Volunteered Geographic Information:

A tetradic analysis using McLuhan's law of the media

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Following the success of earlier open-source software development such as the development of Linux, consumer-driven business development such as E-Bay, and most recently user-led knowledge production such as Wikipedia, the past five years have witnessed the emergence of user-created web content in the spirit of Web 2.0 as evidenced by the growing popularity of MySpace, FaceBook, YouTube, and more broadly the reality TV or game/competition programs with increasing viewer involvement. Some observers even define this as a new cultural/societal trend – for lack of a better description – the cult of amateur (Keen, 2007).

The wind of this more broader societal trend of wikification, as defined by Tapscott and Williams (2006), has started blowing in the GIS community during the past two years. The emergence of volunteered geographic information on the web raises a series of new questions that deserve attention by the research community. A specialist meeting devoted to VGI is very timely indeed.

Back in the pre-Google Earth time, Sui and Goodchild (2001) proposed the idea that GIS was rapid emerging as media using the nascent evidence available then. The launching of Google Earth and Microsoft's Virtual Earth validated our speculation (Ball, 2005; Sui, 2005a). But until recently most people are passive users of the vast geospatial information available on-line. With the development of websites like wikimapnia or OpenStreetMap, everybody has been converted from being passive consumers to becoming active producers of geospatial information. This new development has implications for the GIScience community at multiple levels.

Just as we did for GIS and LBS (Sui and Goodchild, 2003; Sui, 2005b), I believe a tetradic analysis based upon McLuhan's law of the media can be a useful framework for us to think about the multiple implications of VGI. In this position paper, I will briefly outline some of the key points and I hope they are useful for discussing the themes of this conference.

McLuhan's laws of media has four major dimensions: any innovations in the dominant mode of communication media will invariably (A) intensify/enhance certain elements of social practices in a given culture, while at the same time (B) making other aspects of social practices cultural practices obsolete. Furthermore, all media innovations will also (C) retrieve a phase of certain social or cultural practices long ago pushed aside, and finally (D) undergo a reversal when extended beyond the limits of their potential. The four phases of the tetrad manifest also sets the limits of the cultural impacts of an artifact, by showing how a totally saturated use would produce a reversal of original intent.

Following the tetradic framework, we can ask the following questions for the nascent phenomena of volunteered geographic information (VGI): 1. what specific practices and applications does VGI enhance and intensify? 2. what geospatial practices will VGI obsolesce? 3. what practices will VGI retrieve? 4. what will VGI reverse into when pushed beyond the limit?

I hope this specialist meeting will provide some more illuminating answers to these questions. Here I'd like to share some of my preliminary thoughts. Obviously, VGI will intensify and enhance public participation in both GIS data production and application at new level. But obviously, not all domains of GIS applications benefit equally from this kind of practices. I don't think VGI will automatically obsolete many of the conventional GIS practices by government or industry, but how to interface VGI with the data collected by conventional means will be worth exploring.

With more data created via VGI at the local and personal level, VGI will retrieve time-geography to the fullest extent as Hägerstrand advocated 40 years ago. We will witness another round of explosion of available data at much better spatial and temporal resolution. This will renew research efforts for better data representation models, data mining and visualization techniques that are scalable and interoperable across multiple computing platforms.

Without proper protocols and standards established, VGI can also reverse itself into disasters that could pose serious threats to community and society at multiple scales, especially in areas related to public health and homeland security (Sui, 2007). Privacy and liability are obviously two primary concerns, but I see equity is another important issue that can potentially crush the whole paradigm of crowd-souring as a business model. Is the altruistic wikification process a passing fad or a sustainable way of running a business? What are the motivations and incentives for people to engage in producing VGI? Is the wikification process enlarging disparities in society by allowing the favored few exploiting the mediocre many?

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