

**Essays on
Global Non-Market Strategy**

by

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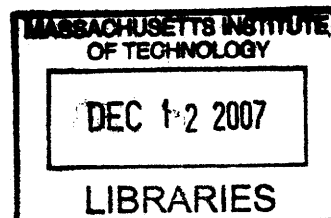
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Essays on Global Non-Market Strategy

By

Rafael Lucea

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Abstract

This dissertation is centrally concerned with the management of a firm's global non-market environment. The non-market environment of a given firm is conceived as the set of relationships, confrontational or collaborative, that it establishes with actors other than its clients, suppliers and competitors. Because the actions carried out by non-market actors increasingly span multiple country borders, the appropriate level of analysis of this phenomenon is the global arena.

In order to better understand how firms manage their non-market environment this thesis focuses in on one particular type of non-market actor: the so-called Non-Government Organizations (NGOs). The reason for choosing NGOs as the central counterpart of firms in the non-market domain is due to its increasing influence in the economic, social and political arenas, and the fact that their influence on firms is still relatively unexplored. While this does not detract from the fact that other non-market actors, namely governments, play a crucial role in the behavior and performance of firms, it is important to acknowledge that the transnational nature of a growing number of NGOs is making firms face challenges that are different in nature to the ones they have had of address in the past.

In order to explore this relevant topic, this dissertation is organized in two parts. The first one is conceptual in nature. It provides a framework that integrates the main perspectives in the field of non-market strategy and also helps characterize the sources of internationality of a given non-market environment. The second, by contrast, is an empirical study. It examines the relationships between oil firms operating in the Ecuadorian Amazon and NGOs concerned with the social, environmental and economic impacts of this activity. While extant research on interorganizational non-market behavior has favored structural approaches, the project developed here takes an interpretive perspective. More concretely, instead of trying to explain why NGOs and firms interact in a given way based on their size, the nature of their business, their objectives, or the strategies they favor, the focus is placed here on the extent and the mechanisms by which a given situation is interpreted in different ways by different actors.

As a whole, this dissertation joins a small but growing chorus of voices interested in issues such as sustainability, corporate citizenship and ethical management. Because of the incipiency of this academic domain and the interpretive lens chosen to study it, the contributions of this thesis have a marked foundational character. Both the conceptual model developed in the first part and the cognitive perspective proposed in the second aim at providing tools that help make sense of a corporate environment that is radically different from that of just a decade ago.

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Sloan has also been home to many fantastic friendships and sources of wisdom and academic inspiration that frequently mingled in ever amusing ways. Many do not know that this place is, in fact, run by three fantastic women –Sharon, Debora and Loretta- that I count as my friends. Without their help and guidance this would have been an impossible endeavor. The “Quorum” group –Karim, Kevin, Nico, Ramana, Rodrigo and Luis- has been the setting where our incipient research ideas have been first discussed and most ruthlessly critiqued. Although we used to joke at the end of every session about the amount of salt we had just rubbed on each other's bruised egos, I cannot think of a more caring group or a better way to keep oneself honest with one's work. The group of the “elder” –Ruthanne, Kyoung-Hee and Liz-, has also been a source of much academic support and off-work fun. Most of my time at Sloan and outside, though, has been shared with my officemates Maria, Ramana and Rodrigo. Together we have gone through the lowest lows and the, far fewer, high highs that the program has afforded us. We have enjoyed each other's achievements and setbacks as if they were our own. I never thought I would one day miss sharing with you our cramped and windowless office but I already have started to.

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one like a PhD, will count with their blessings, love and support. My grandmother –Merce- is a constant reminder that finding “la joie de vivre” is up to us. My brothers –Roger and Roma- have been my sounding boards throughout this process and I cherish their camaraderie and the care we take of each other. Ona and Joel, while always in my thoughts, have grown seeing very little of their uncle. I hope to make it up to them.

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Introduction:

This dissertation seeks to provide a better understanding of the strategic interactions between firms and Non Government Organizations (NGOs) as they try to influence each other's behavior. One area of particular interest is the increasingly cross-border nature of these interactions. I see this phenomenon as a particularly unexplored, and increasingly important, instance of what could be defined as the theory and practice of Global Non-Market Strategy.

While the image of a firm as a private-for-profit organization is widely shared and fairly uncontroversial, describing an NGO is a more complicated task. The working definition of NGO that I have employed for the development of this dissertation is that of an organization that (1) is private, (2) does not form part of a state government, (3) is not oriented to making profit, and (4) pursues the production and delivery of public goods. Given that the empirical part of this work was developed in the Ecuadorian Amazon where most of the oil of the country is produced, the firms that I studied were typically large multinational corporations such as Petrobras, Repsol or Encana. On the other hand, the NGOs that I worked with were mostly concerned with environmental, social justice or economic development issues. Some, such as The Nature Conservancy, Conservation International, or Amnesty International were multinational organizations in their own right. Others, by contrast, operated exclusively within the borders of Ecuador at scales varying from the national to the very local.

Interest in the relationships between NGOs and firms at the global level was sparked by three related phenomena. The first one was the growth in size, scope and influence that NGOs have experienced in the last few decades. Secondly, as the influence and scope of NGOs increased, they grew interested in the workings and responsibilities of corporate actors. Finally, NGOs have decidedly outgrown their classic local-for-local orientation and have become organizations that regularly operate across national borders.

The appearance of NGOs as influential transnational actors implies a significant alteration of the competitive landscape in which corporations operate. This paradigm shift, in turn, questions at a very fundamental level the completeness and usefulness of current theories in the fields of strategy and international management. A clear gap in the existent literature, for example, is the lack of a conceptual framework that allows us to characterize the relationships between firms and other kinds of actors across national borders. The first essay in this thesis addresses such gap.

In “*Cross-Border Non-Market Environments; a multi-relational approach*” I develop a conceptual framework that characterizes the international non-market environment of a firm as an ‘issue-space’. The crux of the model relies upon three principles often treated as unconnected or altogether ignored. The first principle states that the relationship between a firm and its stakeholders cannot be conceptualized, as has usually been done, as a hub, the firm, maintaining independent relations with a set of spokes, its stakeholders. Not only it is necessary to take into consideration that stakeholders usually establish a web of relationships among themselves, but also that the nature and strength of the

relationships established between a firm and its various stakeholders may differ widely. The second principle, states that firms are often simultaneously involved in multiple non-market issues; each of which may be at a different point in its life cycle. The final one proposes that a firm's non-market environment may become a cross-border phenomenon as a result of (1) the location of the actors involved, (2) the relationships they establish, or (3) because the issue itself spans across international borders.

This framework not only overcomes the typical divide between issues and stakeholders so often criticized by scholars in the non-market strategy literature. It also accommodates the fact that some non-market actors may be involved simultaneously in different issues with one or multiple firms. Perhaps the greatest significance of this framework is that it is particularly well suited to bridging current international management theories, mostly developed in the 70s and 80s, with a global environment that has changed in significant ways since then.

This first paper tries to help make sense of the relations between firms and NGOs at the organizational-field level; however, it is also necessary to take into consideration the micro-mechanisms in which organizational behavior is rooted. The second and third papers in this dissertation address this issue by exploring how managerial cognition mediates the interaction between an organization and its environment. More concretely, these two essays analyze the way in which individuals managing firms and NGOs apprehend, select, and interpret information available in their environment, as well as how they act upon it.

The setting used to explore these micro-mechanisms was the upstream oil sector in Ecuador. Oil exploration and extraction is an economic activity of the utmost importance for this country, representing 40% of the country's exports and over 1/3 of the government's budget. However, this economic activity has come at an extremely high social and environmental cost. The appropriateness of this environment as a research setting for the study of the interactions between firms and NGOs is due to a number of reasons. First is the existence of a relatively large number of oil companies operating in the country. Interestingly, these companies display a significant range of variation in terms of size, country of origin, and reputation on social and environmental matters. Second is the existence of a large and lively pool of NGOs concerned with the various impacts that oil exploitation has on the environment and on local communities. Third is the fact that these two sets of organizations have interacted with each other for over 15 years. Fourth, the geographic area where oil is exploited is relatively small and quite clearly bounded. And finally, there has not been any major recent shock in the institutional make-up of the country that has significantly changed the relationship among NGOs or between oil firms and NGOs. All these factors put us before an organizational field that is small in size, fairly stable, and where all the major actors have known each other, personally and organizationally, for a long period of time.

These last two chapters also share a common methodological approach based on the systematic collection of qualitative data. In addition to extensive semi-structured interviews, I used a pilesorting technique to elicit the mental maps held by a sample of

firm and NGO managers. This methodology, traditionally employed by anthropologists to depict cultural domains, lends itself particularly well to highlighting similarities and differences between the items under study; in this case the cognitive structures of firm and NGO managers active in the oil sector in Ecuador. In addition, this method has the added advantage of ease of administration, avoids the risk of deep cuing from the interviewer and, as other techniques commonly used to elicit mental maps, allows for comparison and aggregation of interviewees' cognitive structures. I was thus able to capture four sets of cognitive maps: (1) the mental maps that NGO managers have of NGOs operating in Ecuador (the NGO-space), (2) the mental maps that NGO managers have of oil firms operating in Ecuador (the FIRM-space), and the mental maps that FIRM managers have of the (3) NGO-space and of the (4) FIRM-space. These mental maps were defined along three dimensions: the level of *knowledge* that managers have of the organizational field, the pattern of *associations* they make among the different actors in the field, and the substantial *categories* they employ to classify these actors.

In *'The "real" world out there: Strategy and Cognition in non-market environments. Mental maps in the oil sector in Ecuador'* I explore the role of managerial cognition in the context of firm-NGO relationships. This line of research aims at elucidating whether managers cognitive structures are likely to have an impact on organizational behavior. Looking at this problem through a cognitive lens stands in stark contrast with the common approaches employed in this field, which usually try to explain differences in behavior and performance solely based on variance in organizational strategies and attributes.

If cognition is to influence behavior and performance, then it is necessary to start by showing that variation among managers' mental maps is of such caliber that it can have a significant explanatory power above and beyond that of organizational attributes. Testing such basic pre-condition is the purpose of this paper. I find that, indeed, there is a significant range of variation among the cognitive structures held by managers *within* each type of organization. Secondly, I also find that, *in the aggregate*, the NGO community has a significantly different perspective of the organizational field than the corporate community. Finally, and perhaps more interestingly, I find a considerable degree of overlap between the mental maps of some NGO and firm managers. I conclude that the 'sufficient dispersion' pre-condition for a central role of non-market cognition in the achievement of superior organizational performance is satisfied. Notice that in this paper I am not making any claims as to the actual impact of non-market cognition on performance nor describe the mechanisms through which this might take place; I am only arguing that the conditions for that to happen are in place. Testing the actual impact of cognition on outcomes is the logical next step in this line of work.

The third paper in this dissertation goes one level deeper in the analysis of the micro-mechanisms driving the behavior of the actors in this field. This is done by zeroing in on the reasons that explain the persistence of variance in cognitive structures among individuals working for NGOs in the Ecuadorian Amazon. More concretely, this last essay, entitled "*On Categories and Organizational Domain Structure*", challenges a widely shared tenet in the managerial cognition literature: that cognitive convergence

among the actors in an organizational domain is an indisputable pre-condition for the existence of stable domain structure. By contrast, I find that notably different categorization systems can coexist in a given setting. That is, I find persistence of variance among the cognitive structures of actors operating in a *stable* organizational domain.

Persistent variance of worldviews in a particular domain is then explained as a consequence of five related mechanisms - triggering experiences, initial organizational identification, area specialization, internal social construction of organizational identity, and strategic use of organizational identity. Some of these mechanisms work at the individual level. Others operate at the organizational level. And most are tightly intertwined and take place simultaneously. The last part of this paper reflects on the relevance that these findings have for the study of industry structure as it is undertaken from three different disciplinary traditions. It also proposes a methodology that capitalizes on the strengths of each approach while minimizing their shortcomings.

As a whole, this dissertation joins a small but growing chorus of voices interested in issues such as sustainability, corporate citizenship and ethical management. Because of the incipiency of this academic domain, the contributions of this thesis have a marked foundational character. Both the conceptual model developed in the first paper and the cognitive perspective proposed in the other two, aim at providing tools that help make sense of a corporate environment radically different from that of just a decade ago.

To the extent that NGOs and, more generally, civil society organizations continue to challenge the socially acceptable limits of corporate behavior, it is necessary to elucidate the mechanisms behind firm-NGO interaction. Only then it will be possible to truly integrate market and non-market aspects of strategic management; an integration that requires that the geographically dispersed nature of the actors and events under consideration be given particular relevance.

CROSS-BORDER NON-MARKET ENVIRONMENTS ; A MULTI-RELATIONAL APPROACH

Abstract:

Studies on the non-market environment of multinational companies (MNCs) have traditionally emphasized the role played by governments while paying limited attention to other actors such as the general public, the media or non-governmental organizations (NGOs). When these other non-market actors have been taken into consideration, their geographic reach has been considered extremely limited.

However, non-market environments have become gradually more complex due to the widening array of powerful actors involved, the interaction among the issues they sponsor and the increasingly cross-border nature of their activities. This new paradigm requires that the traditional conceptual tools developed to inform strategic and organizational decision-making in the non-market domain be revised and adapted accordingly.

In this paper I propose to extend the traditional boundaries of Strategic Issue Management and Stakeholder Theory by developing the concept of “global issue space” as an integrative framework that helps make sense of the multiple relations established between a focal firm and its stakeholders across issues and geographies.

In the last two decades management scholars have paid increasing attention to the role played by non-market actors on the performance and chances of survival of firms. This area of inquiry was originally developed by researchers in the IB community (Boddewyn 1994) who, since the early days of the field, have been exceptionally aware of the manifold sets of constraints and opportunities placed on firms operating in multiple institutional settings.

This early research on non-market environments focused on the relations established between firms and country governments. In particular, the so called 'sovereignty at bay literature' (Kobrin 2001), that spanned from the 60s to the early 80s, put emphasis on the impacts that multinational companies (MNCs) had on home and host countries, as well as the relative power of country governments on MNCs. (Vernon 1971; Keohane and Nye 1973; Vernon 1977; Stopford, Strange et al. 1991; Strange 1996).

While this strand of literature firmly established the interconnectedness of governments and firms in the international arena, scholars working in the business and society field were quick to emphasize that governments were not the only, nor necessarily the most important, non-market actor that firms needed to manage. Freeman's '*Strategic management: a stakeholder approach*' (Freeman 1984) represented the starting point for a second wave of research that focused on the reciprocal influences between firms and their non-market context, a context that from this moment on would be defined in much broader terms (Freeman and Reed 1983; Freeman 1984; Mitchell, Agle et al. 1997) but

that would continue to pay scant attention to the cross-border dimensions of non-market environments.

Within this second wave of non-market research, 'two rivaling perspectives' (Mahon, Pursey et al. 2003) have dominated the debate both at the analytical and the normative levels. On the one hand, Stakeholder Theory (Freeman and Reed 1983; Freeman 1984; Donaldson and Preston 1995; Mitchell, Agle et al. 1997) emphasizes the need for firms to identify, classify and manage their stakeholders based on the nature of the claims they place on the firm and their potential impact. By contrast, Strategic Issue Management's structuring principle is based on the existence of 'events or trends that could have a negative impact on the organization's ability to achieve its objectives' (Ansoff 1980; Bigelow, Fahey et al. 1991; Mahon and Waddock 1992; Bigelow, Fahey et al. 1993) While both conceptual paradigms recognize the importance of each other's perspective, they have developed, mostly, along parallel paths. This parallel development has been criticized from both camps since it is 'widely accepted that stakeholder behavior and issue evolution are delicately intertwined' (Bigelow, Fahey et al. 1993; Mahon, Pursey et al. 2003). In order to bridge this divide, there have been timid proposals for relational approaches (Rowley 1997; Mahon, Pursey et al. 2003) that have not gained, so far, much footing among non-market scholars. One reason for this lukewarm reception may lay on the fact that, while adding a layer of analytical complexity, the proposed network approaches failed to clearly show how multiple evolving issues and overlapping stakeholders could be integrated into a single model.

One common aspect of the early explorations of IB academics and this more recent research on non-markets is the portrayal of non-market actors' geographic scope of influence as extremely local in reach (Kobrin 2001) (Baron, 1997). However, research on the effects of the later wave of globalization points at the internationalization of the activities of non market actors. Not only have governments increased their bilateral and multilateral trade and social agreements in recent years but social organizations, the so-called 'third sector', have also greatly increased their economic, social and political influence, both locally and beyond the borders of their nation-states of domicile (Salamon 1994; Salamon and Anheier 1996; Salamon and Anheier 1997; Salamon and Dewees 2002).

Even more relevant for the purpose of the present paper is that the non-market context in which firms operate has become a *cross-border* phenomenon, not simply a multi-national one. A broad range of studies on the effects of globalization give support to this point of view. Keck and Sikkink (1998), for example, document how much of the strength of modern day non-profit organizations derives from being present in multiple countries *and* from their capacity to coordinate local actions across borders. Teegen, Doh and Vachani (Teegen 2003; Teegen, Doh et al. 2004) highlight the increased global reach of NGOs and question the validity of some basic tenets of the IB theory. Namely, the definition and dynamics of an international institutional field, the relevance/centrality of a two sector –and not three- bargaining model, and the preeminence of the firm as the global organization of interest within the IB field. A number of monographs describe the high level of cross border activism that brought the (local) activities of some large companies

to the international public attention (Jordan 2001). Moreover, the debate about the existence, working mechanisms and impact of a new 'global civil society' is anything but waning (Keck and Sikkink 1998; O'Brien 2000; Khagram, Sikkink et al. 2002; Salamon and Sokolowski 2004; Tarrow 2005). Governmental reliance on NGOs and companies to implement public policy programs at home and abroad is increasing dramatically (Salamon 2002). International labor (Rigby 2004) and environmental standards (DeSombre 2000) and certifications are also being adopted by an increasing number of firms.

Given this increasingly tight interconnection among issues, actors and country borders, the conceptual tools that have served both academic and managerial communities well in the past need to be truly integrated and expanded if they are to provide proper insight in this radically different environment. The purpose of this paper is to suggest an avenue for such integration and expansion of the extant Issue Management and Stakeholder theory paradigms.

The approach advanced in this paper, that I refer to as the firm's 'global issue space', emphasizes the multi-relational nature of the focal firm's non-market environment. This article also aspires to go beyond the use of social networks as a metaphor. The impressive array of tools developed in the field of social network analysis over the last 30 years has the potential to provide meaningful insights into the dynamic multiple relations that define any given issue-space (see Wasserman, Faust et al., 1994 for a review of methods and studies dealing with multiple relation and dynamic networks).

In order to support the multi-relational approach just described, the rest of this paper is organized as follows. First, I briefly review the basic propositions of Issue Management and Stakeholder Theory and summarize the main shortcomings of these paradigms as described by authors in both fields. Then I develop in some detail the concept of ‘issue spaces’ and provide a stylized example of the insights gained by this approach over using its building blocks. Next, I explore, through the lens of issue-spaces, the sources of internationality of non-market environments and extend the previous example to the cross-border case. The final section ponders the value of the model proposed.

Extant approaches to non-markets: Issue Management and Stakeholder theories

Management scholars have approached the relationships between firms and “non-market” actors such as governments, interests groups, NGOs and public opinion from two rivalling perspectives (Mahon, Pursey et al. 2003). On the one hand, the Strategic Issue management school (Ansoff 1980) takes the concept of issue as the organizing principle of the relationships between firms and their non-market environment. Issues are defined as “gaps between stakeholder expectations and an organization’s policies, performance, products or public commitments” (IMC). Issue management, therefore, is the process by which firms close this gap between expectations and reality. This can be done by either changing the firm’s behavior or the firm’s stakeholders expectations. By contrast, ‘stakeholder theory’ (Freeman 1984; Donaldson and Preston 1995) is rooted on the idea that firms must respond to the claims of a variety of legitimate stakeholders and to those

that, legitimate or not, can affect the firm's performance. Defining *who* is a stakeholder has been one of the main topics in the field and has resulted in a "maddening variety [of ways in which] questions of stakeholder identification might be answered" (Mitchell, Agle et al. 1997).

Although both approaches acknowledge the existence of stakeholders and issues as important elements of the non-market environment of firms, their fundamental objectives and the nature of the levers they sponsor and the research agendas that they have triggered differ substantially. Strategic Issue Management aims at minimizing the risk of harmful non-market events from happening by scanning, monitoring and influencing societal trends and processes. Stakeholder Theory's objective, by contrast, is to manage the relative power of the firm vis-à-vis key stakeholders. This is done by identifying individuals, groups or organizations that may place claims on the corporation, analyzing their interests, processes and relative power, and influencing their perceptions of the image and behavior of the firm. As for the type of academic interests that these two perspectives have inspired, Issue Management scholars have devoted enormous attention to analyzing the "life of issues". That is, the evolutionary process that extends from the emergence of an issue to its resolution (Post 1978; Buchholz 1988; Bigelow, Fahey et al. 1991; Mahon and Waddock 1992; Bigelow, Fahey et al. 1993). In stark contrast to the emphasis these researchers make on the passing of time on the non-market environment, stakeholder theory has a much more taxonomic slant. In fact, the two big questions in the field have been "who (or what) are the stakeholders of the firms? And to whom (or what) do managers pay attention?" (Mitchell, Agle et al. 1997)

Sole adherence to one view or the other has been criticized by authors on both camps for missing some of the fundamental aspects that drive the interaction between firms, governments and other non-market actors. In particular, Mahon and Pursey (2003) point at the scant literature that explores how managers should deal with stakeholders and issues simultaneously “even though it is widely accepted that stakeholder behavior and issue evolution are delicately intertwined”. Rowley (1997) points out that stakeholder theorists place emphasis on the attributes of stakeholders while largely ignoring the relationships they establish with the focal firm *and* amongst themselves. These relationships, he argues, are request –or issue- dependent. Bigelow et al (1993) also point at the need to integrate both views as a requisite to explain issue evolution deviance. In particular, they point at the entrance of new stakeholders or the change in relative relevance of existing ones as one of the causes for the abnormal progression of an issue. More recently, Eesley and Lenox (2006) argue that the appropriate level of analysis should be the request-stakeholder-firm triplet rather than each one of the elements individually. In addition, numerous authors have pointed out that a focal organization has to deal with numerous issues simultaneously, that these issues may be at different stages in their life cycles and that they can interact with each other. Moreover, stakeholders are not necessarily a stable set, may gain or lose relevance as the issue evolves and can be supportive of the firm on a given issue while opposing it on a different one. Finally, the geographic scope of the non-market environment is rarely considered. In some cases both issues and stakeholders are deemed extremely localized, making geography a constant in the problem under study. Nevertheless, a number of factors such as improvements in

information technologies, vertical disintegration and geographic dispersion of business and the growth of anti-capitalist grass-roots level organizations in developed and developing countries make non-market environments a cross-border phenomenon, not just a local or multi-domestic one.

This long list of the main paradigms' shortcomings, summarized in Table 1, is rarely treated in an explicit form and, hence, the blending and expansion of both perspectives remains a challenge for researchers in this field.

Table 1-Characteristics of Issue Management and Stakeholder Theory

	Issue Management	Stakeholder Theory
Objective ^a	Minimize surprises; risk management approach	Appease critical actors, foster cooperation
Focus ^a	Events, trends	Individuals, groups, communities, organizations
Research emphasis	Issue life cycles; evolution of issues Strategic responses at different stages	What/who is a stakeholder Stakeholder classification To whom do/should managers respond
Paradigm critiques / shortcomings		
<p>Intertwining of issues and stakeholders:</p> <ul style="list-style-type: none"> • Stakeholders <ul style="list-style-type: none"> ○ May be involved in multiple issues (Mahon, Pursey et al. 2003) • Issues <ul style="list-style-type: none"> ○ Interaction of multiple issues may deviate from normal path (Bigelow, Fahey et al. 1991; Bigelow, Fahey et al. 1993) <p>Type of relation</p> <ul style="list-style-type: none"> • Stakeholders: <ul style="list-style-type: none"> ○ The relationship between firm and a given stakeholder may vary by issue. • Issues: <ul style="list-style-type: none"> ○ Issues may be subsumed in other issues -nesting (Marres and Rogers 2004) ○ Issues may be at different life cycle stages (Mahon and Waddock 1992) • Attributes vs. relationships <ul style="list-style-type: none"> ○ Most research is based on attributes of stakeholders or issues rather than the relationships among them (Rowley 1997) <p>Unit of analysis</p> <ul style="list-style-type: none"> • Appropriate unit of analysis is firm-issue-stakeholder triplet (Easley and Lenox 2006) <p>Internationality</p> <ul style="list-style-type: none"> • Little attention paid to geographic implications of <ul style="list-style-type: none"> ○ Issue location ○ Stakeholder location ○ Cross border relations 		

^a.- (adapted from Mahon & Pursey (2003))

In order to address this challenge, I propose a multi-relational approach to the analysis of firms, issues and non-market stakeholders. A relational approach implies considering not only the attributes of the different actors –stakeholders and focal firm- bounded together by a particular issue, but also the pattern of multiplex links that they establish with the focal firm and amongst themselves. While this is not the first attempt to bring in a social network analysis perspective to the study of stakeholders and issues (Rowley 1997; Mahon, Pursey et al. 2003), the model developed below explicitly (1) addresses the problem of overlapping issues and stakeholders and (2) questions the relevance of geographic scope of the non-market environment of firms.

Integrating perspectives of non-markets: issue-spaces

In this section I describe the concept of global issue-space in three steps. First, I highlight the somewhat problematic nature of accepted definitions of ‘issue’ and propose that there needs to be a focal event around which multiple actors structure their relationships. Then, I borrow the concept of “issue-network” (Hecló 1978) from the political science literature to effectively connect issues and non-market stakeholders. Finally, I acknowledge that the focal firm is generally involved in multiple issues and propose the concept of issue-space as the result of the interconnections existing among the various issue-networks of which a firm is a part.

While, an ‘issue’ is generally described as a gap between a set of stakeholders’ expectations and an organization’s actions, products or commitments, various scholars

have provided their own definitions. For example, issues have been variously defined as “social problems [...] requiring managerial attention when they are defined as being problematic to society or to an institution within society” (Kingdon 1984) or as “forthcoming development[s]...likely to have an important impact on the ability of the enterprise to meet its objectives” (Ansoff 1980).

These commonly accepted definitions of ‘issue’ are problematic on two accounts. On the one hand, issues are variously described as social problems, developments or trends that may affect the performance and survival of a firm. These criteria open the door to defining an issue in terms that are too broad for meaningful managerial intervention – such as trying to address the issues of human rights or global warming-. On the other extreme, issues might be defined at such a micro level that it might make coherent organization-wide responses unfeasible. A second limitation of these standard definitions is that they portray issues as something inherently threatening for firms. This need not be the case. As an increasing number of instances of collaboration between firms and communities and NGOs show the outcome of an issue may turn up to be beneficial for both sides. In order to sidestep both problems, I propose that issues are most effectively operationalized as focal and concrete events such as a project, a product, or a firm policy that generate gaps between the expectations of a number of stakeholders and the firm’s behavior. Therefore, in order to map the non-market environment of a firm, it is necessary to start by identifying these focal points around which non-market action is likely to take place.

Once an issue is identified, it is necessary to concentrate on the collectivity of organizations that are involved in it. This collective will be referred to as the “expanded issue-network”. The concept of issue-network was developed and primarily employed in the political science (Hecló 1978) and public policy domains (Skok 1995). Issue networks have been defined as “individuals and groups with shared knowledge about some aspect of public policy” (Hecló 1978) or “a network of organizations that include NGOs, intergovernmental organizations and private foundations [...] driven by shared values or principled ideas” (Sikkink 1993). In sum, an issue-network is a set of organizations that share a common principle regarding a specific issue.

However, such definitions do not properly characterize the kinds of complex relationships that firms, governments and other non-market actors engage in because they do not acknowledge the existence of opposing factions both within each type of organization and across different types of organizations. It is not unusual, for example, to encounter a set of stakeholders opposing a public or private project while another group of stakeholders support that same project. A second problem of the traditional conception of an issue-network is that it is blind to the structural patterns that link different members in the network. For example, while some issue networks are extremely dense and highly centralized, others may be sparse and balanced. However, as numerous studies in the field of social network analysis have established (Burt 1976; Burt 1992), the overall structure of the network and relative position of specific actors within the network is extremely important to account for organizational behavior and performance. Therefore, it is necessary to expand the original concept of issue network to include not only the

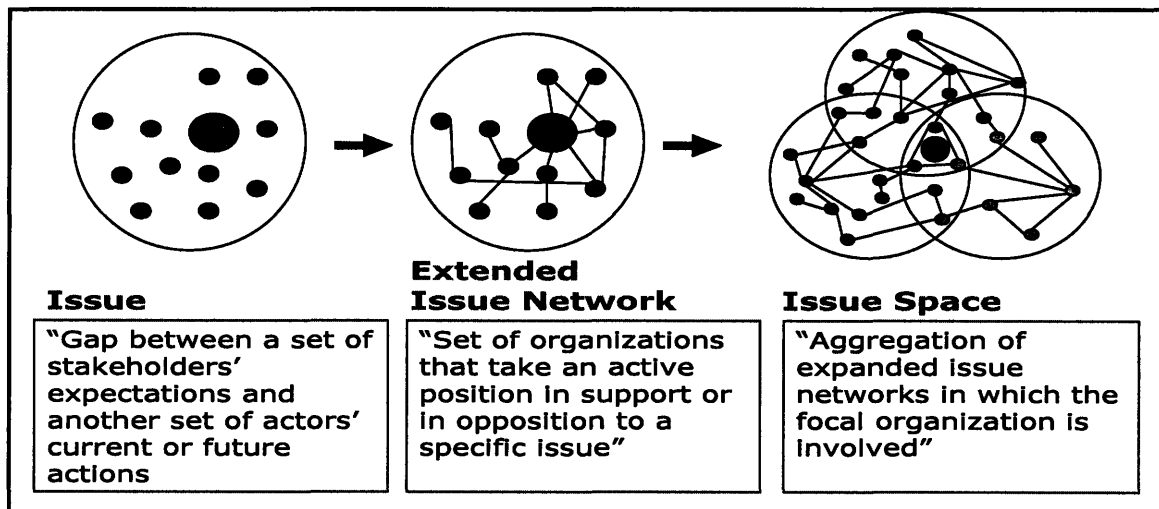
multiple perspectives that a specific issue elicits but also the patterns of relations formed amongst those actors bound together by their involvement in a specific issue. More formally, an 'expanded issue-network' can be defined as "*the set of organizations that take an active position in support or in opposition to a specific issue and the evolving patterns of relationships they establish*".

Thinking in terms of expanded issue-networks is useful because it intimately links the existence of issues to that of relevant stakeholders but it still does not fully respond to the level of complexity involving the relationships between these three kinds of actors. As Simmel (1955) recognized with regards to individual networks, organizations are typically engaged in multiple issues (Bigelow, Fahey et al. 1993) and, thus, form part of multiple expanded issue networks. The aggregation of an organization's expanded issue networks will form what here will be referred to as its "issue-space".

A number of characteristics of an organization's issue-space are worthy of further commentary. First, the degree of overlap of the issue-networks forming the issue-space of a focal organization may range from total independence to complete overlap. That is, a focal organization may be engaged with the same set of actors in multiple issues or may be dealing with a completely different set of actors in each one of the issues it is involved. Second, the relationship between a focal organization and an actor involved in more than one of its issue-networks may differ in nature, sign and intensity depending on the issue. This is due to the fact, mentioned above, that firms, governments and other non-market stakeholders do not engage with each other in a monolithic way but tend to be quite

discriminating of the positions they take depending on each specific issue. Third, an organization's issue-space is formed by issues of differing potential impact at different stages in their life cycle (Bigelow, Fahey et al. 1991) and, therefore, should be thought of as 'fluid' (Hecllo 1978; Dimaggio 1992; White 1992) rather than 'crystalline' (Burt 1992). Finally, since no two organizations are engaged in the exact same issues in the same capacity, each organization's issue-space is unique and will have a decisive influence on the performance and chances of survival of such organization (Burt 1976; Burt 1992). Figure 1 provides a summary of the conceptual process just described.

Figure 1- Defining issue-spaces



Stylized example of the operationalization of issue-spaces

Beyond its metaphorical appropriateness, the power of the multi-relational approach on which the issue-space concept is based is that it can be easily operationalized using social network analysis principles that help us view a firm's non-market context as a system and not just as the sum of more or less closely related parts.

Let us imagine a firm that is involved in three different issues at a given moment in time. For the sake of simplicity, let us further assume that all three issues are at the same stage in their life cycle, that the granularity of information available is the same for all three, that they are equally well understood (ie: they generate equal levels of uncertainty) and that all of them follow a 'normal' path (Post 1978; Dutton, Fahey et al. 1983; Buchholz 1988; Mahon and Waddock 1992). After a basic stakeholder mapping exercise and the evaluation of the potential impact of each one of the issues, an imaginary non-market environment manager would face a wealth of information that she might summarize in the form made in table 2.

Table 2- Summary measures of Issue scanning and Stakeholder mapping

	Issue 1		Issue 2		Issue 3	
Potential impact on the value of the company	1 (low)		3 (medium)		5 (high)	
Stakeholders salience 1-low, 5-high	A	1	A	1	A	1
	B	1	B	1	V	1
	C	2	C	2	W	2
	D	2	D	2	X	2
	E	3	T	3	Y	3
	F	5	U	5	Z	5

Looking at this simplified exercise from an issue management perspective, the only discriminating factor for the company to prioritize action would be the expected (negative) impact of each one of the issues. Since Issue 3 is estimated to have the largest potential impact for the company, the main organizational effort would be geared toward avoiding, isolating, re-interpreting or resolving this issue (Bigelow, Fahey et al. 1993). Alternatively, addressing the non-market environment of this firm purely from a stakeholder management perspective would lead us to concentrate our attention on

stakeholders Z, F and U or, if we weight by the potential impact of the issue they are involved in, Z, U and Y.

A relational approach (Rowley 1997; Mahon, Pursey et al. 2003) would have us gather information about the relationships among the firm's stakeholders –let us assume a pattern of relationships as the one in table 3- and then evaluate the situation based on the characteristics of the networks and the relative position of the different actors.

Table 3- Simulated patterns of relationships among stakeholders by issue

	A	B	C	D	E	F		A	B	C	D	T	U		A	V	W	X	Y	Z
A	0	1	0	0	0	0	A	0	1	0	0	0	0	A	0	1	0	0	0	0
B	1	0	1	1	0	0	B	1	0	1	1	0	0	V	1	0	1	1	0	0
C	0	1	0	0	1	0	C	0	1	0	0	1	0	W	0	1	0	0	1	0
D	0	1	0	0	0	1	D	0	1	0	0	0	1	X	0	1	0	0	0	1
E	0	0	1	0	0	1	T	0	0	1	0	0	1	Y	0	0	1	0	0	1
F	0	0	0	1	1	0	U	0	0	0	1	1	0	Z	0	0	0	1	1	0

Centrality measures			
	D	B	C
A	1	0	45
B	3	50	71
C	2	20	63
D	2	20	63
E	2	10	56
F	2	10	56

	D	B	C
A	1	0	45
B	3	50	71
C	2	20	63
D	2	20	63
T	2	10	56
U	2	10	56

	D	B	C
A	1	0	45
V	3	50	71
W	2	20	63
X	2	20	63
Y	2	10	56
Z	2	10	56

D -Degree Centrality
B - Betweenness Centrality
C - Closeness Centrality

Network Density (all networks have same structure)

Density (matrix average) = 0.4000
Standard deviation = 0.4899

Mahon and Pursey (2003) propose that low density networks, like those in this example, are likely to reflect low homogeneity in the way network actors categorize the issue at

stake. This lack of a shared understanding, in turn, leads to a low probability of coalition formation and a high probability of the issue to perpetuate rather than resolve. From an individual actor's perspective, organizations that occupy central positions in the network are likely to operate as thought or coalition leaders. In our example, stakeholders B –in issues 1 and 2- and actor V –in issue 3- are, by far, the most central and those that, from a (uni) relational perspective, should be the focus of managerial attention.

Up to this point it has been established that different approaches would lead to different sets of strategic priorities or, at least, would lead the management of the firm to concentrate on different sets of stakeholders and the issues they sponsor. However, the approaches reviewed so far have not yet provided a clear perspective of how intertwined stakeholders and issues are and what the likely implications for managerial decision making. The concept of issue-space helps provide such perspective. For the purposes of this example, I will develop two simple measures of association between the multiple actors and issues a firm needs to manage. The first one is a measure of issue-network overlap. One of the many ways to calculate the degree of overlap between two issue-networks might be to compute the proportion of same-relations between nodes pertaining to two different issue-networks. Highly overlapping issue-spaces define non-market environments where the same actors try to resolve a variety of problems related to the focal firm. These situations offer the possibility for both parties to engage in negotiated trade-offs on specific claims given that the overall result is likely to be more vital to each one of them than the fully satisfactory resolution of each specific issue. Non-overlapping

issue-networks, by contrast, are indicative of independent problems that the firm has to address.

Table 4 shows the result of the overlap indicator proposed above¹. An indicator of the degree of overlap at the level of the entire issue-space might be given by the average and standard deviation of the overlaps of its issue-networks.

Table 4 – Degree of issue-network overlap

	Issue Network 1	Issue Network 2	Issue Network 3
Issue-network 1	1.00	0.25	0.01
Issue-network 2		1.00	0.01
Issue-network 3			1.00
Average overlap	0.07		
Std Deviation	0.14		

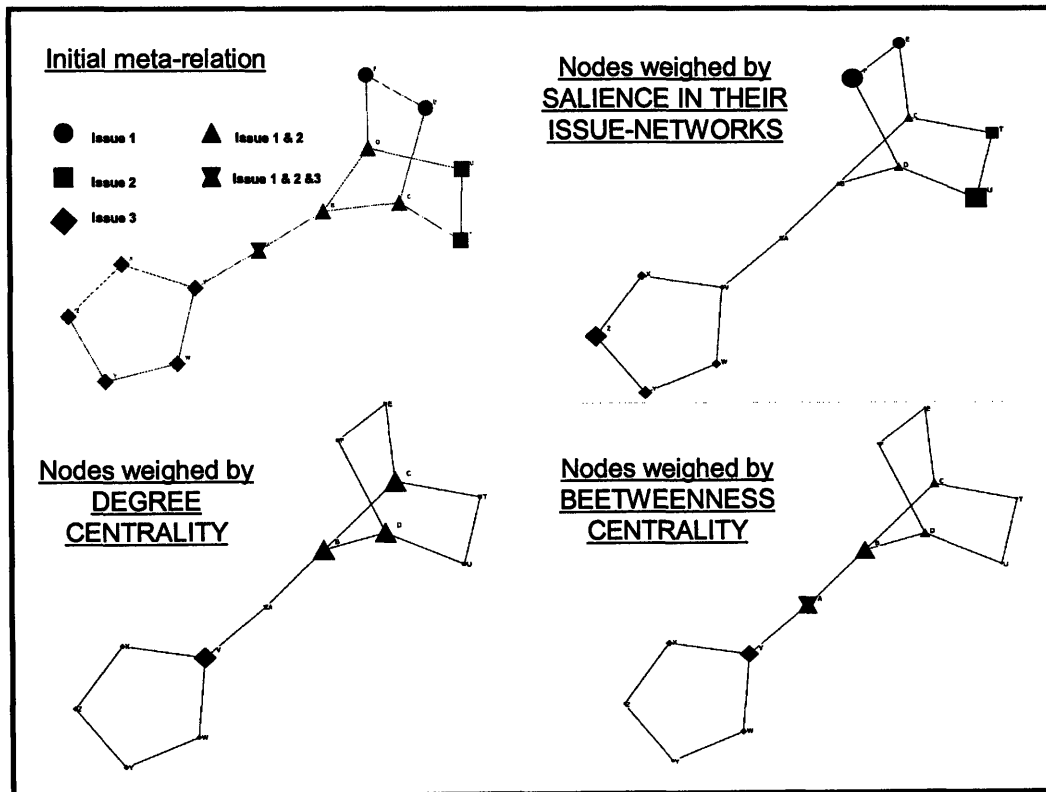
In this example, it is easy to see that issues 1 and 2 are highly overlapping while issue 3 is quite independent of the other two. This would suggest that the management of the firm could engage issue 3 almost independently –barring the assessment of the role played by player A- from the other two. In addition, given that four of the eight stakeholders involved in issues 1 and 2 have split interests, the firm could propose an overall arrangement of the issues to actors A, B, C and D where concessions made on one issue were compensated with easier settlements on the other. Alternatively, the firm could try

¹ For example, Issue 1 and Issue 2 have four common nodes with the exact same pattern of relationships. That is, 16 same-relationships. On the other hand, there are 8 distinct nodes between the two networks giving a possible total of 64 relationships (including reflexive and directional ties). The degree of overlap between these networks is calculated as $16/64=0,25$

to play a *tertius gaudens* strategy (Fernandez and Gould 1994; Baker and Obstfeld 1999) between the overlapping and non-overlapping stakeholders.

A second way to make sense of the connections among the multiple issues and stakeholders of a firm would be to define a meta-relation that connected the multiple issue-networks of a firm. Then, one could analyze the structural characteristics of this newly defined network and the implications of the positions of the actors that form it. In the present example, the simplest meta-relation to define would be “any relation between two actors that are in one of the issue-networks of the focal firm”. The results are shown in table 5.

Table 5 – Defining a meta-relation among issues



As is clear from the different graphs above, actors A, B and V happen to be extremely central to the meta-network despite the relative low salience that they have in the issue-networks where they are present. Their relevance derives from the relationships they establish with other stakeholders of the focal firm across issues. From the perspective of the firm, this configuration points at what actors and linkages the company should concentrate on if it decided to carry out a strategy of disrupting the relationships among stakeholders. Alternatively, these same actors and links might be the ones that most effectively could be used to influence the rest of the firms' issue-space.

While the meta-relation has been defined here in extremely simplistic ways, more realistic scenarios can be built by considering that links between actors and the connections across issues respond to stochastic rather than deterministic processes (Wasserman, Faust et al. 1994). Similarly, statistical approaches to network analysis can be applied to evaluate the influence of time in the dynamics among actors and the types of relationships they establish.

Sources of internationality of non-market environments

Having developed the basic concept of issue-space this section explores the sources of “cross-borderness” of a firm’s non-market environment. The main proposition is that any of the elements that compose a firm’s issue space –issues, actors and relationships- may span across country borders.

Some issues are inherently a cross border phenomenon when the focal event itself takes place across national boundaries. For example, some large infrastructure projects such as oil and gas pipelines cross several countries, making any issue concerning its construction or operation inherently international in nature. Similarly, a multinational firm's global policies or public commitments are likely to give rise to issues that are not contained within the borders of a specific country.

Even when the focal event (the issue) is clearly contained within the boundaries of a single country, the actors that get involved in that specific issue may be located in different countries or be themselves multinational organizations. For instance, the construction of the Narmada dam in India or the Three Gorge Dam in China are all clearly contained within the borders of these countries. However, the multiple non-market actors that got involved with these projects were located in various countries. Some of these actors could be considered multinational organizations in that they had 'subsidiaries'. For example, large environmental, human rights or economic development NGOs such as the World Wildlife Fund, Amnesty International or Aids Action would fall under this category. Other actors, by contrast, may be domiciled in a single country and engage with the local chapter of a multinational organization over an issue occurring in a third country. This is the case when activists employ a "boomerang effect" strategy (Keck and Sikkink 1998). One example of this source of non-market environment cross-borderiness would be the Burma Campaign. Given the limited results obtained by local human rights advocates through direct engagement with the local government, Burmese activists engaged NGOs located in the US, UK, Canada and some European countries to

pressure their governments and national firms operating in Burma so that these more powerful actors forced the autocratic regime of Rangoon to be more respectful of the claims of its own civil society. While many of the NGOs in Europe and the US were purely local in both their domiciliation and actions, the consequences of the campaign were felt beyond their national borders.

The third element of the internationality of an issue-network may come from of the establishment of links among non-market actors that reside in different countries. For example, the construction of the OCP pipeline in Ecuador had a big impact in both Ecuador and Germany but for very different reasons. In Ecuador local NGOs confronted the consortium promoting the construction of the pipeline on the basis of environmental and indigenous people's rights concerns. In Germany, by contrast, civil society organizations and the Green Party sharply criticized WestWB, Westphalia's regional bank, for financing a project that posed a strong risk for the preservation of the Amazon forest. The emphasis here is that neither the issue itself nor the actors or the actions they undertook were cross-border in nature. However, the relationships established by these sets of local activist organizations, mainly based on the exchange of information, money and coordinated (local) action resulted in an issue network that spanned the borders of a single country.

Cataloguing an issue network as cross-border if at least one of its constituting elements – the issue, the actors involved or the relationships they establish- is international in nature is, clearly, a fairly academic proposition since these three elements are closely related and

quite often appear together. More relevant implications derive from the specific geographic profile that a firm's issue-space presents.

Stylized example; sources of cross-borderness

In the same way as we first introduced the concept of issue-networks and then provided a hypothetical example to explain its value, now that the various sources of non-market environment cross-borderness have been described conceptually, it is necessary to expand the hypothetical example developed earlier in order to see how it plays out in the use of the model as a whole.

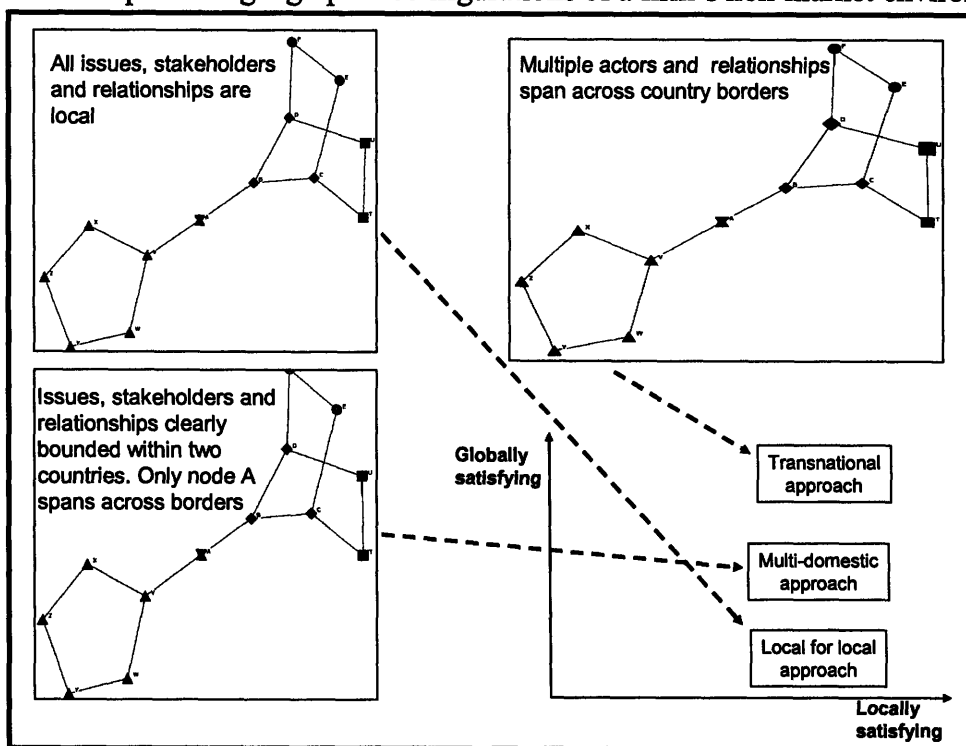
The approach proposed here is to use the three main elements of the issue-space model (actors, issues and relationships) to characterize the geographic profile of a given firm's non-market environment. For the sake of brevity, only three profiles are presented and commented upon. However, a wide variety of configurations might be found.

On one end of the spectrum, one could imagine that all the issues, actors and relationships in the imaginary 3 issue-network scenario portrayed above are purely local. If that were the case, the need to give a global response to stakeholder concerns would be non-existent and the firm's strategic action and organizational structure would be oriented to providing a locally satisfying responses to locally bounded, but possibly overlapping, concerns.

A scenario that MNCs are more likely to face is that issues develop in the different countries where they operate. This would be the case if, for example issues 1 and 2 in our example developed in one country involving only local constituencies –except for actor A- and issue 3 arose in a second country. Here, the firm would need to develop a multi-domestic non-market strategy that would need to contemplate the potentially widely differing worldviews of the constituencies involved in each one of the countries where it operates. The need to provide a globally satisfying non-market behavior might still be limited since the only international organization that spans borders, actor A, has low salience in both countries. However, as portrayed above, it has the potential to effectively work as the conduit for both sets of issues and stakeholders to be connected.

One final, much more complex, scenario would be one where the firm's issues develop in different countries, a high proportion of the stakeholders involved are multinational organizations themselves and establish relationships with other local organizations across borders. One such scenario would likely call for a non-market strategy that was at the same time locally satisfying and globally acceptable. Table 7 provides a summary of these three scenarios.

Table 7 – Some possible geographic configurations of a firm’s non-market environment



Discussion and conclusions

The rationale for this paper rests on findings from multiple strands of research pointing at the fact that the non-market environments are becoming increasingly interconnected across actors, issues, borders and over time. An integrative conceptual model is proposed to help make sense of the increased level of complexity that managers need to navigate. At this point, at least two questions merit some consideration. The first one has to do with the relevance of the change in the contextual milieu in which firms carry out their operations. That is, what are the implications for managerial decision making of the fact that non-market environments are more interconnected? Or, in other words, what are the tenets of competitive strategy and international management theories that should be revised in the light of this changing environment?² The second question relates to the

² More prosaically put, it is necessary to address the sempiternal ‘so what?’ question

added value of the framework proposed. In order to provide additional value, a new approach has to be parsimonious. That is, it has to show economy of means to an end. Since the level of complexity of the concept of issue-spaces and the associated social network analysis machinery is decidedly higher than that of its building blocks, it is necessary to evaluate whether the new insights come at too high a cost.

One way address the first question would be to point at the fact that scholars in the fields of non-market strategy and IB have repeatedly made calls to bring in more of the complexity of the real world into the analytical process of managerial decision making and, ultimately, theory building. As reviewed in section two of this paper, a good number of the critical reflections of academics in the non-market strategy field stem precisely from the influence that new facts, stakeholders or other issues may have on the evolution of a given issue (Bigelow, Fahey et al. 1993; Rowley 1997; Mahon, Pursey et al. 2003). On the other hand, IB academics have also emphasized the need to ‘broaden the context of IB studies’ because of the impact that new actors and processes are having on multinational corporations (Eden and Lenway 2001; Doh 2003; Dunning 2003; Kogut 2003).

More substantially, though, the reason why the non-market and IB fields should care about higher levels of interrelations among the components of the non-market environments of firms is that managerial decision making needs to be much more tightly integrated. Higher levels of interconnectedness results in more rugged landscapes

(Gavetti and Levinthal 2000) and the need for better organizational coordination if the firm is to achieve a higher level of performance and improve its chances of survival.

The metaphor of competitive landscapes also helps address the issue of the parsimony of the conceptual model proposed in these pages. It has been shown that as the ruggedness of a firm's competitive landscape increases, the impact of managerial cognition also increases. In other words, when the environment of a firm is extremely complex the value of having a clearer perception of the interconnections among the different components of a system improves the odds of finding at least a local optimum. Therefore, to the extent that the landscape of a given firm is perceived to be highly complex, the framework proposed in this paper will provide a higher payback. On the other hand, if firms feel their non-market environments are composed of independent issues, involving scattered stakeholders in geographically dispersed locations, the classic approaches will serve them better.

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**THE “REAL” WORLD OUT THERE:
NON-MARKET STRATEGY AND COGNITION
FIRM AND NGO KNOWLEDGE STRUCTURES IN ECUADOR**

Abstract

In this paper I study the relations between oil companies and Non Government Organizations (NGOs) operating in Ecuador. Postulating that differences in resources and goals across organizations does not satisfactorily explain organizational behavior, I propose that the cognitive structures prevalent in each organization may have a fundamental influence on the relations established between firms and non-market actors such as NGOs.

My analysis shows that mental maps held by oil managers are not only significantly different from those of NGO managers, but that these cognitive structures also exhibit considerable variation within each type of organization. The nature and magnitude of these differences provide valuable insights into a better understanding of some of the classic problems these organizations face when interacting with each other.

*En este mundo traidor, nada es verdad ni mentira,
todo es según el color del cristal con que se mira.
(Ramón de Campoamor)*

*In this treacherous world there is no truth and no
lies, it all depends on the color of the glass through
which you view it (Ramon de Campoamor)*

Scholars in the International Business (IB) tradition were, arguably, among the first to note the crucial role played by non-market actors in the operations and performance of firms (Boddeyn 2003). Being particularly sensitive to the institutional idiosyncrasies that multinational firms had to accommodate, the IB field paid careful attention to the ways in which national governments could hamper or support the operations of foreign and local firms. This somewhat narrow vision of non-market environments –non-markets as governments– would be radically expanded in the mid 1980s by a number of management researchers interested in the impact that a broad spectrum of actors, including civil society organizations, communities, employees, NGOs and, obviously, governments had on the value of firms (Freeman and Reed 1983).

After Freeman's crucial redefinition of the non-market domain of firms (Freeman 1984), research in this field blossomed. Non-market scholars set out to test the relationship between the social performance of firms and their financial performance (Waddock and Graves 1997; Margolis and Walsh 2001; Orlitzky, Schmidt et al. 2003), the attributes that non-market actors had to display to capture the attention of firm managers (Mitchell, Agle et al. 1997), the kinds of behaviors that made firms more susceptible to being the target of social action (Eesley and Lenox 2006), how non-market issues arise (Dutton,

Fahey et al. 1983; Dutton, Walton et al. 1989) and evolve (Mahon and Waddock 1992), and how firms scan their non-market environment and prepare to react to it (Dutton 1993).

With notable exceptions (Dutton and Jackson 1987), the majority of these studies were developed from an objectivist perspective. That is, a firm's non-market context has been seen as an objective reality where facts and objects have a unique and uncontroversial meaning shared by all actors involved. As a consequence, empirical studies have measured organizational resources in terms of dollars or man hours; organizational goals have been assumed to be shared not only by the members of a given organization but also, at a generic level, by all the organizations of a given type; and individual and organizational behavior has been described as a concrete sequence of causes and effects that responded to a simple logic of economic –in the broad sense of the term– rationality.

Nevertheless, objectivist approaches alone do not seem to capture fully the complexities of the interactions between market and non-market organizations. Given the broad spectrum of performance metrics, goals, and values espoused by firms and non-market actors, it is difficult to explicate the outcomes of their interaction only through *objective* measures of organizational capability. Despite having reached a weak consensus on some of the main topics of the field, (Orlitzky, Schmidt et al. 2003) researchers in this tradition have long struggled to provide consistent explanations (Margolis and Walsh 2001) that are robust across a broad spectrum of metrics (Griffin and Mahon 1997).

In this paper I propose that since the ‘objective conditions’ of a non-market environment are subject to multiple interpretations, managerial cognition may have a strong influence on the factors that are commonly employed to explain non-market behaviors and outcomes.

The possibility that managerial cognition might have a central role in explaining the interaction between firms and non-market actors emerged during the exploratory phase of my work on the oil industry in Ecuador. The purpose of this initial stage of research was to identify the organizational attributes of firms and NGOs involved in the exploration and extraction of oil, and to find out their relative importance in informing organizational behavior. In order to ground my interviewees’ explanations, I used a recent and extremely controversial oil infrastructure project as a very specific instance that would be well known to all of my interviewees and would provoke a strong reaction. The outcome of this work was that attributes such as access to resources, organizational structure or, the scope and nature of the organizational mission were certainly central to explaining behavior. More interestingly, however, was the fact that the *meaning and implications* attributed to a very concrete set of events –the construction of a pipeline– varied enormously from organization to organization. These variegated interpretations, in turn, appeared to have a crucial role in shaping organizational behavior either directly or by shaping the ways in which organizations got access to resources, defined their missions or developed their strategies and programs.

In February of 2001, the Ecuadorian government approved the construction of a pipeline that would cross the country transporting heavy crude extracted in the Amazon to the port

town of Esmeraldas in the Pacific Ocean. A consortium of foreign companies founded OCP Corp.; a locally incorporated company that would be in charge of financing, building and operating the pipeline. The whole process of design, consultation, construction and remediation was heavily contested by a broad spectrum of NGOs, communities, and individuals, and resulted in a heated national debate over the role that oil exploitation should play in the economy and livelihood of Ecuadorians. Ultimately, on November 11th 2003 , the ‘Oleoducto de Crudos Pesados’ (OCP) was inaugurated and started to carry the crude from the heart of the Amazon to tankers in Esmeraldas and, from there, to the western markets of the U.S. A year and a half later, the OCP Corporation signed an agreement with the Ecuadorian government that resulted in the creation of the Ecofondo, one of the largest corporate environmental funds (US\$ 16.9M) in Latin America. The structure and administration of the fund was the result of a two year process involving the company, the government and a number of prominent Ecuadorian social and environmental NGOs.

Shortly after the signing of these accords, in the fall of 2005, I carried out 20 exploratory, in-depth interviews with representatives of oil companies, NGOs, indigenous communities and the government. One of the main outcomes of this preliminary research was the realization that the same set of events had been interpreted in radically different ways, not only by different types of organizations, but also within each camp. Equally revealing was that all interviewees used past incidents related to oil exploration, but not necessarily to the project in question, to justify present positions and behaviors vis-à-vis specific actors. For example, one common complaint of the oil companies was that they

were being judged on the basis of what one interviewee called, the “Texaco imaginary”. Texaco, presently facing a multi-billion dollar law suit in Ecuador for environmental damages, was the first foreign firm to exploit oil in the Ecuadorian Amazon. Its operational, social and environmental practices were, according to many of the oil firm managers I interviewed, little short of appalling. However, these same managers argued that the standard operating procedures of thirty years ago had nothing to do with today’s sophisticated and much safer practices. Nevertheless, the old pattern of behavior was precisely the one invoked by most of their present day stakeholders in public debates. Indeed, the NGO and indigenous community leaders I interviewed, consistently pointed at chains of deceptive behaviors by firms, frequently unconnected to each other or to the case at hand, to support their present stance and behavior towards the construction of the OCP. More surprisingly, this sense-making mechanism was satisfactory justification for some NGOs to radically oppose further oil development in the Amazon, while other NGOs’ used it as a rationale for collaborating with oil firms to “minimize the damage they will cause anyway”.

In sum, a single set of *objective conditions* produced different “real worlds” in each organization I talked to. In addition, these differing perceptions of the world triggered widely different responses within and across types of actors. Finally, this variety in responses could not be merely explained in terms of the relative distribution of, or access to, resources, or to differences in organizational goals. Rather, it was strongly influenced by the cognitive structures of the actors involved; cognitive structures that, in turn, had developed through a dialectical process that spanned several decades.

Cases like this invite one to critically rethink the merit of some of the established tenets in the non-market environment literature. First, they lend credence to Wolfe and Putler's (2002) criticism of role-based segmentation of a firm's stakeholders. Contrary to the common practice of assuming homogeneity among types of stakeholders such as NGOs, communities, governments or employees, these authors propose that more refined criteria for categorizing stakeholders are required for the effective management of non-market environments. Second, they question the adequacy of separating stakeholders and issues as competing, rather than complementary ways of organizing non-market action by firms (Bigelow, Fahey et al. 1991; Bigelow, Fahey et al. 1993). Since individual and organizational cognitive structures are shaped by interactions among actors on concrete events, it is difficult to understand how they came to hold a particular worldview without knowing the issues they got involved with in the past. Third, it invites reflection on the role played by individual and organizational cognition on such central topics for the field as issue evaluation, coalition formation and issue resolution (Mahon, Pursey et al. 2003). Ultimately, it suggests that adequate knowledge of the structure and mechanisms at play in a firm's non-market environment may result in an important source of sustainable competitive advantage (Huff and Jenkins 2002).

Appealing as it is to propose that a phenomenologist approach to the study of non-market environments may shed new light on its workings, there is a fundamental, if extremely commonsensical, pre-condition that must be satisfied: there needs to be significant variance among the cognitive structures of the actors under study. That is, the

starting point for a subjectivist approach to non-market environments requires proof that different actors' perspectives of the world vary enough so that differences in their behavior can be attributed to the fact that they hold different cognitive structures.

Providing such a starting point is the ultimate –and very basic– purpose of this paper. In addition to testing *if* cognitive structures among actors change, it also provides insights on *how* and *how much* they differ.

In order to establish this “sufficient-dispersion” condition, I undertook a second, much more systematic, phase of research in Ecuador. Rather than concentrating on a particular episode of the NGO-oil firms interaction, the objective now was to elicit and compare the cognitive structures held by firm and NGO managers at a given moment in time.

Consistent with the insights obtained in the exploratory part of the study, the elicitation of these worldviews would need to reflect the relational nature how my interviewees structured their environment. That is, making sense of one's environment is strongly dependent on what other actors we know to be operating in it, and on how one relates to each one of them. Therefore, the characterization of my interviewees' mental maps had to, at least, explicitly identify the relative knowledge that each actor had of the organizational field (DiMaggio and Powell 1983) and their subjective perspective of how each actor in it was positioned vis-à-vis all of the other actors. This explicit relational approach to mapping knowledge structures is not common to the managerial cognition field (Bougon, Weick et al. 1977; Laukkanen 1994). It was, therefore, necessary to adapt a systematic qualitative technique commonly known as pilesorting (Bernard 1995), and

the development of an innovative suite of measures and tests fitting the objectives of the study.

The results of this exercise show that (1) while there are significant differences between the mental maps of firms and NGOs and (2) among the members of each type of organization, (3) there is a moderate level of overlap between the representations made by firm and NGO managers of the market and non-market environments. These results not only satisfy the sufficient-dispersion which is the main objective of this paper, but also shed light on some central topics of the literature on non-market strategy.

The remainder of this paper is structured as follows. First, I position this study with reference to the non-market and managerial cognition literatures. Then, I explain the research design and the method employed to elicit the cognitive structures of firm and NGO managers. The section that follows presents results. I finish the paper by reviewing the implications that this study has for the fields of non-market strategy and managerial cognition.

Reviewing the literature

Management scholars have approached the relationships between firms and non-market actors such as governments, interests groups, NGOs and public opinion from two competing perspectives (Mahon, Pursey et al. 2003). On the one hand, the Strategic Issue Management school (Ansoff 1980) takes the concept of issue as the organizing principle of the relationships between firms and their non-market environment. Issues are defined

as “gaps between stakeholder expectations and an organization’s policies, performance, products or public commitments” (IMC). Issue management, therefore, is the process by which firms close this gap between expectations and reality. This can be done by either changing the firm’s behavior or the firm stakeholders’ expectations. By contrast, Stakeholder Theory (Freeman 1984; Donaldson and Preston 1995) is rooted in the idea that firms must respond to the claims of a variety of legitimate stakeholders and to the claims of other actors that, legitimate or not, can affect the firm’s performance. Managing the relative power of the firm vis-à-vis key stakeholders is the ultimate goal of this school of thought.

As a consequence of these notably different starting points, stakeholder theorists and issue management scholars have developed significantly distinct research agendas. A lot of the effort of the former group has focused on addressing three main questions: (1) who (or what) are the stakeholders of a firm? (2) whom do managers pay attention to? (Mitchell, Agle et al. 1997) and (3) what is the relationship between Corporate Social Performance and Financial Performance? (Waddock and Graves 1997; Margolis and Walsh 2001; Orlitzky, Schmidt et al. 2003). By contrast, scholars working from the Issue Management tradition have devoted enormous attention to analyzing the ‘life of issues’. That is, the evolutionary process that spans from the emergence of an issue to its resolution (Post 1978; Buchholz 1988; Bigelow, Fahey et al. 1991; Mahon and Waddock 1992; Bigelow, Fahey et al. 1993).

Despite the differences in paradigm conceptualization, basic objectives, and research questions espoused by these two schools of thought, both traditions share a strong objectivist approach. That is, they have traditionally seen the world as an uncontroversial, readily observable and measurable reality. For example, social performance of firms has been variously assessed in terms of corporate social impacts; corporate programs and corporate policies (Wood 1991; Wood and Jones 1995); the all-pervasive KLD³ multidimensional rating schemes (Waddock and Graves 1997); the number of protests, boycotts and civil suits they have endured (Eesley and Lenox 2006); or reputation ratings like those of Fortune magazine (Wartick 1992; Preston and O'Bannon 1997). Financial performance, on the other hand, has been assessed through standard accounting measures such as ROA, ROI or stock market valuations (Frooman 1997). The salience of particular categories of stakeholders has been proxied by the level of resources they command, or directly assessed through surveys given to firm managers (Henriques and Sadorsky 1999). Finally, issue evolution has been assessed through news press releases (Wartick 1992) or historical accounts of events. In any case, all these studies implicitly provide a picture of the interactions between market and non-market actors as a matter of “social physics”, (Bordieu and Wacquant 1992) where particular chains of causes and effects lead indefectibly to specific outcomes.

It would be unfair, though, not to acknowledge that a number of authors in both traditions have explicitly acknowledged the central role of meaning attribution in explaining non-market action. For example, Mahon and Waddock (1992) argue that “objective conditions are the raw material of issues,” and that when these conditions change they are

³ KLD stands for Kinder, Lydenberg, Domini & Co

subject to reinterpretation, giving rise to new issues and influencing the involvement of different groups of stakeholders. Similarly, Rowley and Moldoveanu (2003) emphasize the importance of symbolic action by some pressure groups. Finally, Dutton, with various co-authors, has explored the processes of meaning attribution that transform a mere set of events into a strategic issue (Dutton, Fahey et al. 1983; Dutton and Jackson 1987). In spite of these works, however, relatively little of this subjectivist perspective has trickled down to *empirical* studies of the interactions between firms and other non-market actors (but see Wolfe and Putler (2002) for an exception).

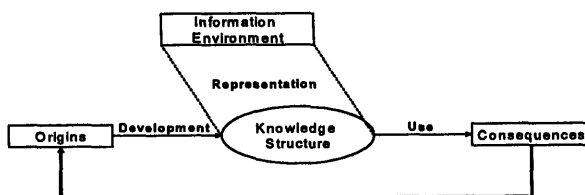
In stark contrast to the non-market scholars' world of social physics, increasing attention has been paid in mainstream (market) strategy circles to what happens 'inside the head of the strategist' (Mintzberg, Ahlstrand et al. 1998). Indeed, the literature on managerial and organizational cognition has developed at a frantic pace in the last 20 years (Walsh 1995). Cognitive approaches to individual and collective decision making stem from the realization that the capacity for individuals to process information is significantly limited (March and Simon 1958; Cyert and March 1963). In order to make their way through this informational maze, managers develop and employ knowledge structures that categorize the different bits of information they receive, filter those deemed irrelevant and highlight those that appear of more consequence for the survival of the organization. These cognitive shortcuts, however, are not devoid of risks, since individuals and organizations are vulnerable to overlooking or emphasizing certain aspects of their informational contexts which can lead to poor decisions with very distinct risks for the survival of the organization.

In his comprehensive review of this literature, Walsh (1995) proposed a taxonomy of the studies addressing the relevance of knowledge structures⁴. A first group of studies is one whose primary goal is to bring forth the attributes of the representations employed by managers to make sense of their information environment (Representation). A second type of studies related these representations to outcomes of consequence for the organization (Use). Finally, a third group of studies problematizes the origins and sources of change in the mental maps held by individuals (Development). While this segmentation helps organize the literature in this field, it is important to emphasize that all three processes are intimately intertwined⁵. In addition to the predominant domain of the study, Walsh uses the level of analysis targeted by different authors to more finely classify the main works of this literature. The levels he establishes are: the individual, the group, the organization and the industry.

Walsh's taxonomy serves well to position the present paper among other studies on managerial cognition and, perhaps more importantly, to highlight where it is attempting to break new ground. First of all, the work presented here stands squarely in the Representation tradition. That is, it seeks to provide a description of how different actors

⁴ Other authors refer to these knowledge structures as 'cognitive maps', 'mental maps', 'interpretive schemes', 'folk theories' or 'frames of reference', among others (Walsh, 1995)

⁵ Walsh (1995) provides the following explanatory figure:



Knowledge Structure Research: An organizing framework (Walsh, 1995)

perceive the information environment in which they interact. Explanations of how mental maps are linked to organizational non-market behavior and performance, important as they are to the strategist (Schendel 1997), form part of future research. Secondly, this study is pushing the boundaries of previous research on two fronts. First, it moves up one level of analysis. Instead of simply analyzing “same-type” of organizations as in industry analysis (Porac, Thomas et al. 1995; Hodgkinson 2005), it looks at the knowledge structure that managers have of part of their organizational field (DiMaggio and Powell 1983). Secondly, the role of cognition between market and non-market actors is explored from both sides of the fence. That is, from the perspective of both firm and NGO managers. In sum, while this work cannot claim that cognition influences non-market behavior, it provides a fresh approach to the field of non-market research by bringing in the role of cognition, and to the literature on cognition by bringing in the perspectives of firm *and* NGO managers.

Structure of the study

As explained earlier, the second phase of my research on the Ecuadorian oil sector attempted to test whether the mental maps of firm and non-market actors presented a large enough degree of dissimilarity to be a potential explanation for differences in behavior.

In order to make the study manageable, I considered two types of organizations: non-government organizations (NGOs) and firms in the oil sector. However, even this timid attempt to move from the industry to the organizational-field level of analysis increases

notably the complexity of the data collection process. More concretely, it requires that four separate sets of representations be elicited: (1) the mental maps that NGO managers have of NGOs operating in Ecuador (the NGO-space), (2) the mental maps that NGO managers have of oil firms operating in Ecuador (the FIRM-space), and the mental maps that FIRM managers have of the (3) NGO-space and of the (4) FIRM-space.

Given the obvious difficulty of directly observing individual and collective knowledge structures, their proper characterization and representation have been a central problem for managerial cognition scholars since the inception of the field. Despite the importance of this question, relatively little consensus has been developed on this issue over the years (Huff and Jenkins 2002; Hodgkinson 2005). At the risk of contributing to this cacophony of perspectives, I propose that there is a substantial relational component to the way managers make sense of their environment. This approach is a response to the way in which respondents in the first phase of the study described the Ecuadorian oil industry non-market environment. More concretely, interviewees started by emphasizing differences and similarities among actors' behaviors. Interestingly, categorizing a given domain by grouping subsets of its elements depends on how many elements of this domain any given respondent happens to know, and how well she happens to know them. Finally, consistent with previous studies on issue identification and classification (Dutton, Stumpf et al. 1991), respondents attached substantive and value judgments to the members of each group. In sum, three basic dimensions seemed to be essential to properly represent the knowledge structure of the non-market environment of the oil industry in Ecuador: (1) the relative degree of *knowledge* that a given respondent had of

the NGO and the firm sector, (2) the degree of similarity or *association* that a given respondent perceived between any two firms or NGOs, and (3) the substantive *categories* that a respondent employed to structure the NGO and the firm space. The methodology developed to elicit the mental maps of the participants in this study, explained later, attempts to explicitly capture these three dimensions.⁶

Overall, the raw data from which the sufficient-dispersion condition would be later assessed consisted of four different mental maps each of which would be defined along three dimensions. Table 1 summarizes the research design of the second phase of this research study.

Table 2- Research design: Mental map elicitation

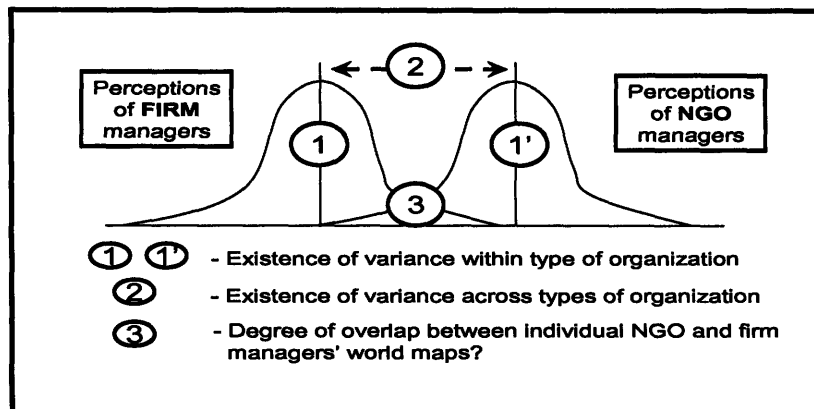
	NGO	Firm
NGO Similarity	Knowledge Associations Categories	Knowledge Associations Categories
Firm Similarity	Knowledge Associations Categories	Knowledge Associations Categories

Assessing what sufficient-dispersion means and how it is evaluated in this study also requires a short explanation. In this study I compare the mental maps of firm and NGO managers on three levels (see figure 1). First, I explore whether there is significant

⁶ This approach diverges substantially from the underlying logic of causal maps (Bougon et al 1977; Laukkanen 1994), probably the most common way to elicit cognitive structures. Causal maps take as starting point the fundamental constructs that interviewees deem central to make sense of the structure and dynamics of a given domain. Here, the presence or absence of other actors is relegated to a secondary plane. Hierarchical categorization methods (Porac et al. 1987, Hogdkinson et al. 1994) implicitly take the same elements I take in this study: categories, associations and knowledge. However, these methods take as starting point the different categories or buckets in which actors are classified. By contrast, the approach suggested here places emphasis on the bottom-up process –from what actors see in their context to higher levels of abstraction- for the creation of cognitive structures highlighted by authors such as Louis and Sutton (1991).

dispersion *within* types of organizations (1 and 1' in figure 1). That is, do different firm managers hold significantly different representations of the firm and NGO spaces? And, conversely, do different NGO managers hold significantly different representations of the firm and NGO spaces? The second level of comparison is *between* types of organizations. In order to carry out such comparison, I test whether the cognitive structure that firm managers hold, as a group, are different to the ones held by NGO managers, also as a group. Finally, a third level of analysis looks at the possible level of *overlap* (3 in figure 1) that firm and NGO managers may have of their respective mental representations of how the firm and the NGO spaces are structured.

Figure 1 - Comparisons of cognitive structures



Notice that since we are making 3 types of comparisons (within, between and overlap), on the cognitive structures held by 2 types of managers (firms and NGOs) on 2 organizational spaces (the oil firm sector and the NGO sector), along 3 different dimensions (knowledge, associations and categories), the analysis to carry out is, of

necessity, notably complicated. Table 2 provides a general perspective of how dispersion of cognitive structures is evaluated in this study.

Table 3 - Overview of the analysis

DIMENSION	SPACE	TYPE OF COMPARISON			
		Within		Between aggregation of FIRM and NGO respondents	Overlap individual FIRM and NGO respondents
		FIRM respondents	NGO respondents		
Knowledge	Firm Space	1	2	5	7
	NGO Space	3	4	6	8
Associations	Firm Space	9	10	13	15
	NGO Space	11	12	14	16
Categories	Firm Space	17	18	21	23
	NGO Space	19	20	22	24

NOTICE: The numbers in the table above do NOT have any intrinsic meaning; they are used to guide the explanation of the analysis in the Results section of the paper. The numbers in brackets at the end of each Results sub-section title correspond to the comparisons in this table.

Methodology

In order to explicitly depict the mental maps of my interviewees along the three dimensions presented above, I decided to employ a pilesorting technique. This methodology, traditionally employed by anthropologists to depict cultural domains (Burton and Nerlove, 1976, Weller and Romney, 1988, Boster and Johnson, 1991, Borgatti, 1996), lends itself particularly well to highlighting similarities and differences that items being sorted have vis-à-vis other objects. Moreover, it had the added advantage of ease of administration; avoided the risk of deep cuing from the interviewer and; like other techniques commonly used to elicit mental maps (Bougon, Weick et al. 1977; Laukkanen 1994), allowed for comparison and aggregation of cognitive structures. While some authors have pointed at a number of shortcomings that this technique may present

(Morgan 1987; Hodgkinson 2005), I deemed it the most appropriate data collection technique for this project.

Drawing mental maps by pile-sorting items

The mechanics of pilesorting may vary depending on the object of study and the research question. For this study, each respondent was presented with a deck of cards. Each card had the name of one organization. The respondent was then asked to classify the cards following a two stage process. First, she had to make two piles; one with those organizations that she was familiar with and another one with those she did not know. Then, the respondent was asked to split the pile of the organizations she knew into several piles according to how similarly she perceived these organizations to behave. Respondents were allowed to make as many or as few groups as they needed and they could also make single-card piles.

Once the piles were defined, the respondent was asked to provide a 'label' and a short explanation of the characteristics of each pile. Next, she was asked to explain the main differences she saw between groups. This process was carried out twice in every interview. Respondents working in a NGO (firm) were first asked to pilesort a deck of cards with the name of one NGO (firm) in each card. Then, they were asked to repeat this process with a deck containing names of firms (NGOs). That is, each respondent was asked to provide first a classification of their own space and, afterwards, a classification of the 'alter' space.

The three dimensions described above were operationalized as follows. Knowledge of the field was measured by the number of cards each interviewee discarded in the first phase of the exercise. A measure of association between any two NGOs or firms was determined by their being in the same pile or not. Finally, information on the substantive categories employed by respondents to structure both spaces was provided by the labels used to describe a given pile.

Card decks and interviewees

The NGO card deck employed for this exercise contained the names of 65 NGOs. The FIRM card deck included the names of 29 companies. The criterion for selecting which NGOs to include in the card decks, among the 2000-plus estimated to operate in Ecuador, was the result of a free-listing⁷ exercise carried out during the first phase of this research. The over one hundred NGO names that came out of this exercise were then sorted in descending order according to how frequently they had been mentioned by my interviewees. The cutoff point (65) was chosen based on two criteria: frequency and ease of administration. While no clear ‘elbow’ was detected in the frequency distribution, organizations beyond position 65 were mentioned by only one of the interviewees. This number was also considered large enough to provide a rich discussion of the NGO sector while keeping within the time limits of the expected average interview length. The 29 firms chosen for the oil industry card deck consisted of the 27 ‘main operators’ that have worked at some point in the last 10 years in Ecuador. Another two companies, an oil

⁷ “[this] technique basically consists of asking a small set of respondents (say 30) to name (or, ideally, write down) all items matching a given description. Once the data have been collected, a number of analyses are possible. Often, the purpose of the free-listing task is to obtain a set of terms to be used in additional data collection tasks, such as pilesorts and ratings or rankings”. Borgatti (1996)

transportation firm and an engineering contractor, were also included given their extremely high profile in the Ecuadorian upstream oil business. It is worth mentioning that even though in a number of cases two firms belonged to the same parent company⁸ they were included independently in the card deck.

In the second phase of the study, a total of 51 managers from 44 organizations performed the pilesorting exercise. Sixteen were managers working for oil firms while the remaining 35 were NGO managers. The majority of oil firm interviewees were the top responsible for the formulation and implementation of the community relationships programs of the company or the CEO. Most of the NGO managers interviewed were the managing directors of the organization or had been working with that particular NGO for at least 3 years. The pilesorting exercise was administered as a part of a more comprehensive interview. The average length of an interview was 2 hours. Forty-nine of the 51 interviews were recorded. The Organizations Appendix provides the list and characteristics of the organizations in the card decks. The Methodology Appendix explains, with a great level of detail, different aspects of how the technique was applied, how the data was stored and processed and how different constructs presented below were built from the raw data.

Results

Because of the many types of comparisons involved the presentation of results is organized following the structure presented in Table 2. The numbers in brackets

⁸ Encana = Encana and AEC Ltd, Petrobras = Petrobras + Ecuador TLC, Techint = Techint + Tecpecuador, Sinergy group = Petrobell + Pacifpetrol

following the titles of the subsections below correspond to the numbers in the boxes in Table 2 and help identify the type of comparison that is being performed. Hence, the results below are organized under three main headings corresponding to the dimensions (knowledge, associations and categories). Within each heading I look first at the dispersion within the type of organization, between firms and NGOs and to the possibility of overlap in the responses of individuals working for NGOs or firms. Finally, each type of comparison is carried out on the firm space and the NGO space. The tables and graphs supporting this analysis are contained in the Results Appendix. This Appendix is organized and coded so that it is easy to identify the type of comparison on Table 2.

Knowledge

Differences within types of organizations (1, 2, 3 and 4 in Table 2). While it is not possible to test whether the variance of a given sample is big or small in absolute terms, there are several measures to assess the dispersion of the responses given by the members of a sample.

The first step is to look at the range and the shape of the frequency distribution of knowledge scores obtained by managers of each type of organization on the NGO and the firm spaces. As is readily apparent from Table 1 and Figure 1 in the Results Appendix, the level of knowledge that both types of respondents have of the firm space and NGO space spans a considerable range of scores. While the knowledge that oil firm managers exhibit of their own space is notably positively skewed, the shape of the other distributions resembles normal curve.

A second way to assess the variation in knowledge of our interviewees is to observe the combined level of knowledge that they have over both spaces. That is, to count how many cards they knew of the total 94 (65+29) cards that were presented. The plot on the left in Figure 2 portrays the range [28, 93] and distribution of total knowledge. An alternative way to summarize the total knowledge of the respondents is to plot the knowledge that each respondent has of the firm and NGO spaces. The plot on the right in Figure 2 carries out such exercise and identifies firm respondents as 0 and NGO respondents as 1s. While quadrant 1 is populated by respondents from NGOs and quadrant 3 predominantly by respondents in firms, the overall distribution of respondents is well spread out along both dimensions.

In sum, we find that firm managers exhibit a notable degree of dispersion in the level of knowledge they appear to have of both the firm space and the NGO space. Similarly, there exists substantial variation in the knowledge that NGO managers have of both spaces.

Differences across types of organizations (5 and 6 in Table 2) The simplest way to test for the differences in knowledge between firms and NGOs at the aggregate level is by carrying out a T-test of the average number of organizations that each type of respondent knows (see Table 2 in the Results Appendix). Firms' managers know more firms (25/29) than NGO managers know firms (15/29). Correspondingly, NGO managers know more NGOs (43/65) than firms' managers know NGOs (30/65). The t-test of group means

reveals that these differences are significant at the 99% level in both cases. Therefore, the level of knowledge that firm managers, as a whole, have of both the NGO and firm space differs significantly from the level of knowledge that NGO managers as a whole have of these spaces.

Overlap between individual respondents (7 and 8 in Table 2). While, as a group, firm managers exhibit a different kind of knowledge than NGO managers, this is not the case at the individual level. Figures 3 and 4 in the Appendix display the probability that, for a certain level of knowledge of the firm or NGO space, a respondent happens to be working for a firm or an NGO. For example, in the first graph, if we observe that a given respondent knows 50% of the cards of the NGO deck (0.5 on the X axis), there is a 50-50 probability that the respondent works for an NGO. While it is readily apparent that firm managers know the firm space better than NGO managers and vice-versa, it is impossible to tell, for intermediate degrees of knowledge of both spaces, whether a respondent belongs to a firm or an NGO.

Associations

Given the structure of the data it is possible to compare patterns of association across items –how many times two cards are put in the same pile– or across respondents –how similar the pattern of associations provided by two respondents are–.

See the Comparing Patterns of Association in the Methodology Appendix for an explanation of both alternatives. While the two approaches provide complementary perspectives, I only present the latter in this section due to space considerations.

As explained in the Methodology Appendix, the first step consists of building a measure of proximity between each pair of respondents based on the similarity of the structure and content of their piles. These measures of proximity can be defined in multiple ways and may lead to notably different conclusions (Arabie and Boorman). In order to make sure that my results are not driven by the type of proximity measure, I calculate three different measures, referred below as M1, M2 and M3, that are increasingly restrictive in nature. Table 3 in the Results Appendix displays some summary statistics of these three measures in both spaces. This tabulation serves to highlight two important points. First, that while the means of the distances between pairs of respondents decrease with increasingly restrictive definitions of similarity – $M1 > M2 > M3$ –, the results are consistent across spaces. Secondly, narrower definitions of similarity result in broader distributions.

Differences within types of organizations (9,10,11 and 12 in Table 2). In order to evaluate if these measures vary by type of respondents, Table 4 in the Results Appendix presents the summary statistics of the three measures of proximity between each pair of respondents discriminating whether both of them work for NGOs, firms or whether they work for different types of organizations.

As can be readily observed, the range of responses displayed by the pairs of interviewees is quite broad regardless of the measure employed to calculate the similarity of their associational profiles or the composition of the dyad. Figure 5 in the Appendix portrays the distribution of distances between pairs of respondents using M3. As in the case of knowledge, the distribution of associational profiles within each type of managers presents a wide range of variation regardless of the space under consideration or the measure employed to evaluate similarities among pile structures.

Differences between types of managers (13 and 14 in Table 2). Let us start by considering the distances between each pair of managers in network terms. That is, the relative distance between one respondent and all of the others will determine her relative position in the network. I will assume that a link exists between any two respondents if the distance between the two is higher than the average distance among all respondents. In order to test whether there are significant differences between the associational pattern of firm managers and NGO managers, I calculate whether the density of ties within and between types of respondents differs from what would be expected if ties were distributed at random across all pairs of nodes. Given that the independence of observations assumption is violated –the observed values are not independent samplings from populations– it is necessary to estimate the standard deviation of the parameters being tested by means of bootstrapping techniques (Borgatti, Everett et al. 2002).

The test of within-between density of ties on the associations that respondents provide about the firm-space (Table 5 in the Results Appendix) shows that there more links

between members of the NGO community than would be expected by random assignment ($p=0.989$). Similarly, there appear to be more ties among firm managers than would be expected by chance. In this case, however, the level of significance is slightly smaller than accepted standards ($p=0.885$). Finally, the number of links between members of both groups is notably smaller than it would be in the case of random assignment ($p=1.0$)

Applying the same technique on the associations that both types of managers have of the NGO-space provides highly significant, but qualitatively different, results (Table 6 in the Results Appendix). As in the previous case, members of the NGO community exhibit high levels of closeness ($p=1.0$). Also as before, there are significantly few links between the members of both communities ($p=1.0$). Nevertheless, in this case firm managers are less interconnected than they would be in the case of random assignment ($p=.997$).

In sum, the pattern of associations for the firm-space given by the respondents in the sample provides a picture with two dense cores, one composed of firm respondents, the other of NGO respondents. In contrast, their pattern of associations for the NGO space resembles more of a core-periphery structure where NGO managers are situated closely together but relatively disconnected from firm managers. At the same time, firm managers do not appear to be closer to each other nor to NGO managers. Figures 6 and 7 in the Results Appendix provide a graphical representation of this associational structure.

Overlap between individual respondents (15 and 16 in Table 2). Similar to what was done with the knowledge dimension, the thought experiment here is whether it is possible to tell the type of respondent, firm or NGO manager, by the way she sorted the cards. While the associational profile of a respondent –the distance between the focal respondent to all other respondents– is unique and, therefore, not only unequivocally identifies its type but also its very identity, a more lenient test would be to find out whether some structural characteristics of its position in the network help identify the type of respondent.

In order to carry out such test, I have computed the Freeman degree centrality, Closeness, Betweenness and Coreness of each respondent in both the firm space and the NGO space. If the region they ‘inhabit’ is populated mainly by the same type of respondents, we should find that a logit model with these measures as independent variables, and type of respondent as the dependent variable should explain a large part of the variance of the model.

Tables 7 and 8 in the Results Appendix show the results of these regressions. The degree of variance explained by both specifications is moderate and, therefore, supports the overlap hypothesis advanced above. Interestingly, while most of the independent variables in the firm space are highly significant, none of them is significantly different from zero in the NGO space.

Categories

The information about categories was obtained through the labels that respondents assigned to each of the piles they formed. Respondents were allowed to define as many labels as they felt necessary to properly characterize each pile, and no pre-determined list of labels was presented to the interviewees. While this method provided extremely rich information about the different ways managers structure the organizational field, it also rendered analysis and comparisons notably complicated. A first coding of the data provided 397 distinct terms for the description of the firm-space and 451 for the NGO space. A soft process of data reduction (Laukkanen 1994) was then carried out through grouping the *unambiguously* synonymous terms under the label that had been used the most. Emphasis needs to be placed on the fact that this process was carried out taking extreme care to preserve the spirit of classification made by the interviewee; a task that led to a review of most of the recordings of the interviews. In the end, the number of labels under consideration was brought down to 190 for the firm-space and 200 for the NGO-space.

During the pilesorting exercise respondents were encouraged to label the piles using terms commonly employed in their organizations. While this provided very rich material for other kinds of analysis, it is important to acknowledge that it might also portray a picture of greater variability than the one existing in reality.

Differences within types of organizations (17, 18, 19 and 20 in Table 2). The sheer amount and variety of terms used by respondents to define their piles alone is a testimony

of the multiple structuring principles employed by managers to make sense of their organizational fields. More concretely, (see Table 9 in the Results Appendix) both NGO and firm managers employed quite a broad array of distinct terms to characterize their piles (Firm managers used 109 terms to describe the firm-space and 69 to describe the NGO-space. NGO managers employed 120 and 173 terms respectively). While the number of terms employed depends on the number of piles a respondent decided to make, even controlling for the number of piles, our sample of respondents presented a significant level of intra-group variation⁹. Indeed, the coefficients of variation reported in Table 9, while smaller, continue to show a significant degree of variation in all four cases. Figure 8 in the Results Appendix provides a graphical representation of the dispersion of the total number of unique labels employed by each interviewee to describe the firm and NGO spaces.

A somewhat more refined way to assess the level of dispersion in the use of categories within each type of respondents, is to look at the number of times a given term was used to define a particular organization in the card decks. Table 10 in the Results Appendix shows that very few terms were employed by multiple respondents to define one particular organization. The most extreme case of overlap was use of the term “international”, by 21 of the 34 NGO managers, to characterize USAID. However, it is readily apparent that the norm was that only one or two respondents employed the same term to define any given organization in the card decks.

⁹ - A manager who has classified the, say, NGO space in 2 piles requires at least two labels to characterize the field while a second manager who has divided the field in 10 piles will need, at least 5 times as many labels to characterize the same field.

Differences between types of organizations (21 and 22 in Table 2). Do firm managers, as a group, employ a significantly different set of categories to make sense of the environment than NGO managers? A first approach to answering this question can be made with the information provided in Table 9 that was already presented in the previous subsection. Running a T-test on the average number of labels employed by each type of respondent, it is clear that firm managers employ a significantly ($p=0.00$) larger amount of terms to describe the firm space than NGO managers. Conversely, NGO managers employ more terms to describe the NGO-space than firm managers ($p=0.00$). However, these differences disappear when the number of piles made by each respondent is taken into account.

While the above results indicate that each type of manager provides a more refined picture of her own field, they do not shed light on whether different types of managers use substantially different categories to structure the organizational field. In order to find out whether there are terms that are exclusively employed by one type of manager or another, I take the list of unique terms employed –190 for the firm-space and 200 for the NGO-space– and calculate what percentage of managers of each type have used it at least once. Figure 9 in the Results Appendix portrays the proportion of managers that use a particular term to describe organizations in the NGO world. For example, the term ‘international’ is used by 15% of firm managers and about 70% of NGO managers. The overall picture is one of non-homogeneity in the use of terms. So much so that some of the terms are exclusively used by only one type of manager. Notice that the graph is sorted in descending order from most to least used terms and that it does not contain

terms mentioned by less than 3 managers. Although less dramatic in the upper part of the chart (see Figure 10 in the Results Appendix), the use of categories employed by both types of managers to describe the firm-space also displays considerable heterogeneity. Bear in mind that telling as these graphs already are, the fact that they only include terms mentioned by 3 or more respondents understates the real differences that exist in the use of terms between the two groups. More concretely, if all the terms were plotted in the above charts, 1/2 of the terms used to describe the NGO-space and almost 2/3 of those employed to describe the firm space would show up only on one side of the graph.

Overlap between individual respondents (23 and 24 in Table 2). Given that a large proportion of the labels elicited through the pilesorting exercise are employed by a single respondent, looking at any random combination of labels employed by a respondent not only identifies what type of manager she is, but also her very identity. From this perspective, there is no overlap that one can speak of. However, if one takes those terms that have been mentioned by at least one NGO respondent and one firm respondent and normalize for relative sample size (there are roughly twice as many NGO respondents than firm respondents in the sample), the picture is less clear. A random extraction of a label corresponding to the NGO-space would be unable to predict whether the respondent that employed that label works for an NGO or a firm. Similarly, the extraction of a label from the firm-space gives us an almost 50-50 chance of that respondent being a firm. Table 11 in the Results Appendix shows the results of this test. However, this is not to say that all labels are equally used by all types of respondents. As shown in Figures 11 and 12 in the Results Appendix, there is a notable dispersion in the use of labels by type

of respondent. That is, while a random extraction of a label used to describe the, say, NGO, provides *on average*, little information about the type of respondent, if that label happens to be ‘reliable’ or ‘moderate’ (Figure 11) there is a very high probability that it has been used by a firm respondent.

Taken together, the results of the analyses above convey three main insights. First, that there is a significant variance in the mental models held among the members of each type of organization. Thus, the level of knowledge, pattern of associations and substantive categories used by NGO managers to describe their cognitive structure of both the NGO-space and the firm-space in Ecuador varies substantially from NGO manager to NGO manager. Similarly, the mental representations that oil firms’ managers have of their market and non-market landscapes offer a considerable range of variation. The second insight is that, *taken as a whole*, the perception that firms and NGOs have of their own and of each other’s landscape is significantly different. Finally, it is important to acknowledge that, while different, these worldviews overlap to some extent. As a consequence, it is not adequate to assume that, at the single organization level, being a firm or an NGO will determine fully the perception of how one’s environment is structured.

Discussion and Implications

These three findings carry significant implications for the field of non-market strategy and managerial cognition. These insights are summarized in the table below.

Table 3 - Implications of mental maps variances

	Variation WITHIN type of organization	Variation BETWEEN types of organizations	OVERLAP of individual mental maps
Cognition literature	Cognition of non-market environment can also be a source of organizational competitive advantage (Huff and Jenkins 2002; Hodgkinson and Johnson 1994; Wooldridge and Floyd, 1989)	Interorganizational fields attend to different logics (Huff 1982; Spender 1989; Phillips 1994)	But these logics are not completely orthogonal; managers cognition is formed through the multiple frames of reference (Hodgkinson 2005)
Non-market literature	Inadequacy of role-based stakeholder segmentation since they see themselves quite different (Wolfe and Putler 2002)	Dominant logic in a field requires to adopt a more emic perspective to the management of stakeholders (Prahalad and Bettis 1986)	Greater proximity may lead to lower transaction costs. Market and non-market logics are not independent from each other → integrated strategy (Baron 1995)

The basic tenet of the literature on managerial cognition is that due to the extreme complexity of the environment in which a firm operates, managers develop a knowledge structure (Walsh 1995) that helps them filter bits of irrelevant information while highlighting others deemed relevant to the objectives of the firm. As such, cognitive representations of the world may constitute extremely valuable firm capabilities that can help companies achieve a superior level of performance and increase their chances of survival (Huff and Jenkins 2002). Until relatively recently, market interactions between the focal firm, its customers, suppliers and competitors were deemed the sole source of value creation or destruction for the firm. As such, mental representations of a firm's competitive space were the most relevant for the study of firm performance. However, in more recent times a mounting body of research points to the fact that firm value can be created or destroyed not only through market transactions, but also as a result of the non-

market behavior of the firm (Baron 1996). Since non-market behavior is also informed by firm managers' mental maps of their non-market space, it follows that these representations could also constitute a core capability of firms. The findings in this study support and qualify the potential for cognitive representations of the non-market environment to be a source of competitive advantage. In particular, establishing that there is substantial variance in the mental maps *within-type* of organization suggests that some firm (NGO) managers will likely interpret the stimuli from their environment in a different way than managers in other firms (NGOs) and, in turn, will respond to a given environment in different ways. Differences in behavior, then, may be associated with differences in payoffs. It is important to emphasize that this study only provides evidence of differences in mental map representations, not in actual behavior. It therefore provides evidence of a necessary, but not sufficient, condition for the impact that mental representations of a firm's non-market environment may have on the firm's performance and competitive standing.

On the other hand, the fact that firm managers have, as a group, significantly different mental representations of the world than NGO managers, points at the existence of different dominant logics within each type of organization. This finding stands in line with what organizational cognition scholars have called "industry recipes" (Spender 1989) or "industry mindsets" (Phillips, 1994) and also with what institutional theorists have called "industry systems" (Hirsh 1972), societal sectors (Scott and Meyer 1983) or organizational fields (DiMaggio and Powell 1984). All of this research suggests the existence of shared cultural knowledge by clusters of organizations that inform

perception of the organizational environment, intra-group structure and behavior (Phillips 1994). The present study allows for a (crude) measurement of the relative distance between the “central tendencies” (Hofstede, 1991, p253) of two sets of organizations that have been interacting for over 30 years in Ecuador. Monitoring the evolution of these central tendencies would not only provide an indicator of social risk at the industry level, but would also help identify the criteria on which corporate non-market policies should rest in order to make them meaningful for a broad spectrum of local actors.

However, the dominant logics of NGOs and firms are not completely orthogonal since, as has been shown, there is a noticeable level of *overlap* between the perspectives that firms and NGO managers have of their own and each others’ field structure. This gives support to the claim that managers’ cognitive structures are formed through exposure to numerous frames of reference (Huff 1982; Hodgkinson and Johnson 1994; Hodgkinson 2005).

The findings of this study have strong implications for the theory and practice of non-market environments management. In the first place, the existence of considerable variance in the worldviews of NGOs suggests that the role-based classification of stakeholders prevalent in the field rests on very unsteady foundations. As Wolfe and Putler (2002) argue, virtually all studies in the stakeholder theory tradition classify the stakeholders of a firm according to their role (ie. shareholders, employees, communities, NGOs...). Defining a strategy based on such a criterion carries the underlying assumption that all actors in each category share the same stakes, have the same interests,

a similar degree of power over the firm, and are likely to employ similar strategies to achieve their goals. As is evident from the Ecuadorian situation, this is not necessarily the case. While Wolfe and Putler argue that heterogeneity of stakes within role-based stakeholder group may arise from the particular characteristics and goals of each particular stakeholder, the results of this study suggest an even stronger motivation for same-type of stakeholders to behave in different ways: the competition for resources among the members of a given stakeholder role. Indeed, a good number of NGO respondents classified the NGO field either according to sources of funding and users of funds or, alternatively, identified the NGOs they saw competing with them for funds. Shockingly, none of the firms' managers mentioned the origin of the funds of NGOs as a classification criterion. In sum, the variety of worldviews that NGOs, a typical stakeholder role, have of both their own and the oil firms' organizational space, strongly suggests that firm managers should go beyond the established practice of addressing different types of stakeholders as if their needs and goals were homogeneous.

The second finding of this study, that firms and NGOs collectively hold different perceptions of their own and each other's space, points to the risk of adopting a stance, vis-à-vis each other, based on the stereotypes than on real behaviors. I found this to be the case for both firms and NGOs. As mentioned above, firms' managers complained bitterly about the fact that the oil industry as a whole was being unjustly subject to the "Texaco imaginary" while, at the same time, they passed blanket statements about the greediness of indigenous communities or the obstructionist agenda of the NGO community. Similarly, NGO managers argued that, 'all firms are the same; all they want is to make

money regardless of the damage, social or environmental, they cause'. Because mental maps work as cognitive shortcuts and are the result of cognitive and social interaction, they tend to be transparent to the individual using them. As a result, they bear the risk of highlighting and blurring particular pieces of information without the subject being aware of what is being emphasized or made irrelevant (Allison 1971). Since the construction of one's cognitive maps is as much the result of individual cognitive behavior as of social interaction, particularly with peers, it is necessary to make a conscious effort at making explicit the assumptions of the models they hold. Similarly, if meaningful interaction is to happen between firms and NGOs, it is necessary to have a better understanding of the mental structures of the main categories of stakeholders.

Finally, the fact that there is a certain degree of overlap between the mental maps of firms and NGOs leads us to think about three issues. First, it suggests that the relative distance between the mental maps held by a firm manager and an NGO manager may have strong implications for the costs associated with trying to establish meaningful collaborations between different types of organizations. Indeed, previous research on the relations between firms, NGOs and communities in Ecuador had already pointed to the difficulty encountered by these actors in engaging in meaningful interaction due to the 'lack of a common language' (Natalie 2000). What is more, some oil companies have been hiring former NGO workers on the basis that they are more used to talking the language of other

NGOs or communities¹⁰. In the same way, NGO managers with corporate backgrounds appeared more comfortable about interacting with firms.

A second intriguing implication of the partial overlap between firms and NGOs' mental maps, is that both types of organizations may have very good reasons to perpetuate their position vis-à-vis other organizations. This was particularly salient in the case of NGOs. Given the competition for funds that most of them face and the limited tangibility and measurability of much of the work they do, it is necessary for NGOs to differentiate themselves markedly from the rest of the organizations that may have a claim on a given donor. At the same time, however, the limited set of capabilities of many of these organizations leads them to collaborate with firms or other NGOs in order to achieve their stated missions. As a result of these two opposed forces –simultaneous need for differentiation and collaboration– NGOs develop their particular identities and strategies based on the perceived payoffs, measured in terms of mission achievement, that one line of action or another will beget.

One final implication of the partial overlap between the mental maps of NGOs and firms is that the actions of both types of organizations are not completely independent of each other. From the perspective of firms this fact would support the appropriateness of effectively linking its market and non-market strategies in what Baron (1995) calls an “integrated strategy”.

¹⁰ This practice has generated all sorts of reactions and interpretations from the NGO community, but the fact remains that firms perceive that in order to effectively manage their non-market context it is necessary to count on boundary spanners.

Limitations and Conclusions

Limitations:

This study has a number of limitations that invite to qualify the value of its findings.

While some of these limitations are linked to the scope of the study and obvious limits on respondents availability, others are linked to research design trade offs.

Among the first type of limitations, the most obvious one is that the empirical setting of the study is one single industry in one single country. This brings up the obvious issue of generalizability. While the only clear alternative would be to replicate the study in a variety of industries and institutional settings, it is worth highlighting three characteristics of the context chosen for this study. First, Ecuador is an archetypical case of a developing country endowed with significant amounts of natural resources. Second, the oil sector is probably the largest and most global industry in the world. And third, that given the potentially large collateral damages generated by the oil industry, it is one of the most scrutinized by civil society organizations and governments. As a result of these three conditions it is fair to argue that the results obtained in the present study, while not bulletproof, probably apply to a wide variety of institutional and industry contexts.

A second type of limitation that is important to acknowledge is what Hogdkinson (2005) points to as one of the common limitations of cognition studies: the one-respondent-multiple-organization problem. While there are numerous studies pointing at the convergence of mental maps within the members of a given organization over time

through dialectical and self-selection processes, it is nonetheless fair to acknowledge that some recent studies point to the pervasiveness of different mental models within an organization. As is obvious from the treatment of the data and arguments, this study subscribes to the former perspective. That is, it assumes that each respondent provides a representative description of the mental map employed to interpret contextual information in her organization. In order to limit the risk of misrepresentation, two criteria for the selection of interviewees were established. Either the interviewee was the top person responsible for institutional relationships in the organization, or she had been with the organization for a minimum of four years. In the great majority of cases both conditions were satisfied.

Other kinds of limitations derive from the specific objectives of the study and the methodology employed. Among others, one could mention (1) the static nature of the study, (2) the lack of explicitness about the causal processes that respondents consider to be at work or (3) the lack of attention to the antecedents and implications of a given knowledge structure.

Conclusions:

This paper takes issue with the role that managerial and organizational cognition plays in non-market environments. To the extent that firm value is created or destroyed through mechanisms and actors other than markets and interaction with competitors, suppliers and customers, it is important that the non-market domain and the organizations composing it are also acknowledged as part of the cognitive structures that inform managerial decision

making and organizational behavior. Acknowledgment of the multiple dimensions that compose managerial cognition will, in turn, define a broad research agenda that should include questions such as: how do knowledge structures of non-market environments come into being? How do they evolve? How do they inform non-market action? How do they interact with a manager's image of his company's competitive environment? Or, even, are managers able to mingle market and non-market logics into an integrated strategic management mindset?

A first step in the development of such an agenda consists of what Walsh (1995) catalogs as attempts at mapping or representing the knowledge structures of managers. This study is a first effort in such direction. In particular, it maps the mental maps that oil firms and NGO managers have of their own and each other's sector. The analysis of this innovative 2-by-2 design supports previous findings in the field of managerial cognition –variance among mental maps held by different firms– and provides new suggestive evidence (1) that the perception of non-market environments also exhibits significant variance both across firms and across NGOs. That (2), taken as a whole, the mental representations of firms and NGOs are significantly different. And (3) that despite these differences, there is some degree of overlap between the mental maps of individual firms and NGOs.

Two main implications derive from this analysis. On the one hand, showing that there is significant dispersion among the cognitive structures of market and non-market actors suggests that cognition of one's non-market environments may be a source of competitive advantages for firms (Huff and Jenkins 2002). While this study provides evidence of the

variation in cognition which is a necessary condition for explaining variation in outcomes, it cannot claim that differences in cognition are sufficient cause for exceptional social and financial performance. On the other hand, this paper supports and extends (Wolfe and Putler 2002) criticism of the often recommended role-based stakeholder segmentation as a proper starting point for effective non-market strategy formulation.

Finally, at a methodological level, this paper proposes a technique for the elicitation of cognitive representations based on the principle that one's perspective of the world is the result of introspective reflection as much as the result of conscious and unconscious efforts to position oneself vis-à-vis other relevant actors in one's context (Bourdieu and Wacquant, 1992). While this technique is not free of criticism (Hodgkinson and Johnson 1994), it is certainly much less amenable to the involuntary shaping of respondents answers by the researcher than other more prevalent methodologies and provides the great advantage of being easy to transpose across types of stakeholders.

Organizations Appendix - Card Decks used in pilesorting

NGO CARD DECK		FIRMS CARD DECK	
Short Name	Long Name	Short Name	Long Name
AECI	Agencia Española de Cooperación Internacional	AEC Ecuador	AEC Ecuador
BTC	Belgische Technische Coöperatie / CTB - Coopération Technique Belge (Ecuador)	Agip Oil	Agip Oil
COSUDE	Agencia Suiza para el Desarrollo y la Cooperación	Bellwether	Bellwether
DED	Servicio Alemán de Cooperación Social-Técnica	Burlington	Burlington
FECD	Fondo Ecuatoriano Canadiense de Desarrollo (Ecuador)	Canada Grande	Canada Grande
GTZ	Cooperación Técnica Alemana (Ecuador) [M]	CGC	CGC
JICA	Agencia de Cooperación Internacional del Japon (Ecuador)	City Oriente	City Oriente
Swissaid	Fundación Suiza para la Cooperación y Desarrollo	CNPC	CNPC
USAID	Agencia Internacional para el Desarrollo [M]	Ecuador TLC	Ecuador TLC
CDES	Centro de Derechos Economicos y Sociales (Ecuador)	EDC-Ecuador Ltd	EDC-Ecuador Ltd
PUCE- Laboratorio Derechos Humanos	Pontificia Universidad Católica del Ecuador	Encana Ecuador	Encana Ecuador
AbayaYala	AbayaYala (Ecuador)	Pacifpetrol	Pacifpetrol
Acción Ecológica	Acción Ecológica (Colombia)	OXY	Occidental Petroleum Ecuador
Acción Social	Acción Social (Ecuador)	OCP	Oleoducto de crudos Pesados
AI	Amnistía Internacional (Ecuador)	Perenco	Perenco
Aldeas Infantiles SOS	Aldeas Infantiles SOS (Ecuador)	Petrobell	Petrobell
Ayuda en Acción	Ayuda en Acción (Ecuador) [M]	Petrobras	Petrobras
BirdLife International	BirdLife International (Ecuador)	Petroecuador	Petroecuador
CARE Internacional	CARE Internacional (Ecuador) [M]	Petroaud	Petroleos Sudamericanos
Caritas / SENAPS	Secretariado Nacional de Pastoral Social (Ecuador) [M]	Repsol-YPF	Repsol-YPF
CCF	Christian Children's Fund (Ecuador) [M]	SIPEC	SIPEC
CEDHU	Comisión Ecuémica de Derechos Humanos (Ecuador)	Sundown-Clipper	Sundown-Clipper
CEPAJ	Coordinadora Ecuémica de Pastoral Juvenil (Ecuador)	Tecpecuador	Tecpecuador
Children International	Children International (Ecuador)	Tripetrol	Tripetrol
CLD	Corporación Latinoamericana para el Desarrollo / Transparencia Ecuador (Ecuador)	Techint	Techint
CRS	Catholic Relief Services [M]	Elf	Elf Aquitaine
Cruz Roja Ecuatoriana	Cruz Roja Ecuatoriana (Ecuador)	CONOCO	Conoco Phillips
DNI	Defensa de los Niños Internacional	Maxus	Maxus
FACES	Fundación de Apoyo Comunitario y Social del Ecuador [M]	Kem-McGee	Kem-McGee
FAN	Fondo Ambiental Nacional (Ecuador)		
FEPP	Fondo Ecuatoriano Populorum Progreso (Ecuador) [M]		
Fundación Eaque	Fundación Eaque (Ecuador) [M]		
Fundación Sinchi Sacha	Fundación Sinchi Sacha (Ecuador)		
FUNDECOL	Fundación de Defensa Ecológica (Ecuador)		
FURARE	Fundación Rainforest Rescue (Ecuador)		
HORIZONT3000	Organización Austríaca de Cooperación para el Desarrollo		
IBIS	IBIS (Ecuador)		
ILDIS	Instituto Latinoamericano de Investigaciones Sociales / Fundación Friedrich Ebert (Ecuador)		
Intermón Oxfam	Intermón Oxfam (Ecuador) [M]		
MMA	Medicus Mundi Andalucía (Ecuador)		
MsF	Médicos sin Fronteras-España (Ecuador)		
OilWatch	OilWatch (Ecuador)		
Oxfam GB	Oxfam GB (Ecuador) [M]		
Redes	Fundación Recursos para el Desarrollo Sustentable (Ecuador)		
SERPAJ	Servicio Paz y Justicia (Ecuador)		
SI	Solidaridad Internacional (Ecuador)		
SNV	Servicio Holandés de Cooperación al Desarrollo [M]		
UICN	Unión Mundial para la Naturaleza		
WCS	Wildlife Conservation Society (Ecuador)		
Accion por la vida Mindo	Accion por la vida Mindo		
CECIA	Aves y Conservación		
CI	Conservation International		
Ecolencia	Ecolencia		
FDA	Frente por la Defensa de la Amazonia		
Fundacion Futuro Latinoamericano	Fundación Futuro Latinoamericano		
Fundacion Jatun Sacha	Fundacion Jatun Sacha		
Fundacion Maqulpucuna	Fundacion Maqulpucuna		
Fundacion Natura	Fundacion Natura		
Fundacion Pachamama	Fundacion Pachamama		
INREDH	INREDH		
PACT	PACT (Ecuador)		
Puntos Verdes	Puntos Verdes (Mindo)		
RAN	Rainforest Action Network		
TNC	The Nature Conservancy		
WWF	WWF (Ecuador)		

Methodology Appendix

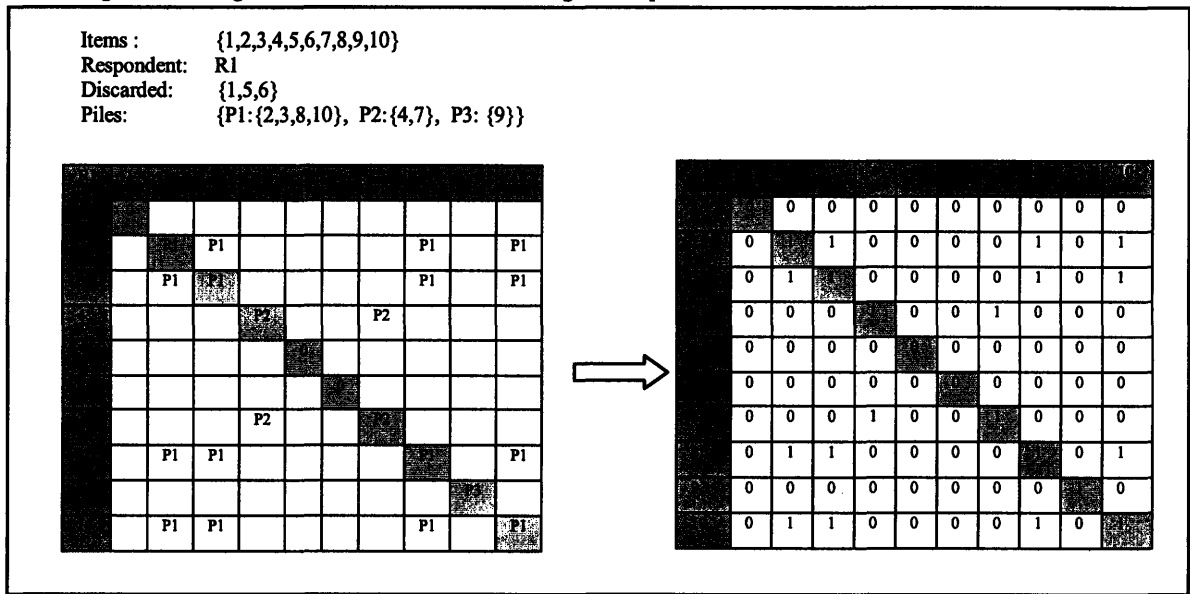
Administration of the pile-sorting method

It is important to note a number of particularities of this method and the way it was applied. In the first place, respondents were emphatically reassured, before starting the pilesorting, that this exercise was not a test and that there were no right and wrong answers; that all I was interested in was to know how they thought about the world of NGOs and oil firms in Ecuador. The reason for this introduction was that in two of the pilot tests interviewees were not able to provide a coherent explanation of the criterion they used to make the piles. On further probing, they admitted to “just have heard the name somewhere” but that they did not want for me to have the impression they did not know about NGOs (oil firms) in their country. A second methodological consideration is that directions as to how much respondents had to know in order to accept or discard a specific organization was left deliberately vague. Similarly, I avoided giving any clues about ‘acceptable’ criteria for the classification of accepted cards in different piles. The reason for this vagueness was that one of the goals of the exercise was to elicit the range of categories that respondents employ to make sense of their environment. In addition, I wanted to avoid, as much as possible, influencing the creation of the mental maps with my own perspective; a risk widely documented in the cognition field. A third decision regarding the administration of the pilesorting exercise was to carry out a ‘single’, as opposed to a ‘multiple’ pilesort. Since the associations and categories a respondent provides are probably just one of many classification schemes they may feel equally comfortable with, the researcher might allow the respondent to repeat the exercise as many times as the respondent can think of sensible ways to organize the items before her. In this case it was assumed that the first classification scheme would be the most salient one for the interviewee. In fact, only one of the interviewees raised the point that there might be other ways to organize the, in this case, NGO card deck.

Storing the data

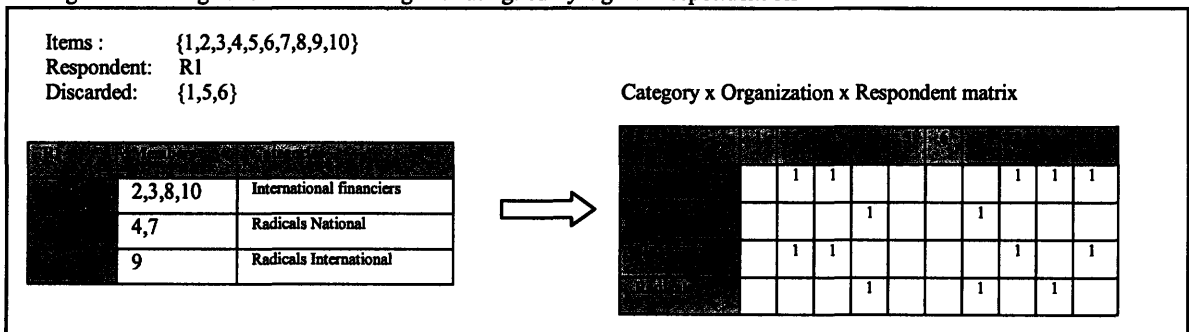
Knowledge and Associations data were stored in a three dimensional, organization-by-organization-by-respondent (A_{ijk}), matrix. For any given respondent (k) and pair of organizations (i,j) in a deck, I assigned a 1 if the two items were in the same pile –were seen as close- or a 0 otherwise. The elements in the diagonal received a 1 if they had been considered ‘known’ in the first stage, and a 0 if they had been discarded. By construction, therefore, all rows and columns with a 0 in their diagonal have to contain only zeros. Single item piles will have a 1 in the diagonal but zeros elsewhere in the corresponding row and column. (see figure 1)

Figure 1. Coding scheme for the associations of a given respondent R1



Information about the *categories* elicited by respondents was coded as another three dimensional matrix. This one was a category-by-item-by-respondent matrix (C_{ijk}). Categories were taken from the labels provided by respondents to describe each pile. Since respondents could provide multiple labels for each pile, a given organization was allowed to score on more than one category. Then, for all the items in a given group I assigned a 1 to those dimensions that were used to describe that group and a 0 otherwise. (see figure 2)

Figure 2. Coding scheme for the categories assigned by a given respondent R1



From matrices to concepts

Before dwelling into the analysis of the similarities and differences of the mental maps yielded by the pilesorting exercise, it is necessary to clarify a number of concepts and analytical procedures that will be used in the remaining of the study. In particular, it is necessary to explain what *knowledge* of the environment means in this context and how it is operationalized, and how *aggregations* and *comparisons* of individual mental maps are calculated.

Knowledge.

An organization is *known* by the respondent if in the first phase of the pile-sorting she did not discard that particular organization¹¹. As mentioned above, known organizations are coded with a 1 in the diagonal of the associations matrix ($A_{ijk}=1$ for $i=j$ if the k th respondent knows the organization). Aggregate measures of knowledge are then computed by adding the elements of the matrix across respondents or across elements. The overall knowledge of a k respondent would be given by:

$$KNGO_k = \sum_{i=j} A_{ijk} \quad \sqrt{\quad} \quad k=a$$

or, normalizing by the total number of possible cards,

$$KNGO_k = \sum_{i=j} A_{ijk} / n \quad \sqrt{\quad} \quad k=a \quad n = \text{number of respondents}$$

Similarly, we can calculate how well known a given organization is by aggregating across respondents:

$$KNGO_i = \sum_{j=a} A_{ijk} / r \quad \sqrt{\quad} \quad k=\{1, \dots, 50\}$$

Conceptually, it is important to note that the pile-sorting exercise captures the *breadth* of knowledge that a given respondent *thinks* she has. While it is not possible to establish the degree of knowledge of a given actor with respect to a fixed benchmark, it is adequate to regard this measure as an indicator of the spectrum of organizations that she may take into consideration when appraising its environment and deciding about possible courses of action.

Associations

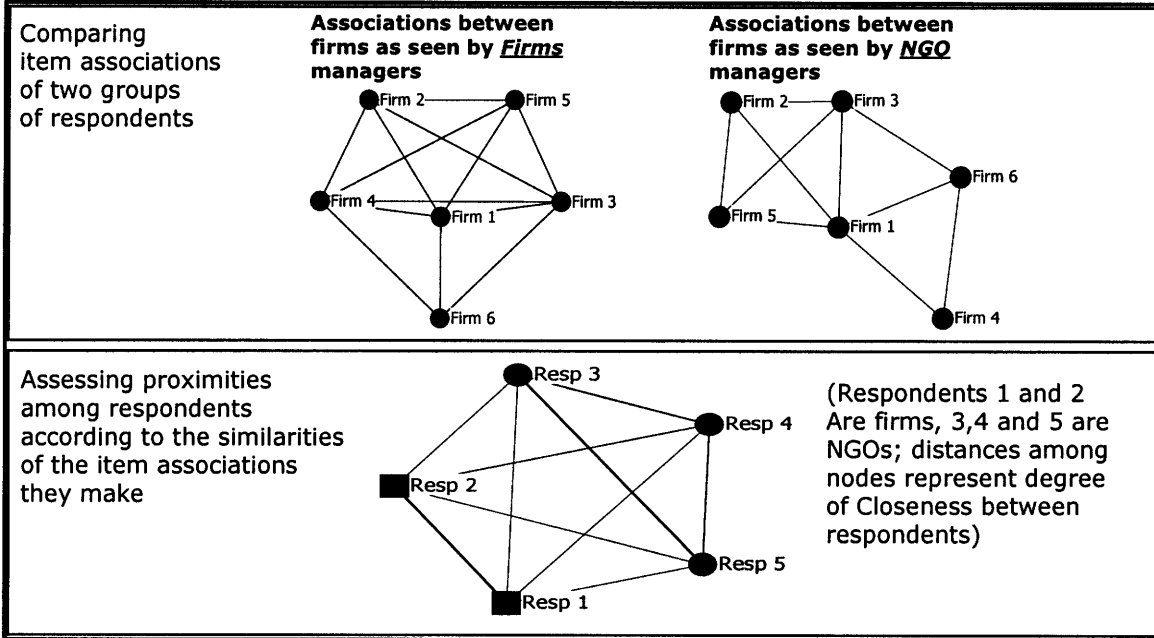
Comparing associational patterns. One option is to compare how closely each pair of items are positioned by two respondents. For example, it is possible to build a 'corporate mental map' and a 'NGO mental map' by aggregating the individual maps of firms' and NGO managers and compare the pattern of associations (links) between the two maps.

Alternatively, it is possible to develop an overall measure of proximity between each pair of respondents' associational profile and then examine the relative closeness between different sets of respondent. This approach helps determine, for example, if the overall perception that a given firm manager has of an organizational field resembles more the

¹¹ Notice that we are not measuring the actual familiarity that a given respondent has about a given organization. Rather, what this measure captures is whether she *thinks* she is familiar with that organization. The threshold of what knowing or not knowing certainly varies depending on the respondent. However, what we are interested in is the perception of knowledge, the perception of closeness and the categories along which a given respondent classifies a given set of actors that are relevant to her own organization.

perspective of other firm managers or if, by contrast, she sees the world structured in a similar way to NGO managers. The scheme below illustrates these two alternatives.

Figure 3 – Example of the two alternatives to compare associations; by items and by respondent.



While both types of analyses provide complementary perspectives of the associational patterns that managers have about the NGO and firm spaces, only the second one is developed below due to space considerations.

Measuring distances. Comparing two respondents' worldviews consists in evaluating whether they tend to associate the same pairs of organizations. That is, to assess how frequently they put two cards in the same or in separate piles. In matrix terms, we need to determine how similar the pattern of 0's and 1's of two matrices is.

There is a broad range of measures that one can use to contrast the similarity between two matrices (see Arabie and Boorman). As advanced by Coxon (1979) and Morgan (1987) some measures employed to compare matrices are more robust than others to some treatments but not to all. When using a pile-sorting technique it is important to be cognicent of what has been denominated the "lumper-splitter" problem and how it may be partially controlled by using particular comparison measures. In order to compare the degree of similarity between the mental maps three main measures will be employed: (1) pairwise equality summation –total number of cells that have the same value, zero or one, in the matrices of the respondents we compare-, (2) conditional equality summation – total number of cells that have the same value, conditional on both respondents knowing the organizations under consideration-, and (3) positive conditional summation –total

number of cells that have a 1 in both matrices-. Notice that the measures of proximity are increasingly restrictive. See the box below for an example of the three measures.

Explanation of proximity measures for comparisons

Respondent: 1	1	2	3	4	5
1	1	1		1	
2	1	1		1	
3			1		
4	1	1		1	
5					1

Pile 1: 1, 2,
Pile 2: 2, 5
Pile 3: 5

Respondent: 2	1	2	3	4	5
1	1			1	
2		1			1
3			0		
4	1			1	
5		1			1

Discard: 3
Pile 1: 1, 4
Pile 2: 2, 5

Measure 1: Pairwise equality summation

	1	2	3	4	5
1	1		1	1	1
2		1	1	1	1
3	1	1		1	1
4	1		1	1	1
5	1		1	1	1

Proximity measure:
(Summation of all cells) **18**

Normalized distance
(Summation /25) **72%**

Measure 2: Conditional equality summation (ONLY KNOWN ITEMS)

	1	2	3	4	5
1	1			1	1
2		1			
3	1	1		1	1
4	1			1	1
5	1			1	1

Proximity measure:
(Summation of all cells) **14**

Normalized distance
(Summation /20) **70%**

Measure 3: Positive Conditional Summation (ONLY KNOWN ITEMS AND IN SAME PILE; RELATIVE TO R1)

	1	2	3	4	5
1	1			1	
2		1			
3					
4	1			1	
5					1

Proximity measure:
(Summation of all cells) **6**

Normalized distance
(Summation /11) **54.5%**

Aggregations

Aggregating mental maps of some or all of the respondents in the study can be easily done through a linear combination of the corresponding matrices. Nevertheless, its meaning and the use we make of it requires careful consideration.

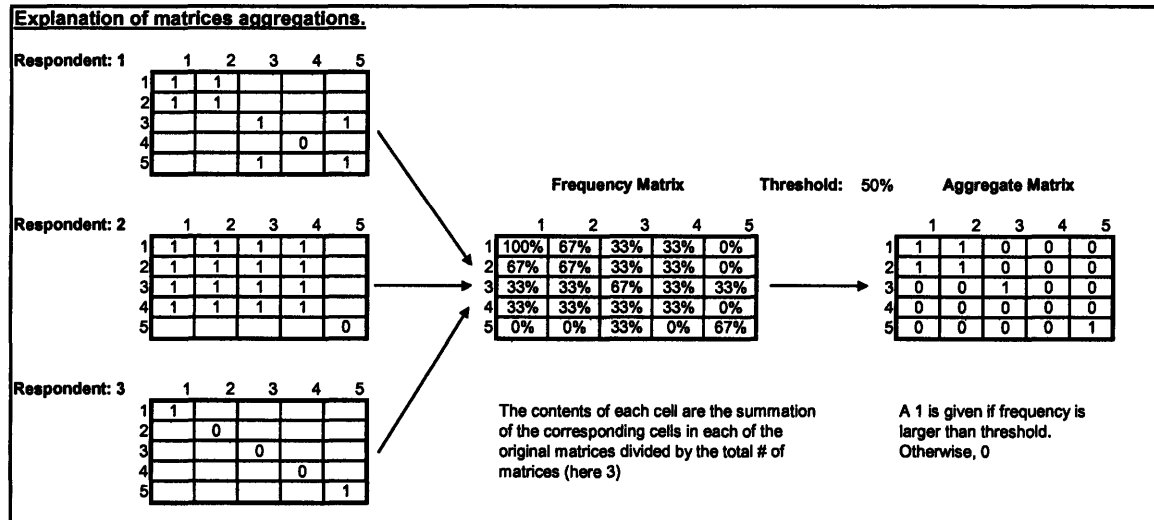
It is readily evident that because a number of respondents perceive two organizations as being close, that does not necessarily imply that they *are actually* close. One way to find out whether two organizations are effectively close is suggested by Krackhardt ()¹². In our case this solution is not possible by construction –in the case of firms¹³- and by the lack of a complete sample –in the case of NGOs.

The way aggregations are constructed in this study is as follows (see the box below for an example). First, a sub-sample of respondents is selected –for example, respondents working in oil firms. Let us remember that these square matrices represent whether two given organizations appear in the same pile. Then, the relative frequency of association

¹² In his study on friendship and advice networks in a small technology firm he proposes that a link between two persons exists in reality if both of them argue that the relationship actually exists. That is, two people are only considered to be friends if both of them consider each other a friend, independently of what everyone else thinks their degree of friendship is. The pairwise evaluation of all respondents in this way yields the “real” network.

¹³ Because the card deck includes a number of companies no longer operating in Ecuador

between each pair of organizations is calculated. Finally, an association threshold is determined. A relationship between each pair of items is deemed to exist if the relative frequency of association is greater than the established threshold.



While aggregating mental maps is common practice in the field of managerial and organizational cognition (), it is important to make explicit the meaning, in the context of this study, of combining the worldviews of multiple respondents.

The theoretical stance of this paper is that there are as many “real worlds” as there are actors. However, an individual’s world-view is not the result of a purely cognitive exercise; it is also a social process. Therefore, aggregating individual mental maps provides a picture of the degree of consensus that a given group of respondents have regarding a common environment. More concretely, the process by which the aggregate map is constructed provides a measure of the likelihood, determined by the threshold, that a given group of people *perceive* that a relationship actually exists. In addition, since the argument in this paper is that *perceptions* of the world, not necessarily actual relations, are important determinants of organizational behavior, it is reasonable to assume that if a considerable proportion of actors think that a given relationship exists, they will act as if it actually does.

Results Appendix

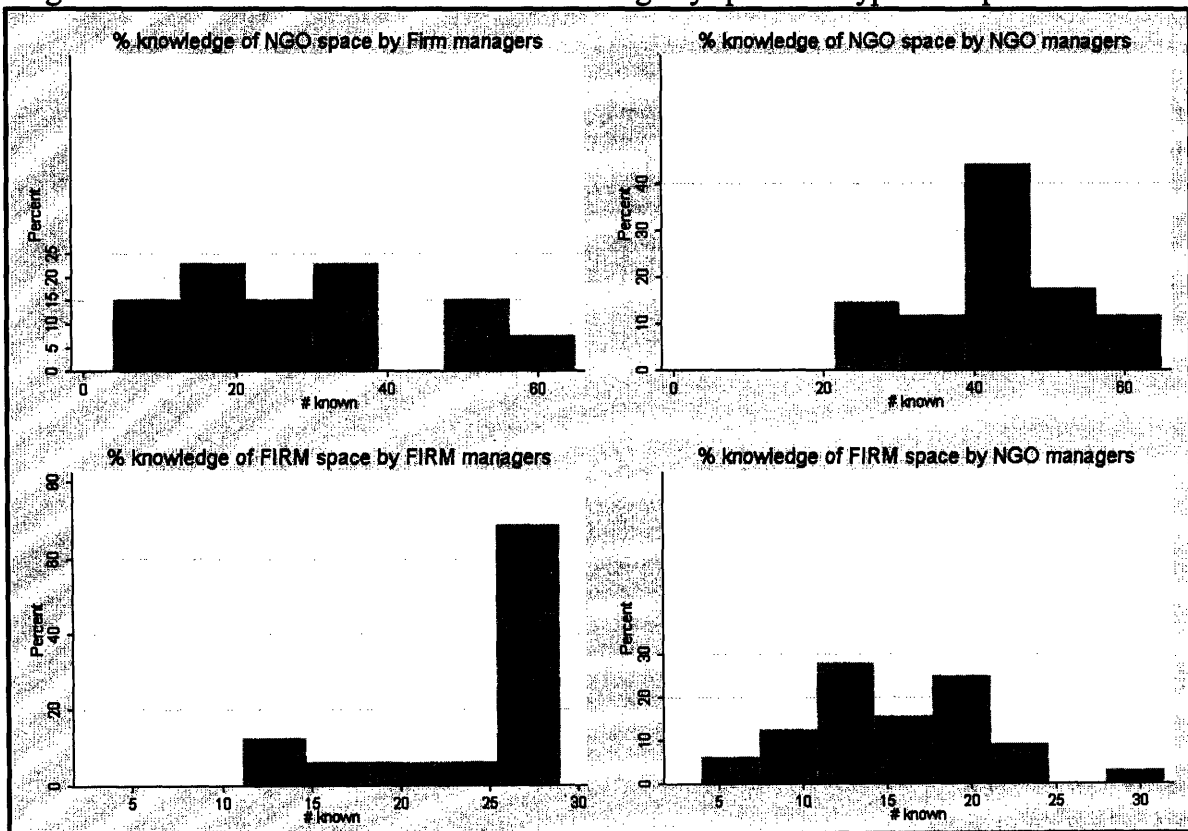
KNOWLEDGE- Comparisons WITHIN types of organizations

Table 1- Summary statistics of knowledge levels in firm and NGO space

	mean	min	max	min	max	sd	skew	ng	ng	ng	ng
Firm-managers	30.31	13	65	9	56	16.38	.71	12	20	30	32
NGO-managers	43.50	34	65	23	42	9.73	.063	12	38	43	50
Total	39.85	47	65	9	56	13.17	-.28	20	30	42	50

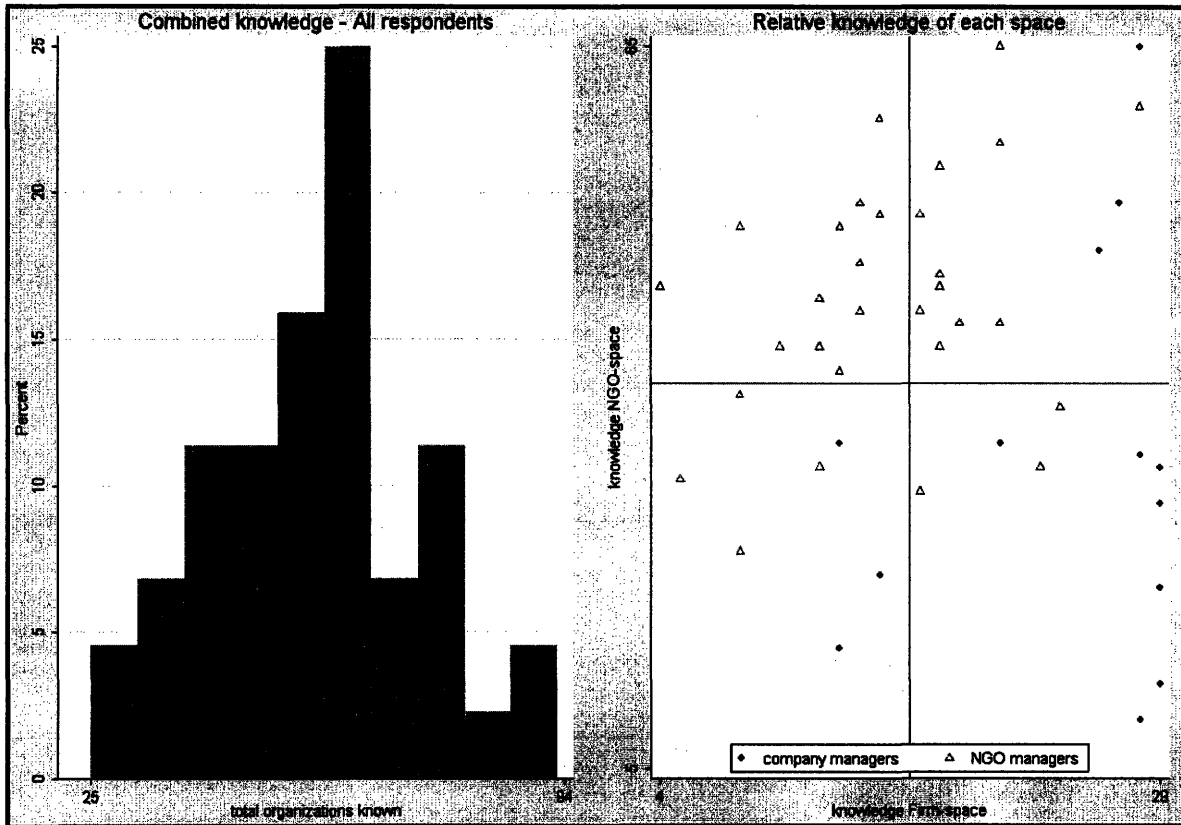
	mean	min	max	min	max	sd	skew	ng	ng	ng	ng
Firm-managers	24.63	16	29	13	16	5.90	-1.18	7.0	22	27.5	29
NGO-managers	15.44	32	28	4	24	5.61	-.014	6.5	12	15	18.5
Total	18.50	48	29	4	25	7.14	-.013	12	13	18	25

Figure 1 – Distributions of the level of knowledge by space and type of respondent



KNOWLEDGE- Comparisons WITHIN types of organizations

Figure 2 – Left - Distribution of total # of cards known
 Right – Plot of knowledge of the firm and NGO space by respondent



KNOWLEDGE- Comparisons BETWEEN types of organizations

Table 2- T-test of aggregate level of knowledge of firm vs. NGO managers in both spaces

	Firm-space	NGO-space
Company managers	Mean : 24.6	Mean : 30.3
	SD : 5.9	SD : 16.4
	# Obs: 16	# Obs: 13
NGO managers	Mean : 15.4	Mean : 43.5
	SD : 5.6	SD : 9.7
	# Obs: 32	# Obs: 34
P(Mff=Mnf): 0.00		P(Mfn=Mnn): 0.00

KNOWLEDGE- OVERLAP in individual responses of NGO and Firm managers

Figure 3 – Distribution of degree of knowledge of NGO space by type of respondent

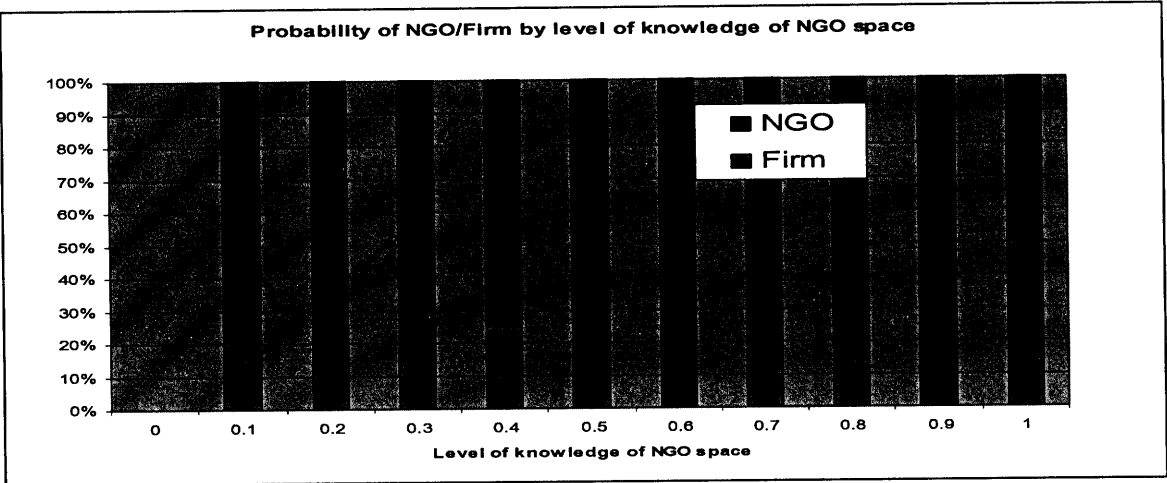
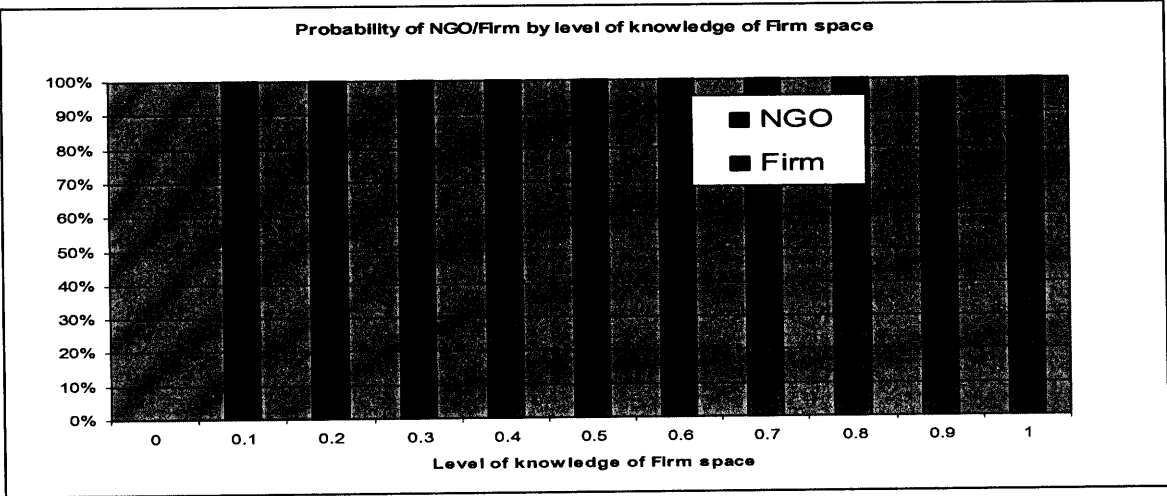


Figure 4 – Distribution of degree of knowledge of Firm space by type of respondent



ASSOCIATIONS- Comparisons WITHIN types of organizations

Table 3- Summary statistics of associational distance between respondent dyads

	M 1	M 2	M 3
NGO-space	Mean: 0.85	Mean: 0.78	Mean: 0.29
	SD: 0.07	SD: 0.10	SD: 0.19
	Range: 0.34	Range: 0.65	Range: 0.99
	N (pairs): 2209	N (pairs): 2209	N (pairs): 2209
Firm-space	Mean: 0.80	Mean: 0.70	Mean: 0.38
	SD: 0.11	SD: 0.13	SD: 0.23
	Range: 0.53	Range: 0.82	Range: 0.99
	N (pairs): 2304	N (pairs): 2304	N (pairs): 2304

Table 4- Summary statistics of associational distance between respondent dyads

Measure	NGO Space			Firm Space		
	M1	M2	M3	M1	M2	M3
NGO-NGO						
Mean	.86	.81	.35	.84	.67	.41
SD	.06	.08	.19	.11	.15	.26
Range	.34	.44	.97	.47	.82	.99
N	1156	1156	1156	1024	1024	1024
Firm-NGO						
Mean	.84	.75	.221	.77	.72	.33
SD	.07	.10	.14	.09	.11	.20
Range	.31	.45	.88	.48	.62	.99
N	884	884	884	1024	1024	1024
Firm-Firm						
Mean	.86	.73	.26	.77	.75	.43
SD	.08	.14	.26	.08	.09	.21
Range	.33	.65	.99	.42	.43	.92
N	169	169	169	256	256	256
Total						
Mean	.85	.78	.29	.79	.70	.38
SD	.07	.10	.19	.11	.13	.23
Range	.34	.65	.99	.53	.82	.99
N	2209	2209	2209	2304	2304	2304

ASSOCIATIONS- Comparisons BETWEEN types of organizations

Figure 5- Distribution of distances (M3) between same-type respondents and by organizational space

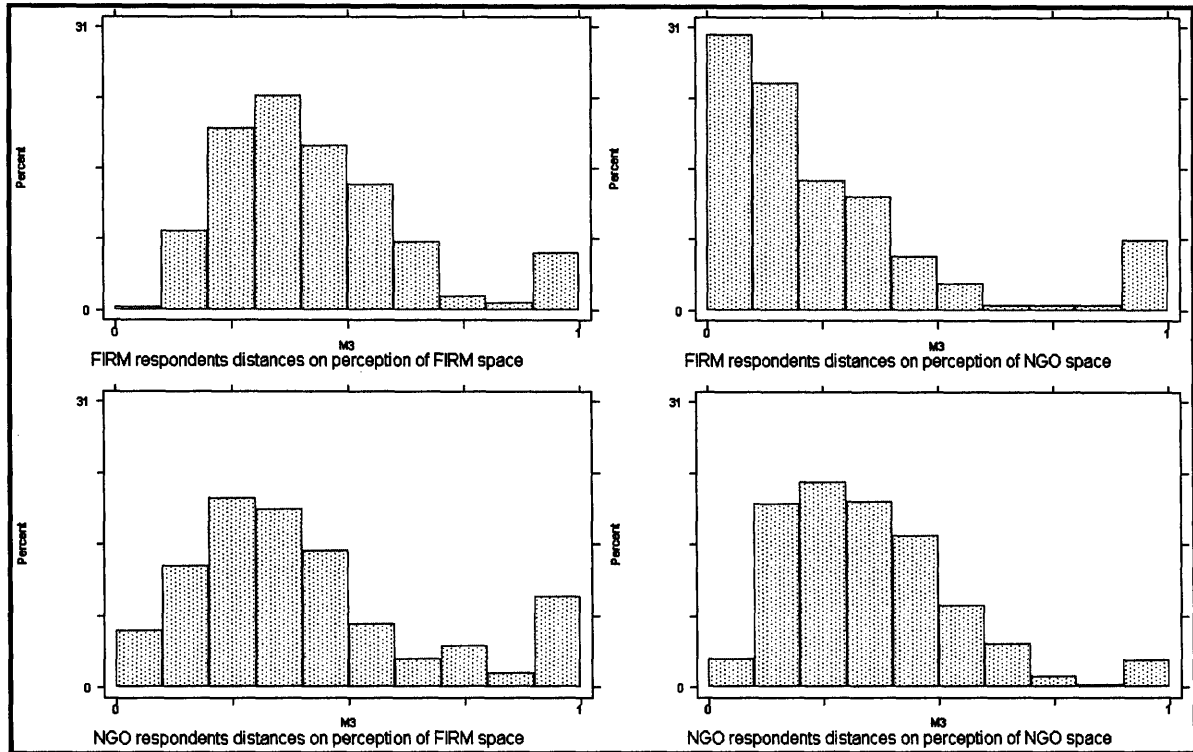


Table 5 – Density of links between and within groups of respondents. Firm space.

Number of iterations = 10000

	Expected	Observed	Diff.	P > Diff.	P = Diff.
Firm-Firm	45.745	58.000	12.255	0.134	0.885
NGO-Firm	195.177	139.000	-56.177	1.000	0.000
NGO-NGO	189.078	233.000	43.922	0.012	0.989

Table6 – Density of links between and within groups of respondents. NGO space.

Number of iterations = 10000

	Expected	Observed	Diff.	P > Diff.	P = Diff.
Firm-Firm	31.460	11.000	-20.460	0.997	0.005
NGO-Firm	178.272	74.000	-104.272	1.000	0.000
NGO-NGO	226.268	351.000	124.732	0.000	1.000

ASSOCIATIONS- Comparisons BETWEEN types of organizations

Figure 6- FIRM space. Proximity between NGO and firm managers according to their associational profile (squares – NGO respondents, circles – firm respondents)

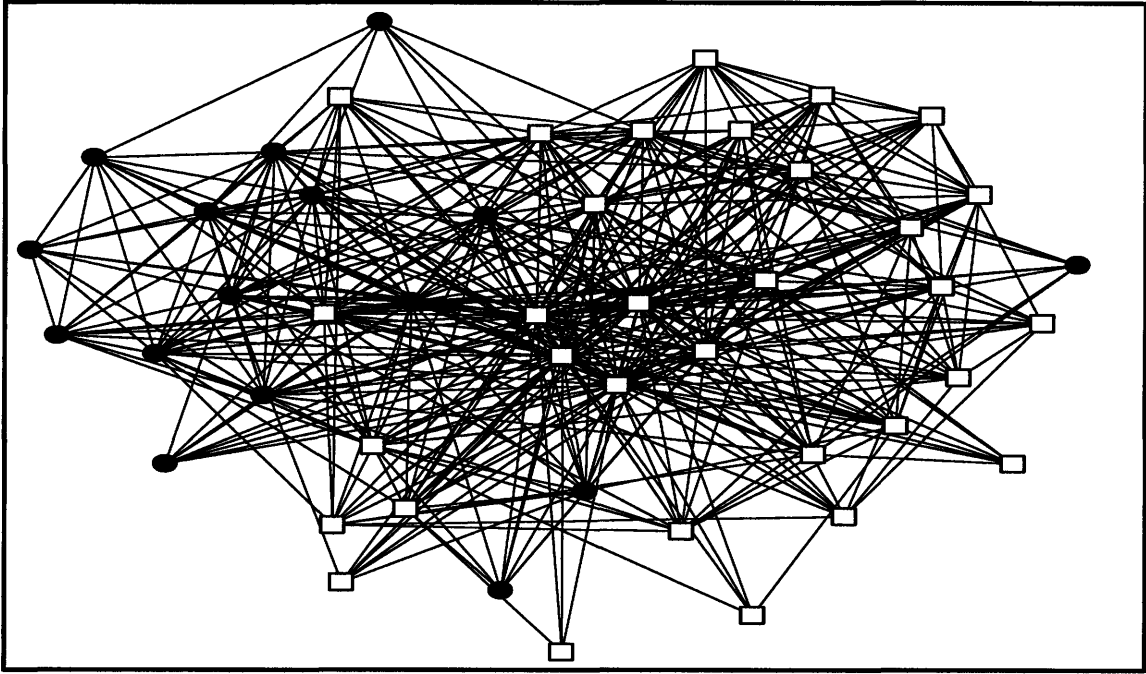
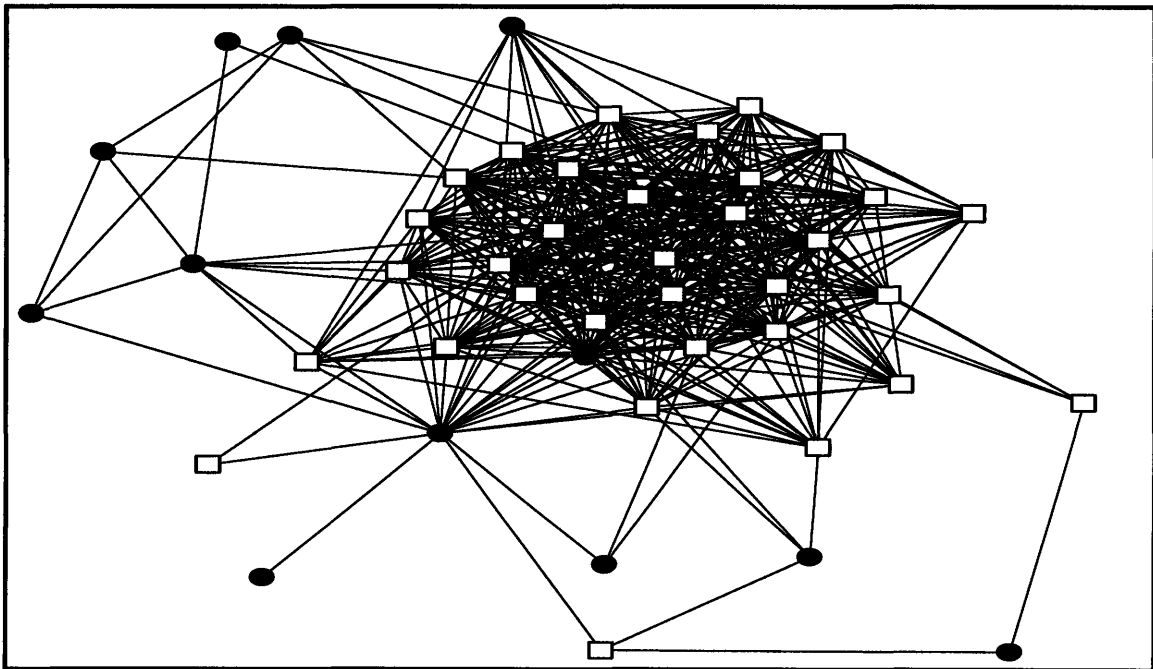


Figure 7- NGO space. Proximity between NGO and firm managers according to their associational profile



ASSOCIATIONS- OVERLAP in individual responses of NGO and Firm managers

Table 7- Test for overlap in associations. Firm space

Logistic regression	Number of obs = 48
	LR chi2(4) = 21.63
	Prob > chi2 = 0.00
Log likelihood = - 19.73	Pseudo R2 = 0.35

Type	Coef.	Std. Err.	Z	P > z	95% Conf. Interval
connect	65.94	20.42	3.23	0.00	25.92 105.97
degree	.21	.13	1.62	0.11	-.04 .45
betweenness	.15	.08	1.86	0.06	-.01 .31
cont	-23.76	11.59	-2.05	0.04	-46.5 -1.05

Table 8- Test for overlap in associations. NGO space

Logistic regression	Number of obs = 45
	LR chi2(4) = 25.00
	Prob > chi2 = 0.00
Log likelihood = - 13.60	Pseudo R2 = 0.48

Type	Coef.	Std. Err.	Z	P > z	95% Conf. Interval
connect	118.31	79.55	1.49	0.14	-37.61 274.23
degree	-.72	.59	-1.23	0.22	-1.87 .43
betweenness	-.03	.10	-0.34	0.73	-.23 .16
cont	.01	.03	0.25	0.80	-.05 .07

CATEGORIES- Comparisons WITHIN types of organizations

Table 9 – Summary statistics on # of labels used by managers

	Firm managers			NGO managers		
Firm space	Total # of terms :	109		Total # of terms :	120	
	# terms/respondent:			# terms/respondent:		
	AVG	SD	C.V	AVG	SD	C.V
	11.1	6.5	0.59	8.1	4.1	0.51
NGO space	# terms / respondent & pile :			# terms / respondent & pile :		
	AVG	SD	C.V	AVG	SD	C.V
	1.8	0.7	0.39	1.9	0.9	0.47
	Total # of terms :	69		Total # of terms :	173	
NGO space	# terms/respondent:			# terms/respondent:		
	AVG	SD	C.V	AVG	SD	C.V
	7.8	4.1	0.52	15.2	6.9	0.45
	# terms / respondent & pile :			# terms / respondent & pile :		
AVG	SD	C.V	AVG	SD	C.V	
1.9	0.7	0.36	1.9	0.5	0.28	

Figure 8- Distribution of # of labels used by respondent and organizational field

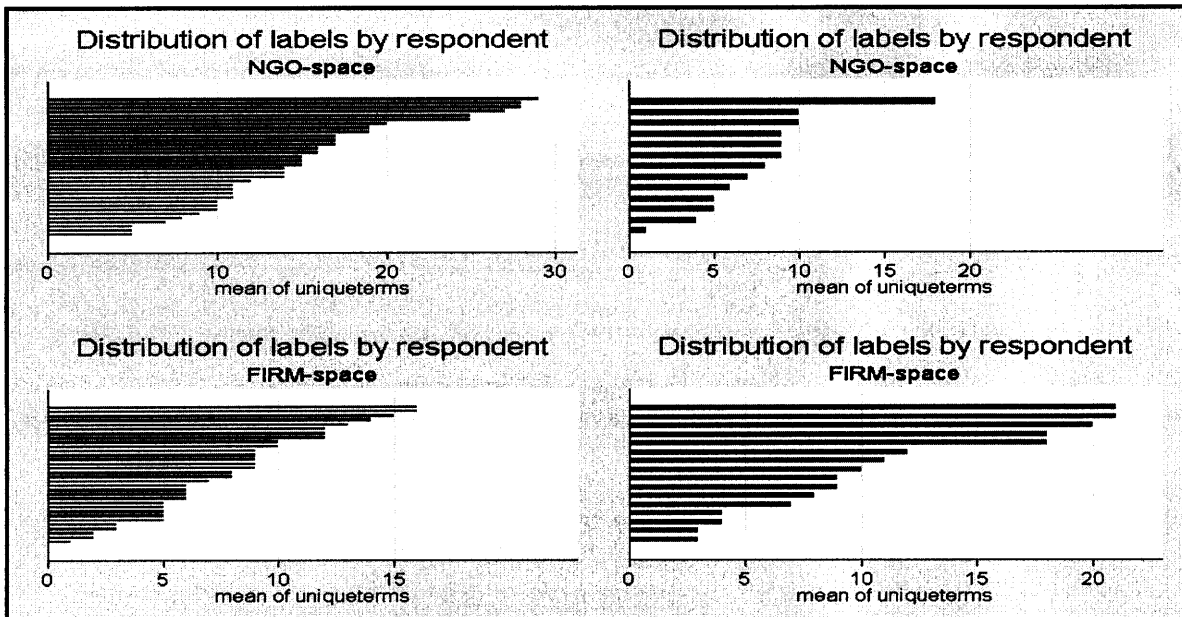


Table 10- # of times a given label was used to describe a particular organization in the card deck

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
NGO-SPACE																						
NGO	1393	282	80	49	26	26	14	11	7	12	9	8	5	2	11	3	5	4	1	0	1	
FIRMS	680	44	3	0	1	1																
FIRM-SPACE																						
NGO	450	70	21	11	6	3	3															
FIRM	530	132	36	14	5	3																

CATEGORIES- Comparisons BETWEEN types of organizations

Figure 9 – Relative use of labels by firm and NGO managers. NGO-Space

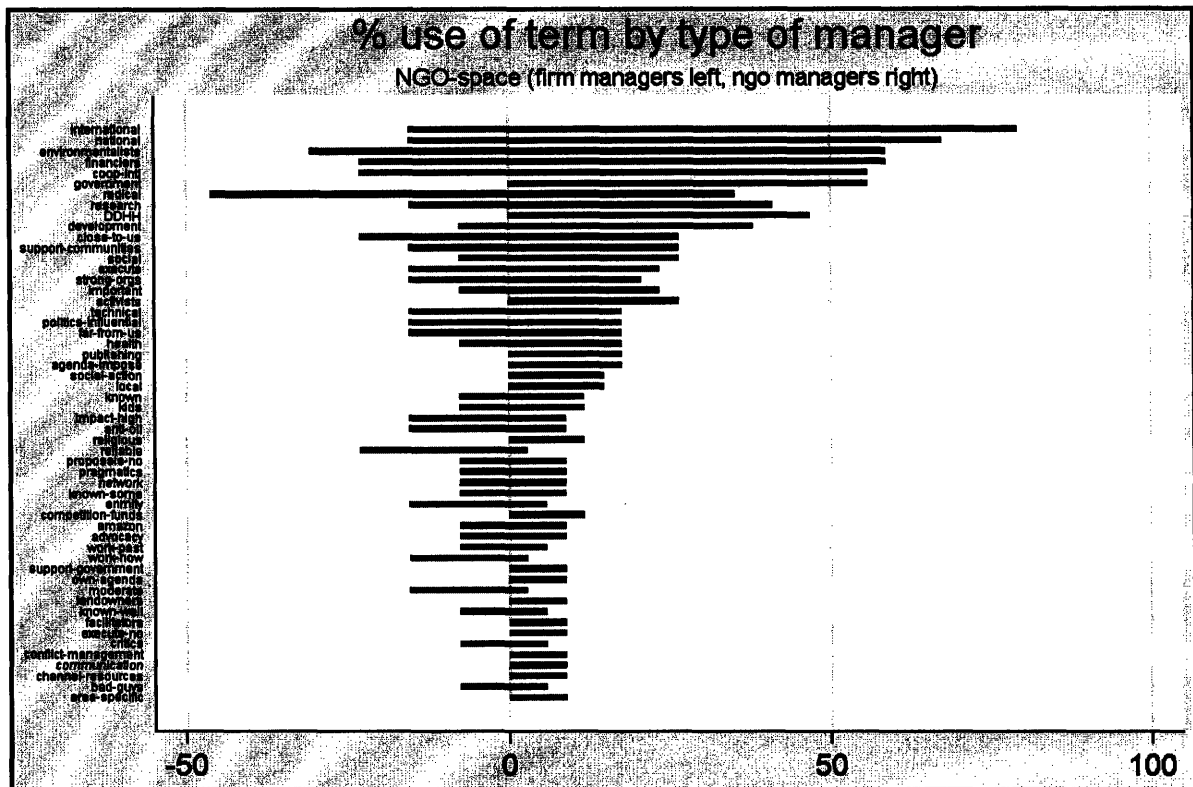
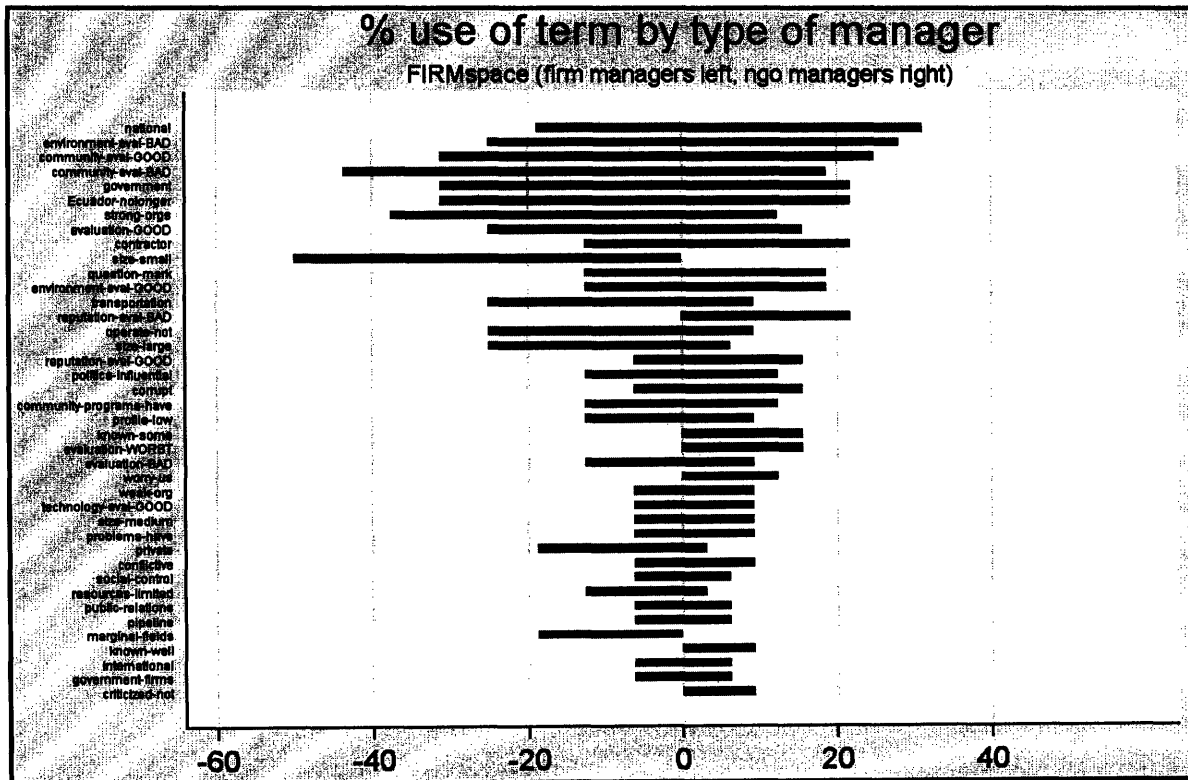


Figure 10- Relative use of labels by firm and NGO managers. Firm-Space



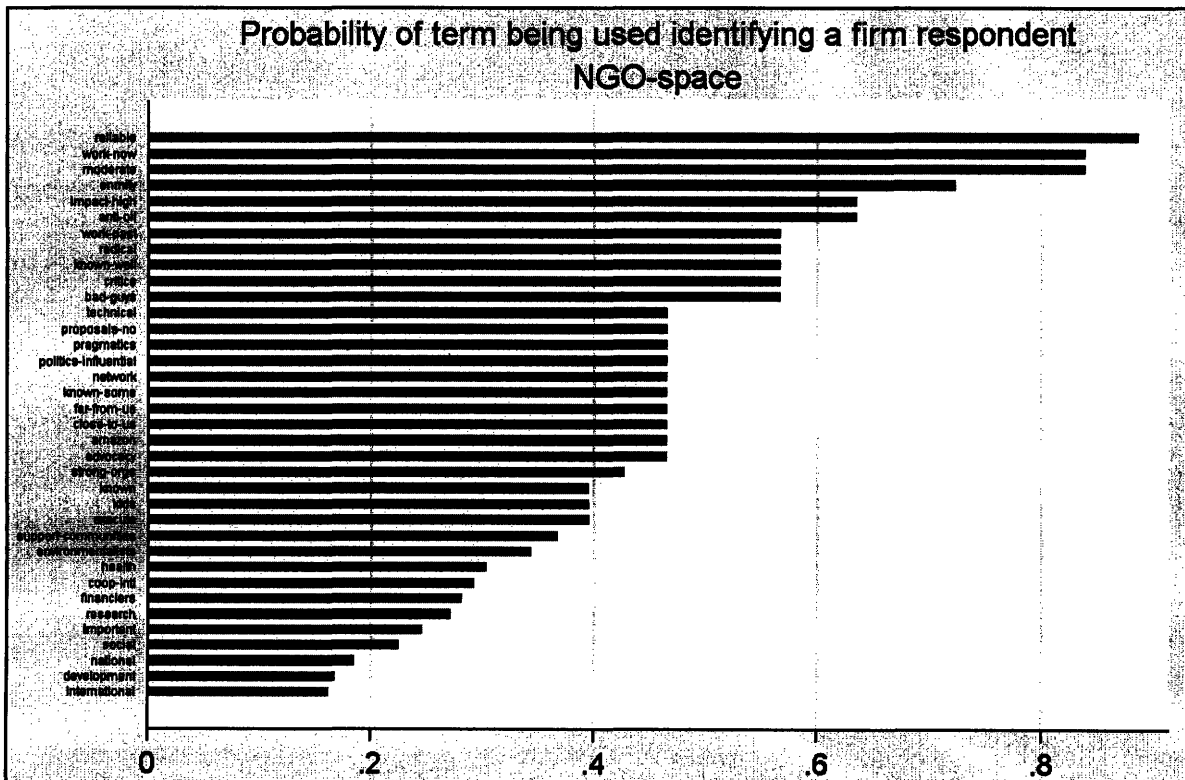
CATEGORIES- OVERLAP in individual responses of NGO and Firm managers

Table 11- T-test probability to identify a firm respondent by random extraction of a label

NGO-Space					
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
prop - Firms	36	.46	.03	.18	.40 .52
mean = mean(prop)			t = -1.36		
Ho: mean = .5			Degrees of freedom = 35		
Ha: mean < .5		Ha: mean != .5		Ha: mean > .5	
Pr(T < t) = 0.09		Pr(T > t) = 0.18		Pr(T > t) = 0.91	

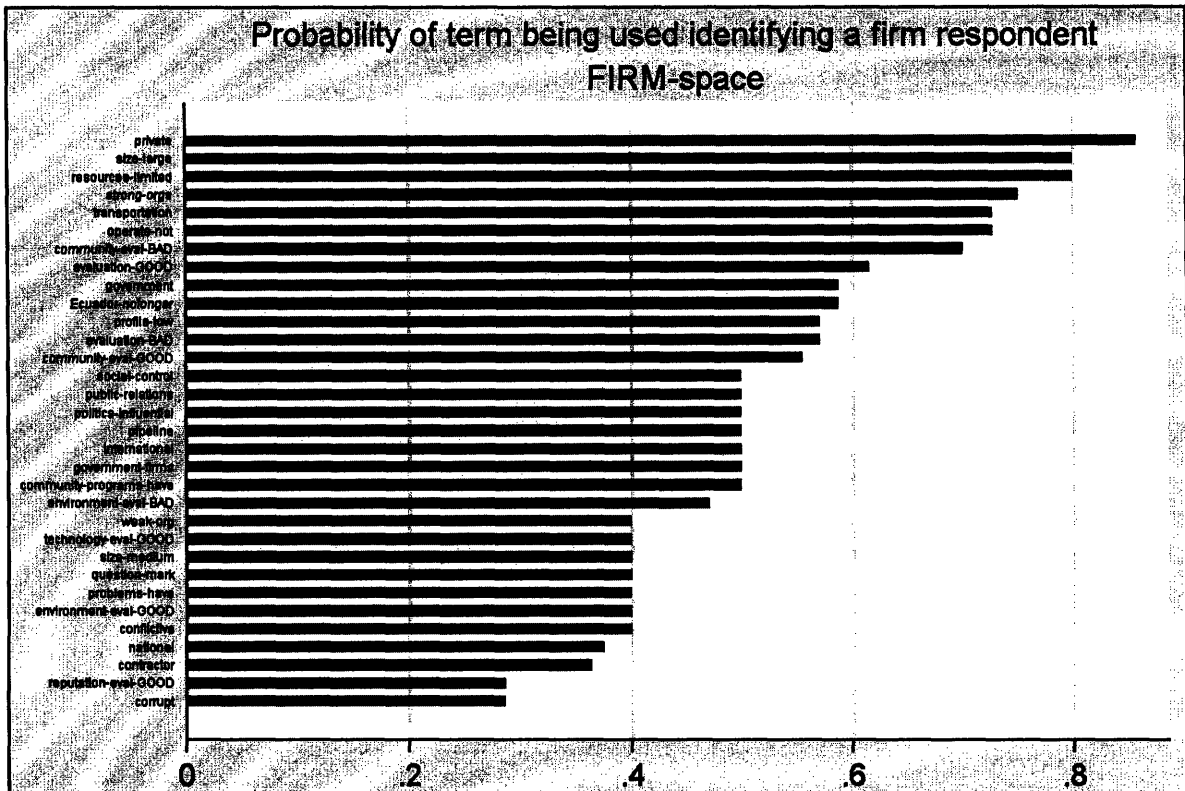
FIRM					
Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
prop - Firms	32	.53	.027	.15	.47 .58
mean = mean(prop)			t = 1.08		
Ho: mean = .5			Degrees of freedom = 31		
Ha: mean < .5		Ha: mean != .5		Ha: mean > .5	
Pr(T < t) = 0.86		Pr(T > t) = 0.29		Pr(T > t) = 0.14	

Figure 11- Probability of term being used by a firm respondent. NGO-Space
(terms mentioned at least 3 times and by at least one of each type of respondents)



CATEGORIES- OVERLAP in individual responses of NGO and Firm managers

Figure 12- Probability of term being used by a firm respondent. Firm-Space
 (terms mentioned at least 3 times and by at least one of each type of respondents)



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ON CATEGORIES AND ORGANIZATIONAL DOMAIN STRUCTURE

Abstract: Explaining the structure of an industry or, more generally, an organizational domain, has been a long-lasting concern among management scholars from a variety of disciplinary backgrounds. From a Social Psychology perspective, the dominant –and stylized- explanation is that a stable industry structure is achieved as a result of the convergence of worldviews that results from the interaction among organizations perceiving each other as competitors.

This study questions two aspects of this perspective: (1) the extent to which worldviews actually converge, and (2) the implicitly assumed unproblematic nature of the aggregative process that leads from individual worldviews to organizational domain structure. This is done by showing that individuals using similar classification heuristics may come up with significantly different domain partitions and, conversely, that individuals using different classification criteria may perceive the structure of a given environment in a similar way.

Possible explanations for this phenomenon are advanced, and implications for standard empirical approaches to management research are discussed.

Taxonomy: practice and science of classification.
From the Greek τάξις, taxis, 'order' + νόμος, nomos, 'law' or 'science'.

Explaining the structure of a given organizational domain has been an ongoing concern to the fields of strategy and organizational theory alike. One of the disciplines from which this question has been addressed is social psychology. The starting point for scholars in this tradition is that an organization's behavior is strongly influenced by the interpretation that its (top) managers make of the information they have about the environment in which the organization operates. The boundaries and structure of a given organizational domain are, thus, explained as the result of a recurring process by which managers scan their environment, interpret what bits of information are relevant for the survival and performance of their organizations, and decide upon an appropriate course of action. As successive iterations of this process occur and managers interact in a variety of social fora, a collective understanding of group boundaries and proper rules of behavior emerges, providing structure and stability to a particular organizational domain.

Empirical testing of this perspective has been carried out on both market (Huff 1982; Porac, Thomas et al. 1989; Porac and Thomas 1994; Porac, Thomas et al. 1995; Hodgkinson 2005) and non-market (Dimaggio 1987; Dimaggio and Anheier 1990) organizational domains. Methodologically, managerial cognition has been proxied in a multitude of ways. The most common approaches have entailed eliciting the assumptions (Phillips 1994), causal maps (Markoczy 1997) and categorization structures (Porac and Thomas 1994) that managers have about their organizational domain.

Over time, the sizable body of theoretical and empirical work on cognitive approaches to organizational domain structure has led to a number of more or less consensual tenets, some of which are challenged in the present paper. First, cognitive convergence among actors in a given organizational domain is seen as an inescapable fate. Consistent with new institutionalist perspectives, social actors in a given domain will experience similar coercive, mimetic and normative isomorphic pulls that will result in the convergence of their beliefs, assumptions and categorical systems. By contrast, I find that notably different categorization systems, one of the traditional measures of cognition, can coexist in a given setting. This finding joins a small quorum of studies (Hodgkinson and Johnson 1994) that critique a strong perspective on cognitive convergence, and expands this criticism to the realm of non-market organizational relations.

This paper also questions a widely shared, if mostly implicit, practice in this kind of studies: the conflation of structuring principles and cognitive outcomes. For example, the archetypical empirical study on categorization (Rosch and Mervis 1975; Porac and Thomas 1994) is designed to elicit *the* classification system employed by managers in a given domain. These categories are then used to explore a variety of phenomena such as perceptions of competition (Gronhaug and Falkenberg 1989) or belonging to strategic groups (Porac, Thomas et al. 1989). The point here is that it may not be warranted to assume that because a number of individuals are armed with the same cognitive structure –classification rules- they are going to apply it in the same way. In fact, the present study

finds evidence that, under some circumstances, there is less than perfect overlap between cognitive structures and cognitive outcomes.

Table 1 below summarizes both the current knowledge of the field and the new findings that this paper intends to support and explain. Specifically, mainstream research would be located along the main diagonal. The standard story –upper left cell- would be that the managers’ classification schemes converge over time and that the application of these widely shared schemes unequivocally produces a single picture of the structure of the organizational domain. The other cell in the main diagonal would represent studies that argue that different organizational domains –i.e. different industries- can coexist in time and space but that each one responds to a separate organizing logic (Phillips 1994). From this perspective it would be seen as an anomaly that managers pertaining to the *same* organizational field might hold different cognitive structures.

The cells off the main diagonal, however, would be the most problematic for current cognitive theories of organizational domain structure. The upper right corner depicts situations where different cognitive structures produce similar pictures of an organizational domain. The lower left cell would represent those situations where managers holding similar organizing logics would end up developing notably different maps of their industry.

Table 1 - Cognitive Structure vs. Cognitive Outcomes

		Strong	Weak
Organizational	Uniform	Strong institutionalization (standard story)	Different structuring logics may result in relatively similar domain mappings
Organizational	Various	Application of same rules by different actors may yield different results	Different domains, each with its own structuring logic may coexist in space and time (Robinson)

Given this setup, the present paper has three main objectives: first, to empirically support that all four cells in table 1 may be populated at any one time by members pertaining to the same organizational domain. Secondly, to advance a number of propositions of why that might be the case and the circumstances under which these “anomalies” could be expected. And, finally, to explore the implications that these findings have when they are projected at higher levels of analysis.

This latter point is developed by looking at how different disciplines conceive and use social categories to define the structure of an organizational domain. Further, I argue that (1) what is understood by social category varies depending on the disciplinary orientation of the study, that (2) these different conceptions of what social categories are may lead to radically different findings with important implications for managerial theory and practice, and (3) that it is possible to integrate different disciplinary approaches to social categories. The paper is organized in three parts in accordance with the three objectives it seeks to cover.

Section 1- Unpacking cognitive structures from cognitive outcomes

How and how much do the classification heuristics employed by members in a given organizational domain vary? And, could two individuals using the same classification criteria produce significantly different partitions of the field?

The empirical setting of this study is the collective of *Development Organizations* operating in the Ecuadorian Amazon where most of the exploration and extraction of crude oil in the country takes place. While a precise definition of the sample and selection criteria is provided later, suffice it to say at this point that the majority of the organizations in the study are popularly referred to as Non Government Organizations (NGOs)¹⁴. Methodologically, a pilesorting technique, also explained in detail later, was used to measure two constructs: the classification *rules* used by managers in these organizations, and the actual *result* of applying these rules on a set of organizations operating this domain.

A brief example will help clarify the main thesis of the paper. When Carlos and Juan, the managing directors of two different Ecuadorian NGOs, were separately asked to classify a sample of 65 development organizations operating in the Amazon by “similarity”¹⁵,

¹⁴ It is important to note, however, that 9 of the 65 organizations in the sample are either foreign governmental development agencies or have strong links with government bodies.

¹⁵ What “similarity” was, was left deliberately ambiguous so that each respondent invoked the organizing principle that she considered to be most relevant.

they produced a very two very similar partitions. When questioned about the classification criterion they had employed, both argued they had segmented the sample according to the sector –i.e. health, human rights, economic development- that better represented the expertise of each organization. A third NGO manager, Pedro, was asked to perform the same exercise and produced a classification of the sample that closely resembled the previous two. Nevertheless, he argued that his classification principle responded to the degree of “ideological closeness” between his own NGO and each of the other organizations he was asked to classify. Finally, Maria, who also segmented the sample according to her perception of NGO sector, produced a partition that notably differed from those of Juan and Carlos; both in the number of groups formed and the content of each one of the groups.

Juan and Carlos’ case illustrate the established consensus about organizational domain structure. By contrast, Pedro and Maria would be seen as anomalies in that the former is not using the socially sanctioned criterion of classification, and the latter is using the ‘right’ criterion but employing it in an imperfect way.

A more systematic analysis of the data collected in the field, however, is necessary to find out the extent to which each case is likely to occur. In order to do so, I will (1) describe in greater detail the methodology employed to gather the data, (2) explain the analytical tools used to measure similarities across classification criteria and partition outcomes, and (3) provide the results of such analysis.

Setting criticality, Methodology and Sample

As advanced above, I tested the cognitive convergence hypothesis on a set of managers working for Development Organizations operating in Ecuador. These organizations are particularly involved in the exploration and extraction of oil in the country; an economic activity that represents 40% of the country's exports and 1/3 of the government's budget. However, this economic activity comes at an extremely high social and environmental cost.

The rationale for choosing this setting was that it presented a set of characteristics *highly conducive to support the convergence hypothesis*. To the extent that less than perfect convergence was found, it would be plausible to think that variation in cognitive representations of the structure of a domain would also be present in less forgiving settings.

The factors that, a priori, would make this setting particularly conducive to the existence of homogeneous worldviews are the following: (1) long story of interaction between the members of the development community, (2) geographically small and well bounded area of operation, and (3) lack of any major recent change in the institutional make-up of the country that significantly changes the relationship among development organizations or between oil firms and development organizations.

While the story of the oil sector in Ecuador started with the signing of an oil exploitation agreement between the Ecuadorian government and Chevron in 1964, there was not a significant presence of development organizations in the northeastern Ecuadorian Amazon until the early 80s. The NGOs operating in that area stabilized around the mid 90s and most have operated uninterruptedly since then. This implies that all of the major actors in this domain have known each other, personally and organizationally, for a long period of time. It also implies that social networks among individuals involved in development are fairly dense, making information flow quite smoothly and rapidly in this domain.

Besides a long common story, individuals and organizations in the oil-related development sector operate in a relatively small and well defined geographic area; usually referred to as “el Oriente”. This 125.000 sq km string of land is delimited by the inter-Andean central highlands to the west and the border with Peru to the east. It is certainly true that there are notable differences in terms of ancestral history and more recent economic and social events between the north and the south of Oriente. However, the fact that most of the population live in just three main conurbations¹⁶ and that most development organizations have their headquarters within a 3-mile radius in Quito provides ample opportunities for events by any relevant actor to be known fairly rapidly.

Although the assertion that since the early 90s there have been no major shocks in the institutional makeup where these organizations carry out their activities may come up as a bit of a surprise given the rocky recent history of the country. However, what has been

¹⁶ Nueva Loja, Macas and Puyo

a constant since the early seventies is the lack of even a mild institutional authority by the central government in this region. A quote from an oil company manager describes this situation in eloquent terms:

“Ecuador does not have a solid government. In Oriente this lack of government institutions and mechanisms is even more marked (than in the rest of the country) and the needs of the communities are completely disregarded. Given the lack of institutions, the oil companies see themselves forced to fill these spaces. In this manner, the needs of the communities become a part of the firms’ agendas who assume them for two fundamental reasons: to be able to operate and for ethical reasons” Jose 4/2006

One objection that could be certainly raised with regards to the appropriateness of this setting is that the mission of the organizations under study may differ in significant ways. This, it could be argued, might be the one factor leading managers in different NGOs to hold significantly different cognitive maps about the structure of the domain; after all, why should environmentally concerned managers view the world in the same way as, say, human rights advocates? While not an unfeasible explanation, there are a number of circumstances that make it quite unlikely. The first one is that most organizations define their mission in fairly loose terms. For example, Fundacion Natura’s mission statement reads as follows:

Fundacion Natura works for the benefit of the Ecuadorian environment and society, permanently promoting the improvement of the quality of (human) life and that of the natural environment. (www.fnatura.org)

Just as reflected in this (broad) statement, my interviewees insisted on the importance of tackling the problems derived from oil exploitation in Oriente in a holistic way. That is,

taking into account that preservation of the environment and achieving social justice were so intimately intertwined that they had to be addressed in a coordinated fashion. A second factor limiting the challenge to this empirical setting is that some of the most common sources of funding finance a wide array of organizational missions. Finally, it is common for those NGOs who are catalogued as highly specialized to partner with other NGOs in order to propose better-rounded projects to potential funders. In sum, whether it is (1) because NGOs perceive the problem they are trying to address as multidimensional, (2) because they have a strategic interest in monitoring each other to secure financial resources, or (3) because they want to present a unified discourse to potential funding institutions, it is still the case that there are significant forces at work pushing managers in (formally) very different NGOs to converge in their perceptions of the structure of the domain.

In order to explicitly separate classification rules from classification outcomes, I decided to employ a pilesorting technique. This methodology, traditionally employed by anthropologists to depict cultural domains (Burton and Nerlove 1976; Boster, Johnson et al. 1987; Weller and Romney 1988; Boster and Johnson 1989; Borgatti 1996), lends itself particularly well to highlighting similarities and differences that items being sorted have vis-à-vis other objects. Moreover, it had the added advantage of ease of administration; avoided the risk of deep cuing from the interviewer and; as other techniques commonly used to elicit mental maps (Bougon, Weick et al. 1977; Laukkanen 1994), allowed for comparison and aggregation of cognitive structures. While some authors have pointed at a number of shortcomings that this technique may present (Morgan 1987; Hodgkinson 2005), I deemed it the most appropriate data collection technique for this project.

The mechanics of pilesorting may vary depending on the object of study and the research question. For this study, each respondent was presented with a deck of cards. Each card had the name of one organization. The respondent was then asked to classify the cards following a two stage process. First, she had to make two piles; one with those organizations that she was familiar with and another one with those she did not know. Then, the respondent was asked to split the pile of the organizations she knew into several piles according to how similarly she perceived these organizations to behave. Respondents were allowed to make as many or as few groups as they needed and they could also make single-card piles.

Once the piles were defined, the respondent was asked to provide one or several 'labels' and a short explanation of the characteristics of each pile. Next, she was asked to explain the main differences she saw between groups.

The NGO card deck employed for this exercise contained the names of 65 NGOs. The criterion for selecting which NGOs to include in the card decks, among the 2000-plus estimated to operate in Ecuador, was the result of a free-listing¹⁷ exercise carried out during the first phase of this research. The over one hundred NGO names that came out of this exercise were then sorted in descending order according to how frequently they had been mentioned by my interviewees. The cutoff point (65) was chosen based on two

¹⁷ “[this] technique basically consists of asking a small set of respondents (say 30) to name (or, ideally, write down) all items matching a given description. Once the data have been collected, a number of analyses are possible. Often, the purpose of the free-listing task is to obtain a set of terms to be used in additional data collection tasks, such as pilesorts and ratings or rankings”. Borgatti (1996)

criteria: frequency and ease of administration. While no clear ‘elbow’ was detected in the frequency distribution, organizations beyond position 65 were mentioned by only one of the interviewees. This number was also considered large enough to provide a rich discussion of the NGO sector while keeping within the time limits of the expected average interview length.

A total of 34 NGO managers from 30 organizations performed the pilesorting exercise. Most of the NGO managers interviewed were the managing directors of the organization or had been working with that particular NGO for at least 3 years. The pilesorting exercise was administered as a part of a more comprehensive interview. The average length of an interview was 2 hours; 32 of the 34 interviews were recorded. The Organizations Appendix 1 provides the list and characteristics of the organizations in the card decks. A Methodology Appendix available upon request explains, with a great level of detail, different aspects of how the technique was applied, how the data were stored and processed and how different constructs presented below were built from the raw data.

Comparing classification rules and classification outcomes

In order to assess the degree of variance of the classification rules held by managers and the variance of the actual partitions managers produce in application of these rules, I follow a three step process. First, I construct two measures of closeness, one for classification rules and one for classification outcomes, between each pair of respondents. Next, I calculate the degree of coreness (Borgatti and Everett 1999) of each respondent

along each one of these measures. This construct helps determine how “mainstream” a given respondent is with regards to the classification rules she espouses and the use she makes of these rules. Finally, respondents are plotted on a single chart according to their coreness scores. If, as hypothesized, cognitive structures do not perfectly match cognitive outcomes, this last plot should present a dense cluster of respondents in the “highly prototypical rules-highly prototypical outcomes” quadrant but should *also* be populated in the remaining three quadrants of the chart.

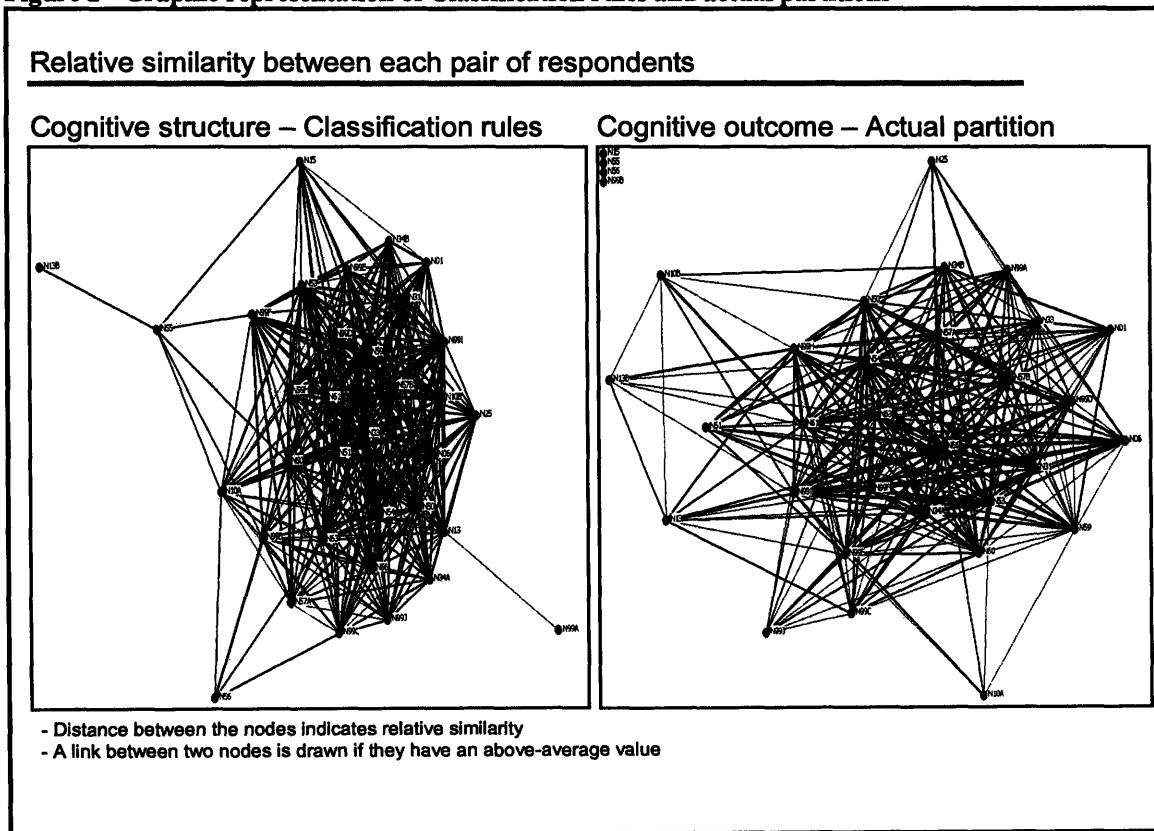
In order to measure the degree of similarity between the classification outcomes of any two respondents I compare the degree to which they have made similar *piles*. A detailed explanation on how this measure is built is provided in Appendix 2. The final outcome of this process is a respondent-by-respondent matrix that indicates the degree of similarity that between each pair of respondents according to how they classified the deck of cards. This measure ranges between 0 and 1, with 1 indicating that a particular pair of respondents made exactly the same piles, and 0 indicating that they sorted the cards in completely different ways.

The extent to which the classification rules held by any two respondents differed was measured by comparing the *labels* they employed to describe the piles. The idea here is that to the extent that two respondents use the same concepts to classify a set of objects their classification rules will be more similar. Appendix 3 explains in detail the process followed to produce this measure. As in the previous case, the main output is a respondent-by-respondent matrix indicating the relative similarity between each pair of

respondents' classification rules. Here, too, the potential range of values varies between 0 and 1, with 1 indicating perfect overlap and 0 indicating no overlap.

Once the two proximity matrices have been calculated, it is necessary to see whether pairs of respondents that happen to hold similar cognitive structures –partition rules- in fact produce similar partitions. Graphically, this amounts to compare whether a given respondent occupies a similar position in both the cognitive *structure* network and the cognitive *outcomes* network. See Graph 1.

Figure 2 - Graphic representation of Classification rules and actual partitions



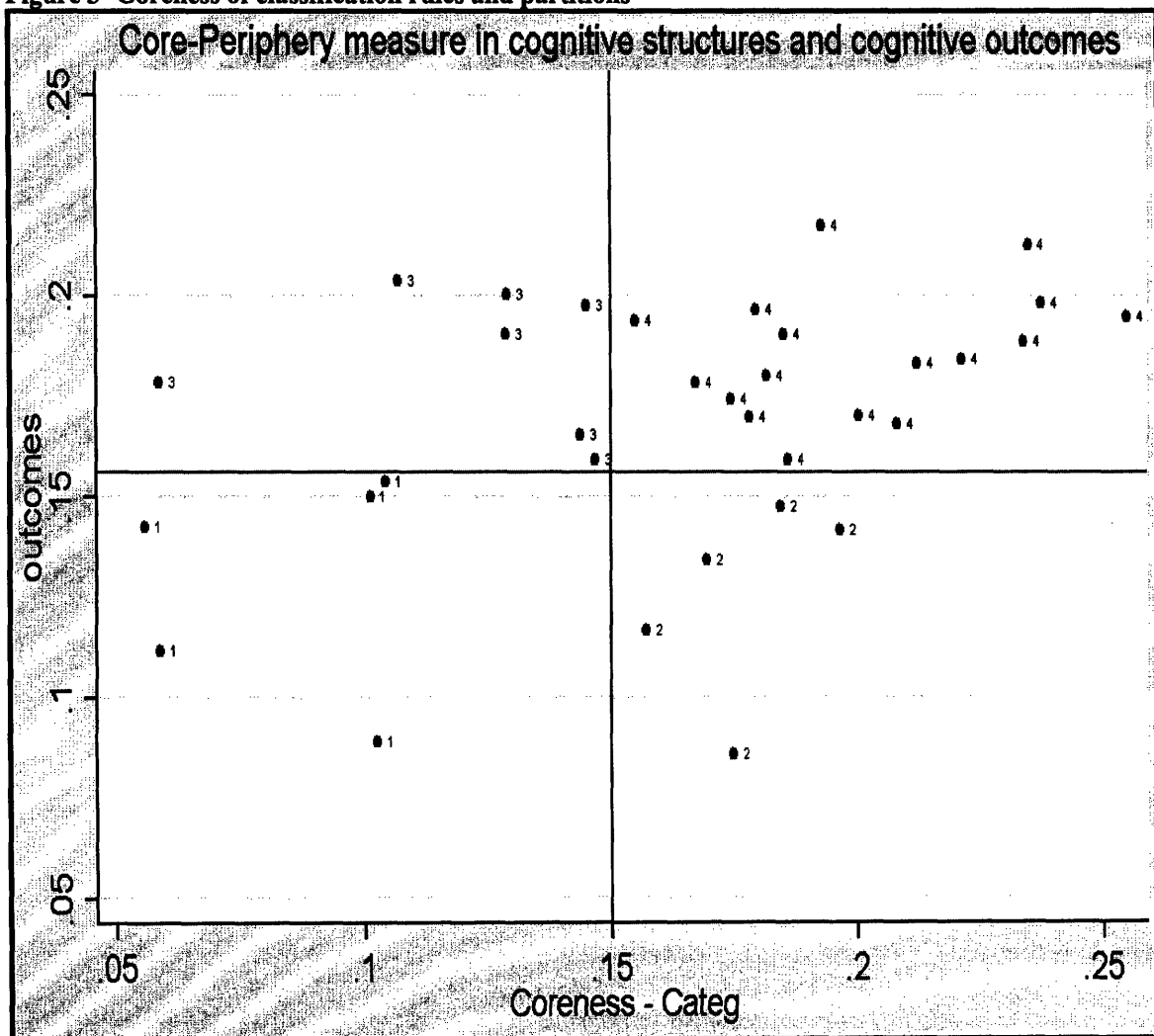
Since we are interested in evaluating the degree to which a respondent espouses a mainstream or a peripheral view in each network, I calculate a measure of “coreness” (Borgatti and Everett 1999) that estimates the degree to which each actor is located close to the core or in the periphery of a given network. While this is a continuous measure that ranges between 0 and 1, it is also possible to categorically determine whether a given respondent is part of the core or the periphery. This is done by identifying the local maximum to which the network resembles a pure core-periphery structure. In this case, the core for the classification rules measure is formed by 22 respondents and the core for the actual partitions is formed by 29 respondents. A respondent happening to form part of the core on both measures will be classified as a member in the upper left corner in Table 1. That is, she will conform to the standard convergence story. If, by contrast, a respondent is peripheral on at least one dimension, she will be classified in one of the other quadrants in Table 1 and be considered an anomaly.

This exercise, therefore, will allow us to test whether our hypothesis is supported or not. To recap, the hypothesis tested here is that all four quadrants of Table 1 may be populated at any given time by members belonging to the same organizational domain. The results of this exercise are presented in graph 2.

The horizontal axis in Graph 2 plots the degree of coreness of each respondent along the cognitive structure dimension. Respondents to the left of the vertical line are deemed to be peripheral while those to the right of the line are part of the network core. That is, the classification rules employed by the 22 respondents to the right of the line are viewed as

forming a relatively tight core while the other 12 respondents' classification heuristics are notably different from those used by the majority of the interviewees. Similarly, the Y axis provides a measure of how mainstream the actual partitions of a respondent in the sample were. Those above the horizontal line form part of the core and those below, the periphery.

Figure 3- Coreness of classification rules and partitions



The upper right corner, respondents labeled "4" represent the standard perspective on industry structure; they share a homogeneous set of classification rules and apply them in

roughly the same way. Respondents tagged as “3”, by contrast, use different heuristics to classify the organizational domain but come up with a similar partition than that of the majority. Respondents tagged as “2” share the same classification rules as the majority of the sample but employ them in a different way. Finally, respondents tagged as “1” neither use the same classification systems nor produce similar classifications of the organizational domain.

Important as it is to show that there is a notable range of variation among respondents on each one of the dimensions, it is also central to note that there is less than perfect overlap in the variation patterns of both dimensions. A perfect overlap would signify that actual partitions differ from the norm to the extent that the classification rules employed by an interviewee diverge from those held by the majority. Graphically, it would translate into all respondents being located along the secondary diagonal on graph 2 –from the bottom left corner to the upper right-. However, 11 of the 34 NGO managers interviewed fall in the upper left and bottom right corners indicating that both commonly held assumptions, uniformity of classification rules and unproblematic use of these rules, need to be revised.

The results shown above lead to one of two possible conclusions. One interpretation would be that the organizational domain that has been used for this study is still in flux. If that were the case, extant theory would argue, the anomalies that have been detected would disappear as social actors interact. If, by contrast, this organizational domain is deemed to be a stable one, then the standard theoretical explanations should be expanded so that they accommodate the new evidence.

As explained above, the history of Development Organizations involved in the exploitation of Amazon oil in Ecuador is long and central to the mission of many of these organizations. The geographic boundaries where these actors operate are relatively small and most have offices in the new part of Quito, the capital. In addition, there has not been, in the last few years, any galvanizing event that has fundamentally changed the dynamics among the development organizations present in the country or between the organizations and the oil industry. Finally, all of the interviewees are veterans in the Development sector, most tracing back their involvement with social and environmental issues to their early university years. All these reasons lead one to think that the Development Sector in Ecuador is not an organizational domain in its first, shaky phases of formation, or one that is undergoing deep institutional change. As a consequence, the situation depicted in Figure 2 is one that requires a different kind of explanation. Such an explanation, rather than contradicting the traditional convergence argument, should complement it by explaining the reasons and purposes that lead half of the respondents in this study to hold perspectives of their organizational domain that are at odds with those of the majority.

In the remainder of this paper I address two problems that emerge from the results shown above; problems that I dubbed the ‘coexistence problem’ and the ‘aggregative problem’.

Section 2 – The coexistence problem

Why do people working in the same field hold significantly different heuristics to make sense of their organizational domain? And, how does one explain variance in the application of similar classification rules?

In order to answer these questions, I collected data about the interviewees and the organizations where they worked through a semi-structured interview that followed the pilesorting exercise. These data were complemented through secondary sources with information about the origins and main projects developed by the NGOs in the card decks. Finally, an abundant literature about the economic, social and environmental impact of the oil industry in Ecuador in the last 30 years was also reviewed.

The main proposition is that the variance in cognitive structures and outcomes reported in section 1 is not coincidental. Rather, it responds to a combination of individual and organizational factors that reinforce each other and provide meaning, identity and resources to the actors involved in this organizational domain. These sources of variation are (1) triggering experiences, (2) initial identification, (3) area specialization, (4) social construction of identity and (5) strategic use of organizational identity. Some of them work at the individual level, some at the organizational level, and most take place simultaneously. Let us revise them in turn.

A first source of variation seems to emerge from the diversity of circumstances that led respondents to become part of the development sector in Ecuador. Consistent with other

studies (McCarthy and Zald 1977; Powel 1987), I found that the main motivation leading to the decision to work in the development sector was rooted in either (1) the personal experience of acute grievances, (2) the identification of an opportunity to solve a public problem, or (3) the realization that one's capabilities could be applied in a different domain. The particular circumstances surrounding these *individual* experiences and the intensity with which they were lived by each interviewee varied widely. For example, one of my respondents, Mario, first arrived in Ecuador as part of a research team that wanted to study the prevalence of various kinds of cancer among the indigenous communities in the north of the Ecuadorian Amazon. Beyond the findings of the study, which indicated increasing prevalence in direct proportion to the proximity of settlements to oil wells, what gripped Mario were the dire conditions in which these communities lived and the abuse and manipulation that oil companies and government officials exerted on the population. He explains:

'there was the case of this woman who had lost two daughters because of oil related health problems, but the company kept telling her that "we do not pollute", that "black waters are not bad", that "you can drink them safely because they have proteins and vitamins and maybe even milk, because it has foam" This was unbearable to me.' (Mario – 8/2005)

Another case, that of Sergio, embodies situations where victims decide to take action in order to improve their living conditions, or claim restitution for the damages suffered. After decades of enduring environmental pollution derived from oil exploitation in the region, Sergio and a few colleagues started to explore the creation of a victims association that would sue one big international oil company. Soon after, harassment from the army forces in the region, beatings and death threats escalated, which only

reinforced their determination to push ahead with the project. Years later, the security situation has not changed much and his organization recently had to make public calls to the government and the OAS¹⁸ to protect its leaders.

Still a different case is that of Belen, who as an undergraduate biology student carried out extensive field work in the Amazon. Her fascination for the natural environment and what she saw as the combined threat of the extractive and logging industries, moved her to abandon scientific enquiry and help the indigenous communities organize into powerful federations.

It was as a consequence of these individual experiences that my respondents related their decision to make of development work their main life activity. While some saw this as a ‘calling’ or a ‘moral duty’, others explained it merely as a way of ‘making a living working on what I feel is right’. Short of romanticizing their choice, they were aware of the fact that, frequently, their decision came at the cost of lower paychecks or the frustration of being regularly overpowered by stronger institutional actors or by the sheer magnitude of the task they were undertaking. In all cases, however, this triggering experience strongly marked the worldviews of these individuals, causing them to hold significantly different perspectives of the structure and workings of their context even many years after these events took place.

Independently of the particular triggering experience, all respondents mentioned that they soon became aware that development work was not fit for single-person efforts and that

¹⁸ OAS – Organization of American States

they would need to either join an existing organization or start their own. Selecting which NGO to join was far from a detached, neutral, contrast-and-compare process by which respondents matched their personal goals with those of a given organization. It was much more than this: in addition to working in the geographic or sectoral area of their interest, the right NGO had to have what a respondent called 'a soul that matches mine'. By this she meant that she needed to identify not only with the specific work that the organization carried out, but also with the values of the NGO, its strategic repertoire (Zald 1996; Tarrow 1998) and, often, where its sources of funds came from. This matching process is important for the argument of this paper because it helped cement an individual's particular perspective of the world by choosing the organization that better mirrored her values among all the potential organizations that she could have chosen.

This initial choice was not, however, a once-and-for-always decision. In fact, if the level of identification with the organization (Ashforth and Mael 1989; Mael and Ashforth 1992) was not deemed sufficient by the new recruit, she would soon leave or be leaving it:

"I am leaving [this NGO] next week (just a few months after joining it). I will be working for [another NGO]. I came here because I thought I could do great things in this area [economic development] but this organization happened to be just a platform to develop the political career of the people in the executive committee". Mercedes 3/2006

"[Name of NGO] was formed when a few of us, at the time at [another NGO], became increasingly frustrated with the issues that were taken on and the means they were employing. Mario 3/2006

While the original triggering experience and the decision to join a particular NGO have been explained as separate processes for narrative clarity they are frequently intertwined.

Consistent with MacAdam (1989), joining a given non-profit organization seemed to be strongly related to previous social interaction with one or several of its members. In this respect, a good number of my interviewees traced back their flirtations with the development world to their university years.

A third factor explaining the resilience of differing worldviews in a given domain stems from the fact that just like other kinds of organizations, NGOs organize their human resources either by project, function, geography or level of responsibility. This specialization of resources means that even individuals in the same organization may be exposed to very different topics and actors all of which would be considered to operate within the boundaries of the same organizational domain. At the time of the writing of this document, for example, Acción Ecológica (AE), one of the prominent NGOs in the country, was dedicating its 20-odd members to 12 official campaigns. AE defines itself as:

“We are a horizontal organization. That is, there are no hierarchies and all decisions are made at the collective level. There are no official charges (other than administrative functions) and each member coordinates one campaign”
(www.accionecologica.org , 3/12/07)

In such a flat and small organization one would expect information to be shared quite homogeneously. However, the depth and level of detail provided by its members during the interviews varied significantly depending on whether it was “their” campaign or someone else’s. While some of the campaigns such as “Forests”, “Biodiversity” or “Oil” overlap geographically and involve some common institutional actors, others such as

“Free Trade Agreement” or “Cities” are fought in different fora with different types of counterparts. As a consequence, it was not surprising, that the degree of familiarity with particular areas of the organizational field varied slightly even from member to member in the same organization, let alone between respondents working for different NGOs. In addition, it is not unusual that two different NGOs are in sync on one particular issue and at odds on another. To the extent that both issues were managed by different people in each organization, it would be likely that they produced different classification rules and partitions in the piling exercise.

A fourth factor, the ongoing social construction of the organization’s identity, helps explain how differences in perspective across organizations originates and persists. At the same time, however, this process tends to reduce the differences in worldviews within the boundaries of any particular NGO. Defining ‘who we are as an organization’ (Glynn 2007) is particularly important for NGOs due to the fact that, as argued above, its members generally seek to strongly identify with the values and ways of the organization. I found that two main mechanisms were used to build and continuously strengthen the organization’s identity. The first one involved making sense of one’s own behavior through public, informal and collective storytelling and discussion. This process helped to periodically re-affirm and re-define two of the central elements of an organization’s identity: that that was ‘central and enduring’ (Albert and Whetten 1985). An example of how this mechanism operates is provided by the reactions elicited by the news of the construction of the OCP; a controversial 500-mile pipeline completed in 2003. Mario described that the way they took a stance with regards to this project was “the usual one”:

“the first thing we did was to look for information [...]. Then we analyzed it, discussed it [amongst the members of the NGO] and evaluated what the main implications were. We found out about the legal status of the project –whether [the company] was allowed to build it. We analyzed who the actors were, [...] what the role of the chosen contractors; where the funds come from, etc. This is how we decided what our position [with regards to the project] would be, and this is how we decided to launch a campaign [to stop the construction of the OCP] at the local, national and international levels” (Mario, 08/2005)

Further, the various negative incidents that peppered the construction of the pipeline were frequently mentioned during the interviews to prove the correctness of their initial analysis and their opposition to the project:

“we reported on the enormous risk that [the OCP] crossed the Papallacta area. We are not prophets but we’ve been right all along. [...] just in this area there was a spill that left 800.000 people without potable water. [...] on two occasions they lost radioactive containers in the river [...].”

It is interesting to note that in contrast with the traditional literature on identification, an organization’s defeats, not only its victories, were interpreted in a way that highlighted the value of their efforts and that reinforced their determination to keep plowing on with their struggle.

We knew it would be difficult to stop it [the OCP]. But then we realized that our measure of success should be the level of [community] organization that we could promote with our resistance. That is, if we finally got the people to be aware and well organized to oppose this [oil] activity... that was a success”

The thorough opposition of Mario's organization to the project contrasts with that of Clara's. Her organization was never against the construction of the pipeline *per se*. Their opposition to the project was based on the particular route the company had chosen because it crossed some pristine regions that housed a number of protected species. Interestingly, Clara's organization ended up collaborating with the company promoting the OCP by proposing micro-variations to the original route in the most sensitive areas and monitoring its implementation. This, however, required her and her colleagues to re-assess what their principles were, their approach to dealing with firms, how to work effectively in conjunction with the type of organization that they had traditionally fought against, and accept the fact that the benefits derived from their change of policy would outweigh the criticisms that other NGOs would, undoubtedly, wage against them..

"we were used to use scientific information to make our radical claims. It took us a big effort to understand that in order to work with them we needed to give solutions in the field to the problems that were encountered at that moment in the field. [...] I don't know how other NGOs work but that [providing solutions] was definitely not our original style. [...] it was also needed that we were in constant contact with our people in the field to decide, on the spot, what we considered (morally) acceptable trade-offs. [...] . Clara 8/2005

As in the previous case, collective sense making through storytelling and discussion helped this organization come to grips with the re-construction of its identity. Also as before, little victories and improvements on what would have happened had they not changed their approach, were highlighted to emphasize the appropriateness of their decision.

“I have the impression that it ended up being a good work. [...] it was impressive to see a right of way of only 6 feet in the area we monitored; especially if we compare it to the more than 40 feet in some other areas.” Clara 8/2005

As is apparent from these two examples collective sense making within the organization may lead to even out worldviews within the organization while reinforcing differences across NGOs.

There was also ample evidence during my interviews, that the third element of an organization’s identity, distinctiveness, was very actively pursued. Identity building, thus, was not just a matter of stating one’s official mission or a process of collective sense making. It was also a matter of positioning one’s organization vis-à-vis the remaining actors in the organizational domain. As Rovik {, 1998 #89} would put it,

“Comparison is a central process in relation to developing an identity. Identity is created by comparing oneself with – and by being compared with- other entities. Identity is therefore a relational phenomenon. It is always defined in relation to someone or something. (p 13)

Perhaps the clearer instances in which this process comes to the fore is when several NGOs coalesce to oppose a particularly important project or push for a given policy. When this happens, who one claims closeness to is as important as who one distances himself from. In commenting on other groups with whom they had collaborated in the OCP campaign, Mario offered that:

“we collaborated with Puntos Verdes in Mindo, and with a group called Accion por la Vida, also from the Mindo area. And those were the only ones worth a dime, the only ones we could work with because all the others, you know?, put a price to their level of commitment [to fight against the project]” Mario 8/2005

In a similar way, Clara also pinpointed who their original affiliations were and very explicitly referred to how, in changing their stance, they had made themselves less attractive partners for some other NGOs in future projects.

One last factor explaining why diverse cognitive structures coexist is that NGOs are particularly aware of the importance of strategically using their identity (Brewer 1991). The link between identity and cognition stems from the fact that an organization’s identity is as much a reflection of its most profound values as a means for the organization to secure resources for its survival. When organizational actions to secure resources are at odds with its values or with contextually legitimated norms (Pedersen and Dobbin 2006), organizational members “use cognitive tactics to maintain positive perceptions of their social identities” (Turner 1987). That is, cognitive structures should be conceived as extremely malleable mechanisms employed by members in the organization to build the organization’s identity and justify particular lines of action even in the face of strong legitimacy threats (Elsbach and Kramer 1996).

The reason why developing a distinct organizational identity is particularly important for NGOs is that, in contrast to for-profit organizations, which have in competitive markets a measure of the value of the products and services they produce, the fruits of most NGOs’ work are difficult to evaluate. In many cases the results of their efforts are intangible

public goods such as the preservation of a tropical rainforests or the “capacitation” of rural communities. On other occasions, the problem lays in evaluating the cost-effectiveness of the programs implemented or, more controversially, judging the appropriateness of a given course of action when achieving one social good comes at the expense of a social evil. For example, some programs of land purchase for conservation purposes have been criticized for displacing indigenous communities and obliterating their traditional way of life. Whatever the particular case, the issue of properly assessing the value of the efforts of a particular NGO has proven a challenge for NGO executives, donors and policymakers alike. In order to address this problem, the donor community has increased its oversight of the workings of NGOs through stricter planning, measuring and monitoring of the projects they fund (Weisbrod 1989; Rosenau and Linder 2003; Reeves and Ford 2004; Micheli and Kennerley 2005; Mottner and Ford 2005).

Nevertheless, maintaining a strong and distinct reputation remains very much an essential mechanism for NGOs to secure some of the resources they need for their survival; namely, the capacity to recruit and retain members, access to donor funds, and partnerships with other organizations –firms or other NGOs. It is important to highlight here that given the multiple objectives, values and capacities of donors and potential partners, there is not one best image that NGOs need to project. In a way of speaking, the market for reputation has multiple local maxima.

In the context of the development sector in Ecuador, where funds from foreign foundations and governments had been significantly decreasing in the last few years, numerous NGOs were in the process of more openly partnering with corporate actors to

access the funds needed to fulfill their missions and, in the process, assure their organizational survival. This move, however, presented two challenges. First, NGOs needed to become attractive partners for corporations. Secondly, they needed to convince the members of their own organization and the NGO community at large that they had not “sold out”. This was generally achieved through two mechanisms that worked at different levels. On the one hand, they created processes to prove both internally and externally that the legitimacy of the organization remained intact. Luis, the CEO of an important environmental NGO commented

“our institutional policy with regards to private actors and our involvement with them in projects is one of... high suspicion. [...] but we have had to match this with the economic reality of our country and the real capability of organizations like ours to get funding. That’s why we have partnered with them. But *never* with oil or logging companies. [...] when we do collaborate it is only after a serious ad hoc process of due diligence [...] we need to make sure that we are not making a pact with the devil!! Luis 8/2005

On the other hand, however, the light under which originally not-so-legitimate partners and one’s own actions were interpreted started to change. Laura offered

“what originally started as a technical study became a good working relationship with the consortium. [...] it was rocky (confrontational) at the beginning but eventually our opinions were heard and our requests implemented [...] once we established this professional relationship everything went on wheels” Laura 8/2005

Having briefly reviewed the factors explaining why different cognitive structures may coexist in a particular domain it is pertinent to take a second look at Figure 2 and examine the position of each interviewee from the perspective of these sources of

variation. Let us start by reminding that this graph plots each respondent along a measure of how core their cognitive structures and partitions are. As such, respondents located to the left and below the straight lines are far from the core. However this does not necessarily imply similarity among those respondents. That is, two respondents may be peripheral but for completely different reasons. However, it is interesting to note that respondents outside the core, those labeled as 1, 2 or 3, share some characteristics with other respondents in their respective quadrants.

Respondents in the lower left quadrant, those that are peripheral both in terms of cognitive structures and actual partitions, include respondents working for NGOs that are staunchly opposed to the expansion of the oil frontier in Ecuador. While their triggering stories vary widely, these respondents described in quite dramatic terms a picture of oppression and need for urgent counter-action as the main reason for their involvement in the development sector. It is interesting to note that in the pilesorting exercise the rest of the respondents tended to put the NGOs these individuals are working for in the same pile and describing them in terms of “radicals”, “bad boys” and, interestingly, “important role”. Another common characteristic of respondents in this quadrant is their tendency to use criteria such as the moral worthiness and trustworthiness of other the NGOs to carry classify them.

Many of the respondents in the upper left quadrant, by contrast, seem to be among those taking a more open stance towards collaborating with firms, although not necessarily oil firms. To a lesser extent than the previous group, the NGOs of respondents in this

quadrant were also seen by other respondents as similar, using terms such as ‘consultants’ or ‘mediators’ to describe them. It is important to mention, though, that this group appears less homogeneous in their ideological make up than the previous group.

Respondents classified in the lower right quadrant represent those that hold a set of classification rules similar to the majority of the sample but apply them in a non-standard way. What they have in common is, perhaps, that their organizations use legal strategies to a larger extent than many of the other NGOs in the card decks. Also worth noticing is the fact that two of these respondents worked for a long time in the same organization.

Finally, the upper right cell contains what could be called ‘the mainstream respondent’. This quadrant, containing half of the respondent’s I interviewed, is far less homogeneous than the previous three but, interestingly, contains some of the larger and more established –moderate- NGOs in Ecuador as well as all the interviewees working for large international environmental NGOs.

In this section I have pointed at a number of factors that help explain why different classification heuristics may come to exist and persist in a given organizational domain. Some of these factors promote variation at the individual level. Some others tend to homogenize perspectives within NGOs while exacerbating differences across organizations. Except for the triggering experiences, all these forces act in simultaneity with each other and with the broader set of forces that, as emphasized by the dominant perspective in the literature, lead to the convergence of the cognitive structures of the

actors in a given domain. All this is not to say, obviously, that the standard story does not hold or that once an individual espouses a peripheral cognitive structure she will always remain an outlier. Rather, the objective pursued here is to complement the standard story by acknowledging dispersion, and to provide an explanation of why convergence of worldviews may not be achieved even in stable organizational environments.

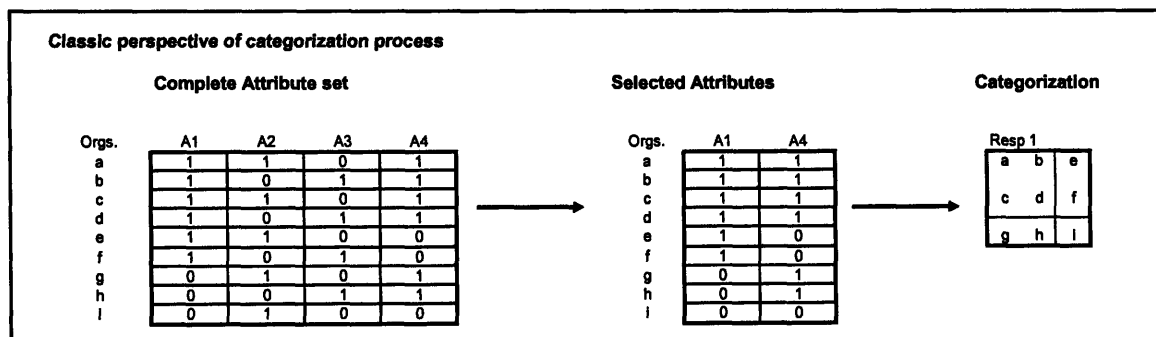
Section 3 – The aggregation problem

If, as seen in Section 1, different groups of people in a given domain use different sets of categories to make sense of their environment, what is then the “real” structure of the organizational domain? And, does this have any implication for social inquiry given the centrality that most social disciplines give to the use of categories in explaining industry structure?

Although both questions are extremely interrelated, it will be useful to address them separately. Let me start by briefly introducing what ‘categories’ by way of a simple model. In the classical conception of the British empiricists, objects were defined in terms of the attributes they possessed. In order to belong to a given class of objects, an object had to present the attributes that defined that category (Mervis and Rosch 1981). For example, in order to belong to the class ‘car’, an object needs to have at least the attributes ‘wheels’ and, say, ‘engine’. Of all the objects in the world, then, we can distinguish between those that have wheels and engines –cars- and those that do not. Applied to the problem of classifying NGOs operating in a given domain, this concept

would imply a three step process: (1) determine the attribute profile of each one of the organizations to classify, (2) select which attributes most clearly differentiate subsets of NGOs within the domain, and (3) make the partition. This process is schematized in graph 3. Let us imagine that an organizational domain is formed by nine organizations, labeled from 'a' to 'i'. Further, each organization is characterized by four dichotomous attributes such as 'nationality' –local, foreign-, 'size' –big, small-, 'sector' –environment, human rights-, and 'stance' –radical, moderate-. Given that each organization has a different profile, a particular respondent will select those attributes that in her view most clearly produce groups that are internally homogeneous and as different from each other as possible. In this case, a respondent selecting attributes 1 and 4 would obtain four mutually exclusive (2^n) groups.

Figure 3 – Categorization process



This is simplified but widely shared perspective of what categories are and how we use them rests on two important assumptions. The first one is that categorical boundaries are well defined. In this case, defining attributes as dichotomous produces, by definition, four mutually exclusive groupings. Overly simplistic as this conceptualization may seem, it is widely employed in social science research. As (Rosch and Mervis 1975) put it 'most

traditions of thought have treated category membership as a digital, all-or-none phenomenon'.

The second assumption is a consequence of the one just stated and could be described as follows: 'given that categories are seen as determinately established by necessary and sufficient criteria for membership, then any member of the category should be cognitively equivalent qua the category to any other member' (Mervis and Rosch 1981). In the example above, we would consider 'a' as representative a member of its category as 'b', 'c' or 'd'; knowing one of them provides a perfect picture of the aspect of the others. The reason for making these two particular assumptions explicit is that, as will be seen later, different disciplinary approaches have challenged them to varying degrees.

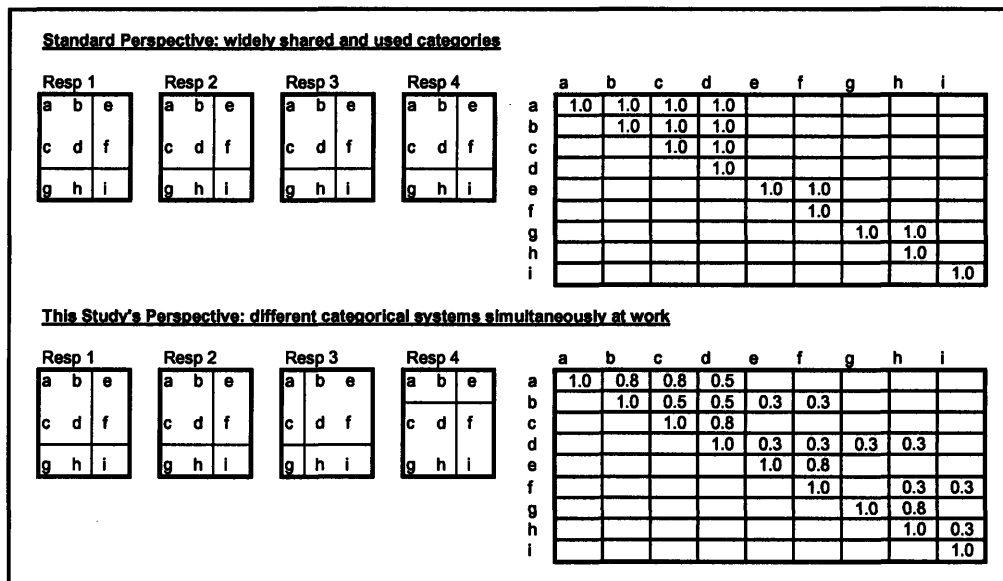
Having briefly reviewed how categorization works at the individual level, let us model the aggregative process that will define the structure of the organizational domain.

Consider we ask four individuals working in this field to group these nine organizations according to their similarity. If, as the dominant perspective would argue, social interaction between the members of this domain has led them to converge on the use of a single set of categories, we should find that all four respondents come up with very similar partitions. This would be the case reported in the upper panel of Figure 4. That is, we would find that {a, b, c, d} are in the same group; that {e, f} and {g, h} are always together; and that {i} always appears in isolation. In other words, the probability of an association between 'a' and 'b', 'c' or 'd' is always 1. Conversely, the probability of association between 'a' and any other organization will be 0. The matrix on the right side

of the upper panel in Figure 4 reports the probability of an association among any pair of organizations in this domain. If this were the case, the “true” structure of this organizational domain would unquestionably be formed by four distinct, unconnected sets of internally equivalent organizations.

The stylized description of the findings presented in Section 1 provides a different picture. In contrast with the previous approach, not all respondents use the same set of categories to classify the field. For the purposes of this simple example it does not make a difference whether our respondents use different sets of categories or the same set of categories but in an imperfect way. Nevertheless, in real life both effects would compound. One way or the other, the result is that we no-longer obtain a clear-cut partition of the field; the probability of an association between any two organizations may now present values other than 0 or 1. The matrix on the lower part of Figure 3 reports that the probability that a given respondent considers ‘a’ similar to ‘d’, for example, is now only 0.5. As is readily apparent, the extent to which both perspectives overlap will depend on the number of individuals that do not conform to the norm, and on their degree of non-conformity.

Figure 4 – Mainstream approach vs. Variance approach



In sum, and finally addressing the first question at the beginning of this section, the findings of this study suggest that the ‘true’ structure of an organizational domain cannot be portrayed in deterministic terms. Rather, thinking of the structure of a domain in probabilistic terms is more likely to represent accurately the relative position among the members of that domain. Moreover, notice that this fuzzier portrayal of the structure of an organizational domain takes place even under the simplistic assumptions described above regarding how individuals carry out categorizations.

With regards to the second question, it is important to note that most disciplinary approaches interested in the study of organizational domain structure have used categorization techniques as part of their basic toolkit. However, to the extent that they accept or challenge the assumptions described above, they may come up with significantly different views of how an organizational domain is structured and, as a

consequence, with different inferences about its workings. In order to explore the implications that the findings of this paper has for different disciplinary approaches, I start by providing a highly stylized explanation –actually, a caricature- of how Industrial Organization (IO), Economic Sociology (ES) and Social Psychology (SP) scholars have conceived and used categories in relation to organizational domain structure.

Classic problems addressed by strategy scholars that subscribe to an IO tradition include finding out whether firm profitability varies significantly across industries (Schmalensee 1985; Wernerfelt and Montgomery 1986; Rumelt 1991; McGahan and Porter 1997), strategic group (Cool and Schendel 1988; Barney and Hoskisson 1990; Cool and Djerickx 1993), and type of diversification (Chatterjee and Wernerfelt 1991). Similarly, international management scholars have explored whether firm performance and knowledge acquisition varies across geographic expansion strategies (Denis and Depelteau 1985; Capar and Kotabe 2003; Contractor, Kundu et al. 2003; Makino, Isobe et al. 2004). The common denominator of these studies is that given a set of objects -in this case firms-, researchers impose a classification structure on this domain (belonging or not to a given industry, following one particular kind of international expansion, etc.) to find out whether members within and across groups behave in similar or different ways in terms of a measure of interest (profitability, degree of innovation, etc).

Scholars in this tradition conceive organizational attributes as ‘digital’, categories as mutually exclusive, and objects within categories as equivalent. Traditionally, these researchers have used industrial classification systems (NAICS, SIC), national accounts,

generic organizational attributes or strategies, or broad political and geographic borders to pigeonhole their objects of study into categories. The *a priori* advantage of these kinds of studies is that they allow for large numbers of objects to be classified and analyzed, providing high validity and potentially meaningful statistical significance tests. However, this approach generally comes at the cost of sweeping generalizations across contexts, and strong assumptions on the relevance and appropriate weight of particular attributes as classification criteria.

A more recent strand of management research, sociologically inspired, has implicitly challenged the assumption of object equivalence by exploring the implications of more or less clearly conforming to well established categories. (Zuckerman 1999) finds that firms not clearly identifiable as belonging to a particular industrial sub-sector see their stock valuation penalized. Similarly, studies on typecasting in the cinema industry (Zuckerman and Kim 2003) portray an actor's type not as a dichotomous but a continuous variable along which her value is assessed by talent agents and headhunters. Other studies in this tradition have considered how transitions from one classification system to another take place. For example, (Rao, Monin et al. 2005) explore the transition from traditional to nouvelle cuisine in France, highlighting how classifying a given chef may involve different degrees of 'traditionality' and how this may influence its value in the marketplace.

In contrast to the previous approach, attributes are no-longer dichotomous variables but are allowed to take multiple values. What is more, slightly different mixes of attributes

may still lead a particular object to form part of a given category. The frequently used metaphor here is that of family resemblance (Rosch and Mervis 1975; Medin and Wattenmaker 1987; Ward, Vela et al. 1990): the members of a given class do not need to be 'clones' but do have to appear as belonging to the same family of objects. As a consequence, categories are thought here as being porous and partially overlapping, and class members, rather than being perfectly equivalent, are imperfect representations of their category's 'ideal type' (Rosch 1975).

This approach also presents its advantages and shortcomings. On the positive side, use of categories is much more aligned with recent findings in cognitive psychology about the ways in which humans process the information available in their environment. For example, it has been found that individuals pay more attention to some attributes than to others when categorizing a given set of objects; attributes that are seen as carrying more relevant information are given more weight. When researchers choose to use attributes such as "traditional vs. nouvelle", "Hollywood vs. independent" or "grape variety vs. region", they are implicitly attributing disproportionate salience to a particular attribute of the objects they are classifying. To the extent that the chosen variables are public and widely shared and used by the members of a given domain, they are likely to produce more accurate perceptions of the true socially constructed structure of the domain. The main shortcomings of this approach are readily apparent when widely institutionalized cleavages are not present. This is particularly worrying if we consider that in most instances of social life there are no such clear divides and, yet, people develop their own particular, idiosyncratic and highly context-specific heuristics to classify objects and

make sense of the world around them. However, when such widely shared attributes exist, they are commonly captured in the form of directories and almanacs. The notable difference with the classifications systems typically employed in the previous approach is that those are defined in a top-down fashion by public authorities. By contrast, many of the compilations employed by authors in this tradition emerge as a result of everyday use.

Finally, a third lens on the use of categories in management research is provided by scholars in the social psychology and managerial cognition tradition. While much of the research in these fields has focused on what happens within the boundaries of the firm, a growing level of attention has been drawn towards the cognitive underpinnings of inter-organizational behavior (Porac and Thomas 1994). Of central concern for these researchers are the ways in which managers make sense of their competitive environment. (Porac, Thomas et al. 1989), for example, show how the boundaries and structure of the Scottish knitting industry both determine and are determined by managerial perceptions. Other studies (Rosa, Porac et al. 1999; Rosa and Porac 2002) posit that product market structure –the categories in which a set of products are organized- is socially constructed through the interactions between producers and consumers. Finally, the concept of ‘industry recipe’ (Huff 1982; Spender 1989; Abrahamson and Fombrun 1992; Abrahamson and Fombrun 1994) points at how managers simplify the complexity of their competitive environments by classifying their competitors a reduced a number of categories.

Scholars in this tradition differ from the previous two in one fundamental way: the classification systems used by actors in a given domain are seen as being strongly context-specific. That is, categorical systems are conceived as potentially varying widely across domains but widely shared within each domain. As a consequence, these studies tend to emphasize the general processes followed by actors in a specific environment rather than the particular outcomes emerging from interactions among these actors. For example, in Porac et al's work on the Scottish knitting industry, emphasis is placed on the fact that managers pay a disproportionate amount of attention to other regional manufacturers in order to define what 'the industry is like' rather than to analyzing whether manufacturers with one kind of technology or another have a better performance.

Strengths and weaknesses of this approach are also readily noticeable. On the one hand, focusing on small and well bounded contexts provides a much more nuanced view on the origins and dynamics of an organizational domain structure. It is much easier for the researcher to understand the antecedents and the forces driving the structure of the domain they are studying, and to grasp which are the key attributes that actors employ to construct their categories even in the absence of widely shared and publicly stated partitioning criteria. By contrast, the main limitation of this approach is that the structure of the domain under study cannot be assumed to represent the general structure of similar types of organizations in other places or times.

While the differences among all three approaches are significant (see summary in Table 2 in the Appendix), all of them subscribe to the view that, in stable environments, all actors

will share a common set of classification rules and that they will use them in approximately the same way. To the extent that the findings in this study question these assumptions, it is necessary to be open to the possibility that the “real” structure of the domain is blurrier than generally accepted and that it may significantly vary across subgroups in the domain. On a positive note, however, the method employed in this study allows for an integration of perspectives by ‘working backwards’ the usual process followed to determine domain structure.

Integrating approaches to organizational domain structure

The classification problem can be conceptualized as the resolution of an equation of the following form:

$$D_{xy} = \alpha A_1 + \beta A_2 + \gamma A_3 + \delta A_4 + \dots + \epsilon$$

The dependent variable, D_{xy} , would be a dichotomous variable that would indicate whether objects x and y are in the same group or not. A_i can be thought of as vectors of attributes of the objects to be classified –i.e. ‘foreignness’, ‘size’, ‘sector’-. Finally, α , β , γ and δ can be thought of as the classification rules that define the relative importance of each one of these attributes in determining whether two objects are similar or not.

In the classic disciplinary approaches A_i are observed, and the ‘art’ of the researcher consists of determining the appropriate value of the coefficients of these variables. Once

these coefficients –the classification rules- are defined, producing the actual partition is an automatic exercise. By contrast, the methodological approach used in this study obtains the D_{xy} as it is perceived by a sample of respondents in the organizational domain. However, this classification is only available for a subset of objects of the domain.

What this setup allows for is the estimation of the coefficients of A'_i in the following equation

$$D'_{xy} = \alpha' A'_1 + \beta' A'_2 + \gamma' A'_3 + \delta' A'_4 + \dots + \varepsilon'$$

In this equation, the superscripts indicate that we are only using a subset of all the objects that need to be classified; the objects in the card decks. It is important to note that because the values of the dependent variable do not satisfy the independence condition, non-parametric methods have to be employed for the estimation of the model (freeman and Borgatti, 1999).

Once in possession of α' , β' , γ' and δ' it is possible to apply these weights on the full population of objects for which we know A_i . This will result in

$$D''_{xy} = \alpha' A_1 + \beta' A_2 + \gamma' A_3 + \delta' A_4 + \dots + \varepsilon$$

D''_{xy} , the actual classification of all the elements in the population is thus the result of a two-stage process. The first step of this process consists in estimating the aggregate weight that a sample of respondents applies on the attributes of the objects to classify.

The second step makes use of those weights to obtain the classification of the entirety of the objects in the organizational field.

In sum, this process from partition to classification criteria and back to partition can be seen as a way to integrate the different approaches to the study of organizational domain structure. Further, this integration capitalizes on the strengths that these approaches have to offer rather than taking their strengths and shortcomings as unavoidable trade-offs.

Conclusion

This study is centrally concerned with the concept of organizational domain structure; a topic considered of the utmost importance in various disciplinary quarters. One common way to define and study the structure of a given domain is to classify its members in different categories. However, the notion of what a category is and how it comes to be relevant in a given context vary widely.

This paper takes as its starting point the conception favored by scholars in the managerial cognition tradition. That is, relevant categories are seen as emergent, context-specific, imperfectly bounded, and partially overlapping. A pilesorting technique was used to elicit the cognitive structures and actual classifications made by individuals managing development organizations in Ecuador. Using the data thus collected this paper challenges two basic assumptions frequently made by scholars in this camp: (1) that

classification rules are widely shared by actors in an organizational domain, and (2) that these rules are applied in an unproblematic way. By comparing the domain structure arising from stated classification rules with the actual partitions made by my respondents, I provide suggestive evidence of the limits of these assumptions.

Further, using information collected through extensive interviews in the field and secondary sources of data, I propose a number of factors that are likely to produce and maintain variance among respondents' cognitive structures even in the face of strong forces pushing them to converge. It is important to emphasize that this study, rather than contradicting the mainstream literature in this area, aims at complementing it by providing explanations of what otherwise would be seen purely as 'measurement error' or 'a domain in flux'.

Finally, this paper provides a brief review of how categories are used by other disciplines. After highlighting divergences and points of encounter, I argue that differences in the conceptualization and use of categories may lead to significantly different depictions of the structure of a field. This, in turn, can lead researchers to draw widely differing inferences about the drivers explaining the dynamics among the actors in that field. Given that each approach has a number of advantages and disadvantages, it would be desirable to integrate these perspectives in a way that we capitalize on strengths while limiting shortcomings. In the last part of this paper I propose a technique that, while not exempt of methodological compromises, is a first step in the pursuit of such a worthy goal.

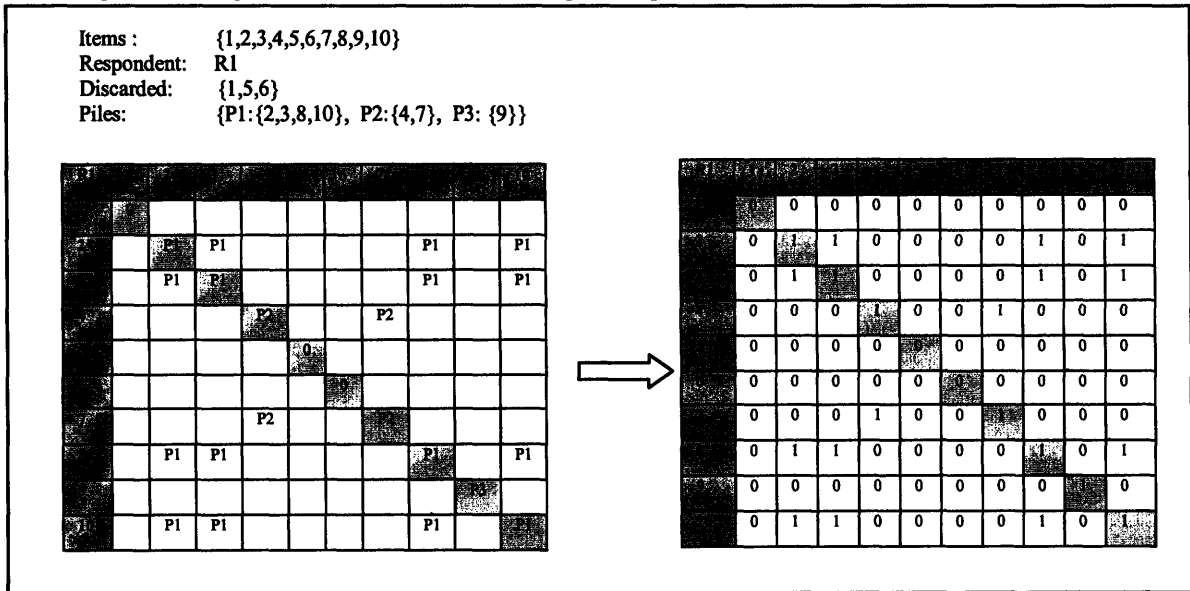
Appendix 1 - Card Decks used in pilesorting

id	label	full label	name
1	AECI	AECI (Ecuador)	Agencia Española de Cooperación Internacional
2	BTC	BTC	Belgische Technische Coöperatie / CTB - Coopération Technique Belge (Ecuador)
3	COSUDE	COSUDE (Ecuador)	Agencia Suiza para el Desarrollo y la Cooperación
4	DED	DED (Ecuador)	Servicio Alemán de Cooperación Social-Técnica
5	FECD	FECD	Fondo Ecuatoriano Canadiense de Desarrollo (Ecuador)
6	GTZ	GTZ	Cooperación Técnica Alemana (Ecuador) [M]
7	JICA	JICA	Agencia de Cooperación Internacional del Japon (Ecuador)
8	Swissaid	Swissaid (Ecuador)	Fundación Suiza para la Cooperación y Desarrollo
9	USAID	USAID (Ecuador)	Agencia Internacional para el Desarrollo [M]
10	CDES	CDES	Centro de Derechos Economicos y Sociales (Ecuador)
11	PUCE-DDHH	PUCE- Laboratorio Derechos Humanos	Pontificia Universidad Católica del Ecuador
12	AbyaYala	AbyaYala (Ecuador)	AbyaYala (Ecuador)
13	Acción Ecológica	Acción Ecológica	Acción Ecológica (Colombia)
14	Acción Social	Fundacion Accion Social Apoyar (FUASA)	Acción Social (Ecuador)
15	AI	AI	Amnistía Internacional (Ecuador)
16	Aldeas Infantiles	Aldeas Infantiles SOS (Ecuador)	Aldeas Infantiles SOS (Ecuador)
17	Ayuda en Acción	Ayuda en Acción (Ecuador)	Ayuda en Acción (Ecuador) [M]
18	BirdLife International	BirdLife International (Ecuador)	BirdLife International (Ecuador)
19	CARE Internacional	CARE Internacional (Ecuador)	CARE Internacional (Ecuador) [M]
20	Caritas	Caritas / SENAPS	Secretariado Nacional de Pastoral Social (Ecuador) [M]
21	CCF	CCF	Christian Children's Fund (Ecuador) [M]
22	CEDHU	CEDHU	Comisión Ecuémica de Derechos Humanos (Ecuador)
23	CEPAJ	CEPAJ	Coordinadora Ecuémica de Pastoral Juvenil (Ecuador)
24	Children International	Children International (Ecuador)	Children International (Ecuador)
25	CLD	CLD	Corporación Latinoamericana para el Desarrollo / Transparencia Ecuador (Ecuador)
26	CRS	CRS (Ecuador)	Catholic Relief Services [M]
27	Cruz Roja Ecuatoriana	Cruz Roja Ecuatoriana (Ecuador)	Cruz Roja Ecuatoriana (Ecuador)
28	DNI	DNI (Ecuador)	Defensa de los Niños Internacional
30	FACES	FACES	Fundación de Apoyo Comunitario y Social del Ecuador
31	FAN	FAN	Fondo Ambiental Nacional (Ecuador)
33	FEPP	FEPP	Fondo Ecuatoriano Populorum Progressio (Ecuador) [M]
34	Fundación Esquel	Fundación Esquel (Ecuador)	Fundación Esquel (Ecuador) [M]
35	Fundación Sinchi Sacha	Fundación Sinchi Sacha (Ecuador)	Fundación Sinchi Sacha (Ecuador)
36	FUNDECOL	FUNDECOL	Fundación de Defensa Ecológica (Ecuador)
37	FURARE	FURARE	Fundación Rainforest Rescue (Ecuador)
38	HORIZONT3000	HORIZONT3000 (Ecuador)	Organización Austríaca de Cooperación para el Desarrollo
39	IBIS	IBIS (Ecuador)	IBIS (Ecuador)
40	ILDIS	ILDIS	Instituto Latinoamericano de Investigaciones Sociales / Fundación Friedrich Ebert (Ecuador)
41	Intermón Oxfam	Intermón Oxfam (Ecuador)	Intermón Oxfam (Ecuador) [M]
42	MMA	MMA	Medicus Mundi Andalucía (Ecuador)
43	MsF	MsF	Médicos sin Fronteras-España (Ecuador)
44	OilWatch	OilWatch (Ecuador)	OilWatch (Ecuador)
45	Oxfam GB	Oxfam GB (Ecuador)	Oxfam GB (Ecuador) [M]
46	Redes	Redes	Fundación Recursos para el Desarrollo Sustentable (Ecuador)
47	SERPAJ	SERPAJ	Servicio Paz y Justicia (Ecuador)
48	SI	SI	Solidaridad Internacional (Ecuador)
49	SNV	SNV (Ecuador)	Servicio Holandés de Cooperación al Desarrollo [M]
50	UICN	UICN (Ecuador)	Unión Mundial para la Naturaleza
51	WCS	WCS	Wildlife Conservation Society (Ecuador)
52	Acción por la vida Mindo	Acción por la vida Mindo	Acción por la vida Mindo
53	CECIA	CECIA	Aves y Conservacion
54	CI	CI (Ecuador)	Conservation International
55	Ecociencia	Ecociencia	Ecociencia
56	FDA	FDA	Frente por la Defensa de la Amazonia
57	FFLA	Fundacion Futuro Latinoamericano	Fundación Futuro Latinoamericano
58	Jatun Sacha	Fundacion Jatun Sacha	Fundacion Jatun Sacha
59	Maquipucuna	Fundacion Maquipucuna	Fundacion Maquipucuna
60	Natura	Fundacion Natura	Fundacion Natura
61	Pachamama	Fundacion Pachamama	Fundacion Pachamama
62	INREDH	INREDH	INREDH
63	PACT	PACT (Ecuador)	PACT (Ecuador)
64	Puntos Verdes	Puntos Verdes (Mindo)	Puntos Verdes (Mindo)
65	RAN	RAN	Rainforest Action Network
66	TNC	TNC (Ecuador)	The Nature Conservancy
67	WWF	WWF (Ecuador)	WWF (Ecuador)

Appendix 2 – Measuring cognitive outcomes through similarity of piles

Associations data were stored in a three dimensional, organization-by-organization-by-respondent (A_{ijk}), matrix. For any given respondent (k) and pair of organizations (i,j) in a deck, I assigned a 1 if the two items were in the same pile –were seen as close- or a 0 otherwise. The elements in the diagonal received a 1 if they had been considered ‘known’ in the first stage, and a 0 if they had been discarded. By construction, therefore, all rows and columns with a 0 in their diagonal have to contain only zeros. Single item piles will have a 1 in the diagonal but zeros elsewhere in the corresponding row and column. (see figure 1)

Figure 1. Coding scheme for the associations of a given respondent R1



Measuring the similarity of two associational profiles. Comparing two respondents’ actual classification outcomes consists in evaluating to what degree they have associated the same pairs of organizations. That is, to assess how frequently they put two cards in the same or in separate piles. In matrix terms, we need to determine how similar the pattern of 0’s and 1’s of two matrices is.

There is a broad range of measures that one can use to contrast the similarity between two matrices (see Arabie and Boorman). As advanced by Coxon (1979) and Morgan (1987) some measures employed to compare matrices are more robust than others to some treatments but not to all. When using a pile-sorting technique it is important to be cognicent of what has been denominated the “lumper-splitter” problem and how it may be partially controlled by using particular comparison measures. In order to compare the degree of similarity between the mental maps three main measures will be employed: (1) pairwise equality summation –total number of cells that have the same value, zero or one, in the matrices of the respondents we compare-, (2) conditional equality summation – total number of cells that have the same value, conditional on both respondents knowing the organizations under consideration-, and (3) positive conditional summation –total

number of cells that have a 1 in both matrices-. Notice that the measures of proximity are increasingly restrictive. See the box below for an example of the three measures.

Explanation of proximity measures for comparisons

Respondent: 1

	1	2	3	4	5
1	1	1		1	
2	1	1		1	
3			1		
4	1	1		1	
5					1

Pile 1: 1, 2,
Pile 2: 2, 5
Pile 3: 5

Respondent: 2

	1	2	3	4	5
1	1			1	
2		1			1
3			0		
4	1			1	
5		1			1

Discard: 3
Pile 1: 1, 4
Pile 2: 2, 5

Measure 1: Pairwise equality summation

	1	2	3	4	5
1	1		1	1	1
2		1	1		
3	1	1		1	1
4	1		1	1	1
5	1		1	1	1

Proximity measure:
(Summation of all cells)

Normalized distance
(Summation /25)

18
72%

Measure 2: Conditional equality summation (ONLY KNOWN ITEMS)

	1	2	3	4	5
1	1			1	1
2		1			
3	1	1		1	1
4	1			1	1
5	1			1	1

Proximity measure:
(Summation of all cells)

Normalized distance
(Summation /20)

14
70%

Measure 3: Positive Conditional Summation (ONLY KNOWN ITEMS AND IN SAME PILE; RELATIVE TO R1)

	1	2	3	4	5
1	1			1	
2		1			
3					
4	1			1	
5					1

Proximity measure:
(Summation of all cells)

Normalized distance
(Summation /11)

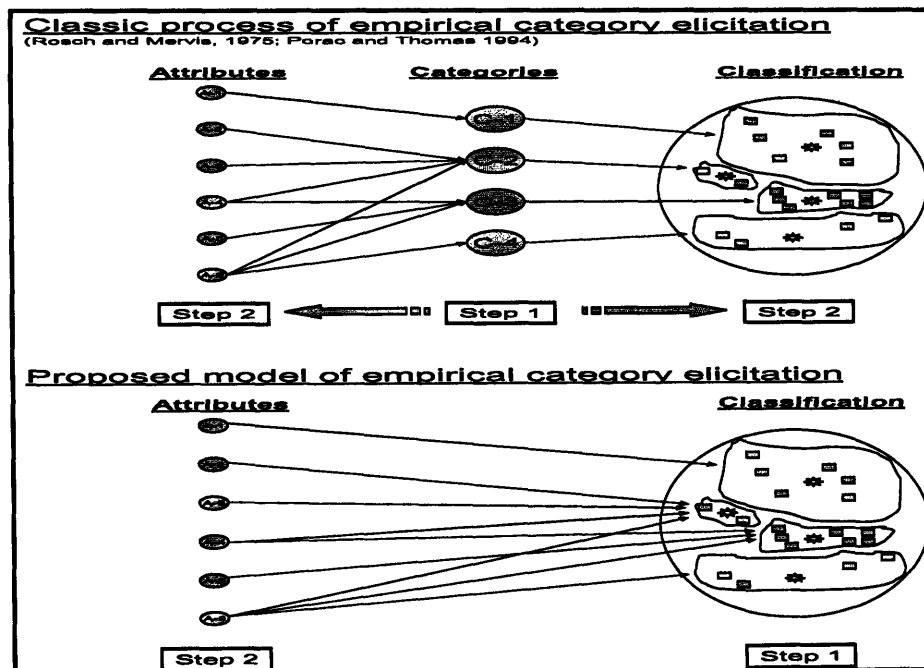
6
54.5%

The result of this exercise on each pair of respondents is then stored on a symmetrized respondent by respondent matrix.

Appendix 3- Measuring cognitive structures through shared use of labels.

It is perhaps important, at this point, to indicate the differences between the method I use and the mainstream approach to eliciting the cognitive structure –classification rules- of a set of actors in particular empirical setting (Rosch and Mervis, 1975; Porac and Thomas, 1994). For most studies the starting point is to elicit the categories relevant in a given domain by asking “What are all the different kind of [root category] here in [the town] that you can think of?” to a sample of knowledgeable individuals. The answer to this question provides a list of same-level categories that represent the main “buckets” in which respondents would classify the objects of that particular domain. For example, in their study on cognitive categorization among retailers in a small city, Porac and Thomas (1994) asked “what are all the different kinds of *retailers* in [the town] that you can think of?” Their respondents came up with 52 mutually exclusive kinds of retailing business including “variety store”, “Restaurant”, “Movie Theater” or “Grocery store”. On further probing, the “grocery store” category provided 9 more sub-categories, which included “Oriental”, “Supermarkets”, “Convenience” and “Natural” among others.

However, the boundaries between these categories are fuzzy “because attributes defining one subtype are often features of other subtypes” (Porac and Thomas, 1994). As such, the elicited categories are but a more or less publicly shared tag-name that represents clusters of attributes that, mixed in different proportions, define boundaries around sets of objects. The problem of this method, as I see it, is that in organizational domains where these tag-names are not significantly institutionalized, as is the case with development organizations in Ecuador, there may be significant differences as to the mix of attributes represented by a particular category –name tag. For this reason, the present study does away with categories and focuses on the underlying cluster of attributes representing a given set of objects in the organizational domain.



As a result, the similarity in cognitive structure between any two respondents is measured in this study by the extent to which they use the same attributes to classify a given set of objects. More concretely, I listed all the attributes –labels- employed by each respondent. Next, I counted the number of common attributes employed by each possible pair of respondents and divided the resulting number by the total number of attributes employed by each one of the respondents. This provided a square asymmetric matrix of the cognitive structure closeness between each pair of respondents. This matrix was then symmetrized for ease of use. The range of possible values goes from 0 –completely different cognitive structure- to 1 –exactly the same cognitive structure.

Table 4 - Summary of disciplinary approaches to use of categories in regards to domain structure

Approach	Classic research questions	Categories viewed as	Manifestations of categories	Strengths	Shortcomings
Industrial Organization	<ul style="list-style-type: none"> • Industry – performance • Diversification- performance • Internationalization - performance 	<ul style="list-style-type: none"> • Digital • Mutually exclusive partitions • Member equivalence 	NAICS, SIC, National Accounts, National Legal systems	<ul style="list-style-type: none"> • Generality • Comprehensiveness 	Broad assumptions regarding: <ul style="list-style-type: none"> • Relevance and weight of attributes • Equal likelihood of any category existence
Economic Sociology	<ul style="list-style-type: none"> • Conformity – value • Similarity to ideal type - performance 	<ul style="list-style-type: none"> • Fuzzy • Institutionalized • Differing degrees of conformity • Existence of ideal type 	Directories, almanacs	<ul style="list-style-type: none"> • Not all actors are equivalent • Some attributes are more central to classification process 	<ul style="list-style-type: none"> • Relies on widely public and shared classification criteria that may not exist in many domains
Social Psychology	<ul style="list-style-type: none"> • Defining competition • Industry recipes • Strategic groups 	<ul style="list-style-type: none"> • Fuzzy • Overlapping • Context specific • Widely shared within context 	Context specific classifications	<ul style="list-style-type: none"> • takes into account contextual specificity 	<ul style="list-style-type: none"> • Case specific • Assumes widely shared knowledge of domain among actors • Assumes hierarchical category structures

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