

Rhizomes for Understanding the Production of Social Science

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This article is about the social processes which produce social science knowledge. It is based on a discourse analysis of DELOS, a European research project into organizational learning in clusters of SMEs (Small to Medium Enterprises). The substantive focus is on the researchers' core theoretical object: the "cluster of SMEs." This construct remained a highly contested artifact which, for complex reasons, defied singular definition. The analysis draws on, among others, the labyrinthine novels of Franz Kafka and the theoretical musings of Deleuze and Guattari on rhizomic forms of organization in connection with actor-network theory. It is argued that the intrinsic ambiguity and endless processes of social construction and reconstruction which characterized DELOS can be accounted for by seeing the production of social science as a continuous (and continuing) process that drifts along multiple organizational logics, theoretical perspectives, and local agendas. The article demonstrates how the reality of social scientific knowledge is something which the many actors endeavor to stabilize and re-stabilize as it circulates within a tirelessly working net-work.

Keywords: Actor-Network Theory, Knowledge Production, Rhizomes, SME Clusters.

The DELOS Project¹

Project Background

DELOS was a social science project that was carried out by seven research-partners from the European Union between February 1996 and January 1998. DELOS stands for *Developing Learning Organization models in SME clusters*. To begin with, it can be pointed out that, as a descriptive category, a cluster is a group of these small firms called SMEs. The DELOS project belonged to a social science European Commission research program called TSER (Targeted Socio-Economic Research).

The seven research-partners in charge of DELOS were from six countries: Austria, France, Italy, the Netherlands, Spain and the United Kingdom. In what follows, the name "research-partners" designates the organizations of the research consortium and "researchers" refers to the human beings. The spectrum of research-partners varied from institutes of research—organizations that are strongly linked to universities and academic life—to consultancy companies—organizations involved in regional development for commercial reasons.

Apart from the researchers, a number of other actors and constructs also produced social science knowledge under the aegis of the DELOS project. For instance, the most popular theoretical association for regional development analysis comes from microeconomics. Complementing the microeconomic approach, the DELOS theoretical framework included social science narratives to build its main object of analysis: the cluster of SMEs. Each of the DELOS researchers followed one of these theories concerning clusters of SMEs². By and large, we can claim that every researcher held a particular theory on clusters of SMEs and was skilled in the proper procedures to carry out European research projects.

The Process of Studying DELOS

My particular project started three years after DELOS was finished. Choosing an already-finished project privileged the following aspects:

- the availability of written and published material related to the project
- the fact that most of the actors who participated in the project were available for interviews. Most of the research-partners involved in the DELOS consortium were still working together in subsequent projects when I started my work
- the possibility of gathering as many voices as possible producing accounts about what happened during the DELOS years. The researchers reconstructed DELOS in the interviews linking that experience with their current activities

Interviews with members of the seven research-partners were carried out. In-depth face to face, phone, or email interviews were the main sources of data. Ten interviews were carried out in total. In most cases, different data collection methods were combined with the same respondent: for instance, email interviews were followed by face-to-face or telephone contact. The interviewees were encouraged to produce meaningful stories about DELOS (Jovchelovitch & Bauer, 2000: 54-74; Silverman, 1993; Czarniawska, 1998) emphasizing different aspects of the organization of the researchers and the process of producing social science knowledge. Some other elements relating to DELOS—e.g. the European Commission acceptance criteria—were marginalized in this analysis. All the transcripts from the interviews were analyzed through discourse analysis using the software ATLAS.ti. Thus, the data were compiled and organized according to five main discursive axes.

The written accounts of DELOS which were analyzed came from academic papers, book chapters, support material from oral presentations, and web pages. Content analysis (Bauer, 2000) was performed on these documents.

I was a researcher studying researchers. At first glance, it seems that a certain resemblance can connect the object I choose to study and my work. Nevertheless, both research processes—i.e. DELOS and the one producing this article—were completely different. Different research methods, theoretical underpinnings, and overall purposes of research elaborated a healthy hiatus between these two projects.

A final clarification regarding the language circulating between the actors: English is neither my mother tongue nor the first language of the majority of the respondents. Only four respondents were native English speakers. This heterogeneity usually constructs European projects as such. Thus, the reader will be able to find a strange selection of metaphors, images, and literary devices in this article (chosen either by myself or borrowed from the respondents' answers). Nevertheless, this amalgam of pictures should also allow the reader to come to grips with some of the gaps and demarcation lines between the intertwined logics in operation for the production of social science knowledge.

The DELOS Project

In order to devise a description of DELOS, we can start by borrowing one from someone else. One of the research-institutes involved in DELOS presented the project in an institutional publication in the following way:

DELOS is investigating the ways in which SMEs (small to medium enterprises) acquire and diffuse know-how. More particularly, it considers whether SMEs from a common geographical or sectoral base act in a systematic, concerted way to maximize their market position by pooling their know-how and expertise.

At the heart of DELOS are two conceptual frameworks: the notion that SMEs typically form spatial and organizational clusters, and the notion that they are capable of organizational learning. Both these notions are highly contestable. (The Tavistock Institute Review 1996/97: 6)

According to one of the DELOS research-partners, this is the formal introduction of the project. This information is available for a wide array of potential audiences such as research-partners, sponsors or researchers in general. This institutional “business card” of a European research institute tries to conjugate the SME world and organizational learning within the gamut of activities of the organization. The premises that made DELOS a possible achievement in the initial stages were based precisely on this same association. This introduction tells us from the very beginning what is to be the so-called object of analysis of DELOS—the central idea the researchers set out to stabilize.

Following this association, the research-partners constructed their main object of analysis: the cluster of SMEs as a possible and observable object. Social science and microeconomic vocabularies were merged to enhance the faith of potential audiences for these objects. The references to the maximization of a market position and the pooling of know how act as confirmations of the existence of these entities. DELOS was born thanks to a hypothesis (from the coordinator who organized the project) which assumed that clusters of SMEs could provide a homogeneous model of regional development that can be found in any European country. However, most of the disputes during the first stages of DELOS centered on the existence of clusters of SMEs as a homogeneous European phenomenon. It was only after these first phases that social science narratives became part of the demarcation criteria circumscribing the clusters of SMEs. It was impossible for researchers in two of the countries of the DELOS consortium to find clusters of SMEs according to the traditional microeconomic definition of the phenomenon. This impossibility opened a theoretical debate on alternative demarcation lines defining the clusters of SMEs³.

Probably as a consequence of this lack of conventional clusters of SMEs in two countries, the main invention of the DELOS researchers was to create a *typology of clusters*. This typology reflects how organizational learning within SMEs is shaped according to different levels of organizational learning and the relationship between the SMEs and their industrial milieu. Other structural characteristics such as size, length of time established, and decision-making style were also included as criteria defining the cluster types. From this analysis of several components, the researchers defined five broad types of ‘organizational learning behavior’: crisis-driven, endogenous, exogenous, embedded with limited development of organizational learning, and embedded focused on competence development using formalized practices and processes (Cullen, 2000: 397-398). All these constructs and the theoretical perspectives the research-partners used flowed into the typology of clusters of SMEs. The typology was designed to produce an all-encompassing description of clusters of SMEs at a European level as a quasi-homogeneous phenomenon. This typology is supposed to be describing all the differ-

ent cases the research-partners studied in the field. The parameters the researchers agreed for identifying clusters became the main actors of the DELOS network: their importance overshadowed even the human beings who were forced to comply with the outcome of those agreements.

During the DELOS project, the core existential question was about the nature of these clusters of Small to Medium Enterprises as a homogeneous European phenomenon. According to written accounts of DELOS (Cullen, 1998, 2000), social science concepts such as institutional thickness (Amin & Thrift, 1994), embeddedness (Grabher, 1993) and the Scottish knitwear industry case (Porac & Baden-Fuller, 1989) came to help the researchers to give birth to this necessary being. Michael Porter's (1985) model of amplified rivalry (from a microeconomic or a management perspective) was also used to account for the more conventional types of clusters of SMEs in the typology. Several demarcation lines were suggested to attempt a possible definition of clusters of SMEs. In addition, these heterogeneous criteria had to accommodate the actual groups of SMEs that the research-partners were able to find in the field. These contested theoretical positions *vis-à-vis* the local or national availability of clusters of SMEs built the forums for debate in the DELOS consortium.

During the last phase of DELOS, a truce was called in this theoretico-socio-political debate because of a change in the coordination: a researcher (who did not belong to the original co-coordinating research-partner) took charge of the elaboration of the final report of the project. All the other researchers regarded this second co-coordinator as the social science interlocutor of the DELOS consortium. The other research-partners remained in charge of reviewing the wording of the final report. This change in the coordination was welcomed by most of the DELOS researchers. According to the vast majority of the respondents, without this organizational change, the DELOS final report would have been seven separate case-studies. The alternative was to have no final report at all.

DELOS Contributions

A number of theoretical contributions can be found in the DELOS final report and the academic publications about DELOS (Cullen, 1998: 249-252):

- the researchers suggest that particular learning environments associated with the cluster types tend to promote a particular type of 'organizational learning'
- however, the researchers also found no real evidence supporting the hypothesis that industrial clusters are effective environments for institutional learning
- at the level of the industrial cluster, success (in terms of increased turnover) did not appear to be related to the embeddedness within the local milieu (i.e. the cluster may even constitute a barrier to SME economic success)
- although the promotion of social and cultural community identity can be seen as part of an array of wider learning benefits, these benefits were difficult to measure in conventional economic terms (e.g. in the final report of DELOS these benefits were only presented in connection with capacity building and the development of social capital)

In other words, DELOS was far from being a hymn of praise of the idea of clusters of SMEs as a model for European economic development. Possibly as a consequence of this critical stance, it seems that DELOS passed unnoticed for most European research and legislation. Although most of the researchers talk about DELOS as an interesting and formative experi-

ence, the links connecting the outcome of DELOS and further research or European policies are difficult if not impossible to trace. However, after DELOS, most of the researchers involved in the project applied for and obtained funds for subsequent projects within the same social science program of the European Commission (TSER).

By and large, after DELOS the trajectories of the actors—both human and nonhuman—forked and followed different directions. Nevertheless and not paradoxically, all the actors who took part in DELOS are still somehow involved in the production of social science knowledge.

Rhizomes, Labyrinths, and Burrows

The Rhizomatic Territory

The departure point I will take to try to understand the process of production of social science knowledge is Deleuze and Guattari's (1986, 1988) rhizome. These authors suggested the rhizome as a possible means for reading Franz Kafka's literature and, more generally, social phenomena. By rhizome, Deleuze and Guattari portrayed a burrow⁴ with multiple entrances and exits with no beginning and end as well as lacking any kind of hierarchical order. There is an uncanny resemblance between this geography of circulating active actors and Latour (1987), Callon (1986) and John Law's (1991) actor-network theory. As Bruno Latour (2002) points out, actor-network does not make distinctions (or, to be more precise, draws symmetries) between macro and micro or nature and society⁵. The law of both the rhizome and the network lies in the connections: each of the actors is related to all the others thanks to *contiguity*, which is the main feature of this architecture.

For instance, Kafka's literature is fragmentary, a composition of loosely coupled segments or narrative blocks forming an assemblage through connectors. The universe of what is hinted or not-said is always immensely greater than the universe of what is written or said. Any book can be read as a fragmentary collage of short stories looking for a reader to connect them. Leaving aside their limited amount of pages, most books can be said to be infinite.

We can only get in touch with or represent DELOS through the narratives of the researchers or the excerpts from articles or books informing us about what was DELOS like. We cannot single out a DELOS from the European Commission application procedures for its social science program, from the changes in the coordination in the middle of the project, or from the emergence of the cluster of SMEs as an observable and accountable object. Thus, there is text producing funds for European research, there is also text highlighting the type of required knowledge for the production of a final report and text also constructs clusters of SMEs as a European pseudo-homogeneous phenomenon. All these texts—others could also be mentioned—form an indivisible assemblage producing social science knowledge on regional development.

It is important to establish that this proposed analysis of intertwined texts does not merely reflect a simple linguistic problem of contested meanings. We are not discussing the semantics of a social science project according to various observers. The analytic point is that we need to conjugate the entire ontology of entities that has to be connected to produce the territory which is DELOS⁶. The rhizomatic character of such construction requires the actors to be seen as circulating within as well as constructing a burrow⁷. Stories gather together human

and nonhuman actors or multiplicities in order to, later on, attempt to convey a meaning. These narratives articulate the DELOS researchers mediating their collective action⁸. Thus, DELOS becomes its own map territorializing theoretical perspectives, organizational portfolios of projects, and future undertakings of a specific consortium of researchers.

The traces or the lines between both human and nonhuman actors are in constant process of settlement: they can only provisionally acquire a certain degree of organization in a quasi-map of movement and circulation. The most basic law of the rhizome stipulates that any place is connected to any other place, i.e. researchers, clusters of SMEs, academic publications, local organizational backgrounds, and business portfolios are all circulating within the same network or rhizome and producing social science knowledge. Therefore, any possible definition of social science will need to include this universe of entities or actors producing and reproducing it. Narratives and episodes of the DELOS project become 'meaningful' because they are attached to a European social science machine which articulates several actors following multiple trajectories. In this way, each of the actors of the project circulates according to a continuously constructed trajectory.

A Catalogue of Labyrinths

Umberto Eco (1987, 59-62), trying to account for his library in the abbey of *The Name of the Rose*, describes three different types of labyrinth. The first labyrinth is Dedalus' invention. According to Eco, no one can really get lost in that architecture; the twist in the story is provided by the Minotaur and the tragic fate of the visitors who reach the center of the labyrinth. The structure of this construction entails only one thread (probably Ariadne's) to go from the outside to the center and come back. Without the dangers, entering this construction would be like going for a walk.

The second type is the trial and error labyrinth. Here we can find a tree-shaped structure with roots, branches, galleries and blind alleys. Eco (*op.cit.*) warns us: there is only one exit but we can make lots of mistakes before reaching it. The chances of getting lost inside this second architecture are greater: visitors are the prisoners of a design because the construction itself challenges each of the visitors.

Finally, Eco's (*op.cit.*) third type is the network or Deleuze and Guattari's rhizome. Each of the galleries of this labyrinth is connected to all the others. It does not have a center, a periphery or any exits because this construction constitutes a space which is potentially infinite. The rhizome is never finally structured because it is continuously being structured. This third labyrinth is a process or a labyrinth of time (as Borges would add). This third type is the labyrinth par excellence: there are no visitors or outside anymore. Everyone and everything is somehow involved. The circulating actors are perplexed and lost at the same time. If there is an order or a center in this third type at all, it needs to be constructed. The rhizome is being continuously shaped out of the collective beliefs claiming that an order is possible. By and large, this third labyrinth constitutes both fear and hope at the same time.

The rhizome—i.e. the third type of labyrinth—cannot be circumscribed to a physical space. This continuously structuring network propagates a provisional order: everything belongs to the same territory because the main task of the rhizome is to territorialize actors involving them in the production of an assemblage.

Each of the circulating actors of the rhizome is a composite or a hybrid actor (Serres, 1995). These hybrids echo Deleuze and Guattari's (1988) multiplicities or Latour's (1991) chains of human and nonhuman actors. From the fieldwork methodology of a European research institute we can jump into the European Commission's procedures for allocating funds for research to promote regional development or into the political relationship between a chamber of commerce and the groups of SMEs of a particular region. In Serres' (1995) terms, DELOS is also its own intertext or its own propagations or extensions: DELOS is an image without a frame. Following this metaphor, we cannot place boundaries with the intention of defining each of the actors for it is the relationships which constitute and provisionally stabilize each actor. Time and time again, the actors bear a variable ontology (Latour, 1999a: 127-133). We try to study the DELOS researchers but we cannot single them out. They are hooked up to the programs of the European Commission or to the criteria to publish in a prestigious journal.

Hence, each of the actors follows a particular trajectory. A researcher is looking for European funds, a chamber of commerce is attempting to justify its place in the world (for instance, by producing serious academic work) and a group of organizations are trying to build a solid consortium to apply for subsequent projects. DELOS had to constitute itself as a possible vehicle to mobilize all these heterogeneous interests for DELOS is only inside one or all of these trajectories. DELOS is the imaginary meeting point of all these trajectories and it is only from these relationships that we can trace a path defining who is who. Only by following this collective movement or choreography we will be able to understand something about this episode in the production of social science knowledge for the European Commission.

The Origin of the Rhizome

In this section we will briefly delve into botany to try to come to grips with Deleuze and Guattari's (1986, 1988) rhizome and its metaphorical meaning. According to Rost *et al.* (1998: 101), rhizomes are "underground stems. They are usually light colored and burrow into the ground just below the surface" (See Figure 1). In addition, rhizomes can be regarded as stems with nodes:

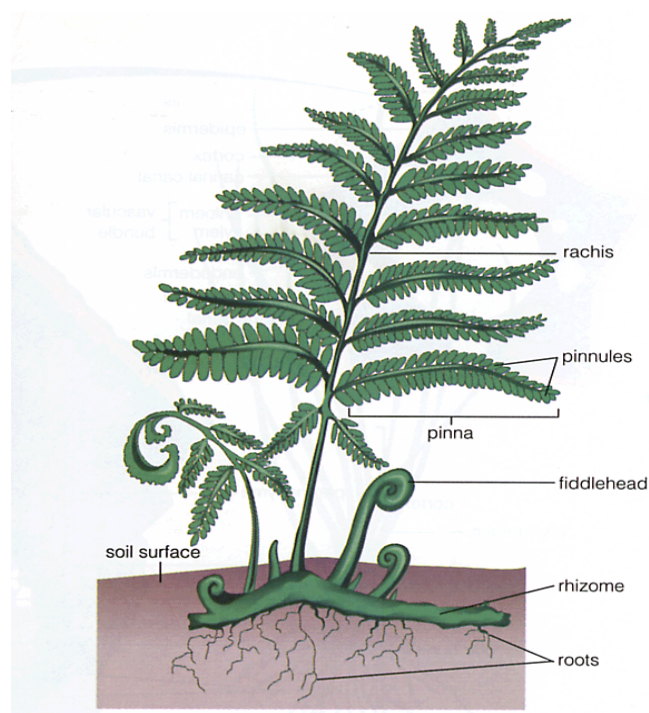
"Small scalelike leaves sometimes form at the nodes [of the rhizome], but they don't grow or become photosynthetic. The buds in the axils of these leaves elongate, producing new branches that extend to the soil surface and form new plants."

Hence, a rhizome is a ramified network growing horizontally in a subterranean way. On the other hand, a rhizome through its nodes connects different plants and leaves. Any point in the entire vegetal formation (e.g. roots, stems and leaves) is hooked up to the same rhizome. No existence is more important than any of the others. All these elements 'are' because they are related to each other.

Deleuze and Guattari (1988: 21) draw an interesting distinction between a rhizome and a tree pointing out that most social science is actually based on the tree metaphor. Unlike the rhizome (where the connection among the many parts and not their status is at stake), a tree is hierarchical and, therefore, a collection of parts of separate natures. For Deleuze and Guattari a tree becomes its own image, its photograph or painting. A rhizome, on the other hand, is the expression of multiplicities circulating in the galleries of a burrow where paths can diverge, converge, or even get blocked. In addition, a tree is the object that once was a seed whereas a

burrow has always been a rhizome and its ontology stems from the circulation of the actors. The rhizome can be said to be a continuously constructed map of connections where various trajectories meet.

Figure 1
The Rhizome



Source: Rost et al., 1998: 398

Another Rhizome: Kafka's Literature

There is an uncanny resemblance between the rhizome and Kafka's (1992) literature in general and *The Castle* in particular where multiple changing entrances connected the village and the castle. The nature of the 'ostensible acquittal' of Kafka's *The Trial* is also cast in the shape of a rhizome where endless blocks of interaction between the accused and Court machinery take place authorizing and canceling each other within the same legal map. The atelier of the painter Titorelli, which is at the other end of the town where the Court is based, leads inevitably through a back door to the same judicial site. The rhizome grows unexpectedly under the ground connecting apparently distant surfaces. While analyzing Kafka, Deleuze and Guattari (1986) are actually trying to find a passage to enter Kafka's work rather than treating his literature as a detached object of analysis: they needed to circulate in his literary rhizome. Minor literature—not in a pejorative sense—are the terms the authors used to talk about Kafka's work.

Kafka writes like a dog digging a hole or a rodent constructing a burrow. Each segment or narrative block inside Kafka's minor literature is a machine in its own right. For instance, the Stoker chapter at the beginning of *America* is about the machines in a ship (i.e. the place where the Stoker works) but it is also about the Stoker's love life, dialogues, or problems being part of the same mechanistic assemblage, being produced through the same process. In

the same chapter, Karl Rossman and the Stoker are talking about a past trip. At the time when they are talking, the ship is already anchored in America but the assemblage of machines in operation is still working. The architecture, the love life, the design of the telephone lines, or law proceedings are all hooked up together. The assemblages organize and gather multiplicities: there are no detached elements; the Kafkian syntagmatic dimension can be explored ad infinitum. Speaking about a particular entity immediately makes us drift into other entities. Contiguity constructs. Contiguity actually 'is' the law of the rhizome itself. There is always a near mismatch: something completely different or inappropriate occupies the room next door. Something absent is actually present somehow and in operation.

In Kafka's minor literature, the narrative blocks in his novels are not just close to each other but contiguous: something—quite important, most of the time—is always happening in the room next door. The spaces are never too distant or too close; everything is around or, to be more precise, in one of the rooms next door. When we step on a particular space, we are immediately jumping into its intertext. The adjacent rooms are the places where we are not allowed and their inhabitants are inaccessible meaningful Others.

In the middle of this connected divide between the "being" and the "rest" lies desire itself which is the great motor of all the Kafkian mechanistic bureaucratic devices: the hidden law triggering the reproduction in time of the same forms⁹. Desire is assembled, unevenly distributed into rooms, and imprisoned in the galleries of a labyrinth where the actors wander. Nevertheless, the actors are not prisoners; desire itself keeps them hooked up digging their burrow. The many narrative segments of a Kafkian novel capture desire territorializing it in the attire of a Judge, the beauty of a secretary, or the architecture of the Court (this aspect can also be verified in the regime of enunciation of the author: some words, as we can see, need to be written in capital letters).

The only possible way to dismantle the machine or the body without organs is by circulating inside it, posing the question how does it function? The sense, in the most semantic possible appreciation, comes only after having answered the puzzles about the mechanics of the problem. Writing in this sense entails the translation of all the action into assemblages of segments in order to, later on, attempt to dismantle that construction. In fact, the last two procedures are the same one. Following Deleuze and Guattari (1986: 43-52), every machine is a machine because it can be disassembled. What dismantles the machine lives inside the machine. Desire itself builds up the legal system in *The Trial*: the employees are corrupt, the secretaries lust after the accused people, the law book contains porn pictures and a painter and an abbot lie at the heart of this legal dispositif. Desire can be found in every corner because all these scattered entities "are" the Law itself. There is a flux and a counter-flux between Law and Desire, keeping them alive and accountable.

Even the trajectory of the Kafkian main characters (I would not dare to call them 'heroes') is fuelled by the same desire. They belong to the rhizomes of the Court or the Castle. They seek admittance exploring what is forbidden for them. The characters (both newcomers and life-members of the burrows) never try to escape those rhizomes. They travel exploring the galleries of the maze they have been digging. They function along with the power which, in theory, is oppressing them. The Law or the power of the Castle before the inhabitants of the village is being written in their sexual lives, jobs, interests, expectations, and everyday talk (cf. Foucault, 1976). There is no divide between the powerful and the powerless; the reader can easily travel from one to the other. The powerful lives in and constructs the powerless while

the powerless lives in and constructs the powerful. Desire keeps all of them circulating inside the rhizome. There is always contiguity: other actors to become acquainted with, loved, or feared can always be found.

Having explored this thick narrative path, what can both Kafka and Deleuze and Guattari tell us about the production of social science knowledge or DELOS, in particular? I took the Kafkian winding road in order to exemplify the imprecise underpinnings of Deleuze and Guattari and the actor-network theorists. This perspective can be useful in order to frame our analysis to distinguish DELOS as a circulating multiplicity. The most important contribution of this perspective is that it illuminates a path that leads to the interconnected surfaces producing social science knowledge. The researchers produce research deliverables or reports but also their organizational backgrounds, academic perspectives, project agendas, and future undertakings: all these phenomena elaborate social science knowledge (i.e. all are hooked up to the same rhizome). All these constructs will set detours and obligatory passage points forking and twisting the paths of the researchers (cf. Callon, 1986). On the other hand, since a project or a partnership running European research projects has no beginning or end, they also develop in series linked with connectors. A gamut of continuities reproduces itself from project to project establishing patterns and forging narratives aiming at stabilizing a definition to the blurred European research.

Production Across Connected Multiplicities

The DELOS Rhizome

Reading DELOS through the lenses of the rhizome and actor-network theory permits us to incorporate a few invisible actors into the process of social science knowledge production. These invisible actors mediate human action and are often marginalized or ignored in knowledge management studies (e.g. see Davenport & Volpel, 2001; Tsoukas, 2002). Human beings are, most of the time, placed at the center of any scientific development. In this vein, human researchers seem to be able to sum up the entire process of knowledge production. For instance, researchers write reports, gather and argue in scheduled meetings, and belong to a successful consortium. An important contribution of this paper is the endeavor to incorporate and illustrate the significance of a few stabilizing nonhuman actors mingling between these human actors and producing social science knowledge. This suggests that we cannot treat knowledge as a fully-stabilized instrument which can be used as an unproblematic tool.

In a foundational piece of this approach for science studies, Bruno Latour and Steve Woolgar (1979) showed that, for instance, we can account for production processes in a laboratory studying its architectonical layout and the inscription devices deployed by scientists. A different amalgam of intertwined actors for the production of natural science emerged out of that particular study by asking the question what or who do we need to follow to understand laboratory action? Later, Latour (1996: 94) endeavored to answer this question by repeating time and time again: "...stick to the actors. If they drift, we'll drift along with them¹⁰." Human beings produce connected to nonhuman actors and the outcome of the conjunct work should be studied addressing the correct assemblage in operation. Thus, we will need to link, for example, the scientists writing the final report to the procedures and principles of good practice they use. Each of these actors makes all the other ones different because of the connections relating them. Being part of a specific collective changes all the different member-actants investing them with fleeting ontologies. Each successive translation of the network necessarily

transforms all the circulating actors. By the same token, the rhizome can never achieve a final stabilization or structure.

The actors of the DELOS project have to undergo a series of associations and substitutions. Associations and substitutions (Latour, 1991: 103-131) or the syntagmatic and the paradigmatic dimensions (Latour, 1999a: 159-164) have to be analyzed together in order to understand successive translations of the DELOS collective. Taking these two dimensions into account simultaneously, we can devise a map or a rhizome where organizational action drifts (see Figure 2).

Figure 2
A possible rhizome for DELOS

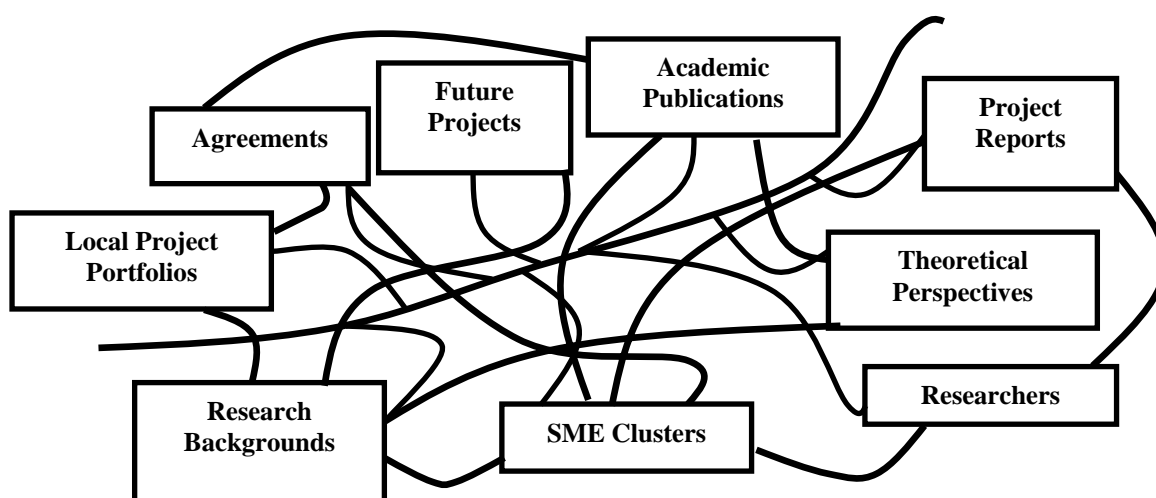


Figure 2 is an attempt to depict DELOS as a rhizome, i.e. as a map of movement and circulation¹¹. All these actors act producing DELOS in a concerted way. The definition of the actors stems from the relationship between any actor and the rest of the rhizome. For example, the theoretical perspectives of the consortiums are related to the local project portfolios and the research background of each research-partner. As noted above, the DELOS consortium was comprised of consultancy companies, chambers of commerce, and research-institutes. Each of these organizational forms produces local agendas or portfolios which can overshadow the importance of any specific project. Hence, the justification of national or regional budgets or the enhancement of the portfolio of current projects can act as good reasons for joining a specific European project. Each research-partner—even each of the researchers—has particular reasons to become associated to the DELOS network. For instance, for one of the research-institutes, DELOS was its first European experience, the members of another research-institute wanted to increase the amount of European Commission projects they were doing and a chamber of commerce needed to produce research on clusters of SMEs at an academic level.

These types of European projects start with the composition of the *research-consortium*. Apart from the original research proposal, the European Commission assesses the consortium itself before a project is accepted. Only a few of the research-partners had worked together before DELOS in previous projects; for most it was the first experience of such a consortium.

Each research-partner negotiates its participation with the project coordinator and it is the duty of the coordinating researcher to construct the consortium (stressing its 'European' character) and to be the interface between the partnership and the research sponsors or clients. The coordinator also defines the roles of the researchers. S/he is responsible for the reports or deliverables and the entire budget of the project. DELOS, for example, was a jointly funded project which meant that half of its budget came from the research-partners (the European Commission funds the other half). This capacity to sponsor a project is one of the many reasons to be summoned to join a European partnership. An archetypal consortium needs to recruit sponsors, academic interlocutors, longstanding collaborators or friends, and partners in specific countries to achieve the required transnational contributions.

One of the contributing factors to their heterogeneity and diversity is the fact that most consortiums have to constitute themselves as European entities. Therefore, a co-coordinator will need to represent (Latour, 2004: 108-116) a range of European countries disregarding, most of the time, the possible desirability of ensuring the theoretical or epistemological alignment of potential partners. One of the DELOS researchers highlighted the fact that the inclusion of recently incorporated countries to the European Union in a consortium enhances the chances of acceptance of a research proposal. Another researcher stressed the fact that successful consortiums find it easier to get new projects accepted (i.e. within the partner community it is widely accepted that the first European grant is the most difficult to get).

Thus, European consortiums work, most of the time, not unlike social clubs. These clubs have newcomers and life members. All the researchers are always thinking in more than one project at the same time. Apart from projects that are being run in parallel, future prospects are also a matter of concern for European researchers. With only three exceptions, all the other DELOS research-partners were involved in two subsequent projects within the same social science program of the European Commission (TSER). Thus, at the very least, a solid partnership emerged out of the DELOS project. In addition, all the DELOS researchers are still involved in European research. Each consortium, from project to project, expels dissident voices, theories, and research interests. This depuration aims at stabilizing the relationships between the researchers through a solidification of their working agreements and general views on research.

Not paradoxically, the two subsequent projects which involved the majority of the DELOS research-partners were not related to regional development: labor mobility in the European Union was the central issue of these projects. One of the DELOS researchers (who was also part of these subsequent projects) pointed out that the consortium promised in the research proposal of the first of these projects that a database which was constructed during DELOS was going to be used in the second project. Such a database was actually never used. The interesting aspect about this incident lies in the explicit intention to link European projects of the same research program, thus aiming at constructing the so-called European social capital. This is perhaps the most Deleuzian aspect of the production of knowledge for the European Commission. All the material scaffolding required for the research programs to be meaningful falls or vanishes into thin air but this is not a hindrance for the reproduction of many more games. Any given project may become a one-off experience. There may be only minimal linkages between the projects of a specific program and the conclusions of these studies do not necessarily inform European legislation. Nevertheless, the games combining proposals, acceptances, rejections, legitimacies, and local colliding agendas of priorities remain intact and reproduce themselves in time.

The DELOS research-partners supported an eclectic combination of theoretical perspectives. The origin of this diversity is to be found in the organizational background of past projects of the different research-partners. Apart from the historical record of each research-partner, we have local project portfolios which constitute an expression of the perspective of each member of the consortium. In DELOS we find that a European research-institute well versed in economics has been working with the same clusters of SMEs and its local government for the last 20 years. It publishes articles in microeconomic journals and is looking for partners to form a consortium devoted to regional development. But we can also distinguish a wealthy chamber of commerce which finds it difficult to find partners for European research and can work in either regional development or a number of other academic fields. All these trajectories meet and have to work together inside the surface of these short-term projects. Research-partners join and leave consortiums following these trajectories: more often than not, local logics and organizational backgrounds define which are going to be the right projects to join in the near future.

Two understandings of the cluster of SMEs represented the antagonistic positions of the DELOS debate—the aforementioned microeconomic and social science perspectives. This debate was also echoed in the practical impossibility of finding clusters of SMEs in two countries of the partnership (i.e. clusters which conformed to the traditional microeconomic models of regional development). These contested views on clusters of SMEs produced divergent methodological positions and, to a certain extent, separate research projects. Local logics and backgrounds produced methodologies, theoretical perspectives, and research interests. For instance, two of the DELOS researchers were disappointed because of the way the consortium used their data. By and large, these researchers perceived that data which was difficult to collect was not used or did not become relevant in subsequent stages. Time and again, local logics collide against each other: the real duration of the enrollment process (Callon, 1986) of these European partnerships sometimes takes more than one project or more than one change of consortiums.

DELOS was the first research experience of its consortium. Therefore, having chosen the DELOS project constitutes, perhaps, a very particular and biased path to take to pursue the production of social science knowledge for the European Commission. A series of theoretico-socio-political struggles pervaded the history of the project. These conflicts include the aforementioned change in the coordination of the project and the deputation of a few research-partners for subsequent projects. These two other projects did not have all these historical milestones of contested theories and methodologies.

Required Agreements for the Coordination of DELOS

Apart from a change in the human co-coordinator, three major agreements allowed for the development of the DELOS project. In fact, these agreements organized the researchers who signed them¹². As noted above, most of the DELOS researchers had never worked together before. Two contested views on the theoretical and methodological development of DELOS became visible in the two first project meetings because of this initial organizational characteristic. Therefore, the first agreement stipulated what was going to be included in the questionnaires and data collection material (the vast majority of the DELOS data came from base-line surveys; Cullen, 2000: 396-398).

The second major agreement of the DELOS history was the process required to reach a definition of the cluster of SMEs as a possible and observable object. The various attempts to stabilize the object of study produced the typology of clusters detailed in the DELOS final report (which was the major contribution to knowledge of the project). Most of the theoretico-methodological disagreements of the first phases stemmed from divergent narratives associated with the question “what is a cluster of SMEs?” Most of the research-partners held well-structured answers to this question thanks to their profuse organizational backgrounds in regional development. An unplanned incident problematized this circulating question in the DELOS network: it was impossible to find clusters of SMEs (according to the traditional microeconomic definitions) in two countries. In consequence, a proliferation of overlapping demarcation lines were devised to circumscribe the cluster of SMEs as either a microeconomic or a sociological object. This process produced a typology of five different types of clusters of SMEs and turned DELOS into a possible project. This typology accounted for all the examples of clusters the DELOS research-partners choose to study¹³.

The third agreement was the change in the co-ordination of the project. According to all the other researchers, the first co-coordinator was familiar with the correct procedures to get the DELOS research proposal accepted. This first co-coordinator also managed the relationship between the DELOS consortium and the European Commission until the end of the project. However, she could not co-ordinate successfully the theoretical debates in the partnership. As a consequence, local perspectives on clusters and fieldwork methodologies grew stronger. There were several attempts to impose local views and procedures onto the DELOS consortium. In addition, the schedule of these European projects also produces, in part, attempts to propagate local perspectives. The researchers only gather three or four times during the course of two years: the rest of the time the project tasks are performed in the different member countries. For instance, five of the DELOS research-partners have been working with the same clusters of SMEs for quite a long time. The relationship between these research-partners and the clusters is stronger than any possible agreement the researchers can forge to run a specific project. These researchers have been analyzing and re-analyzing these clusters of SMEs regularly thanks to regional and national sources of funding.

These three agreements were required because each of the DELOS actors follows a specific trajectory. Likewise, each project has to constitute itself as a valid means to reproduce these circulation trajectories. Research careers, local project agendas, future undertakings or partnerships, and theoretical perspectives produce social science knowledge in a concerted way (through the same organizational procedures).

DELOS produced a final report but also a successful partnership, a succession of projects, academic publications, and a typology of clusters. The project also strengthened the relationship between some research-partners and the SMEs in the regions where they are based. Reflecting this, it would seem that knowledge is neither a single outcome nor a detachable instrumental object. Thus, knowledge can be regarded as a circulating entity in a labyrinthine rhizome where a number of different productions take place at the same time.

All the depicted actors mentioned above found a place in the DELOS rhizome thanks to these three stabilizing agreements. Knowledge itself—which by no means can be circumscribed to the final report—circulates between the actors producing a number of entities which, in turn, will somehow transform the collective called European research. The trajectory of any of

these actors produces knowledge in connection with the rest of the winding labyrinth which turned this array of intertwined circulations into a possible achievement.

NOTES

¹ This section endeavors to sum up a description of the DELOS project and its circulating actors. A broader description of the project can be found in my doctoral thesis *Translations and treasons as organizational devices in the production of social scientific knowledge* (Gustavo L. Seijo, 2005, King's College London).

² It is not possible to operate with a completely *stabilized* idea of the clusters of SMEs as fully-fledged objects. For reasons we will come to, during most of the DELOS project, the cluster of SMEs was a blurred mixture of theories, definitions, and case studies.

³ The so-called traditional frames for studying clusters of SMEs come from economics following the tradition of Marshall (1920). In fact, the conventional groups of SMEs (i.e. intertwined SMEs which are based on the same geographical area where critical mass plays a crucial role) are still called Marshallian in the regional development jargon. The research-partners explored alternative perspectives to these conventional clusters in order to be able to produce a description summing up the diversity of the groups of SME they found in the field.

⁴ Although they are all similar, I suppose the metaphor of the burrow must be the best one—in comparison to the labyrinth or the rhizome—because it emphasizes the constant 'work' required for the production of the place where the circulating inhabitants live. The burrow also portrays a higher degree of uncertainty regarding who are the other actors involved in the construction (cf. Kafka's short-tale *The Burrow*).

⁵ This resemblance between the two perspectives has its meeting point in the work of Gabriel Tarde who constitutes a major influence for both Bruno Latour and Gilles Deleuze. Bruno Latour (2002) himself hints at this similarity. John Law (1999: 1-3), in earlier work, also talked at length about classical social science dualisms which vanish into thin air thanks to the symmetrical stance.

⁶ Deleuze and Guattari (1986, 1988) use the term territorialization to associate to their burrows, assemblages, and rhizomes. Similarly, Bruno Latour (1999a: 127-133) talks about the variable ontology of the circulating actors in order to account for the successive transformations they undergo. Actors are being associated and substituted and each change in the collective transforms all the entities (Latour 1999a: 153-164). Being hooked-up to a burrow or a labyrinth entails a necessary alienation of the self whereby being can be translated as being connected. By the same token, Michel Callon's (1986) translation process assumes the necessary transformation of the actors.

⁷ According to Actor-Network theory, the distinction between the micro and the macro has to be collapsed (Latour, 2002). Therefore, the actors are not inside a big container called a network (Latour, 1999b: 15-25). This is exactly where the hyphen between Actor and Network plays a role. Actor and network are not distant entities. Between actor and network there is mutual implication and flow.

⁸ Bruno Latour (1999a: 304) defines collective as the associations of humans and nonhumans.

⁹ Neither Deleuze and Guattari nor Kafka understand desire as a psychoanalytic concept. Desire can be said to be one of the most important social bonds for all these authors. Desire connects people together as well as people and things (e.g. the relationship between K and the Castle literally writes the entire novel). Thus, desire has to be understood as a circulating entity enlarging or shrinking people, denying access to a building, or, more generally, making people act (akin to Michel Callon's *interessment* and mobilization processes; Callon, 1986).

¹⁰ This premise leaves an open question regarding who are the actors to be taken into account for a specific action (which is always left to the organizational analyst). Marilyn Strathern (1996) elaborates an interesting point that talking about “networks” and “hybrids” immediately makes us drift into a proliferation of multiple actors. According to Starthern’s anthropological gaze, any hybrid (i.e. the Latourian chains of human and nonhuman actors) contains and assumes diversity and mixture.

¹¹ This list of actors has to be taken into account as a mere reference. This is not an exhaustive list of all the actors involved in European research. For instance, the European Commission (EC) does not appear in this map because it only performed technical assessments of the activities of the researchers (by and large, it remained uninvolved in the DELOS organizing process). None of the researchers regarded the European Commission (EC) as a demanding client. Only the first co-coordinator interacted with the EC; the rest of the consortium never received any requests from that organization. The EC monitors the progress of its projects through Scientific Officers. Three different Scientific Officers were in charge of DELOS and none of them was able to assess the project in its entirety.

¹² These three major agreements worked in the DELOS network as quasi-objects (Serres, 1982: 224-234). According to Michel Serres (*ibid*: 225), the “quasi-object is not an object, but it is nevertheless, since it is not a subject, since it is in the world; it is also a quasi-subject, since it marks or designates a subject who, without it, would not be a subject.” Serres’ quasi-object stabilizes relationships turning them predictable for it organizes and distributes people around it. One of Serres’ examples of the quasi-object is the bladder (i.e. the oval Rugby ball) which organizes and plays with the different Rugby players (i.e. any player gets a position in relation to the circulating ball). Societies which are deprived of quasi-objects need to renegotiate their social contracts every time people interact. According to Serres, Garfinkel’s (1967) ethnomethodology only fully applies to societies of baboons (like the ones studied by Shirley Strum, 1987).

¹³ If this second agreement defining the nature of the clusters of SMEs had not been formulated, I presume the DELOS researchers would have had to return the funds of the European Commission apologizing for not being able to find in the field the objects they promised they were going to study. Also a premature final report could have been elaborated rebutting the existence of clusters of SMEs as a European phenomenon.

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