

Neogeography Interfaces for Emergent Communities

Andrew Turner
Esri
Washington, DC
aturner@esri.com

Sean Gorman
Esri
Washington, DC
sean_gorman@esri.com

ABSTRACT

This position paper describes the observations and activities in the design of neogeography oriented interfaces that encourage easy collaboration with the goal of open data and emergent communities. By comparing and contrasting the community-driven open information sharing site GeoCommons with the expert oriented and organization-based ArcGIS Online we will identify the characteristics of interface design that encourage personal and communal behaviors for the purposes of shared insight and decision making. By combining together neogeography to encourage personal, even playful, exploration of geospatial data, organizations can become collaborate with and further improve these emergent communities.

Author Keywords

Neogeography; collaboration; design; user experience; data sharing; web; geoweb.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors; Design.

INTRODUCTION

Neogeography is the domain of techniques and tools that enables people to share their perspectives, individual stories, and engage in personal portrayal of their social context [1]. Whereas GIS and geography interfaces typically focus on accuracy and methodology, neogeography emphasizes experience and exploration. This underpinning fundamentally determines the appropriate interaction for each group, despite potential overlap in their end goals and desired actions.

For example, a citizen neogeographer creates a map of her neighborhood to see traffic and accident information in order to determine a better biking route to her work. Her focus is on localized and particular data relevant to her context, from data that appears to be useful and accurate. Her high-level decision process provides likely candidate decisions that can be vetted through action. By comparison a city planner may use the same traffic and accident data to evaluate citywide infrastructure and road design. Specific decisions will be made to alter signals, road directions and signage. Both groups seek a similar goal with the same

data: minimization of traffic accidents, but evaluate through unique perspectives and with different decision actions.

These two groups of users, the neogeographer who is a member of, and encourages her community, and the official member of the government organization both encompass important aspects of collaboration and consensus decision-making.

Communities & Organizations

The composition and operation of these two groups have fundamental differences that drive them. An organization by design is highly structured and typically exists within a rigid hierarchy driven by process. Their tools must conform to these processes that proscribe data information development and publication. In particular geospatial data within and published by organizations typically require strict metadata and quality control metrics. Members of organizations are defined and have clear roles, responsibilities and capabilities.

By contrast communities are typically ad-hoc in their formation and operation and their tools reflect their values and experience. The choice of geospatial platforms is driven more by aesthetics, usability, and freedom of choice. There now exist a myriad of platforms and sites to publish and explore geospatial data and as such users will typically give only cursory testing in order to determine if they will further engage with the site. The role of members of communities can vary and change over time as they shift into and out of the community as well as gain technical expertise with the tools and technology.

A community will consist of many organizations and similarly organizations, at least its members likely will belong to many communities. Communities and organizations are not mutually exclusive but in fact can reinforce and make each other stronger. Organizations participate in communities for a variety of reasons - most pertinent to geospatial platforms is the sharing of data and knowledge in order to achieve a common goal. Ultimately collaboration enables better decisions and consensus that solve their individual and ideally joint problems.

A community platform should be driven by clear and reinforced principles. Any user entering the system should understand and nominally agree to these values in order to be an effective contributor and user. In our work we have derived what we refer to as the "Huffman Sharing Principles" [2].

1. Create immediate value for anyone contributing data,
2. Make contributor's data available back to them with improvements,
3. Share derivative works back with the data sharing community.

Practical Designs and Experiences

GeoCommons is a public and open web site for publishing, sharing, visualizing, and analyzing geospatial data. Explicit in the name, GeoCommons was designed to encourage use by users untrained or inexperienced in GIS methodologies [3]. The goal is to enable any type of user: academic researcher, citizen neogeographer, expert domain analyst, or others to effectively make decisions through capable but simple tools. Launched in 2006, GeoCommons hosts over 150,000 datasets that are accessible and usable through a variety of tools to answer specific questions. Subsequently all generated information visualizations and analyses are also publicly shared and discoverable through the designed interface as well as through public web searches and embeddable in external social and collaboration platforms.

ArcGIS Online is another geospatial platform that provides a hosted platform for GIS professionals to quickly and easily publish their information products. Primarily aimed for professional organizations, ArcGIS Online emphasizes accuracy, metadata, provenance, and web services for experts to develop and share high-quality geospatial analyses. Additionally software developers can extend the platform using a suite of programming interfaces, software toolkits, and open-source website templates for customized applications. Adopted by thousands of organizations, ArcGIS Online provides a trusted platform for the sharing and publication of organizational trusted information.

Through our experiences these two platforms demonstrate alternative methodologies for geospatial publication and collaboration. For example, geospatial data was observed in GeoCommons to be a common pivot point for communities to discover one another. Through shared usage of data to answer disparate problems new insights were achieved and inspired new visualizations. In the path of a community member uploading data to build their own visualization they also provide data for other members to find and reuse. This encouraged investigation and combination of datasets together to explore new ideas relating to the community. Through automated metadata capture and trackback the originator of the dataset and any users could discover one another.

The table below highlights a few of the design decisions each platform accentuates to serve its particular users.

	GeoCommons	ArcGIS Online
Data Sharing	Simple File upload and generalized web workflows	Desktop tools for custom workflows and tools
Geospatial Visualization	Brewer based, guided cartography with good defaults	Custom symbolization and extensive cartographic controls
Analysis	Prioritized and common, basic decision driven tools	Domain specific toolboxes and customizable geoprocessing workflows

Table 1: Comparison of feature capabilities between platforms

Conclusions

GeoCommons and ArcGIS Online are two examples of geospatial information sharing applications that serve communities and organizations. Through our experience by providing a platform that conforms to the operational expectations of an organization while also allowing the experiential and exploratory desires of a community, a common interface for the sharing of insight can be achieved.

Lastly, through these collaborative platforms and the combination of official government and domain communities with citizen neogeographers geospatial platforms become a venue for important discourse and consensus building of solutions to difficult problems.

References

- [1] Turner A J, 2006 *Introduction to Neogeography* (O'Reilly, Sebastopol, CA)
- [2] Gorman, S. (2009). Huffman's Three Principles for Data Sharing *Off the Map - Official Blog of FortiusOne* <http://blog.geoiq.com/2009/09/16/huffman-s-three-principles-for-data-sharing/>. Accessed March 28, 2013.
- [3] Haklay, Muki. *Interacting with geospatial technologies*. Chichester, West Sussex, UK: John Wiley, 2010.