

Volunteered Geographic Information Position Paper

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For over a decade now, I have been working with developing digital methods to improve and increase public involvement in the process of collecting geospatial information (site inventory), evaluating design and planning proposals, and visualizing and recognizing the impacts that decisions may have on the future of a community. When I initially started my work in this area in the late 90's, there were very few tools that allowed for citizen input; the process of inputting geographic data was left to technical experts that understood the complexities of the mapping software. Frustrated with the amount of time spent converting handwritten notes on paper maps to digital data for use in our GIS, I developed an interactive tool that allowed participants at a design charette to simply place a "dot" on the map to indicate the location of a feature they felt was important. Variations on this tool were made over the years allowing it to work asynchronously over the network, include chip games planning strategies and to dynamically display aerial data from the State's Ortho Photo server. Eventually, a setup wizard was developed to allow citizens to create their own spatial survey applications.

My training as a landscape architect and the process of building my own Rich Internet Applications (RIA) that were pseudo Web 2.0 before the term was coined has allowed me to see both the technical and social issues that arise when collecting volunteered information. I find it interesting that many consider AJAX to equal Web 2.0 when according to Tim O'Reilly "the central principle of success in Web 2.0 applications is harnessing the collective intelligence of users" – not just using the new technology.

When considering what motivates citizens to contribute information, four items need to be considered. The first is passion. Is the question, topic or as in my profession the landscape, something the participant is passionate about? Passion alone however is not enough, they also need to have an opportunity to share their thoughts. Web based data collection systems that are available 24/7/365 give an individual access to discuss/share when it is convenient for them. The third item is that of anonymity. Even as individual thinkers in a free society, it can sometimes be difficult to share an opinion in a large group, especially if that opinion is in the minority. And finally, a citizen needs to have satisfaction knowing that their opinion or knowledge was shared.

The validation of data is a difficult issue. Generally speaking, the public will know their own neighborhood better than the City's Planning or Public Works Department. The citizen will know what time of day there is traffic congestion, what sidewalks to avoid at night due to insufficient lighting, the best time to day to visit the local park and watch wildlife or who provides the best lunch specials. While some of these things could be inventoried and mapped by the city, it is unlikely that budgets will allow this type of intensive data management. Thus, volunteered data becomes the primary source of information. The method used to collect this information is critical as it needs to be conducted in a manner that allows for the "Wisdom of the Crowd" to cast its collective voice in a manner that allows

for easy corroboration of the responses. If the data is new data, than the appropriate data layers can be assembled with the corresponding metadata.

Note: this is the process that I am currently using in the Mapping the Barriers project where citizens are invited to submit the location of environmental barriers that are affecting their ability to lead a healthy lifestyle. The system is designed to allow points of consideration to be appended with the opinions of other citizens in the community so that a weighted value is calculated that can in turn be used as a sign to the city of the validity of the concern.

If the volunteered data contradicts or extends information already included in an information system the decision has to be made in regards to how to deal with this new information. One solution is to implement a middle-data manager that resides alongside the “official” data set. This information would then be available as secondary information and could be displayed in conjunction with the official data. A parallel to this issue is how we document history, we have the recorded past as it is written in text books, but we also have the individual stories from people who lived during that time. These stories are important to keep as they help support or elaborate on what is officially recorded.

Providing universal accessibility to submit and interact with a data system goes beyond technological and communication concerns. Providing widespread access to broadband Internet and updated devices may not be enough if you want to capture the voice of (or a sample of) the population. On the ground efforts may still be necessary to get minority or specialized groups to the table.

The mobile technology emerging onto the market today will have a significant impact in how information is packaged. The graphic design industry benefitted greatly as the World Wide Web matured into a graphic experience – they are likely to benefit again as the variety of devices capable of reading and interacting with digital media proliferates. As demonstrated by Adobe’s new Device Central CS3 application, gone are the days of simply ensuring that your web page worked on both high and low resolution monitors – there will soon be tens if not hundreds of options. The geospatial community will also have to respond to this explosion of new devices.

In terms of privacy, at the University, any Web-based survey must go through the Institutional Review Board (IRB) because of the ability to capture the participants IP address etc. While the watch guard is there to protect the public, it does limit the efficiency of posting quick public surveys.

GPS and Google have changed how many people view and think about their “space” – we can geocode/geotag almost everything and view the backyards of our neighbors at a fine resolution. However, what happens when the public will not use these tools because they do not want their information saved on a Google server? At the 2007 URISA conference a participant who worked for a city said that they could not use Google Maps (for Mashups) in their community because some people refused to use technology by Google because they did not trust/like the company’s politics – so they had to use ESRI ArcIMS instead. This brings to question, what if citizens dislike AT&T – will you have to find another broadband provider?