ORGANIZATIONAL ATTENTION AND REPLICATION STRATEGY: PATH DEPENDENCE IN THE EVOLUTION OF REPLICATED BUSINESS MODEL

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Knowledge flows and knowledge transfer processes are clearly of vital significance to organizational and management studies. However, the literature discusses several kinds of filters that harden the exploitation of the knowledge resources available to the organization. In this work I discuss the construct *organizational attention* as a knowledge filter. This filter operates as a gateway that determines which knowledge will be processed by the organization and in what way, and thus create a path-dependence process. Using facet design, a definitional framework of the concept was developed and tested empirically, based on two facets: knowledge source (management, staff, customers, competitors), and knowledge type (products, services, environment and general information). The structural hypotheses were tested by means of SSA software, which maps the variables as points in a Euclidean space of two or more dimensions. The findings support the hypothesis that data reflects the two facets of the definition as two independent classifications.

Key Words: Organizational Attention, Path **Dependence**, Knowledge Transfer, Replication Strategy, Facet Theory

INTRODUCTION

“Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others….”. This eternal definition of William James (1890) is repeatedly cited in attention literature.

"Attention" is a term commonly used in education, psychiatry and psychology. Attention can be defined as an internal cognitive process by which one actively selects environmental information (i.e. sensation) or actively processes information from internal sources (i.e. stored memories and thoughts) (Sternberg, 2006). In more general terms, attention can be defined as an ability to focus and maintain interest in a given task or idea, including managing distractions.

Organizational attention is analogous to individual attention, in a sense that organizations withdraw from some issues in order to deal effectively with others.

The role of the founding team (Beckman & Burton, 2008; Cooper, et al. 1994) and the initial structure (Ancona & Caldwell, 1992; Roure and Keely, 1990) of a new venture are of the main interests of scholars who study path dependence. In the current research I study firms that are structured and grow as chains - a very unique kind of organization. I am interested in the process of replicating branches of the chain. I argue that the replication strategy (Winter and Szulanski, 2001) affects the later behavior of the chain and becomes very significant factor in the path-dependence process. The specific replication strategy that is implemented by the firm depends on its organizational attention. The sources of information that

the firm select to focus in influence the way it replicates the new branches. The behavior of the chain depends on the history, and specifically in the way the replication strategy was implemented, as a reflection of the organizational attention.

The lack of methods to measure organizational attention limits the research of this important theoretical construct. The current study proposes an operational definition of organizational attention, which "translates" the conceptual construct into measurable variable. In the following paragraphs I will review the current definitions of organizational attention and propose a new definitional framework, using Guttman's (1954a; 1954b; 1968) Facet Theory and Facet Design. A practical measurement tool is derived from the new definition, which enables measuring and studying organizational attention. A construct validity of the measure is examined and I end with two examples of research questions that can be investigated using the proposed measure.

Organizational Attention

Organizational Attention is defined as the socially structured pattern of attention by decision-makers within the organization (Ocasio, 1997). Organizational attention, like human attention, is a limited resource. “Attentional limits filter or screen incoming information such that a great deal of data pertinent to strategic decision may never get processed” (Corner, Kinicki & Keats, 1994: 296). Garg, Walters and Priem (2003) show that the extent to which CEOs are selective in their attention to sectors of the environment was a significant predictor of performance. This selective attention affects the different phases that create the path-dependence behavior (Sydow, Schreyogg & Koch, 2009).

Ocasio (1997: 188) developed a framework for an attention-based view of the firm. He defines corporate strategy as “a pattern of organizational attention, the distinct focus of time and efforts by the firm on a particular set of issues, problems, opportunities, and threats, and on a particular set of skills, routines, programs, projects and procedures”. Simon (1947) describes organizational behavior as a complex network of attentional processes. Ocasio (1997) argues that since the environment of a firm’s decision is of infinite complexity and firms are bounded in their capacity to attend to all environmental stimuli, decision makers are selective in those aspects of the environment of decisions that they attend to. Different environmental stimuli are noticed, interpreted, and brought into conscious consideration (Weick, 2004; Yaniv & Schwartz, 2006). Durand (2003) investigates organizational attention in terms of the firms' investment in internal and external information, and finds that higher relative investments in market information appears to reduce errors and bias in forecasting. Organizational attention, as a mechanism of selection which are the stimulus in the environment that the firm will respond to and which are ignored, specify a path for the organization and thus a path-dependent future.

Operationalization of Organizational Attention

Organizational attention is rarely used in the literature. Where it is mentioned it always remains as a construct, and not as a variable. In order to measure organizational attention and investigate its implications, it has to be defined in an operationally specific manner. “By definition, the raison d’être of a variable is to provide an operational referent for a phenomenon described on a more abstract level (e.g., a construct). As such for a variable to be operationally specific, that variable must be defined in terms of its measurement” (Bacharach, 1989). Guttman (1982) made no distinction between constructs and variables. He

emphasized the need for joint formalization of theory and research. His definition of theory enfolds the conceptual and empirical aspects: “A theory is a hypothesis of a correspondence between a definitional system for a universe of observations and an aspect of the empirical structure of those observations, together with a rationale for such an hypothesis.” (Guttman, 1982). This definition implies that the researcher has to consider two aspects: (1) the design of the observations, and (2) their empirical structure. “Hence, theory and method are inseparable in the process of theory construction” (Levy, 2003). Guttman (1982) argues that “the form of data analysis is part of the hypothesis”. For designing the observations Guttman introduced the mapping sentence device (Guttman, 1954, 1959; Shye and Elizur, 1994). The present research was carried out using terminology and methodology based on Guttman's ideas. This approach is known as Facet Theory. In the next paragraphs, a brief introduction to Facet Theory is presented in the context of the current research.

Facet Theory as a Systematic Method for Definition’s Development

The present research is a first attempt to operationalize organizational attention. The first required step is to develop a definitional framework of the “organizational attention” domain. Organizational attention is considered as a multi-facet construct.

The formal approach of Facet Theory (Brown, 1985; Canter, 1985; Elizur, 1984; Elizur & Guttman, 1976; Guttman, 1959; Levy, 1994; Shye & Elizur, 1994) and the associated analytical tools (e.g., Similarity Structure Analysis) were applied in the present study. Facet theory is a comprehensive approach to the design of observations and the analysis of empirical data in behavioral research (Shye & Elizur, 1994). Facet theory offers an approach in research design, analysis and

interpretation of data (Brown & Barnett, 2004). Facet Theory (FT) attempts to formally define the universe of observations and to test hypotheses about the relationships between the definitional framework and the empirical observations. To analyze the organizational attention domain, systematically, its basic facets have been defined. Each facet is one way of classifying variables according to some rule, and the elements of the facet conform to the rule. A facet is "a set playing the role of component set of a Cartesian set" (Guttman, 1972). Organizational attention is a complex concept that requires observation of many variables. Facet theory is unique in its concern with multivariate contents. In facet design, variables are classified by one or more facets, which serve as a basis for theory construction. Facet analysis formally defines the universe of observations and tests hypotheses about the relationship between the definitional framework and the structure of the empirical observations (Elizur, 1984). When considering a multivariate concept, such as organizational attention, with respect to which knowledge sources are to be assessed, facet analysis is a reliable way of specifying which items belong and which do not belong to the content universe of the concept.

A natural way to define a multivariate construct is to specify the facets of item domains, which are considered essential. A facet is essential if the distinct representation of each of its elements is considered necessary to the concept. A classification of item domains of a given content universe according to some rule is called "a facet of the universe" (e.g. color: red/yellow/green; size: small/medium/large). Each facet in a definitional system of observation plays a role in the hypotheses to be studied.

More than one facet can be used in an experimental design of observations. Each additional domain facet defines a new classification and further differentiates

among items. The multiple classification of a content universe technically results in a Cartesian set, wherein each facet constitutes a component set (e.g, yellow-medium; green-small; yellow-large, etc.). An element of a Cartesian set is called a structuple; it is a profile composed by selecting an element from each facet. Some of the more complex aspects of structure include: (a) the order among facet elements and (b) the dimensionality of the domain (Elizur, 1984). The conceptual space of “organizational attention” is conceived as a geometric subspace from which items, envisaged as points in that subspace, may be selected. The justification for seeking a Cartesian structure is based on the assumption that an organization can attend to an input source inconsistently; meaning it can pay attention to one kind of inputs provided by a given source but consider other kinds of inputs, coming from the same source, as not important. It can also pay attention to some knowledge item when it comes from one source but not when it comes from another source.

The Organizational Attention Domain

To analyze the organizational attention construct systematically, we have to define its essential facets. "Scientific definitions can never be 'correct' (or incorrect); rather they can be reliable or clear…Scientific definitions are not fruitful by themselves…The issue is whether they fit into some partnership that leads to some form of empirical lawfulness" (Levy, 2005). I distinguished between two basic facets that construct organizational attention: the knowledge source and the type of knowledge.

Facet A – Sources of knowledge Inputs

This facet classifies the knowledge acquired by the organization according to its source. The firm has different available sources of knowledge relevant to its operation. Sometimes these sources can contradict each other. The firm’s decision

makers can pay attention to more than one source, but ascribe different importance to knowledge coming from different sources. I specified four knowledge sources: top management, staff, customers and competitors. Thus Facet A contains four elements: a1 management

a2 staff

a3 customers

a4 competitors.

Facet B –Type of knowledge

The knowledge that is needed for the firm is varied. Firms transfer and accumulate knowledge in many categories. These categories or types are related to the specific business area of the firm. The present research investigated a sample of coffee shop chains. Hence, the relevant types of knowledge specified are knowledge regarding: products, services, environment and general subjects (i.e. miscellaneous). Accordingly, Facet B includes four elements:

b1 products

b2 services

b3 environment

b4 general.

Elements of either facet appear in combination with the elements of the other facet. Based on the two facets and the range of the degree of importance to the firm, a systematic definition of the organizational attention domain could be suggested. The definition is drafted by means of a mapping sentence, whose domain includes two facets and the range of which expresses the degree of importance of the outcome to the firm's management. The mapping sentence was

introduced by Guttman (1954), to incorporate formal facets with informal verbal connectives needed for actual empirical work. Such a sentence states the population being studied, the variables under study and the range of those variables (Levy, 2003). It is actually a set of sentences of ordinary speech, which have common connectives and differ according to their facet elements. The mapping sentence is, at the same time, both a formal and a flexible device (Levy, 2003). Each component of the organizational attention definition, created by selecting one element from each facet (4 * 4), designates a content area that is but a subspace of the conceptual space of organizational attention according to the suggested definition.

The Mapping Sentence

The following mapping sentence describes the research design for the current study. The required observations are derived from the mapping sentence:

The assessment of respondent (x) of the importance decision-makers ascribe to knowledge

	A. Sources			
	{(a1) management}			
from	{(a2) outlets' staff}			
	{(a3) customers}			
	{(a4) competitors}			
	B. Type		**Range**	
	{(b1) products}	is	{high }	
about	{(b2) service}	---------->	{ : }	*importance*
	{(b3) environment}		{low }	
	{(b4) general}			

Using this mapping sentence, we can define the attention profile of each organization. The profile is compound of the 16 possible combinations of the two facets. These combinations reflect the attention paid by the firm to every available

source and to the different kinds of knowledge these sources can provide. Each of these combinations gets an importance measure, which represents the level of attention directed to the combination by decision-makers. For example, if the referee assesses knowledge about products that is provided by customers as of low importance to the decision-makers, it means that low level or no attention is directed to this kind of knowledge when it is provided by this source. Of course, it doesn't mean that this kind of knowledge is not important for the firm, but it might prefer to receive it from other source or sources (e.g. staff or competitors). Likewise, it is possible that the firm doesn't pay attention to some knowledge when it is provided by a certain source, but when another kind of knowledge is provided by the same source it will get maximum attention. For example, the firm might not be interested in knowledge that provided by staff regarding environment, but pay attention to knowledge about service that provided by the same source (i.e. staff).

The objective of the present study was to examine the structure of organizational attention as defined by the above mapping sentence and to find out whether or not the internal structure of the definition would be confirmed by an appropriate structural analysis of empirical data. Confirmation of the definition makes it possible to measure organizational attention by using the set of structuples (the combinations of the defined facets) as profiles that represent the measured construct. Table 1 presents all the possible combinations, as derived from the two facets. Using this matrix we can draw organizational attention profile for each firm. These profiles can be used for investigating the differences between firms' attention and to carry out a qualitative analysis of the firm's attention. Of course the elements of each facet depend on the firm's industry attributes. In the current

study the sources and types specified in the mapping sentence are appropriate. In other firms different sources and types are more relevant.

Please insert Table 1 about here

HYPOTHESES

The objective of this study was to test empirically the proposed organizational attention definitional framework. I hypothesized that the empirical data will reflect the underlying facets of the definition proposed for the organizational attention domain.

As suggested above the internal structure of organizational attention definition is defined by the two facets: *source* and *type*. It is hypothesized that appropriate structural analysis of empirical data would reflect the two facets of the definition as two independent classifications.

In order to examine structural hypotheses, a technique called Similarity Structure Analysis (SSA) can be conducted. Using this technique, each item is represented by a point in the space. The distances between the points are inversely related to the observed relationships among the items as defined by the similarity coefficients. When the similarity between the two items is high, the distance between the points representing them is relatively small. Conversely, when the similarity is low, the distance between their geometric points should be relatively large.

The structure of the relationships among items can readily be examined by considering the configuration of the points. Where there is an a priori definitional

framework suggested, it is possible to examine whether the space can be partitioned into regions that reflect the facets and their elements.

As to the order between the elements of each facet of organizational attention, it is hypothesized that the different knowledge types (Facet B) will be modulating, ordering the space from the center to the periphery, from general knowledge type to more specific (i.e. from general subjects, to environment, to service, to products). This hypothesis is based on the assumption that in the more specific elements there should be more differentiation, and thus they will occupy a wider circular region. This assumption fits in accordance with previous studies (Elizur, 1986; Sagie, Elizur and Yamauchi, 1996), where facets were ordered from the general to the specific. Hence:

The first structural hypothesis dealt with the facet A: source. No a priori ordering could be proposed for its elements; hence, points representing the different sources were expected to be polarizing, each corresponding to the different direction angles away from the origin (see Figure 1). As explained above, the distribution of the points in the space is based on the correlations between the items. The lower the correlation, the larger the distance between the points.

The second structural hypothesis referred to the facet B: type. I hypothesized that the different knowledge types will be modulating, ordering the space from the center to the periphery, from general knowledge type to more specific (i.e. from general subjects, to environment, to service, to products). This hypothesis is based on the assumption that in the more specific elements there should be more differentiation, and thus they will occupy a wider circular region. The structure expected for Facet B should be a radial structure, (see figure 1). Items distributed

in a radial structure represent high correlation between the items belonging to the element in the center and smaller correlations between the items as we go towards the periphery.

Finally, the last structural hypothesis is that the total structure is that of a Radex structure (Guttman, 1954b). Combination of the two structural hypotheses, namely, polar representation of facet A and radial of facet B, has resulted in a Radex structure of the whole construct. This is a radial distribution of the items as points where one facet corresponds to the axial direction from center to periphery and the second facet relates to the direction angles from the center. The roles of the two facets may be illustrated as presented in figure 1.

Please insert Figure 1 about here

A radex is basically a two-dimensional structure, composed by a simplex and circumplex. A simplex was defined by Guttman (1954) as a “simple order of complexity” that implies certain relationships among correlation coefficients that, as it turns out, can be represented geometrically on a straight line (Elizur, 1984). The circumplex is a structure that orders items in a circle. Combining simplexes and circumplexes in such a way that every item is a member both in a simplex and a circumplex can give rise to a two-dimensional structure termed the Radex (Elizur, 1984).

Hence, we can formulate the following comprehensive structural hypotheses:

H1a: Structural analysis of empirical data would reflect the two facets of the definition as two independent classifications.

H1b: The various knowledge types (Facet A) will be polarizing, each corresponding to the different direction angles away from the origin. The different knowledge types (Facet B) will be modulating, ordering the space from the center to the periphery, from general knowledge type to more specific

H1c: The total structure will be a Radex structure, when one facet is modulating and the other is polarizing.

Measuring organizational attention enables better understanding of the construct and studying the relationship between this variable and other variables. In the following paragraphs I will demonstrate the use of organizational attention measurement in studying organizational and management phenomena.

I argue that the organizational decision structures or patterns influence organizational attention. Factors like the philosophies of top managers (or founders), marketing strategy (e.g., product versus service quality), and level of centralization determine whether firms attend more or less to the different knowledge sources inside and outside the firm. Cohen and Levinthal (1990) relate the ability of the firm to evaluate and utilize new knowledge to the evolving knowledge base already accumulated by the firm. I argue that the existing knowledge of the firm directs its attention. Massive relevant knowledge, already owned by the firm, dominates its decisions. In this case the firm resists new directions, coming from other sources than its own knowledge base.

Organizational attention filters sources that reject existing knowledge or are considered as more expensive to acquire or have relative less value. This is consistent with the Baum, Li and Usher (2000) conclusion that chains learn better when building off a solid existing knowledge base than when trying to innovate. Thus even chains of similar sizes in the same industry niches—like coffee shops—with similar strategies will exhibit different attention profiles.

H2: Different firms will have different attention profiles. The firms will ascribe different level of importance to the various sources and types of knowledge.

Since attention capacity is limited (Kahneman, 1973; Pashler, 1998; Davenport & Beck, 2000), when a firm focuses on a certain source it trades off inputs coming from different sources. The limited capacity causes an economical behavior. The firm avoids redundant or maybe contradicting inputs that come from an alternative source. For example, if the firm focused its attention toward knowledge about products that is provided by customers, it won't focus its attention (i.e. will ascribe less importance) on the same type of knowledge provided by another source.

H3: A negative correlation will be found between the attention to inputs coming from different sources

METHOD

Subjects

Given the research objective, organizations of particular theoretical interest are organizations that extensively transfer knowledge, and have various relevant sources of knowledge. Chains that pursue replication strategy, such as McDonalds or Starbucks, properly fit these conditions. These firms attempt to replicate a successful business model that they created and implemented in one or more instances in order to grow. They can exploit the knowledge they have developed while creating the first instances. Szulanski (2003) investigated the barriers to transferring best practices within the firm. He proposed that best-in class firms that have small MES (Minimum Efficient Scale) are good samples for this kind of research. He states that food chains are an example of such firms (Szulanski, 2003). In the present research, three leading local coffee chains in Israel were examined. The three are about the same size (roughly 10 shops), and at about the same "age" (between 3 and 10 years).

The sample included managers and staff of the three coffee chains. 102 respondents filled a questionnaire: 11 senior managers, 9 outlet's managers, 42 shift's supervisors, and 40 employees. More than 30 subjects from each firm participated in this phase.

Instrument

The tool being used was developed using facet design. A 145-item structured questionnaire was constructed, based on the literature, on facet analysis, and on

interviews with managers and employees. The questionnaire was designed to collect data from chains' management and staff, in order to produce the firm's attention profile.

The questionnaire was developed in a systematic way, using facet theory method. This definitional system assisted in creating questionnaire items that cover the domain systematically, as described in detail below:

The above-presented definitional framework of organizational attention is based on two facets knowledge *type* and knowledge *source*. Facet design enables to design observations in a way that a relatively limited number of items can cover the domain systematically. The product of the two facets, each with 4 elements provides 16 (see table 2). Based on the Facet definition a 16-items questionnaire of organizational attention was devised. The four elements of the sources facet were: management, staff, customers and competitors. The Knowledge types facet included general, product, service and environment. Four questions were asked about each of the sources and each of the types; this design enabled a reliability test of the facet's elements. The product of the two facets (4x4=16) provided 16 combinations (structaples (4x4=16) or profiles); one item represents each one of them in the questionnaire (see table 2).

Please insert Table 2 about here

Data Analysis

Guttman's (1968) Similarity Structure Analysis (SSA, originally called Smallest Space Analysis) was found suitable for analyzing the relations between the items and for testing the hypotheses concerning the structure of the organizational attention domain. SSA is one of a variety of nonmetric multidimensional scaling (MDS) analysis techniques for structural analysis of similarity data (Elizur, 1984; Elizur & Guttman, 1976; Levy, 2003). For a given matrix of pair wise similarity coefficients between items, the SSA computer software maps items into a space of pre-specified dimensionality. Each item is represented by a point in the space. The distances between the points are inversely related to the observed relationships among the items as defined by the similarity coefficients. When the similarity between the two items is high, the distance between the points representing them should be relatively small. Conversely, when the similarity is low, the distance between their geometric points should be relatively large.

The structure of the relationships among items can readily be examined by considering the configuration of the points. Where there is an a priori definitional framework suggested, it is possible to examine whether the space can be partitioned into regions that reflect the facets and their elements.

The division into regions is accomplished by introducing partition lines according to the facet definition of the items. Regions are in general not "clusters" that are discernible by "empty space" around them. The content universe is conceived as a geometric space, where the specific items are but a sample of all conceivable items (of that particular universe) comprising the total space with points everywhere. This means that some items at the edge of the region may correlate less with other items of the same region than they do with certain items on the edge of neighboring regions.

Regional hypotheses relate to the roles that the facets can play in partitioning the conceptual space. Rationales for various kinds of partitioning come in part from considering the order among the elements of the facet. An unordered facet can play a polar role: each element corresponding to a different direction in the space, emanating from a common origin. A simply ordered facet can play a modular role; namely, has a correspondence with distance from the origin.
Various laws of correspondence between regions of the SSA space and elements of the facets that have been defined (Elizur & Guttman, 1976; Shy & Elizur, 1994). Examples of such patterns are the duplex – the result of two axial roles – and, as in the present case, the radex – the result of a linear ordering and circular one.

Using SSA, the concept of Organizational Attention may be viewed as an entity having a physical expansion in a geometric space and each value representing the importance of a source (e.g. competitors) to provide knowledge of specific type (e.g. products) is represented by a point in that space (Guttman, 1968). The distances between the points are inversely related to the observed similarities between the items as measured by correlation coefficients. When the similarity between two items is high, the distance between the points representing them is relatively small; conversely, when the similarity between the items is low or negative, the distance between the points is relatively large. In order to test structural hypotheses, the configuration of the points in the geometric space can be considered. It is possible to see whether the space can be partitioned into regions that reflect the elements of each of the defined facets.

RESULTS

The structural hypotheses were tested by means of an SSA computer program, which maps the variables as points in a Euclidean space of two or more dimensions. The geometrical configuration appears in Figure 2 supports the hypothesis that data reflects the two facets of the definition as two independent classifications (H1).

Observing the map, we can identify four circular areas, spread from the center to the periphery. Each number in figure 2 represents the corresponding item in the questionnaire. For item list refer to Table 2.

The number in every intersection is the relevant item number (i.e. combination of the two facets). The inner and smallest circle is knowledge regarding general subjects. This circle is surrounded by environment knowledge. The next circle is services and the outer and broader circle is product (separation index[1] = 0.88). This 4-circle structure is divided into four segments, according to the four sources: management, staff, customers and competitors (separation index=1.0).

Please insert Figure 2 about here

As hypothesized in H2, the various knowledge sources (Facet A) are polarizing, each corresponding to the different direction angles away from the origin. The different knowledge types (Facet B) are modulating, ordering the space from the

center to the periphery, from general knowledge type to more specific. Hence, the total structure is a radex, as hypothesized in H3.

Hypothesis 2 was concerned with whether the respective chains had different attention profiles. Table 3 exhibits attention profiles of the three chains. The dimensions of the matrix are knowledge types (products, service, etc.) and knowledge sources (management, staff, etc). Each column is divided into three sub-columns, each of them contains the values of one firm (c1 for chain1, etc.). It is apparent that each firm has a unique profile. For example, chain1 has relatively high attention scores for customers and low for staff; chain 2 has very high attention scores for management and very low for staff; and chain 3 has high scores for staff and customers, and low for management and competitors.

Please insert Table 3 about here

One-way ANOVA test was carried out. High significant differences ($p<.001$) were found between firms in 15 parameters out of the 16 combinations.

Post hoc tests, using Scheffe, performed simultaneous joint pairwise comparisons for all possible pairwise combinations of means. Looking at the differences between each pair of chains provides refined picture.

Chain 2 is in a different subset for almost all the variables. It was found in the same subset with chain 3 only in two cases, and in one case all the three groups are in one subset. Consequently, the attention profile of chain 3 is significantly different than the profile of the other two chains. Chain1 and chain 3 look more

similar; although still have significant differences on 8 out of 16 variables. On seven variables the two chains were found in the same subset, while chain 2 is in different subset. In one case all the three variables are in the same subset (i.e. no significant differences between the chains), and in the remainder eight variables chain 1 is in separate subset (i.e. significant differences between this chain and the others).

The attention profile is compound of 16 variables. Factor analysis was implemented, in order to check the possibility of reducing the number of variables constructing the profile. Three factors were found. The factors explain 71% of the variability, which is considered high. The factors and the loadings are presented in table 4. The name of each item is composed of the two facets' values that the item intersects (e.g. the item that measures the attention paid for inputs provided by staff regarding environment is "staff-environ", etc,). The variables are loaded on the factors neither by sources dimension nor by types dimension of the profile. The second factor (F2) is loaded by all the four knowledge types provided by management and inputs regarding products from staff and competitors. The first factor (F1) is loaded by three kinds of inputs provided by staff, two kinds of inputs provided by customers and input regarding environment provided by competitors. The third factor (F3) is loaded by two inputs provided by customers and two by competitors. These factors provide a compact representation of the organizational attention profile even though they can hardly get a clear distinguishing name.

This case is a good example where SSA provides more information than factor analysis. Factor analysis can recognize facets only when the correlations between items of each factor are high and the correlation between items of different factors

are lower.. While factor analysis, in our case, hasn't recognized the facets, the SSA verified the existence of both facets and the total structure of Radex. Since factor analysis is based on correlations between items, it can't recognize structures like radial. SSA distributes the points that represent the different items in a rational order. It finds the best array where the distances between the points reflect their similarity. Since the distances are rational it provides a broader picture of the total set of elements. In this case few points can be attributed to the same segment even if the correlation between them is not very high. It is enough that these points are placed in the space at the same vicinity, in a way the space can be divided into regions reflecting or according to the facets and their elements. ANOVA shows significant differences between the firms in all the three factors. Post hoc tests provide pairwise comparisons for all possible pairwise combinations of means. The three chains are found in three different subsets for F1 and F2, it is to say that the chains are significantly different on these two factors. However, F3 discriminate between chain 1 and chain 3, but neither between chain 1 and chain 2 nor between chain 2 and chain 3.

Please insert Table 4 about here

Finally, to illustrate the differences between chain attention profiles, I used discriminant analysis—see figure 3. This plot combines the three groups' graphs. It clearly shows that two canonical discriminant functions discriminate between the three chains. Summary of canonical discriminant functions is presented in table 5. this table presents Eigenvalues and Wilks' Lambda values of the two tests. Wilk's Lambda is a statistic test used in multivariate analysis of variance to

test whether there are differences between the means of identified groups of subjects on a combination of dependent variables. Both tests are significant ($p<.001$).

Please insert Table 5 about here

Stepwise variable selection method shows that we do not need to include all 16 variables in the function. Nine variables provide the coefficients of the linear discriminant functions. These variables are: the four variables dealing with inputs from customers, inputs regarding products, service and general information provided by staff, and inputs regarding products and services provided by competitors. Consequently, none of the variables relating to inputs from management is needed for the canonical discriminant functions.

All the above methods thus confirm hypothesis 2, namely, significant differences were found between firms' attention profiles.

Please insert Figure 3 about here

Hypothesis 3 deals with limited capacity of organizational attention. A negative correlation was hypothesized between different sources. As can be seen in Table 6, this hypothesis is supported.

Please insert Table 6 about here

Negative correlations were found between sources. The correlation table depicts two pairs of sources; management-competitors and staff-customers. Each pair has a positive correlation within pair and negative correlation between pairs. Hence, hypothesis 3 was confirmed.

DISCUSSION

Management, business and economics literatures frequently discuss the differences between firms. The question of “how and why do firms differ?” repeats again and again (Barney, 1986, 1991; Garg, Wlaters & Priem, 2003; Hambrick & Mason, 1984; Nelson, 1991; Szulanski, 2003). The present research proposes a new perspective for this discussion. I argue that firms differ in their organizational attention pattern, and that these differences account for the firm’s actions and strategy. Attentional pattern of organization in its early emergence determines a specific history which influences the organization's later behavior and processes.

Contribution for Researchers and Practitioners

This research is a primary investigation of several organizational phenomena, and there are several positive and promising contributions. First, in the framework of the current study we've developed a systematic definition of organizational attention, a construct that hasn't found its proper position in the literature yet. Using facet design, the present research is a first attempt to operationalize organizational attention, and I believe that presentation of attention profiles will be an important advance for the field upon which future research will be built. Further, strong evidence that attention profiles vary across chains was presented. Several analyses of this variability were carried out.

In addition to the demonstration of differences between firms the attention profile was used to exhibit the limited capacity of organizational attention. Decision makers use attention economically. According to the findings presented, when decision makers have high confidence in a certain source, they pay attention to this source and avoid other sources that provide the same kind of inputs. These results correspond with Beckman and Burton (2008) study of path dependence resulted from TMT characteristics.

Organizational attention is related to many organizational issues; By practitioners I refer not just to top management or management consultants, but also to all organizational stakeholders.

Practitioners can derive from the model normative guidelines that suit their context and goals. First of all, the research provides a new tool that might help organizations to analyze their attention in a systematic way. The tool has been used here for a specific line of business, but it can be easily adapted for every industry. The two facets compounding the definition can be easily recognized in every single case. Using this tool, practitioners can recognize possible causes for obstacles in the implementation of their strategy

Moreover, using the tool can bring the organizational attention outline into practitioners' awareness. In many cases, being aware of the situation alone can provide enough information for better decision-making, and also drives for making necessary changes. It seems that this is the case here. Since the picture provided by the tool is very clear, practitioners will make their own interpretations as to the normative path they should take. Managers have some idea about the value of the knowledge held by their subordinates, colleagues, customers, competitors and other sources. Being aware of the attention profile, one can

realize that valuable inputs do not pass the attentional filter, and consequently do not find appropriate expression in the organization's outcomes.

NOTES

1 Separation index is a measure that reflects the matching level between the distributed points in the space and the possible structures (i.e. polar, radial, radex). The separation index varies between 0 and 1. Perfect fit is represented by the value 1, and the worst possible fit is given by the value 0. The computer program provides this index for all kinds of structures that are defined by the researcher. Separation index higher than .8 is considered good.

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Source / Type	Management	Staff	Customers	Competitors
Products				
Service				
Environment				
General				

Table 1: Organizational Attention Profile

Source / *Type*	*Management*	*Staff*	*Customers*	*Competitors*
Products	1	2	3	4
Service	5	6	7	8
Environment	9	10	11	12
General	13	14	15	16

Table 2: Item list. Each number corresponds with an item in the questionnaire. For example, item 7 is: “to what extent does management apply knowledge about **service** that is provided by **customers**

	Management			Staff			Customers			Competitors			TOTAL		
Chain	**c1**	**c2**	**c3**	**c1**	**c2**	**c3**	**c1**	**c2**	**C3**	**c1**	**c2**	**c3**	**c1**	**c2**	**c3**
Products	3.1	6.6	3	3.6	3.3	4.1	4.1	3.4	5	3.8	5.6	4.2	**14.6**	**18.9**	**16.3**
Services	5.8	6.7	5	3	1.9	6.2	5.5	2	5.5	5.3	6	4	**19.6**	**16.6**	**20.7**
Environment	4.3	5.9	5	3.3	2.4	4.5	5.6	3.9	4	5	6	3.9	**18.2**	**18.2**	**17.4**
General	5.7	6.7	5	4.1	3.5	6	5.8	6.7	6	5.6	4.6	5	**21.2**	**21.5**	**22**
Total	**18.9**	**25.9**	**18**	**14**	**11.1**	**20.8**	**21**	**16**	**20.5**	**19.7**	**22.2**	**17.1**	**73.6**	**75.2**	**76.4**
% of chain	**26%**	**34%**	**24%**	**19%**	**15%**	**27%**	**29%**	**21%**	**27%**	**27%**	**30%**	**22%**			

Table 3: Attention Profiles

Item	1	2	3
staff-environ	.924	-6.952E-02	-6.301E-02
custom-product	.804	.122	.282
staff-general	.788	-.208	1.291E-02
staff-service	.742	-.465	9.782E-02
comp-environ	-.720	.218	.449
custom-service	.666	-.348	.329
mng-environ	2.215E-02	.881	3.862E-02
mng-service	-.229	.861	4.936E-02
mng-general	-.291	.774	3.930E-02
mng-product	-.530	.729	5.017E-02
comp-product	-.120	.726	-.188
staff-product	.531	.573	-.184
custom-environ	.104	-.199	.860
custom-general	.141	.346	.683
comp-service	-.588	.191	.673
comp-general	2.080E-02	-.377	.656

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 5 iterations.

Table 4: Factor analysis of the attention profile items

Eigenvalues				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	29.703(a)	89.6	89.6	.984
2	3.461(a)	10.4	100.0	.881

a First 2 canonical discriminant functions were used in the analysis.

Test of Function(s)	*Wilks' Lambda*	*Chi-square*	*df*	*Sig.*
1 through 2	.007	405.876	32	.000
2	.224	123.365	15	.000

Table 5: Summary of canonical discriminant functions

	MNGMT	STAFF	CUSTOMER	COMPET
MNGMT	1.00			
STAFF	-.38(**)	1.00		
CUSTOMER	-.24(*)	.53(**)	1.00	
COMPET	.53(**)	-.52(**)	-.033	1.00

Table 6: Correlations between sources

RADIAL structure POLAR structure Total structure - RADEX

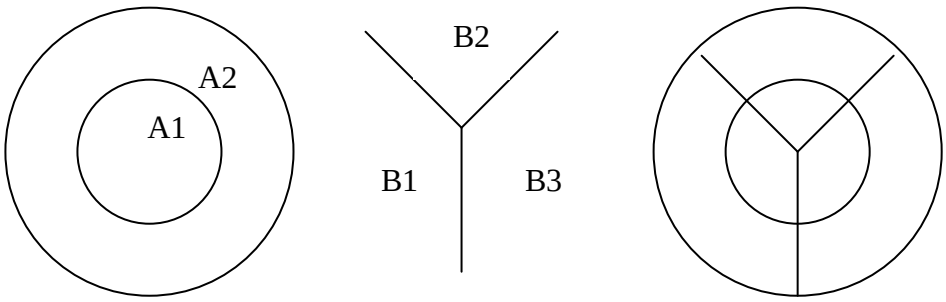

Figure 1: The roles of the facets (source: Elizur, 1984)

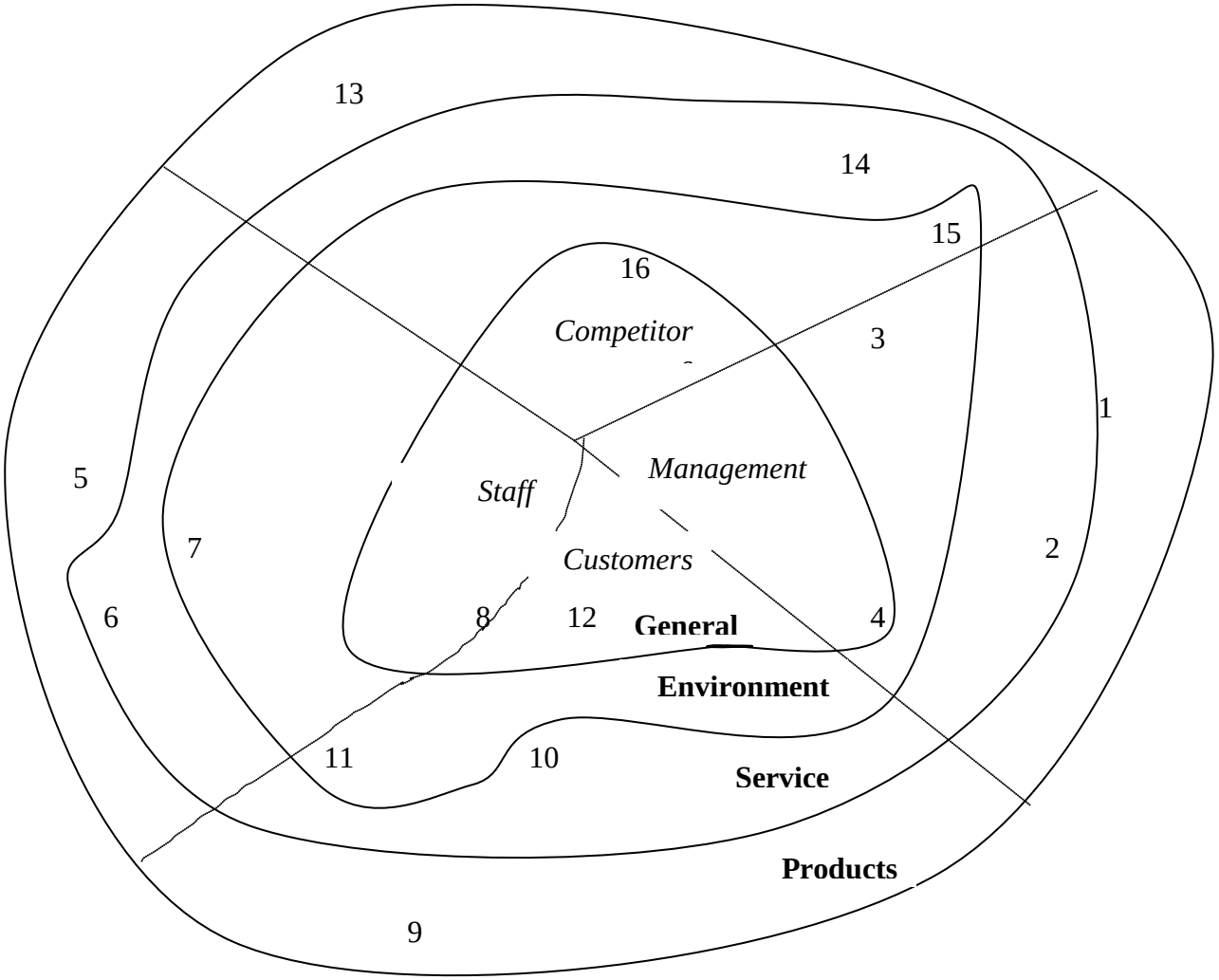

Figure 2: The structure of Organizational Attention.

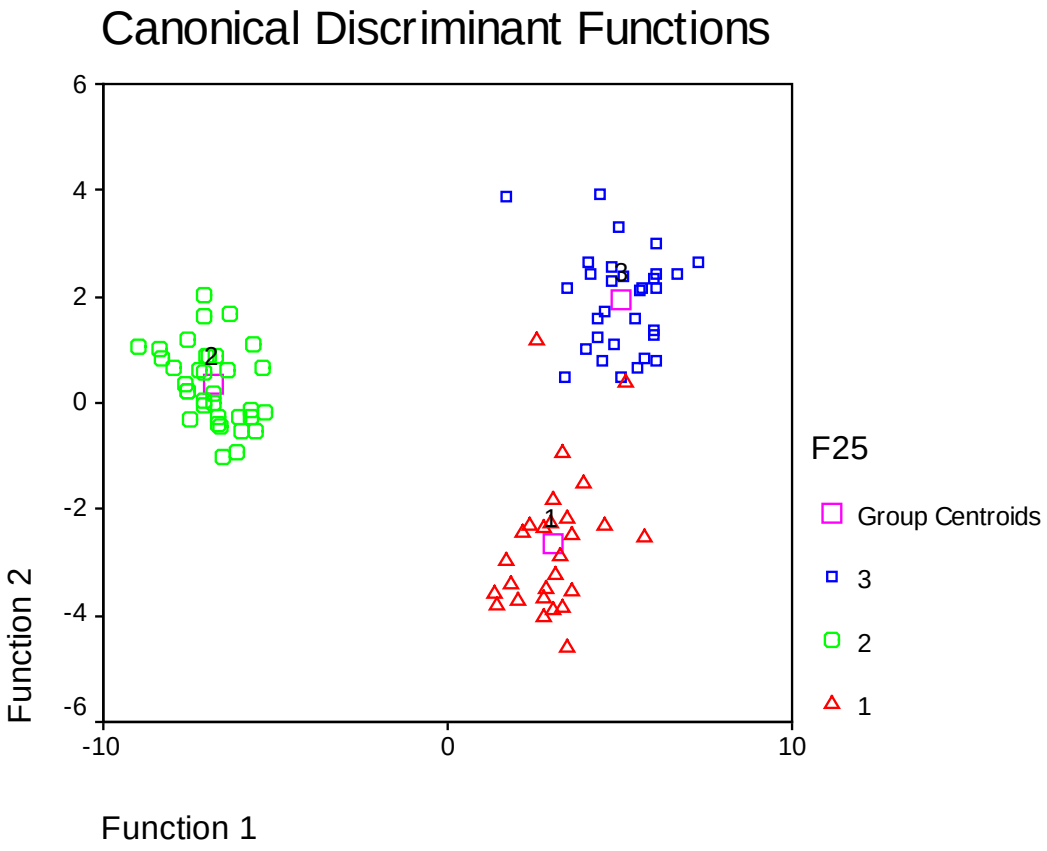

Figure 3: canonical discriminant functions