

AN INTERDISCIPLINARY FRAME FOR UNDERSTANDING VOLUNTEERED GEOGRAPHIC INFORMATION

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A conceptual framework for volunteered geographic information (VGI) is proposed, drawing from research in several related fields including volunteering, leisure study, and social production of knowledge. Although these research areas have not been explored extensively within the field of geographic information science, they offer conceptual tools for understanding VGI issues such as the motivation to contribute geographic information online. Through its depiction of various VGI elements and their interrelationships, the framework provides a good starting point for future research. The framework is employed to analyze participants' motivation to contribute geographic information. Potential motivational factors, drawn from the literature, are classified as intrinsic or extrinsic. The framework and subsequent analysis make it possible to situate VGI research within the larger study of social production of knowledge, but also to articulate the special characteristics of geographic information.

Nous proposons un cadre conceptuel pour l'information géographique volontaire (IGV), en utilisant les recherches dans plusieurs domaines connexes y compris le bénévolat, l'étude des loisirs et la production sociale des connaissances. Même si ces domaines de recherche n'ont pas fait l'objet d'études abondantes à l'intérieur de la science de l'information géographique, ils offrent des outils conceptuels pour comprendre les questions liées à l'IGV comme la motivation de contribuer de l'information géographique en ligne. Par l'entremise des différents éléments d'IGV et de leurs rapports mutuels, le cadre constitue un bon point de départ pour les recherches à venir. Le cadre est utilisé pour analyser la motivation des participants à contribuer de l'information géographique. Les facteurs possibles de motivation, tirés de la documentation, sont classés comme intrinsèques ou extrinsèques. Le cadre et l'analyse subséquente permettent de situer la recherche sur l'IGV à l'intérieur d'une étude plus large sur la production sociale de connaissances, mais il permet aussi d'établir les caractéristiques spéciales de l'information géographique.



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1. Introduction

The term 'volunteered geographic information' (VGI) has drawn increasing attention in academia, business, and government alike. In academia, this is evident from special journal issues [*GeoJournal* 2008; *Geomatica*, this issue] and dedicated sessions on the topic in major conferences such as the Association of American Geographers and Global Spatial Data Infrastructure. In business, companies are seeking to integrate user-contributed geographic information (GI) to their business model. For example, Google has opened its map for users from more than 100 countries to edit [*Google* 2009]; TeleAtlas sees users' contribution as a valuable means of keeping its maps current (See 'Report map changes' at <http://www.teleatlas.com>); and CloudMade uses OpenStreetMap (OSM) data to provide value-added services [*CloudMade* 2009]. VGI content also has implications for governments. It creates a synergy between authoritative and volunteered sources of GI, enabling the distribution of government-centric

production of GI to individuals and groups of individuals [*Budhathoki et al.* 2008].

VGI is driven by contributors' collective efforts. The efforts to contribute GI without an apparent or direct monetary reward or someone's direction suggest that VGI departs significantly from the traditional mode of GI production. This new mode of GI production resembles the creation of open source software and production of knowledge such as Wikipedia. *Benkler* [2005, 2006] describes these phenomena as 'puzzling.' Understanding why individuals scattered around the globe—many of whom are unlikely to meet each other—would invest themselves in such an effort would help resolve the puzzle. Only a few years ago, it was difficult to imagine that people would collaboratively produce online maps as detailed as in OSM.

A closer look at the phenomenon reveals further complexities. For instance, in OSM, one of the



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