Implications of the usage of mobile collaborative mapping systems for the sense of place

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1 ABSTRACT

In recent years a mass public started to populate the GeoWeb. Free of charge Earth Viewers and social software prepared the ground for now popular practices like geo-tagging, place-tagging and the collaborative authoring of geographic information media. Many people already use the emerging platforms to publish their actual or common whereabouts to a network of friends or collect, evaluate and disseminate sets of interesting places in virtual communities. Suddenly a broad mass started to communicate with spatially explicit references by producing and publishing digital cartographic media. Currently more and more mobile phones are used for spatial annotating and an increasing use is expected within the coming years. This paper shall give an insight into a research project about the user motives and needs of spatial annotating and collaborative mapping and the impact of this new media in the sense of place. A representational approach is presented that leads the research.

2 GEOGRAPHIC INFORMATION INFRASTRUCTURES

2.1 Information Infrastructures

The internet as a decentralised technological medium for horizontal communication provides the material basis for self-directed networking. A broad public uses the internet as a tool for organisation, collective action and the construction of meaning. Therefore networking constitutes new patterns of social practice that spread from the internet to our society transforming it to a network society where key social structures and activities are organized around electronically processed information networks. The network logic has impact on many processes in society like production, experience, power and culture (CASTELLS, 2001).

Internet technology entered geographic information processing already several years ago. In Geographic Information Science a current topic is the development of Spatial Data Infrastructures (SDI) respectively Spatial Service Infrastructures. The latter emphasizes a shift from web based geodata exchange and mapping to distributed information processing services. An SDI basically aims at the provision and usage of spatial information by geographically distributed and decentralised spatial information repositories and spatial processing services. Next to geographic information processing services and spatial information a SDI consists of metadata, a technical infrastructure, rules and standards to enable interoperability and economical components for the valorisation of data and services. Finally a SDI lacks any meaning without actors who are in charge of the development and operation of the platform and actors who are involved in using and producing spatial information and services (BERNHARD, 2008).

Actors have a vast influence on the form and the success of a SDI. Mapping agencies and private sector companies are classical providers of data and services whereas the platform providers integrate all data and services, create the SDI and enforce the business model. Generally everyone can be a user of a SDI but typical users are administrative agencies, business sector and scientific institutions (JAENICKE, 2004).

2.2 The classical SDI – not a consumer SDI

Information inherits some specialities when being considered as a commodity and so does spatial information. The collection and maintenance of basic spatial information has extremely high fixed costs but only a limited benefit which increases by every step of refinement. Furthermore costs for reproduction are marginal but information is an experience-good, i.e. not until consumption suitability turns out. Spatial information is not subject of abrasion but holds a fast decline in time value. Quality is not easily certifiable and spatial information depends on cultural contexts which limits its valorisation (BECK, 2005). SDIs shall grant access to spatial information for a broad public via internet, guarantee up-to-date information and therefore take advantage of the marginal costs of reproduction. Moreover SDIs offer a higher degree of non-rivalry and also mechanisms for exclusion from consum if intended.

But so far "only a very small fraction of human knowledge of the planet makes its way through the various processes used to acquire, assemble, and disseminate geographic information" (GOODCHILD, 2007). And

many kinds of information, i.e. personal meanings, feelings or place-names cannot be be extracted from remote sensor technology and mapping agencies. Moreover many business models of SDIs currently base on the idea to sell information or charge for services. But as long as there is no broad mass of consumers data is simply too expensive which in turn hinders the emergence of a broad mass of consumers. So far internet consumers typically did not develop content-related habits and tend to select content which is free or of minimal costs (POLKE-MAJEWSKI, 2008). As soon as a broad public starts using SDIs for collective action and the construction of meaning, regarding to CASTELLS (2001) new patterns of social practice might rise. Consequently public SDIs might influence processes of production experience, power and culture within a society.

3   NEOGEOGRAPHY

3.1   Earth Viewer

Google's and Microsoft's earth viewers have proven how to serve the customers expectations. They integrated the web 2.0 society and thus initiated new services which are collaborative, web-oriented in nature and enable for new practices of communication with spatally explicit references.The term earth viewer describes numerous computer-based systems that enable a user to visualise geographical data in the broadest sense. In the narrowest sense earth viewers and their data support web-based access and are free of cost – at least in a basic version with a global coverage at a certain scale. The utilisation of these systems should not be restricted anyhow. Furthermore Earth Viewer means a system that can be browser-based as well as client-based and the availability of 3D visualisation or any geoprocessing tool is absolutely irrelevant. Thus Earth Viewers shall be differentiated in client systems like Google Earth and NASA World Wind which require a local installation on the one hand. Google Maps, Microsoft's Virtual Earth Platform, ESRI ArcWeb Explorer and Mapsolute Map 24 belong to the group of browser-based web-mapping systems on the other hand (FISCHER, 2007). Since the appearance of earth viewers various mash-ups emerged, combining the capabilities of the mapping platforms with thitherto spatially unable web services (SOUTSCHEK, 2006). A recent survey has proven that many mash-ups base on the idea of collaboratively authored mapping (NOVAK & VOIGT, 2006). In 2005 Jon Udell drafts a vision of mobile collaborative mapping: "In the very near future, billions of people will be roaming the planet with GPS devices. Clouds of network connectivity are forming over our major cities and will inevitably coalesce. The geoaware Web isn't a product we buy; it's an environment we colonize. There will always be markets for proprietary data. But the real action will be in empowering people to create their own services, with their own data, for their friends, family, and business associates. Google Maps isn't just a service, it's a service factory" (UDELL, 2005).

3.2   Collaborative authoring – a possible solution for the consumer SDI

As a matter of fact collaborative internet platforms emerged that allow people themselves to shape the network society by producing media content in recent years. Named prosumers they can smoothly change between consumption, creation and co-production of media content (TAPSCOTT & WILLIAMS, 2006). Their active participation within these networks has various reasons such as sharing and exchanging interesting information, maintaining social contacts, and the mediation of a corporate feeling or simply to have fun (RHEINGOLD, 2000). Moreover the ongoing convergence of mobile communication, internet technology, and geospatial technology opens up the possibility for a mobile collaborative creation of spatially referenced media content and enables public communication with explicit spatial references. This new form of location-aware computing has the power to transform Spatial Data Infrastructures into "Spatial Communication Infrastructures". Thus a consumer-friendly SDI is possible by transcending high-costs for data collection, opening up for new business models and leaving the issue of information selection to the consumer.

3.3   The practice of spatial annotating

As the beforementioned communication bases on collaborative authoring there is no fixed separation between the author and the reader. The involved community-networks are able to collect and disseminate all information they consider relevant for publication. Consequently they create various "ego-cartographies" and "social-network cartographies" of their acutal and common whereabouts. There is no pre-defined usage of the technology. It is rather configured by the users' motives, needs and contexts of usage. Communication that is based on authoring and sharing spatial annotations already became a common practice within

communities. A well known variety is geo-tagging. Basically geo-tagging means geocoding images, sounds and texts from Flickr, Wikipedia or similar web 2.0 platforms to publish them on a public map background. Next to geo-tagging there is a similar practice of publishing virtual notes (comments and multimedia) about one's actual or common whereabouts and activites on the basis of an explicit spatial reference. These virtual notes have been given various names so far like place-tags, social tapestries (GILES & THELWALL, 2006), Geonotes (ESPINOZA, 2001) or sticky notes. Common to these latter spatial annotating platforms is the encapsulation of collaboratively authored content within social networks and virtual communities to allow a certain level of privacy and enable a distinctive social referencing of spatial annotations. These emerging types of media - I refer to as Location Based Social Media (LBSM) - is less a technology (however it is always based on) than a culture of communication by enriching physical places with socially and spatially referenced information similar to practices like graffiti, post-it notes and signs (e.g. place-name signs). These practices are to be considered as doing Neogeography. According to the author of *Introduction to Neogeography* Andrew Turner "Neogeography are geographical techniques and tools used for personal activities or for utilization by a non-expert group of users, not formal or analytical" (TURNER, 2008). I suppose to round down this definition a little bit as I understand Neogeography as a culture of communication that is enabled by geographical techniques and tools.

3.4   Components of Location Based Social Media

From own observations I will now try to draft a general concept of Location Based Social Media as of some visiting several platforms. Most platform providers have created a browser-based client that integrates an earth-viewer as map-background to present all relevant information. Additionally to the browser-based client most platorms offer a mobile access to create and display spatial annotations. They make use of geocoding by SMS, cell-based positioning or GPS. Other positioning technology such as RFID or semapedia codes (2D bar-codes) is conceivable as well. It is up to the user to select and collect spatially referenced information about his actual of common whereabouts and provide additional remarks or multimedia to describe or evaluate the place more precisely. The dissemination of information is typically organised in three different forms to enable for social navigation and collaborative filtering: social networks, groups and geographic blogs. Basically every user has an own account and can then connect with friends, take part in groups or start his own geographic blog to publish his place-tags. All users can connect to groups and geographic blogs. They can use and review the published content but are generally not able to edit the spatial reference. Some provider offer additional services which are attached on the user-generated contents and are free-of charge up to now.

4   THE IMPACT OF LBSM ON THE SENSE OF PLACE

4.1   From SDI to geographic media

In the last chapter I tried to put the appearance of Earth Viewers, spatial annotating and Neogeography in the box of Spatial Data Infrastructures. However Erik de Man's estimation that the "long-term trend in spatial (or geographic) information technology may be that it becomes less distinct from mainstream information technology" (DE MAN, 2007) probably hits the point for Neogeography and Location Based Social Media. Furthermore DE MAN argues that SDI must be seen as part of general information infrastructures and shall be understood as a structural part of societal governance. Therefore I would rather speak about geographic Information Infrastructures (with a small "G") to emphasize the fact of integration. These infrastructures are the technological basis for a networked communication with spatially explicit references. Primal an information infrastructure is given a meaning by its users, initiators and operators who build it up and utilize it. Consequently actors may utilize geographic information infrastructures to form a kind of cartographic media for collective action, the construction of meaning and the enforcement of their intentions. Usually there is a certain distinction between author and consumer. The authors and their institutions are responsible for the collection, selection and processing and dissemination of information. Due to the specifity of these processes the media inherits a certain intention – an author-specific view of the world - that is communicated to the consumer. Thus I assume that spatially explicit referenced communication inherits intentional patterns of its respective author. In LBSM the creation of cartographic representations is subject to the community. These social networks inherit a special role as they hold agency of selection, dissemination and action within the process of communication with spatially explicit references.

4.2   A representional approach

As LBSM create a new kind of visibility and memory about places, persons and activities I argue that they are significant for the subjective assignment of sense to a place (see figure 1). Therefore I propose to examine the construction and meaning of spatially explicit representations in LBSM and relate them to the subjective assignment of sense of place.
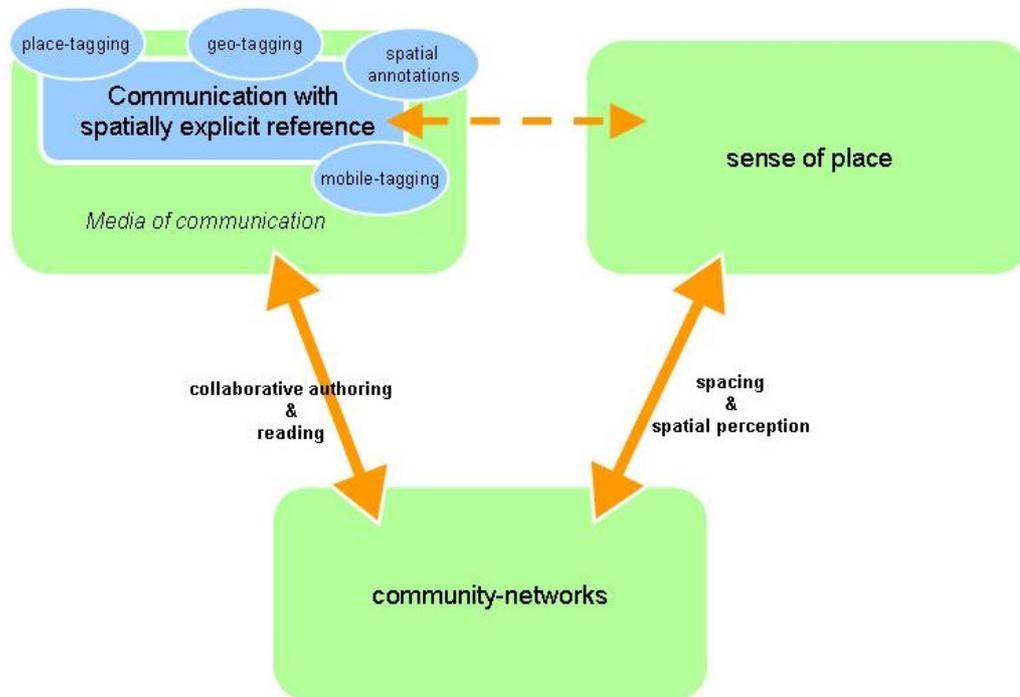

Fig. 1: Schematic view on the impact of LBSM on the sense of place

This representational approach leads to questions concerning the conceptionalisation of new spaces by geographical regionalisation and classification and how these represenations unfold agency in everyday life. They link up the subject with the world they embody and therefore produce meaning about place which becomes a context of action for the user. Consequently the practices of communicating with spatially explicit reference can be understood as practices of symbolic occupancies according to Werlen (WERLEN, 2003). These occupancies base on the available or aquired information in form of cartographic representations. Certainly LBSM as media is supplementary to other media regarding symbolic occupancies and the sense of place.

In a first stage of research a look on communities of practice will be taken. Two case-studies will be conducted to approach a phenomenology of spatial annotating and user-contexts, motives and needs for communication with spatially explicit references. Further research will concentrate on the spatial representations and symbolic occupancies.

5   CONCLUSION

This paper has described the emergence of Location Based Social Media. That is, media which allow the communication with spatially explicit references for a broad public. Their emergence bases on the appearances of free of charge Earth Viewers that allow for public mapping and social software that enables a broad public for collaborative authoring and socially referenced information exchange. The basic practice of Location Based Media is spatial annotating the the publication of personal annotations. I argue that Location Based Media might have an impact on the subjective sense of place and elaborated a way examining this impact by using a representational approach.

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