



Chapter 16

A Web Usability Assessment Model and Automated Toolset

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Many organizations are taking advantage of World Wide Web market opportunities through the development of electronic commerce (E-Commerce) web sites. The implementation of an E-Commerce web site, however, doesn't guarantee marketing and financial success. In fact, it could adversely impact the organization when the site is viewed as consumer "unfriendly" or "unusable." An E-Commerce site will be most successful when consumer usability attributes (e.g., performance, design layout, navigation) drive its development. This chapter describes a web usability assessment tool that is being developed to provide usability feedback on a particular web site. The tool incorporates a set of usability attributes with user profile data and organizational goals for ongoing assessment of the effectiveness of a web site.

INTRODUCTION

Many organizations are exploring the potential for increasing their customer base and market share by taking advantage of electronic commerce (E-Commerce) capabilities via the web¹. The success of companies such as eBay and Amazon, online customer-based web sites, has shown that the Internet provides a viable medium for reaching customers. With the expected growth of E-Commerce exploding to over \$300 billion in the next five years, it is almost imperative that companies expand their traditional means of reaching consumers to include internet options (Makmuri, 1998).

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What is required is an effective business strategy that encompasses the consumers wants and needs when developing an E-Commerce site. It is not sufficient to have a strategic plan that focuses on the technological aspects without taking into consideration a consumer profile of web use. E-Commerce sites will be most successful when technology and consumer usability attributes (e.g., understandability, ease-of-use) drive the development of a web site. For example, eBay's business goals of creating and rapidly expanding its on-line auction services has been supported by the usability aspects of its system including simple page layout and easy navigation. As a result, a broad range of consumers from novices to experienced web users have not only reached but have become repeat users (Spool, 1999).

Though there are tools and templates for supporting the creation of usable designs, there is still a significant amount of work that needs to be done to determine what usability means for a particular E-Commerce site. What may seem an inconsequential design decision (e.g., animated logo on the top of each page), may have dire consequences in keeping old and attracting new consumers to the site. Unless these usability issues are addressed, we face an explosion of unusable sites resulting in a "usability meltdown of the Web" (Nielson, 1999, p.66).

This chapter proposes a web usability assessment tool for providing insight into the potential success of an E-Commerce site. This tool gathers information about target users and the web site under study and produces a set of metrics based on usability selection criteria. Our initial development efforts are summarized in the following sections. The next section briefly explains a usability assessment model that is the basis for tool development. The following section presents an overview of the web usability assessment tool and its components. The next section describes the tool and an assessment process that is associated with the good use of our tool. The section following presents a simple example, and the last section concludes the chapter with future research opportunities.

A USABILITY ASSESSMENT MODEL

A usability assessment model has been developed in order to identify a comprehensive set of usability components needed to evaluate various aspects of an E-Commerce web site. The model, as shown in Figure 1, is comprised of aggregated usability factors including *page layout*, *design consistency*, *information content*, *design standards*, *performance*, and *navigation*. Each of these factors is comprised of a set of usability attributes, which is further decomposed into a set of usability elements. A usability attribute and its element set take into account behavioral, visual, and information content associated with consumer use of the web site.

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