

Chapter XXIX

Digital Library Requirements: A Questionnaire-Based Study

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ABSTRACT

The gathering of user requirements is key to the gaining of a deeper understanding of the needs evolving from the user's operational context and from the use of the system. User requirements are pivotal in guiding the development process of any system. This is no less true in the arena of digital libraries (DLs). The gathering of DL requirements should be conducted with the understanding that the anticipated DL user interface should accord support to the user throughout the entire DL usage/interaction process. This chapter describes a questionnaire-based study of DL requirements based on the foregoing understanding. The study covered a wide range of issues pertinent to the design of user interfaces for DLs, including: user characteristics/profiles, current experience in DL usage, functional requirements, nonfunctional requirements, and contextual requirements. To the authors' knowledge, this is the first systematic empirical investigation of DL requirements that covers such a wide range.

INTRODUCTION

It has been said that “the digital library in a broader context is nothing but a database ...the objective of any digitization process should be the empowerment of the people” (TERI, 2004). It is worth noting that there exist many definitions of the term digital library (e.g., Borgman, 1999; Digital Library Federation, 1999); however some of the common points across different definitions are: digital libraries (DLs) can be comprised of digital as well as nondigital entities; the realm of libraries is constituted not only of library objects but also of associated processes, actors, and communities; and the content of DLs can be extremely heterogeneous. It appears that the bottom-line DL issue in this matter is to provide a coherent view of the (possibly) large collection of the available materials (Lynch & Garcia-Molina, 1995). With the foregoing statement in mind we may, to a large extent, regard a DL as an information environment. In this environment, there are producers and consumers of information and knowledge (including collaborators and stakeholders), and they may change their role or play more than one role at the same time.

The gathering of user requirements is instrumental to the gaining of a deeper understanding of the needs evolving from the user’s operational environment and from the use of the system. User requirements are of key importance for guiding the development (and evaluation) process of any system. This is no less true in the arena of digital libraries. WP4 user interface and visualization is a cluster within the DELOS network of excellence on digital libraries². The cluster’s ultimate goal is to develop methodologies, techniques, and tools to establish a theoretically motivated and empirically supported frame of reference for designers and researchers in the field of user interfaces and visualization techniques for digital libraries, so as to enable future DL designers and developers to meet not only the technological, but also the user-oriented requirements in a balanced way.

During the first year, one of its specific objectives was to investigate the requirements for a DL user interface design. To that end, the cluster embarked on the gathering/identification of the functional requirements and nonfunctional requirements of DL users and stakeholders based on a questionnaire-based study.

The investigation involved a wide variety of issues pertinent to the design of user interfaces for DLs, ranging from user characteristics and profiles to current experience in the use of DLs, through functional and nonfunctional requirements, to requirements specifically related to the context of use. While there exist lots of related efforts (e.g., Marcum, 2003; Pasquinelli, 2002; Schilit, Price, & Golvchinsky, 1998), our study is, to the authors’ knowledge, the first systematic empirical investigation of DLs user requirements that covers such a wide range of aspects. In this chapter, we describe the overall requirements emanating from the study³.

In the rest of the chapter, we describe the questionnaires that were used in the DL requirements study; we then give some background information pertaining to the questionnaire participants. The DL requirements are then described and we then highlight future trends and conclude the chapter.

USER AND STAKEHOLDER QUESTIONNAIRES

Potential or real DL users (i.e., stakeholders and end users) have a key role toward the successful design of DLs, and the questionnaires can encourage them to word their recommendations on possible support offered by a DL. The questionnaires also enable DL users to contribute to the definition of the scope of DLs’ functional and nonfunctional requirements. Apart from their use in the context of the data collection performed by the cluster, the questionnaires can also be reused in the process of designing digital libraries for

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