THE DIGITAL GRAND TOUR: TECHNOLOGICAL TOOLS FOR TRAVEL NARRATIVE

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Abstract
The theme of travel is, at least in theory, a breeding ground of a meeting between the rationalist perspective and the humanistic or cognitive perspective in geography. Indeed the two approaches have often followed opposite routes, one being anchored to the objective description and the other reaching the subjectivism of behaviour geography. This article tries to fit in that multiple perspective which aims to reconcile rationalist and cognitive analysis, focusing on a multidimensional approach in the description and representation of places.
This contribution seeks to experiment with new ways of spreading travel culture by using the specific instruments of the geographer. It is also an attempt to verify the reliability of the new means of expression and of the new multimedia techniques starting from proper geographical instruments such as GIS and basing hypertext flexibility on cartographic tangibility. We intend to clarify the reasons and the epistemological framework of our proposal and to analyse specific applications such as that we have realized with reference to a journey in the United States: the hypermap named Amerigo. The fundamental innovative aspect is the inclusion of the subjective dimension, coming from travel experience, within a system of objective references linked to geographical coordinates.

Key Words: cartography, epistemology, GIS, hypermap, tourism, travel

Putting Emotions into Geographic Coordinates

For a long time the experience of travel has represented the foundation of the construction of geographic knowledge. Ever since geography has been simple description of the earth, the dependence of geographic knowledge from the experience of travel has been total, being the basis of the whole disciplinary system (Luzzana Caraci, 1997). The completion of the exploration of the world then weakened this relationship, reducing the value of the journey as a source of knowledge. Through the experience of travel today it is not possible to discover new lands; the description of the journey no longer meets, as it did at the time of exploration, the needs of listing, cataloguing and classifying space, but it is rather the report of a comparison between the visited places and their pre-established image (Urry, 1990).

However, the relationship between travel and geographical knowledge has gradually been enriched by a new cognitive dimension, which goes beyond the importance always given to direct experience, to embrace the whole system of representations accompanying the traveller. It is true that, in the study of travel reports as a source of geographical knowledge, the processes of observation and interpretation of the travellers acquire increasing importance. The space of the traveller must be considered, highlighting the mechanism of construction and transmission of his representation of that space, not only as the subject of direct perception (lived experience), but also as a matter of cultural codification before and after the moment of perception (Scaramellini, 1980).

The theme of travel is, therefore, at least in theory, a breeding ground of meetings between the rationalist perspective and the humanistic or cognitive perspective in geography, a meeting which however, has never easily been realised; indeed the two approaches have often followed opposite routes, one being anchored to the objective description and the other reaching the subjectivism of behaviour geography. About this meeting an interesting debate has recently developed, involving the whole epistemological system and calling into question the basic principles of the discipline (Castree, Rogers and Sherman, 2005; Thrift, 2002). Particularly relevant to the theme of travel is the debate about the concept of place. According to the rationalist perspective, the place is considered as an entity objectively determinable irrespective of the subject; the opposite perspective considers the place as an entity that is only in the mind of the subject. A third way

considers the place as an entity existing in itself, outside the subject, but that is regarded for the way it is transfused in the subject's existence (Vallega, 2004). The latter vision is inevitably the basis of any travel report drawn up in our days, in an era when the knowledge of distant places is not directly linked to the experience of travel, which rather plays a function of recognition. Today's traveller is led to face this experience as a personal path with a view to comparing the reality – although regarded as objective – with his own symbolic apparatus, to satisfying his ego in spaces already told by others, to seeing in on a 1:1 scale what he better knows in 24 inches or 35 mm, even to telling himself that reality perhaps merely by a well digitized image.

This article tries to fit in that multiple perspective which aims to reconcile rationalist analysis and cognitive analysis. The competence and the tools of the traveller-geographer allow a multidimensional approach in the description and representation of places, which are considered as tangible entities and in the phenomenological perspective.

This contribution seeks to experiment with new ways to spread travel culture by using the specific instruments of the geographer. It is also an attempt to verify the reliability of the new means of expression and of the new multimedia techniques starting from proper geographical instruments such as Geographic Information Systems (GIS) and basing hypertext flexibility on cartographic tangibility. We intend to clarify the reasons and the epistemological framework of our proposal and to analyse specific applications such as the one we have realized with reference to a travel in the United States: the hypermap named Amerigo. The fundamental innovative aspect is the inclusion of the subjective dimension, coming from travel experience, within a system of objective reference linked to geographical coordinates. The ability to read and to analyse the territory, by means of the most various tools, and the potential of synthesis offered by the map are basic elements on which the multidimensional approach can be set. However, such instruments are not sufficient if there is no system of common reference on which to focus the different languages and points of view.

This common ground can be identified in GISs, which allow the management of heterogeneous information and allow for considerable flexibility in the selection of performances. As Minca says, the geographical representation, as a hypertext, must imply thousands of possible readings depending on the interpreter. And GISs are

perhaps the most concrete materialization of this new possibility. They extraordinarily expand the scope of possible narratives of space, and, as in reading a book, they take form and substance depending on the page you open it (Minca, 1996).

The positive value of the hyper-textual nature of Geographic Information Systems, which allows the representation of the reality according to several levels of reading, is however counterbalanced by a risk; in fact we might get lost in the thousands of possible routes if a good system for guidance were not offered at the same time. This system can only be the map, and even more so when the information base is linked to travel experience. This is why we are now presenting a GIS-based hypertext which is focused on the map. Thus we obtain a new form of geographical description: a map which becomes hypertext, that is a hypermap (Kraak and Van Driel, 1997; de Spuches, 1996; Laurini and Milleret-Raffort,1990).

In our proposal, we also sought to respect the very meaning of the map, though adapting it to the needs of a geographical representation which becomes more and more complex. Historically, the map has been the form of geographical description par excellence with which both explorers and academic geographers have produced new knowledge and it has always been an instrument to make real, not merely mental claims to the Earth. On the other hand, man has always built geometric representations of the world, even those peoples who hand down their own culture and knowledge orally - as is the case of the American natives (Warhus, 1997) - and judge it not necessary to reproduce the image of the space where they live on paper or any other more durable material.

The hypertext that we present is the attempt to validate new forms of geographical narration which, through the tangibility of the map, lead to the multi-dimensionality of territorial analysis and travel experience, properly intertwining the subjective level with the objective one.

Travel accounts and geography

Is the map a representation which limits imagination or rather elicits it? This is a question that has interested geographers and not geographers for a long time. It suffices to remember, on the one hand, the control function of the maps designed for the 'geography of power' and, on the other hand, the role of the blank spaces left on

the maps during the era of exploration, in which the '*Hic Sunt Leones* iconography' brought forth curiosity and imagination.

In the hypermap such as the one we propose here, the balance leans with no doubt to the part of a solicitation of imagination, but this solicitation happens in a different way from the iconography just recalled: the spaces left blank on the explorer's map prompted a kind of imagination oriented to new knowledge of the earth; the hypermap starts on the contrary from the formalisation of the Earth's surface, which nowadays is completely known, and opens to the subjective exploration of a particular territory. Imagination, in hypermaps, is not used as a stimulus to knowledge but as a way of signification and mental appropriation of the territory. That is, to use the words of Farinelli, it is a solicitation starting from the 'space', that is geometric abstraction, and leading to the 'world', with its multiple levels.

The metaphor of Ulysses and his companions in the cave of Polyphemus may represent a useful point of reference for the understanding of our reasoning, and it is particularly relevant to the theme of travel. Farinelli recognizes in Canto IX of Odyssey the complete formalisation of the epistemological trilogy subject–distance–object. Polyphemus is deceived, while seated on the threshold checks that his enemies do not escape, precisely because he thinks in terms of world and not of space: the difference between them is the fact that the former includes several levels, while the latter is constituted by their formal, i.e. two-dimensional, version.

As we know, when Polyphemus lets the sheep out to graze, he feels their backs to ensure the men aren't going out, but doesn't feel the men underneath. The giant cannot see his enemies' evasion, not because his arm is not long enough to get to the undersides of his sheep, but because he does not think it necessary to check what is underneath: he merely slides the hand on what is above, because the world is a hierarchy and no one has ever seen a higher level (the head of the animal) that does not respond to the lower level (the belly) (Farinelli, 2003).

The advantages of the hypermap can be mostly grasped when it is used as geographical narration of a journey, because travel means meeting, not only between different worlds but also between different representations of the world. Travel is an intense space-time experience in which infinite plans of reading overlap, and the transmission of that experience to others is designed to reproduce the highest possible number of these plans of reading.

This is especially true for a cult trip such as the doing the Coast-to-Coast in the United States, which crosses places fully entered in the collective imagination. This is the case of the hypermap presented here. The heterogeneity of sources and the wealth of virtual images available for the representation of this part of the world has permitted the use a wide range of materials, such as cartoons or western movies. The literary references used in the construction of this hypermap range from explorers' logbooks to travel literature. From the spatial point of view, there is a constant reference, as in logbooks, to the definition of the places by geographic coordinates; from the narrative point of view, the description of the places crossed refer instead to Grand Tour accounts, when the journey was narrated by means of a diary that placed the traveller, day after day, in a spatial context defined through landscape descriptions, illustrations and sketches (Broc, 1969; Bianchi, 1985; Hibbert, 1987).

By using hypermaps therefore we essentially recover spatial coordinates over other types of coordinates. The map constitutes the basis on which we can follow possible routes and build real personal itineraries, follow the paths of others and imagine our own; it represents the backbone of a narrative corpus that comes to life through the arteries followed by the traveller. Such a corpus is built with a series of hypertext links to heterogeneous materials but which represent the places visited through multiple reading keys and show the multi-dimensionality of the cultural filters operating during the journey. The understanding of a similar multi-dimensionality may constitute, in turn, the point of departure for the search for new, more or less personal, worlds,. As Dematteis (1985) says, the geographer must ensure that the representation does not preclude the discovery.

Representing Travel Experience through Geographic Information Systems

Geographic Information Systems are not simple numeric cartography. They seem to challenge the distinction between the two types of knowledge (cartographic and geographic) and to act in the sense of consolidation (Guarrasi, 1996). In fact, even though it is still considered by many as a simple instrument for the rapid production of automatic cartography, the great added value of GIS lies precisely in the capacity to put together heterogeneous information and knowledge into a system of coordinates by means of georeferencing.

If we accept the idea that the experience of travel today is essentially the comparison between the reality visited and its symbolic apparatus, then this experience is itself a work of georeferencing; in fact, it is a journey in search of places to locate one's own myths and representations. These places are not exclusively or necessarily the most famous stereotyped ones, which often set the tourist in a system of mental coordinates not linked to spatial dimension; they are also a series of environments and landscapes the tourist comes across during the journey, in specific sites, whose image was in some way already internalised. By this epiphany these places assume new meanings. Although forced into simple geographic coordinates, they become enriched with the concreteness of the landscapes seen, which conveys them a regional dimension.

Despite their apparent sterility, in a GIS, the geographical coordinates may represent the meeting point between the subjective and the objective, the modus with which a series of ideas is linked to a set of geographical objects, according to an approach that has been defined as 'phenomenic' (Hangouët, 2004). This is the way followed in the construction of the Amerigo hypermap (Figure 1).

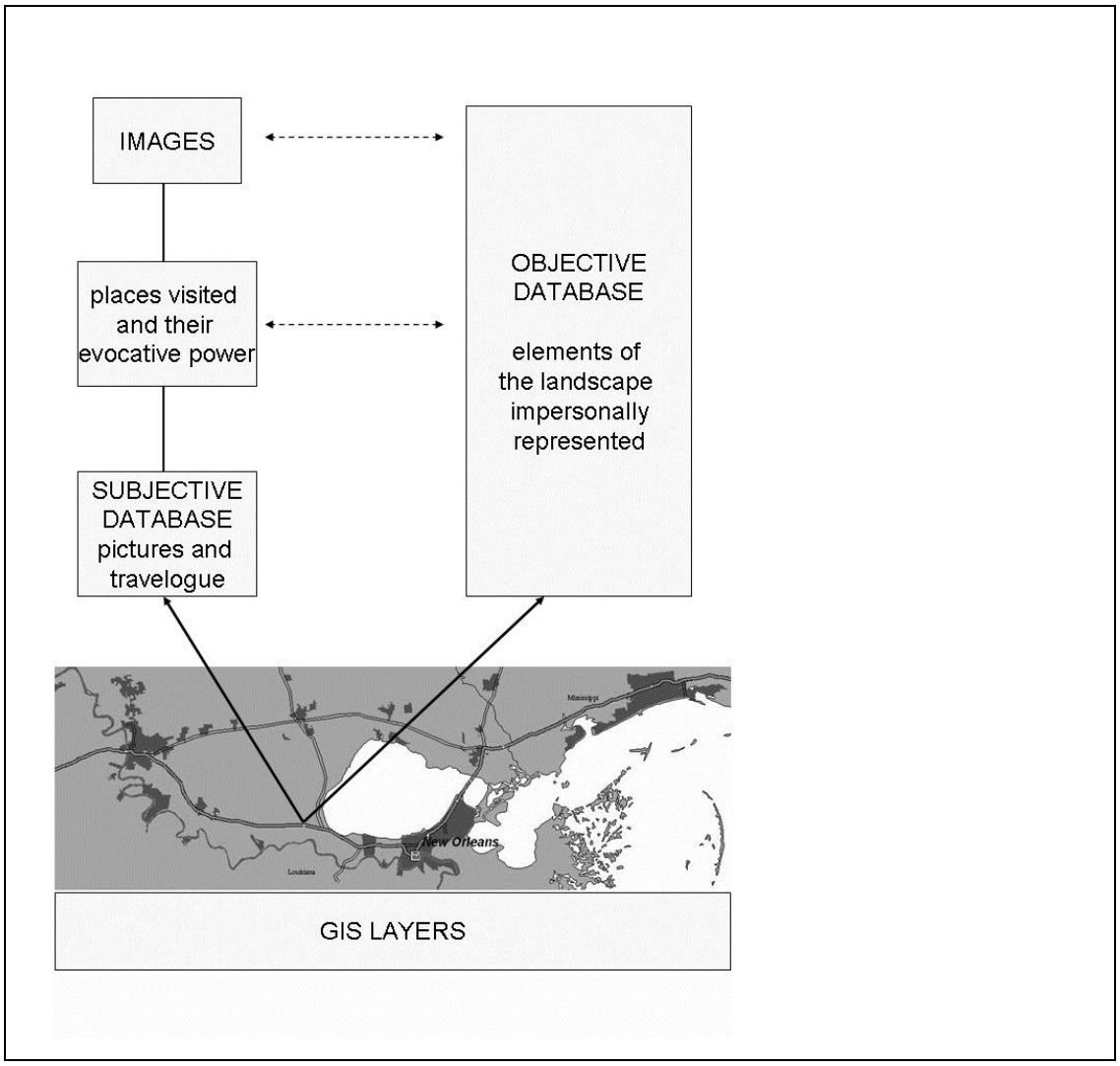

Figure 1. Objective and Subjective Databases in the Amerigo Hypermap.

One of the main objectives of this hypermap was to make the linearity typical of a tourist itinerary flexible so that it could comprehend the incidental explosion of images and the mental spaces of the travellers. These mental spaces are in fact more articulated and fragmentary today than in the past, as they are increasingly anchored to virtual images of remote areas.

The way in which we tried to achieve this flexibility is mainly linked to the possibility of moving constantly from one reading level to another, reproducing each time new geometries of space, new representations and new interpretations, thus leaving great freedom of imagination to the users.

In practice, the user constantly navigates between two databases: a subjective one, with written and iconographic evidences of the journey actually made; an objective one, on the tourist attractions and the landscapes crossed, presented through

other kinds of evidence: readings, drawings, photos, movies. It should be pointed out that the latter database has been defined as 'objective' because it contains a series of impersonally represented elements of the landscape. These elements are actually visible in the territories crossed but they are also, thanks to their intrinsic evocative power, the product of the travellers' perceptual filters.

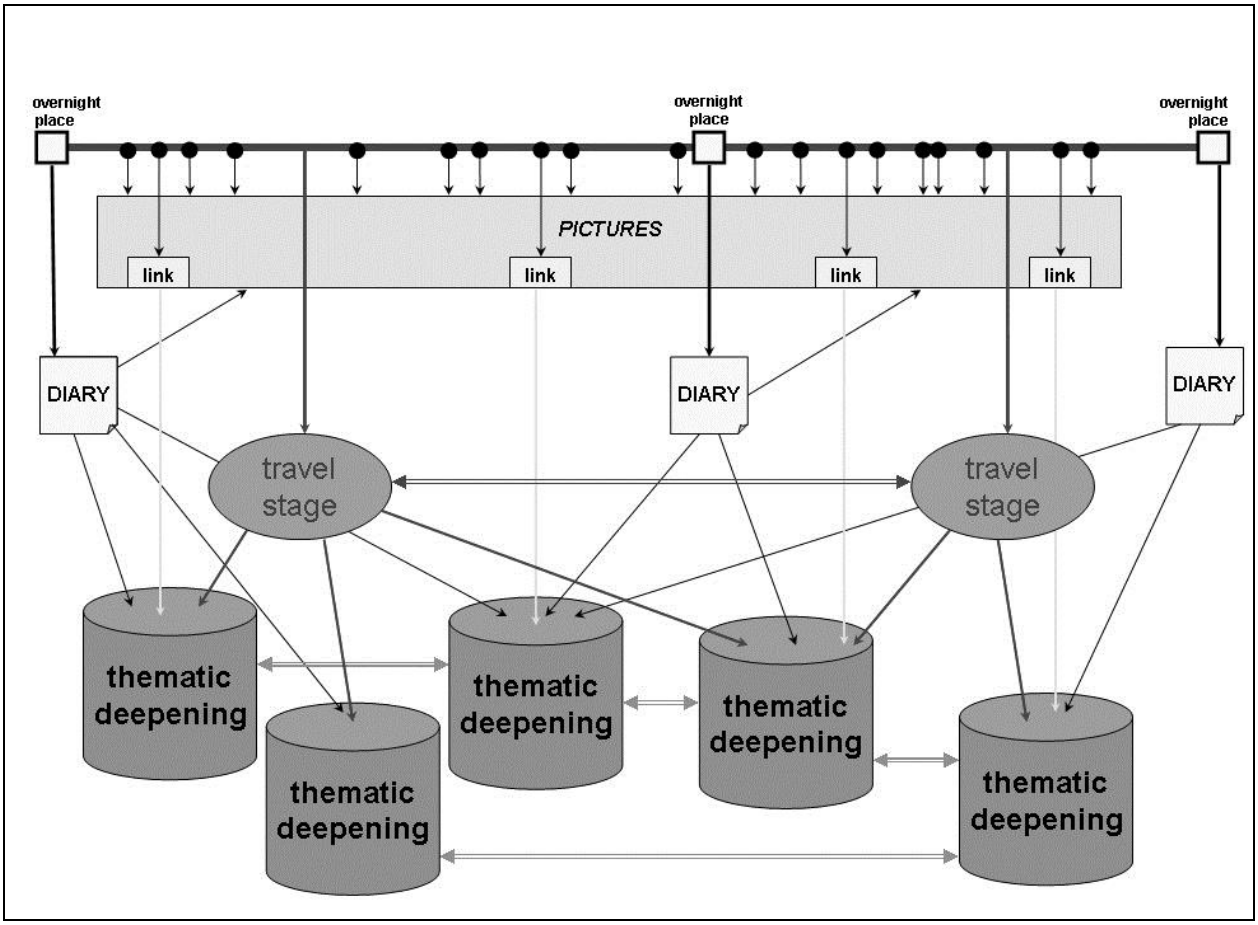

Figure 2. The Architecture of the Amerigo Hypermap.

In Amerigo, travel experience has been structured into different geometries (Figure 2). The pictures and the travel account are represented with points. The first are associated with the couple of geographic coordinates corresponding to the position of the observing person (point of view), the second to the overnight places, where the diary was written day by day.

The elements of the objective database are associated with the linear objects designing the route. As this route has been divided into stages, a chronological segmentation therefore corresponds to a linear segmentation. Among the various ways

of reading, the user can, or cannot, choose the sequence that respects that of the travel experience.

More immediate experiences, such as, for example, those collected in pictures, are represented by points which, along the route, show areas of thickening in which they tend to assume a quasi-linear dimension. On the other hand, the elements of the objective database, associated to the linear geometry of the stages, are sometimes replicated in more days of travel assuming a polygonal geometry and suggesting a regional dimension. All this recalls the multi-scalarity of the experience and the fractal dimension of travel experience.

If the inclusion of subjectivity in a GIS represents the most innovative aspect of our proposal, the cartographic apparatus on which it is based has, instead, a quite traditional aspect, similar to that of an Atlas (Figure 3). This allows the reader to get around in a friendly atmosphere and to refer constantly to maps in order not to get lost in the hypertext labyrinth.

According to the paradigm of the map – as Quaini argues (Lago, 2001) – the labyrinth, which does exist in reality, is cancelled only whenat the moment of mapping: the traveller with the map does not need any Ariadne's thread. According to the paradigm of the track, instead, the traveller is without the map, follows the tracks of others and is forced to rebuild the labyrinth each time. Amerigo is a model of representation and description of reality which offers at the same time the map (with its spatial references) and the track (the user's personal path compared with others' travel experience). The configuration of the journey in daily stages is both one and the other, the *trait d'union* between the two levels of representation.

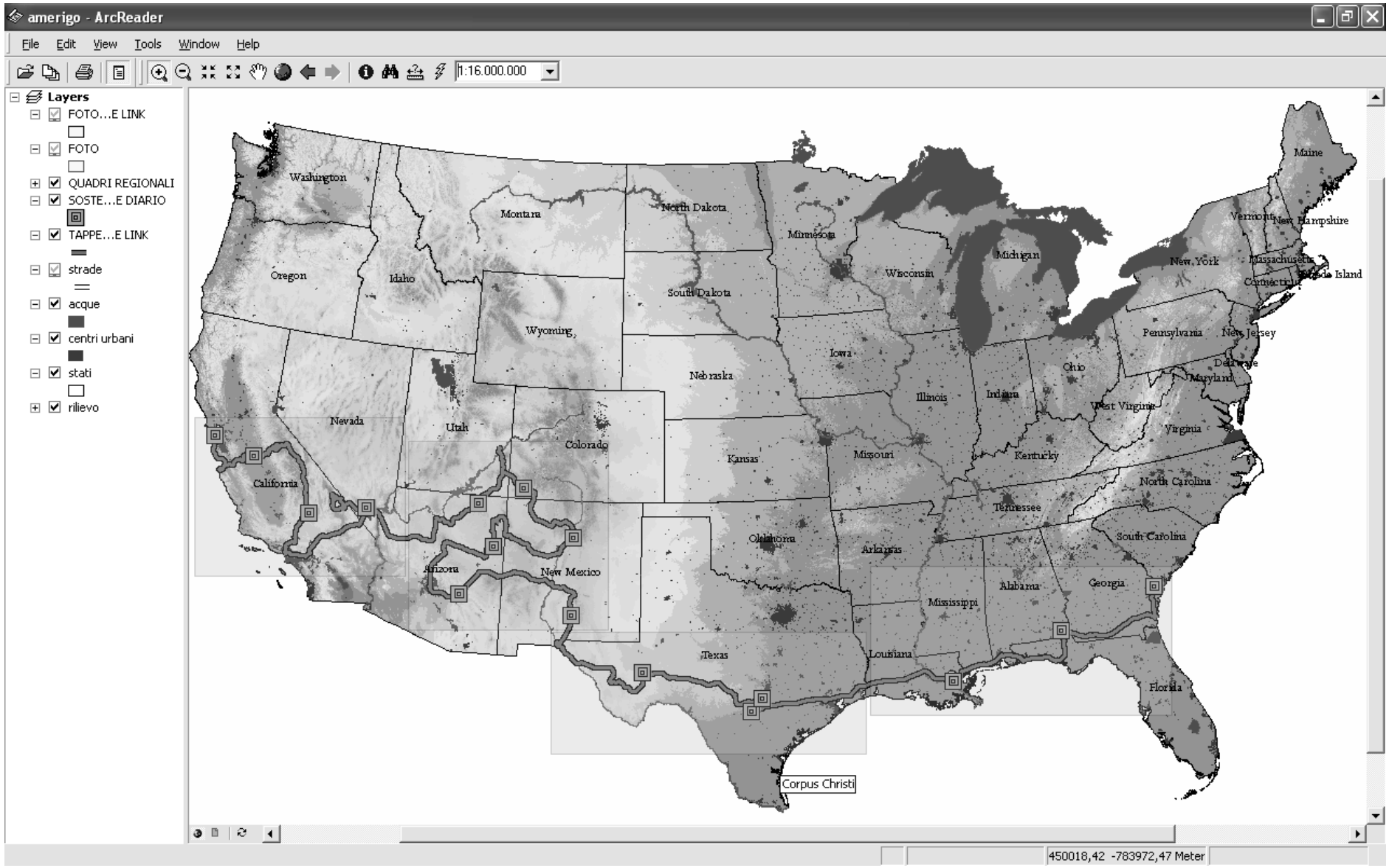

Figure 3. The Cartographic Apparatus of the Amerigo Hypermap.

The Role of Hypermaps and WebGISs in Structuring Tourist Information

It is clear that the spread of hypertextual techniques and GIS software today still gives, in the third millennium, ample opportunity to use travel as a source of geographic knowledge. Hypermaps can become, in our opinion, a valuable tool for disseminating knowledge about many regions of the world, especially those located 'off the beaten track', in order to start the process of building a tourist image.
But the real added value of a hypertext of this type is the possibility of implementing the information system on which it is based with new experiences of the same places by different subjects. This is a procedure that tends to make subjective worlds, that is worlds built on personal memories, knowledge and feelings, converge in a unique geographical coordinates system. This is a little practised mental route, also because a much more common procedure is the opposite one, which tends to transform real places into mental spaces. But what may seem an attitude of reductionism, or a drying up of the experience, finds its reason in the fact that geographical coordinates become code shared, and therefore a place of mediation and comparison of personal experience. Travellers, who are incresaingly equipped with GPS and digital media devices, are now able to store and directly *geo-refer* a series of data and information relating to their journey and to the territory visited: the itineraries, the places passed through, the presence and the quality of tourist services, the impressions received during the journey, besides the pictures taken (Figure 4).

Once stored in one's own personal computer, this information, , can follow two ways in order to be shared and become multimedia products available for other users. The first path consists in the association, by means of dedicated software, of the travel data to other sources of information and especially to cartography, thus generating hypermaps and multimedia tourist guides. This is the path followed in the construction of Amerigo. One of the objectives has concerned the full usability by the reader, with the double meaning of accessibility to the product and the freedom of action in the choice of display. The first operation was to build the map of the itinerary made, thus creating a layer of the daily stages and of the overnight places, processing and georeferencing the pictures taken and the travelogue. The second operation was focused on the construction of the objective database: the information on the places crossed – which had been collected before, during and after the journey

– were also structured and georeferenced. These heterogeneous materials – text, images, sounds and movies – have been all included in pages with htm language.

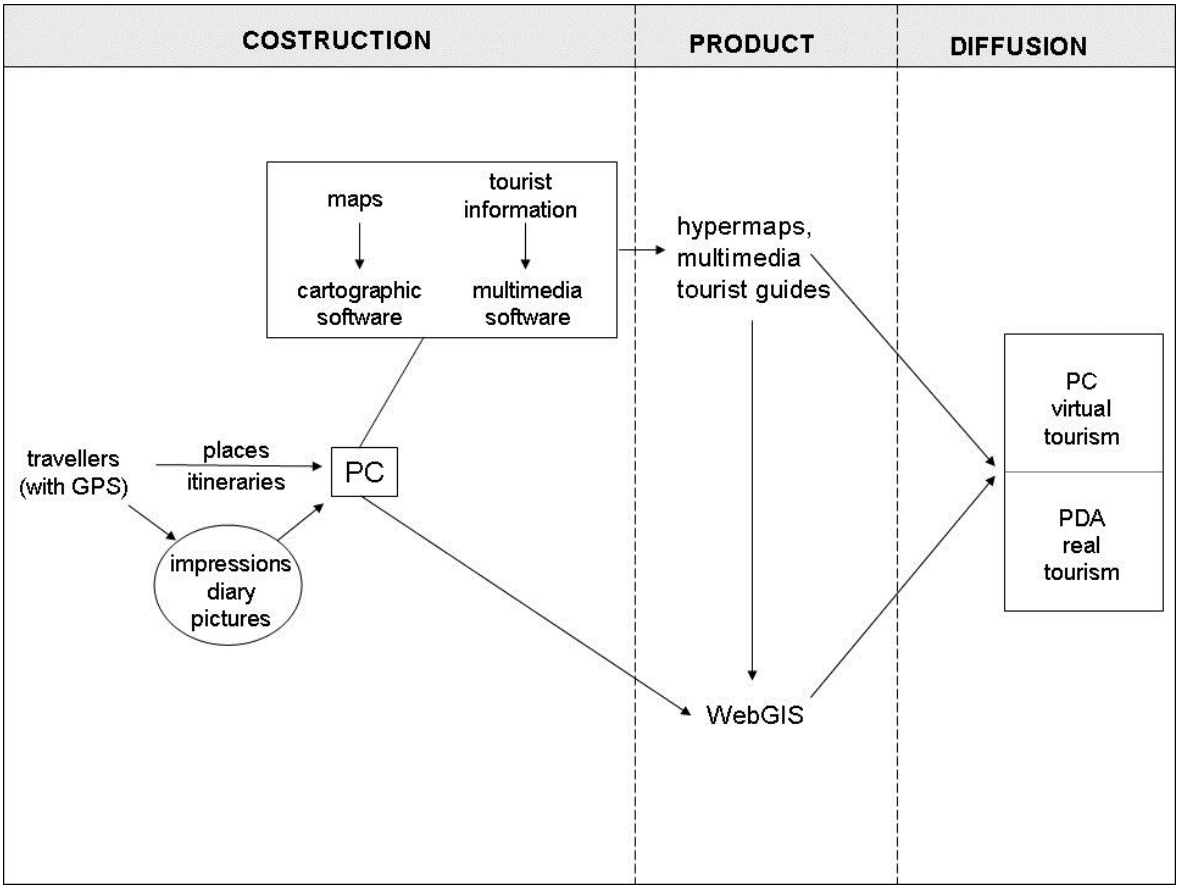

Figure 4. Hypermaps and WebGIS for Tourist Information.

In the next stage the hypermap architecture was drawn up and realized, by means of hyperlinks to connect graphic elements on the map to external documents. This is a rather simple architecture, intended to guarantee considerable freedom of navigation between the pages, with the possibility of coming back to map at any time. Wide freedom was also granted in the management of cartographic support: the map can be viewed by setting any place as the centre, by defining any scale and by choosing the combination of information layers preferred. Thus, from this point of view, the GIS user plays an interactive role in final representation, unlike a traditional cartographic product.

The second path provides for the use of existing and rapidly spreading WebGIS platforms, such as Google Earth, on which to migrate the data stored during the journey. This procedure permits the placing of the information collected in the World Wide Web, thus reaching a high degree of widespread dissemination. The

innovative aspect is that spatial information is made available through free map-viewers which anyone can use on any computer connected to Internet. Anyone can easily access a corpus of information coming from direct experience of the places, in order to enrich the usual information already available for tourists.
The excess of information thus produced is in trend with the growth of virtual tourism. It is an increasingly common pastime to use the computer screen to visit three-dimensional representations of the earth and to pry into the information associated with specific sites.

A further innovation concerns the possibility that tourist information may reach the travellers during their journey through the use of GPS and PDA devices. The travellers can then use the information relating to the place where they are, be led on specific routes, access to the themes proposed, compare the impressions of others with their direct experience; experience that, in turn, can be stored and spread through the means described above.

Returning to the two routes we have outlined, it must be underscored that they are not independent and divergent. Besides the fact that both are aimed at the same users, there is the possibility that the two types of procedure interact with each other. Also the hypermaps and the multimedia tourist guides built as stand-alone products can migrate, with all their properties, within an existing Web GIS or become a WebGIS themselves.

In the framework of the deep innovation we are experiencing, the question arises as to the current role of cartography in the new image society, with regard to both tourist information and in general to the information organization. It may seem paradoxical, but in the GPS era, an exponential growth of geographical information is counterbalanced by an impoverishment of cartographic support. Satellite navigators, in fact, mainly provide the driver with information of direction and absolute position; the cartographic basis is extremely simplified, in order to spare RAM; technological research is addressed to the implementation of vocal functions, rather than visual ones.

The question aroused by the use of cartographic support in WebGIS is more complex. Among the most popular and free access, such as the already mentioned Google Earth or NASA World Wind, the layer of global coverage is the remote-sensing image, to which are added road maps and other information layers concerning, for example, borders, inhabited places and their names. We are therefore

faced with a partial, non homogeneous and rather raw cartography. Although, the union of these layers in association with the global coverage of remote-sensing images produces an effective instrument of spatial representation which replaces traditional cartography. On the contrary, hypermaps offer an example of a valorisation of traditional cartography. In fact, the use of automatic cartography in hypermaps offers the possibility to maintain in use the cartographic apparatus within a new multimedia environment. One still underestimated potential of global WebGIS as organisers of geographical information regards their capability to manage hypermaps as they already have begun to manage specialist, traditional, historic maps.

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