Inclusiva-net

Digital Networks and Physical Space

2nd Inclusiva-net Meeting

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<NET.GEO> THE EMERGENCE OF THE GEOSPATIAL WEB AND LOCATIVE MEDIA (Introduction to the Second Inclusiva-net Meeting "Digital networks and physical space")

Juan Martín Prada

In contrast to the widely held supposition that telecommunications networks make no territorial distinctions, political power systems today are responding worldwide by strengthening geographical ties to their decisions, through new divisionary tactics, territorial separations, and barriers to prevent people from moving. Migration is becoming increasingly difficult, almost always subject to illegality and suspicion. Tactics continue to focus on localization and using borders for political ends. "To inhabit" still means to inhabit a specific place in the economic and political hierarchy.

In the last few years it has become evident that the Internet is not a system that truly transcends borders. Instead, territorial limits have a strong influence on it. Clearly, equal access to the Internet is not available in all parts of the world. In addition to radically different speeds, possibilities and costs of connecting to the Web in different places, political factors may also limit free speech (e.g., in some countries, many bloggers are tried and sentenced) and access to certain information (results vary among countries for certain key words on the most popular Internet search engines, and there are even places where no results whatsoever are shown in searches for terms of a delicate nature).

This turn toward physical space is intensified today by the enormous development of new technological applications for everyday use that highlight the relation between information and place. Several years ago, portable communication systems, such as mobile telephones or electronic diaries, began to include visual tools like photographic or video cameras; today, many come equipped with GPS (Global Positioning System)[1] devices that provide geotag coordinates, as well as all kinds of applications designed to manage geographically contextualized information.

Large telecommunications companies have realized that, to offer efficient service, users' spatial location is of tremendous significance. Information technology media have become so portable that the "desktop phase" when users accessed information through home or office computers has become a thing of the past. Digital information

now "finds" users wherever they are, in a variety of settings and times. That is why huge possibilities for new business developments are opening up in "location-based services", which provide specifically "territorialized"[2] information, such as geographically contextualized advertising or the location of nearby services like restaurants, shops, etc. Therefore, the advertising directed at us will soon be related exclusively to the place where we are or where we live, and we may even have to get used to the daily presence of "locative spam".

Networks increasingly function through the confluence of principles of synchronicity in time and coincidence in space. In the field of technology today, we are experiencing an intense relationship between calendar and cardinal points. All the tools and applications on the Web currently are quickly adapting this link to physical space, the place and the territory[3].

The growing interest in geotagged information is strongly reinforced by a rising public awareness of environmental data like pollution or climate change effects, as well as by new needs for information linked to physical spaces such as the traceability of consumer goods, that is, tracking the location and geographic route of a product throughout its production, manipulation and sale.

Great progress has occurred in Web applications related to the field of geographic information systems (GIS), that is, those designed to manage geographically referenced information, which usually function as databases generally associated with digital maps. The boom in services like *MapQuest* or *Google Maps*, or the acquisitions by large Internet companies of *Keyhole*, *GeoTango* and *Vexcel* are proof of users' growing interest in geographic data and information and spatial navigation. Among all the "geobrowsers" (applications for consulting geospatial data and managing geolocalized information), some of them, such as *NASA World Wind*, *Google Earth* or *Microsoft Live Local 3D,* have taken on great relevance and are used by a huge number of people, as well as the vast proliferation of blogs and websites related to these geobrowsers, e.g. *Google Earth blog* or *Google Maps Mania*.

Given that the majority of geobrowsing platforms offer APIs (Application Programming Interfaces) or XML scripting for carrying out services on their platforms, creating applications to generate geographic contents is a booming field today. A "geospatial web" can be said to exist now, made up of all these types of applications and geographic data management services[4]*.* There is also a boom in the development

of mapping tools based on "open standards" and "open-data" services such as *Geonames*, which consist of vast geographic databases available for download under *Creative Commons* licence that users can edit and expand using a *wiki* interface. There are certainly numerous communities for "open source" geosoftware and there are countless areas open for work: "GMAP hackers", "OpenMappers", "MapServers", "GPSmappers", "GeoServers", "RDF mappers", "terrain mappers", "geobloggers", etc. There are also companies like *GeoCommons* that enable anyone to generate maps that geographically represent the data that interest them, also using data contributed by many other users.

Linking certain geographic points to the photos and videos taken there, historical data, and all types of personal comments and anecdotes has become an everyday practice among the multitude of users of social networks. Therefore, geotagging activities are becoming more habitual on the Web, that is, assigning spatial coordinates to certain files, such as georeferencing photographs on platforms such as *Flickr*, *Google Earth*, etc. or assigning geographic identifiers to text files and even video and audio documents (*geoparsing*). Geo-referencing images is an activity already performed by photographic cameras that include GPS systems: the date, place, or type of event photographed are metadata included in the photographic document at the time it is created. There are even "in-site" applications such as *GeoNotes* that allow users to "tag" physical space, leaving notes in the places where they are located or reading the notes other users have left there.

The popularization of actions to "annotate the planet" is one of the most significant processes in the development of the second era of the Internet. The expression "The Earth as universal desktop"[5] is even becoming popular. Geo-referencing practices understand geographic localization not only as a coordinate, a dot on a map, but also in relation to the experiences of the persons who were there. The result is generally the generation of open maps, a sort of update of maps showing "points of interest". Actually, the "Geo-spatial Web" brings depth and richness back to geography after many years when the field provided merely cartographic, objective descriptions of places. The texts and other information added to satellite photographs of the territory inevitably invite comparisons with the plaques on buildings that mark where someone was born or died, just as the thumbtacks marking spots on geobrowsers bring to mind the flowers that relatives place periodically at the site of a car accident where they lost a family member.

All of this is accompanied by proposals that are the beginning of a phase in which the great communicative potentials of pervasive computing, or "ubicomp", are evident, that is, of all those technologies that enable the management of digital information anywhere, as well as connections and interaction among different strata of spatially localized data.

"LOCAL WEB 2.0"
The structure of participatory media contents based on spatial annotation point to interesting signs that practices which "spatialize" information hold intense "socializing" potential, given that they involve the development of reciprocal awareness between persons and their surroundings, often based on belonging to common spatial contexts.

The Web has started to channel the collective desire to know more about the geographic spaces around us, the place where we live or that we pass through, as well as the persons who live or can be found around us. That desire has found one of its main sources of fulfilment in the participatory technologies of the social web, which provides the basis of what is called "local Web 2.0". The significance of contextual knowledge is growing as the new connected society is constituted, as well as the possibilities opened up for developing a geographically localized collective memory[6].

The creation of these open maps includes geographic localization and its technologies in the life of the community that inhabits those spaces and places, and serves as a tool for activating specific types of communication and socialization in the community. Thus, many geobrowsers are designed specifically to create communities based on the physical proximity of their users, who share a common environment. Among the most interesting developments are the highly significant projects[7] based on local wireless networks managed by their users.

Actually, even in this new geographic phase of the Web, activated by new geolocalization technologies, we are experiencing the lasting devaluation of public physical space, the continuous de-urbanization of real space. It was thought that this would be offset by the increasing urbanization of the global and (falsely) trans-border space of the networks.

In addition, as a particularly active part of the interweaving of digital production of

sociality and coincidence in physical space, directly related to the "live" experience of a place, it is worth pointing out the rise of hyperlocal journalism, based on comments on news at the local community level, of interest precisely because of its ties to its users' everyday environment. Closely related to this phenomenon, completely coinciding with it in the majority of cases, is place blogging, that is, the activity of blogs focused on events, news and people in a specific local area, such as a neighbourhood or small town. Several aggregators and search engines for place blogs have been put into operation, such as *Outside.in*, *Place blogger* and *Peuplade*. They are proof of a growing interest in exploring the socializing potentials inherent in the physical proximity of Web users and in the information generated and shared by persons who live in the same places.

There are many other emerging collective action practices, such as "flash mobs", that consider their essential component or teleological culmination to be the congregation of persons in a particular place. This is yet another example of the increasingly forceful demand that the social should be built on the materiality of physical space, rather than being limited to the field of online interactions. Streets and squares should be reclaimed as communication media in and of themselves, reactivated as priority spaces for social interaction.

The set of artistic practices related to locative media (a term that can be defined as the representation and experience of a place through digital interfaces) can play an enormous role in the design of forms of social and political dissent, especially though the design of alternative forms of social and communicative interaction. The creative link between these new technologies and mass public protest events that began around the *Reclaim the Streets* movement are very promising. These critical practices are certainly the clearest reflections of the new tensions between the global and the local, the physical and the virtual.

NOTES

1. GPS (Global Positioning) System was authorized by the U.S. Congress in 1973 and was used by the U.S. Department of Defence.

2. See Malcolm McCullough "On Urban Markup: Frames Of Reference in Location Models For Participatory Urbanism", [on line], *Leonardo Electronic Almanac*, vol. 14, issue, 03, 2006, URL: http://leoalmanac.org/journal/Vol_14/lea_v14_n03-04/mmccullough.asp> [Retrieved: 20 March 2008].

3. For example, *Twittervision*, geo-localizes messages from Twitter, adding a significant spatial dimension to the synchronicity integral to this system and opening up a fascinating field of spatial and contextual perceptions. Another example is the tool *Google Trends*, which identifies the source of searches by users of *Google Search*, showing

through complex graphics how often a certain search is carried out in various regions of the world.

4. Also noteworthy are *Weogeo, Everyscope*, *Veloroutes*, and *Edushi. Edushi* is focused on the three-dimensional construction of cities.

5. "Earth as Universal Desktop", is an expression proposed by Neal Stephenson in his novel *Snow Crash* in 1992.

6. Of special interest in this respect: the *Urban tapestries* project (2002-2004) by the Proboscis collective.

7. See, for example, the *Neighbornode* project, created by John Geraci.

LAND, MEANING AND TERRITORY: THE GEOSEMANTIC EQUATION

Diego Cerda Seguel
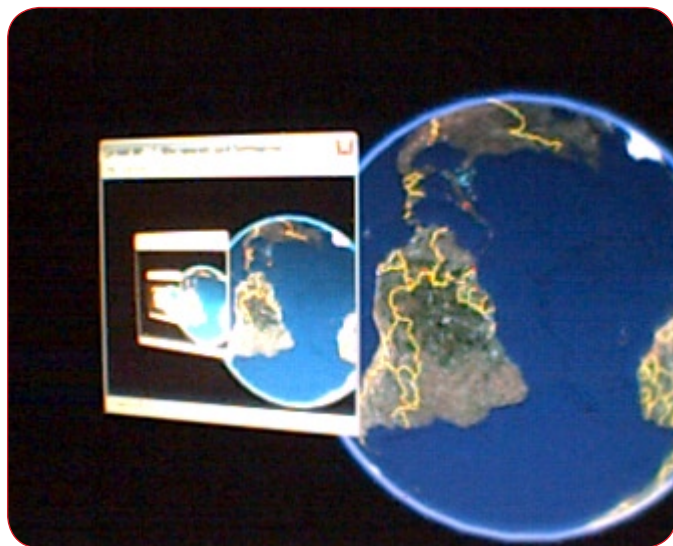
ABSTRACT

This is a Utopian analysis of the development of KML and mashups of virtual maps. Utopian is defined here in its etymological meaning of 'another place'. Not a matter of philosophy, this Utopia is operative in reality and virtually. The construction of the territories we inhabit is starting to be displaced by a new way of understanding land, territory, and homeland. Virtual maps, once merely tools to help us get from point A to point B, have become creative contingencies. KMLs take on geosemantic power, although they are not made according to W3C Semantic Web criteria, given that they make a new concept of geosemantics necessary. Today we can create territories at will and they can reach levels of validity in the real world depending on community behaviour. The geosemantic equation proposed here aims to open up the real and virtual potential of the tendencies generated by the virtual maps. The construction of the geosemantic equation requires the development of a theoretical framework that clarifies and orders the ontological complexity presented by the *paradox of the ascensional mirror* implicit in Google Earth, *primus inter pares* of geographic programmes for final users.

KEY WORDS

GEOSEMANTICS – GEOGRAPHY – NEOGEOGRAPHY – TERRITORY – VIRTUAL MAPS – GIS – GEOREFERENCE – MEANING – KML

INTRODUCTION

The appearance of Geomatics and Geographic Information Systems (GIS) revolutionized the work of physical space analysts: geographers and geoscientists. Laymen around the world played a very small part in this revolution, other than serving as measurable variables to satisfy criteria for understanding human geography. The advent of Google Earth has extended the GIS revolution currently into the everyday lives of some 300 million persons worldwide.

Google Earth has had an impact on users who have downloaded the programme and on those who have been able to see its interphase. The impact of Google Earth has ontological (existential) qualities which imply a revolution that is more than just a moment in the evolution of digital geography. In addition, it has changed our everyday experience of the world, with profound consequences in the structures of individual and social thought. Google Earth is a phenomenon that is geographic, first of all, but even more so, it is philosophical, anthropological and sociological. That is, its consequences are better understood if considered from a human sciences and humanities perspective, although of course a technological understanding of the basic phenomenon is necessary.

From the start, the author has participated in the intellectual challenge of Google Earth (Google Earth and the series of virtual maps), designing a concept that presents the consistence to direct intuitions and expectations of what would become an Internet search engine with a planetary visual interface. The concept was that of geosemantics, conceptualized, not thinking that it already existed as a Geosciences project.

GIS also already existed within the Geosciences, within human geography for scientific and administrative purposes; likewise, geosemantics already existed as a project to improve the handling and interoperability of data provided and installed in GIS. Just as Google Earth socialized the benefits of GIS, enhancing their visual and searchable features, the geosemantics proposed in 2005[1] were a proposal to socialize that other geosemantics of a technical, scientific origin.

Google Earth is not the only programme for virtual maps, but it is certainly the largest and most widely used, and therefore, has greater social weight on a global scale. Even including open source maps, Google Earth and Google Maps are the reference points that have provided the search for and development of alternate open source geographic programmes for Web uses.

In the author's 2005 essay, the argument presented was that "*Google Earth is a key piece of the new Technosocial Era*", bringing up the idea of a geobrowser, a whole Internet geographic search engine, where all the information sought and found was related to a physical place on the planet, and even more virtual data would be found to be linked to at least the databases where they were hosted. This view was complemented by the idea that the Semantic Web is an organizational model for data expressed in natural language, to create a continuum of human-machine understanding, that is, a continuum toward socially constructed artificial intelligence. The concept of Geosemantics brought up at that time had a sociological basis, and aimed to outline the possible consequences of an intensive use of annotating the planet with social data.

Considering the definition of Geosemantics given by Jean Brodeur's project at the Natural Resources Canada, and by Berners-Lee's W3C, these definitions can be said to correspond to the figure of 'Geosemantics with a dust cover', alluding to the technical aspect of this meaning. The definition given by the author in 2005 can be associated with 'Geosemantics with a shirt', alluding to sociologists as those in charge of studying and enhancing the societal appropriation of virtual maps and the power of annotating the planet.

At present, while we continue waiting for Web 3.0 (the Semantic Web) to burst into our everyday lives, the breakthroughs of Web 2.0 have impressed us because of the multiplicity of resources they use based on the social structure of data. Following the same evolutionary logic, just as Web 2.0 has democratized access to publication on the Web, with many free access resources, virtual maps have likewise fit into the socializing movement, leading to an explosion of laymen geographers making annotations and composing KML. This explosion of data linked to maps (news, photos, sites, business, etc.) has generated a new concept of this era in geography: Neo-geography[2]. This meaning, based on a better understanding of the Web 2.0 phenomenon and its open development of contents and resources, has led to considering 'Geosemantics with a T-shirt', alluding to the construction of meaning about the planet based on common

users, with a free orientation, unlimited by any serious or truly necessary commitments. This 'Geosemantics with a T-shirt' identifies the new geography or Neogeography.

NEO-GEOGRAPHY

Neogeography defines a new era in geography, in which it is no longer the specialty of geographers and GIS users. It is now an openly available technology for the construction of maps and cartographies based on ordinary, common Internet users. KML files (*Keyhole Markup Language* or, when compressed, KMZ)[3] allow for representations of physical spaces with multiple resources to show the four dimensions, and generate other Utopian dimensions, such as interdimensional fictions[4], interactivity, real time, etc., the ones visible for the Google-Earth and NASA World-Wind geobrowsers. However, for this type of application on Google-Maps and Yahoo Maps, the resource is called API (*Application Programming Interface*), which enables multiple applications combining and retrieving maps from various Web sites, although API certainly has broader applications. The way these resources are mixed is called a *mashup*, which does not refer exclusively to KML, but to combinations of Web applications in general.
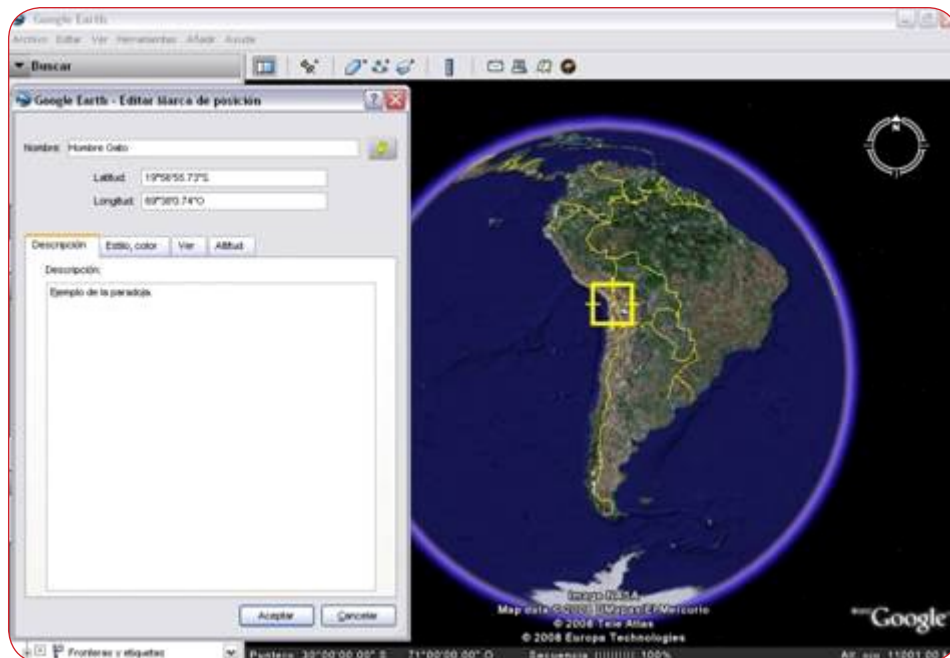
Mashups including maps with different configurations of Web applications and KML aim to empower ordinary users with new creative geographic abilities. And we say creative in the strongest sense of the word, given that the possibility is offered to mix resources and generate a new geographic understanding that expands possibilities for territorial design, in the hands of ordinary users.

Geography is no longer a specialty; it has become a generality. This has serious consequences for our societies, given that geography establishes the limits of our nation states, and that is one of its most significant formal functions from a geopolitical standpoint, which necessitates specialization and holds authority before international organisms, other nations, and ordinary citizens.

Neogeography refers to the point where geography is constructed by anyone who wishes to design and create territories. This changes many of the concepts we have held up to this time.

In view of the importance of clarifying and disentangling the many transforming consequences, this essay aims, firstly, to generate a general theoretical framework for this *geo-phile Internet user* process, which gives us an overall understanding of the matter of new geography based on the openness and freedom of map publication and annotation, with special attention to the transformations in social parameters related to the power to freely manipulate geography. To do so, we must call on new ideas, using newly coined terms that enable us to capture the human process on the virtual planet, as well as state a minimal equation on the social construction of geographic contents. That is the purpose of this work.

THEORETICAL BACKGROUND

A comprehensive framework is offered based on concepts that must be defined explicitly, involving a philosophical search for their potential meanings. To do so, we will follow the path of *Geophilosophy* laid out by Gilles Deleuze and Felix Guattari (ascribed to Nietzsche)[5].

Firstly, we will look at the tendencies presented over the last three years, consisting of six events that produced their own paradoxes of increasing degree and consequence, from the abstract-virtual to the political-legal level. After looking at the paradoxical scale, we will offer the conceptual definitions needed to provide the Geosemantic equations that are the purpose of this work.

Given these facts:

1.- *Paradox of the ascensional mirror*: The real planet, recorded by satellite and aerial photography at different, relatively recent times, is visually available to millions of users globally through virtual satellite maps. Upon viewing the planet on our screen, our position rises up to satellite level, which then takes us to a higher level, that of manipulating the digital planet. We are simultaneously observers and the observed, a circle that rises to the spheres of thought and imagination, on an individual and planetary level (noosphere). The first level of paradox appears here: we observe, manipulate and possess a world that is a real representation of the land we live on (a hyper-reflexive and creative observer).

2.- *Paradox of geographic authority*: We have the KML tool to annotate our data about the planet. These data do not correspond to any established criteria: instead, they are free geographic syndications. (Dots, lines, routes, polygons, layers of images, GPS tracking, 3D models, etc.) If it is possible to annotate polygons and images on that virtual planet, this gives rise to another level of paradox: fictitious maps, contender maps, or historical maps can be established over images of the virtual planet, generating representations that offer alternatives to prevailing established maps (by professional and official geographers).

3.- *Paradox of alternative territories*: Each user of virtual maps has a subjectivity that should be understood as *cartographic agency,* considering the millions of users. Each of them generates and reads maps based on their individuality and, what is more, each can judge others' maps based on affiliations that are random or predictable to a greater or lesser degree. Thus, they hold a heretofore unknown power that can actually arise without much difficulty and which leads to the following level of paradox: the territory created by the *cartographic agent,* regardless of its level of reality or fiction (of precision, interpretation, historicity, etc.), can be judged, that is, voted on, synchronously by millions of affiliates of that geographic perception (territory). Once a certain critical mass of affiliations is reached, that perception begins to behave as if it were real (bringing to mind Borges or Carroll). The critical mass is not a specific number but rather is related to the breadth of the territory, the weight of meaning, contingent elements, fictional factors, emotivity, etc.
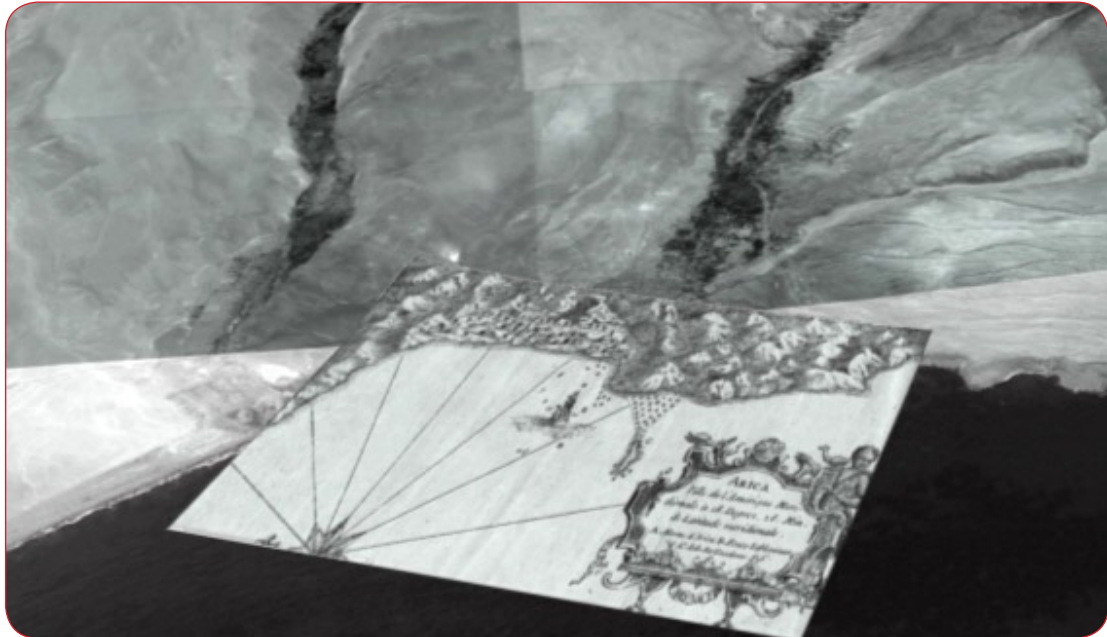
4.- *Paradox of the surreal judgement of KML*: The type of affiliations that influence 'KML judgement' –that is, votes and affiliation with a KML- are based on a differential of motivations converging in a synchrony of criteria (showing approval or disapproval) related to the quality and quantity of the geographic composition. Therefore, it is possible to consider these criteria in today's society which arises mainly from emotional affiliation, especially as mass media society has increased the dose of subjective emotional manipulation of the public and consumers. The fourth level of paradox is that the KML judgement becomes surreal. It is unanchored; it does not seek to anchor itself in agreed-upon geographic definitions or spatial logic, aiming instead to *go beyond them,* in terms of the cultural construction of virtuality and real physical space, feeding Utopianism with earthly weight (a theme of the post-modern era).

5.- *Paradox of generalized geopolitics*: The possibility of validating a territory created based on KML is equivalent to creating a virtual world (like Second Life), but it can take on geopolitical and geostrategic interests on the real planet. This implies a new meaning of the concept of augmented reality: if the community of geobrowsers accepts territories in which real territorial conflicts exist (not only at the level of relations among nations but also regarding all their subsets), or simply decides to accept fictitious or partisan definitions of territories based on KML approval, thus, the following paradox arises. The fifth paradox concerns theories of domination, state and sovereignty: the nation state cannot control a virtual territory that represents its "sovereign territory". *The nation state cannot manipulate the KML judgement,* and consequently, the set of differential cartographic agents and geobrowsers can operate and carry out tautologies freely on the territory, based on their own agreements. Geopolitical power is opened up to the authors of KML, and in opposition to real and also fictitious sovereignty (see the case of Sizigia Island).

6.- *Paradox of KML Reality*: Geobrowsers that back up a voted-on territory operate and will continue to operate according to the related KML reference coordinates. That is, as pedestrian beings they will develop all the consequences of the place,

as shown in the territory drawn on the KML. The final paradox examined here arises from the possibility of experiencing terrestrial physical space in accordance to a KML, thus eventually omitting, invalidating, annulling and suppressing the established territorial sovereignty. The paradox here implies a real conflict as to local physical space between the affiliates of the KML and political and legal control of the land. We also consider that the power of the KML, if real, can lead, not necessarily in a conflictive manner, to architectural works, urban and landscape projects on a territory that initially exists as a Utopia, that is, in the territorial concept presented by the KML (especially in view of the integration of 3D models in the *Sketchup* programme).

Now that we have reviewed the paradoxical aspects, we will examine the definitions comprising the proposal.

Given the openness and freedom with which geography can be built today, the (non-intensive) definition of geography by Deleuze and Guattari takes on greater validity:

> "Geography not only provides history with matter and variable places. It is not only physical and human but also mental, like the landscape. It disconnects the history of a worship of necessity to make the irreducibility of contingency real… It finally disconnects history from itself, to discover developments." [6]

This definition is even more valid and penetrating today, but we must consider the technological increase of mind power to realize spatial contingencies, and broaden the horizons where developments can be founded that will unfold the geographic proposals mainly written in the strength of the KML territory.

THE GEOSEMANTICS EQUATION

Thus far, we have taken for granted the concept of Territory. Let us go back and look at the problems with this concept, in the context of virtual maps and their societal consequences.

Territory arises from an intention toward the land, the will to appropriate some land. A LAND is appropriated, first of all, by giving it a MEANING. A territory is what we mentally grant to a place. We will focus on the definition of the terms LAND and MEANING:

1) We understand that Land has two meanings:

a. The Land is Gea, a unit of meaning: Mother Earth, Living Home, Global Globe, etc., considering its orbital space and electromagnetic field. That is its general meaning.

b. Within the Earth or Land as a place, there are certain physical spaces or places; *the land, the lands.* In operative terms, taking into account the act of giving geographic coordinates to a KML, we can objectify it as the following:

    i. Dot: minimum coordinate (Lat., Long.)
    ii. Line: continuous sequence of dots.
    iii. Area: surface of a certain physical space, outlined by a line of dots.
    iv. Volume: three-dimensional space with or without a reference on the surface space of the Earth, but with reference to the land's air and orbital space.
    v. Flow: Movement of spatial variables referring to objects.

2) Meaning:

- In logical terms, we recognize that meaning is defined as one of the maximum complexities, given that every meaning implies its own lack of meaning, creating intermediate chaotic fields (Carroll, Borges, Deleuze). Meaning is perception, and we are what we perceive (Parmenides). Meaning is a mental activity. It creates concepts to make itself known, and places them in line with a will to signification identified with a (physical or discursive) place.

- In terms of degree, the meaning can be

    i. Teleological, pragmatic, utilitarian, functional: meaning itself.
    ii. Substantive, existential, ontological. In this case, there is a field affiliated with the meaning, which is LOVE. *Philia* in general, the capacity of making an emotional, corporal, and even vital commitment to the meaning granted to that place in thought: place-object or physical place.

- For heuristic purposes, we consider an operative definition of Meaning that permits a minimal algebraic consideration: Meaning is determined by the

human act of granting meaning to something, of signifying it in a particular way. In this case, the means of signification is the composition of KML, the act of giving it contents, without considering its coordinates yet.

– Our main meaning stems from this definition:

1) LAND + MEANING = TERRITORY

It describes a process of relative territorialization, that is, the act of giving meaning to a place; simply granting content and coordinates to a KML. This meaning can be minimal (a point in space marked with a title and a brief description) or intensive (a volumetric territory, with virtual models, news in real time, intensive key words, etc.).

– And its algebraic alternatives:

2) LAND = TERRITORY – MEANING

Which describes a relative virtual de-territorialization, that is, when land loses meaning and what is human vanishes from the place, which goes back to being only a geological deviation. For the virtual map, it is simply a space without annotations, without KML.

3) MEANING = TERRITORY – LAND

This describes virtual de-territorialization. Georeferencing is lacking only in Internet browsing. Only the Web prior to virtual maps remains. It was the time when we though that the Internet was purely de-territorialized. A KML is not a complete KML, given that it lacks coordinates and land upon which to position itself.

Each territory, *understood as KML, is a concept in itself*, which, in each particular case –published KMLs–, offers a *sui generis* dimension of the physical space it describes, a dimensional map governed by the creator or creators of the territory.

The *mashup* enables the continuous expansion of the resource structure embedded in a KML. Thus, a capacity is provided to *animate* territories and to attract, convince and commit the feelings of geobrowsers.

Meaning, at the level of *Philia* or Love, brings a new type of relationship to a land, according to the mechanism of paradoxes that has been proposed. Affiliation, a favourable vote and the critical mass of affiliations for a KML can develop into more than a simple territory of virtual maps. It can develop into –perhaps at the moment when it reaches the limits– a '*Patria*' (Fatherland). Fatherland here has a very new meaning, which certainly intercepts the real physical space in which the territorial concept was created.

The concept that grants the quality of affiliated territory to a KML is the concept of "*terruño*" (one's native soil), land rooted to customs, to the customs of geobrowsing on the Internet, and to its expansion and consequences on physical space. El "terruño" (one's native soil) has a tonic property. It is rooted in the land based on the mind; it assumes the place, the physical space as the ontological property of a being, of a community. It places it on the existential balance and constitutes its determining weight.

– This is the following equation:

4) TERRITORY + LOVE = "TERRUÑO" (ONE'S NATIVE SOIL)

Territory that received favourable votes, territory that has a critical mass of downloads of the KML, creating a virtual environment with potentially real effects. It can attain paradox number six of *KML Reality*, and the following may arise: a strong affiliation with a KML territory, eventually a *KML Fatherland*, a territorial icon, a Utopia.

At this algebraic point the power of the geobrowser user reaches its geopolitical level, comprising a variable physical space with fractal scales, given that they are determined by the optical scales of observing a virtual land. In the optical continuum of a zoom, on the land, there are countless degrees of approximation, each of which comprises a semantic space that integrates the lower optical levels.

Fractality can be discussed related to optical scales and also in accordance with the extension scales of a territory, from the most local, geographically intimate level to the most general, that is, the attempts at the signification of a larger space: a continent, an ocean. For example, the autonomous movements in the world can consider their own version of their KML fatherland, with expectations of validation

on physical space. That is, it is scaled from the most local to the geopolitical and geostrategic level, and beyond, in *geography fiction*, i.e., in territorial creation based on imagination.

When we speak of the critical mass of affiliations to the KML we should understand *the power of social networks* to develop unusual mass phenomena. Internet communities are observed as chaotic phenomena, given that they can grow and evolve in a way that is hard to predict. We have seen this in Web 2.0, which enhanced the chaos of contents and the meaning of random organization that we witness in blogs.

GEOSEMANTICS: BEYOND THE HEURISTICS OF UBIQUITY

Lastly, we propose an equation representing Geosemantics in a dimension different from that conceived in equation number 1:

    a) LAND = GEA
    b) MEANING = SEMANTICS

Therefore:
    LAND + MEANING = GEOSEMANTICS

However, this Geosemantics is free of the limitations stemming from its meaning within the W3C Semantic Web project. We are still waiting for this project to acquire its critical mass and to start generating societal consequences. For now, though, we will understand Semantics as a simple *meaning*, without attempting to structure it in terms of the objectives of composing a social Artificial Intelligence. This, given that the creation of territory based on KMLs does not aim to be structured as a unified project that KML users intend to follow but rather, each one creates their own territorial criteria, which will be judged by the communities.

This time Semantics has a free meaning. The Global GeoSemantics Web *(Web GeoSemantica Global)* proposed by this author in September 2005 is still in effect but at a level different from the geographic Internet phenomenon. Its place lies on the path toward developing social AI with knowledge of place, with an *awareness of place.* However, it should not be forgotten that KMLs, to the extent that they achieve affiliations and thus *realize* territories, will become part of the knowledge that the Global GeoSemantics Web should include in terms of spatial AI.

Geosemantics as presented in this work are oriented toward exploiting the heuristics of spatial Utopia; that is, they aim to encompass the phenomenon of virtual maps just as global society has appropriated it, highlighting the capacity of generating meaning over the land, that is, the power of territorializing the open space of virtual maps.

If:

LAND + MEANING = TERRITORY

And:

LAND + MEANING = GEOSEMANTICS

Then:

GEOSEMANTICS = TERRITORY

Geosemantics is then identified with the territory, but more precisely with the practice of creating and developing territories on virtual maps, especially under the expectation of generating consequences on physical spaces; that is, of validating those territories as Real Reality before the various communities of Internet users.

Geosemantics identified as the practice of generating territories, as it has been presented, has become a force for artificiality, a Utopia that we can no longer ignore. The free speech integral to Web 2.0 is coupled with the power of neogeography to free annotation of the land, enhancing the geographic meaning and an awareness of each place.

The demiurge that develops territories based on an artistic vision, a political position, or a social or environmental commitment will perhaps represent itself based on an icon that virtually inhabits its territory and enables others to enter as icons that inhabit an extensive KML, or which inhabit the *metaverse* that Google might implement. Trends show that this is more than likely, although we do not know if it will happen as soon as we would like.

NOTES

1. Cerda Seguel, Diego. *El mundo según Google. Google Earth y la creación del Dispositivo Geosemántico Global*. http://Geosemantica.gearth.googlepages.com

2. This term was coined by Di-Ann Eisnor of Platial Inc. However, I consider it a generic term of such breadth that it would be very difficult to limit its creation to a sole author.

3. We should keep in mind that KML is a format that includes many aspects of the GML file, used for operating GIS (Geographic Information Systems), but GML differs from KML in that its grammar does not include the ability to present data (KML's graphic visual interface) but instead it is oriented to "modelling, transporting and storing geographic information" (from a GML article in Wikipedia in Spanish).

4. Interdimensional fictions are immersive spaces based on monitors. I consider three main dimensions: reality, fiction, and reality-fiction. Classified within fiction are the territories of literature (Tolkien, Borges, and Don Quixote). When reality is created based on imagination (covert operations, macabre games), we speak of reality-fiction. When the monitor space of virtual maps makes it possible to juxtapose these three dimensions, we speak of interdimensional fictions. See my work on political philosophy: *La inteligencia y los guionistas de la realidad: La creación artificiosa del mundo*. Aainteligence.cl, January, 2008.

5. Deleuze, Gilles, and Guattari, Felix: *¿Qué es la filosofía?* Anagrama, 1993, Barcelona.

6. Deleuze, Gilles and Guattari, Felix. *¿Qué es... Op. Cit.*, pp. 96-97.

LOCATIVE MEDIA AND INFORMATIONAL TERRITORIES
Mobile Communication and New Sense of Places.
A Critique of Spatialization in Cyberculture.

André Lemos

ABSTRACT
The basic underlying idea of this paper can be put as follow: informational mobile technologies have enabling new means of communication and sociability based on what I call "informational territories". What is at stake here is to question some visions about the relationship between informational technologies and place, territory, community and mobility. I'll argue that new mobile technologies, under the label of "locative media", are creating new forms of territorialization (control, surveillance, tracking) and, against the thesis of "non-place" or "no sense of places", new meanings of space, place, territory. Moreover, we have to argue the ideas of anomie and isolation with the rise of new forms of sociability and community created by location-based services.

LOCATIVE MEDIA

Locative media is a combination of location-based technologies and location-based services (Benford, 2003, 2005; Chang and Goodman, 2006; McCullough, 2006; Pope, 2005; Barkhuus et al., 2005; Hightower, 2001; Rao and Minakakis, 2003; Smith et al., 2005). The term locative media was proposed in 2003 by Karlis Kalnins, at the Center for New Media, in Riga, Latvia to distinguish corporate use of location-based services from artistic proposes. Location-based technology is the set of digital devices, sensors and digital wireless networks (GPSs, mobile phones, laptops, palms, Wi-Fi, Bluetooth and Wi-Max, RFID, etc.) constructed to allow exchanges of information with the physical. Locative media could be used for locating, mapping, access to services and information, art, or games (Benford, Crabtree at al., 2005; Benford and Magerkurth, 2005; Benford et al., 2004).

The content and the information exchange generated by these devices and networks are location-based services. Location-based services can be classified into information and directory services, tracking services, emergence services, navigation, advertising and promotion, art and games. These can be grouped into 4 basic categories: search for location (maps, real time traffic, services), personalized services (based on the profile of the user), niche consumption, corporate and

industrial applications (track material, consumers, suppliers and employees), art projects and games (Karimi and Hammad, 2004; Lonthoff and Ortner, 2007). Locative media has mass media and "post-mass media" functions as I explained in other paper (Lemos, 2006, 2007)[1].

Locative media are ubiquitous and pervasive. Mark Weiser proposed the term "ubiquitous computing" in 1991 when he founded Ubicomp. We can define ubiquitous computing as a computational process integrated and sensitive to the external environment, widespread in diverse objects (Weiser, 1991, 1993). Locative media are examples of applications and services using the ubiquitous and pervasive computing proposed by Weiser. Hinske et al. (2007) explain that IBM introduced the term "pervasive" in 1998 to describe the *"paradigm that deals with the integration of computers in our surroundings."* For the purpose of this paper, I will not differentiate between pervasive and ubiquitous computing.

I show in other papers (Lemos, 2006, 2007) that locative media projects can be classified in four main fields: 1. "Urban Electronic Annotations" (new ways to "write" the urban space with mobile devices, like Yellow Arrow[2], Sonic City[3]; 2. "Mapping and Geo-Localization" (to attach information - photos, text, video, sound – to maps, to build bottom-up maps that represent communities - like "Neighbornode"[4], "Peuplade"[5], or Citix[6], or to plot and tracing with a GPS device, like my project SUR-VIV-ALL[7], in Edmonton, Canada); 3. "Location-Based Mobile Games" (online games that uses mobile device with locative capabilities in urban space, like "Uncle Roy All Around You"[8], "Pac-Manhattan"[9], or the Brazilian "Senhor da Guerra"[10] and Alien Revolt[11]. Her the city becomes a playground, the "game board") and; 4. "Smart Mobs" (political and/or aesthetic - Flash Mobs - mobilizations coordinated by mobile devices, usually cell phone and SMS texts to perform an action and disperse rapidly, like political protests in Philippines, against President Estrada; in Madrid, after the terrorist attack on the trains in 2004; in São Paulo with the criminal organization PCC plotting attacks all over the city, or student protests in Chile in 2006 and 2007 against Microsoft, in Shanghai in 2007 against the expansion of maglev tracks, in Pakistan against President Pervez Musharraf, or in Uganda for women rights).

OLD AND NEW MEANS OF...
All of these experiences with locative media indicate that mobile technologies do not aim to produce virtual worlds with which to replace the real world, or to a deterritorialization process. Instead, they put the emphasis on control,

territorialization, and the production of content that is bound to objects and places. We must avoid a romantic and dichotomous view of these new cyberculture processes and try to understand new and old meanings of concepts such as territory, place, mobility, and community.

TERRITORY

We constantly encounter territories and boundaries. Territories are controlled areas with defined borders where the mobility and through flow is regulated (in terms of speed, forms of access, power and amplitude). Borders are membranes and allow communication. Control and surveillance are means of monitoring and tracking movements and flow within territories. So, in thinking about territory one must take into account mobility and flow, surveillance, violence and means of exercising control. To understand mobility and flow using the new locative media technologies, we must consider not just the physical territories, but also new forms of informational territory, as will be shown later.

This concept is complex, referring to various fields, from the demarcation of an area of political and economical sovereignty (international relations), the expression of collective identities (anthropology), forms of control and hierarchies within social relationships (sociology), and the "inner space" in relation to privacy, comfort and emotional subjectivity (psychology). The notion of territory can be understood as a dynamic struggle between flows across the borders (religious flow, identity flow, geographical flow, economic flow, etc.) around places. Globalization has created new problems with borders, increasing their porosity and developing new methods of communication. This has created a crisis in the territory dimension (nation state, body, subjectivity, culture, politics, economy). Now more than ever, we must see territories (physical, geographical, subjective, political, informational) not as sealed "boxes", but as "hubs".

Space, places and territories are social productions. Places act as locus of meaning and memory, permeated by intense flows that create a sense of belonging. Within these places, there are zones of control and tension within borders and territories. Territory is a polysemic concept. The complex dynamic between territorialization (control and institutionalization) and deterritorialization (movement, smooth space) gives social meaning to places and space (see Lemos, 2006). Place is "events" created by territories, fluid areas of control produced by territorial negotiation (horizontal dynamics) and negotiations between places (vertical dynamics). Space

produces places and is produced by places. Moreover, space, place and territories can be seen as waves of territorialization and deterritorialization in an endless process. Consequently, we must not see territory as "natural", but as a cultural artifact, a social product linked to desire, power and identity (Delaney, 2005). Social life produces significance in space and the places that reshape spaces.

PLACE

Place is an essential dimension of human existence. It is a form of seizure of the world, an "a priori" for Kant, an ontological need for Heidegger. We have "to build a dwelling" to inhabit the world. This construction is a production of place. Men need to transform the external environment through technique, language, and institutions to fill it with meaning so that it can be inhabited. Without that production, man does not exist as a cause and place "produces" society, not the opposite. Places are created by territorialization dynamics. They are "events" (Thrift, 1999) Lefebvre). For Tuan (1974), space is generic; it is movement, and place, the particular, the stop, the "home" of community. Place can be seen as fixed borders, institutionalization, and permanent control of an area of the generic space. As Cresswell (2004) put it, *"place focuses on the realm of meaning and experience. Place is how we make the world meaningful and the way we experience the world"* (p.12).

With the evolution of society in the industrial age and the growth of movements and flow of goods, capital, people and information, places cannot be seen as fixed portions of space or as anchoring points for communities. Seen as a point of attachment and roots, places disappear with the increasing mobility of modern societies. We now have new dimensions of place, and they have become intersections of flows (Shields, 1999, Cresswell, 2004, Massey, 1997, Thrift and Amin, 2002, Coultry, McCarthy, 2004), "hubs", dynamically produced in time. This goes against the idea that globalization is causing places to dissolve into "no places," that "lose their senses", and that speed and space, and time compression are "erasing them": Tuan (1974, 2004), Harvey (1989), Meyrowitz (1985), Virilio (1984), Augé (1995) that sustain a diagnosis that places are dissolved into "no places," that it "lose their senses", and that speed and space, and time compression are "erasing them". Then, mobility and flow destroy, erase and weak places. As Pred (1984) argues, *"places are never 'finished' but always' becoming '. Place is' what takes place ceaselessly, what contributes to history in a specific context through the creation and utilization of the physical setting" (*p. 279). Or as Thrift puts it, *"places are 'stages of intensity." Traces of movement, speed and circulation"* (1994, p. 212-

13, cited in Cresswell, 2004, p. 48). Places are in process, and as Massey says, "...
instead of thinking of places as areas with boundaries around, they can be imagined
as articulated moments in networks of social relations and understandings..." (in
Cresswell, 2004, p. 69).

Changes in the functions of places is what Foucault (1984) called heterotopy.
Heterotopias are functions of places, *"real spaces - spaces that exist and are trained*
in the very foundation of society - which is something like counter-sites, species of
utopias held in which all the other real sites that given culture can be found, and
where are both represented, challenged and reversed" (Foucault, 1984). I have
demonstrated in a previous paper how cyberculture is creating new heterotopias
based on Foucault's five principles (Lemos, 2006). We can hypothesize that
informational territories create new heterotopias of places and new informational
functions. Informational society has created a new heterotopy (informational control)
within places. Places (public or private) as squares, shopping centers, schools,
offices, hospital, library, banks, and so forth are changing with informational networks
and informational territories. There are also new temporary uses of these spaces
and a merging of different functions, including new forms of control, access, and
surveillance, and new forms of openness and closeness (passwords, access profiles
etc.). Informational territory creates new heterotopias, new functions for places and
a redefinition of social and communication practices. It is not the end of squares,
schools, homes, shopping centers, hospitals, offices, etc., but rather, a new meaning
(new functions) for these spaces. New heterotopias create a revitalization of places.

Locative media projects can help us to see places and space differently. Locative
media do not point to a world of electronic cyberspace apart from the physical world.
Instead, they insist that what they produce are "augmented realities" for playing
on the street, in annotation, mapping and tagging real things. What we are seeing
now are several examples of integrated, mixed processes that merge electronic
and physical territories, creating new forms and new senses of place. Therefore,
the fears of loss of reality and deterritorialization appear to be unfounded. When we
create tags and maps, use a GPS with a mobile phone to find a location, produce
content and electronically annotate a place, play location-based mobile games or
organize mobilization in public space by SMS, we are controlling the space, create a
new sense of place and new forms of territorialization.

INFORMATIONAL TERRITORY

It's not out of context to think that the contemporary information society creates new kind of territories: informational territory. Is plausible to think that the information society produces new territories. Informational territories can be understood as areas where informational flow in the intersection between cyberspace and urban space is digitally controlled. Here uses can either control inputs and outputs of information date. The informational territory creates a new function of place, a heterotopy. For informational territory I understand the area of control (and to be controlled by) of digital information flow in an intersection with a physical area. So place, as a result of territorialization (geographic delimitation, laws, and regulations) gains new layer information that's a new territory created by electronic networks and mobile devices.

By informational, I mean digital, electronic informational flow. All territory is made of information. Although, in using the term informational territory, I want to differentiate digital information layers from other forms of "information". Wireless networks, sensors and mobile technologies that open up new uses of place create digital information layers. The informational territory is not cyberspace, but the territory in a place formed by the relationship between the physical dimensions of territorialities and the new electronic flows, creating a new form of territorialization. The place becomes more complex because this territory is now related with other territorialities (laws, regulations, subjectivities, cultures, and politics). Empirically, we can see these informational territories by examining the use of public spaces equipped with the new infrastructure of wireless networks and devices or from ethnographic research showing the relationship of users with the space before and after the formation of informational territories.

It's correct to see cyberspace as a "digital territory", as Kameas and Stamatiou (2006) argue. They say that artificial digital worlds or cyberspace can be mathematically modeled as a "digital" or informational territory:

*"Nowadays, it seems that we are close to the development of the foundations of yet another 'Artificial' concept: the **Digital Territory (DT)**. (…) In a few words, the concept of a Digital Territory seems to integrate Artificial Life with Artificial Intelligence: it describes worlds with moving agents which, however, move in complex terrains which contain elements of both the physical and digital world (as opposed to organisms living within a computer simulation program) as well as "real" intelligence since it integrates devices with human beings in a complex pattern of interactions."*

Others speak in terms of a "bubble" (Beslay and Hakala, 2005) or a "cloud" (Vander Wal, in Roush 2006). These images are interesting and show a picture of the "form" of the territory informational. However, both "digital bubble" and "digital cloud" do not offer the ontological dimension of place; they don't inform about the basic principles of these bubbles or clouds. I propose the concept of informational territory because, although it may take the form of a "bubble" or "cloud", it indicates here not a form but a function, a way the place is reconfigured by technology, sensors and digital mobile networks. If we think about territories, we can see the new dynamics, new forces and new powers being established in places through these devices and networks (here we can face political problems like surveillance, monitoring, privacy, the digital divide, and so on).

Thinking about territory is thinking about control and power that the image of the bubble or cloud doesn't reveal. A place is always controlled (by law, ethics, moral, rules); it is always consists of territorialization and tension with deterritorialization (new laws, changes in ethics or morals, etc). The notion of informational territory allows us to see a new processes of control (information), adding more complexity to places. It means that the user can control what to receive and what to produce in terms of information, but has to deal with other forms of power and control (other territories) present in any place.

It's known that there is a shift of power as disciplinary confinement (Foucault) to tracking and control mobility (Deleuze): CCTV, passwords and profiles, RFID tracking systems, cell phone ID surveillance, GPS tracking, and so on. Informational territories reflect new dimensions of territoriality, new relations of power and new social practices of mobility in contemporary society. Mobile technologies and networks create new forms of mobility (informational, as we'll show) in institutions of confinement by allowing deterritorialization. Informational territory implies at the same time, dissolution and creation of new forms of controls and mobilities redefining places nowadays. We have to understand mobility to get all the dimensions of locative media today.

MOBILITY

Projects in locative media, such as urban annotation, location-based mobile games, mapping, flash and smart mobs can be seen as a new city language, spoken using new mobile technologies and networks. Just as Tonkiss argues in her analysis of

graffiti and skate practices, we can say that locative media *"take(s) the surface of the city as a space in which demands might be advanced, inscribed identities and challenges issued"* (2005, p. 140). Mobile technologies and networks change our everyday experience of places. Consider the use of mobile device like cell phones and laptops: the search for hotspots makes people sit in one place instead of another; the exchange of phone calls or SMS creates a new movement on the streets and new forms of synchronicity or meetings; the current methods of locating and mapping change the way people view, and interact with, the city structure; access to information on mobility in blogs, micro-blogs or social software changes the way people produce content about their experience and link them to their community. These technologies are producing a new pace to everyday life, and new mobilities within places.

Mobility is inherent to man. A historical perspective shows the systematic creation of mobility throughout history in the development of artificial methods of transport and communication. This need for mobility is also correlated to the need to establish a fixed place, to build a memory, a point in a generic and abstract space, as we have seen. Mobility brings together communication, technological, geographical, economic, cultural and social issues (Urry, 2000; Sorokin, 1964; McDowell et alli, 2008; Hannan, Sheller, Urry, 2006; Höflich, Hartmann, 2006, Castells et alli, 2007, Kellerman, 2006, Kwan, 2007).

There are three ideal types of mobility: "physical/spatial" (transport), "virtual/ informational" (media, art) and "cognitive/imaginary" (thoughts, religion, dreams). There are three possible interactions between these mobilities: replacement (if one type of mobility annuls another e.g. working at home or studying online can eliminate the need to move to physical places), complementariness (we can move to have access to information) and, additivity (for example, the use of GPS provides access to information on mobile devices and this complements the daily displacement) (Kellerman, p.8). Also, transport and communication systems create new dynamics between private and public spaces, between proximity and distance, between locomotion and shelter, between curiosity and apathy, between lines of escape and striated space, and between personal and community networks. Mobility allows us to go from one point to another, whether in imagination, physically or virtually, it allows us to "dis-place". This dis-placement is not a denial or an end of place, but a way of re-meaning it. Mobility and power are complementary processes that create tension between virtual, physical, and imaginary forms.

Communication technologies (with mass and post-mass media functions) reinforce these physical and virtual mobilities. We can understand media as artifacts of informational mobility in space and time (since the invention of writing to the internet). Today, space-time compression increases through virtual, imaginary and physical mobilities. Wireless technologies meld the physical and virtual, bringing new problems of border between private and public, between "dis-placement" and place. This virtual/informational mobility has direct impacts on physical/spatial mobility, as well as on imaginary mobility. As suggested by Bonss & Kesselring (in Kellerman, 2006, p. 55), there have been stages of mobility, from the "traditional" (by the end of the eighteenth century), "territorial" (the emergence of the nation state in the nineteenth century), "global" (through new means of transport and communication in the twentieth century) and "virtualized" (with the new media, internet and mobile technologies). Today, virtual/ informational mobility acquires greater importance with the advances in mobile technology and the post-mass media functions because we it is now possible to exercise a global mobility that incorporates the physical, imaginary and informational simultaneously. According to Kellerman (2006) *"individuals 'carry' with them their own territories. Some of this is becoming apparent through the growing use of mobile phones, laptops and mobile memories, which permit one to carry his / her whole personal library and to have immediate access and communications without any regard to location"* (p. 64).

Place remains essential. Without informational AND physical layers, this total mobility cannot exist. So what is new? The possibility to **consume and produce** information on the go. We can think about the users status, but we can also think about places that are mobile (like airplanes, boats, cars, and trains) that have new virtual/ informational mobility with wireless network device capabilities. As Kellerman explain *"emerging wireless transmissions, whether through laptop computers, or through mobile telephones, which imply an intersection between enhanced physical mobility, or the growing ability of humans to move fast and efficiently across the globe, on the one hand, and their enhanced parallel virtual mobility, on the other "*(2006, p. 74).

The new informational territories are products of this new state of mobility. Mobility is not just an act of bodies or information, but an act of power. Bonss & Kesselring (in Kellerman, 2006) have proposed the term "motility", borrowed from medicine and biology, to think about potential or virtual mobility, *"the propensity to be mobile ... which is likely to vary in intensity from one person to another"* (Kaufmann, in

Kellerman, 2006, p. 8). Mobility should not only be seen as the route between points or as a means of accessing certain information, but as a dimension of power and potential power. Today, we face a global increase in *"motility"*. However, this potential is constrained by the "extensive power" i.e. the ability of a person or group to overcome distance (physical, virtual, or imaginary), and the "accessibility power" i.e. the opportunities available to perform the movement (virtual, physical, or imaginary) (Kwan, 2001). We can see the balance of power here in the differences between those who have and those who don't have access to transportation or communication devices.

TEMPORALITY

Mobility is also linked to temporality. Locative media are temporary practices in urban spaces. We always use the urban space temporarily: in a car or on public transportation, using public restrooms, sitting on a square or strolling through the streets. Moreover, the practice of staying too long in a public space (sleeping on a bench or sitting on the floor in a shopping center, for example) is often suppressed by public authorities. The concept of temporary use has two important dimensions. Use is obviously to use; spend. But use also implies a right; enjoyment. Hayden and Temel (2006) explain that *"uses is, in any case, not a quality that is inscribed in things, but rather buildings or spaces social relationship in the triangle of property, possession and right to use. In that sense, use is a more or less flexible relationship within which people can make various uses of one and the same thing or, expressed more generally, can relate to this thing in different ways - and thus pursue different interests "*(p. 26 -27).

Today, in the age of global networks and flows of information, temporary use of space is increasing: traveling, commuting, and even our homes, which, although designed as a permanent location are, in most cases, a temporary shelter. With the constant and increasing flow of people, commodities and information, cities are produced by this flow of movement and temporary use of spaces. However, places are designed (by urban planners, architects, engineers) to be permanent: houses, squares, buildings, monuments, schools, factories, shopping malls... The modern city locates things and stabilizes movements with planning rules and by laws (territorializations, striated space, as proposed by Deleuze and Guattari, 1980)[12].

A temporary urban space can be defined as a fixed space with unusual uses; unscheduled, and often illegal (artists using squares as dormitories, meetings of

political protest, graffiti, skates, *parkour,* performances, carnivals, etc.), creating a social meaning and a temporary place. These temporary uses of space, create a new meaning of place. Alternative locative media projects are creating new heterotopias in old places, where standard temporary use can become smart or flash mobs, location-based mobile games, electronic annotations, GPS drawing and mapping. Temporary informational use of a place, in addition to the conventional uses ("regular" uses of mobile technologies and networks - cyber cafés, public hotspots, cell phones), also evidence a "tactical" (De Certeau) temporary social production of space. Informational mobile technologies appropriation places for temporary use (strategic and ruled, and tactical and free as well).

COMMUNITY

The city is a place that insulates people, where there is a lack of contact and a guarding of privacy. Community is a social pre-urban form, and only remains today in identity aggregation and sub-cultures as a reaction against societal breakdown. Tönnies marks this difference by introducing the two ideal-types "*Gemeinschaft*" and "*Gesellschaft*" though they are interdependent. For Simmel (1950) cities put people *"not only into indifference, but, more often than we aware (...) a slight aversion, a mutual strangeness and repulsion."* Indifference and aversion are two characteristics of modern urban life that are used to preserve *"psychological private property."* The crowd brings both a collective dimension and a sense of isolation.

Despite the city being characterized by *"anonymity, instrumentality and atomization" (Tonkiss, 2005, p. 14),* community continues to emerge, whether in organized social groups, social classes or new tribes. Here we see the main characteristics of modernity: instrumental rationality, anomie, individualism, abstract, impersonal, contractual and institutionalized relationships (R. Park, 1967). Thinking about mobility today, and new practice of locative media, obliges us to review our social relations and communication practices. Could locative media recreate community feelings of belonging? What are the goals of bottom-up projects if not to create more effective communication between people and new ways to fight against anomie and separation?

We need to think about communities in real places, as well as in electronic networks. As many studies about "digital community" showed in the late 1990's, communities can exist without physical proximity ("virtual communities"). Moreover, mobility and flow can improve communities. If we think about place as flow and events, and

mobility as a way to move around in physical, informational and imaginary space, we can see communities arising around location-based services and technologies. Fixed place is important to create memory and social meaning and locative media projects, as we have seen, do not point to a "virtual" cyberspace, but to informational territories that relate cyberspace and places, that use urban places as physical subtracts of informational layers, and that use the street level and real communities (see examples above).

Think about mobile social networks, collaborative maps, urban annotations, bottom-up mobilizations, location-based games, and smart and flash mobs. They are good examples of bounded community. These experiences can be seen as a way to combat the emptiness of urban space, to rebuild social bond and as a complementary act of physical contacts. Electronic relationships can reinforce communities and the community meaning of place (Falkheimer, Jansson, 2006). For young people(!), community consists of their friends and family members that they can meet both face to face **and** through the exchange of mobile digital information in blogs, micro-blogs, social software, SMS texts, and cell phone photos and videos. Theses online relations strengthen face-to-face relations and the use of urban spaces, creating new meanings and temporalities to place and communities. So, chats on Facebook, updates to micro-blogs, synchronization of activities by SMS, and perpetual contact through cell phones are all new activities that reinforce social relationship and community belonging. We must avoid a nostalgic vision of communities, places and cities as, in taking this view, we risk losing sight of the urban realm that is growing before us.

MAPS

The use of maps and mapping processes with locative media is unprecedented. With new systems such as GIS and GPS, and free software and web systems such as Google Maps and Google Earth, mapping is a new practice of place. Maybe we're realizing Borges vision in "Del Rigor en la Ciencia". In this one paragraph, Borges shows a place where the map of an empire has the dimensions of the territory. The map is the territory and mapping is a new means of perceiving our cities (Abrams, Peter, 2006, Dorling, Fairbairn, 1997; Harmon, 2004, Wilford, 2000): we can send a SMS to Google to find X café, log onto a system with a cell phone to find where we are, access online systems to find Y cinema and the schedule of a film.These systems are enhancing our movements around our cities and creating an "augmented reality" i.e. informational layers that interconnect physical and electronic information.

Mapping our moves on the streets allows us to control the space; it is territorialization. It is not only about dispossession and getting lost. The use of GPS and other devices for location and location-based services puts the emphasis on control and domination over a territory. These new locative devices allow greater control over an area rather than raising new possibility for getting lost. As the cartographer Paul Mijksenaar shows, the use of maps and GPS is an evidence that people are "*frightened of their environment… and do not want to be lost (…) most planner and designers regard the experience of being lost or disoriented as the urban equivalent of a fatal disease*" (in Abrams, Hall, 2006, p. 14). Controlling or losing control, the locative media, one way or another, is given new functions to places.

The relationship between cities and maps has always been close but, today, the power of locative media create new and more efficient correspondence between the two. Electronic maps and mapping with locative media build control and create power over places, offering a new social production of space. Maybe the map is becoming the territory or, to put in another way, the map is producing new social meanings for places. Mapping is now a creative intervention in urban space, shaping both the physical city and the urban life experience. Technicians, governments and private companies traditionally control mapping yet, now, we have an ownership shift because the bureaucratic power is moving to the users; ordinary people. The tactical use of maps (psycho-geography) began with the surrealists, Dadaists and situationists in the '50's and '60's, and was reinforced by Michel de Certeau's "rhetoric of walk". With the popularity of electronic mapping, the urban space is being used as a means of giving sense to daily life and of dealing with the constraints of rationalization in urban modernity (Tonkiss, 2005).

Mapping and geo-tagging with locative media can be seen as ways to combat the bureaucratization and impersonality of urban space. One example is the uses of GPS for drawing. GPS was originally a military navigation technology, not a tool for artists to play in urban space. "Writing" and "drawing" invisibly lines in space is not so much about location, but rather, is a way to propose new readings of space. It creates a deterritorialization of the device and a territorialization of the city. We know that maps are constructions, ideologies representing the world and serving the constitutive powers (Rome, Spain and Portugal, British Empire, American military power). Today, with the Internet and locative media, mapping can be used to

represent people, community, and a more legitimate space and place that shows how people see and feel their environment. We have a button-up process of representing the world, unmediated by the instituted powers. As Denis Wood put it, *"the authority of the map is not derived from its accuracy, but from the authority of the person who draws it. The picture is a map when it is drawn by someone with the authority to draw maps". (...) Maps are about social control and are usually created to serve the designs of their creators rather than to inform 'the public' "* (in Dorling, Fairbairn, 1997 p. 71 and p.65).

CONCLUSION

Alternative projects in locative media (as opposed to the commodification of mobility, and the consumerism of mobile data promoted worldwide by large conglomerates) can help us to understand that new informational technologies reinforce our sense of place and create new uses of urban space. It is not cyberspace, or the "virtual" versus the "real", but the social production of space (and place and territories) with mobile technologies and networks. It's all about physical places, real objects, and real people. Theses examples can be seen as a new research field, crossing geographical, sociological, communicational, urban, design, and informational boundaries. We face a new turning point in communication studies with new forms of "spatialization". New mobile technologies and networks show us not the end of place (or cities, or geographies) but new processes of territorialization, mobility and temporary uses of urban space.

The relationship between media and spatialization processes is not new. Spatialization is created by changes in space, by producing places. Spatialization is thus a process of intense flows that create a sense of belonging. In the 19th and 20th centuries, with the rise of the mass media, we were in the realm of broadcasting. We could consume information in private or semi-public space, but it was difficult to produce content and impossible on the go. At the end of the 20th century, with the emergence of post-mass media functions, the relationship between mobility, place, and media has changed. We face a new mobility that puts together physical and virtual mobilities and allows the rise of new forms of places as a result of the relationship between informational territories and the territories that constitute them. This spatialization has grown from its post-mass media function through the creation of an informational territory and the overlap of physical and electronic space in temporary physical and informational mobilities.

At the beginning of the 21st century, locative media and bottom-up processes reinforce the hybridization of physical space and cyberspace, bringing a new sense of place and community. These processes are bound to the real world and, far from an absolute deterritorialization, create new forms of territorialization through informational control (the capacity to produce and consume information while mobile). So the thesis of dematerialization, the end of places and, as a consequence, the end of community, seems to be unfounded. We must think about flows, events, and augmented reality, rather than fixed places, rooted communities or deterritorialization in cyberspace with the replacement of the "real" with the "virtual".

Locative media projects produce experiences that create informational dynamics and events that are embedded in physical objects and locations. Mobile information technologies, post-mass media functions and informational territories are creating new forms of territorialization, new spatialization processes, new senses of places and new ways to reinforce real communities, as well as collaborative and autonomous productions of content. But we are at the beginning and everything is potential. Only a political view can reinforce these perspectives.

NOTES

1. Post-mass media functions operate from technologies and networks where the user can produce information, "releasing" the editorial center. They are not State concessions and allow customization, publication and dissemination of information worldwide, with multimedia capabilities. The product is customizable and the communication is biased by conversation (the role of the mass media is "information", while the post-mass media function is "communication"). We can see theses functions with the development of blogs, free software, podcasting, wikis, and collaborative maps. They operate under what I call the three basic principles of cyberculture: "release of the emission", "bidirectional connection" and "reconfiguration" of cultural institutions and industry (Lemos, 2006). Also, we must think in terms of function, not of devices (a large portal on the Internet tries to act as a massive journalistic mass media, while printer fanzines and flyers have post-media functions).

2. http://yellowarrow.net/index2.php

3. http://www.tii.se/reform/projects/pps/soniccity/index.html

4. http://www.neighbornode.net/

5. http://www.peuplade.fr/home/

6. http://www.citix.net/pages/sobre

7. http://www.facom.ufba.br/ciberpesquisa/andrelemos/survivall/

8. http://www.uncleroyallaroundyou.co.uk/street.php

9. http://pacmanhattan.com/index.php

10. http://www.senhordaguerra.com.br/

11. http://www.alienrevolt.com/pt/

12. Indeed, break these laws was the desire of situationists: make the urban objects mobile, put out the art work from de museums and place them in bars or cafes (deterritorialization of the museums), put the books out of the libraries, on the streets, walk and write stories beyond the sights of official maps.

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THE INVISIBLE STRIKES BACK.
NEOANALOG TENDENCIES IN CONTEMPORARY MEDIA ART

Ewa Wójtowicz

Motto: "Never again will the real have to be produced (…)" Jean Baudrillard, 1981

Contemporary digital culture produces numerous copies, clones and aproppriations of the past artworks. Artists redefine the past, creating an intertextual relation between the original and its copy, reaching both for the legendary and the forgotten projects from the 70s. The art duo Eva and Franco Mattes from 0100101110101101.org, have so far conducted six *Synthetic Performances* (from 2007)[1], based on seminal projects of various artists. Among them are: Joseph Beuys (*7000 Oaks*, 1982-1987), Vito Acconci (*Seedbed*, 1972), Valie Export (*Tapp und Tastkino*, 1968-1971), Gilbert & George (*The Singing Sculpture*, 1968), Chris Burden (*Shoot*, 1971) and Marina Abramovic (*Imponderabilia*, 1977). The performances do not duplicate their historical inspirations completely, as they take place in the Second Life. The main feature of such a gesture is the removal of palpability and the physical commitment of an artist (connected even with pain, as in Chris Burden's case). Instead of a real event in a real time and place, we encounter a synthetic event, made of pixels and – onthologically – being just a file. However, this shift from the physical and analogue past to the virtual and digital present, causes an onthological consequence on what an art project is, and, specifically, what happens to a performance as such. It also affects the relation between an artist and an audience, which is now divided in two groups: viewers in a gallery and viewers online, both though perceiving the project on the screen. The latest group – the inhabitants of Second Life – often play the same role as their predecessors from the 70s – they encounter an art event without caution.

The artists from 0100101110101101.org share their attitude with another artistic duo, New York-based MTAA (M.River & T.Whid Art Assoc.)[2], who have been re-creating conceptual projects since 2001 in a series of Updates. Besides *vitoAcconciUpdate*, and *onKawaraUpdate*, (both 2001) they have adapted *One Year Performance 1978-1979 (aka Cage Piece)* by Sam (Tehching) Hsieh - an extremely radical example of isolation and nuisance. Their *1 year performance video (aka samHsiehUpdate)*, 2004, was available online to the viewers, who could watch the performance for a

whole year, while logged. In the version by MTAA we can see seemingly identical rooms and both artists seem to behave normally, except for the fact that it is not a real-time performance but a previously recorded series of clips. Eventually, all the constraints: solitude, boredom, and limitation, are transferred from an artist to a viewer. As Mark Tribe notices: "If one watches for an entire year – a daunting task – one becomes an official 'collector' and is given an unique data file that documents the performance in code"[3].

While updating conceptual projects in the digital language, alters their meaning and builds an intertextual context, nowadays we can identify a new approach. The endless remix of cultural contents is typical for media artists, as digital media enable to create - to paraphrase Jean Baudrillard - "a copy without its original". Sometimes media aspire to copy not only certain artefacts or events, but the world as such, as we can see in the Second Life. However, the way from the real to the virtual has two directions, and there are artists who mimic the invisible items in the real material. Neoanalog tendencies are based on mixed reality strategies, however they reach for a simulated space to re-build it in the real world. Very often the main field of inspiration is gaming, and it is an experience of a certain generation. Apparently, the world of symbols and icons had been real enough for some game players who soon became game developers, and some of them became artists.

The aim of this paper is to analyze what happens when digital – and therefore immaterial – symbols are re-created in the real world as physical objects. Their location is strongly connected to geo-tagging and the awareness that the two – seemingly opposite – worlds have now more in common. **What are the artistic,** socio-political and philosophical consequences of such interventions in the reality? This paper presents a few examples of artistic approach, dealing with neoanalog problems and the real space. Aram Bartholl's works reflect the tendency of taking the signs and symbols from the virtual realm and re-conctructiong them in a material medium, often of lo-fi quality. As he puts them back in the real world, he implements them in the physical space. Therefore he reaches for the tactile experience instead of pixels. However, the onthological status of those things is questionable. How can we call it re-construction if they have never been constructed in the real material? How these items immerse so well in the world around us, though we recognize their unusual, dislocated origin?

ART

Intersections of the real and the virtual can be traced back in the conceptual art, if not in the ready-mades and other artworks that involve some kind of imaginary and immaterial space. Since the emergence of so-called new media art, the opposition between the real and the virtual became an important category. There were telepresence installations and interactive simulations using some artificial intelligence agents. The journey into the newly- colonized territory was just beginning and the critical websites were full of optimistic statements on how the real bodies soon might become obsolete, or pessimistic visions of virtual escapism.

Artists who formed the first scene of European net.art (the 'dot' movement) had their previous experiences in non-material media. Only very few had a previous history of traditional media like painting or sculpture. However, the sculptural qualities were often useful while talking about the virtual space, even the term 'space' itself suggested something of 3D qualities.

LIFE

The two realities meet in every aspect of our life. We can chat to someone over a cup of coffee, texting messages on a mobile phone, at the same time. We can have memory implants that are in our mobile phones and notebooks. We can play games that require learning some new spatial and visual rules. However, we still recognize the difference between the real and the virtual and we all know that mixing the rules might be dangerous. How many times though we missed the opportunity of 'clicking-and-closing' a window of some real uncomfortable situation?

ART IN LIFE

Art in the public space is another important issue again. We have seen it all: pop art sculptures, land art, conceptual art, critical interventions, radical appropriations, culture jamming and street art. Audiowalks and graffiti. CCTV cameras performers and city bloggers. Psychogeography and locative hotspots. However, they mostly reached for an inspiration from the realm of art, they were kind of Alberti's window to another reality.

As for most of us growing up in the mediated world was a formative experience (we all have memories of early video games, Atari computers, Nintendos and first steps in the Internet) we have been learning how to read the signs and icons almost simultaneously with other knowledge we used to gain. The famous net.art piece by Vuk Cosic *History of Art for Airports* (1997) was about recognizing iconic

images of classical artworks, reduced to a pictogram. Another project by Heath Bunting and Kayle Brandon, *BorderXing Guide* (2002) was all about finding one's way in no-man's land, adjusted for Web 1.0 conditions. However, when geotagging and online mapping started to be a standard feature of every Web 2.0 service, we have encountered a new problem. One is the implementation of real (g.e. geotags) features from the symbolic world of virtuality into the real life. It's like making visible something that already was there, like an abstract idea that needed to be written down. Another is creating objects that relate to the world of games which are fiction.

(SECOND) LIFE IN ART

Cloning objects and images in the immaterial world of pixels is rather easy, though we rarely think about onthological consequences of such an action. That is what happens with the updates of conceptual projects, by MTAA or Jill Miller (*I am making art too*, 2003)[4]. There are also some projects based in materializing the immaterial, like *News Knitter* (2007)[5] by Ebru Kurbak and Mahir M. Yavuz. This all represents a neoanalog approach that is based on making things and asking – seemingly very simple questions.

Aram Bartholl's works are based on games, virtual platforms and forms taken straight from the virtual world, such as pixels. His experiments with a handmade pixel were exhibited on Transmediale07. Both *Random Screen* (2006) and *Paper Pixel* (2005) resemble the virtual categories but they are created from mundane materials, like paper, recycled beer cans and tealights. As Jean Baudrillard states: "It is rather a question of substituting signs of the real for the real itself; that is, an operation to deter every real process by its operational double, a metastable, programmatic, perfect descriptive machine which provides all the signs of the real and short-circuits all its vicissitudes."[6]. The problem is – what is more real in this relation, established by Bartholl? Is it the original which is supposed to be immaterial, or is it, actually, its material copy with its physical features? Apparently, the key role is played by the viewer, who recognizes this object as a copy of a virtual original.

Not also the single 'atoms' of the virtual are examined by the artist, but also the whole, figurative and complicated narratives, such as games. The game *World of Warcraft* was the inspiration for the *WoW* workshops, conducted during the Ars Electronica 2007, where the visitors could work on their own names, opr nicknames, cut out and mounted, so they could proudly wear them on the streets of Linz. One could recognize a character from the game applied to the real world, and for some viewers it was just a funny name made of yellow letters, for some it was a hint.

Very similar idea was visible in *Chat* (2007) and *Speech Bubble* (2007) where symbols of verbal communication and interaction were created as heavy and slightly inconvenient to wear, but still wearable 3D objects.

A *Missing Image* is long-sleeve t-shirt derived from the look of *Second Life* avatars. Due to a transfer error sometimes theis bodies are white with no image of some clothing. Also, the DIY aspect was extremely important. The handmade items representing virtual clothing from the Second Life, cubes designed in 3D software, using a photographed texture of some surfaces from the city walls or pavements, printed T-Shirts listing social networking sites. All those playful items have a deeper meaning though.

Sometimes the artist provides just some message to be encoded, like in *Tagging* (2007), where Bartholl has painted manually the complicated pattern of a Semacode. When photographed with a mobile phone with a relevant software, it was opening a link to a specific place, like a page from Google with some specific records, or a quote "The Internet does not make the knowlegde unnecessary".

The thing is, that recognizing the symbols and following the traces requires twho things
- having a proper tool e.g. a mobile phone enabling to open the way to the *Tagging* (2007) world
- having a knowledge of games' world or other realm of particular semantic/semiotic language, to decode it properly.

The interfaces provided in the Second City project, which was a part of Ars Electronica, were very simple: trade counters, rooms, streets. Apparently, neither items nor places were the real interfaces, but actually people who took part in the workshops or other occasions, and those who were able to read the message. Along with activities that are open to the public, Aram Bartholl creates objects that are derived from the virtual geography of games and 3D worlds. The simulation is not mimetic, it's symbolic. The tree consists of half-transparent layers until it's ready. So, the structure of yet ufinished tree was the inspiration to the *Tree* (2007). What I find important in this project, is that it is unfinished, when it comes to its virtual shape, but symbolic enough to represent a tree in the real world.

As the artist explains, in his works it's the audience who is the real interface, it's not the the artefact. However, equally important, in my opinion, is the urban space in which the symbolic objects are implemented. Like the huge geotag, derived from Google Earth, which was built by Bartholl in his project *Map* (2006) and set on the Gubener Street in Berlin. What happened to this red, balloon-shaped object? It's origin is virtual, it's function is semiotic, and it relates to the symbolic space of a map that is created using satellites and interactive software. All of us recognize this object, and we are somehow familiar with seeing it on the images of strees and other places. But what happens when we see it as a physical object, made of wood, cardboard and fabric, standing remotely on a street? It seems like it may be fully understood only for the Google Earth (and other similar applications) users. But that's not the most important feature, as art has always been a language of some kind, readable for those who have known how to read it. The role of symbol as such is not a new problem then. In my opinion the problem is: where is the interface? Who is in charge of it? What happens to such notions as: space, object, location? Which additional knowledge is required from a viewer to participate in such projects? They belong to the virtual world that is "out there" and, seems like, increasingly, we can experience these two worlds simultaneously.

If we recall two utopian ideas of creating a 1:1 map – one comes from Lewis Carroll in his novel *Sylvie and Bruno Concluded* (1889)[7], and another from Jorge Luis Borges[8]. Both are based on fiction, however it is useful to recall them.
Carroll writes about 1:1 map, which "(…) has never been spread out, yet...the farmers objected: they said it would cover the whole country and shut off the sunlight! So we use the country itself, as its map, and I assure you it does nearly as well."[9]

Borges writes about the perfection of cartography in a utopian state, which led to creating a map of the Imperium that had an actual size of this Imperium. It had been so perfect already that it could not be developed any further, so the next generations decided to abandon it.

Polish theoretician of culture and new media, Andrzej Gwóźdź, writes about the shift of the signs in the movies, but his theory can be applied also to the media as such. He states that a sign does not refer to the real (in the onthological meaning) anymore, but to itself. So, **the visible** is not **the real** anymore[10]. He call it the self-reference of the simulacres. As the term simulacrum, derived from Baudrillard is a

keyword here, I would like to comment on this case. In 1981 Jean Baudrillard wrote: "The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory — precession of simulacra — it is the map that engenders the territory."[11]

The territory, with all its gaps and terra incognita areas, is examined in two projects, both dealing with the problem of the locative media, or rather locative interfaces. One is a site-specific project by a Polish artist, the graduate of Academy of Fine Arts in Poznań, Katarzyna Kesicka, *238x504 /Po Horyzont* (*To the Horizon*), (2005). She used billboard spaces in Poznań and Warsaw, which are normally covered by some commercial content, and made them transparent, using the photograph of this very place, or to speak more precisely, of the real space that was covered by the billboard. Having done this very simple action, Kesicka opens the Alberti's window, though she does not create an alternative reality within it, but rather re-creates the lost order. Can we repair the gaps in the reality like that?

Another example is *Self-Portrait with a Webcam* by Josef Klammer (2007) in which the author has identified the city webcams and stood in front of them with a notebook, searching for his image in the Internet at the same time. Where was he in fact? To recall the controversial and seemingly outdated quotes from Baudrillard for the last time in this paper: „The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory — precession of simulacra — it is the map that engenders the territory (…)."[12]. The neoanalog objects that have a virtual background but are actually a rehash fit this description surprisingly well.

Is it a comeback or a strike back then? Where it comes back from? The neoanalog attitude is all about giving material shape to the immaterial signs and symbols that are derived from the virtual world, to which they were implemented straight from the realm of imagination. Andrzej Gwóźdź identifies the intertextual practices in the contemporary cinema as hybrid forms and writes about "balancing in the interface between the media and their texts"[13]. As the materiality strikes back, yet in a different meaning, we all have to balance between the medium and its (coded) message, and to encode it sometimes we have to play the role of the interface.

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ARTIFICIAL INTELLIGENCE AND THE SEMANTICS OF (VIRTUAL) SPACE. Three proposals for interdisciplinary research and a challenge

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ABSTRACT

In this text we suggest three hybrid research proposals (scientific-technological and cultural) to analyze and/or build new ways of understanding our geospatial knowledge and its virtualization on the Internet. Our main thesis is that the great majority of significant Web 2.0 projects suffer an imbalance between the geolocation of the knowledge they generate and its reliable organization. Paradoxically, this imbalance offers an opportunity to open research lines that make it possible to handle it (when applicable) or exploit that imbalance to produce new tools for cultural creation.

INTRODUCTION

The SemanticVille Group arose at the Department of Computation and Artificial Intelligence Sciences at the Universidad de Sevilla, to create advanced technological tools (using Computer Engineering and Artificial Intelligence) that support the birth of new communities of the *MetaWeb*[1] type. The group is currently comprised by professors in the department, doctoral candidates in the Logic, Computation and Artificial Intelligence Programme, and Computer Engineering students.

The founding premise of SemanticVille is that the project should provide the community of users with a platform that enables the production of organized knowledge, so that new cultural or informational products will emerge from it. The objective is for the reliable organization of knowledge to be a basic pillar, using semantic techniques (from the Semantic Web or tools of more limited scope). The term *emerge* is used to refer to our intention of minimizing the administration of the project once it is launched, allowing the community, in the medium-term (and its cultural and/or knowledge production) to self-manage to the largest possible extent (provided that does not hinder the reliable organization of the knowledge produced).

SOCIALLY INTELLIGENT INTERFACES

Our proposals are rooted in Artificial Intelligence (AI), but have potential applications beyond the field. This is not new to AI but the context has changed dramatically, especially as applied to the Web. The expansion of social networks on the Internet and constant breakthroughs in the design of new *mashups*[2] are causing the level of AI applications to go beyond the classic focus on groups consisting of many agents (usually humans). This way, we researchers are faced with an even greater challenge: to explain, monitor and predict the behaviour of these communities. The term used in this text to refer to this field is *Collective Intelligence*[3].

An interesting example is the boom in social recommendation systems (such as *Digg*[4], *Menéame*[5] and *Del.icio.us*[6]) in which the network is formed as a collective filter in which users place their trust. The study of the evolution of these networks as *trust networks* is one of the frontiers of AI in this century. Many AI researchers (including J. Golbeck[7], for example) are of the opinion that it is possible to isolate certain factors upon which users base their decision to grant their trust, to subsequently integrate it into logical automatic reasoning systems, attaining *socially intelligent* interfaces. This is an innovative idea given that currently the definitive adoption of those tools depends primarily on their social acceptance (the famous expression "We're always in Beta" ironically justifies the permanent process of proposals, adoption and renewal in those applications).

Another interesting aspect is that we must point out the availability of programmers for data (in API format[8]) on a large number of Web 2.0 projects, which facilitates the generation of new applications through the composition of Web 2.0 services. Thus, ambitious projects such as *Panoramio*[9], which geolocates users' photos, are based on successful API applications. The success of a composition depends on several factors: usability, added value for knowledge, computational viability, and others, such as economic viability (surprisingly, it is considered secondary at this initial stage). Of all those factors, only usability, added value and visibility are socially attractive, and therefore they are enhanced strongly in the projects, while the others remain hidden to the great majority of users.

THE SPACE-KNOWLEDGE GAP

The three proposals for multidisciplinary research are about the relations among AI, the representation and use of space (geolocation, space virtualization, etc.) on Web 2.0 and the representation of global knowledge. The common, transversal idea is

the existence of a gap between the representation/handling of space and a degree of complexity of knowledge on the social Web (See fig. 1). A preliminary analysis of some of the most significant social networks leads to the conclusion that this gap was not taken into account when the system was launched. However, subsequent projects have tried to overcome it (fig. 2) or external *hackers* have done so (as shown in Table 1, specifically in the case of geolocation).

Project	Launch	Original Geolocation	Proposed Solution	Date of Solution
Second Life	2003	Virtual, SLurl	For real replicas, does not exist	----
Youtube	2005	No	On Google Maps	June 2007
Flickr	2004	No	On Yahoo Maps	August 2006
Twitter	2006	No	External, twittervision.com	April 2007
Facebook	2004	Possible, Not formalized	Various, personal or communitarian	?
Menéame	2005	No	On Google Maps	July 2007
Freebase	2007	Possible, Not obligatory	Not necessary, it is possible	--

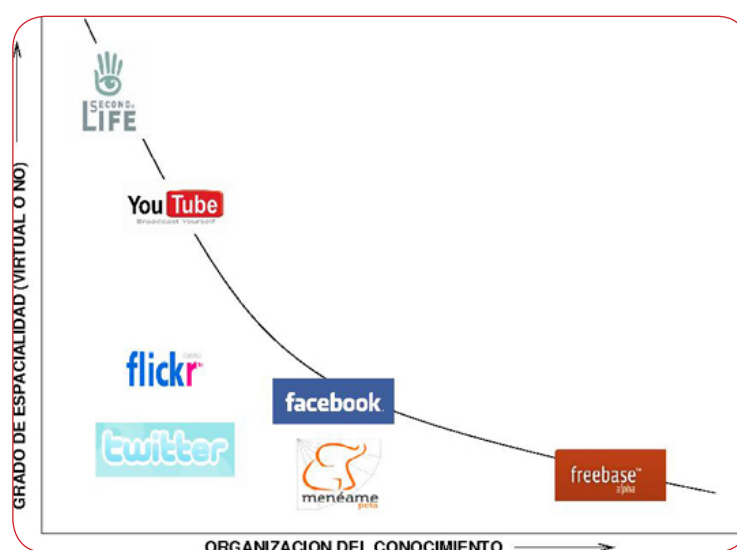**Table 1:** Introduction of geolocation on some projects
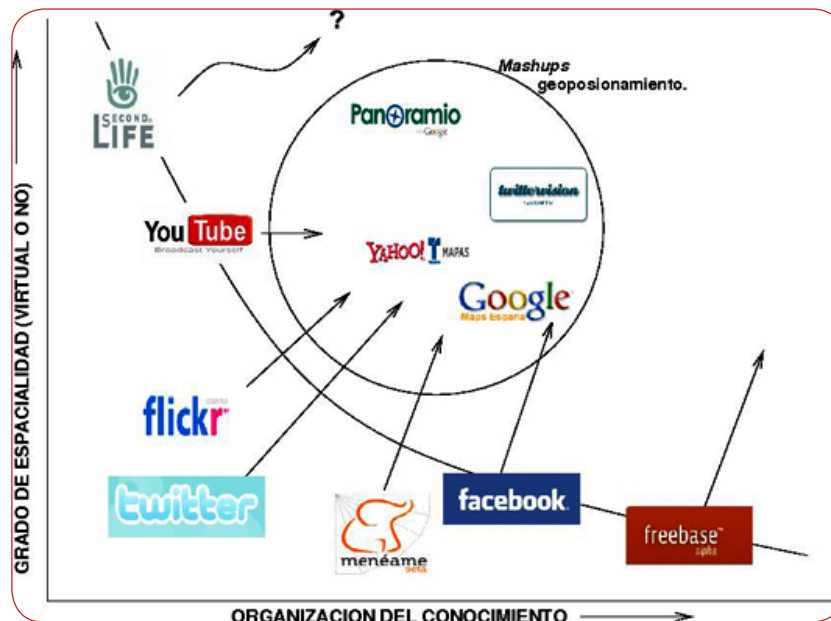

Figure 1: The space-knowledge gap

Figure 2: Mashups to overcome the space-knowledge gap

Spatial knowledge, in any case, is not the only area where this type of gap exists. From the perspective of Knowledge Engineering, the expansion of social networks has not been concomitant with the best quality of organization; in fact, it has only exacerbated the sensation of living in a *chaos of information*. Users do not usually consider it a problem as the network they live in is an *island* where, through shared interpretations (*common knowledge*), humans understand information. This common knowledge enables us to use (live in) different social networks. Generally, however, these knowledge networks are complex and unpredictable, and much useful information exists that is computationally unmanageable (in many cases, because no one knows where it is or how to interpret it). Like the space-knowledge gap, prototypes do not take into account the task of organizing knowledge, and in the majority of cases, the problem has become unsolvable[10].

AN EXTREME CASE: METAVERSES

Curiously, the problem is particularly acute in projects where the virtualization of space is a priority (or their *riason d'etre*). A paradigmatic case is that of *Second Life* (SL), given that almost none of the applications, artificial societies, or geographical systems associated with SL, etc., show even minimal organization of the knowledge

they produce. It is surprising that in a virtual, mathematized world ruled by laws (scripts), no social meta-network or meta-organization has arisen governed by clear ontological patterns[11]. We are not referring to global knowledge of the network; it would be sufficient to organize a significant type of knowledge. The problem will be reproduced, with greater virulence, in incipient metaverses[12] under P2P, such as *The metaverse project*[13] or the more advanced *Open Croquet*[14]. In any case, it is not surprising- given the current state of the Semantic Web and those prior to it (the information chaos mentioned above has not hampered the success of Web 2.0)- that companies are not concerned about this problem when they invest huge amounts of money in virtual worlds[15].

At this link, http://es.youtube.com/watch?v=oKi-fkyAtg8, a video is shown about the potential capacities of *Open Croquet*. There is no doubt that these types of projects are the future of Web 2.0 (Web 3.0?), given that they universalize the form of presenting information and make good use of the potential of P2P networks. When there is talk of Web 3.0, widespread confusion exists that holds it will be a hybrid of the Semantic Web and the tiresome old Utopias of AI that laypeople identify with science fiction. From a realistic point of view, the natural development of Web 2.0 networks should include achieving a type of management of all kinds of documents and digital artefacts similar to the way we handle books and other physical artefacts in real life. Likewise, interaction among users should expand relations based on messages to virtual relationships that are similar to real ones[16].

This development will provoke more challenges for organizing knowledge in virtual worlds, but there is a clear opportunity for creating *virtual islands* with organized knowledge[17].

THREE MULTIDISCIPLINARY RESEARCH PROPOSALS
PROPOSAL 1: TREATMENT OF INFORMATIONAL CHAOS.
The treatment of all that information (especially spatial) is of exceptional interest. The extraction of knowledge and the establishment of methods for organizing it are essential for the success of *metaweb* projects*.* As a starting point, several approaches should be considered (from Knowledge Engineering):

I. Ontological Engineering. Perhaps the most promising, if an ambitious organization of knowledge is desired. Limitations: the dynamics of networks are incredibly fast at times, which would mean constant revision would be needed.

l. Control chaos through (weak and possibly partial) mining ontologies. Quite attractive, easy to design but could turn out to be too poor.

l. Directly design a language that formats users' contributions. The ideal option. Utopian to some extent, given that the step from describing a language of communication among agents to a language that describes *everything important* in the contribution goes beyond even the ontological descriptions of *semantic web services*.

In the case of virtual worlds, it seems more appropriate to treat the information with the third idea, delegating the creation of the spatial language to the community of users (based on an ontology[18] or basic conceptual scheme). Therefore, the proposal consists of research on how to design platforms where the emergence of that language is facilitated, based on community activity.

PROPOSAL 2: COLLABORATIVE DIGITAL PROJECTS BASED ON AI TO REDESIGN AND VIRTUALIZE SPACE

With existing technology, it is posible to design innovative projects that allow users to (re)design more than just the physical aspects of spaces (whether real or not, current or not). A very interesting idea is for this construction to be collaborative in nature, and include not only the content hosted on the space but the container itself, the *place*. It is possible for the creation of the virtual universe itself to be the product of community consensus.

An example of this type of project could be *Wikirama Spaces*. The proposal consists of the design of platforms where users transform and (re)create spaces for real encounters in their urban reality according to the desires of the community, using semantic techniques. Wikirama Spaces would be formed as a platform that, based on a geolocation tool, such as Google Earth, allows its users to become the project planners for urban reforms in the environments that interest them, through a tool that should be created, the *Wikirama*.

The wikirama will be based on Wiki philosophy but oriented and designed to work in terms of space (not only in textual terms). That is, based on an ontology of urban micro-places, users would transform a microspace in their city into a new space by virtually transforming that space. The users' work could be broken down into the following phases:

1. In the first phase, the digital information they have or obtain about the place to be transformed would be included in the wikirama: digital photographs, videos, maps, etc. The information added would be distributed and organized by a template. That template would be designed based on an ontology of urban planning.

2. The wikirama will offer various tools so that, based on the available information, users work on the wikirama contents to represent their proposal to remodel that place. Those tools should include, for example, photo retouching and others that facilitate the (re)design of the architectonic and/or urban components. Of course, the wikirama is not incompatible with classic wikis and textual content will form part of the documentation.

3. The micro-community interested in a specific *locus* would project the re-design of the space, as a transforming proposal. Each project should be closed by the community, which does not mean that another micro-community may not have a different project associated with the same space. Closed projects would be geolocated and published on the Wikirama Spaces Web site as a project and subject to public evaluation by the community (both users of and visitors to Wikirama Spaces), and if applicable, could even be moved to administrations.
What is new about Wikirama Spaces, with respect to similar projects, is the *self-organization* of community knowledge through ontologies[19]. There is a high degree of *social appropriation* of the project, a very interesting (and complex) matter related to Web 2.0 projects that in the example mentioned could even be elevated to authorship of the ontology[20] of urban places.

SOCIAL APPROPRIATION ON WEB 2.0
AI does not offer, at present, tools for analyzing social appropriation. There are several studies on the mathematical-computational properties of social networks. An overview of those studies yields two conclusions. The first is that much remains to be done. Significant work, so far, only scratches the surface of the complexity of the networks. The second is that the approaches are based on excessively simple models, perhaps geared more to description than prediction. Our intention is not to give a pessimistic impression of the situation. Simply, we consider that, in the medium-term, many aspects will have to be reformulated, due to the following (personal) forecast: the next phase for the Internet is not going to be the implementation of the Semantic Web (or the Metaweb we referred to in the

introduction, which will take place in the second phase). The next battle will be for the social appropriation of the major Web 2.0 services, and mainly those associated with geolocation and virtualization of space. For this new factor, that of social appropriation, the aforementioned studies are not appropriate.

For a better understanding of this type of conflict, one must think of social appropriation as a new factor that should be analyzed for each project. That is, it would consist of a parameter that would measure the degree of governance exercised by a community of users on the project that sustains it. This parameter would range from its maximum degree (in projects of extreme cooperativism) to the minimal control one has over one's "life as a user" on the pages of *Amazon*, including the acceptable degree of social network governance by users allowed by *Menéame*. With this definition in mind, there are several reasons why we should consider this conflict as inevitable in the medium term[21]:

1. Projects with a high degree of social appropriation have stronger influence on the community of users than those that are more rigid. This fact is a double-edged sword, given that a representative group of users can mutiny and pervert the philosophy of the project[22]. However, it is the community's own high esteem that prevents this type of attack. Finally, it is important to note that they are more attractive to dynamic users and active knowledge generators given the responsibility delegated to them[23].

2. Cyber-activism is an understanding that projects must be attacked, if they boast of recruiting a strong community of users but actually intend to keep a large portfolio of clients. Leaving aside cyber-attacks against their security, there is another kind of attack that protests or expresses discontent with the company by subverting its economicist and client-capturing nature[24] although for now those attacks only represent one kind of *Net art*. Two examples are *Amazon Noir*[25] and *Google will eat itself* [26].

3. Quite a few successful projects do not have a clear business model yet (such as *Youtube* or *Flickr*), satisfied for now to increase traffic on their sites. To make profit, it is foreseeable that a large number of them will decide to use advertising (whether intrusive or not) as a source of income. Advertising can lead to users' abandonment or rejection[27]. If the system greatly facilitates social relations among users, the resonance on the Web of those complaints would be expanded, and self-

organization would be enhanced. No phenomena of this kind have been observed on a large scale, but it is foreseeable that very powerful tools will soon appear that will enable users to carry out a *migration* or *replication* of the content they have contributed, transferring it to a different network (like the bloggers' option of migrating to *Wordpress,* but stronger, such as the initiative *Data Portability*[28]). Free software by nature even allows, in some cases, for the replication of the project itself and its re-adaptation to the interests of users[29].

In the case of metaverses like SL, the danger for the company that owns SL, *Linden Lab*, does not lie in complaints due to how slow the system is or its technical limitations. The biggest danger is the appearance of projects (P2P and free software) that enable massive migrations to new metaverses that lack SL's commercial, economicist nature or that suit different interests[30]. In SL there are *terrorist* groups that aim to free SL from the capitalist dictatorship of the lack of political rights for avatars[31]. Actually, they try to transfer the concept of a nation to the community of SL avatars. This is one of many examples where a concept associated with real spaces is taken to metaverses[32]. Although at first the idea seems naive and impossible to carry out (to be truly visible, the work would have to be done by a fairly large group of activists), the development of new AI techniques for designing intelligent agents, as well as the success of multiagent platforms (such as *JADE*[33]), mean that in the near future, a new kind of attack on social networks can be expected to increase social appropriation of the project, especially SL. This idea is based on the synthesis of rational artificial avatars and will be addressed in the third proposal.

This type of anti-system activity will be enhanced if the ambition and political cyber-activism of groups is close to the philosophy of free software communities. That philosophy can be transferred not only to free knowledge but also to the "virtual, free, self-organized community".

There are other, more spurious, interests that lead to social appropriation. For example, interest in appropriating a network would be quite high if it were based on the use of mobile telephones, where there is a payment channel that means it could generate direct income, and if it gives the user's geolocation, it would be even more appealing[34].

Lastly, there are other cases where an attempt at social appropriation reflects a real world desire. In these cases, the actors aim only to attain an objective in the

metaverse that imitates another real desire that was frustrated or unattainable. Two examples of this cyber activity are the protest campaigns on SL at the headquarters of the Spanish PP and PSOE political parties[35] and the impact on Argentine SL users of the case where the Falkland Islands were recreated *(terreformed)* in SL to be auctioned off [36].

A project with a high degree of social appropriation shows high competence and solidity. Just as is true of software, a collective improvement is a definite advantage over the classic option based on assigning the responsibility to a small group of administrators. In terms of social aspects, connections among users are much more stable. Not only is the network among users a "small world"; connections among users are also stronger.

SPACE AND METAWEB. EMERGENT GEOSEMANTICS

An interesting introduction to emergent semantics can be found in the article by Cudré-Maraux et al. titled *Viewpoints on Emergent Semantics*[37]. It provides general guidelines on how to organize an analysis of the emergence of semantic artefacts based on social systems (multiagent, human or hybrid). In the case of societies located in metaverses, new possibilities for analysis exist referred to what we call *Emergent Geosemantics*.

The case of Panoramio and other uses of geopositioning of photographs provide reconstructions of reality and thus, a certain satisfaction exists among the community of users with respect to spatial knowledge. However, these proposals solve the problem (of geopositioning, in this case) through reference to the real world and as a result they implicitly use the mental model of the world held by the user. In the case of metaverses, geo-referential cognition can be useless or even counterproductive.

To understand how the problem can be solved, let's look at the specific case of Twitter, where the community itself has built tools (Web 2.0 services) that, when combined, solve the problem of deficient knowledge organization.

One way to organize a conversation on Twitter consists of using semantic markers (metadata) on Twitter nanomessages with what are called twitternanoformats[38] (they are clearly limited due to the number of characters in Twitter messages). This proposal, which arose out of the community of users, can be combined with another tool, a *tracker*- a search engine specifically for Twitter[39]- to obtain thematically

coherent conversations. For example, with a *tag* one can, through a search, gather a collection of messages about a particular subject. From one perspective, that type of nanoformat can be considered a powerful technique for stigmergy[40] (that is, a *crumb* placed in an environment -twitter- that agents can follow) to obtain a richer knowledge of the messages. By combining the aforementioned services with the Twittervision service[41], which geolocates Twitter messages, a tool is attained that geolocates specific conversations extracted from the global conversation represented by Twitter.

What can be done with a much more complex domain like SL? The solution should include the communal construction of an (encyclopaedic) cartography of the SL world[42]. Based on the maxim "Without geography, there is no history", the encyclopaedic cartography project would consist of a documented cartography, according to Wiki philosophy, with details according to users' interests. With this tool, the communicative dynamics in SL could be anchored, which would facilitate the development of a true history of this metaverse (without recurring to the all-powerful Google to track or recover the multiple activities carried out in SL). A cartography would also involve some organization, and that is where Knowledge Engineering should play a key role.

PROPOSAL 3: RATIONAL ARTIFICIAL AGENTS WITH VIRTUAL GEO-INSTANTIATION

The development of successful virtual environments like SL seems to facilitate the synthesis of rational agents that live in virtual worlds. This project seems to take us back to the foundations of AI, once again proposing Utopian objectives like those set forth at the Dartmouth Conference[43]. Or more specifically, to the possibility of (approximately) solving the famous Turing Test[44]. However, in the case of SL, the limitations of the virtual world work out in favour of the idea. The construction of an agent does not have to address all aspects of reality and observers will forgive many of the agent's limitations, attributing them to the SL's technological "poverty". For example, sophisticated conversational bots already exist that, along with programming an avatar as an agent, could be synthesized into an acceptable agent in SL.

Some previous results exist that suggest that this is viable, such as the implementation of robots designed to explore SecondLife to find land for sale[45]. The fact that the client code of SL has been released[46] facilitates the design of interesting

applications, not based solely on scripts[47], and they allow for the construction of completely artificial genuine avatars. At this time, only simple examples are public, such as the robots mentioned above and several small experiments with artificial societies (such as the implementation of anthills[48]). At present, we are working on designing virtual pets through the techniques of intelligent agents.

It must be pointed out that the objective is to synthesize an agent with behaviour similar to an avatar driven by a human (not a human!). Especially in their use of space. The second phase of this project will consist of reflecting those agents in the real world through the design and construction of *Second Life windows.* A Second Life window is a screen installed in a place in our universe where the virtual replica of the place in SecondLife can be observed (see Figure 3, which simulates the installation of a SecondLife window at the Louvre, and shows where the replica of the Louvre would be shown in SecondLife). These are two-way windows and would simulate a genuine connecting door between the worlds[49]. Through such windows, the avatars could be seen crossing one's field of vision and the avatars could see the humans passing by the window in the real world. What is truly interesting is that the artificial avatars would be indistinguishable for observers of classic avatars. We are even studying the possibility of tactile windows that are not limited to sound and picture.

Figure 3: A proposal for a SecondLife window at the Louvre

FINAL PROPOSAL: NEW SPACE-TOPOLOGICAL DIMENSIONS REPRESENTED ON THE INTERNET.

An uncommon type of AI applications in electronic art or Net Art is the artistic representation of data flows and executions of intelligent systems. Especially installations that show the observer the complexity of their reasoning mechanisms, their limitations in the representation of knowledge, and of reasoning with it[50]. This final proposal (which is actually a challenge, given the initial difficulties it presents) was suggested by results we have obtained on the formalization of qualitative properties of space. In studying those properties, in their representation and interpretation, *the principal of the poverty of language*[51] plays a fundamental role. One of the consequences of that principle is the existence of *unintended models,* that is, artificial spatial models, not interpretable in real space, but perfectly consistent with its logical specifications (see Figure 4).
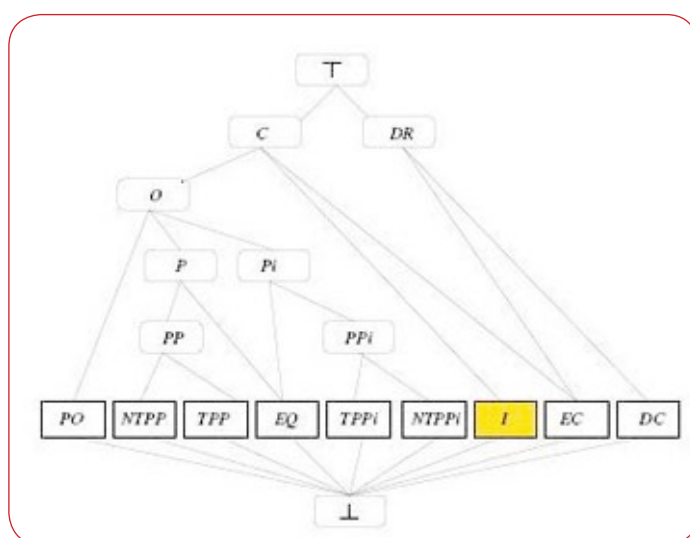
Figure 4: A new type of connection (a colour square) that cannot be interpreted on our space

These unintended models, of which we know only a few properties, are not only different in terms of geometry. Actually, their distinguishing properties are incompatible with the *topology* of our world. However, as those properties are formally specified, we can reason and obtain properties of those new topologies[52]. In a way, those worlds are unthinkable on a computer and that is precisely the challenge we propose: a simulation of those new spaces as new artificial worlds. Such worlds would be completely free of cognitive references, due to topological incompatibility with the real world. Avatars would behave in a new space with

completely different characteristics, which should be apprehended while living in it. It would be extremely interesting to analyze how the community living in that new type of metaverse tries to find real references to adapt their cultural, artistic or playful activities to a space of this kind. And finally, how a new semiotics is born, quite distant from the real one.

NOTES

1. The term *MetaWeb* refers to the new generation of the Web that is expected to evolve from the natural fusion of the Semantic Web and Web 2.0. The basic idea is that the dynamics of the Web will lead from the "current disorder" to an efficient (not completely effective) interconnection of knowledge. For a precise description see http://novaspivack.typepad.com/nova_spivacks_weblog/2004/04/new_version_of_.html .

2. Definition from Wikipedia: A hybrid Web application (a *mashup* or remix) is a Web site or Web application that uses contents from other Web applications to create complete, new contents that consume services directly through an http protocol.

3. "Collective intelligence" is a very ambiguous, diffuse term (like "Web 2.0"). Generally, it can be understood restrictively (as an analysis of knowledge generated by collectives, usually through automatic learning techniques) or more generally, in multidisciplinary terms (encompassing techniques used in sociology, mathematics, etc.). In this work, it should be understood as the application of AI multiagent system analysis techniques to social networks on the Internet, in keeping with the restrictive definition.

4. http://digg.com/

5. http://meneame.net/

6. http://del.icio.us/

7. http://www.cs.umd.edu/~golbeck/research.shtml

8. An API, which stands for *Application Programming Interface*, is a set of specifications for communication among software components.

9. http://www.panoramio.com/

10. In fact, incipient Metaweb projects attempt to avoid this problem. A company of this type generates such a large quantity of data on a daily basis and has so much hidden knowledge already that it poses serious difficulties:

  - Information is integrated statically. The large amount of stored information requires a massive integration effort, in addition to the need to construct an ontology based on that data.

  - Integration of data entries. One of the salient features of Web 2.0 is the amount of freedom users have when organizing the knowledge contributed. This means, among other things, that a critical mass of users could (consciously or unconsciously) redefine the concepts of the ontology underlying the company's knowledge.

  - It is very expensive, and for now, leads to no profit for the company.

  - What about feedback? That is, what about the user of the social network? What would that user think of an organization of knowledge that does not fulfil his or her interests? What if a critical mass of users perceives that its contributions are poorly integrated (regardless of the reason why)?

11. That is, it has somehow pre-defined a form of organization of knowledge.

12. From Wikipedia: The term *metaverse* is from the novel *Snow Crash,* published in 1992 by Neal Stephenson, and is often used to describe a view of work in totally immersive 3D spaces. Metaverses are environments where humans interact socially and economically as icons through a logical medium in cyberspace that serves as a metaphor of the real world, without its physical limitations.

13. http://metaverse.sourceforge.net/

14. http://www.opencroquet.org/index.php/Mian_Page

15. Read the article on this subject titled *$1 billion invested in 35 virtual worlds companies from October 2006 to October 2007* (http://www.virtualworldsmanagement.com/2007/index.html)

16. As an example of the significance of *social graphs* in the future of the Web, it is sufficient to note the results obtained by Tim Finin, using the tool *Many Eyes* (under development by IBM) to visualize the most used *namespaces* in the ontologies recovered by the ontology search engine SWOOGLE (http://services.alphaworks.ibm.com/manyeyes/view/SusyHEsOtha6vB-ooIWIE2-). RDFs (integral to ontologies) clearly predominate, as do FOAFs (based on an ontology of social relations among Web site authors). That is, the simplest (RDF) and social (FOAF) tools prevail.

17. For example, in companies committed to that technology to restructure their human and knowledge organization. Let's take a moment to analyze some of the advantages of creating an *Open Croquet island*:

- Economics: Meetings among the directors of various headquarters would be held, with no travel expenses, on the island.

- Virtual organization of knowledge: Electronic documents are stored like real ones, but in a virtual world. Human behaviour is essential spatial, which is why handling and storing electronic documents will be much more convenient and efficient than searching for files in huge data repositories.

- Integration of services: With the proper interface, various employees can interact on service boards to produce intelligent compositions.

- Client experimentation with prototypes: This is already a reality in SL (for example, Toyota does it). In the case of an island, we could, as an advanced feature, alter the physics of a room to simulate the behaviour of very new objects (such as one-person airplanes). A Spanish example is the project of recreating the future City of Justice in Madrid in SL, http://www.campusjusticia.com/index.php?option=com_content&task=view&id=64&Itemid=9

- Semantic governance of information in the virtual world: The biggest advantage, although it is still a challenge. Combining an ontology of analyses of 3D virtual objects with one in the company's knowledge domain (and a communication language for agents such as FIPA ACL), the events that take place on the company's island could be annotated semantically. For example, executives' virtual meetings would be annotated semantically (facilitating the dissemination of their decisions). For now, only companies like IBM are committed to virtual worlds such as SL for their meetings (http://www-05.ibm.com/es/press/informes/3D.html), (though they do not take into account semantic governance of that activity).

18. An ontology is an explicit formalization of a conceptualization. A conceptualization is a representation of interesting aspects of the discourse universe.

19. This proposal can be considered as an intermediate option between two approaches to the organization of knowledge generated in virtual communities. See http://www.cs.us.es/~joaquin/blog/index.php/2007/10/17/sobre-la-organizacion-del-conocimiento-en-una-empresa-web-20-incipiente/ and http://www.cs.us.es/~joaquin/blog/index.php/2007/10/15/sobre-la-organizacion-del-conocimiento-en-una-empresa-web-20-de-exito/ .

20. See *Ontologías bajo creative commons. El futuro del conocimiento en la Web* (presentation at the III Free Software World Conference, 2007) (http://www.freesoftwareworldconference.com/virtual/comunications/ontocom_open.pdf). In this work, we discuss the need to refine free use licences to ensure that the ontologies derived have some type of (logical and social) compatibility and security that can be monitored by their creator.

21. Adapted from

http://www.cs.us.es/~joaquin/blog/index.php/2008/01/15/la-previsible-evolucion-de-la-web-20-la-apropiacion-social-de-los-proyectos-diez-razones/

22. By way of example,

http://ricardogalli.com/2008/01/24/los-nombres-apellidos-y-correos-de-algunos-del-psoe-o-redprogresistanet-y-lasideases/

23. See the growth of fresqui (similar to menéame, but with less social appropriation) compared to menéame at compete.com.

24. In the words of Geert Lovink: "To date, Web 2.0 has only made the rich richer. The time has come for the "masses" to free themselves of this logic" (*Isubmit, YouProfile, Werank,* presentation at Inclusiva07, p. 38).

25. The project *Amazon Noir* (http://www.amazon-noir.com/) extracts from Amazon.com the texts of books that can be consulted online and makes them available to the public in pdf format, free of charge .

26. The project *Google will eat itself* (http://gwei.org/index.php) uses Google Ad services to generate income that it invests in buying shares in Google, with the goal of taking over control of the company. Currently, the system estimates it would take 202,345,120 years to obtain that control.

27. See, for example, the proposal of protesting (against the poor management of various types of spam on Myspace) by erasing the user profile. http://www.elmundo.es/elmundo/2008/01/23/catalejo/1201107682.html

28. The *Data Portability* project (http://www.dataportability.org/) aims to make it posible for users to share their contents on different social networks and Web 2.0 services.

29. See for example http://www.autobombo.es, a clone of menéame where users who wish to promote their own blogs and Web sites can do so freely (given that on menéame, one is penalized for continual self-promotion).

30. Non-monetarist projects that are not based in a scarcity economy like SL have a special appeal,

http://www.deugarte.com/second-life-pasa-a-mejor-vida. See also the project *libsecondlife*

http://www.libsecondlife.org/wiki/Main_Page.

31. http://secondlla.googlepages.com/

32. Social space has already been moved to the Internet by many young people who use platforms such as MySpace to establish and enrich relationships outside parental control, something other generations experienced in public spaces (see the article by Geert Lovink *Isubmit, youprofile, werank,* in the archives of Inclusiva 07,

http://medialab-prado.es/article/documentacion_-_1_encuentro_inclusiva-net.

33. http://jade.tilab.com/

34. Geolocation of mobile telephones is restricted and is not possible unless requested expressly by the user and under certain exceptional conditions. As a result, a platform with a geolocation permit contains data (and permits) related to personal information that is sensitive (the user's location is known at all times) and potentially dangerous (or that can be used for commercial purposes). This makes it a very appealing trophy for *crackers*.

35. http://www.20minutos.es/noticia/235419/0/pp/psoe/second/

36. http://www.pablomancini.com.ar/%C2%BFlas-islas-malvinas-en-second-life/

37. http://www.starlab.vub.ac.be/staff/mustafa/publications/40900001.pdf

38. http://microformats.org/wiki/twitternanoformats

39. On the search engine for Twitter, for example, see *Twitterment* (http://www.twitterment.com), which also allows us to compare two negative tags, that is, tags that take meaning away from the message with respect to others that compose the conversation.

40. *Stigmergy* is an indirect communication method in multiagent systems with a low *knowledge level*. The idea is to simulate the behaviour of ants, which spatially orient themselves to reach the anthill through chemical markers. See http://es.wikipedia.org/wiki/Estigmergia

41. http://twittervision.com/

42. An incipient project in this sense is http://secondpedia.info/pmwiki.php

43. http://en.wikipedia.org/wiki/Dartmouth_Conferences

44. http://es.wikipedia.org/wiki/Prueba_de_Turing

45. http://www.spanishorientation.com/community/modules.php?name=Forums&file=viewtopic&t=115

46. http://blog.secondlife.com/2007/01/08/embracing-the-inevitable/

47. See the description of the performance *Spawn of the Surreal* in the article by M.P. Martínez and T. Sentamans Deslices de un avatar: Prestidigitación y praxis artística en Second Life, http://medialab-prado.es/article/deslices_de_un_avatar_prestidigitacion_y_praxis_artistica_en_second_life en Inclusiva 2007.

48. http://radar.oreilly.com/archives/2007/06/ant_simulation.html

49. Simpler connections of this type exist, such as *Sltwitter* http://www.sltwitter.net/

50. An example of this type of application is the *Ultima Ratio* (http://www.sabonjo.de/), an installation presented at the *Ars Electronica* 98 exhibit, in which the viewer influences the argumentative capacity of an automatic reasoning system for agents, with the corresponding logical consequences.

51. That principle affirms that it is not possible to obtain a formalized theory from which all (qualitative) knowledge can be deduced from a spatial environment.

52. The entire preliminary study on the synthesis of new spatial relations can be found in the thesis of A. M. Chávez González *Razonamiento mereotopológico automatizado para la depuración de ontologías,* directed by the author.

MAPPING PROJECTIONS; INTERACTIONS BETWEEN THE SPACES OF THE MAP

Sadhna Jain

This paper is designed as presentation of the key aspects of theoretical and practical research of the work within the project "Mapping Projections". The focus upon map spaces gave an opportunity to investigate on the primary and traditional tools for representation of space.

HAVE WE ENTERED INTO THE SPACE OF THE GEO MAP, CAN WE SEE WHERE WE ARE GOING?

The Map of Earth is universal, spoken with authoritative voice, designed with a scientific bias; the 'image' is suitably condensed to isolate just the necessary information of land and sea, a here and now representation of strictly the physical space. There is no ambiguity and to a greater degree we can marvel at the natural world, which governs and encompasses us.

Yet we have entered into a time where the social, economic, industrial, political systems have forced changes to the natural environment, and the shape of the landscape, as well as the places for occupancy. The transformation is drastic and the effects costly, increasingly altering our relationship to the earth to an extent where evolution has become rooted in economic development. It is no longer relevant to interact with the autonomous 'image of the earth' in order to experience and understand the world around us. We need to map the world, describe the components and illustrate in dynamic form the episodes of change and evolution far beyond the very instance of viewing.

There is fervour of activity around the Geo Space in our digital world. The personal markers are strewn across the surface of the globe, the anonymous individual celebrating a personal landmark or a moment of time; a networked community weaves dynamic tags between the spaces of the physical and the digital; above, the solar system is telescoped into view, passing the layers of info graphic systems circulating information in data space.

Have we entered into the space of the digital map with real intention and regardless can we resist being consumed by its image? But what, spaces are we interacting

with and are these spaces taking us beyond the surface layer of the map? It may be necessary to discover how our conditioned logic of maps creates conflicts with our agenda of intervention.

THE SPECTACLE OF THE IMAGE OF THE EARTH

We have treated the image of the earth as a spectacle; the marvel caught between witnessing the wonderments of the earth and also the prowess of being able to systematically contain and hold the image of something truly epic. Software like Google Earth alternates between these two views, giving both an arresting experience of gazing at the earth from aerial view, but also containing its view through controlled navigation. Definitions of the spectacle, refer to it having 'two contexts simultaneously', the high and the low. Borrowing from the cultural meaning of the word, the high is referred to as having 'impressive visual accomplishment' whereas the low is the 'performance of minorities'. The value of the spectacle in the digital map or geo space can create a useful conflicting tension between these two possible states. The low, as the local, the inhabited, or the arbitrary, is given profound importance and visibility by the telescoping of view through the (high) image of the spectacle, which in this case is a magnification and obliteration of the low. The departure from earlier cartography, which separated the different states of the spectacle, now enables the digital map to delineate and further explore a meaningful link between the two.

In response to Guy Debord's fervent concerns of the spectacle of society, "all that was once directly lived has become mere representation", the process of interaction with the image of the space can again be reignited through a more purposeful and collective use of digital mapping, and used for operating between the new spaces of the map. There is a system of that ties digital networks with physical space: that these two elements co-exist in a compensatory manner because they separately offer differing means by which to be present in 'space'.

WHERE DOES THE CONSTRUCTION OF A MAP BEGIN?

We interrogate 'space', inquire about its form, and make correlations between spaces we know and those we don't know, symbolically give it shape, propose a meaning and worth to it, represent it through graphic languages. "Essentially maps are made from cognitive, semiotic, and abstract forms which interact with the space it represents. "How Maps Work: Representation, Visualization and Design by Alan Mac Eachren.

IF THE MAP 'INTERACTS WITH THE SPACE IT REPRESENTS' THEN IT CONFIGURES A SET OF DYNAMICS, WHICH ARE NEITHER FIXED THROUGH REPRESENTATION NOR CLOSED IN ACTION

The common belief is that the map is primarily a visual representation of a chosen space. However, cognition and semantics, which, is at the core of map 'reading' suggests it is the role of spatial syntax that, conditions what a map is and therefore how visual representation occurs. The map is an interface of thoughts and actions, which, continually conditions the description of the space.

A theory posited by Bernard Tschumi, Architecture and Disjunction, Spatial syntax within architecture is devised from a series of sequences. Architecture becomes event space, where the materiality of buildings is sequences of geometry, within which episodes of movement and time take place. The spatial syntax of a map is similar, in that the map transforms its shape as a frame by frame sequence interacting with the physical surroundings. The grid of the map as part of this syntax is a strategic tool that articulates space and activates it.

NEW APPROACHES WITHIN THE DIGITAL

We need to recognise where the process of interactions begin in a map and with what elements as they configure an experience of a space with digital tools. There appears to be a divide in practice between the different types of users of geo mapping space. There are those practitioners who use existing cartography with the conventions and 'visions' of the space as it is prescribed, i.e. the grammar and reading of a map is given to us in the form of the properties of latitude, longitude (fixing space), north is at the top of the map (orientation), sea is blue, (symbolic) there is no experience of movement or time etc. (fixed data).

In contrast, more radical practice is being used to circumvent these conventions by interrupting this traditional logic, or by separating geography from space. An example of this can be seen with CASA's creation of the Panorama bubbles for digital networked maps.
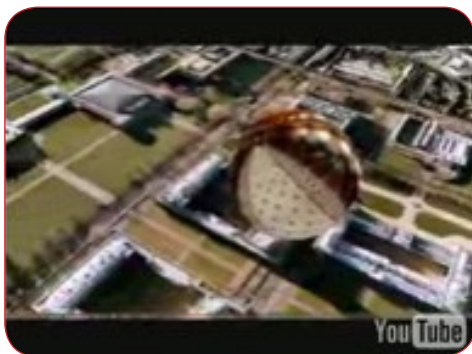
Panorama Bubbless – CASA

Autumn leaves change colour across UK _ Kmz data

CASA have developed the panorama bubbles; 3D projections that can hover above specified areas of Google Earth. The surface image of the bubble can have any associative relationship to the space, joining a remote space with the existing allows the order of the information to divide and for the experience of the space to embrace more than one logic.

In this example http://www.casa.ucl.ac.uk/movies/low.asp 'worlds exist within worlds', we enter and exit different geographical space by using trajectories rather than normal means of navigation.
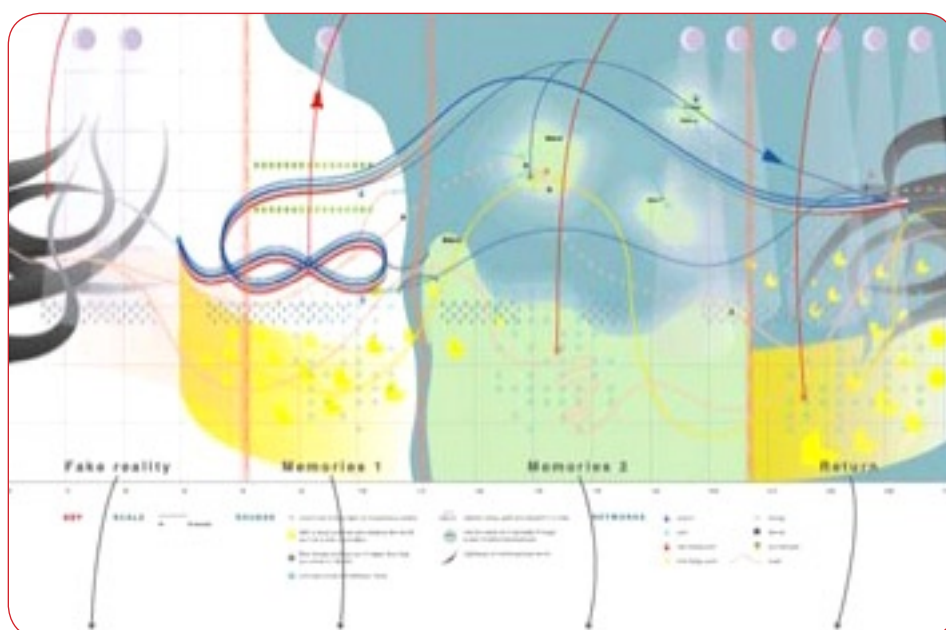
Example 2: Nostalgia Map

Nostalgia map uses what appears to be a traditional cartographic grid. However, the map traverses between Slovenia and England connecting different memories, journeys and experiences together. There is an apparent play with reading and interaction with the map space for the viewer particularly in the elements of time and navigation. For the maker the map is also used as a composition system for sound works and video (copyright permission Moskric, Central St Martins).

VISIBILITY AND SUBJECTIVITY

Whilst maps remained in 2 Dimensions the imagination of the cartographer was encouraged as a way to exercise a range of beliefs, suspicions and fantasises of one's own territory and what lurked beyond it. The absence of efficient scientific representation of space allowed the inclusion of information within areas of the map, way beyond the natural order of the space. Not being able to see and measure beyond the space beyond the territory of map was by no means a reason not to have projected vision beyond this boundary.

Scientific cartography found a mathematical way to measure and rationalise vision, to see beyond the boundary and represent the information as a total body of data. Projection no longer encompassed the imagination (it did still image the unseen)

"Maps give their readers the simple and magical way to see beyond the horizon... We obtain a vision of a place that we may have never seen, or divine a previously unseen pattern in things we thought we knew intimately. Maps are imperfect. Paradoxically much information can be gathered from the gaps left in the maps, not least about the map makers intention". *Mapping: An Illustrated Guide to Graphic Navigational Systems* by Roger Fawcett-Tang and William Owen.

If however, theories of mapping projections and imaging the unseen are simultaneously put to play within the same creative practice of mapping, a conjunction can occur between these two methods. An attempt to create a space between a space on the level of reading and interaction begins and consequently the process of spatial descriptions is no longer bound by one concept of vision.

OPENING THE SPACES OF THE MAP

The spaces between the map can be described is by understanding the physical element of the map as an interface to the space it represents. An interface as we come to understand creates sets of boundaries and connections between different

elements and behaviours. Its visual entity communicates at a given time the range and scope of information that it is currently connected with. We anticipate the interface to respond and change according to the user action. With digital cartography if the physical representation of the map becomes dynamic rather than a system of order, the more the traditional readings and expectations of the cartographic map are challenged for the user.
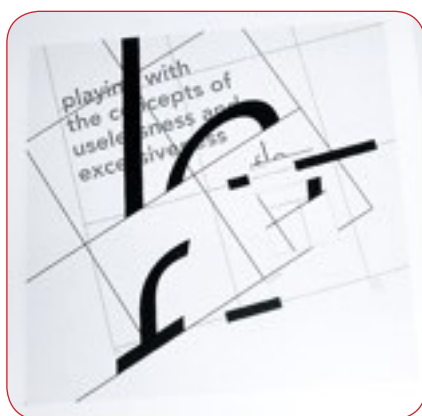
Example 1. Experimental paper cartography

John Crawford, Parc de la Villette.
The graphic elements on each page represent the different architectural follies from the Parc de la Villette in Paris. A space re known for its multiplicity and immense volume but discordant in the way elements are placed together.

The mapped space is represented by; a sampling of the follies, the grid of the parc, and then the interaction between the spaces by viewing layers of the pages through the cut outs in the paper. The mapped space achieves a sense of being able to interact with the original physical space as well as the form of the page.

INTERVENTIONS WITH THE DIGITAL

Observing the plethora of coloured tags that appear from the digital map, continent to continent, it would seem that to have occupancy of this surface creates an antithesis to the idea that the world is bigger than us Google Earth boasts 10 separate categories of layers for the mass public and organisations to use as an announcement space for themselves. Is the map of the world no longer bigger than us?

Within more critically engaged practice a measurable turning point has been with the availability of GPS technology for media artists. Now a common understanding that; GPS technology although promoted as a tool for geographical navigation became a way to 'see oneself' within the context of space as well as place.

Futuresonic organisation of U.K. (2008) describe the importance of digital mapping as equivalent as strategic force of civic evolution. "This is about creating the essential infrastructure for the 21st Century city: without a free digital map, the mobile revolution is going to be inhibited - free mapping data is vital as blogs and web content become spatially referenced". The specific uses of networked technologies as a means to create maps/networks and be active within them demonstrates how participants position themselves away from the agendas of the traditional map and how they begin to interact with place and a connected vision of the map.

TEMPORAL PROJECTIONS ACROSS DIGITAL SPACE

When we look at GPS tracks even in static form the element of time is imprinted on the event. Time brings into view the presence of the person making the journey. It reverses the reading of space by experiencing the moments of the journey first, and then putting this in context to the space. The spaces between points, the total journey, speed, velocity, start, and stop are all conditions of time, which dominate the expression of the journey through the map. Through the project, "Mapping Projections" the use of time was expanded, somewhat ironically in relation to GPS technology. The 'here and now' experience of time was distorted to include the dimensions of past, present and future. A GPS track may begin in present time, but in the runtime animation may jump to past tense or even future, as an idea of

projection through time whilst positioned in the same space.

This method of interacting with a 'missing' space of the map is deliberately at odds with the fixed graphic image, instead an experience of the traditional cartographic logic is confronted and subverted.
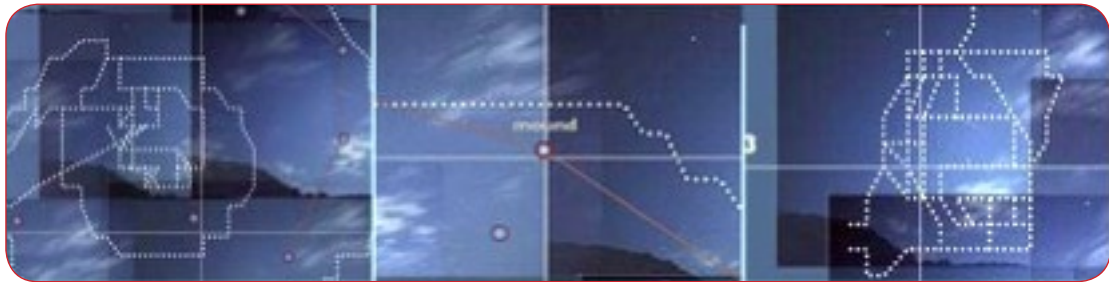
Temporal Projection

A trajectory of a path might illustrate an event beginning in real time and real space, but then travels to future time and an unspecified place with the participant imagining consequences of the events. GPS trace of a burial mound, UK. Points of the map refer to information past and current in time. Moving background gives another quality of time passing.

SPATIAL PROJECTIONS – DIRECTIONS FROM INFORMATION DESIGN

Within the practical project the concept of spatial projection was developed by relating two practices together; the function of scale within information design and the ideas of navigation as an experience from locative media or augmented reality projects. Scale within information design sets about identifying parameters for the system and visual display of information sets. It aims to demonstrate that there are consequences to relating and contrasting disparate bodies of information, which affects our reading of the space. When we read the variables of scale we project our view down into the space and through the act of reading uncover layers of meaning which is hidden from human vision or perception: searching in the layers of data for concealed information, or reconfiguring relationships of information new meaning is uncovered. In contrast scale within cartographic maps is already ordered and fixed for the viewer, the comparative information has been calculated and this is then reflected in the precision of the visual display. Here we use scale as a functional device, not a discursive one.

Spatial projection can become a physical or sensory means by which interaction between spaces can occur.

WORKING FRAMEWORK FOR THE PRACTICAL PROJECT

The Mapping Projections project began by contrasting theories across historical and contemporary subjects of mapping and information design. Critical reflection of ideas of imaging and imaging the unseen gave rise to concepts of extending 'readings' of space, so that interactions between spaces of the map can occur. At the centre of this thinking is the definition of the term 'projection'.

CONCEPTS OF PROJECTION

From early practical experiments, principles of temporal and spatial projections began to from for the project. The definitions of projections were devised to displace fixed meanings within maps, and to use digital media to create a variety of interventions within the specific contexts of maps and the readings of mapped space.

PROJECTION PRINCIPLES

"Projection" is a way to be present in invisible space without physically being there. "Projection" enhances our perception, telescoping the visceral view in front of us

Trajectory occurs in space and time
Space and Place are mapped together
Movement, Direction, Orientation subsume Latitude, Longitude
Mapping 3d onto 2d – relationship of elements; an interface between perception and the image.

EARLIER EXPERIMENTS

These experiments used GPS data with a variety of programming and digital processing techniques. At the heart of these experiments was a desire to merge sets of cognitive experiences with cartographic data. Later these techniques are used to see how cartographic elements can be redesigned with the intention to create interactions between the digital data and spaces of the map.

EXPLORING THE RECORDING OF TIME AS A DIMENSION OF SPACE

Figure 1: Track logs programmed in Java; journeys made each day, same journey/ different routes.

The changing velocity shows haste and hesitation by the traveller and the single line representation of the GPS track is expanded to show relationships of space/time within the journey as well as the geographical space travelled.
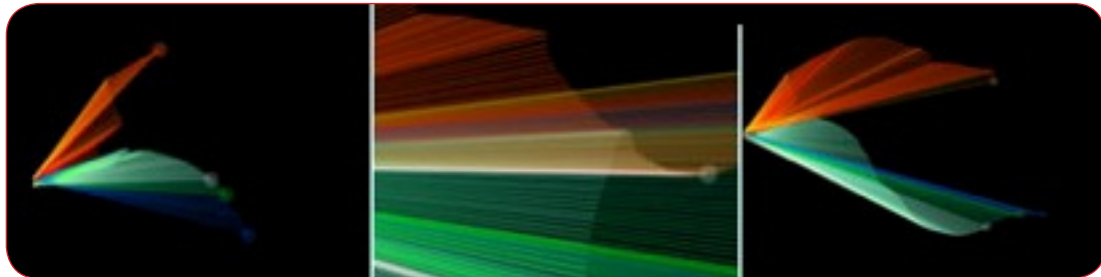
Figure 1

CREATING INTERACTIVE SPACES WITHIN THE ANIMATED TRACK LOG

Figure 2: Visual and audio elements are built into the GPS tracklog, reconstructing aspects of the physical experience which are subtly referenced by the shapes in the track log. Elements of the corresponding cartographic map are then built in around the track log, so the track log as a dynamic interface is not immediately apparent.

Figure 2

CURRENT EXPERIMENTS INTEGRATING LANGUAGE, VISION AND DIGITAL DYNAMICS

Figure 3: Creating interaction of mapped spaces by fusing together a cross section of two representations of the space. The logic of the map is acquired from observing the reactions of the two together. The traditional language of the cartographic map, land elevation and contours, symbolic use of colour etc is preserved and is

set to play as a moving landscape interacting with the data passed from the GPS visualisation. The mapped data spaces are multiplied across a digital representation of a cartographic grid. Elements of the grid and the imagery are further manipulated with effects of time.
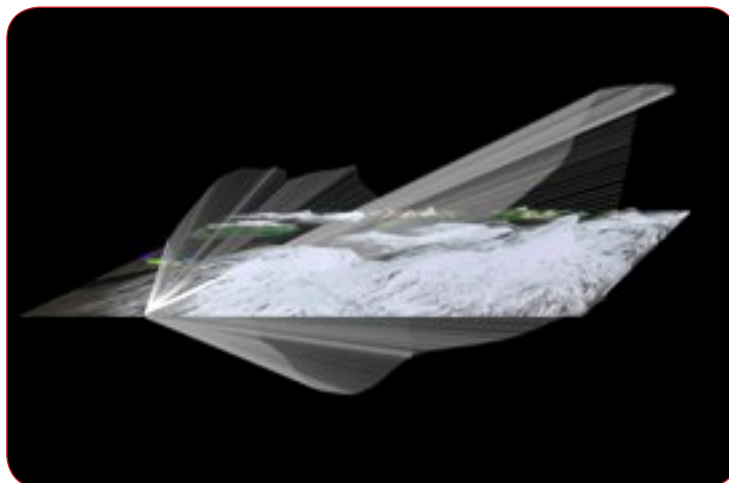
Figure 3

Figure 4: A map built from 3 sources; ambient data, geographical data, and GPS data. The aspects of, land, sea, movement across space are made to 'dialogue' with each other. The meaning of the data space is derived from subjective interpretation of how natural and ambient elements appears to coexist. The effects of this data appears to control the manmade structures, a pier, which in the form of a GPS track. The narrative of the map evokes an imaginary eco system whereby the manmade environment is subsumed by the natural
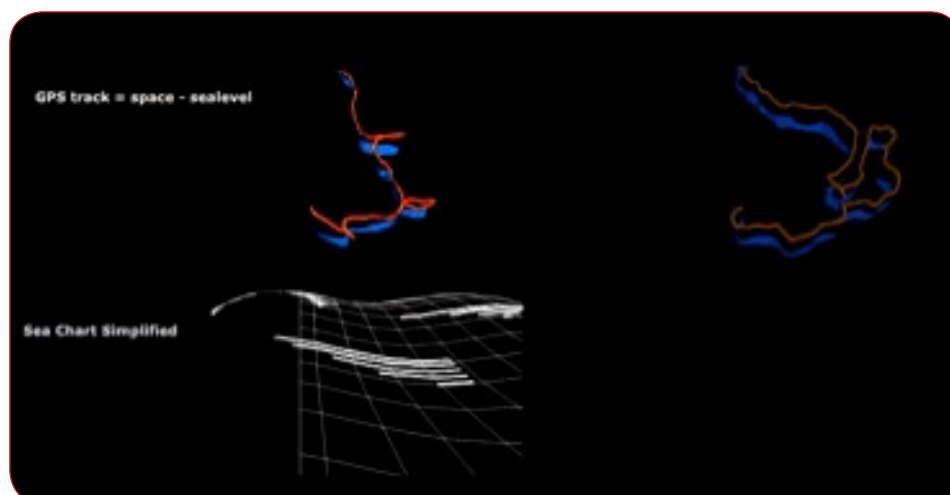
Figure 4

NOTES, CLARIFICATIONS AND A CRITIQUE OF "THE GEOWEB IN THE AUDIOVISUAL ENVIRONMENT OF THE 20TH CENTURY: GEOSCOPE AND THE EARTHSCORE NOTATIONAL SYSTEM".

Paz Sastre Domínguez

1. Itinerary

> "This text (…) is –wants to be- a natural child of the network culture that nourishes it and, for that reason, does not aim to formulate answers but rather to suggest connections."
> Ptk, María Pérez[1]

The current effervescence of the Geoweb phenomenon opens up a new landscape of reflections, techniques and practices associated with the forced union of new information and communication technologies and physical territory. Our aim here is to travel along a personal itinerary at the hand of one of its primary actors: users. The unusual and excellent reception of the public and critics to this forced union means we must reconsider the dimensions of its active leading role in the transformation of the multifaceted Web through social networks. To do so, we should begin by placing users within the spatial-temporal coordinates of the various media environments. Simultaneously, if our aim is to understand, not only describe, the way digital networks and physical space are related currently through the use of portable technologies and new Web applications for managing and producing geographic information, we should place them in a broader context, not only synchronic but also diachronic, not only digital but also analogical. This will focus our attention on the mobility of the physical and virtual territory of social reception processes of the media. As we move the users along the spatial-temporal lines of the physical and virtual environment of the media representations, we will discover how we can continue mapping not only the archaeology of the old and new techniques but also that of the social practices of communicative interaction that have been woven over them.

Lev Manovich (2001) began this diachronic mapping of new media with his theoretical work, looking back to cinematographic discourse as the legitimate father of today's hypermedia discourse. However, if our starting point is the reception of

various information and communication technologies by users, one must keep in mind that the convergence of media took place in them, in us, prior to the digital revolution. Therefore, there is a need for an exhaustive expansion of the various technologies, which formerly were solely analogical, and an analysis of the types of links established among them, among their representations and physical territory, and among all these variables and their users. Thus, part of the game we propose to the reader and desired user of this personal and concise route consists of focusing on audiovisual technologies beyond film, going back to the still lively audiovisual environment of the 20th century. Thanks to television, the construction of multimedia representations as an autonomous, not merely subjective, territory entered into a different phase of development through the mass simultaneous reproduction of space-time. Thanks to video, and its first public appearance as non-professional technology in the late 1960s –with the introduction of the magnetoscope and Sony's Portapak camera-, the uni-directional model of social reception of mass media was transformed. In contrast to previous home devices for the production, cataloguing, exhibition and distribution of audiovisual representations, analogical video opened up the possibility of introducing 'private' contents into the public sphere through the same telecommunication networks used by television. Based on these premises, the de facto parallelisms that were generated between the communicative practices in the audiovisual environment of the 20th century and the hypermedia environment of the 21st century are surprising[2]. As can be seen at the Medialab-Prado Web site, the communication titled "The Geoweb in the audiovisual environment of the 20th century: Geoscope and the Earthscore Notational System" focused on two of those parallelisms of special relevance to the topic of the Second Inclusiva-net Meeting. This itinerary through the virtual space of technologies and the physical and social space of users designed a temporary route that highlighted four accidents along the way from the second half of the 20th century to the present. Geoscope[3], planned by Richard Buckminster Fuller in 1962, a gigantic globe of the earth 200 feet in diameter, a pedagogical tool capable of projecting in three dimensions global information about the history of the planet contained in computerized databases, is linked to contemporary geosoftware. The Earthscore Notational System[4], developed since 1971 by videographer and media theorist Paul Ryan, is a formal system of videography inspired by musical scores, able to construct a shared media perception of natural phenomena, linked to the practices of placebloggers *and* hyperlocal journalism through its implementation in a network of local television channels called Ecochannel. Both projects share the common goal of achieving ecological balance, one of the areas in which the Geoweb is also structured. However, in addition to a

list of places of interest to visit along the route, it acquired a circular dimension by starting with the first interactive video in history, prior to off-line hypermedia systems or applications, *The Aspen Movie Map* (1981)[5], and ending with *Spinvision.tv* [6] (2008), one of the first direct inclusions in the audiovisual environment on Geoweb.

2. Landscape

"1. Extension of land seen from a place 2. Extension of land considered in its artistic aspect 3. Painting or drawing that represents a certain extension of land"
R.A.E., Dictionary of the Spanish language[7].

Our landscape can be defined as the set of media including electronic media, through which we gain access to the territory of representations, whose maximum expression today is the Internet / World Wide Web combination. However, this landscape acquired its social dimension long before the popularization of the term by Tim O'Reilly (2005). Seen from the point of view of users, it can be said that the social networks of Web 2.0 already formed an integral part of the communication circuit during the 20th century and perhaps even earlier. The "multinational consumer communities" (Néstor García Canclini, 1995, pp. 49-55) have been constituted from the audiovisual environment up to the present thanks to the global expansion of telecommunications and the mass media that, today, are immersed in telematics. The critical appropriation of the first public non-professional video technology in the late 1960s by a multinational community of users constitutes a determining event in this context. The communicative practices and theoretical reflections of the first independent videographers foresaw the perhaps no so new communicative interaction practices in today's digital environment, subverting the spectator practice of the uni-directional model of mass communication by becoming users:

"They imagined a social order in which new forms of community might be formed and maintained by the development of an interlocking network of shared intelligence (...) They imagined a world in which the contest of ideas and values could take place freely and openly, outside of the existing institutional framework (…). They proposed not only a re-ordered power structure, but also a new information order in which the very idea of hierarchical power structure might be transformed or even eliminated" (David A. Ross, 2003)[8].

An openness toward interactivity in the media environment, in its technological and political aspects, heralded the significance of the role that these emerging social networks within the virtual space of telecommunications could have in the future, while in UNESCO, the configuration of this space within the national boundaries of major nations was still being debated [9].

This landscape in which we are struggling to move has two complementary points of view. If we can transit through the media landscape from the point of view of its users, it can also be said that we can move through the physical and social space of those users through their representations. This is the only legacy in their memory and ours if what we want is to go back in search of new connections to expand the cartography of the present and define its routes clearly. Focusing on our personal itinerary, an especially productive visit is the journal *Radical Software* (1970-1974), an outstanding representative of these first independent video collectives, now available to the public as historical documents thanks to its digital conversion[10]. Its title alludes to the name of this eclectic movement that fostered the use of and valued contents, more than the possibilities of any specific technology. For these collectives, what was innovatively radical was not the technology or hardware but rather the software or applications through which the contents were made. That is why *radical software* alludes directly to the second and third definitions of landscape at the beginning of this section, highlighting social activity as constructor of virtual and physical space-time. The landscape we have chosen to highlight is just a small example of the complexity of this vast dual territory. In this sense, the itinerary points out, beyond the significance of the increasing mobility of technologies, the autonomy acquired by their representations.

3. Representation

> "Bridges's dilemma is common enough. Finding in 'primitive' languages
> a dearth of words for moral ideas, many people assumed these ideas
> did not exist. But the concepts of 'good' and 'beautiful', so essential to
> Western thought, are meaningless unless they are rooted to things. The
> first speakers of language took the raw material of their surroundings
> and pressed it into metaphor to suggest abstract ideas. The Yaghan
> tongue – and by inference all language- proceeds as a system of
> navigation. Named things are fixed points, aligned or compared, which
> allow the speaker to plot the next move. Had Bridges uncovered

the range of Yaghan metaphor, his work would never have come to completion. Yet sufficient survives for us to resurrect the clarity of their intellect."
Bruce Chatwin, 1977, *In Patagonia*.

The role of representation as mediator between the physical and social territory is quite old. The fashion of the Grand Tour, especially among the English, contributed markedly to the success of the Italian *Vedutists* (view painters) of the 18th century. The Grand Tour consisted of visiting art works in situ, especially in France and Italy, as part of the obligatory education of Europe's upper class youth. Japan's lively urban life in the 17th, 18th and 19th centuries is related to the rise of a type of xylography known as Ukiyo-e (paintings of the Floating World). These landscapes and urban views are very well-known, as are the portraits of famous actors and courtesans, the series devoted to birds and flowers, and even pornographic ones. In 1858, floating in a hot-air balloon outside Paris, Gaspar Felix Tournachon, better known as Nadar, took the first aerial photograph ever[11], although the only photograph taken the same way that has survived to this day is of Boston, by James Wallace Black[12] in 1860. Photography, from its very beginning, became a means to document the territory, expanding the registries of physical descriptions of properties, as was the case of the French Monuments Commission in the mid-19th century, or the U.S. Farm Security Administration[13] during the Great Depression of 1929. What was called the New Topography of the mid-1970s is another example of media practices related to territory. Today we have a marvellous documentary on that school of photography, *Manufactured Landscapes*[14] (Jennifer Baichwal, 2006) about one of its authors, Edward Burtynsky. Cartography itself seems to be anthropologically universal, although the oldest known maps are Babylonian tablets from 5,000 years ago. These maps were printed on clay tablets and the majority consist of land measurements carried out for tax purposes.

At first sight, the 'old' and the new media depend on two perceptive strategies: the representation of physical territory as information, as a structure of quantifiable data; and the representation of physical territory as a subjective experience, where qualitative data are generated based on different variables including the quantifiable ones. That is why, over time, the combination of both strategies has diversified the practices of communicative interaction in different media environments, as Julian Oliver demonstrated in his lecture on cartography, *CartoFicciones: mapas, imaginario e ingeniería geosocial*[15]. During the communication, we chose to simplify

the phenomenon of geosocial representations in view of the current configuration of these two models and their immediate antecedents in the work of Buckminster Fuller and Paul Ryan. The simplification was in response not only to pragmatic factors of discourse but also to the need to point out how different techniques respond in a particular way to different persons, that is, how representations depend on sociocultural and technological contexts. Here, as in so many other things, we find a fundamental reference in the reflections and practices of the first videographers.

In 1989 Paul Ryan published a brief essay titled "Video, Computers and Memory"[16]. Today these early reflections can help us understand how communicative interaction practices are structured in the hypermedia environment. Without going into the complicated critical apparatus built around video and temporality, during the communication we referred to three key concepts in the article: electronic memory, audiovisual contiguity, and computational complexity. In this context video is defined as a technology of contiguity, that is, of the relations with our immediate environment, of experience. The video also helps to develop a considerable variety of shared perception techniques. This dual virtual and existential condition, in the long run, develops a sort of electronic memory linked to present space-time. The connection of the medium of video with direct experience of data represented in it constitutes for Paul Ryan its greatest difference with respect to the computer medium. As a result, having previously developed this electronic memory, computer simulation systems make sense for evaluating a policy's suitability or a project in a certain territory. If video extended our capacity to handle spatial and temporal contiguity, the computer medium extends our capacity for managing complexity, helping us put a multiplicity of parts in order as a whole. There is a risk here of the marginalization of the user's direct connection with what is represented, the substitution of the user's own time and space: "In a computerized culture without an understanding of contiguity, the danger is that the power of the computer to calculate complexity will be used to colonize the future. Life will not be allowed to unfold for the young".

During the communication we finally had a chance to look at one of the contemporary disciples of Buckminster Fuller's project. The Institute that bears his name is developing geosoftware based on the original concept of the Geoscope, the Earthscope Project[17]. This application makes it possible to develop *geostories* which, in addition to interactive maps, can include texts, audio, still images, animations and video. Of all the available geostories, we have chosen the one designed to show the potentials of this tool and disseminate the core concept of the project. *Human Impact*

on Natural Habitat 1700-2100 [18] is a simulation of the impact of human activity on the planet's natural habitats from the 18th century until the end of the 21st century, based on two models of economic development, the prevailing tendency to favour development at any cost or an alternative: sustainable production. The result, from the user's point of view, is the incapacity to handle the terrible consequences of the former model, given that in this simulation the user is not allowed to manipulate the diverse variables that come into play. Given this type of representations, we should always take into account that while the future is unpredictable, we can always learn more about the past and present. An example of these fluctuations among various qualities of media representations, and the possibilities they offer the user to interact with physical and social territory, is found in a recent event. At the end of March this year, an ice shelf broke off in Antarctica, although "in 1993, David Vaughan, a scientist with the British Antarctic Survey, forecast that the Wilkins Ice Shelf would collapse in 30 years" [19]. The article in *El País* that referred to this event began with this sentence: "We are witnessing a sensational spectacle that will leave old maps of the world far behind: before the eyes of our satellites, the Arctic has entered a spiral of destruction that will mean that in the summers it will disappear before 2020". To the contrary, if we travel to the future of Antarctica through the simulation of the Buckminster Fuller Institute, and continue with the current economic development model, we find the surface of the frozen continent intact. This *de facto* verification makes it advisable for simulation systems to increase their degree of interactivity and therefore, of handling variables if, as in this case, we want to make them a tool for knowledge of and action in the territory.

4. Territory

"Perhaps the new landscape of our time, which we must begin to discuss, is the one we modify, the one we alter in our pursuit of progress."
Edgard Burtynsky, 2006, *Manufactured Landscapes*.

From our perspective as users, the territory is first of all the way each person experiences it, whether physical or virtual. From a technological point of view, the media devices best suited to this direct experience of our environment are audiovisual, notably videos and digital photography due to their immediacy and durability. In this sense, their representations constitute historical and legal documents. They are eyewitness accounts of social and natural events. Their outlook

is not neutral, of course, but over and above a particular representation and its original connotations, we should highlight its variable readings over time and space. Beyond technologies themselves, the growing autonomy of the contemporary media space where all the media converge, and its expansion across global territory, force us to reflect on the current degree of spatial and temporal interactivity within the representations themselves. This means that if we want to study the mobility across physical and virtual territory of social reception processes for the media, we should evaluate to what extent virtual territory today responds to its historical construction, that is, how many documents have been digitalized and how many are accessible online. During the communication, we performed a simple exercise between Youtube and Spinvision for the purpose of bringing this series of questions to light among the audience. We entered "1910" in the search engine on both sites and analyzed the results, verifying the precarious nature of current tools to handle the spatial-temporal complexity of our audiovisual representations. We noted that, in this sense, Spinvision represents a great advance for multimedia cataloguing systems in a network, as it allowed us for the first time to link the audiovisual environment to the representation of the global physical territory, in a sort of Geoscope designed for video, television and the cinema. However, we also noted how difficult it is today to move along the temporal axis of our representations. This is how we discovered the fragmentation of this virtual territory under construction and its lack of complete suitability to the experience of its representations that users have had, have and could have. This is all relevant to the extent that the virtual and physical dimensions of our experience of the environment can feed each other mutually, as happened to Xavier Camps[20] at the beginning of this year: while reading the newspaper, he saw himself preserved for eternity in a snapshot taken by Robert Capa in his hometown, Barcelona, in 1939. However, what happened to Xavier Camps underlines how precarious the media landscape is in our country. Of the 35,000 titles, 75,000 varied materials and 66,000 rolls of film that comprise the approximately 6,500 audiovisual documents in the NO-DO archive that belongs to the Spanish Film Archives (Filmoteca Española), not one of them is available online and the institution only makes its film collection available to:

> "…researchers, professionals, audiovisual companies, film and television production companies, TV channels, etc., permitting consultations and viewing (see fees) of film documents and the acquisition of rights (see fees) to its materials to be used in audiovisual projects"[21].

The digital collections of the Spanish National Library (Biblioteca Nacional[22]) do not include any of its 55,773 engravings, 18,344 posters, 7,232 drawings, 4,190 photographs or 25 ephemera, which belong to its special collection of graphic material, to say nothing of the rest. A relatively recent project that does respond in part to current transformations in the experience of users in virtual territory is the Photographic Archive of the Madrid Regional Government (Archivo Fotográfico de la Comunidad de Madrid[23]). It responds insofar as its contents were contributed by citizens and are completely digitalized and available online free of charge. However, it renounces its own premises by closing off the possibility of continuous growth that online cataloguing systems offer, their worth amply proven by the active participation of users on the Web. The Prado Museum (Museo del Prado[24]), which has the world's best collection of Spanish paintings, has barely begun to digitalize its collection and grant free access to them. Thus, we have verified the impossibility of moving freely among the historical representations of part of the physical and social territory. In this sense, a notable project is PARES, the Spanish Archives Portal (Portal de Archivos Españoles), which "offers free access at no charge to researchers and any other citizen interested in accessing documents with digitalized images in the Spanish Archives"[25]. Spanish Public Radio and Television (Radio Televisión Española) has also timidly begun to offer its archives to citizens[26].

In addition to the struggle among the time boundaries of representations on the Geoweb, there are conflicts generated by cultural boundaries. The cultural dimension of the communication and information phenomena take on new nuances if we take into account not only the diversity of the representations but also that other diversity inherent to them: the diversity of the representatives and those represented, and the diversity of uses and users. The media participation of indigenous peoples opens a field of activities of special interest in that sense. Their presence in the communication and information media strengthen historical demands to protect their cultural identity and natural territory. Although the problems faced by indigenous peoples are extremely varied and complex, a fundamental issue arises when indigenous identity and territory are also determined by their exclusion with respect to the industrial configuration of virtual territory. *Progress Can Kill* and *Uncontacted Tribes* are two of the current campaigns of Survival International[27], whose denunciations are specified in news about Peru[28], distributed by this organization, the only international NGO devoted to the defence of minority cultures. On 10 December 2007 the Peruvian government gave the "green light to two oil companies to carry out explorations in a remote area of the Amazon inhabited by isolated populations"[29]

with the risk of provoking fatal epidemics among those peoples. The argument used by the government was the negation of the existence of those peoples. In response, aerial photos of the area were circulated throughout virtual territory that showed the presence of human settlements and the intentions of the government and the oil companies. By 17 April 2008 the isolated indigenous peoples had travelled all over the world:

> "Over 150 articles and interviews about the isolated indigenous peoples of Peru were published and broadcast in over 20 nations: from places as far away and diverse as the United States, the United Kingdom and Spain, reaching Australia, New Zealand, Brazil, Japan, India and China. Some of the world's major newspapers, agencies and broadcasters covered the dire situation these peoples are in. The information was also distributed through many other types of publications, such as Sunday papers, local papers, airline company magazines, and also publications specialized in indigenous subjects and women's magazines." [30]

Boundary limits keep coming up in this relatively virgin territory. In addition to marked barriers, there are others of an economic nature where the right to communication and information is understood as a business and is therefore subject to a sort of tariff on cultural practices. Free access to this unformed territory is still too restricted and the large public projects for creating Wi-Fi areas seem to have been forgotten, pressured by the rhetoric of a not-so-free market. In 1968, Dr. Licklider, one of the fathers of the Web of webs, thus ended his article "The Computer as a Communication Device" [31]:

> "For the society, the impact will be good or bad, depending mainly on the question: Will 'to be on-line' be a privilege or a right? If only a favoured segment of the population gets a chance to enjoy the advantage of 'intelligence amplification', the network may exaggerate the discontinuity in the spectrum of intellectual opportunity" (J.C.R. Licklider, 1968, p 40).

In regard to the experience in Spain's physical territory, the Telecommunications Market Commission (Comisión del Mercado de las Telecomunicaciones, or CMT) [32], in January 2005, warned public administrations, especially local ones, that offering Wi-Fi free of charge was against article 8.4 of the General Telecommunications Law [33]. However, illegality does not end there. Once inside, users discover that

another old and fortunately controversial tariff is in effect. Intellectual property rights are still fighting rights to use the intellect, although in this case the users-authors and the users-receivers have more substantial alternatives. In the spring of 1970, faced with the same barriers within the audiovisual environment, the journal *Radical Software* began its bold course by proposing *DO COPY* on all articles christened with a *Xerox Mark* [34]: an "X" inside a circle that in time may be turn out to have been the first antagonist of copyright©.

Politics, depending on how you look at it, is above or beneath all the boundaries to public experience of physical and virtual territory and closes the cycle of old thresholds. The case currently topmost in people's minds is that of China but the press continues to surprise us daily, discovering new and curious islands. Cuba is beginning a new governmental era with new communication policies for ordinary people, far from the former privileges granted to tourists and bureaucrats[35]. The discreet kingdom of Bhutan, recently converted to democracy in the Spanish style, has had television and the Internet since 1999, although its geographical borders are still the most carefully monitored on earth, given that "the high price imposed on visitors' stays limits the annual number of tourists to about 6,000"[36]. In contrast, in Myanmar, formerly Burma, a country open to the flow of international visitors, the military junta closed the territory of its public representations at the end of last year to use arms to deal with its monks' peaceful rebellion. In Myanmar, which has one of the best spy networks in Asia, solely possessing a satellite phone is considered "high treason" and punished with 20 years' imprisonment, with 7 to 15 years for having a personal computer without official permission[37].

5. Impressions

> "… I don't know if a philosopher has ever dreamed of a company
> engaged in the home delivery of Sensory Reality".
> Paul Valéry, 1928, "La Conquête de l'ubiquité"

Any way you look at it, the audiovisual landscape is the oldest of all human landscapes and also the most universal. We can bring to mind the figure of an animal on the walls of the Caves of Altamira even if we cannot decipher the writings of some cultures that are already extinct. If we wanted to cover it entirely, our itinerary would have no definite beginning or end but we could go along weaving it over the

territory and with the passage of time, create an increasingly complete and plural experience, starting with pre-historic representations and continuing with the most recent images. From the perspective of its present and past users, this necessarily multimedia landscape has always transgressed the limits of various representations and technologies and the limits of the culture from which they arose. On the contrary, from the perspective of the technologies and their representations, never before had this landscape, which is so human, eternally intercultural and multimedia, attained the possibility of making itself visible as a whole, comprising a potential autonomous territory. That is why the current conflicts between the limits of information and social communication are debated from the arenas of the particular natural and virtual landscape of each one. Reflected there are the old frontiers demolished by the dual territory of geopolitical problems which are also geoaesthetic problems. However, while the representation of natural orography advances and astounds, due to its new scope, for us, users of the Geoweb in the hypermedia environment, the cultural, historical and economic consequences of our representations seem to drown in the same transparent waters where the political struggles in the virtual terrain of communications arose and vanished during the last century, and perhaps even earlier. We apparently accept the trivialization of the potential of our representations while barely noticing their disastrous consequences. Let's imagine, on the contrary, what would happen if instead of wondering *Where the Hell is Matt?*[38], we saw where, when and what is happening to the most vulnerable people and groups. The political scope of contiguity has been soundly verified by defence systems, and is obvious from a military standpoint, but it is an unknown landscape from a social point of view. In that area, the control strategies stemming from global surveillance systems could become protection tools, which is already occurring despite the precarious fragmentation of virtual territory. We are referring to the Geoweb, Geoscope and Earthscore Notational System, highlighting the links between the information and communication practices and technologies and natural territory but we are perhaps forgetting the social landscapes that sustain and transform it. We are talking about Web 2.0, but we seem to forget that what occurs under this very popular term is social activity driving the plural construction of global virtual territory. We cannot retrieve the narrations of the NO-DO on the Web site of the Spanish Film Archives (la Filmoteca Española), but we can do so on YouTube. "The military junta of the former Burma sealed the physical and virtual borders"[39] but citizens managed to filter information with their cameras, mobile telephones...

"This has nothing to do with what happened in 1988, when the military crushed another rebellion. Over 3,000 persons lost their lives in events that were not known about for several days. 'The difference is night and day', Reuters agency was told by Dominic Faulder, the British correspondent who reported on those massacres. 'Back then, there was only one telex with an international line at the Strand Hotel in Yagon. Today the whole population are potential reporters and they send images abroad, which was impossible 19 years ago' "[40].

The Amnesty International campaign *Irrepressible.info* also informs us that Internet repression is not exclusive to governments:

"The information technologies companies have helped to create the systems that make surveillance and censorship possible. Yahoo! provided Chinese authorities with email users' personal data, thus contributing to cases of unfair imprisonment. Microsoft and Google have responded to government requests that they actively censor Chinese citizens who were users of their services."[41]

OpenNet Initiative[43] is engaged in mapping surveillance and censorship strategies in the virtual territory of the hypermedia environment but, despite all of that, we still do not have proper communication policies and rights, to the degree that we simply accept the fact that Orange, a telecommunications company, based its advertising campaign on inequalities with a resounding "You have a right to the Internet"[44].

On the Geoweb, geo-politics and the young field of geo-aesthetics join hands or at least have begun to dialogue actively. Recent essays such as *Geoestètica i transculturalitat* by Joaquín Barriendos Rodríguez (2006), *Convergent Culture* by Henry Jenkins (2006) or *Toward an Anthropology of the Image* by Hans Belting (2007) may help us understand and place today's communication and information phenomena beyond the obsolescence and glitter of a fascination with new technologies that will not be new for long: in fact, they are just "other" technologies. The rapidity of the transformations that are happening and that we are experiencing also provokes a variety of impressions on thought patterns, which have not yet been examined in sufficient depth. If the audiovisual landscape, any way you look at it, is the oldest of human landscapes, wouldn't it be useful to analyze how theoretical reflection is nourished based on its various configurations? George P. Landow

carried out an interesting exercise that can serve as a guide as we open new routes in this direction, beyond exclusively typographical media. His very well-known text, *Hypertext: The Convergence of Critical Theory and Technology* (1992), broke down the privileges of a theoretical outlook over technology and allowed us to observe the results of analyzing the former based on the latter. The burgeoning of spatial concepts in postmodern theories and postmodern times that arose during the former empire of the audiovisual environment might find a more suitable expression if instead of continuing to use their theses, concepts and categories in our approach to the technological and social phenomena of communication and information, a reflective approach was carried out inversely. To what extent media affect thought, and vice versa, are matters to be explored farther away from literature and its theory and bit closer to aesthetics and epistemology. As we advance in the construction of virtual territory and gradually expand our policies and theories, it is possible that geo-aesthetics may replace the concept of cartography, a hypermedia cartography that is bi-directional and interactive, allowing us to travel with greater freedom through the past and present of representations, their territories and cultures. It all depends on how we go about transforming our landscapes today, and the level of awareness attained with respect to the boundaries that positively and negatively limit the expansion of virtual territory.

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PUBLIC SPACE AND ELECTRONIC FLOWS
SOME EXPERIENCES BY HACKITECTURA.NET

José Pérez de Lama

> *Architecture is not an end in itself* [1]
> *1/ A desire not to create joints*
> *2/ A desire not to create beams*
> *3/ A desire not to create walls*
> *4/ A desire not to create rooms*
> *5/ A desire not to create architecture* [2]

> While the logic of discourse proposes a thorough sifting through objects, the logic of intensities or ecological logic only takes into account movement, the intensity of processes... The object of the process is existence, while it constitutes itself, defines itself and is deterritorialised. [3]

"Architecture is media", was the answer recently given by Julien Beller from exyzt. org to a question about the relationship of the work of a group of French architects with the media [4]. I found this to be an interesting answer, not so much in the semiotic sense of the 70s but rather in the more contemporary sense, in that we are living in a media ecology. I liked this answer for its immediacy, compared with my efforts to explain to students, colleagues and municipal technicians the advisability of contemporary architecture incorporating a layer of electronic flows, as well as the hardware and software to bring this about.

In order to talk about the relationship between architecture and electronic flows it seems necessary to ask why architecture came to be. I would like to suppose that we will accept that there is currently no consensus on this matter. On one extreme we find the understanding of architecture as the profession of building shelter for human beings in an economic, useful and dignified manner; houses first and then accommodation for their different activities: schools, hospitals, meeting spaces, offices, factories, leisure centres... At the other end of the spectrum we find the most contemporary interpretation of architecture as an artistic, scientific and research activity, which manages the fact of inhabiting, of the form we take on in space, of its transformations and even of the creation of new ways of inhabiting. Between both these extremes we would be able to find multiple perspectives, such as those

that see architecture as a (commercial) product that is more or less sophisticated; or those that understand architecture as formal artistic practice, comparable to paintings, installations or art cinema; or those that view architecture as a medium for the domination of space – as with Israeli architecture in Palestine. This multiplicity of perspectives can even be made compatible in some particular cases, like that of some of Rem Koolhaas's work, for example.

ARCHITECTURE, INHABITING, TERRITORY

In this text I wish to refer to architecture in the second of the meanings listed, where it is in charge of (new) habitations. The interest in habitation, an expression which was not known back in my student days (the 80s) went on to become a hot topic in the mid-nineties, to the point that a new course appeared in the architecture degree at Seville School of Architecture called "Basics of habitation". I suspect this interest is linked to dissatisfaction with modern architecture and with early neo-historicist postmodernism. Investigations on inhabiting propose a widening of the field of architecture which transcends, on the one hand, Bruno Zevi's idea of architecture as (geometric) space and on the other, the Aldo Rossi and Alvaro Siza school of thought, which focuses on the contextuality and autonomy of the architectural. In its place, the study of habitations opens up to a heteronymous understanding of what architecture consists of, such as the *de-re-territorialisation* (Deleuze and Guattari), as social production, both material and mental (Heidegger, Lefebvre). Back then, we would talk about cartographies, imaginaries, narratives; it was a case of going back to thinking about architecture from the disciplinary sidelines, from the outside, from the entities, the social, cultural and technological transformations, from life.

Out of all these questions, from my point of view, the idea of territory seems crucial when trying to think of the way in which electronic flows are incorporated into our thought and ways of space production. While for architects territory is fundamentally the physical support on which life takes place – as shown by the Spanish urban planning technical expression "putting territory into order" – for other disciplines, such as anthropology or sociology, for instance, territory is the combination of physical environment and inhabitants and therefore also that of the relationships established between them. Thinking of inhabiting from the perspective of architecture would be thinking how territory comes about and not only how its physical environment is produced. It is in this sense that it is stated that architecture is not an end in itself, but is a medium for producing things, a medium for life within space.

How do we intervene on the territory? As Eduardo Serrano proposes [5], we can intervene in the classical manner of architects, through buildings or public works, but we can also intervene transforming the relationships between the physical environment and its inhabitants. The latter would also be an intervention for the greater part of society which lacks the power, the resources or the administrational capacity to carry out large public works or set up a new neighbourhood. Here we would include, as relatively new components, electronic flows capable of modulating the relationships between the physical environment and its inhabitants, and therefore of producing territory.

SPACE OF ELECTRONIC FLOWS

However, this is not a marginal matter, but possibly, if we were for instance to follow Manuel Castells it might constitute one of the main transformation vectors of the present. As is well known, for Castells, the step to what he calls network society is characterised in the spatial field by the transition of location space (that of traditional architecture) to flow space (that of contemporary architecture?) [6]. This flow space is supported by – partly consists of – electronic flows. Although that which flows indubitably has a material component: be it goods or people, electromagnetic waves or bits, in comparison with the heavy materiality of traditional architecture, we could provisionally assign it to the sphere of the intangible.

In the measure in which a city, neighbourhood or office are connected or form part of flow space, the life which takes place in them will possess other dimensions. According to Castells, along with many other authors, - from the Strategic Plan of Seville to the analysts of the Rand Corporation [7] -, those cities, social sectors or people which can and know how to occupy flow space will occupy a hegemonic position in comparison with those who remain exclusively anchored to location space. It therefore seems inevitable to think up these new connected habitations, even if it is to develop conflicting or counter-hegemonic approaches. I would even dare say it is not possible to think of inhabiting the present without taking into consideration this new flow space, which in actual fact is increasingly less novel.

BECOMING A TERRITORIAL CYBORG

William Mitchell develops other aspects of the matter which I consider to be of interest. With arguments similar to those of John MacHale, Félix Guattari or Bruno Latour [8], its *ex-dean,* MIT School of Architecture proposes that the new inhabitant

for which it would be necessary to contemplate architecture must cease to be the isolated individual, centre and measure of all things (of humanism), and become a "spatially extended cyborg". Thus expressed, it all sounds rather alarming, although the problem is not as serious as we think. This is ecological thinking. The idea is that we are part of an interconnected, interdependent world in which mediation between the physical universe and us humans, is carried out through machinic-technological networks which are deemed to be our extensions or prostheses: from modern urban networks to the more contemporary communication networks. Félix Guattari presents this idea with the concept of machinic ecology [9].

Bateson's famous syllogism may be of use to us to better understand the cyborg metaphor, when it says:

> Grass dies;
> Men die;
> Men are grass.

In the measure in which we can truly state that men are grass, that is to say, in the measure in which we concentrate on the predicate instead of on the subject – as is the norm from the occidental-rationalist perspective – we may say that men (and women) are spatially extended cyborgs. This is not a statement about identity or essence, but one that is related to performance, to becoming. "We will do better", says Mitchell, "to take the unit of subjectivity, and of survival, to be the biological individual plus its extensions and interconnections". [10]

THE BODY OF THE ELECTRONIC MODERN MOVEMENT

Toyo Ito, whose position as one of the most important contemporary architects cannot be disputed, presents the situation as the desire for a new body. Although in the late 80s (!) he described it as the "desire for an android body" [11], he more recently suggested it should be called the "body of the electronic Modern Movement" [12]. A body that floats simultaneously between natural flows and electronic ones, in search of a house that does not exist yet, as Mies van der Rohe said in another situation of historic change. A house yet to be invented. On the limits of this quest we can find his "desire not to do architecture", which he mentions in relation with the Sendai Mediatheque. A house that would float once it had left its materiality behind "the sphere of what is living among the flows, an eddy in a river that flows uniformly" [13], pure life.

HACKITECTURES

In this conceptual context, hackitectura.net - Sergio Moreno, Pablo de Soto, the author and contributors - have been experimenting since the turn of the century with a series of prototypes of connected public spaces. The concept of *hackitecture* itself proposes a practice which recombines physical spaces, electronic flows and social bodies, carried out by teams of architects, programmers-technologists and citizen-activists [14]. It is true that we have not reached many certainties, although we do believe we have confirmed some suspicions and obtained some leads. We have also had a good time.

I will now comment on some of the cases or concepts we have been handling by way of an illustration of our approximation to the architecture of electronic flows.

Cartuja Beta Rave (Isla de la Cartuja, 2003). On a cold January night we find ourselves at the abandoned AVE stop in the Cartuja. We were trying to apply a skin of electronic information to the ruinous canvases of the old high speed train station. The human team was formed by specialist friends from Barcelona (visuals and communication networks), Madrid (wireless networks) and Seville. With remains of the Expo we limit a space-barricade to place computers, projectors and audio equipment. When the projections on the white textiles began, the space became a new place. At a given point in time the projections start to come in via the wireless network from Holland, Argentina and El Viso del Alcor. For a few hours this *madmax-style* ruin became a global public space, a temporarily autonomous area, which could also be inhabited in cyberspace. A hybrid territory in an uncertain place between the physical-local and the digital global. [15]

Fadaiat 2004. *Medialab* distributed between Tarifa and Tangiers. Summer solstice on the border between Europe and Africa. A *medialab* in the castle that once belonged to Guzmán el Bueno, in Tarifa (Cadiz), connected by a satellite dish to internet. Two somewhat special antennas, on either coast of the Strait, establish an intercontinental wireless link. This was the first time something like this had been done. On the African shore, on a terrace beside the iconic Café Hafa, a meeting place for the *beat generation*, a second campaign *medialab* is set up. The two interlinked spaces constitute a single temporal laboratory distributed between two continents. The flow of bits, from Tangiers to Tarifa, and from there to the Astra satellite, connects the whole system to the global internet network. The territorial

mechanism constitutes a distorted mirror of the SIVE (Integrated System of External Vigilance), the pioneering electronic barrier for defending Europe from African immigrants. [16]

TCS2 Extremadura, Emerging geographies (Valdecaballeros, 2007) Spring in the pastures of Extremadura: on the horizon we can spot the derelict nuclear power station of Valdecaballeros, a symbol of the failed dream-nightmare of industrial development. A geodesic dome and a truck equipped with a satellite antenna share an oak grove with some sheep. The control station has been installed in the dome to start up the nuclear power station, this time, with free software. This is an imaginary start-up, that of its recycling in a different model of development based on free culture and ecology. During the day the dome fills up with children dressed as nuclear technicians thinking up alternative futures for the region. At night, the dome is illuminated inside and out with images coming and going from Internet by satellite. The bodies let themselves go with a concert of post-nuclear noise generated using sounds recorded by an antenna abandoned by the Soviet army in Northern Europe. An architecture of blurred limits. A machinic ecology. Another economy of desire.[17]

The three previous cases were cooperative productions, prototypes of spatially extended cyborgs for the exploration of new existential territories. Architecture, in its most traditional interpretation, is relevant, but not central. Space, in the meaning Lefebvre would award the term, is constructed above all with components which we could here describe as intangible: electronic flows, interfaces, audio, projections, words, bodies, the landscape we find ourselves in. Alongside these elements, physical spaces have a digital extension in which the process is initiated, the project is gradually built, and products are filed: a productive and communication-filled public space which operates as the mind and memory of the cyborg mechanism. None of the spaces explained would have existed in the way they did without their digital extensions.

The combination of tectonics and electronics operates in the same way as in Constant's New Babylon: a mine of elements that are assembled to construct situations in which new events of reality may take place and be continually transformed. Space-infrastructure materialises for a week, but the production process distributed on the net has been being developed for months and upon completion, continues to be alive in the memories – the carbon and silicium ones

– the affective-productive networks have been reinforced and are all set to be regrouped at some other point.

WIKI-PLAZA (2005)

With the experiences drawn from the aforementioned interventions we have created an architectural concept to be applied to a more permanent urban space project. The concept of Wiki-plaza proposes a public space that can be constructed and transformed in a cooperative and continuous manner, as is done with a wiki on Internet [18]. Wikipedia is possibly the best-known example of a digital space of this sort. As is well-known, while its quality is equivalent to that of the best encyclopaedias from the point of view of dynamism, economy or sociability generated, Wikipedia is a radical innovation and an opening to new times.

We have been developing research on the concept of the Wiki-plaza in relation with the project of the Plaza de las Libertades in Seville (with Morales de Giles Arquitectos and Esther Pizarro), but this is a diagram that can be applied to other situations. To offer a brief description, we propose thinking about public space as a multi-layered territory, in which a series of electronic layers are hybridised in a propositional and critical manner with the layers traditionally thought-up for architecture. This new type of space will be an urban laboratory for experimentation with matters such as connection and public access to networks, interfaces between locations and flows, open code architecture, media ecology and urban electromagnetic space or the interaction of natural and electronic flows. [19]

All these matters are indubitably of interest, but we would only be short-changed if we were to leave out the most important one… what is all this about? As Rez, a William Gibson character intent on marrying a software construct says: "It is about finding beauty in the new emerging orders".[20]

NOTES:

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2. Toyo Ito quoted by P.P. Arroyo and Taro Igashi, 2001, Sendai Mediatheque, in *Pasajes de Arquitectura y Crítica* núm. 32, diciembre de 2001, Madrid / p. 30.

3. Félix Guattari, Las tres ecologías, 2000, Pretextos, Valencia, p. 37.

4. Media-architecture symposiums, Seville. A microchip garden, a Wiki-plaza, conference by Julien Beller and Alexander Röemer (exyzt.org) in the Escuela Técnica Superior de Arquitectura de Sevilla (05.17.07). Exyzt.org are the authors of the France Pavilion in the last Venice Architecture Biennal (Meta-Villa, 2006).

5. Speech by Eduardo Serrano (Rizoma Fundación) and Luz Fernández Valderrama in IAUS 2004, (Congreso de Investigación en Arquitectura y Urbanismo Sevilla) held in the Escuela Técnica Superior de Arquitectura de Sevilla, entitled "Investigar(nos) e Inventar(nos)".

6. Manuel Castells, 1999, *La era de la información. Economía, sociedad y cultura*. Vol. 1 La sociedad red, Alianza, Madrid, pp 455-506

7. Strategic Plan for Seville at: http://www.planestrategicosevilla2010.org/ and John Arquilla and David Ronfeldt, 2001, *Networks and Netwar. The Future of Terror, Crime and Militancy*, Rand Corporation, at: http://www.rand.org/publications/MR/MR1382/

8. Regarding the theories of John McHale it is possible to consult: Marc WIGLEY, 2000, *Man Plus*, *Fisuras de la Cultura Contemporánea* núm 8, Fisuras, Madrid, pp 17-44; Félix Guattari, 2000, ibid.; Bruno Latour, 2003, *De la mediación técnica: filosofía, sociología, genealogía,* in Oeste 16, Espacio Activado, Colegio Oficial de Arquitectos de Extremadura, pp 130-139.

9. Guattari, ibid., p. 74.

10. William Mitchell, 2003, *Me++. The Cyborg Self and the Networked City,* MIT Press, Cambridge, p. 39

11. Toyo Ito, 1988, *Una arquitectura que pide un cuerpo androide,* in Toyo Ito, 2000, Escritos, Colegio Oficial de Aparejadores y Arquitectos Técnicos, Murcia, pp 45-80.

12. Toyo Ito, 2006, *Arquitectura de límites difusos,* Gustavo Gili, Barcelona.

13. Toyo Ito, ibid., pp 25, 29

14. José Pérez de Lama, 2003, *Metapolis Dictionary of Advanced Architecture. City, Technology and Society in the Information Age,* Actar, Barcelona, entry: hackitecture

15. For a more detailed explanation see: José Pérez de Lama, 2006, *Devenires cíborg. Arquitectura, urbanismo y redes de comunicación,* Universidad de Sevilla, Sevilla, pp 91-94.

16. It is possible to consult the book: Pablo de Soto y Pilar Monsell (editores), 2006, Fadaiat. *Libertad de movimiento, libertad del conocimiento,* Junta de Andalucía Consejería de Cultura, Málaga.

17. For a more detailed description see: http://tcsextremadura.org

18. For an explanation of wiki technology consult Wikipedia: http://es.wikipedia.org/wiki/Wiki

19. See *Plaza de las Libertades Sevilla,* in AV Proyectos núm. 14, pp 10-13 and for the digital project: http://mcs.hackitectura.net

20. William Gibson, 1997, Idoru, Berkeley, New York and 1999, *All Tomorrow's Parties,* Putnam, New York.

POTENTIAL OF LOCATIVE MEDIA IN PRACTICE OF LANDSCAPE ARCHITECTURE (2005 - 2008)

Liva Dudareva

ABSTRACT

The paper Invisible Landscapes and project What Holds Place merge together landscape architecture and locative media practice. The paper looks back in the history and tries to identify the trace of ideas that back up locative media since 19th of century. In order to illustrate that I am exploring several projects and artist movements - Flaneur, Situationists, Locative Media workshop in Karaosta, Latvia 2003; Ieva Auzina and Esther Polak project Milk; Paul Spencer project Montparnasse District of Saint Paul; Caunts Media project Yellow Arrow and the Blast Theory creative works.

However the locative media is also linked with mapping and mapping devices. Nowadays open map sources and Global Positioning Systems as well as WWW contribute to more active locative media presence in people daily lives. Furthermore it suggests discussion about the real and virtual environment.

To stress the importance of locative media not only in the field of art, I engaged that in the landscape architecture project in Copenhagen: newly developed city part Orestad. The project is described within the paper. The Invisible Landscapes result in-depth discussion about locative media and its importance particularly in the landscape architecture nowadays mostly from environmental and social point of view. In other words, how locative media could contribute to better and more interactive daily environment.

INVISIBLE LANDSCAPES

Locative media

What do we know about a place? We can measure it in square metres. We can describe its physical characteristics. We can describe the objects that are situated in the place. We can judge about the crowdedness of a place. We can put a place in a frame of scale. But can we measure how a place feels? Is it possible to capture a place as a living organism that holds beside its physical traits sensible structures and memories, consciousness and subconsciousness – **invisible landscapes**? The landscapes human perceive with his/her senses of sound; smell; touch; taste; balance. The landscapes shaped by their history and peoples' memories, events, notions and knowledge.

Both locative media art practise and landscape architecture are processes and activities based on place. Anyway landscape architects and locative media artists tend to give very different response to the environment. Apart from landscape architects new media artist tend to focus how tangible and intangible environmental qualities shape human mental condition analyzing and describing it with precise and highly developed technologies also inventing new kinds of technological approaches themselves, and finally how presenting all these different layers of place one actually tells a story of place. They work with more ephemeral structures – mostly invisible or virtual landscapes, while landscape architects are bound with place functionality and limits within its own profession that very often will result in large scale physical interventions and inert structures.

I think that landscape's ephemeral structures hold a potential for landscape architect therefore I will look deeper in the art practise of 'locative media' its historic presence and temporary artefacts. In order to test Locative Media ideas and explore how they could be engaged in the practise of landscape architecture I created the project "What holds place?" in order to show new media offered possibilities how we can see and shape the landscape. I think nowadays there is an ardent interest for new ways of how to explore, speak of and represent place and space regarding accessibility, triggered trough new mobile and wireless technologies (laptop, mobile phone) and navigation based technologies (Global Positioning System (GPS) and mobile phones with inbuilt navigation systems and the possibility to connect to the World Wide Web) and open source mapping possibilities as Google Earth. Therefore I would like to suggest that nowadays Landscape Architecture could feed from cyberspace and the fragile relationship between virtual and real space, thus also new media arts and especially I would like to underline Locative Media Art practice – geotagging, GPS tracking and real time mapping - it tends to represent.

I think it is a significant point that art is connected to science more than ever before that serves a discussion about 'real' space and 'virtual' space. Virtual reality definitely has changed the notions about the time and space. It has squeezed in the daily rituals step by step and can't be separated any more. By manipulating with virtual image it is possible deconstruct natural continuum of time, as well as locate oneself in other environment simultaneously with the present environment, in a word manipulate with a space time. Furthermore - communication without face – to – face interaction. And for me it seems that Locative Media is a part of this phenomenon. Because it is a rather new phenomenon, I think it is hard to give one – side definition.

Although looking carefully back in the history – beginning with 19th century Paris – it is possible to define rational sequence how locative media actually might be developed. I will return to this later on. However "Locative Media" workshop in 2003, in Latvia, Karosta could be one of the key principles of locative media theory. The workshop brought together artists from different countries to gain some clarity of the relationship between place, space and new technologies. It focused particularly on wireless networking impacts upon notions of space time and social organization. Locative media was defined as "Networked mobile devices that are increasingly capable of interacting with positioning signals and microprocessors embedded in the environment creating a hybrid paradigm we will call '**locative media'** in which formerly 'placeless' digital information is mapped on to the surrounding physical

environment," creating what Paul Virilio refers to as "stereo reality".[1.] **'Locative media'** brings together 'real' and 'virtual' space that materializes mostly in the geographical coordinates: longitude and latitude. And perhaps what is far more important allows experiencing both `virtual` and `real` reality. Locative Media was first developed by the military as few more technologies now used within the new media art field, as Paul Virilio states: "One cannot understand the development of information tech, without understanding the evolution of military strategy."[2.] It is important to highlight that specialized mobile navigation technologies and open geo data resources gain independence from its military use recently at the very end of 20th century.

The workshop therefore was located on purpose in a former Soviet Union military base that was abandoned only in 1994 leaving behind around 7000 mostly Russian speaking stateless citizens. Today many houses are completely destroyed, and the town is plagued by mass unemployment – looking from the perspective of urban development and so from perspective of landscape architecture as well this is the degraded area that requires a new development.

By looking to different examples of urban regeneration projects around the world many of them has lost its contextual value although there are several good examples as well.

In my opinion, Signes Pucenas and Andrew Paterson project "Mapping and Sewing together Mythologies" is a good example that seeks particularly for the stories this space embodies, creating emotionally responsive, although subjective story about Karaosta. The artists focused on different social groups – military persons, basically 18 – 25 years old guys that are eligible to serve for a year, mapping their marching route and combining it with the songs they sang; Old Russian lady that is a regular Orthodox Church visitor, opening the door to her 77 year life by recording her stories and documenting her environment; and authors own experience in the abandoned Karaosta neighbourhood, chasing memories and patterns left by previous inhabitants with GPS real time map and photo documentary (Figure 1.). One of the keys is that social groups were represented that perhaps wouldn't be heard in the conventional urban planning process. They tried different kinds of technologies to reveal the essence of the stories told by above mentioned people – GPS real time mapping technology, audio records and photo documentary. The project is put together in the web page. Seems they actually suggest that digital information that is mapped on the surrounding space is not only the GPS left trace but people trace of notions

and memories about the place as well. They also extended the notion about the maps, mapping this digital/ virtual/ sensual information not only by obvious mapping technologies but using audio records and visual documentary. However it can be considered a mapping since it is attached to a location, be it physical or virtual.

Figure 1.
Pictures above depict Signes Pucenas and Andrew Paterson personal experience in the Karaosta that was embodied in the real time GPS map and photo documentation.
(http://locative.x-i.net/mm/karosta/ghost_congregation.html, 01 - 04 - 2008).

MAPS AND MAPPING

If looking back how the maps have evolved than some of the ideas about the mapping sensual/ virtual information can already be found in former times. When studying maps more carefully, almost always there are some specific and masked purposes hidden under the lines of hills and roads. Maps are sophisticated systems of signs. The most interesting maps for me are the ones from former times saturated with myths and notions of how things are arranged in the world or how they should be placed. These maps rather demonstrate a particular world view and philosophical conceptions than physical orientation in the landscape. Yes, they tell us about a place but in many cases they mean a mental place, a sacred place (Figure 2.).

Figure 2.
This is one of the first maps discovered made by humans (Bedolina petroglyph, Valcamonica, northern Italy about 1500 B.C.), carved in the stone. It seems as it has tried to depict a village. The map reflects houses, fields and commons, in a word - factual information about a physical landscape. But why is there a stair which leads to the sky? I think this map is as well a symbol for a spiritual world.

Australian aborigines even today find their way in the desert following mental maps rooted in myths, songs and graphic representations that depict their ancestors' dreamtime tracks, the paths they made across the continent when the world was created of chaos (Karen O'Rourke, 2005). In that sense they are very similar to the maps produced by locative media artists. Our ancestors beaten traces becomes familiar to our own daily traces. Does it mean that people always had and will have a necessity to locate/ map their dreams, memories and notions regarding actual physical place?

As the Aborigine maps show a strong link between geography and art I think this link has become an important issue in new mapping technologies regarding accessibility and the use of open geo data resources such as Google Earth. There are several new media artists that exercise mapping possibilities fluently knitting them together with social aspects. One I would like to underscore is the art project "Milk" from the collaboration of the Latvian artist Ieva Auzina and Netherland artist Esther Polak.

During 2003/2004 they followed the traces of the cheese Rigamond and of all the people who took a part in making, selling and eating it using GPS technology as a story teller and a creative artistic tool. The result of Ieva Auzina and Esther Polak is project embodied in the web page http://milkproject.net, 20 – 10 - 2005 and in installations in different international exhibitions. On the websites interface it is incredible to realize that under a little white point rather chaotic movements are hidden such as personal happening of one's day (Figure 3.).
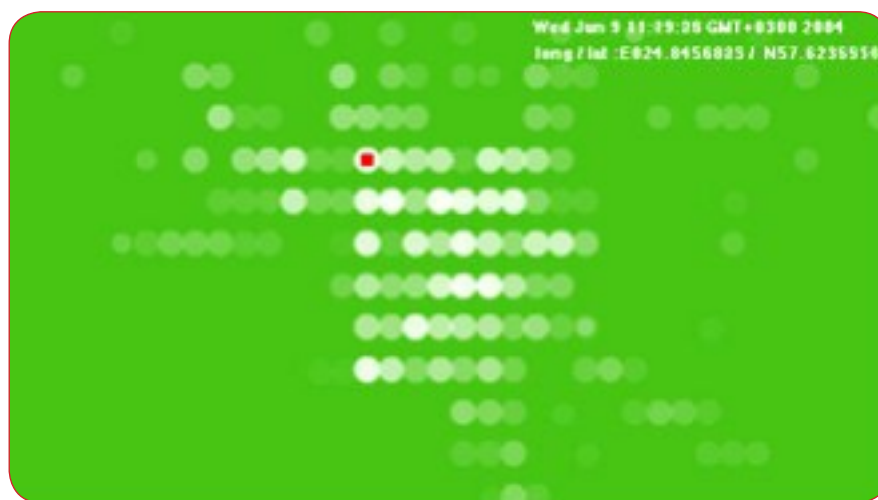

Figure 3.
The map shows the traces of Ilga Grinberga and Aina Rudzite – two sisters that own a farm and take care of cows.

 "What changes for a person when he/she sees his/her own life in terms of a permanent cartography?" ask the artists. Slipping texts underneath mobile maps serve the answer to this question as "What changes for a person when he/she realizes that his/her own cartography constantly is added and crossed by routes of other people?" Does the person attach more importance to the routine tracks when actually see them embodied in the map? This personal geography depicts the needs of particular individual, thus becoming increasingly personal and subjective comparing with first attempts of cartography that was focused on the land, its division and ownership.
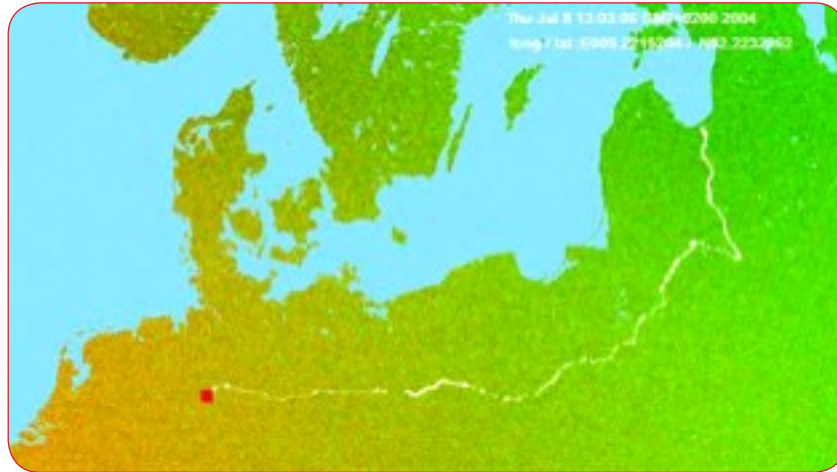
Figure 4.
The map of the cheese 'Rigomond' what holds all the economical misunderstandings and dreams about cheese as art that came across during the project..

During the project there were ardent discussions that cheese "Rigamond" should change its route from Holland to Italy because of the European Union newcomer Latvia's successful collaboration with Italy. Therefore project the "Milk" raises me questions of how we use the landscape, what determines our movements in it, what is the intention beneath all our action: is it only our economical reality which stresses our movements in order to reach particular benefits? These questions are relevant for a landscape planning in the regional level indeed. Especially considering, how these connections and webs actually start creating a place – to be more precise a sense of place. Or in a contrary represent a failure. The maps are created to communicate with a viewer and to tell him/her a story about a particular place. And the map's design serves people to read the narrative the map holds as effective as possible according to those who have ordered or created the map (J. B. Harley). Both maps above thus represent completely different viewpoints, as well as a scope of interest. The map is a media in the sense as the canvas is a media. But the map counts also as an instrument of domination. J. B. Harley stated that "if you own the map you own property."[3.] But what do you own if you have a mental map? Isn't the role of the cartographer as a holder of power changing? GPS and personalized maps are not a luxury anymore. Actually we all can examine and discover new aspects in our day-to-day places with the help of 'locative media'.

However, returning back to the beginning of the chapter, it seems that subjective experience attached to the location has always been an important justification. Every time has had its own expression of that personal statement according to the place, as every time has had its own particular interest regarding human response to the environment.

FLÂNEUR

In our daily life the goal tend to be more important than a process. We are used to rush from point to point, marking significant points in the daily traces not so much notable lines – process to get from point to point. The Flaneur was considered in terms of a movement against the bourgeois who rushed from point to point, from goal to goal and mostly it was related to the fertile conditions for a creative man. It is obvious in the road building process: point A and point B - straight line.

However when we look back to the 19th century London idle was the entire vogue when respectable gentlemen dedicated themselves to slow walks just to wonder and observe the city. The Flaneur hero was Baudelaire. The time/ process reflected the Flaneur's quality. The creative minds were looking for an inspiration in the city. In the 19th century London and Paris you had to see the place as you had never been there, you had to see and discover new aspects of the city but the most important was to derive the inspiration from the place and wrap it in the words, music or colours. This could be one of the first attempts, how response to the environment was consciously represented/ mapped.

Can we speak about new Flaneur, regarding Locative Media? Both Flaneur and Locative Media are concerned with process of movement rather than goals. One of the main distinctions could be that the Flâneur was mostly related to sight qualities while Locative Media explore more various ephemeral structures of the landscape herewith visual qualities.

Flaneur is also captivating from point of urban planning since it does not deal only with functional constraints but overall offers an inspiring experience of place. Perhaps not so much offers but encourages opening ones mind and exploring the place. That somehow suggests that our daily environments should fight against the boredom in the human settlements. I suppose that idea of Flaneur found its sequel in practise of Situationists – derive – in 1950s with Guy – Ernest Debord topside.

LOCATIVE MEDIA AND DÉRIVE

Predictor of psychogeography Dérive literally means 'drifting'. Dérive is the most known French art practice of the situationists in the 1950s closely related to Marx theories, fronted against consumerism and mass society and crying for revolution and destruction. The Dérive avowedly announced that we are really bounded by our mind borders and routine. In his book Theory of Dérive the Guy – Ernest Debord and also Chombart de Lauwe in his *Paris et l'agglomération parisienne* (Bibliothèque de Sociologie Contemporaine, P.U.F., 1952) utter idea that we always choose the shortest ways we know very well. In his study *Paris et l'agglomération parisienne* (Bibliothèque de Sociologie Contemporaine, P.U.F., 1952) Chombart de Lauwe notes that "an urban neighbourhood is determined not only by geographical and economic factors, but also by the image that its inhabitants and those of other neighbourhoods have of it." Does it mean that physical urban environment doesn't evoke an intriguing image about itself? Can environment itself arouse strong emotional attachment? Or people themselves saturate places with ambience? In the same work, in order to illustrate "the narrowness of the real Paris in which each individual lives. . . within a geographical area whose radius is extremely small," he describes the daily traces of a student who lives in the 16th Arrondissement during one year. It is surprising that in the final result we see only a small triangular which shapes her movements in the city between the School of Political Sciences, her residence and that of her piano teacher (Figure 6.).
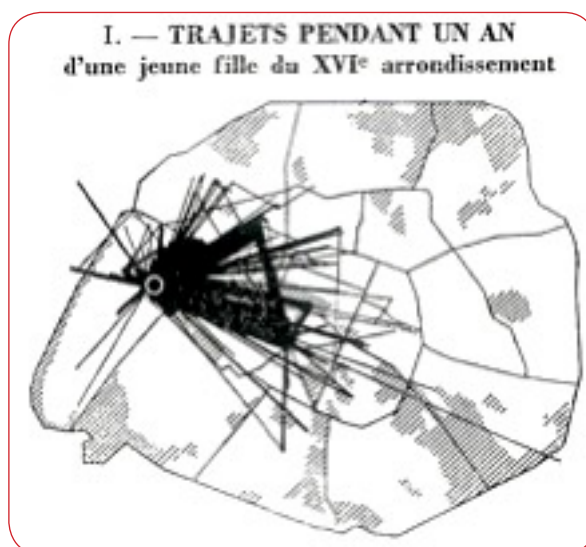

Figura 6.
Paul – Henry Chombart De Lauwe. Routes taken during one year by a girl in the 16th Arrondissement. From Chombart De Lauwe, Paris et l'agglomération parisienne, vol.1 (1952).

The practise of Dérive fights against the routine embodied in our daily routes. The situationists left their ordinary purposes for any movement and action like job, school, husband, leisure etc. and went in the streets of Paris to get lost, to find new possibilities of the city one thinks one knows immaculately. 'Life can never be too disorientating,' wrote Guy Debord, in support of which he described a friend's experience wandering 'through the Harz region of Germany while blindly following the directions of a map of London.

A very new art practises which takes up Situationist ideas we find in the project "A guide to the Montparnasse district of Saint Paul, Minnesota" by Paul Spencer. Spencer brings forward the question of how the history of the place affects our perception of that place. Everybody knows that Montparnasse was ablaze square of the bohemia in the 1920th Paris -effervescent abode for artists and intellectuals. The artist asks what if this all had happened in Saint Paul, Minnesota? Paul Spencer finds it unfair that the artists didn't move to Saint Paul in Minnesota but stayed in Paris which affects our notion about more and less valuable places and most significantly it is reflected in the tourism industry. So he decided to correct this 'misunderstanding' by erasing the street names in the map of Saint Paul, Minnesota and wrote instead the names of Paris streets, monuments and marked significant places for artists like their favourite cafés, studios and residences (Figure 7.)

Figure 7.
After that armed with a photo camera he went to take the pictures of Paris' counterpart found in the streets' of Saint Paul. The result was directed by chance and adorned by irony. You can see the full project on the http://www.parisminnesota.com

Figure 8.
The Saint Paul, Minnesota 'Eiffel tower'

Figure 9.
The astonishing concurrence: on the left The Montparnasse gare and on the right side - the same!

Figure 10.
New shape for Paris catacombs on the right side picture in Saint Paul in Minnesota!

Returning to the mapping and purposes of the map as well as more intangible Locative Media practise, Paul Spencer has really deconstructed the notion of time and space, in order not to confuse the viewer but urging one to set out on a journey. Can such cunning change our attitude toward well known place? In the most cases people look for unexpected exotic places behind the borders of their native city but the discovery of new exciting places seem to depend all on our imagination

and skills to tell the stories. That suggests that indeed people are able to swindle reality by representing the places with additional virtual image. The point the Dérive claimed was that people have to think themselves and not to adapt the ready cliches offered by a commercial world. The Dérive seek to liberate the human mind from the physical city enclosures making clear that actually one has to deal only with one's mind limitations.

'Locative media' artists go in the city to change stereotyped notions about habitual place as the situationists did using more advanced technologies to experience the mystery of place and space. They seek to find new ways to explore the city and human life in it emphasizing virtual space we manage to live simultaneously thanks to mobile and wireless technologies.

I think that London based artist group The Blast Theory who is well known for their Locative Media art projects "Can you see me now?", "I like Frank" and "Uncle Roy all around you" embody some of the ideas evolved by situationists, the most obvious – element of play/ Homo Ludens. Although they had to take a step further and take down the wall between virtual and real world by carrying out computer game from its habitual borders. The piece "Can you see me now?" overlay virtual and real city. They sometimes correlate closely together but sometimes they appear very remote from each other, I think because the virtual city has an ability to switch on or off some of its layers, for example traffic while in the real city switching off or on some of its layers actually depend just from the imagination of participants." To carry on with virtual presence - The first question for the players asked was: "Is there someone who you haven't seen for a long time but you are still thinking of?" It suggests as I mentioned already before that virtual space perhaps is not only a computer generated virtual signal but also presence of our memories, notions and thoughts – consciousness and subconsicousness - as suggest several scholars (Marianne Krogh, 2000). So the overlay of virtual and real city concerns not only physical characteristics but also social relationship, engaging both real and virtual players in a peculiar relation. It suggests our everyday relationship with people where www and mobile phones has become an integral part of daily communication both with acquainted and strangers. I think that illustrates that Locative Media is also a media for social interaction, to show an interest and show a care of others and ones places. These issues have become extremely important and more aware in the urban planning process.

Taking it further after all it is about building a very personal relationship to the place. Therefore I completely agree with Guy – Ernest Debord: "written descriptions can be no more than passwords to this great game". Once you have discovered the place in a dérive it will always rise peculiar emotions in you when passing it, and this secret will be shared only between you and the place, you even could claim it as 'your place'.

Once before I had any surmise about the idea of the dérive I left my daily trace to get lost in the city Riga to find substantiation for day's existence. I found it in the narrow street I have never been before in the matter of sound. I had no idea if there was a music school but a girl was singing and I could hear I suppose a frustrated teacher voice moment by moment out crying the singer. It all happened in the Church Street. It is like chasing metaphors and concurrences to justify one's existence and fill the life with significance. From urban development point of view, what could be more important then the civic sense behind the architecture, behind the roads and parks. And to be honest, one builds the cities not only to gain economic benefit and realize the political power although many would think that is what dominates - the cities are built as our habitats.

YELLOW ARROW

Sometimes one has to create signs or symbols to arouse in the people desire and motivation to look for something or explain or find something significant in the place. Therefore I chose The Yellow Arrow urban art project to create the project in the project. Yellow Arrow first emerged at the Glowlab psy.geo.Conflux urban art festival on the Lower East Side of New York in May 2004. M.A.A.P. (Massively Authored Artistic Project) that was initiated by a mixed-reality game and entertainment company Counts media which is based in the New York City. Counts Media combines imagination, emerging technologies and urban research to produce public art, mobile games, theatrical entertainment, viral media, and experimental tours. The main aim for the Yellow Arrow project is to perceive ordinary things in an extraordinary way. The result and undergoing process of art work is seen in the web page http://yellowarrow.net. How does it work? You order yellow arrow stickers in the project website, go in the city and put the sticker with a yellow arrow where ever you consider and where ever the place holds for you significant story or characteristic you want to share with other people. After you have stick the yellow arrow grab for your mobile phone and send an text message to the Yellow Arrow mobile number starting with the unique code printed on the yellow sticker and the story or remark

why exactly this place counts. Or whenever you see the yellow arrow sticker in the city send a text message with the certain code printed on it and after some seconds you will receive text message why this place is significant for some person you even don't know. The project is tended to the 'hot points' in the landscape that hold a story for a particular person embodied either in visible or invisible structures of the place. The project has a lot of success and it urges me to return to the practise of mapping. It illustrates once more the importance of marking our territory that not always will mean physical place but more often event, memory or other subjective virtuality of the place using different mapping tools. That was a starting point to realize the need for creating an event to evoke a relationship between the visitor and place, space. This is one of the key issues of both locative media artists and landscape architects - the place and the fabric of the place or to be even more precise – invisible landscapes.

In order to test the techniques and concepts of locative media in landscape architecture practice, I stick Yellow Arrows around the Amager Fields – a natural meadow adjacent to Kalvebod nature reserve almost in the heart of Copenhagen city - to ask the question and seek for answers: "What holds a place?" Amager Fields has become a provisional construction yard of newly developed Copenhagen city part Orestad that in my opinion has lost something from its identity and context regarding urban development, I spoke about earlier. Furthermore Orestad has been built as a 600m wide and 4km long wall between Amager Fields and adjacent community that used Amager Fields for many years to enjoy the wildlife therefore question "What actually holds Amager Fields today" becomes essential. Territory of Amager Fields is around 2500 ha and part of it belongs to the army and it is well known for its diversity of bird species. My aim was to tie together 'hot points' of the Amager Fields with the interactive narrative "What place holds", to establish a virtual discussion with a person you have never met and probably won't meet that was rather important in the case of urban development of Orestad that was mostly criticized for the lack of public discussion and participation.

Figure 11.
The map in the middle shows mutual relations between Amager Fields and Orestad. The pictures on the left and right thus accordingly illustrate Amager Fields and Orestad.

WHAT HOLDS PLACE?

Geographers, landscape architects, artists, philosophers and scientists we all ask and think about the question: "What the place holds?" For one the place holds roads and economic value for other it holds rare minerals and protected vegetation for other it holds either people or home but for some it holds a yellow sticker and a story. What holds Amager Fields? At the first glance it serves rich flora and fauna, and gives the impression of the wilderness and emptiness. To get to know place's invisible landscapes take time for a person as me who hasn't grown up at the pond looking how swans were bathing therefore I use the yellow arrow stickers to tie together 'hot points' of the Amager Fields with my interactive narrative "What place holds". I was looking for intangible landscape structures: particular smell, specific noises or unaccountable feelings in the certain spot of Amager Fields land. Ironic what I was looking for lie in the very tangible but obviously invisible matter – benches scattered around the Amager Fields. You can't see them from the big road and there are not obvious paths leading to lonely 'islands' hidden in the shrubs only imperceptible human made traces betray these silent observer's hideouts. The guide is people's feet beaten grass. Bench comes out from prickly bushes – old, abandoned with surprising initials carved in the threadbare bench. Once the benches were on the open field and everybody could see them. They were in the active use but now they are grown in the long grass facing overgrown pond, sometimes the only inkling of the pond create the cries of birds. It is like a deeply intimate secret you share with a person you have never met and probably won't meet similarly when you send a text message to get to know one's personal experience of the place where a yellow sticker is put on.

The map is a system of signs that depict a persuasive and unique story. And there are two maps related for both the 'real' world and the 'virtual' world. I am creating a map that will show the benches' longitude and latitude in order to depict the narrative "What place holds" through a small concentrate 'text message maps' flying through unknown spaces till a blink on ones mobile phone display.

I established the benches' geographical coordinates (longitude and latitude) with GPS and marked them in the map thanks to the Google Earth (Figure 12.). The next step was to blaze existing benches with yellow arrow stickers so that visitor could send a text message and receive a reply to his/her mobile phone about "What place holds?" So far a place holds a lot of characteristics starting with its visible traits ending with invisible landscapes the visitors are encouraged to follow **=>** marked points on the map to hear my story about what holds ( ) the place:

Figure 12.
Place is something that holds a value ($) when I look closer at the face of place => lat 55.64986|lon 12.57955 I ask the question (?) does place holds only economic reality => lat 55.65067|lon 12.58382 I am surprised (!) about the answer => lat 55.65206|lon 12.58366 because the place sends me a message (@) this story is very personal as the place sends me a message embodied in the my name 'Līva' carved on the bench's surface => lat 55.65239|lon 12.58029 I realize that the place holds symbols (A) for example a significant symbol of a place is the Eiffel tower in the Paris, France => lat 55.65044|lon 12.57955 and what is the most important place which holds people (Å Å) => lat 55.64702|lon 12.57870 and my home (^) and actually I take care of a place moving forward => lat 55.65260|lon 12.57118 am I the place too (Å=place) and I start to => lat 55.64917|lon 12.56902 listen to the stories the place tells me (…) and when the place discover => lat 55.64727|lon 12.57349 itself o what now <=>

The story is told through the website and 'real' and 'virtual' maps, and illustrated in the slide show.

I as a becoming landscape architect see the necessity to pay careful and subtle attitude to the qualities a place holds because I think that many things can already be found in the landscape in an existing situation and sometimes it is enough with a sensitive touch or encouraging material like maps and yellow arrow stickers in my case to reveal the potential the landscape offers.

LOCATIVE MEDIA – A POTENTIAL FOR LANDSCAPE ARCHITECTURE
Both tangible and intangible qualities that landscape holds shape our understanding about place and how we perceive it. I think that for a landscape architect it is very important to see the potential of a landscape in order to create a unique place. I found during the project that Locative Media can be all – inclusive communication tool in the landscape planning process as well as a tool to make a meaningful decisions about the place and its true character. It is powerful and today relevant way to represent sensual characteristics of the place that very often are excluded from the planning documents.

In general all the art projects and art practises I have illustrated above and my own project brought out two indications I found interesting for landscape architect: to notice specific qualities of place and on the one hand single out them using peripheral materials such as maps, mobile phones, GPS, landmarks (yellow arrow stickers), the WWW in order to push people to reveal landscape themselves, to provide food for thoughts apart from directing them in the space with my single – sided and at the end subjective design intention or some of the investors that are mostly economical and political ones. On the other hand - alter invisible landscapes that will provide new experiences of place for the visitors.

To carry on Locative media offers new kinds of experiences of the invisible/ virtual structures of the place that changes the role of landscape user/ consumer to actually landscape participant or perhaps player. So, from perspective of landscape architect it means landscape event design rather than design of inert structures with limited functionality.

I will return to the idea that the greatest value is to reveal already existing landscape's qualities and I suppose that in many cases they are embodied exactly

in the place's ephemeral structures. So, Locative Media installations and actions are faster than the creation of physical landscape structures, perhaps more energy efficient and finally don't have a destructive impact to ecosystems. However, it seems that Locative media is still in a experimental and exploration stage and work the best as campaigns for the places: to regenerate, pay attention and speak about an important issues concerning particular places in their unique contexts, in a limited time span. But it might be challenging to use Locative Media ideas and approaches when dealing with day to day permanent long – life physical structures investing them with more interactivity and flexibility. Experiences of Locative Media thus offer new possibilities of how one can perceive and shape the landscape. I think that locative media should become a complementary tool in the landscape architecture and planning process when it comes to the ephemeral and invisible landscape qualities as well as public participation and engagement to make meaningful and contextual decisions in the design process.

However there might be several pitfalls, like complete simulation of reality rather than revealing essentials of the reality. I think that Locative Media could work as a media itself to convey some important information about the ephemeral qualities of the landscape. But it also suggests that Locative Media can not substitute the human generated virtual information and exclude his/her initial response to the environment. As I mentioned before, the settlement is built as a habitat. That means it covers wide range of spatial structures. Nowadays many are aware that it doesn't mean only what one can see and touch but also more ephemeral/ invisible/ virtual qualities of the place and space that in the most case will establish what I could refer to the sense of place. As more and more people are aware of that, new tools should be developed to reveal and enhance the invisible landscapes – Locative Media as one of them.

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A BEGINNER'S GUIDE TO PARASITIC BEHAVIOUR

Michelle Teran

A parasite, in English, is defined as 'an organism that lives on or in an organism of another species, known as the host, from the body of which it obtains nutriment', or ' a person who receives support, advantage, or the like, from another or others without giving any useful or proper return, as one who lives on the hospitality of others'. In French, in addition to the biological and social definitions, 'parasite' also means static or noise. *Parasite* is therefore used to describe biological, social and informational interference.

In this work *The Parasite*, French philosopher Michel Serres introduces his theory of the parasite, which he applies to all human relations and institutions, by drawing on these three definitions. Although the first two definitions, the biological and social, will be implied in some of the examples I give, I will focus on the third meaning of the word, static or noise, to define relations between people and cities, informational and built space. I will define these relations by referring to the writings of Serres and other theoretical texts. I will tie these concepts to my own practice as a media and performance artist whose work involves infiltrations or interventions of urban space.

> "In the beginning was the noise"
> Michel Serres

There is no communication without noise. According to Information Theory, whose foundations were laid by Claude Shannon, the basic elements of communication are; the source of the information, the transmitter that codes the message into signal, the channel over which it is sent, the receiver that decodes the signal into message, and the destination (be it person or machine) for which the message was intended. During the process of sending a signal over a channel, one encounters noise. Noise is inherent within any information transmission and is an accompaniment to the signal. This means that an exact reconstruction of a signal is not possible. What goes in is not the same as what comes out. Anybody who has experienced static on a radio, or tried a telephone call on Skype knows what this means. One's experience with noise also depends on where you are on the chain. To the sender, noise is considered an irritant, an interference or obstruction to the communication. However

to the receiver, the noise can have an interesting information quality to it and be information in itself.

Considering that the absence of noise is not possible, a more realistic situation becomes one of trying to attain a balance between signal and noise. Too much noise and the signal does not get through, no information is passed. However in the absence of noise, no information is also transmitted. This is particularly true in human conversation. If two people are having a conversation and both people know the information in advance, then no information has actually been transmitted. Therefore, for information to be exchanged, there has to be a difference between the sender and the receiver. There has to be noise.

> "The parasite intervenes, enters the system as an element of fluctuation. It excites it or incites it; puts it into motion, or it paralyses it. It changes its state, changes its energetic states, its displacements and condensations.
> Michel Serres"

> "We know of no system that functions perfectly"
> Michel Serres

Serres' applied his philosophical analysis the parasite as noise not only to communication but also to how different human systems and institutions function. Although (economic, political, urban) systems are often designed, and envisioned with harmony in mind, they are often accompanied by ambiguities, interruptions, misuse and failure. Rather than viewing these accompaniments in a negative sense, we can think of these as inherent and even desirable elements within a system, which contribute to its complexity. Over-simplification, by de-parasitizing a system, is a form of rationalism based on complete visibility and predicated on control. Or, more simply put, "Power needs a clean space, in order to operate." (Serres, 1982). By introducing interruptions, slippage, disorder, fluctuations and opacity, other meanings and relations are inserted. The parasite opens up potential spaces for transformation by introducing noise into a system.

> "The paths that correspond in this intertwining, unrecognized poems in which each body is an element signed by many others, elude legibility. It is as though the practices organizing a bustling city were characterized by their blindness. The networks of these moving, intersecting writings compose a manifold story

that has neither author nor spectator, shaped out of fragments of trajectories and alterations of spaces: in relation to representations, it remains daily and indefinitely other."
Michel de Certeau

In Michel de Certeau's essay *Walking in the City*, he introduces the ideas of pure visibility and opacity, rational organization and uncontrollability to describe the ways in which cities are designed on an administrative level and how city spaces are actually used by the people who inhabit them. To do this, he describes the *Concept-city* and its use by everyday practitioners, or walkers. The *Concept-city*, observed via a panoptic view from above, is a *theoretical simulacrum*, (Certeau, 1984), a picture created by the urbanist, city planner or cartographer. It is an urban system based on categorization where anything falling out of set categories is a 'physical, mental or political' pollutant which must be repressed. It is an urban system based on pure visibility and designed for a universal subject. In short, it is a system based on over-simplification that is administered from above. De Certeau counteracts this system by describing what actually happens on ground level within the 'dark spaces of the city' and through the 'chorus of idle footsteps'. (Certeau, 1984) According to de Certeau, resistance or noise is introduced by the pedestrians, or walkers, whose uncontrolled and unseen movements add complexity to the system. Although spaces are designed to present a person with different possibilities and limits for moving through them, there are still personal choices and paths that he or she will make. Detours, shortcuts, improvisations, variations as well as personal, habitual patterns, make urban movements in many ways unplanned and therefore uncontrollable. Through the culmination of anonymous and unplanned movements, the walker introduces shadows and ambiguities into the system while still operating within it.

"Urban ubicomp clearly has a fetishistic power in appearing to offer solutions by rendering place and space utterly transparent in some simple, deterministic way."
Mike Crang and Stephen Graham

"but where do we put the dirt?"
Michel Serres

Mike Crang and Stephen Graham offer another vision of de Certeau's *Concept-city* in describing the production of fantasies based on technological omniscience within commercial and military systems, and the realities of their actual deployment. In a

world of technological omniscience, information is pervasive and ubiquitous and our urban environments are sentient, efficient and active agents in organizing daily lives. Driven by desires for 'friction-free consumption', (Crang, Graham, 2007) commercial applications of ubiquitous systems strive to employ software code and different locative technologies to generate user profiles, anticipate consumption desires and to serve these desires back to consumer based on his/her location. In response to the 'war on terror' where insurgents and would be terrorists merge into the urban landscape, military applications use data mining, risk profiling and anticipatory seeing to distinguish abnormal from normal behaviour within the urban dweller. Both strive to in render 'complex urban flows and systems' transparent and visible, by reducing the 'full gamut of the social world' into 'mere transaction and movement' (Crang, Graham, 2007)

> "omniscience is elusive. As anyone who has ever tried to resolve a simple billing dispute will know, even the telephone company lacks enough internal coordination to make sense of its data to you. And anyone who has ever dealt with a state-level bureaucracy knows, the odds of omni-competence remain low. Generally, as information becomes more and more abundant, clear views through it become less and less possible."
> Malcolm McCullough

Technological dreams of omniscience, though presented as new, have in fact been around for a long time but are yet to be achieved as desired. The unattainability of these dreams is often blamed on the technology itself, that the technology is not advanced enough, that wireless connectivity is still unstable, or not enough people own the technologies that will be used. What is often not discussed is the friction inherent within these systems that make perfect vision unattainable. The design, production and deployment these systems involve extensive coordination between many different institutions and agencies, each with their own business plan and bureaucracy. This brings up complex issues such as who owns, has access and control over the data generated, who finances and profits from it, not to mention the process of trying to link together the many layers of technology using a 'bricolage of component middleware' (Crang and Graham, 2007) none of which is optimized for the task.

Perhaps an alternative vision to a data cloud that is friction-less, seamless and omniscient could be what one encounters on any street corner of any city. Analogue

and digital television transmissions, car door openers, mobile phones, traffic light systems, environmental sensors, networked CCTV cameras, wireless CCTV, public and private WIFI access points, bluetooth enabled devices, police communication systems, RFID based transit cards, electronics billboards, bus stop displays, street information kiosks, portable PDAS, GPS enabled devices and WIMAX transmitters together form a heterogeneous landscape of information that is both public and proprietary, closed and open, in use and obsolete, stable and unstable, commercial and personal, military and recreational; each with individual concerns of ownership, maintenance, power consumption, visibility and access.

> "At the feast everyone is talking. A the door of the room there is a ringing noise, the telephone. Communication cuts conversation, the noise interrupting the messages. As soon as I start to talk with this new interlocutor, the sounds of the banquet become noise for the new "us". The system has shifted. If I approach the table, the noise slowly becomes conversation. In the system, noise and message exchange roles according to the position of the observer and the action of the actor, but they are transformed into one another as well as a function of time and of the system. They make order or disorder."
> Michel Serres

If our urban spaces are awash in transitivity, in what ways do these transmissions interact, relate with and even catalyse the built spaces of the city? Serres gives an example of a telephone that suddenly rings at a dinner party, which interrupts, or adds noise, to the conversation occurring at the table. If the telephone is answered, what is transmitted through the channel is received as noise or a message, depending on the position of the observer. To the person that is sitting at the table, the telephone represents noise, an interference to the conversation that is taking place. To the person that answers it, the telephone transmits a message which adds something new. Either way the introduction of this new element has the effect of modifying the original state of the room.

> "Like sports style, "social" or "cultural" emergence is going against the rules - without having broken them."
> Brian Massumi

Brian Massumi tells the story of a football game, to describe the spaces of interaction within human systems. The game takes place on playing field with goal posts

at each end, which polarize the play that will occur within. The players on each team focus their attention on the ball which becomes of the subject of the play, by catalysing movement and drawing action from each player. Within the game there are rules and regulations that set the conditions for play. The intensity of the game fluctuates according to how close the ball is to either of the two goal posts and how play is acted out within the rules and regulations. How play is enacted makes the game either recognizable or typical, and therefore boring, or suddenly something new because tension has been inserted, heightening intensity. Tension comes from the player who introduces 'style' into the play by introducing movements that are variations of the conventional, almost to the point of illegality, yet still fall within the rules and regulations of the game. The introduction of variation into the recognizable has the effect of 'de-familiarizing' the familiar, or making it unrecognizable. Style, or not playing by the rules yet still playing within them, catalyses movement and adds complexity to the system. This sudden tension adds intensity to the game, felt by the crowd watching it, who in turn contribute to the intensity of the game by their cheering. This turns a familiar space into an 'event-space', or a space filled potential. By heightening action and adding fluctuations or variations to the conventional, a possibility for transformation is created.

"Waves, rays, coherent beams."
Don Delillo

"The network distributes, interlinks, relates."
Brian Massumi

What happens when this intensified event is transmitted and enters another space such as a home? Massumi goes on to describe that during Super Bowl Sunday, the most anticipated and watched U.S. television broadcast of the year, incidences of domestic violence go up. A domestic space is a codified space modeled by already contracted regulations and roles, like gender, and made recognizable by repeatable patterns and events. The intensity of the game, transmitted into a living room via the television set, changes the space's original state. The introduction of the transmission interrupts or creates fluctuations to the familiar, by catalysing the space and setting it in motion. A familiar space is thus rendered unfamiliar, a space filled with potential. This movement and potential for transformation, is contained by an act of violence. An act of control, a slap to the woman's face, stops motion, expels the parasite, and tries to return the domestic space to its original state.

"Power is usurpation of the very expression of potential" (Massumi, 2002) Although this is a disturbing example, particularly to me as a woman, Massumi's point is that transmissions have an way of affecting a space in ways that are sometimes unpredictable. Although walls are effective in containing the passage of bodies, they are not effective in containing the passage of transmissions, be they mass media broadcasts, flows of capital, or information, which catalyse the space in indeterminate ways.

Within my practice as a media artist that examines the relation of the body, media and architecture, I have been exploring the multitude of transmissions generated by the consumer use of wireless CCTV how they overlap with the built spaces of the city. In recent years, surveillance technology has become so affordable that even the average consumer of average means can buy and own one. As a result, private CCTV use has become pervasive and ubiquitous. Like the military and commercial systems that I have already defined, the consumer narratives that accompany these surveillance products are based technological fantasies of perfect vision. The camera is inexpensive, easy to use, sees all, and offers total control over your lived environment. Operating one of these cameras is as simple as plugging it in and pointing it at what you want to be watched. Connecting the video receiver that accompanies the camera to a television allows you to view the live images on

the screen. Depending on line-of-sight, each camera can transmit up to distances of 100m. This is where the slippage occurs. I discovered that by using a similar receiver, I could intercept other people's camera transmissions and watch other people's video.

The first video I intercepted was purely by accident. I was operating a wireless camera of my own in a building in Amsterdam and viewing the live images it produced on a monitor. When I turned off the camera, I was surprised to see something else appear. Black and white ghost-like apparitions, people in aprons, intermittently emerged from the white noise. After some scrutiny I realized that these live images were of a restaurant kitchen, two floors down. This brief slippage in the familiar and known led me on a journey looking for more. This journey has led to through seventeen cities throughout North America, Europe and Asia and resulted in hundreds and hundreds of video recordings.

The process for finding a wireless transmission enlists a method of walking which has no particular direction or final destination. Upon arrival to a new city, I will connect together my kit —a video camera, battery pack, video receiver and necessary cabling—and start to walk. The first thing that you start to detect on the camera screen, which I use to view the video, is a bit of noise. This suggests that something is present and deserves a closer look. As you move closer to the source, the signal becomes strong enough that you can start to see what is happening within the video. At this point you might even look around and see if you can find the source of the camera. I find that by using this method of navigation, the transmissions themselves start to lead me through the city. I might start in a certain direction but will quickly be led astray because I have detected something and want to find out what it is. A walk that starts on busy street might end up in an unmarked alleyway somewhere. They offer me unplanned movements and itineraries, detours and shortcuts, and entries into the 'dark spaces of the city'.

By intercepting and making other people's transmissions suddenly visible and opaque, I am still using the technology the way it is supposed to function, that is to transmit and receive, but also engaging in the misuse of it. By subverting the context of its intended use, by intercepting transmissions not intended for me, new and more interesting relations are created. In other words, I insert an element of variation or 'style', while still playing within the rules or regulations of the game. A parasite is inserted into the system.

Discussions concerning surveillance usually fall into two camps. On one hand there is the Foucauldian model that looks at surveillance as a disciplining force and the loss of privacy to the individual. On the other surveillance is embraced and, as in Reality Television, used as 'a stage for media spectacle'. While I acknowledge these two positions, my interest is in the unintended by-products of wireless surveillance use; how the public sees and represents itself through the camera, the porosity of borders, and its affects on the built spaces of the city.

An after-effect of surveillance use is the production of images. Whether intended or not, a person that plugs in a camera becomes a broadcaster who transmits live video, out into the streets. The culmination of these anonymous, uncoordinated and unofficial broadcasts contributes to an invisible, ad-hoc, layer of media that permeates our urban environments. Walking through the streets and carrying a video receiver, I start to develop an alternate view of the city and its inhabitants, created by these anonymous and unofficial broadcasts.

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The experience of intercepting a live video image of an inside space while standing on the street, is a strange one. Observing a live image of an unmade bed while standing on a busy sidewalk, with people, traffic sounds, a bit of rain, movement and smells, emphasizes its interiority. The quiet intimacy of such a space is highlighted when juxtaposed with the noisy chaos of a street environment. By witnessing an inside view of a private space while situated in a public, outdoor location, one becomes immediately aware of the porosity of such borders, between the public and the private, inside and outside. If a transmission is easily intercepted from the street, to whom does it belong to? What does this say about permission and access? Where is the body in all of this? What does it mean to occupy a (media) space? If I intercept a live video stream, do I enter the space, or does the space enter me?

What the camera is points at starts to tell a story about the space itself. This is done by the objects that fill the room, the actions and gestures enacted by the people inside and the camera's angle, how much the camera captures. The framing of a space creates a bordered space, a territory marked by frontiers, strengths and weaknesses, where something banal suddenly becomes quite important because it is now being watched. They are spaces that contain different moments in time, where, as a viewer, you imagine what has happened and what might happen in the future. They are spaces defined by what you can see and what you can not. Far from

being titillating and action-filled, they are very often empty. They are spaces on non-action. They are depictions of banality and profundity, of vitality and utter emptiness, of the very public and the very intimate. By walking through the streets one starts to generate 'unofficial narratives' of the daily lives of people and the spaces that they occupy, through the images that are encountered and what these images contain.
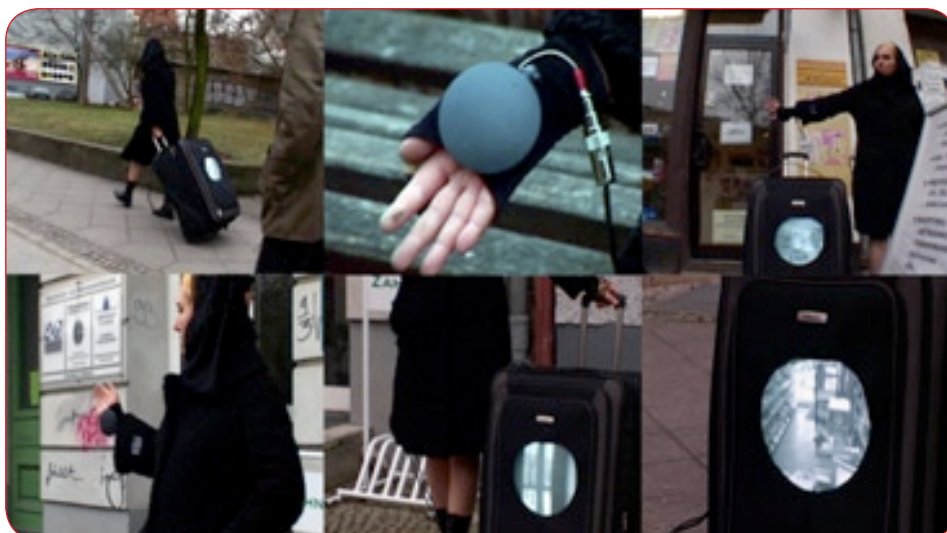
In 2003 I started to develop a series of performances entitled *Life: A User's Manual* where the public was invited on tours through the city and shown difference surveillance views. During each performance, a video receiver and homemade 2.4 Ghz antenna were used to intercept unencrypted wireless transmissions which were then visualized in real time on a battery-powered television monitor.

The audience was guided by an urban and nomadic persona, who acted as a physical interface to the unseen. The female character, characterized by her mobility, embodied the qualities of the wireless signal, nomadic, transient and unseen, and alluded to the metaphoric power of wandering. The physical appearance of the guide would change from city to city. She was a traveller, drifter, migrant and vagabond. The desire for containment and control is in many ways over-simplified and deterministic, when faced with a world made increasingly complex through the overlap of information with bricks and mortar. As an urban guide, she introduced noise into the system by highlighting its complexities, inserting mobility, transience and uncertain inhabitation as alternate uses and views of an urban system, while still operating within it.

Staged as a silent 'mise-en-scene' with no offer of explanation, the audience participated in the production of meaning through their observation and interpretation, by discussing together what they were seeing, how and where these videos were being intercepted and what it meant to look. The result was a multi-layered reading of what was happening and what was being seen, an experience that was for some disorienting, mesmerizing and even terrifying. The audience, led on this nomadic journey, was therefore drawn into a borderline action of observing a normally unseen view of the city, intercepted and viewed from the street.

During a cold evening in Brussels, I dressed as a homeless woman and took a shopping cart piled with television sets through the streets. Carrying a soup can, converted into an antenna, I successfully intercepted a series of live video transmissions which were viewed by a curious audience and many passers-by. Starting in the red-light district, in the northern part of the city, scenes from a local tavern and a brothel office were revealed. While positioned at a corner of a residential area, the audience was bemused to see the person they had just witnessed coming down the stairs on the television monitor, exit the apartment building and walk towards them. Several immigrant families peeked out of their doorways as I moved past. A group of young children, playing ball on the street, joined the walk and continued until they reached their territory limits, where they once again broke away from the group to resume their game. While standing in front of a bank, a crowd started to gather around the cart to watch live video of people waiting inside for the cash machine. This action drew the attention of the people in the bank who turned around and watched the crowd through the glass. There was

an uncertain moment when the two groups watched each other, until both groups finally broke into nervous laughter. Continuing the tour, the audience experienced more views, of darkened rooms, of rooms awash with light and colour, empty streets, people drinking, talking, shopping and eating, until finally being left at another part of the city, 90 minutes later.

In 2007, I created *Friluftskino: Experiments in Open Air Surveillance Cinema*, a series of urban interventions in which the city of Oslo provided the source and projection surface for an open-air cinema. *Friluftskino* is Norwegian for 'open air cinema'. For *Friluftskino: Experiments in Open Air Surveillance Cinema*, I staged a series of seven screenings, one each day, at different locations in the city. During each event, I wheeled a cart containing a 5000 ANSI lumen projector, video receiver and antenna to a site, intercepted video from a surveillance camera and then projected it onto the building's façade. Both transmission and space were hijacked. To enhance the open air cinema experience, chairs were laid out and popcorn was served. Cinema flyers, listing times and locations of each screenings were produced. Each screening was named after a Hollywood movie and related to the content of the surveillance video.

One screening, titled 'Car Wash', took place in a darkened parking lot in the neighbourhood of Grønland and used live video coming from the interior of a car wash.

Grønland, historically a white working class area of Oslo, became the target destination of many people coming from Pakistan, India, Sri Lanka and Somalia, making it one of the most mixed neighbourhoods in the country. In the last years, the neighbourhood has become a hip place to live, with new housing developments

and subsequent rent increase. In Norway there is a huge problem with heroin, where it is openly sold and also used in public. There is a park nearby where many users go to shoot up and hang out. The car wash is a stopover for mostly Pakistani taxi drivers, who come to wash their cars and take a break during their shift. Norwegian mainstream press recently published reports involving tax-cheating, money laundering and connections with drugs and weapons distribution by the Pakistani taxi-business in Olso. All of this information was presented to me by different people and sources at the point that I decided to use this location. Therefore, although it was the image of the car wash that I was first drawn to, and, through a random occurrence, my video receiver had led me to, other meanings and relations were revealed. This happened the moment I started project the live image of a car wash and activate the darkened space of the parking lot, thereby changing its original state and performing its space.

The first thing that one experiences is the strangeness of having a building turn inside out. The inside of the car wash is overlaid on the brick wall of the car wash's exterior, as if one had x-ray eyes. The uncanniness of this feeling brings a sharpened awareness of the facades exteriority, but also of the buildings interiority. One is situated both inside *and* outside of the building.

The cab drivers enter into the parking lot and notice the projection. There is curiosity by the cab drivers who approach the seats and ask questions. Some sit down to watch and talk with people already seated. Popcorn is eaten and tea is drunk. Some leave for a while to go have their car washed. Others come out to sit and watch. The process of observing and being observed continues throughout the evening. There is attention paid to the performativity of everyday actions, acted out by the cabbies in the car wash. Somebody is washing a car. Somebody walks across the room. Somebody stands and talks. Awareness of the camera is made evident by a sudden engagement with it, indicated by occasional funny walks and waves. Along with the cabbie drivers, there are people walking by who stop and watch. Some take pictures with their cell phones. Some make telephone calls. Perhaps to transmit this event to others through various communication channels.

The owner of the car wash brings up of the issue of permission. The hijacking of parking lot, wall and signal have been carried out without his prior knowledge. We are using his parking lot, we are using his wall and we are using his camera. In this sense he is framing the discussion around private property. We are in fact using his

parking lot, we are using his wall, but are we actually using his camera, or the live image created by the transmission? By owning the camera does he own the images as well? Is this about access or about ownership? What are the boundaries between private property and public domain?

When questioned about the camera, he says that the car wash was in the past used by junkies who would use the space to warm up. At some point things started to go missing, get stolen, so the camera went up. After going back inside the car wash, he turns the camera off for about 10 minutes before turning it back on. This seems to emphasize that, as owner of the camera, he does have control of the images in that he can choose to produce them or not.

Another 10 minutes later, and at 10.00 pm, the projector is turned off, the equipment put away. The parking lot is once again immersed in darkness, returning to its normal state. Two days later, when I walk by again, I can no longer pick up the surveillance video.

*In Life: A User's Manual and Friluftskino: Experiments in Open Air Surveillance Cinema,*the introduction of the parasite, or noise, interrupts the use an everyday space by disrupting its familiar codes and patterns. This has the affect of catalysing a space in indeterminate ways. To the camera owner, this noise could be considered an irritant or obstruction. However to the person receiving the signal, the introduction of noise adds an interesting quality to the information. The parasite serves to defamiliarize or decontextualize something familiar and known, and allows other relations and meanings to be inserted. By making what is present, yet imperceptible, suddenly visible and opaque, these urban interventions bring up issues of ownership, permission, uncertain inhabitation and highlight the different narratives and performativities within the images themselves. Regardless of whether the parasite is incorporated or expelled, either way the original system has been transformed in some way.

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M1ML, SEND ME A MESSAGE LATER

A project by sin|studio *arquitectura*

1. INTRODUCTION.
1.1. RESEARCH FRAMEWORK.

The m1ml project forms part of the research on public space that sin|studio *arquitectura* has been carrying out for the past five years. Our work explores emerging forms of building links among residents in urban space, understood as civic space: a place where people meet, express themselves and where individual and collective liberties and rights are exercised. It demands that we redefine the mechanisms used to operate on what is public, and specifically, we have undertaken a review of the tools and processes of architecture, tracing relations with other fields of knowledge involved in transforming what is public, such as art, sociology, biology and new technologies. We have become increasing interested in social interactions and expression in public space, finding great potential in the way new technologies relate what is artificial with what is natural and geophysical space with computer and electronic networks.

Based on these premises, we have carried out several clearly experimental projects for specific locations and situations. We would like to clarify what we mean

when we say our work is experimental. Nowadays the whole world is said to have turned into a laboratory, given the capacity humans have acquired to act globally. Therefore, experiments with relevance to our future are no longer performed in closed laboratories or on a small scale, to be put into practice in the outer world subsequently. To the contrary, they are carried out on a global scale and in real time: we are all the objects and subjects of experimentation, which is why the entire community should participate in monitoring those experiments. Equipment and furnishings, public and productive spaces are part of the laboratory-world and should be subject to this collective experimentation. From that perspective, instead of considering our work space as a laboratory for experimenting with new configurations, we conceive of our projects as small experiments in which society is involved. In this sense, the interaction enabled by many new technologies makes them key tools for this experimentation.

1.2. NEW TECHNOLOGIES AND THE EXTENSION OF PUBLIC SPACE

With the development of new technologies, public space has been extended in several ways. First, what is public has undergone a quantitative expansion, adding new domains to its cartography such as the digital landscapes developed in the space of data networks, or the radio electric space through which waves move.

In "Reclaim the Spectrum", José Luis de Vicente speaks about the radio electric space of waves — the portion of the electromagnetic spectrum that hosts the movement of radio and TV broadcasts, mobile telephone and GPS signals, Wi-Fi networks— as the new buildable land of the Information Society. *"The infrastructure that keeps it all working —from the antennae crowning the most emblematic buildings to the hundreds of satellites in orbit— is the most ambitious engineering work ever carried out by humanity; its gradual colonization and conquest throughout the 20th century has radically transformed the construction of society, the structure of cities and the relationships among persons".*

Though they are intangible, there are domains that determine the urban landscape and our experience of it, becoming part of it. And in these circles, new forms of public life are being experienced. We are interested in examining that point: how the multiple means for relationships, interaction and participation that are being developed there can be used to reinforce the public nature of urban space, of the streets. In sum, our objective is to enhance social appropriation of space through communication systems and the exchange of data and landscapes that

they generate. It is also worth wondering about the inverse, that is, about the consequences of physical space and urban landscapes invading data networks.

Therefore, the extension of what is public constitutes not only a quantitative expansion, associated with the same alteration in the category of 'space' produced by new technologies; it is also a qualitative expansion, as it enhances the very condition of what is public, by creating or fostering conditions so that what is public may operate. In this sense, wireless networks of GSM, GPS, Wi-Fi, and RFID for mobile devices —in principle, developed as control mechanisms— can be used as alternative tools to increase and intensify public *agency.*

At present, there is a trend toward the maximum de-localization of human relations, associated with the use of new technologies (mobile phones, multimedia players, the Internet…), and also a process toward the progressive isolation of individuals, both part of the search for maximum efficiency and productivity in our actions and experiences. Given the no-presence or loss of embodiment and relations with the context and persons around us, our goal is to activate other mechanisms for connecting to one's body, the environment and other persons.

The m1ml project aims to examine all these matters, exploring how the time-limited introduction of an interactive interface alters the conditions of a particular environment. We have developed a prototype that serves a twofold purpose in the medium: through its own presence and materiality, and through connectivity with data networks. We aim to offer the possibility of a collective experience of these diverse facets of space, reinterpreting it and practicing it individually and/or collectively.[1]

2. M1ML, SEVILLE. CRITICAL INTERFERENCE IN TOURIST SPACE
2.1. THE M1ML PROJECT. BACKGROUND
The strategy proposed by m1ml is viewed as an intervention to be carried out in various public spaces. However, it is not an abstract or generic proposal that works anywhere. To the contrary, each specific location requires a model of the project and work on materializing it, placing it in relation to the specific medium where it is set up. It could be said then that we are working with locative digital mediations, that is, developing interfaces that are sensitive to the geographic, cultural and social context around them, and that link that context to communication media. Not only in concept but also in terms of materialization, the m1ml project has been developed for a local context (based on material, financial, technical and logistical resources).

m1ml is a time-limited performance, ephemeral in nature, that does not aim to transform the space radically but instead to alter it temporarily to shed light on other possibilities for experiencing what is public. It could be said that it consists of the creation of a 'modest' public space, as defined by Saskia Sassen: an intervention on a small or medium scale that, without being monumental or seeking permanence, aims to have a certain impact of the environment in which it intervenes, involving people in its practice.

To date, the project has completed two phases. The initial phase was the design of a prototype for the city of Granada, to be infiltrated into the commercial area full of shops in the city centre. In the second phase, we developed a second prototype for Seville, to be infiltrated into the tourist area of the Barrio de Santa Cruz, practically dominated by souvenir shops and boards advertising tourist restaurants. This prototype was built thanks to support from the Centro Andaluz de Arte Contemporáneo (Andalusian Centre for Contemporary Art) and the Consejería de Cultura de la Junta de Andalucía (Art Council of the Andalusia Regional Government) in collaboration with Sergio Moreno (Hackitectura.net) and Juan Manuel Herrera, and it was active from 15 November 2007 to 20 January 2008 in the Plaza de la Alianza, Seville. An explanation follows of the concept, development and materialization of the second phase and our evaluation of the experience.

2.2. SECOND PHASE. M1ML IN THE BARRIO DE SANTA CRUZ, SEVILLE

In the early 20th century, during the dictatorship of Primo de Rivera, Juan Talavera was commissioned to redefine the old neighbourhood of Santa Cruz. At a time of nationalist fervour, his project was a cleaned-up version of what was considered the "authentic" or "essential" Andalusia. The web of streets, courtyards and whitewashed houses which always have plants in the inner courtyards, based on stereotypes such as "houses must be white and streets narrow", were brought together by Talavera in a cleaned-up, standardized scenario that became the symbol of an idealized Seville. This city-turned-theatre would become the primary focus of tourism in Seville.

A thematic, simplified local culture was easily incorporated into the tourist psyche, always thirsty for 'authentic' images. This was fostered by the search for local identity and became part of the global collective psyche through tourism, which places cities within the worldwide circuit of leisure and consumption. As occurs in so many other tourist spaces that represent the "essence" of a city, the Barrio de Santa Cruz is disconnected from the everyday life of Seville's inhabitants. Urban tourism is usually an activity linked to the accelerated consumption of images, seldom involved with the life of the city. It often generates circuits of its own that are practically removed from the city visited, based on the construction of routes packed with maximum contemplative intensity, where the typical culture is consumed by the visitor in

fast-acting capsules that are easily digested and assimilated. Social complexity is simplified and the actual residents are banned from these thematic routes in which the tourist experience is eminently visual. The fact that they carry a camera places tourists on the alert, ready to capture a photographic scene that freezes moments of the tourist experience as they form part of a global image bank. Along with digital technology, which multiplies the possibilities for taking photographs and videos, the development of the Internet has fostered the circulation and mobility of images: if we look for the city of Seville on a search engine, we will find a multitude of personal views along with standard and official images. These views become part of the tourist landscape.

The m1ml project deals with, absorbs and exploits this reality: it is precisely the tourist routine of taking photographs that serves as the starting point to lead to an experience that reclaims the sense that the conditions of public environments are visual and invites people to interact with them. Using the universally adopted practice of capturing photographic scenes and then uploading them onto the global image bank as a base, the immediate perception of that space is altered as well as its memory, interfering with the collective tourist imagination of the city. In this neighbourhood of Seville, tourism plays an essential economic role and history weighs heavily, but not all residents share in or benefit from this economic and cultural model, and as a result, a fundamental question we asked ourselves refers to how to use the project to foster social appropriation.

3. MATERIALIZATION AND DESCRIPTION OF THE PROTOTYPE

With this purpose, we placed the sensorial interface of m1ml in the Plaza de la Alianza, proposing a constant dialogue over the course of two months between information networks and the geophysical context. The prototype is made up of the following elements:

- An interface in the physical space (Plaza de la Alianza). Vertical garden that is self-sufficient in terms of energy with an interactive light system; a drop irrigation system and a video camera system.

- An interface on the Internet (www.m1ml.net). It consists of a web site that enables the participation of Internet users.

A key feature of the prototype developed is that it works in two directions, that is, users of both public and virtual space, through a connection open to the public, can interact with the 'other side'. The two interfaces are available to users, both people passing by and Internet users, and serve as tools so that users and the system autonomously incorporate information, acting as senders and receivers. Thus, a space is prepared on the spectrum in which all its participants, and its surroundings —in physical space and on the Web— are included in the exchange activity involving various interactions. A description of how the prototype components work follows.

3.1. SENSORIAL INTERFACE IN PHYSICAL SPACE

We have placed in public space what we call a sensorial and interactive interface. It consists of a metallic structure housing a vertical garden of aromatic plants, which plays with the collective imagination associated with the location: the plants, wrought iron grills, balconies, etc. The structure has an interactive illumination system based on LEDS that comes on at nightfall with a type of light that provides a stimulus similar to that of sunlight, thus prolonging the period of light for the plants. The system is activated by the activity of the second interface on the Internet.

The presence of the technological garden, the fragrance of the plants, the light, etc. arouse curiosity among passersby. When they approach, they are invited to take part in the project. For a moment, the neighbourhood is able to house a surprise; the passerby disconnects from his or her routines and is encouraged to make a pronouncement on his or her environment, going over to explore and often photograph the "element outside the script". From here, an invitation is issued to

include these images in the second interface generated on the Web, adding them to a collective archive. In parallel, all this atypical activity for the neighbourhood which is taking place around the element is photographed by the video system and rebroadcast in real time on the second interface on the Internet.
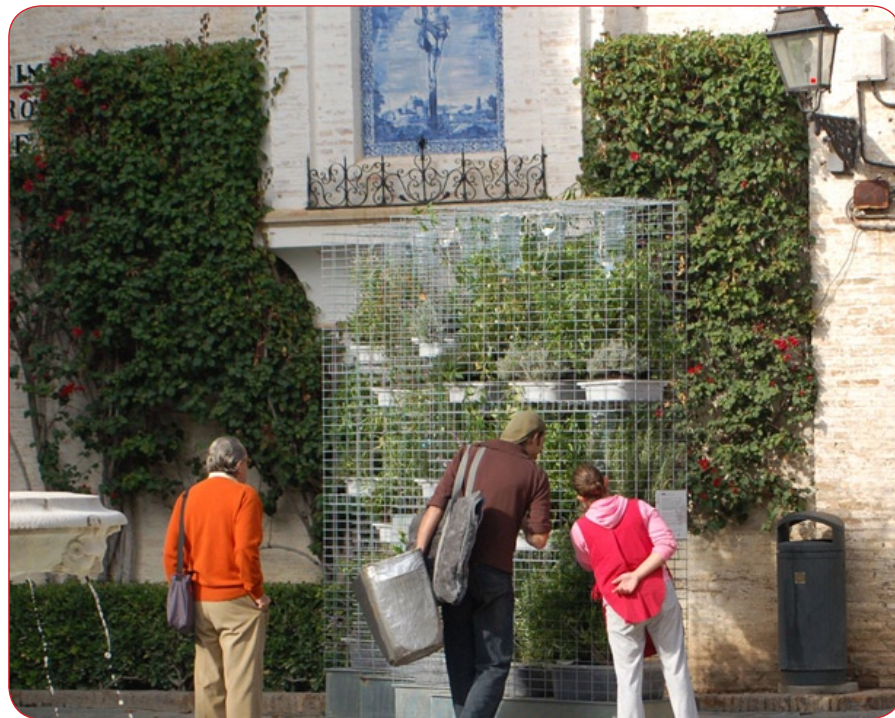
3.2. INTERACTIVE INTERFACE ON THE INTERNET.

Any Internet user can take part in the project by going to the web site at www.m1ml.net, which is connected to the Plaza de la Alianza. Here, various interactions are offered:

SELECT/SEND A POST CARD. Alteration of the atmosphere and the collective imagination.

From this site, one of the images taken by the camera or posted by Internet users can be selected and an m1ml post card can be sent. Each day, the elements sent will activate an illumination system at 7 p.m. that fosters the growth and nocturnal photosynthesis of the plants. Thus, each post card modifies the atmosphere of the square and is added to the global image bank. Shared via the Internet, the post card will alter the tourist imagination of Seville and will form part of our collective memory.

POST YOUR PHOTO. Personalized views.

Your personal photos of m1ml can be turned into post cards. By posting them to this site, they will be added to the project archive. Your personal view of the Barrio de Santa Cruz will be added to the global image bank, altering the tourist imagination of Seville, and will form part of our collective memory.
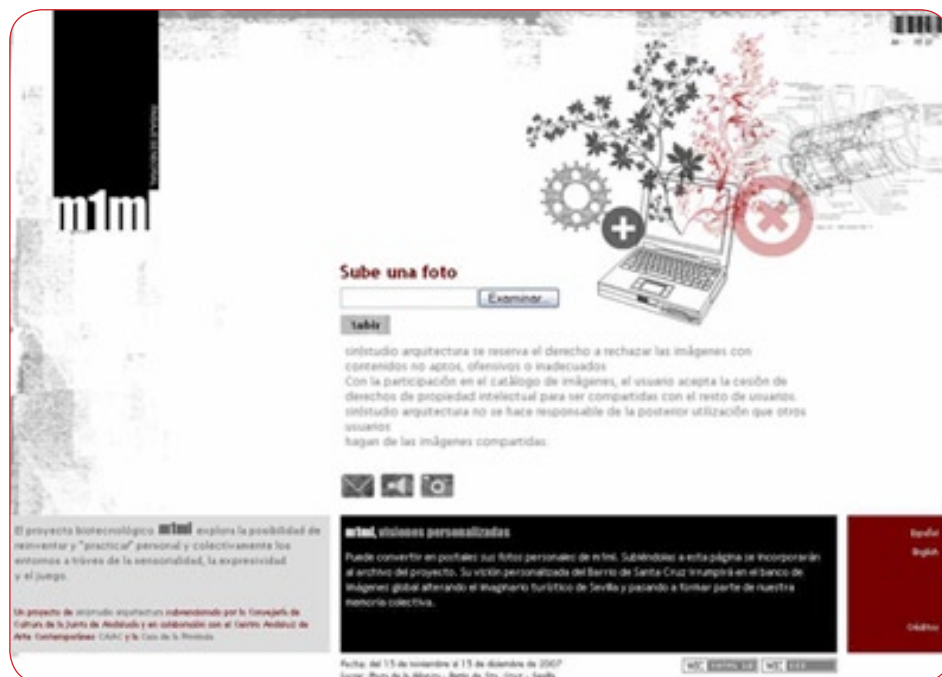
ACTIVATE SOUND. Views of the neighbourhood.

The web site includes various interviews with persons sharing their view of the Barrio de Santa Cruz. Through the Internet, one can listen to what citizens, tourists, workers and residents think about the neighbourhood: thus, it serves as an element of information and expression. And the neighbourhood, instead of being associated with tourist visits, is associated with daily life in the city and the persons who live there.

Just as passersby have an effect on the tourist landscape on the Internet through uploading their images, the sending of post cards subsequently generated on the site affects the physical space. Through this double interface combining biology, technology and social appropriation, users from anywhere in the world can alter the atmosphere around the element placed in the la Plaza de la Alianza. This localized geographical point has been extended on the Web through various images by different people and the camera. The circulation of digitalized images added to the global image bank alters the stereotypical tourist image of this environment.

4. PARALLEL ACTIVITIES

4.1. CONNECTION WITH THE CENTRO ANDALUZ DE ARTE CONTEMPORÁNEO.

Everyday activity around the installation is rebroadcast in real time to various cultural centres such as the Casa de la Provincia and the Centro Andaluz de Arte Contemporáneo, through the video system. The tourist space and its daily activity are shown within these spaces, leading to a critical reflection on this phenomenon.

4. 2. DEBATE: "COLLECTIVE SPACES IN THE BARRIO DE SANTA CRUZ".

Within the framework of the m1ml Artistic Project in the Barrio de Santa Cruz, in collaboration with the Casa de la Provincia, we organized a debate on "Collective Spaces in the Barrio de Santa Cruz". The purpose of this debate was to continue expanding opportunities for exchanging opinions and experiences related to this emblematic neighbourhood which we began with interviews to gain knowledge of its various facets and related problems. The debate started with a roundtable, with five guest speakers who introduced the topic of collective spaces in the Barrio de Santa Cruz from various perspectives —including the historical legacy, tourism, and the difficulties of *residing in the neighbourhood.* Following their presentations, a debate open to the public began, with a free exchange of opinions. The entire debate was recorded by video camera to be posted to the Web.

Speakers at the roundtable: Plácido González Martínez. Architect with a degree from the Universidad de Sevilla, Associate Professor in the Department of History, Theory and Composition at ETSA in Seville and Member of the Research Group "City, Heritage and Contemporary Architecture in Andalusia". Coordinator of the Andalusian Register of Contemporary Architecture for the Andalusian Institute of the Historical Legacy. Co-author of the glossary of Urban Attributes for the CAAC. **Alfredo Rubio Díaz**. PhD in Urban Geography. Professor of Human Geography, Department of Geography, Universidad de Málaga. Researcher on Urban Spaces with several open research lines, including "Heritage", "Commercial Urban Development" and "Environment, Territory and Sustainability". Member of several research groups: "City and Industry", "Geocon" (Geography of Commerce, Consumption and Distribution), and "Creativity, Research and Ingente". **Adolfo García Jerez.** Holds a degree in Social Anthropology (Universidad de Sevilla) and in Geography and History (Universidad de Málaga). Member of the GISAP Research Group at the Universidad de la Pablo de Olavide. A doctoral candidate at the Universidad Pablo de Olavide. Lecturer at the Programme at the Centre for Foreign Studies at the Universidad Pablo de Olavide. Participation in the project titled "Sevilla Imaginada", in collaboration with the UNIA. **Mª José del Río Rodríguez.** President of the Residents' Association in the Barrio de Santa Cruz, Seville.

4. 3. CLOSING. URBAN ACTION "A WISH, A POTTED PLANT".

For the closing of the installation, we organized an urban action called "A Wish, A Potted Plant". In exchange for a wish for the neighbourhood, passersby were given a potted plant from m1ml to take home. The action aroused the interest of local

residents and passersby, with a high level of participation: m1ml was broken down into 85 potted plants that were gradually distributed around the city. In exchange, the Barrio de Santa Cruz got to keep 85 wishes from Seville residents and even a few tourists. Thus, the action continued with its invitation to reflect and the different perspective on the environment that the project offered.

Each of the participants was recorded in a photograph holding his or her potted plant and writing down their wish for us. These images and the wishes have been posted on the Web: we plan to keep the web site set up for the project active to lend continuity to the forum and exchange and expression of ideas about the Barrio de Santa Cruz.

5. CONCLUSIONS. CRITICAL EVALUATION OF THE EXPERIENCE.

During the months that m1ml was active, the project web site received an average of 50 visits per day, and users posted a total of 96 of their own photographs and sent a total of 595 post cards, of which 220 were images from the video camera and 375 of the images posted by users. The post cards were transformed into 39 hours and 36 minutes of light stimulation for the plants.

The presence of the sensitive interface in the public space revealed a more receptive attitude than had been expected among local residents, tourists and passersby. They took photographs and videos generating digital images of m1ml, which were posted on the Web not only via the interface www.m1ml.net: we discovered some of them on photo logs such as flickr and others.

The project allowed us to observe how citizens have become accustomed to public space as an advertising or mercantile setting and it is more difficult to conceive of it as a space for expression, reflection and communication (during the initial set up and final action, passersby frequently asked us what product we were selling or advertising). Currently, we are working on the third phase of the project.

6. TECHNICAL COMPONENTS

- **Supporting structure and protection:** Solid structure made of metal mesh and galvanized steel sheet metal, measuring 3.60m x 1.20m and 2.70m high.
- **Vegetable system vegetal:** 166 aromatic plants of 10 species native to the area.
- **Illumination system:** LED type polycarbonate plastic lights
- **Video system:** CCTV installation via radio, with a ¼'' cylindrical outdoor camera, 330 TV lines, omni-directional antenna, transmitter and receiver via radio 2.4GHz.
- **Energy system:** 6 industrial batteries, 12V 120Ah.
- **Transmission system:** Transmission system for wireless data based on Zigbee pro technology.
- **Control system:** AVR ATMEL atmega168 Microcontroller (Arduino Diecimilia).
- **Irrigation system**: Made up of 24 5-litre recycled plastic bottles connected to 24 hospital IV devices.

- Central control system: PC connected to the Internet via DSL line. It sends commands through a Zigbee converter to the Arduino system regulating the on/off switch for the lights.

- Web system: domain www.m1ml.net

NOTES:

1. We use this word as Manuel Delgado does, in the sense that: space is made public upon being used as such, putting it into practice. We conceived of this prototype as an interference element that would alter the transit and routines of passersby and residents in spaces almost always used for commerce.

THE CITY: AN INTERFACE FOR ALL

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1. ABSTRACT

The accessibility of urban space is usually considered in terms of ergonomics and mobility. However, while physical accessibility enables spatial mobility, it does not ensure universal access to the city as a complex foundation for human social and cultural activities. This article focuses on the need to understand cities as a social interface which requires the integration of technical resources for accessibility and participation; it explores what type of information technology should be included in this system; and it offers a brief reflection on the social implications of the Internet having replaced the city as a place for social meetings and participation.

2. SENSORY ACCESSIBILITY TO URBAN SPACE

Cities constitute significant communicative environments through which local and global geographic, promotional or cultural information is presented. Persons with sensory impairments as well as immigrants and others with specific sensory needs do not have equal access to urban communication media, which hinders not only their full social integration into the city but also equal access to urban public services. Therefore, for example, a blind pedestrian has no access to public information including the following:

- Information displayed at bus stops.
- Signs indicating the location of monuments, entrances to the underground, or other public buildings.
- Posters or signs outside a cinema or museum.
- Signs indicating that a road is closed due to construction or repairs.
- Menus posted outside restaurants.
- The text on commemorative plaques that are part of public statues.

In addition to and beyond these examples, the city is full of all kinds of communicative signs that express its complexity an environment that is home to many people. Graffiti, tags, stickers, personal notices of rooms for rent-- all these generally unlegislated elements form a second layer of information on our

streets, which everyone should be able to perceive without discrimination to have an objective view of their surroundings in order to be able to exercise their own judgment.

To overcome obstacles to accessibility, the principles of Universal Design must prevail. Universal Design (or Cities for All) is by definition useful for all people, given that it aims to improve the usability of products and environments for the greatest possible number of users, without creating special adaptations or alternative versions. The principles of *Design for All* or *Universal Design* were developed by the Center for Universal Design at North Carolina State University (Cornell *et al*., 1997)[1] and describe the characteristics needed to make a product or system accessible. The above-mentioned urban signs, such as information posted at a bus stop, and the case of a blind person, may be kept in mind, in view of the following principles:

> • Equitable use. Provide the same information for all users: identical whenever possible; equivalent when not. Avoid stigmatizing users. Provisions for privacy, security, and safety.
> • Flexibility in use. The design accommodates a wide range of individual preferences and abilities.
> • Simple and intuitive use. Use of the design is easy to understand, regardless of the user's experience, knowledge, or current concentration level.
> • Perceptible information. The design communicates necessary information effectively, regardless of ambient conditions or the user's sensory abilities.
> • Tolerance for error. The design minimizes hazards and the adverse consequences of accidental or unintended actions.
> • Low physical effort. The design can be used efficiently and comfortably and with a minimum of fatigue.
> • Size and space for approach and use. Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, position, or mobility.

After reading these principles with the aforementioned cases in mind, we will all surely agree that a blind person, an immigrant, a tourist with language difficulties, or a deaf person with severe cognitive deficits cannot independently and normally perceive a sign at a bus stop or many of the other informational notices located around the city that are essential to ensure an independent lifestyle.

3. A *READ-ONLY* CITY

A city's development as an informational and social interface has the following restrictions in contrast to the main model represented by the Internet:

> • In contrast to the Internet's delocalized access, physical space imposes its obvious local conditions, and information is not accessible anywhere, any time: instead, the user must be physically close to it. However, this limited access to urban communication does not need to be altered by an adaptive interface, given that the limitation contributes to a better perception by an objective public, as urban marketing knows very well, using it to structure the identities of people who live nearby.
>
> • Given that publication space in a city, as opposed to the Internet, is limited and always subject to ownership, it is not possible to open new publication spaces flexibly, the way that, every second, new domains and web pages are opened on the Internet.
>
> • These limitations are the cause of the high cost of acquiring the publication rights needed to make use of these places, which, in addition to the prior arrangements that are required, makes frequent, spontaneous publication and interaction with our immediate environment impossible.

This situation limits citizens' communicative interaction in public urban space to either direct oral communication or uncared-for spaces where information can be published illegally. Consequently, users/citizens tend not to express themselves indirectly in the city, choosing instead to take their need to meet and communicate with others who, though strangers, are nearby geographically to online forums and social networks.

The primary consequence of this migration of citizen interaction to virtual spaces accessible only from the home or the office is a tendency to consider the city irrelevant as a place for meeting and sharing life with others, which disconnects citizens from the urban setting they inhabit. Additional factors contributing to this reality are:

> 1. Urban planning that tends to conceive of the city in terms of wheeled transport, where sidewalks are seen as an additional space for pedestrians.
> 2. The widespread satisfaction of all basic needs in private spaces or at distant commercial locations does not foster unplanned encounters, especially among new residents.

3. The exclusively global and delocalized nature of communication media, including the Internet, installed in homes and at the workplace.

4. The widespread use of wireless telephones, which are still incapable of connecting socially to the social-geographic context where they are used. In this way, mobile technologies contribute to turning cities into a *flow space* (Castells, 1997)[2]; however, they are always focused on a remote location and thus, instead of transforming or inhabiting the city, they empty it of events and therefore of places.

Social distancing between the city and its citizens shows that the possible uses of urban space for communication purposes are limited to the reception of advertising and generalist messages, which increase the perception of the areas that comprise our neighbourhoods as locations that have little to do with us and which we find easy to avoid[3]. Unless we change this tendency, the virtual space of the Internet, which is public but certainly not habitable, will continue to foster the frustration resulting from living a life increasingly oriented toward the virtual, in an inapprehensible flow space, outside our real habitat and surroundings.

4. A *READ/WRITE* CITY

As stated in the abstract, a city is a complex foundation for information exchange in which numerous agents participate using a wide range of media. Accessibility is not concerned with the legitimacy of information but instead aims to make information equally accessible to all users, regardless of its nature or source, so that everyone can play an equivalent role in perceiving and acting in our culture.

The ability of persons with special sensory needs to perceive the physical structure of their urban environment and all that is expressed in it is essential for them not only to transit freely but also carry out normal social activity. In addition, accessibility, as clearly shown in the definition of multimodality by the W3C[4] and the recent León decalogue *(decálogo de León)* on accessibility, refers not only to reading information, which is the *sine qua non* for any other interaction, but also to universal participation, and should foster processes which enable it.

With respect to point 3, continuing the analogy of IT media, it is not hard to distinguish read-only media from others that serve both reading and writing. The former are well-located private *servers* in the city network, which must be licensed and require a considerable economic outlay per message published on them, such

as an eight-metre-high billboard. The latter, locations that serve for reading and also the direct publication of information, are mainly surfaces at street level that are less carefully maintained than others, such as street lamps or empty shop façades, that ensure that a furtively published message will remain on display longer and not lead to an arrest.

This scenario might lead one to think that perhaps the legal criteria regulating participation in urban spaces should be re-evaluated, so that the physical structure of the city can be adapted and serve as a social interface, a flexible, open place for reading and publication, in accordance with the principles of universal design for all people. The purpose of this article is not to reflect upon that option, but it is worth mentioning, given that we consider that we should tend to promote urban interfaces able to leave physical traces, not only virtual ones (that are invisible *a priori*) via augmented reality techniques. A city full of virtual interventions that are never accompanied by physical traces leave us with a devastating outlook, proof that social interaction takes place *in* the city but *without* the city, with none of its physical components showing any evidence of the interaction that took place.

In sum, we should promote social interaction systems in which the city takes part as their physical and virtual setting in such a way that, to paraphrase the definition of multimodality, the city and its inhabitants are jointly able to carry out physical or virtual interactions anywhere, any time, using any of the communicative media and resources in an accessible manner, thus increasing interaction among residents, and between the city's physical structure and its inhabitants, regardless of their capacities, circumstances, and diversity.

5. AURI –ACCESSIBLE URBAN INTERFACE- PROPOSAL

The project described below falls within the scope of activities of the Spanish Subtitling and Audio-Description Centre *(CESyA, Centro Español de Subtitulado y Audiodescripción),* run by the Royal Disability Council *(Real Patronato sobre Discapacidad)* – Ministry of Labor and Social Affairs – and Universidad Carlos III de Madrid, which has the multidisciplinary objective of fostering accessibility in communication in areas such as education, the Internet, television, cinema, and museums. It is also a thesis subject at the Sociology Department IV at the Information Science School *(Facultad de Ciencias de la Información)* at the Universidad Complutense of Madrid.

The group presenting this communication aims to apply the principles of multimodal interaction to urban space as a strategy for social development and inclusion. AURI, Accessible URban Interface, is a project in its initial stages for a universal design mobile interface which enables:

> 1. Adapted access to information displayed in the city, especially related to public services.
> 2. Free virtual publication of contents on a non-determinist augmented interface, in which the space it refers to is chosen by the user, instead of a predefined map, in a natural way from the user's cognitive perspective (visual, auditory, and/or haptics) (Alberich *et al.,* p. 215)[5].

AURI aims to turn cities into environments that fulfill the seven principles of Universal Design and to serve as an interface for communication and cultural production, an interface that transforms the city into a flexible medium for communication permitting users to write as well as read, creating a *read/write city* enabling a social dynamic which:

In terms of accessibility:
> 1. Ensures dynamic, multimodal access to information displayed in the city, so that we are all able to detect the communication sites installed in cities via audiovisual resources promoting accessibility such as subtitling[67], audio-description[8], and signs to communicate contents.[9].
> 2. Facilitates the participation of inhabitants in communicative terms and under equal conditions in the environment where they reside.
> 3. Facilitates a change in attitude about everyday living with groups of persons with special sensory needs.
> 4. Fosters a positive perception of the integration of these persons and their contribution to a knowledge society with initiatives that benefit us all.
> 5. Provides a distributed, autonomous description tool for the environment that allows them to know and move through space more autonomously thanks to the participation of all citizens in the platform.

In terms of citizen participation:
> 1. Provides a mobile tool for participation in and interaction with urban space, compatible with prevailing legislation, which enables the decentralized distribution of contents integrated into urban space, encouraging citizens to

express themselves in relation to the city where they live and identify it as a fundamental scenario that is the property of all[10].

2. Incorporates the city as a necessary platform in the network society, making it a direct place for interaction and digital contents, thus promoting the digital city as much more than electronic administration.

3. Grants visibility to digital contents through virtual representations not limited to the restrictions of mobile screens, but which are temporarily included in the urban scenario and therefore are naturally visible via projection.

4. Enables exploration of the benefits and drawbacks of more flexible regulation regarding citizen participation in the environment, without harming the architectonic integrity of the structures that comprise it.

5.1 TECHNICAL DESCRIPTION OF THE SYSTEM

An outline follows of the technical system that AURI is based on, which has three main components:

1. Adhesive stickers with a RFID and, optionally, reflective material.
2. Mobile device including:
    1. RFID Reader
    2. Infrared LEDs
    3. Infrared mini-camera
    4. Micro-projector
    5. UMPC/Mobile telephone
3. Network database.

The stickers will send a code to the RFID reader and the displayed contents will be identified in an online database. This XML database that is separate from the device will contain specific classifications permitting a voice synthesizer to speak the related contents or launch the corresponding signs, with the alternative of including the projection onto the communication medium via the application of augmented reality technology.

In addition, a web portal will make it possible to configure personalized adhesive stickers which, having been included on any type of surface, will enable a restaurant manager, for example, to ensure multimodal access to the daily specials as the user independently discovers and has access to the adapted version via his or her mobile device.

The decentralized growth of this database will comprise a new network of contents that can be used to distribute adapted versions of contents already on display in the city and to generate new contents, which can lead to numerous applications in accordance with users' interests.

6. CONCLUSIONS

AURI is at a conceptual stage that requires an analysis of translating current standards and rules of accessibility to this new scenario. It should also design a natural interface based on augmented reality, able to link the user to the surrounding space, adapting it to the user's own spatial cognition, which is always quite diverse and conditional, through which each individual organizes his or her environment[11]. This way, instead of imposing a purely Cartesian system as the basis for the system, we will offer one that is multimodal, subjective, and based on agreements.

The implementation of this or a similar system is needed to ensure universal access to public information media installed in urban settings. AURI will also facilitate the transition from an urban experience based on an untouchable physical structure to a different one capable of hosting and being sensitive to our communicative interests and limitations.

Only by allowing the city to describe itself through its inhabitants and on systems adapted to the rules and principles of accessibility, will we be able to enable all people to perceive the city in all its complexity, and prevent cities from deteriorating as an irreplaceable communicative setting.

NOTES

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SPIP GIS

Horacio González Diéguez [1]

ABSTRACT

Presentation of software initially developed by Horacio González Diéguez and Berio Molina Quiroga for the Escoitar.org project (http://www.escoitar.org), a Web site created through a *mashup* that combines *podcast* technology and Google Maps. In May 2008 Escoitar.org launched its new 2.0 version developed entirely with Spip, a French CMS distributed under GNU/GPL license (http://www.spip.net/es). Our contribution to Spip was a set of plug-ins that uses GeoRSS, syndication technology with geographic information, to enable the integration of articles, images, and sounds, in maps such as Google Maps (http://www.spip-contrib.net/Plug-in-GIS-escoitar).

Spip Gis makes it possible to associate geographic information with traditional elements of Content Manager Systems such as articles, topics, and tags. Google Map API Plug-in uses that geographic information to build Google Maps in which to embed the information contained on the Web site.

The architecture of the plug-ins was developed to enable future use of other platforms such as Yahoo Maps or OpenStreetMap.

Key words: Spip, GIS, GeoRSS, Google Maps, Web 2.0.

INTRODUCTION

This article presents a set of two *plug-ins* initially developed by Horacio González Diéguez and Berio Molina Quiroga for a French CMS called Spip, to build the second Web site for the Escoitar.org project. As a set, the two *plug-ins* make it possible to associate geographic information with the articles and key words on a Web site so they can be seen on Google Maps. Although their features are much more limited than those of any GIS, the set of two plug-ins has introduced the option of using geographic information as an additional component of a dynamic Web site, converting it into an application that can gather, aggregate, share and show geographic information.

INITIAL DEVELOPMENT OF THE SPIP GIS PLUG-IN ABOUT ESCOITAR.ORG

The Escoitar.org Project aims to foster the sound phenomenon through listening and reflecting on our acoustic heritage. The Web site of Escoitar.org is a tool that allows any user to post sounds to the Internet and locate them on a map. It is also a

documentation space on soundscapes and aural culture. This is how the Web site is defined in its welcome text:

"Approaching the sound of a place means approaching its heritage. Perceiving, understanding and conceiving our sound identity, that of our places and our people, their coherence and idiosyncrasies, is a necessary and healthy pursuit. Escoitar.org is a free, open project for social dynamization whose primary goal is disseminating and promoting the sound phenomenon and its exploration for social and documentary purposes. You can participate by adding your recordings. Welcome to Escoitar.org."
Escoitar.org. Welcome text on the Web site of Escoitar.org. 25 July 2006.

Escoitar.org was developed based on the concept of *soundscapes,* as the core of the project. A soundscape is a set of sounds that determine the sound of an immersive environment. An immersive environment is the spatial and temporal environment- whether natural, artificial or virtual- where the subject experiences a feeling of belonging and immersion. Consequently, for Escoitar.org the development of tools that enable establishing relationships between places and their sounds is essential. The purpose of Escoitar.org is to create an agreed-upon archive of the soundscape and sound heritage of Galicia.

PREMISES FOR THE DEVELOPMENT OF THE FIRST VERSION OF THE WEB SITE OF ESCOITAR.ORG
The Escoitar.org project was initiated in January 2006 in accordance on the following premises:

- The key to the project was the possibility of embedding sound players on maps such as Google Maps.
- At that time, some very small (only a few Kb) applications existed that used Google Maps to show Web contents through maps. For example, one of the projects studied in the development phase was Chicago Crime (http://chicagocrime.org), launched in November 2005.
- One of the team members developed a podcast in December 2005 for the Sinsal collective of Vigo with LoudBlog (http://www.sinsalaudio.org/radio/index.php). This podcast manager worked perfectly, was completely integrated with iTunes, was free and seemed simple enough to develop a plug-in with very limited means.

ABOUT THE FIRST VERSION OF THE WEB SITE OF ESCOITAR.ORG

Although the project got underway with the intention of developing a LoudBlog plug-in, shortly thereafter it became clear that many more changes were needed than had been foreseen and in order to manage the Web site of Escoitar.org, the programme had to be completely modified.

The comments chart in the LoudBlog database was modified to include new fields such as latitude, longitude, county or province. The way LoudBlog processed forms was modified to gather that data and save them in the database. New LoudBlog tags were created to return the data and their fields on the forms. Documents in different languages were prepared so the Web site would be available in various versions. Menus were added to the private section. And lastly, to embed all the users' comments on a Google Map, an XML document was created with a structure of bookmarks similar to the ones Google suggested in its documentation to work with XML and AJAX.

When the project was presented to the public on 25 July 2006, the software used to create the first version of the Web site was a *mashup* using three technologies- RSS, Google Maps Api and AJAX- and two different CMS- Spip for the documentation area and LoudBlog to create the tool to post soundscapes to the map.

ELEMENTS THAT LED TO THE DEVELOPMENT OF THE SPIP GIS PLUG-IN

Following the first phase of project development, a number of problems and needs were noted that led to the idea of creating a new tool based on a sole CMS. The main problem was that, due to operating matters and given that LoudBlog did not allow for a large documentation forum, the Web site had been divided into two large independent sections. As they were created with different tools, it was terribly difficult to exchange information between the documentation area and the soundscape map. When development began on Escoitar.org, LoudBlog, published by Gerrit Van Aaken in April 2005, was already in version 0.4. However, between August 2006 and May 2007, no new versions were developed or launched, and no new templates or plug-ins were created for it. The lack of feedback from its creator, who had apparently abandoned it, made LoudBlog a disappointing option for developing the second version of the Web site. No response was received from Gerrit Van Aaken when an attempt was made in September 2006 to present the Escoitar.org project to him. There was no evidence that, in future versions, LoudBlog would improve enough to enable carrying out the documentation area without Spip.

In contrast, Spip turned out to be an extremely efficient and versatile tool in developing the documentation area. In addition, in September 2006, within the framework of the 2006 Eutopía European Festival for Young Creators, the Escoitar.org team was fortunate in sharing a week with some of the developers of Spip: Daniel Viñar, Romy Duhem-Verdière and Philippe Riviere. As a result of this meeting and the insistence of Berio Molina, the idea arose to develop a plug-in to work with Google Maps in Spip and thus permit the Web site of Escoitar.org to overcome the division.

Premises for developing the *Spip Gis plug-in* for the creation of the second version of the Escoitar.org Web site.

Development of the GIS plug-in for Spip began in March 2007 in accordance with the following premises:

- The primary objective was to integrate all the features of the Escoitar.org Web site in a sole CMS, so that all the information contained on the Web site would be usable in any of its sections.
- The finished software should really work as a *plug-in*, not as a *Hack*. Under no circumstances could files be modified in the selected CMS. The software should be easy for other persons to install and use, so that the effort of developing it served to create other projects and was therefore more significant.
- The structure of the XML document containing the markers for the map needed to be modified to adapt it to a standard and thus facilitate the exchange of information among various applications and Web sites.

STRUCTURE AND FUNCTION OF THE SPIP GIS PLUG-IN
About Spip Gis
Spip Gis is a set of two *plug-ins* under development. While it still needs many improvements, especially a thorough restoration, cleansing, and optimization of the code, it is fully functional and has served to develop the second version of the Escoitar.org Web site. The two *plug-ins* were initially developed by Horacio González Diéguez and Berio Molina Quiroga. At present, a group of ten persons volunteer to develop it through the Spip *track system*. Spip Gis is distributed under GNU/GPL licence and can be downloaded at http://files.spip.org/spip-zone.

To develop the *plug-ins*, the idea of creating two charts called "spip_gis" and "spip_gis_mots" within the Spip database was used as a starting point. This made it possible to store geographic information such as latitude and longitude and associate it with the articles and key words on the Web site. Once that geographic information was stored in the database, standard GeoRSS was used to make lists of the articles on the site with their corresponding coordinates.

Google Maps Api was used to generate all the maps on the site. Each Google Map in the public section gathers information from GeoRSS documents generated by the plug-in, to show the articles through markers and floating windows. This standard also makes it possible for any other application, whether external or on the site, to gather the information published on the site and reuse it on other maps.

TECHNOLOGIES USED BY THE SPIP *PLUG-IN*

Spip is a French CMS distributed under GNU/GPL licence, developed between 1998 and 2001. It is a manager for editorial content with very special features. The software was developed directly by the people who were going to use it, based on a standpoint closer to that of the creative contributors and users than to the programmers. It was initially developed by editors and *webmasters* from various digital newspapers and media, not by computer scientists. Arnaud Martin, Antoine Pitrou, Philippe Riviere, Emmanuel Saint-James, Pierre Lazuly and Erwan Biland are some of the creators.

Spip is much simpler than Postnuke, Joomla and Drupal. It manages information through three basic units: articles, titles or sections, and key words. It is based on the logic of an online magazine, a space where a group of collaborators writes texts and readers can make comments. However, its greatest strength lies in the absolute freedom with which a Web site made with Spip can be formatted. Through templates similar to those of WordPress called skeletons and its loop system, Spip makes totally free graphic presentations possible, that anyone with a basic knowledge of HTML and loop syntax can develop.

What separates Spip from other CMS is its ease of use, multi-lingual format and simplicity.

Technologies used in the plug-in: Google Maps Api
Google Maps is the name of the free service offered by Google since February 2005

which provides images of maps and satellites of the entire planet, as a complement and aid to users carrying out a search on Google. Since June 2005 Google has offered programmers the possibility of creating their own Web applications using the images and maps of this service through Google Maps Api. This programming interface not only makes it possible to show maps of the whole world on any Web site but also facilitates the presentation of information included in the maps by means of a set of simple functions designed to create markers, layers, poly-linear forms and floating windows.

Google Maps Api is amply documented through a description of the concepts it is based on, with an abundance of practical examples of how to use it and a complete reference of all the functions and objects available to developers.

TECHNOLOGIES USED IN THE *PLUG-IN*: GEORSS

RSS is a standard based on XML designed to share lists of links with information and metadata that help the receiver of the document to decide whether to visit a link or not. It allows computers to go over and understand the information contained on a Web site so that it is possible to select all the content that a particular user might be interested in. It is a format designed to be used by computers and applications, instead of being presented directly to users as HTML.

RSS was specifically developed for all types of sites that are frequently updated. It makes it possible to share the information contained on a Web site and use it on other sites or programmes, a possibility called syndication. This format is used to disseminate contents to subscribers of a Web site, making it possible to view information without a search engine, using software designed to read those contents called Aggregator o Feed Reader. Syndication and the RSS standard have revolutionized the way Web contents are created and conceived, contributing to a new era in the development of the Internet known as Web 2.0.

GeoRSS is a set of standards that makes it possible to add geographic information to RSS and Atom documents in a quick, simple way. It arose to promote a relatively small number of projects that handle the needs of the majority of Web sites and communities. Thus, it aims to avoid the fragmentation of languages that occurred with RSS and other systems that format information on the Web.

GeoRSS proposes two different standards to meet those needs: GeoRSS-Simple and GeoRSS-GML. GeoRSS-Simple is a simple, light format that developers and users can easily add to their feeds, with very little effort. It uses basic geometry (dots, lines, squares, polygons) and solves common situations upon using geographic information. As a superior option, GeoRSS-GML has a GML application profile and a broader range of features, especially the possibility of using coordinate systems other tan WGS-84 latitude/longitude.

Both formats are designed to be used with Atom 1.0, RSS 2.0 and RSS 1.0, although they can be used just as easily with XML formats other than RSS. Their common information model aims to promote interoperability and compatibility.

DOUBLE ARCHITECTURE OF THE *PLUG-IN*

To make it possible to use maps other than Google Maps in the future, the set of necessary operations have been distributed between two interdependent plug-ins. One is for managing geographic information and the other is for managing Google Maps. All processes related to storing and managing geographic information have been separated from those related to the cartographic representation system. Thus, the first plug-in can work independently of the cartographic representation system and other developers in the future may use other platforms for OpenStreetMap or Yahoo! maps.

The first *plug-in*, Spip Gis, performs the following functions:
- Creates charts in the database, which store the geographic coordinates and are associated with various elements in the CMS.
- Inserts entries to the charts.
- Provides information about the structure of those charts and their relations to the database, so that Spip can return the content of its fields via the loops.
- Calls the functions for showing and managing the maps, which are stored in the second plug-in.
- Inserts necessary forms in the private section to associate geographic information with articles and key words.
- Inserts necessary forms for managing the plug-in into the private section of the Web site.
- Generates the GeoRSS feeds of the articles, key words and titles of the Web site.

The second plug-in carries out the following functions:

- Contains the functions for managing maps, reading information on GeoRSS feeds and creating markers and floating windows.
- Contains various map models used in the private and public sections of the Web site.
- Inserts necessary forms to configure maps on the private part of the Web site.

COMPARISON OF THE PLUG-INN AND ELEMENTS COMPRISING A CONVENTIONAL GIS

The *Spip Gis plug-in* is a modest tool compared with any conventional GIS. However,

Interfaz	**Utiliza como interfaz la propia de SPIP**
Base de Datos	**Utiliza la Base de Datos de SPIP junto con dos nueva tablas ,SPIP_gis y SPIP_gis_mot**
Sistema Gestor de la Base de Datos	**MySql y SPIP**
Sistema de Digitalización y Procesado de Imágenes	**No tiene**
Sistema de Representación Cartográfica	**Google Map Api**
Sistema de Análisis Cartográfico	**No tiene**

Figure 1: Comparison between the *plug-in* and components of a conventional GIS.

it consists of some of the basic components of a GIS.

INSTRUCTIONS FOR HOW TO USE THE SPIP GIS PLUG-IN
INSTALLATION AND CONFIGURATION

The Spip Gis plug-in was developed for version 1.9.2 of Spip and can be downloaded from the Spip *track system* at: http://files.spip.org/spip-zone.

That directory has the compressed files of many plug-ins that can be used with Spip. They include "gis.zip" and "googlemap_api.zip" which contain the files for each of the plug-ins developed.

To use them, the files must be downloaded and decompressed from the folder of each plug-in in the folder of Spip "plug-ins" and activated from the menu of plug-in management on the private section on the Web page. The second *plug-in*, which manages Google Maps, requires a user password for Google Maps Api that is

specific to each domain. Before it can be used, the password must be obtained and entered on the configuration panel.

Through the plug-in configuration panel, it also possible to establish the location and default zoom level for the maps on the Web site.

ASSIGNING COORDINATES TO TITLES, ARTICLES AND KEY WORDS

Once the two plug-ins are correctly installed, geographic coordinates can be assigned to the articles and key words on the site.

The way to assign geographic coordinates to each article is very simple. The "change coordinates" menu must be opened on the article edit panel. One looks for the place one wants, clicks on the map and then clicks on update. To find a specific place, one can drag and zoom right on the map, or add a postal address to a small form to search for addresses.

The "change coordinates" drop-down menu on the toolbar for editing key words works in the same way as that of the articles, but does not have a forum to search for
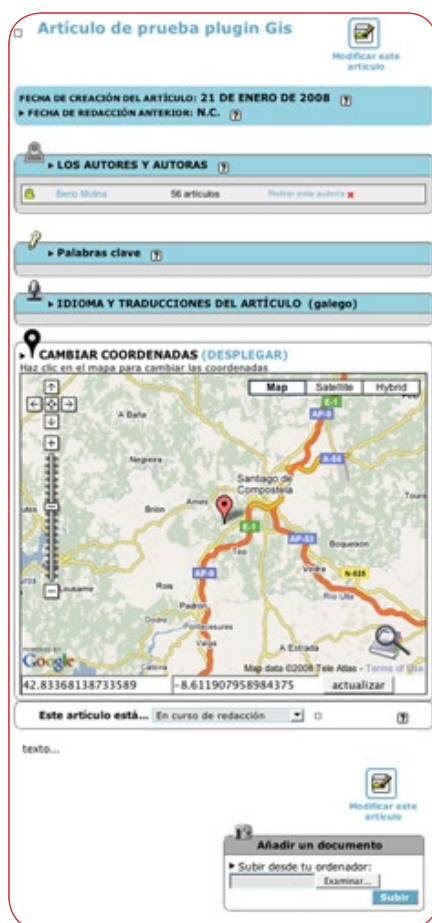

Figure 2: Toolbar for editing Spip articles following installation of Spip Gis and Googlemap_api.

a place through its postal address.

PLUG-IN MARKERS AND LOOPS

When a new chart is created in the Spip database to make a plug-in work, the plug-in must inform Spip about its structure and relations with the other charts in the database. Thus, new data can be gathered through the Spip loops and markers.

The *Spip Gis plug-in* creates two new charts in the database, "spip_gis" and "spip_gis_mots", to house the following fields: "lat", "lonx", "zoom", "id_article" and "id_mot". That is why two new loops are needed to gather data from those charts and show it through markers. Any of the skeletons on the site can use these two new loops to use the latitudes, longitudes and zoom levels stored on the Web site.

```
<BOUCLE_mibucle(GIS){id_article}{id_rubrique}>
    #LAT
    #LONX
    #ZOOM
</BOUCLE_mibucle>
<BOUCLE_mibucle(GIS_MOTS){id_mot}>
    #LAT
    #LONX
    #ZOOM
</BOUCLE_mibucle>
```

Code 1: Loops needed to gather data stored on the "spip_gis" and "spip_gis_mots" charts on the Web site skeletons.

ADAPTATION OF THE SKELETONS IN THE PUBLIC SECTION

The "carte_gis" model creates the tag <div></div> that each map contains, generates the JavaScript Code needed to create it and adds the links to Java Script documents needed for its management: "geomap.js", "customcontrols.js", etc. To add a map to the public section of the Web site, that model must simply be embedded though the Spip skeletons, writing the following line of the Code in the place where

```
[(#MODELE{carte_gis}{id_article}{id_rubrique}{id_
mot}{id_auteur}{recherche}{latit}{lonxit}{zoom}{type}
{id carte gis}{control})]
```

Code 2: Code needed to add maps to the public section of the Web site through the skeletons on the site.

one wishes to place the map.

- `{id_rubrique = int}` makes it possible to select the section where articles will be shown on the map.
- `{id_mot = int}` makes it possible to select a key word to which all the articles shown on the map must be associated.
- `{id_auteur = int}` makes it possible to select the author of the articles to be shown on the map.
- `{recherche = 'text'}` makes it possible to search in the text of the articles and shown the search results.
- `{id_article = int}` makes it possible to show a particular article on the map.
- `{zoom = int(0-17)}` makes it possible to select the initial zoom for the map.
- `{latit = float}` makes it possible to select the initial latitude for the map.
- `{lonxit = float}` makes it possible to select the initial longitude for the map.
- `{type= 'satellite' | 'carte' | 'hybride'}` makes it possible to choose whether the map will initially be seen in satellite, map or hybrid mode.
- `{id_carte_gis = 'text'}` makes it possible to assign an identifier to the map and thus create several maps on the same page.
- `{control = 'small' | 'large' | 'custom'}` makes it possible to decide which kind of controls will be shown to handle the map: small, large or custom design.

Once the "carte_gis" model is embedded through a skeleton, a map with markers will appear on the page corresponding to the public section of the Web site. When one clicks on the markers, the map will show a floating window with the heading of the corresponding article, the first image that has been attached, and an mp3 player, if

any mp3 files have been associated to it.

HOW TO SEND VARIABLES TO THE MAPS

There are three different strategies for assigning values to the variables stated on the code line through which the "carte_gis" model is embedded on the skeletons. Thus, maps on the public section can be configured and each given certain features.

The first and easiest of the strategies consists of assigning a direct value to each of the variables in the code line. This way of assigning values is limited in that the variables are no longer dynamic and are established as such on all the pages used

```
{id rubrique=72}
```

Code 3: Example of the direct assignation of the value of a variable declared on the Spip skeletons.

by the skeleton.

The second strategy consists of sending values through the URL of the Web site, when it links to it. This system makes it possible to send different values to the same skeleton and for the resulting Web site to vary depending on that information. However, care must be taken upon creating links to each page. The dynamic skeletons that vary depending on the section or article where the user is located are relatively simple to use, given that the information is always available in the URL created automatically by Spip. However, it is not advisable to send data such as

```
http://www.midominio.org/spip.php?article1&zoom=16&la
tit=42.817&lonxit=-6.617
```

Code 4: Example of assigning a value to a variable stated on the Spip skeletons through the URL.

longitude and latitude by default of the map through the URL.

Lastly, a loop in the skeleton can be created to gather data returned through other variables, to be used in the code line embedded in the model "carte_gis". Thus, it is

```
<BOUCLE_ultimos_articulos(GIS) {id_rubrique} {par
date} {inverse} {0,1}>
      #SET{valor_latit, #LAT}
      #SET{valor_lonxit, #LONX}
      #SET{valor_zoom, #ZOOM}
</BOUCLE_ultimos_articulos>


[( #MODELE {carte_gis} {id_article}
{latit=#GET{valor_latit}} {lonxit=#GET{valor_lonxit}}
{zoom=#GET{valor_zoom}} {type='satellite'} )]
```

Code 5: Example of use of a loop to send the latitude, longitude and zoom of the most recent article published on the map through other variables.

possible to assign values from the markers of a loop to the variables.

NOTES

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ARCHINAUTA: THE DEVELOPMENT OF A SYSTEM FOR INDIVIDUAL LOCATION AND AUTONOMOUS NAVIGATION.

Alfonso Cuadrado Alvarado

One of the challenges of the new technological era is the fusion of spatial systems for locating objects and subjects by position, and hypermedia navigation among digital resources on the Web. Generally used for different purposes, such as merchandise control (in production and distribution centres) versus access to information (in databases), they can be integrated into communicational applications based on existing technologies such as loss devices handled within a defined space with antennae through a Wi-Fi network.

Within this context, the Archinauta Project arose, developed by the Intermediate Research Group at the Communication Sciences School at the Universidad Rey Juan Carlos of Madrid and in collaboration with several researchers and interns from the Signal and Communications Theory Department at that university. The project is co-financed by the Universidad Rey Juan Carlos and the Comunidad de Madrid (Madrid Regional Government). The project aims to develop a pilot system making these two large types of combined services available to users through new technologies. The specific objective is the design and development of a pilot experience (through an exhibition at the Library at the Fuenlabrada Campus of the Universidad Rey Juan Carlos) in which the criteria and features of what we call an individual system for location and autonomous navigation are theoretically and practically defined. In principle, it is for the specific use of centres such as libraries, archives and museums, although it can clearly be extended to all types of communicational use in the broadest sense: for artistic, informative, recreational, tourist or sports communications.

DIGITAL SPACE AND CULTURE

The last 30 years of the 20th century witnessed the birth of terms such as cyberspace, an ethereal, imaginary place where new communications, exchanges and relations take place among all types of cultural fields and subjects. The Internet has become the new frontier for construction and exploration, following the impulse that sent humans into space in the second half of the 20th century. The Web behaves like a living, dynamic movement without known limits where knowledge is shared and

available to anyone, with widespread accessibility unprecedented in all of human history.

This new field of exploration, however, is faced with a real world that is apparently already known and explored, with no new possibilities of re-formulation. In contrast to technological work and digital conversion involving the development of contents for cyberspace, there are other research lines that aim to go against the general tendency to consider digital media as the natural direction of evolution in the 21st century. This line aims to head in the opposite direction. To what extent can cyberspace influence our everyday, real space? Or, in other words, can we overcome the duality between real physical space and cyberspace?

In this sense, various research works on augmented reality are already well-known, devices that make it possible to overlay digital media over our direct perception of reality, a proposal arising from virtual reality technologies that aims to make them a part of everyday life.

Fortunately, technological development is offering new devices that are halfway between useful items in our real space and doorways to cyberspace. GPS, mobile telephones, portable video and audio players, portable videogame consoles, and PDAs, as well as the generalization of wireless network infrastructures, constitute ideal platforms for the development of research and prototypes that enable the exercise of actions relating the two worlds. In this way, we can pursue the ideal goal of our everyday experience in real space benefitting constantly from the connection with the vast informative flow available to us in cyberspace. And what is more, from constant interaction. This is the ideological framework in which the Archinauta project arose.

THE ARCHINAUTA PROJECT
To materialize these objectives in real experience, the intermediate research group chose a type of practice and everyday setting that is quite common: the experience of a visitor to a museum or art gallery.
This experience provides the spatial framework of the museum or exhibit facilities, real physical contents, a route that is not random but planned to follow a discursive or narrative structure, and the wide informative flow that is available today on the Web.

Nowadays, a museum visit is completely standardized. Museums all have information on a Web site offering the most significant facts about the museum, information about the facilities, opening hours, services, and resources related to the contents on exhibit. Once we are at the museum, we have access to additional information through traditional means such as maps, catalogues, and guides or through newer, widespread audiovisual means: audio guides available in various languages and also in systems for the disabled (videos in sign language). At the exit, we are practically obligated to visit the museum shop where we purchase an object as a souvenir of our visit: material related to the permanent collection or temporary exhibits, catalogues, books about an artist's life and work, DVDs, postcards, posters, and so on. How can we introduce digital media into this type of experience? Can we connect the huge flow of information available on the Web or in other parts of the museum, such as the library or media archives, to these standard visits?

As mentioned above, the most common way of expanding the contemplative experience of a museum or exhibit is by using a guide or its technological version, the audio guide, which basically is no more than an audio version of the catalogue text. The contents are closed, given that they only offer information on one type of media, audio, and it is difficult to update or personalize the contents (any change would mean new contents would have to be recorded on the device, or a type of technology found that enabled interactivity sufficient to make a truly personalized selection).

In a recent advance, the sound files usually found in audio guides can now be downloaded from the Web sites of some institutions and saved after the museum visit, even used on personal devices like mp3 players or mobile phones. However, audio guides are systems with almost no interactivity, given that this information is contained in a closed environment in which the user cannot intervene to make lasting changes.

> "The day will come when museums will no longer monopolize the control of information and people will play a growing role in creating shared contents."[1]

This quote by Will Gompertz, the director of Tate Media, foreshadows a new view of museums not as cathedrals of one-way knowledge but rather as new centres of shared cultural interactions. For that to happen, research must be carried out on how to create communication among all the contents and interactivity for visitors, who

will no longer be only viewers but instead, users, as they are on the Internet or in videogames.

If we find a system that allows users to move around museums the way they move around the Web, where their experience remains as a contribution outlasting their physical visit, we will redefine the concept of museums. They will become the tip of the iceberg, hiding a network of relations among physical and digital contents, hidden in real space but visible through cyber space.

Structure of the Archinauta concept

The core of this new experience with the user and space is a combination of certain hardware and the development of software that manages it properly. The hardware is a PDA configured as the ideal device given its versatility, small size, and large capacity to hold all kinds of contents, including texts, audio, video, and photographs, as well as offering the possibility of user interaction.

From a conceptual point of view, the system's functional outline is based on three pillars: the **mobile device**, a **database** and a **geo-location system**. The latter will enable the system to identify the position of the user in space and make the appropriate contents available to the user at each location. These contents are not completely pre-recorded in the device, like an audio guide, but rather are sent through a server, which means they can be configured as selected by the user or can be changed several times over the course of the exhibit without having to re-programme or record new contents on each device. Enabling the device to allow

geo-location expands the systems possibilities, making it a genuine spatial assistant. Let's imagine a visitor wants to make a visit to a museum in a certain amount of time or according to a prior selection of contents (e.g., a visit to see only the works of one of the painting schools at the museum). This option can be chosen from an available menu and the system will indicate the route to be taken. If time is limited- say the visitor wants to see the best of the museum in a couple hours- the system will guide the visitor through the best route in the prescribed amount of time.

Once the visitor reaches a particular space, the system detects his or her position and places on the screen the contents available at that area. Images, audios, videos, etc. This selection of contents can be modified to meet the breadth or depth of complementary contents chosen by the user. These contents can also be stored and remain selected, much as we usually save bookmarks or favourites on the Internet. The system works not only from the database to the user but also from the user to the database. At the beginning of the visit, the user starts a session and all the user's actions and information selections are stored on the server.

At the end of the route, the selection can be erased or saved in several ways: the contents can be stored on a CD-ROM and related to free or paid contents the museum has in digital format (versions of the catalogue, images, a bibliography of the museum's library collection, etc.). Thus, the usual purchase of printed material (catalogues, books, postcards that we make at the end of the visit would be completely personalized, in breadth and depth, depending on our interests. We could take home with us all the information available on a sole artist or work, without having to buy the whole catalogue to read just one part.

It is also possible to pre-design specific contents for different types of users, which can be done easily thanks to a dynamic platform like a server, for groups with certain interests such as students or specialists.

The centralization on the server of a complete history of the user's activities and movements provides additional information for museum management that is currently hard to come by: the session allows us to record not only the public's favourite contents but also information such as how much time was spent on certain contents, visits, spatial distribution, etc.

PILOT EXPERIENCE: "THE PILLARS OF THE CINEMATOGRAPH"

The Archinauta project will be carried out in a prototype installation to be built

in the exhibit hall at the library of the Communications Sciences School at the Fuenlabrada Campus in January 2009. The exposition will be about a subject related to the programme in audiovisual communication: the pillars of the cinematograph, particularly the "pre-cinema" world and all the technological and conceptual breakthroughs that led to the birth of cinema in the late 19th century.
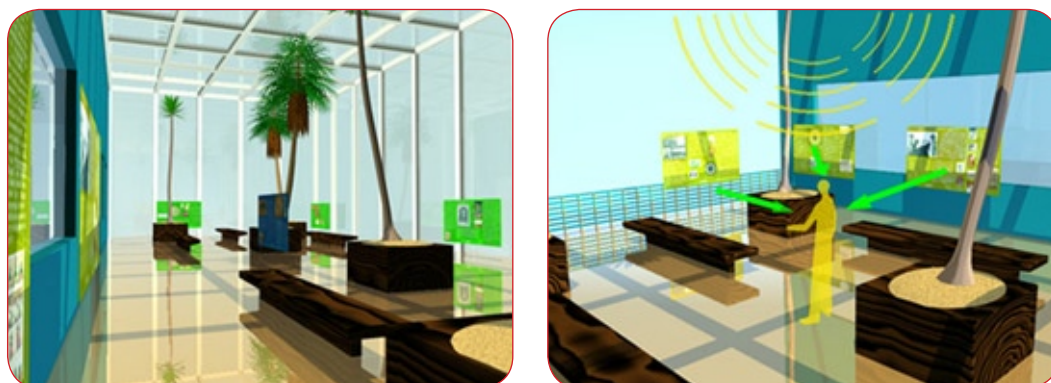
Installation Project for the exposition "Pillars of the Cinematograph" at the Palm Hall at the library at the Fuenlabrada Campus of the Universidad Rey Juan Carlos de Madrid.

Although the necessary hardware and software are available on the market, a double development is needed for the software, at both the *back end* (the design of the system relating the Wi-Fi network with the user's PDA device) and the *front end* (the design of the application or the user's graphic interface, related to functions, services, contents and resources provided). The pilot experience is based on the existing installation of a Wi-Fi network at the Library at the Fuenlabrada Campus of the URJC *(Universidad Rey Juan Carlos de Madrid),* installed and maintained by the University's Telecommunications Engineering School.

The installation will consist of nine spaces tracing a route from the boar in the caves of Altamira to the cinematograph of the Lumières. Each space is grouped around a print, an attitude that inspires certain technologies that came together in cinema: *imagination, fascination, fabulation, figuration, simulation, projection, animation, reproduction* and *the cinematograph*.

Cinema as we know it was developed between the Lumières and Griffith, quickly becoming the major art form of the 20th century. Today, when its specificity is transmuted on the Internet, its place in the evolution of audiovisual media is still significant in the sense of forming a link between the media that preceded and succeeded it.

The starting point for the overview is the general principle of *image-ization*: the perpetual human desire to make and see images whose various purposes can be summed up as: serving to mediate between humans and the world. There is, however, a purpose common to all cultures, in which images turn back on themselves, which leads us to our second step: *fascination* with surprises and

Panel from the IMAGINE-ATION section

astonishment at textual artifice. The development of Western society is however limited by two large, powerful ideas that mark the history of images: *fabulation* and *figuration*. The next stepis be *simulation*: the will, based on the invention of conical perspective, of making an image pass through the world represented in it. In this narrow setting of simulations, we find the technological precursors to the cinematograph, "images in motion": *projection*, with the magic lantern, *animation*, with optical toys, and *reproduction*, with photography.
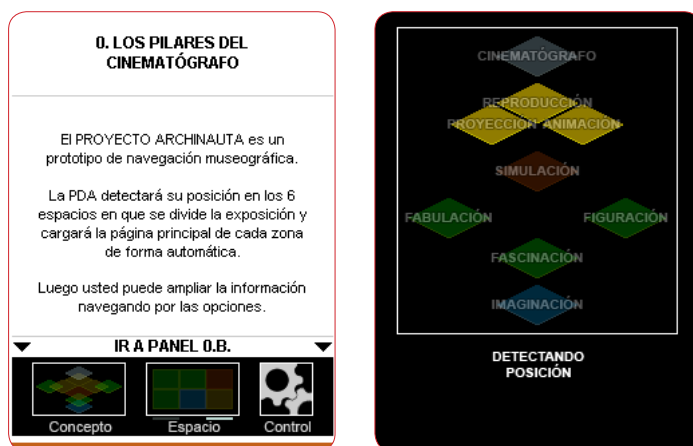
The exhibit outline is shown on the PDA at the beginning

Each space has a panel showing textual and graphic tasks.

The way that the user can realize that there is an interaction between the contents seen directly on the panel and what is offered on the PDA is that there are common
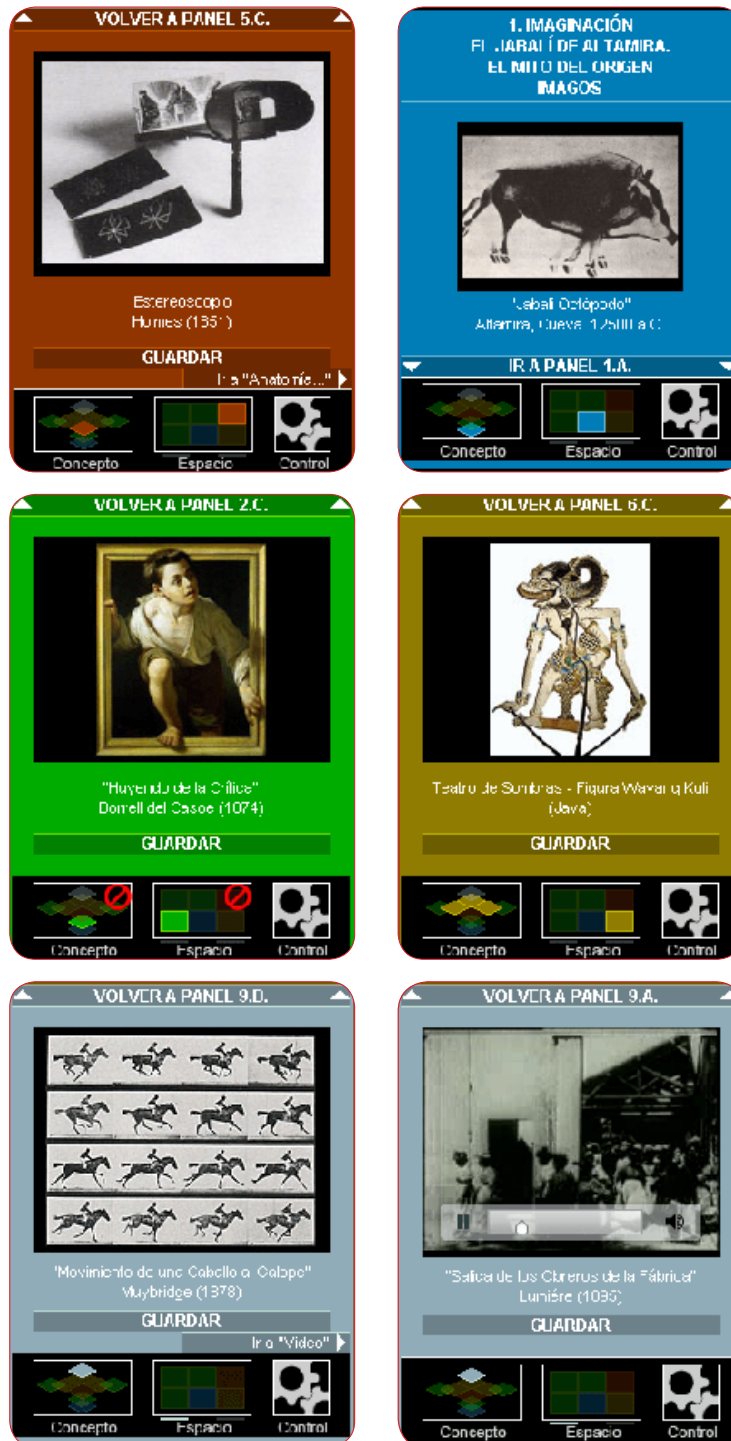
Various contents shown on the PDA..

reference elements that can be identified to show that the mobile location system has recognized the user. To that end, a series of coloured codes have been developed that correspond to each of the sections of the exhibit, which are present on the physical panels shown in the hall as well as the background colour of the contents shown on the PDA.

A series of special contents about the pillars of the cinematograph were created for the occasion: a selection of images from trompe d'oeils to the magic lantern, audios that complement the texts on the panel, 3D recreations of three-dimensional spaces and a selection of fragments of cinema works.

The location system creates a constant reference on the PDA to where we are located spatially in the exhibit as well as where we are along the timeline of technology prior to the cinema, if we understand it as the narrative development of a discourse. In a way, this is similar to knowing what part of the structure we are in within habitual concepts of navigation through multimedia structures. This is an important point given that this way, it is possible to relate space and contents not only as an architectonic container but also as a representation of textual space.

Red, green and blue are used to highlight points in the text where the user can activate contents on the PDA.

The PDAs are permanently connected to a remote server. There is a proxy inserted into the system that detects the position of each PDA and requests information from the server that not only requests contents but also indicates the name or number and position of the user to provide him or her with the contents indicated for that position.

The panel design goes beyond the mere graphic representation of a text and still images. It behaves like an enlarged physical version of hypertext. What we call "hyperlinks" are underlined on the panel, points that inform the user of where to find contents associated with those key words on the PDA.

The contents of the exposition are by Luis Alonso, who is a member of the Intermediate group and an historical advisor for various exhibits on the origins of the cinematograph. Other project members are: Alfonso Palazón, Pablo Prieto, Raquel Sardá, Emilio Montanet, Antonio Lara, Javier Ramos, Antonio Caamaño, Julio Ramiro, Mark Richard Wilby and Juan José Vinagre.

NOTES

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FRONTIERS AND TERRITORY IN CYBERSPACE. METRIC PRINCIPLES FOR GEO-LOCAL INDEPENDENCE ON THE WEB

Jesús Moreno Hidalgo

1.- ABSTRACT

The report titled *"FRONTIERS AND TERRITORY IN CYBERSPACE. METRIC PRINCIPLES FOR GEO-LOCAL INDEPENDENCE ON THE WEB"* is a development of the **knowledge area** of the **educational projects of area421** (http://www.area421.com) and it aims to reflect the difficulty of achieving certain globality levels for websites, regardless of their categorization, as well as help to understand the method by which a website achieves visibility on the Internet through its contents.

Between December 6, 2007 and January 2, 2008, 44 websites with differing characteristics and structures were studied, primarily to find relations between cyberspace and physical territory, as well as explore little-studied cybermetric methods which would make it possible to establish conditions for future studies. Geo-citations and territorial citations were chosen to establish websites' globality level, and to verify the degree of dependency of the website on the place or territory from which it is managed. For that purpose, three terms were defined:

GEO-CITATION: Citation given in cyberspace (Internet contents) referring to a physical territory.
LOCAL GEO-CITATION (gl): Geo-citation referring to the physical location from which a website is created or managed.
EXTERNAL GEO-CITATION (gx): Geo-citation referring to any physical location that is physically or culturally distant from the place from which a website is created or managed.

This makes it possible to establish rankings comparing the sites that were studied. A detailed study of the geo-citations makes it possible to establish hidden relations of an economic, cultural, social, educational, political, historical or personal nature.

44 websites (72,897,439 web pages) were chosen, operating from what we call the *local level*-- such as alternative arts centres-- to what we consider the *global level*:

large social networks that operate worldwide whose domains are top brand names for cyber users. For the levels we consider closest to the territories, websites from the cultural sector were chosen for three reasons: first, because they are sufficiently globalized; second, because they are structured territorially; and third, given their communication structure. Among websites we consider corporative, they tend to reflect continuous activity, store it, and include outside activities, given that they usually publish the sources and primary activities of artists or lecturers. They consist of alternative centres, art galleries, art centres and museums. At what we understand *a priori* to be the intermediate level, highly specialized social websites in the cultural sector were chosen. The communications of these websites tend to reflect the same activities as the corporative cultural websites, channelling or grouping them, with similar objectives, though less closely tied to the territory. Our intent was to establish the possible difficulties in reaching acceptable levels of globality and whether the social conditions exist for the boom in local journalism in the cultural field. For what we consider globalized levels, large social network names with verified continuous activity were chosen, divided into three groups: social communication networks with secondary sources, social networks for community and bookmark sharing, and social repositories. Our purpose was to establish whether these services are really globalized, if their ties to the territory is greater or lesser than what one believes by default, where their boundaries are, and whether the different commercial or social objectives of these services imply a difference in their degree of globalization, given that these objectives require some degree of human involvement from the user and, as a consequence, a greater cultural and territorial implication.

For the geo-citations, 19 large capital cities were chosen from Europe, the Americas and Asia. None of them were involved in armed conflicts or media conflicts (sports, etc.) during the time the study was carried out. Relatively simple cybermetric delimiters were used and several classic applied cybermetrics measures were used, such as the size of the website, its visibility on the Internet, the page rank, web impact (WIF) and relative popularity, to verify whether a relationship existed between geo-citations and these measures. When possible, the laboratory tool Google Trends was used, which establishes the source of user searches on Google Search.

From 3 to 22 January 2008, the results were analyzed, conclusions were reached, and the report was written.

Our primary conclusions were: 1. The majority of websites are very close to the physical territory from which they come. 2. Globality is more of a supposition than

a reality in cyberspace. 3. Local journalism has a natural place on the Internet. 4. An institution's cultural, language, social, historical, personal, market, etc. relations are reflected in the website representing it. 5. Geo-citations are a valid tool for determining hidden relations.

To summarize our general conclusions, of the 44 websites studied, none shows complete geo-local independence; only 2 (4.5%) achieved 50% of the highest score possible; and only 7 (15.9%) -all of them social networks- achieved over 33% of the highest score possible. The primary geo-citation on over 70% of the websites studied is their local geo-citation. Art centre websites score higher if they include participation options and a social network on their websites. In addition, in general terms, users are searching for a particular Web resource belonging to the same territory or kindred territories to the physical location of the website and in the majority of cases they share the same language or one of the languages offered on the website. Lastly, we would like to point out that the classical statistics gathered by cybermetrics do not of themselves measure territorial independence.

The report also includes a detailed study of the results obtained for each of the websites where it was possible to analyze hidden relations of a historical, cultural, social, economic, personal, etc. nature for the entities that were studied.

Key words: territory, geo-citation, territorial independence, cybermetrics, hidden relations, networks and physical space, globality, geo-local independence, local journalism *(territorio, geo-citation, independencia territorial, cibermetría, relaciones ocultas, networks y espacio físico, globalidad, independencia geolocal, periodismo local)*

2.- METHODOLOGY, METRIC PRINCIPLES AND DIFFICULTIES

The purpose of the report is to look for hidden relations between physical space and digital networks. A precedent for this type of study was carried out by Victor Herrero-Solana and José Morales del Castillo in 2004 (*"Geopolitical" maps of the Internet: application of new information representation methods*), which established relations among different universities using a method which combined MDS (Multidimensional Scaling) and website co-citation analysis (Larson, 1996), which is based on joint citations that two websites receive from the same page. The authors established a map of relations among universities that showed political, historical and personal relations among the members of various universities. One of their most noteworthy conclusions showed that four universities located in former East Germany maintain

relations with universities located in Warsaw Pact territories, while four universities located in the former German Federal Republic did so with universities with whom they had historical ties.

To establish the degree of relations between the website and its physical location, the first step was to choose the type of site to be studied. Several groups of sites were considered for the study (in the ABSTRACT, the selected groups were mentioned. *Table 1* in the complete report shows the websites classified by group and domain). Although the classification by groups is separate from the study, and some sites are difficult to place given that they could belong to more than one group or no particular group, they are presented this way in the report in keeping with the reasons for including them:

1.- Alternative Art Spaces. They are assumed to be closely tied to their territory, and even to the neighbourhood where they operate. Their websites, like other cultural websites, reflect their activities and those of the artists and thinkers who pass through their physical headquarters.

2.- Art Galleries. Although they are quite localized, a recent need to attend art fairs has made their work much more globalized. To gain admittance to major fairs, they must present a list of exhibits with international artists and represent them in their territory.

3.- Art Centres. The new Art Centres tend to use their physical headquarters to culturally and socially structure their territory. Closely linked to the society that encompasses them, from the local to the global scale, they usually make use of new technologies. Their internal structures are somewhat more horizontal than museums' and, at times, prevent the accumulation of works in the form of collections. Their purpose lies in the activities they carry out, based on transversality and a multidisciplinary approach.

4.- Museums. Museums hold large exhibits with significant media impact. They generally have large budgets and prestigious collections. Their use of communication via the World Wide Web varies greatly and generally is not in keeping with their large budgets. But as a curiosity, the selection includes the Digital Art Museum, a project of a gallery in Berlin.

5.- Social Networks Specializing in Art. These websites correspond to public and private projects which tend to render social services for cultural communication. They are free and offer unlimited use. They tend to reflect the reality of cultural entities, grouping them or channelling them, with some degree of intervention by the

managers. Their purpose is social and globalizing.

6.- Secondary Source and General Social Communication Networks. These websites have spread widely. We have chosen only two: digg.com, the pioneer all the others have followed, and meneame.net, the most successful version of digg.com in Spanish. Users, who share news in which they have a personal interest, love their general character. The news items are expected to include their cultural and territorial interests.

7.- Social Networks for Community and Bookmark Sharing. These websites tend to create online communities. Users share posts on their blogs, their favourite websites or where they are at the moment. Structurally, they are different from the previous networks because generally they do not offer categories and contributions that are categorized by tags. The majority of them require direct intervention by the user, whom we expect to include his or her cultural interests. Some offer claim and ping services from reading blogs and syndicated channels automatically. Therefore, they are more automatic than the previous group. They are intended to be used at a global level.

8.- Social Repositories. On these websites, users share photos, videos or files with other users. The services are free of charge and automatic. Some of them can be used to store back-up copies. They are very successful, whether their ownership is public, semi-public or private. They require intervention by the user and some (Flickr) are translated into several languages. They aim for a high degree of globality.

After the groups and locations were established, specific websites were chosen. The work unit is the website, defined as the "*basic documentary unit which independently expresses an institutional presence on the World Wide Web*" (*Factor de impacto y visibilidad de 4.000 sedes web universitarias*, Equipo del Laboratorio de Internet Centro de Información y Documentación Científica (CINDOC-CSIC) Isidro F. Aguillo Caño et al., 2005). Based on that, we established a website as "*one web page or a set of them hierarchically linked to a home page, identified by a URL, which forms a recognizable documentary unit independent of others due to its subject, authorship, or institutional representation*" (Arroyo y Pareja, 2003). This revealed the first obstacle, given that the set of pages may be nested at different levels. To study them, an attempt was made to establish their principal site; that is, the one which encompasses different types of pages (personal, by language, by theme, etc.), usually classified into sub-domains. This can only be done manually, testing whether the website contains sub-domains not included in the usual syntax of *www.dominio.xxx*.

The physical geo-location of the website also had to be established manually. On some occasions this caused difficulties, because only legal or special service pages (for example, privacy policies or how to apply for a job) show the physical location of the site. In certain cases, the location changed over time, when the companies were purchased by others who moved their offices to other places, such as Delicious, now located in Sunnyvale near San Francisco, but which started out in New York. In these cases the main headquarters was identified as the place where the company began, to show centrifugal growth from the place where the idea arose and was the website was created. As the headquarters appears only on legal pages, it is possible that the headquarters where the company is located is only a legal headquarters, where taxes are paid, while the company has offices in a different physical location. This could give rise to a margin of error and falsify some results. However, it is understood that the detailed analysis of geo-citations may reveal hidden relations that identify a certain human factor such as a personal or cultural relationship. Before continuing, the language or main languages of the websites were established personally, given that information may constitute the first boundary, and the establishment of several languages may be the first sign of a will to break down cultural boundaries or bring them a little closer.

Once the geo-location and language(s) were established, several common cybermetric measures were chosen, to compare them with geo-citation and territorially-based figures to be determined subsequently. The size of the website, its visibility, Page Rank, Web impact (WIF), and relative popularity were established.

Cybermetric techniques were used to attain these measures. Researchers use various terms for the quantitative information analysis techniques applied: scientometrics, bibliometrics, informetrics and more recently, cybermetrics (Faba; Guerrero; Moya, 2004). Bibliometry was found in the *statistical bibliography* established by Hulme (1923), which was later replaced by the term bibliometrics (Pritchard, 1969). Scientometrics and informetrics appeared after 1980. At the start of the 21st century, Cronin (2001) said that methods used in biblio-sciento-informetrics could be applied to the Internet environment. Cybermetrics can be defined as the "*discipline that measures various aspects of the Internet using quantitative bibliometric techniques shown to be especially powerful and that can be used to describe Web resources*" (Aguillo, 2000). The application of these informetric techniques to the web environment led to web metrics, defined as "*the science comprising research of all network communications using quantitative measurement*

techniques" (Almind; Ingwersen, 1997). Two of the primary techniques used in web metrics are citation (or sitation) analyses of websites (Rousseau, 1997) and the analysis of web impact factors (Ingwersen, 1998).

Those measures were made using cybermetric delimiters on search engines and Web tools. Search engines are a basic, essential tool in cybermetrics given the large number of pages indexed, the simplicity of using them, and how quickly they show data. However, Bergman (2001) estimates that the deep or invisible Web is 400 to 500 times larger than the one indexed by search engines. Therefore, the size of the website (the number of pages on the site) and its visibility (the number of external sites linked to a given website) as well as the WIF or Web Impact Factor (Visibility/size of the website) are always relative, given that they do not measure the real scope of the Web. Nonetheless, as Aguillo said, "*the idea of the Web Impact Factor is based on Garfield's impact factor, which measures the repercussion of a scientific publication in the literature by the number of citations it receives. It was first formulated by Rodríguez i Gairín (1997), and subsequently defined by Ingwersen (1998) as 'the total sum of the number of web pages with external and auto links leading to a particular country or site, divided by the number of web pages found in that country or site, at a given time. Thus, the numerator consists of the number of pages with links, not the number of links.' A relative index results from dividing by the number of web pages of the site, thus overcoming one of the problems related to the visibility indicator.*" The comparison made by Aguillo (2005) between Page Rank (establishing the relative significance of external links) and bibliographic citations (ISI, etc.) considers search engines' algorithmic operators to be highly valuable tools.

In *Tables 2 to 9* in the complete study, the classic cybermetric results for each of the sites studied are shown. In the study, website size was established with the delimiter *site:* for Google and with the tool *Site Explorer* for the Yahoo! Search engine. The larger of the two figures established as the size, identified on the tables with a (Y) if the larger number was provided by Yahoo! or (G) if by Google. For visibility, the same tool on Yahoo! was used, External Links, selecting the option *"all pages" "the whole site"*. Visibility on Google was not measured with the delimiter *link:* but rather by looking for citations of the site domain on external websites. If the Yahoo! number was chosen to determine website size, visibility and WIF were established with the same tool. If the website size was chosen from data provided by Google (because the number was bigger), visibility and WIF were established with the same tool. The following chart shows the ranking of the sites by Web Impact Factor (WIF):

Factor de Impacto Web (WebIf)
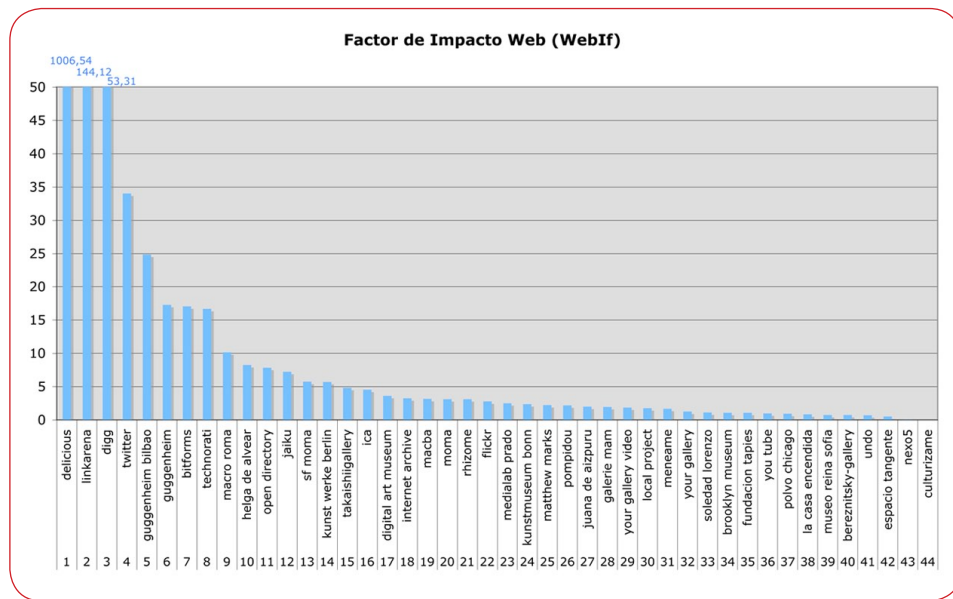
Among the problems found, it is worth pointing out that two of the websites chosen have deceptively small sizes: two Spanish art galleries, Juana de Aizpuru and Helga de Alvear. The former has a very low indexing rate due to the use of frames in its web communication structure. Although the size of the website does not determine the geo-citation, such a low indexing rate makes it impossible to carry out the study, given that it completely falsifies all the results. Although outside the scope of this report, we would like to point out that both have a very low visibility index, a difficulty resulting from citing only the main page of other websites. This communication approach using the deep web works against the visibility of their site, their physical headquarters, their activities, and those of the artists they represent. Their cybermetric measures should be considered null, except Page Rank, visibility, and relative popularity.

Page Rank is automatically established by using the tool provided at http://rankwhere.com, taking care to apply its search to the same website (according to the above definition) being studied. To determine relative popularity, the tool ALEXA (http://www.alexa.com) was used. In some cases, ALEXA did not yield results, perhaps as a result of sites created recently or not registered on its database. A list of the selected sites is as follows:

Table 1.- List of groups and sites studied.

| #	nombre / name	site	localización / place
1	**Espacios alternativos**		
1	espacio tangente	www.espaciotangente.net	Burgos
2	polvo chicago	www.polvo.org	Chicago
3	local project	www.localproject.org	New York
2	**Galerías de arte**		
4	bereznitsky-gallery	www.bereznitsky-gallery	Berlin
5	galerie mam	www.galerie-mam.com	Vienna
6	helga de alvear	www.helgadealvear.com	Madrid
7	soledad lorenzo	www.soledadlorenzo.com	Madrid
8	juana de aizpuru	www.juanadeaizpuru.com	Madrid
9	bitforms	www.bitforms.com	New York
10	matthew marks	www.matthewmarks.com	New York
11	takaishiigallery	www.takaishiigallery.com	Tokyo
3	**Centros de arte**		
12	kunst werke berlin	www.kw-berlin.de	Berlin
13	brooklyn museum	www.brooklynmuseum.org	New York
14	medialab prado	medialab-prado.es	Madrid
15	la casa encendida	www.lacasaencendida.es	Madrid
16	fundacion tapies	www.fundaciotapies.org	Barcelona
17	ica	www.ica.org.uk	London
4	**Museos**		
18	macba	www.macba.es	Barcelona
19	museo reina sofia	www.museoreinasofia.es	Madrid
20	macro roma	www.macro.roma.museum	Roma
21	kunstmuseum bonn	www.kunstmuseum.bonn.de	Bonn
22	sf moma	www.sfmoma.org	San Francisco
23	pompidou	www.centrepompidou.fr	Paris
24	guggenheim	www.guggenheim.org	New York
25	guggenheim bilbao	www.guggenheim-bilbao.es	Bilbao
26	moma	moma.org	New York
27	digital art museum	dam.org	Berlin
5	**Webs sociales especializadas en arte**		
28	nexo5	www.nexo5.com	Madrid
29	undo	www.undo.net	Milano
30	culturizame	www.culturizame.net	Madrid
31	rhizome	rhizome.org	New York
32	your gallery video	video.saatchigallery.com	London
33	your gallery	www.saatchi-gallery.co.uk	London
6	**Webs sociales de comunicación de fuente secundaria y de carácter general**		
34	meneame	meneame.net	Mallorca
35	digg	digg.com	San Francisco
7	**Webs sociales de comunidad y compartición de bookmarks**		
36	twitter	twitter.com	San Francisco
37	jaiku	jaiku.com	Helsinki
38	delicious	del.icio.us	New York
39	technorati	www.technorati.com	San Francisco
40	open directory	www.dmoz.org	Washington
41	linkarena	linkarena.com	Berlin
8	**Repositorios sociales**		
42	flickr	www.flickr.com	San Francisco
43	you tube	youtube.com	San Francisco
44	internet archive	www.archive.org	San Francisco

Prior to continuing, the cities hosting the websites to be studied were chosen, to offer a sufficiently global overview. The following cities were chosen and the following delimiters were used in the searches:

Table 1b.- External geo-citations and delimiters

geocitas externas / external geocites	delimitadores / delimiters
New York	"new york" OR "nueva york"
London	"londres" OR "london"
París	paris
Berlín	berlin
Madrid	madrid
Barcelona	barcelona
Milan	"milan" OR "milano"
San Francisco	"san francisco"
Los Angeles	"los angeles"
Miami	miami
Tokyo	tokyo
Beijing	"beijing" OR "pekin"
Sydney	sydney
Singapore	"singapore" OR "singapur"
Seoul	"seul" OR "seoul"
Mexico	"mexico city" OR "mexico df" OR "ciudad de mexico"
Buenos Aires	"buenos aires"
Moscow	"moscow" OR "moscu"

The cities were chosen according to simple criteria: they were not involved in any conflict or situation bringing visibility to them currently; they have a significant number of inhabitants; and they have a large or certain degree of cultural and/or economic significance. A special effort was made to include some locations in emerging nations with sufficiently vigorous technology. For the delimiters, Spanish and English writing was used to prevent overlapping results, and care was taken not to confuse nations with cities, e.g., Mexico. The state of New York is usually abbreviated as NY, which distinguishes it from the city (NYC). On occasion, some results had to be subtracted, as was the case with *digg.com,* where all references to Paris Hilton—a significant number-- had to be subtracted from results for "paris". The word "seul" could not be searched for on some websites offering the French language among their pages, given that in French, the word "*seul*" means alone (adjective). Written accent marks did not constitute a problem because search engines (such as Google) treat them as if they did not exist, with the same results for "mexico" and "méxico".

Prior to the start of the study of geo-citations and territorial independence, Google Trends, the laboratory tool, was used where possible. This tool determines the territorial origin of searches for key words, as well as the language most commonly chosen by users. No references to this tool were found in other cybermetric reports, and therefore its use is not compared as a contributor of true measures. However, images of all results found were saved, and are included in *APPENDIX 2* of the full report. Defining the key word(s) also presents difficulties in this tool, given that one must attempt to determine which are most commonly used by users, for different results arise from searching for *Reina Sofía*, *Museo Reina Sofia*, and *Reina Sofia Museum*. In this respect, the key words were chosen that came up as the first search result on the usual search engines. There are no results for a fairly high percentage of websites on Google Trends, given that this tool provides information only for quite common key words. *Table 10* of the full report shows results obtained with this Google tool. The results obtained from this tool for *Brooklyn Museum* are shown below:
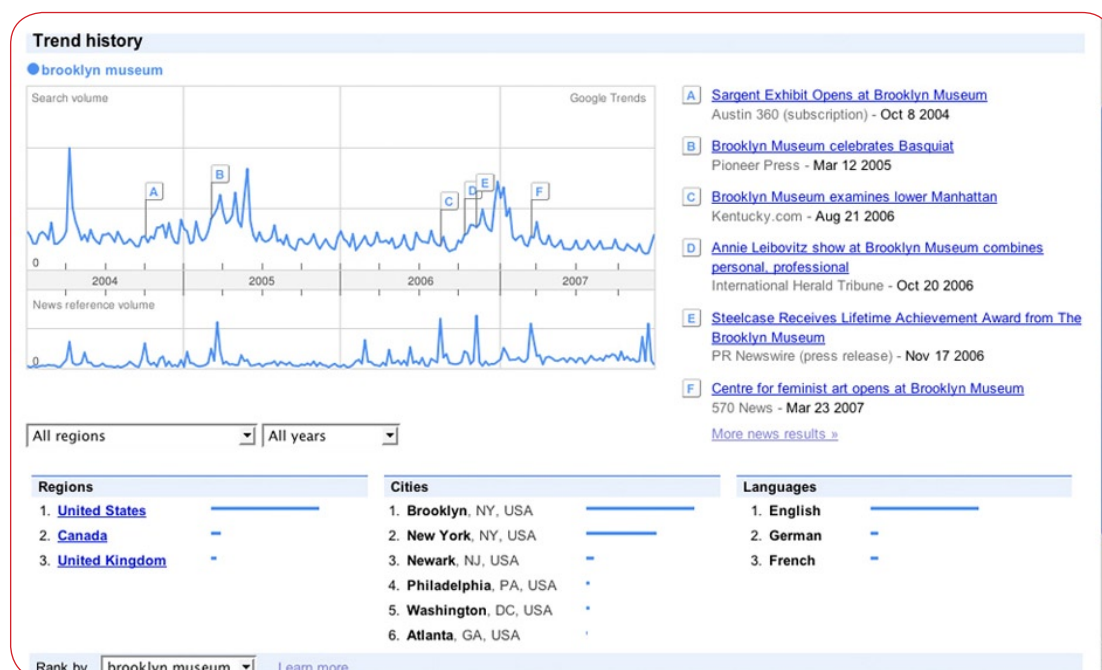
Having established the above, the next step was to find out how many geo-citations the website offered with respect to its physical location, which we have termed local geo-citation. To do so, cybermetric delimiters were used on the Google search engine. No other search engine was used given that relative measures were sought, and there was no point in duplicating results.

In spite of its apparent simplicity, the system is not free of difficulties. For example, the results can be falsified if the physical address appears as a signature on every page on the site, for the geo-citation would be present on every page. In these cases, texts including that signature had to be found and subtracted from the overall sum, so that the local geo-citation provided a reflection solely of activity at the physical headquarters. Another problem was the inclusion of the local geo-citation in the number of total pages. On those occasions, the search had to be limited to the text only (Google offers this option with the delimiter *intext:*). The same problem arises when the domain name includes the local geo-citation. That delimiter solves the problem, given that the search is carried out only through the text on the pages, not the names or URLs. It is easy to imagine that some problems do not arise separately but are added to others and overlap. A special effort was made to avoid them by using delimiters and subtracting results.

LOCAL GEO-CITATION LEVEL *(NIVEL DE GEO-CITATION LOCAL)* **(Ngl)**: Number of times the physical headquarters of a website is cited on that website.
Having obtained the LOCAL GEO-CITATION LEVEL (Ngl), the search was undertaken for geo-citations of the locations chosen, which we have called *external* geo-citations, in contrast to *local* geo-citations. The following formula was applied to these values:

RELATIVE EXTERNAL GEO-CITATION LEVEL *(NIVEL RELATIVO DE GEO-CITATION EXTERNA)* **(NRgx)**: Percentage of a given geo-citation with respect to the local geo-citation.

NRgx = (gx*100) / Ngl

where *gx* is the amount obtained for the external geo-citation and *Ngl* is the amount previously obtained for the local geo-citation.

Thus, the RELATIVE EXTERNAL GEO-CITATION LEVEL *(NIVEL RELATIVO DE GEO-CITATION EXTERNA)* (NRgx) is obtained.

NRgx > 100 = The external geo-citation has a greater presence than the local geo-citation

NRgx < 100 = The external geo-citation has a smaller presence than the local geo-citation

NRgx = 100 = The external geo-citation has the same greater presence as the local geo-citation

TOTAL EXTERNAL GEO-CITATION LEVEL (NIVEL TOTAL DE GEO-CITATION EXTERNO) (NTgx): Relative level of independence of a website with respect to the physical headquarters where it is produced or managed. Sum of relative external geo-citation levels divided by the number of geo-citations given.

$\sum$NRgx/ngx shows the TOTAL EXTERNAL GEO-CITATION LEVEL (NTgx), a relative result that will provide a summation of the external geo-location level with respect to local geo-citations, where *ngx* represents the number of external geo-citations the site received in this study.

NTgx = $\sum$NRgx/ngx

This arithmetic mean improves the result of the summation, given that websites with physical headquarters located at one of the external geo-citations chosen are partially compensated for as the system does not allow a local geo-citation to qualify also as an external geo-citation. The higher the number is, the lower the dependence of the site on its own physical territory. The system reflects the tendency to provide signs on the site of the culture, education, language, personal relations, history, physical frontiers, market niches, etc. of the site's creators or administrators. However, *NTgx* can be deceptive in some ways, given that a high number can be obtained with only one heavily weighted external geo-citation. To partially mitigate this, in addition to the *NTgx,* the DEGREE OF GEO-LOCAL OR TERRITORIAL INDEPENDENCE *(INDEPENDENCIA GEOLOCAL O TERRITORIAL DE GRADO)* (*IgZ*) is provided, calculated based on the following formula:

LOCAL OR TERRITORIAL INDEPENDENCE (IgZ): Geo-local independence of a website with respect to an established *NRgx*.

IgZ = (gxa / ngx)*100

where *gxa* is the number of external geo-citations over a given local geo-citation level, and *ngx* is the total number of external geo-citations the site has received.

Four degrees of geo-local independence were established:
Ig1 or degree 1 [external geo-citation level(NRgx) > local geo-citation(Ngl)],
Ig2 or degree 2 [external geo-citation level(NRgx) > 75 % local geo-citation(Ngl)],
Ig3 or degree 3 [external geo-citation level(NRgx) > 50% local geo-citation(Ngl)],
Ig4 or degree 4 [external geo-citation level(NRgx) > 25 % local geo-citation(Ngl)].

GEO-LOCAL INDEPENDENCE (Ig): Relative level of independence of a website with respect to its physical headquarters (local geo-citation) and the remaining sites given (external geo-citations).
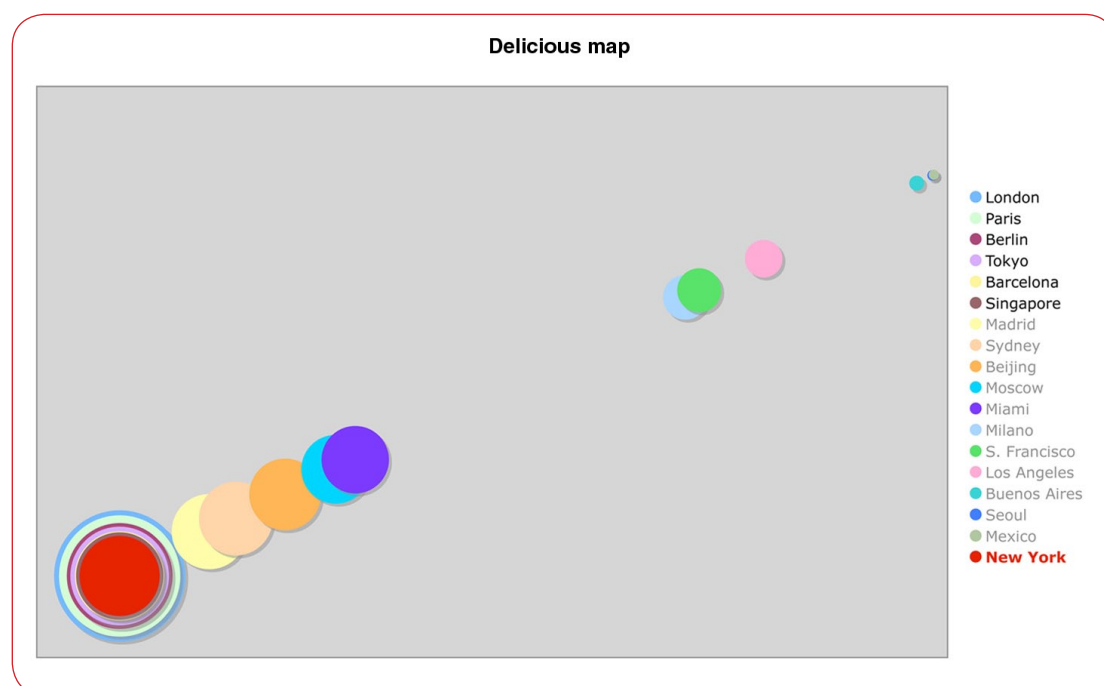
The summation of the 4 degrees (Ig = Ig1 + Ig2 + Ig3 + Ig4) establishes the total level of GEO-LOCAL INDEPENDENCE (*Ig*).

It is defined mathematically by the following formula:

Ig = Ig1 + Ig2 + Ig3...+ Ign = ∑IgZ

As the level of independence according to the degrees accumulates, the results become more precise. Thus, a high external geo-citation level (*NTgx*) can be accompanied by a low *Ig*, which indicates independence of the location of origin but very high dependence on one or only a few external geo-localizations. A result of *IgZ = 0* means that no external geo-location was over the level required for the degree (> 100, > 75, > 50 ó > 25) and, therefore, its degree of territorial independence is null for that degree. A result of *IgZ = 100* means that all the external geo-citations were higher than the level required for the degree and consequently, the territorial independence level is at its maximum amount. With a filter of 4 degrees, the maximum level for *Ig* that can be reached is 400, which means all the external geo-citations were higher than the local geo-citations. With this filter, a level of *Ig = 0* means that no external geo-citation was higher than 25 % of the local geo-citation. Higher degrees of filtering would have led to even more precise results.

Several additional difficulties arose in addition to those mentioned above in obtaining absolute measures of external geo-citations, related to differing web structures.
In some cases, the highly hyper-textual structure of the site, the use of tags, etc., provided identical measures for all the geo-locations. In these cases, (nexo5.com) the measures that the search engine considered as identical or similar to those previously shown were eliminated. Thus, the figures were reduced to amounts that were more real. It must also be pointed out that the amounts provided by the search engines vary, even within the searches themselves. This did not have an effect on falsifying the results, given that the variation is very small, percentage-wise. *Table 11* in the full report shows the results of *Ngl* and *NRgx* for all sites studied. *Tables 12 to 19* in the full report show the results of *NTgx*, *IgZ* and *Ig* for all sites, with a breakdown by category. *Table 20* includes the same results not broken down by category, showing geo-local independence by rank. This information is portrayed graphically in the following chart*:*

Delicious map

- London
- Paris
- Berlin
- Tokyo
- Barcelona
- Singapore
- Madrid
- Sydney
- Beijing
- Moscow
- Miami
- Milano
- S. Francisco
- Los Angeles
- Buenos Aires
- Seoul
- Mexico
- **New York**

Prior to the final analysis of results, a detailed study of the information was made, which had to be carried out manually. This final step was where we really found the hidden relationship to external geo-locations. If a high *NTgx* and a low *Ig* are obtained, it is possible to locate which external geo-location has led to those results, whether it is in its own state or continent, if the same language is used, if there are historic relationships between the locations, if there are personal or source relationships among the people, etc. If very low relative amounts are obtained for some external geo-locations, we expect to be able to determine whether there is a language problem, if there were conflictive relations that tend to look towards other places, if there is also a physical or cultural difference reflected on the website and, in sum, which are the difficulties for the globalization of the site.

This last step is essential to protect the conclusions from two misleading tendencies that can be seen in the results. The first is the geo-location of a site in a very small place either near a large city or located in a neighbourhood on the outskirts of the city. At the sign of the slightest social reflection, it can be absorbed or invaded by more heavily weighted external geo-citations. The closest city was included as a local geo-citation in an attempt to solve the problem. This occurred in these cases: Brooklyn (Brooklyn Museum) was replaced by New York, Sineu (meneame.net) was replaced by Mallorca, South Park (twitter) was replaced by San Francisco, and Dulles (Internet archive) was replaced by Washington. The second was the opposite; that is, having the geo-location inside some of the cities chosen as external geo-citations. In this case, the local geo-citation is more heavily weighted, given that the cultural and economic factor of a large city is added to the local factor.

To conclude this section, we would like to point out that the results obtained were not only from web pages but also from rich files indexed on search engines, which makes them richer.

3.- CONCLUSIONS
3.1.- Conclusions related to the method.
The method is considered valid to determine territorial independence. From a mathematical perspective, filtering results into 4 degrees corrects any possible deviations in the arithmetic mean of the sum of the levels of external geo-citation. A degree of filtering over 4 and a larger number of external geo-citations would make results much more precise.
A high external geo-citation level can be determined by the dependence of one or

only a few geo-citations (meneame.net). The mathematical system for territorial or geo-local independence corrects these imbalances. As a result, territorial independence is determined by the cumulative number of external geo-citations that reach certain previously set levels.

A detailed analysis of external geo-citations contributes valuable information about hidden relationships. The results make it possible to create virtual territorial maps where frontiers and distances may or may not coincide with physical territories.

3.2.- General conclusions.

3.2a).- Out of the 44 websites studied, with a maximum score of 400, only 2 (4.5 %) scored higher than half the possible score (> 200)

3.2b).- Only 15.9% (7 websites) scored higher than a third of the possible score (> 100)

3.2c).- These 7 websites are highly successful social networks (only undo.net is specialized). They were all created with direct user participation.

3.2d).- Only youtube.com presents all its external geo-citations at a level 50 % higher than its local geo-citation. The rest of the other websites studied show one or several external geo-citations under 25%.

3.2e).- Only 12 of 44 websites analyzed (27.3 %) obtained results for an external geo-citation that was higher than the local geo-citation. The remaining 72.7 % maintain their physical location as the primary geo-citation.

3.2f).- Art centres do not generally show higher geo-local independence than museums. Two cases, however, stand out: Fundación Tapies and the Brooklyn Museum. The Fundación Tapies website is considered as an exemplary model for art centre websites in Spain, given that it includes social networks and other participatory components (Javier Celaya and Mónica Viñarás. Madrid , 2006 *"Las nuevas tecnologías Web 2.0 en la promoción de museos y centros de arte"* and María Pérez, Barcelona 2006 *"Procesos culturales en red. Perspectivas para una política cultural digital"*). Brooklyn Museum has a Community section at its website that includes a significant number of these elements. Therefore, it is clear that including participatory components and social networks in corporative websites for physical headquarters strengthens territorial independence.

3.2g).- New York is the major capital of contemporary culture, followed by Paris, London and Berlin. Spanish capitals rate an average geo-citation. The case of Milan, Italy's financial capital, is surprising: the art market is concentrated there but its presence on cultural websites is not always representative of that fact.

3.2h).- Among contemporary art museums that reach a certain level of geo-citations, the current boom in Mexican art is reflected. In contrast, art from China, whose international artists' backgrounds surely include some time in Beijing, is still very far from playing a significant role.

3.2i).- Those social networks with more automated, specialized services; that is, the ones users perceive faster and more clearly, reach a higher level of globality.

3.2j).- In general, users looking for a specific web resource belong to the same territory or kindred territories with ties to the physical location of the website, and in the majority of cases, they share the same language or one of the languages offered on the site. (Conclusion taken from Google Trends).

3.2k).- Even on social networks, when a project gets underway, the fastest, most simple growth takes place in its territory. This growth seems to continue, even when the website achieves a certain level of distribution.

3.2l).- Language is the major barrier on the web. However, cultural, economic, place of origin, geo-political, historical and territorial relations may be weighted more heavily.

3.2m).- In general, the classic components of cybermetrics (Web Size, Visibility, Page Rank, Web Impact -WIF-, and Relative Popularity), do not measure territorial independence, given that medium or high numbers can be obtained for relatively small territories or those limited by geo-political, linguistic, or historical boundaries. In any case, the websites that are used and linked-to most, with the highest web impact, according to statistics encompassing cyberspace as a whole, should correspond to those that reach higher levels of globality and therefore, greater territorial independence.

3.3.- Basic conclusions.

3.3.a).- The majority of the websites are very much bound to the physical territory they come from.

3.3.b).- Globality in cyberspace is less of a reality than a supposition, which is a reason for local journalism on the Internet.
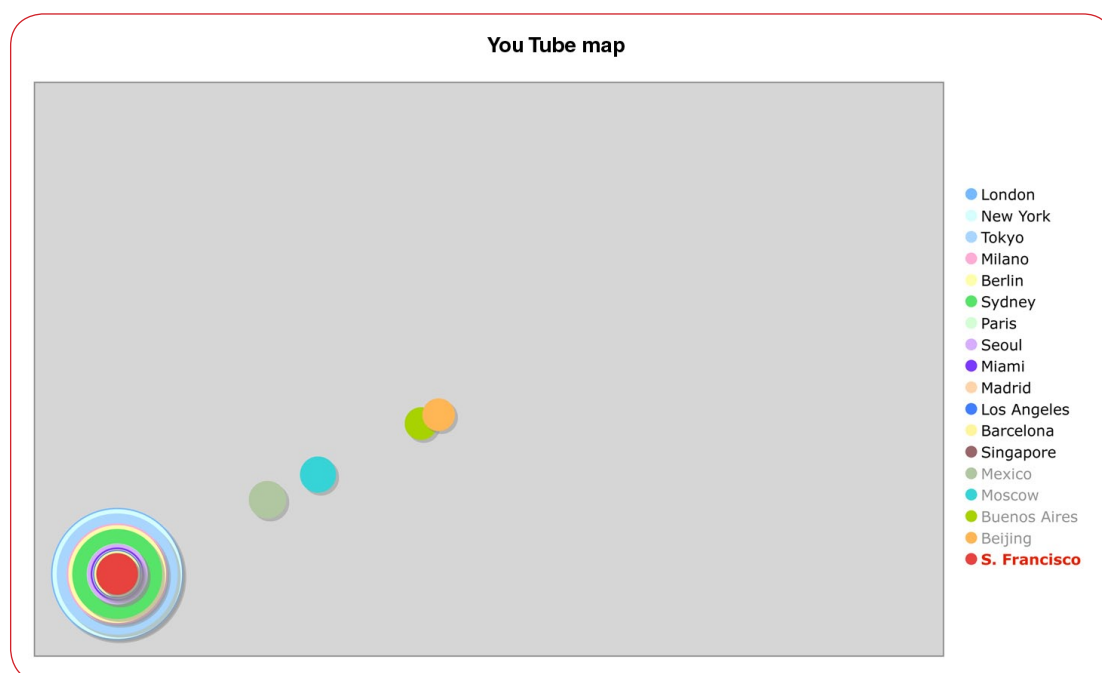
3.3.c).- An institution's cultural, language, social, historical, personal, market, and other relations are reflected in the websites representing it.

**3.3.d).-** Geo-citations are a valid element to identify hidden relationships.

3.4.- Detailed conclusions and hidden relationships.

A detailed study of the *NRgx* (Relative external geo-citation level) for each site shows hidden relationships of various types, including cultural, historical, and economic

ones. *Table 21* of the full report offers a subjective portrayal of some of these conclusions for each of the websites studied. In addition, *APPENDIX 1* includes a series of maps that visually portray new frontiers and territorial distances that on occasions may differ from the physical frontiers and distances. The following image corresponds to the map made about YouTube:

You Tube map

- London
- New York
- Tokyo
- Milano
- Berlin
- Sydney
- Paris
- Seoul
- Miami
- Madrid
- Los Angeles
- Barcelona
- Singapore
- Mexico
- Moscow
- Buenos Aires
- Beijing
- **S. Francisco**

The most noteworthy conclusions include these findings: websites providing similar services, such as Jaiku and Twitter, seem to divide up the market territorially; the Youtube map, given its degree of globalization, could be identified as a cyber demographic map; Meneame is highly dependent on Madrid and Barcelona; Open Directory has very little presence in Europe and Asia; Helsinki's presence on Jaiku, as its local geo-citation, is higher than expected from a major cyber-brand; Digg has little presence in Europe and Latin America; Your Gallery has a very low presence outside London, despite the advertising campaign to launch the service; the relationship of Spanish Art Centres to Latin America is reflected; in galleries like Bitforms, its movement through Seoul or its relationship with Spanish artists is shown, while on Bereznitsky-gallery, their work with Russian and Ukrainian artists can be seen; ... The following image corresponds to the map made for Delicious:

Delicious map
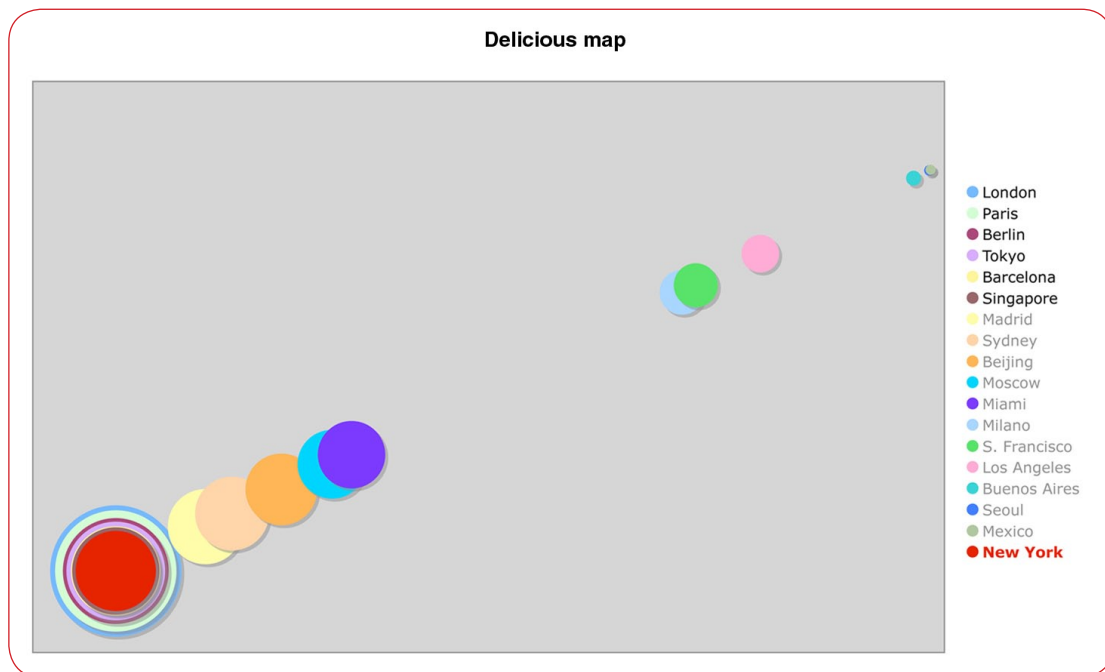
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Inclusiva-net
Digital Networks and Physical Space

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