Chapter 81
Social Networks and Internet Communities in the Field of Geographic Information and Their Role in Open Data Government Initiatives

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ABSTRACT

Users are playing an increasingly relevant role in geospatial data production. The traditional procedure for creating cartography, mainly by experts in official mapping agencies, has evolved into a more participative process for generating data: neogeography. Technology and the Internet are now user-friendly for a wide range of people who have become active users of global networks, such as GEOSS, INSPIRE, Eye On Earth, and EarthCube, and official producers need to adapt to the new era of openness, collaboration, and hybrid maps by adopting open standards. Although the creation of geospatial information is notably growing worldwide, and is enhanced by user-generated content, we may wonder whether this is a feasible alternative to official cartography. This chapter reviews the main geospatial networks based on both bottom-up and top-down data creation approaches, as well as the potentialities and limitations of user-generated content in the scientific field and in decision-making organisms.

INTRODUCTION

During the last decade, the geospatial information obtained by governments has been stored in large repositories only available to producers and curators. Although public institutions collect data on various topics, sometimes they are unable to carry out a complete analysis. Recently, there is a trend towards increasing transparency and many public institutions publish their data, which is largely

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due to top-down open data initiatives, such as the European Open Data Strategy or the data sharing plan for the Global Earth Observation Systems of Systems (GEOSS). On the other hand, the science and technology communities continually demand more information, and therefore they contribute to the creation and analysis of data in a bottom-up approach. This chapter focuses on geospatial data in order to review initiatives, technologies, and standards that favour the creation of Global Infrastructures, Thematic Social Networks, and Internet Communities. How they complement government strategies is also within the scope of the study.

Geospatial standards allow data to be found and accessed, making it possible to create Spatial Data Infrastructures (SDI) and composed infrastructures, sometimes referred to as systems of systems. The consolidation of the geospatial standards makes interconnections possible almost effortlessly by solving the interoperability amongst the integrated data and systems (Nebert, 2004; Manso & Wachowicz, 2009; van Loenen, Besemer, & Zevenbergen, 2009). In addition, the proliferation of easy to use tools based on these standards lowers the entry barrier to levels where almost any person can access geospatial information or can even become another node in the infrastructure. Therefore, social networks and thematic Internet communities use geospatial standards to easily access open government data, and also to create their own data. It is possible to create more detailed geospatial information and services because many contributors can access and use the same data from different systems.

During the first decade of the 21st century, thanks to the widespread access to the Internet, social and professional networking expanded within the Internet communities (Goodchild, 2007; Haklay, Singleton, & Parker, 2008; Graham, 2010). Thus, users, who are actually the engine of the bottom-up approaches of geospatial data creation, have benefitted from the new communication possibilities and provided a feasible input of knowledge. The expansion of user-generated content is generally called crowdsourcing when it occurs in informal social networks with Web 2.0 technologies (Heipke, 2010), and Volunteered Geographic Information (VGI) when it involves a large number of people who share a common passion for a topic that has a geospatial distribution (Goodchild, 2007).

In accordance with the spread of the Internet, Internet Communication Technologies (ICT), such as smartphones or PDA equipped with a GPS receiver, are more popular every day. Personal ICT devices create positive network effects among users, allowing them to share information and knowledge, and getting users involved in the development of the information system (Sadorsky, 2012). Consequently, the positional accuracy associated with the information shared by users has increased (Haklay, Basiouka, Antoniou, & Ather, 2010), which is ascribed to the easy acquisition and usage of personal positional devices. Although VGI has its limitations, basically related to the expressiveness of the voluntary user, collectively it represents an important innovation that is impacting Geographic Information Systems (GIS) and more generally science and technology and their relationship to the general public (Goodchild, 2007). The increase in user-generated content can be considered a result of the convergence between producers and consumers into what is sometimes called a prosumer (Haklay et al., 2008).

This chapter reviews the main Internet networks in the field of geospatial information science and the globally interoperable Internet communities in several environmental fields. These are classified into the two data creation approaches: top-down and bottom-up. Nevertheless, some initiatives are classified into a two-way approach; this third group includes those initiatives that, while being government driven, participate extensively in user-generated content and open data sharing.

This chapter explores the three main ideas described above. First, although the public administration has taken a while to adopt the open