to identify the trend/s to which we could assign the papers published in the period studied. We have considered that a work could be ascribed to a research line if it cited at least two of the source documents identified in the corresponding factor. This requirement restricted the number of papers to be analyzed since there are many research works (73.4%) which were not assigned to any of the research lines. Table 2 shows the number of papers excluded from the analysis because either they do not include any source document or they include only one.

We can observe that there are four journals that do not include almost any work ascribed to any research trend. The same table shows how many works are assigned to each trend as well as those that can be placed in more than two trends (truncated matrix). Finally, it also shows the number of papers for each of the trends to which they are assigned, considering that the same paper can be considered within one, two, three, or even seven trends at the same time. Those articles using a high number of paradigms are generally literature reviews (for example, the paper that uses seven factors is the work of Hoskisson et al. in 1999). These amounts, together with the values of the truncated matrix, are a first approach of the relationships among paradigms, since they show the number of articles that are based on two or more approaches.

Once the papers have been assigned to the different research trends, the results enable us to analyze, on the one hand, the profile of each of the journals included in our study, and on the other hand, the editing profile of each of the research trends that have been identified. The differences in number of papers published in the period under study and in the final number of papers assigned to each trend prevented us from making a joint study, since there would be a bias towards those journals or factors with a higher number of papers. However, and in order to complete the study, we performed Person's Chi-square test, which shows if there are significant connections between these relationships, as well as an analysis of the correspondences. We must emphasize that in both cases four of the journals used in our study have been left out due to the low numbers of papers assigned to each factor, in order to prevent a bias in our analysis. These four journals are: *Industrial & Labor Relations Review* (3 papers in total), *Journal of Applied Psychology* (3 papers in total), *Organizational Behavior and Human Decision Processes* (1 paper in total), and *Personnel Psychology* (no papers). This situation is totally logical if we consider that these journals focus especially on psychology, although according to Tahai and Meyer (1999) their influence on management is quite high.

Table 3 shows the edition profile of the different research lines or factors we have identified, i.e., the percentage of papers of each trend published in each journal. We can see that in some cases there is a strong association between factor and journal (as occurs with *Resources and Capabilities Theory* and *Strategic Management* in the *Strategic Management Journal*). In other cases the relationship is not as clear and several journals are linked. We shall not forget that this analysis is limited by the difference in the number of articles assigned to each trend. Nevertheless, it provides an initial vision of the journals that have published more papers in each of the research fronts. We can appreciate that almost all trends have a high percentage in the *Strategic Management Journal*, as a consequence of this journal publishing a great number of papers on the different paradigms, which shows its orientation towards the more consolidated theories.

Table 4 shows the profile of the six journals we have analyzed according to the orientation of its papers. Thus, the *Strategic Management Journal* focuses mainly on factors 1 and 7: *Resources Based Theory* and *Strategic Management* respectively. *Administrative Science Quarterly* has a strong focus on factors 5 (sociology: institutional theory and resources dependency) and 2 (ecology and

organizational change). *The Academy of Management Review* has two dominating trends (transaction costs and sociology) and two important ones (resources theory and contingency theory). *Journal of Management* publishes a high percentage of articles related to the contingency theory and, to a lesser extent, to strategic topics. Both *Academy of Management Journal* and *Organization Science* have a fairly balanced profile for all research trends; yet, if we compare both tables there is a high number of papers on organizational learning published in the latter.

Table 3
Factor Distribution Among Journals (in %)

Journals	Factors							
	1	2	3	4	5	6	7	8
AMJ	10	17	16	10	17	6	18	19
AMR	13	10	16	23	19	13	12	15
ASQ	4	21	10	10	22	21	4	18
JM	6	12	17	8	11	7	12	16
OS	13	12	18	20	14	28	9	6
SMJ	54	29	23	29	17	24	45	25
% of papers assigned to the factor	20.5	12.3	13.8	13.6	15.9	5.7	12.4	5.8

Note: AMJ = *Academy of Management Journal*, AMR = *Academy of Management Review*, ASQ = *Administrative Science Quarterly*, JM = *Journal of Management*, OS = *Organization Science*, SMJ = *Strategic Management Journal*; Factors: 1 = Resources, 2 = Ecology, 3 = Contingent, 4 = Transaction, 5 = Institutional, 6 = Learning, 7 = Strategy, 8 = Agency

Table 4
Journals Publication Profiles (in %)

Journals	% papers assigned	Factors							
		1	2	3	4	5	6	7	8
AMJ	31.4	14	15	16	10	19	2	16	8
AMR	38.7	17	8	15	21	20	5	9	6
ASQ	56.3	7	21	11	11	28	10	4	8
JM	27.2	12	14	21	9	17	4	14	9
OS	38.7	19	10	16	18	15	11	8	2
SMJ	62.7	34	11	10	12	8	4	17	4

Note: AMJ = *Academy of Management Journal*, AMR = *Academy of Management Review*, ASQ = *Administrative Science Quarterly*, JM = *Journal of Management*, OS = *Organization Science*, SMJ = *Strategic Management Journal*; Factors: 1 = Resources, 2 = Ecology, 3 = Contingent, 4 = Transaction, 5 = Institutional, 6 = Learning, 7 = Strategy, 8 = Agency

Finally, we must point out that the Chi-square, whose value will determine if we accept the hypothesis of interdependence between lines and columns, has a value of 166.793 with 35 degrees of freedom and is significant. Therefore, we reject the null hypothesis and we can conclude that there is an association between the journals we analyzed and factors included in the study.

Cross-Cultural Analysis

The analysis of the nationality of the authors that have contributed to the development of the different trends in management has used a wide variety of methodologies. Jarley, Chandler and Faulk (1998) studied the link between the nationality and the belonging to the different divisions and interest groups of the Academy of Management in order to identify the main trends used in different journals. Other authors (Baruch, 2001; Collin, Johansson, Svensson, & Ulvenblad, 1996) by means of the study of the non-North American authors that had published in the main journals, focused, nearly exclusively, on the countries' publications profiles. It is also possible, as has been done in the present study, to find papers that have tried to compare among the different research fronts found in periodicals, by means of an inductive procedure consisting of the examination of the references, and the authors geographical location (Behlül & Pasadeos, 1995). These papers are based on the premise that most management theories have their origin in North America (Baruch, 2001) but have been developed in a different way depending on the geographical area (Collin et al., 1996; Baruch, 2001). The present paper uses an inductive methodology, similar to that used by Behlül and Pasadeos (1995), yet stands out by analyzing a higher number of periodicals. Besides, this paper does not look for the divergence in the perspectives currently dominant in different places, but for the origin of the papers published in the most important journals in the field of management that contribute to the development of the research fronts.

As has been demonstrated in previous papers, the environment and the society which researchers belong to is relevant in research analysis, showing significant differences and concentrations of authors depending on the geographical area they belong to (Collin et al, 1996; Jarley, Chandler, & Faulk, 1998). The results obtained in this study corroborate the reality of the predominance of North American authors in the articles published in the journals with a higher impact. Thus, 75% of authors develop their activity in a research center or university located in the U.S.A., and 5.8% in a Canadian one; the rest is distributed among authors of Europe, Asia and the Australian Continent (Oceania from now on).

From a total of 1406 papers that can be ascribed to any of the factors previously identified, 29 different nationalities can be observed in their authorship. To make this more operative, these nationalities were grouped based on the continent they belong to, including countries such as Cyprus or Israel in Europe, due to their geographical and cultural proximity.

Table 5 brings together the percentage distribution of the authorship in the different research fronts according to the geographic zone. As could be expected, authors located in North America represent an overwhelming majority in all

research fronts, although some interesting tendencies are observed. It is possible to observe that that predominance of North American authors is especially intense mainly in the *Agency Theory*, as well as the *Ecological Approach*, *Institutional Theory* and the traditional *Strategic Management*. On the contrary, in the *Resource-Based View* and the *Transaction Costs Theory*, an increase of the proportion of mainly European and Asian authors in both theoretical currents, is appraised.

Table 5
Distribution of Main Approaches (in %)

Continent	Total	1	2	3	4	5	6	7	8
Asia	3.98	5.99	4.71	4.89	2.72	3.46	3.85	2.31	1.37
Europe	13.23	15.85	11.18	14.13	16.85	10.38	14.10	13.29	5.48
N. America	81.86	77.46	83.53	80.98	78.80	84.62	80.77	83.82	91.78
Oceania	.92	.70	.59	.00	1.63	1.54	1.28	.58	1.37

Note: Factors: 1 = Resources, 2 = Ecology, 3 = Contingent, 4 = Transaction, 5 = Institutional, 6 = Learning, 7 = Strategy, 8 = Agency

Taking into consideration the total of articles published by authors of the same continent in each area, it is observed how Asia focuses its main efforts on the *Resource-Based View*, as does Europe and North America, whereas Oceania does so on the *Transaction Cost Theory* and papers related to sociological trends. It must be highlighted that North America shows a stronger parity between factors than in the rest of the continents, the latter offering a weaker balance in the content of their publications.

Table 6
Geographical Publication Profile (in %)

Continent	1	2	3	4	5	6	7	8
Asia	30.36	14.29	16.07	8.93	16.07	5.36	7.14	1.79
Europe	24.19	10.22	13.98	16.67	14.52	5.91	12.37	2.15
N. America	19.11	12.34	12.95	12.60	19.11	5.47	12.60	5.82
Oceania	15.38	7.69	.00	23.08	30.77	7.69	7.69	7.69

Note: Factors: 1 = Resources, 2 = Ecology, 3 = Contingent, 4 = Transaction, 5 = Institutional, 6 = Learning, 7 = Strategy, 8 = Agency

Table 6 establishes the distribution of the authors of the different geographic zones according to the research trend they publish in. It can be observed that the authors of certain areas, as a result of the existence of active groups of investigation in certain theories, have focused on one or several research trends. Thus, many

authors from Oceania concentrate on *Transaction Cost* and *Institutional Theory*; Europeans and Asians are oriented mainly towards the *Resource-Based Theory*, the latter to a greater degree than the former; whereas the North Americans have a more balanced distribution, with the predominance of the *Resource-Based View* and the *Institutional Theory*.

In relation to the periodical in which the different authors have published their works, it can be seen that Asian authors publish mainly, and with a similar percentage in the *Academy of Management Journal* and the *Strategic Management Journal*, whereas authors from Europe, North America, and Oceania choose the *Strategic Management Journal*. This distribution does not reflect more than the predominance of paradigms relative to the *Strategic Management*, showing no differences at a global level. There are differences, nevertheless, in the following positions, as was indicated previously.

Table 7
Origin of the Works Published in Journals (in %)

Continent	AMJ	AMR	ASQ	JM	OS	SMJ
Asia	28.57	5.36	16.07	0.00	17.86	32.14
Europe	9.14	15.59	5.38	1.08	19.35	49.46
N. America	14.16	14.68	12.42	13.12	13.03	32.58
Oceania	.00	30.77	.00	7.69	15.38	46.15

Note: AMJ = *Academy of Management Journal*, AMR = *Academy of Management Review*, ASQ = *Administrative Science Quarterly*, JM = *Journal of Management*, OS = *Organization Science*, SMJ = *Strategic Management Journal*

All these results can be justified in the composition of the publishing board, as well as the publication place of the journal (Baruch, 2001).

Finally, it is possible to emphasize the collaborations between countries. We see in them a greater collaboration between the countries from North America than between any others, whether it be in relative or absolute terms. In relation to the collaboration between countries from different continents, the collaborations between the United States and France, as well as the United States and Israel, can be emphasized, moving the collaboration between countries sharing the same language to a secondary position. Even so, little collaboration is observed at a global level, though a tendency to a greater collaboration due to the mass media improvement, facilitating the interchange of knowledge at world-wide level, can be elicited.

Discussion

The present work is framed in the group of studies that try to determine the cognitive structure of scientific specialties, in this case the discipline of management. By means of the use of the co-citations method, the research has led to the

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identification of the trends or dominant approaches of research in the field of study, the link between them and its degree of diffusion in the journals of greater impact of the discipline. These research fronts are integrated, in their vast majority, within the functionalist paradigm, reflecting their use and predominance within those journals, and agreeing with the theories or indicated approaches of deductive form in other studies (Clegg & Hardy, 1999; Hoskisson et al., 1999). Besides the identification of those dominant trends, the application of the co-citation method allows some other excellent conclusions to be drawn.

In the first place, some of the most relevant journals of the field of study, according to the classification by Tahai and Meyer (1999), contain just a few works and studies that can be fitted within those dominant currents. This situation leads to the classic problem of the boundary of the knowledge area and to the diverse positions that have remained in this subject. It is possible to indicate that there are journals with a great impact in which few works are published using some of the main theories integrating the functionalist paradigm, although it is possible that some authors would not include these journals when delimiting the field of management or the theory of the organization.

Secondly, in the journals that often publish articles integrated in the dominant trends, a remarkable disparity in the diffusion of those research fronts is also appraised. Although it is not possible to affirm that the method allows us to determine all articles included in a trend, the percentages clearly indicate the direction of the journals and the more frequent media of diffusion used by the authors who write works based on the identified approach. Similar differences are observed according to the geographic origin of the articles' authors, although the predominance of journals published in North America continues to be overwhelming.

Thirdly, it is verified that a high number of articles published in the main journals uses more than just one theoretical approach in their argumentations, with combinations between practically all the identified existing research fronts, though with more links between some of them (*Resource-Based Theory/Transaction Costs/Contingent Approaches: Institutional Theory/Ecology of the Organizations/Contingent Approaches*), plus the low entailment of the *Agency Theory* with other approaches of management or theory of the organizations. These interrelations between theories seem to answer the demands made by diverse authors (Mahoney & Pandian, 1992), for a fluid conversation between the diverse theoretical approaches developed in the field of management, that allows a focus on the research questions from diverse perspectives. It would be interesting to go deeper into the links that take place between the different theories from the perspective of the citing works of the most relevant papers as members of the nucleus of this theory: what subjects are studied, the nature of the relation between theoretical approaches (complementary or competitive), the patterns of citations of the authors, etc.

Finally, the study shows that those dominant trends integrated within the functionalist paradigm continue being impelled by authors who carry out their works in North American research centers. However, we can also note an increasing presence of authors from other latitudes, mainly European and Asian, that are concentrated mainly in certain currents: theory of the resources and contingent

theory (with specific directions of each one of these great regions). This result shows the progressive globalization of the dominant approaches and, therefore, of the traditional functionalist paradigm of the discipline of management. A double phenomenon or process seems, then, to be taking place at the present moment: On the one hand, the geographic expansion of the paradigm and the dominant research fronts; on the other hand, the gradual access of paradigms and alternative currents to the journals of greater impact in the field of study.

Some preceding commentaries already indicate the future research lines that this work has opened. In the first place, a more precise identification of the citing-sources that constitutes the nucleus of each research front is necessary. Although the method used in this study adjusts to that indicated by the bibliometricians, remarkable differences due to the different diffusion obtained by the differing approaches, are observed, prioritizing those approaches and journals with a greater number of published articles. Secondly, it is necessary to advance in the criteria of inclusion of a work in a certain research line because there are numerous articles that cannot be assigned to any of the identified fronts. Although this represents a characteristic problem of the co-citation studies (Zitt & Bassecoulard, 1996), it is possible to develop new approaches that allow for a safer and more trustworthy allocation. Thirdly, this study has been focused on the analysis and diffusion of the dominant research fronts: the study of the degree of evolution of new and alternative currents, by means of the analysis of the subjects studied and their links with the predominant approaches can also be interesting. Finally, a study already in process is the analysis of the evolution of one of the dominant trends applying the method of co-citations with the examination of the different lines of investigation and its development in the journals.

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APPENDIX

Articles included in this study (in order of appearance in the factor analysis)

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