Chapter XI

Geo-Communication, Web-Services, and Spatial Data Infrastructure: An Approach Through Conceptual Models

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Abstract

The introduction of Web services as index-portals based on geo-information has changed the conditions for both content and form of geo-communication. A high number of players and interactions as well as a very high number of all kinds of information and combinations of these characterise Web services, where maps are only a part of the whole. This chapter discusses the relations between the different components of SDI and geo-communication as well as the impact thereof. Discussed is also a model for the organization of the passive components of the infrastructure; that is, legislation, collaboration, standards, models, specifications, Web services, and finally the information. Awareness of the complexity is necessary, and structure is needed to make it possible for the geo-information community to pull together in the same direction. Modern Web-based geo-communication and its infrastructure looks very complex, and it will get even more complex. Therefore, there is a strong need for theories and models that can describe this complex Web in the SDI and
geo-communication consisting of active components, passive components, users, and information in order to make it possible to handle the complexity and to give the necessary framework.

The Chapter’s Delimination

The major concern of this chapter is the requirements driven or user driven development of SDI and geo-communication. Most GIS-, cartography- and SDI-literature lacks theories, models, and methodology for the systematic user requirement assessment, which comprises user awareness, situation awareness (task, time and place), and capability awareness.

This chapter describes conceptual models, that is, relations on a general level. This chapter is not a description of technical implementation methodology, that is, actual action or prototyping. The ideas presented in the chapter are of speculative nature. They are mainly based on the author’s joint experience and empery from twenty-five respectively thirty-seven years in the business. The theoretical aspects in the chapter, particularly those regarding the geo-communication, are mainly based on C. S. Peirce’s theories on semiotics and phenomenology.

Introduction

The role of geo-information and the distribution of geo-information have changed dramatically since the introduction of Web services on the Internet. In the framework of Web services, maps should be seen as a part of an index to further geo-information. Maps are no longer an aim in themselves. In this context, Web services perform the function as index-portals to further information. This index-function is based on geo-information, for example, maps.

The introduction of Web services as index-portals based on geo-information has changed the conditions for both content and form of geo-communication. A high number of players and interactions (as well as a very high number of all kinds of information and combinations of these) characterise Web services, where maps are only a part of the whole. These new conditions demand new ways of modelling the processes leading to geo-communication.

See Figure 1. A high number of players and interactions (as well as a very high number of all kinds of information and combinations of these) characterise modern geo-communication, where maps are only a part of the whole; these new conditions demand new ways of modelling the processes leading to geo-communication.
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