

## Chapter XVI

# Web Information Retrieval: Towards Social Information Search Assistants

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### ABSTRACT

*Nowadays, the Web has become the most queried information source. To solve their information needs, individuals can use different types of tools or services like a search engine, for instance. Due to the high amount of information and the diversity of human factors, searching for information requires patience, perseverance, and sometimes luck. To help individuals during this task, search assistants feature adaptive techniques aiming at personalizing retrieved information. Moreover, thanks to the “new Web” (the Web 2.0), personal search assistants are evolving, using social techniques (social networks, sharing-based methods). Let us enter into the Social Web, where everyone collaborates with others in providing their experience, their expertise. This chapter introduces search assistants and underlines their evolution toward Social Information Search Assistants.*

## INTRODUCTION

Searching for information is commonly an individual task that aims at solving any information need. To do that, one may go to a library, or go surfing the Web in order to find relevant information. Indeed, due to the large amount of available documents, the Web has become a favorite information source for solving daily information needs. An issue remains; the Web is in perpetual evolution; so the problem is less the existence of relevant information rather than the way users find it. One may compare searching for information on the Web with “looking for a needle in a haystack.” Thus, searching the Web suffers from many limits that can be reduced by using a search assistant. Such an assistant helps the user to find relevant information on the Web. At the beginning, those assistants were principally helping each user individually. Nowadays, we are witnessing the rise of social approaches in such systems. Those latter systems help users to find relevant information by using other users’ experience, shared information ... Therefore, each user is helped thanks to the mass crowd. This chapter underlines the evolution of these search assistants. It is organized as follows: section 1 introduces the underlying concepts and limits of traditional information search process and its application to the Web. Section 2 explains the search assistant concept by detailing its evolution from individual to social approaches. Sections 3 to 5 present current approaches that search assistants may use to help any user to query and browse the Web as well as to improve search-related activities. To conclude, future trends for Web information assistants are discussed.

## BACKGROUND

Searching for information can be achieved through two specific modalities: querying and browsing (Agosti, 1996). Querying consists in using a

specific tool, such as a search engine, in order to find relevant information. Browsing consists in navigating the Web thanks to hyperlinks that exist in Web pages; that is the reason why the Web is then considered as a hyperdocument. Moreover, searching for information is also correlated with many activities that must be taken into account because they are achieved during the search process. These activities are active reading, memorizing, and organizing information, as well as sharing information. Moreover, it is essential to underline that the efficiency and success of a search process depend also on specific human factors.

## HUMAN FACTORS

Human factors are essential in any information searching process. Thus, as it is the case for any software, its success is conditioned by context, human factors, and capabilities (Shneiderman, 1998). More precisely, in the information-seeking context, two knowledge types are implied: “practical” knowledge and “domain” knowledge, so, the success of any search process depends on both of them. The use of this twofold knowledge is underlined by the Gvu study (1998) and by Hölscher and Strube (2000). This latter study underlines the behavioral difference between experts and newbies when seeking information according to these two types of knowledge:

- **Practical knowledge:** A user who wants to search for information needs to know how the Internet works and how to handle the Web itself. Thus, he/she has to know how to formulate and interpret a URL (Uniform Resource Locator), how to view and handle documents, how to use tools implied in the seeking process (search engine query language...).
- **Domain knowledge:** The most important knowledge that affects the information seeking process is domain knowledge. Indeed,

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