Analysis and Customization of Web-Based Electronic Catalogs

Benjamin P.-C. Yen
The University of Hong Kong, China

Abstract

Electronic catalogs are at the core of information system support for electronic commerce. Unlike traditional paper-based product catalogs which are limited by size, access method, high production cost, and obsolete information, electronic catalogs promise up-to-date information, more flexible methods of search and retrieval, interactive multimedia user interface, and automated linkage and support for various procurement functions. As the World Wide Web became more popular, a tremendous amount of information flooded the cyberspace resulting in the problem of information overload. To attract and retain users, a Web site should be adaptive on information content, information organization and information display. In this chapter, a Personalized Electronic Catalog (PEC) system is proposed to synthesize the Web-based electronic catalog customization on information content, organization, and display; as well as to demonstrate the analysis and improvement of information access for electronic catalogs in an industrial application.
Introduction

Electronic catalogs are a central component of the procurement process in e-commerce. Traditionally, product catalogs are the references for product selection and are also used in supporting other steps of procurement including source selection, price negotiation, ordering, and order fulfillment. Electronic catalogs are more powerful than paper-based catalogs because they carry up-to-date information. Furthermore, they can be searched in numerous ways other than by product name and identification number, and can be configured to satisfy the different information needs of various functions involved in each step of the procurement process such as marketing and sales, as well as different industry roles such as supplier and manufacturer. Electronic catalogs inherit the advantages of the Internet technology for easy update, economical development, and full-scale information. If defined according to standards, they can also potentially participate in a multi-catalog framework allowing buyers to search across multiple catalogs.

The Internet has emerged as the media for a market with the greatest potential. Many organizations have established their Web sites as a business frontier in order to gain the strategic advantages of competition in the electronic business. Most commercial sites provide information about the company, products and services, well-organized electronic catalogs, or transaction functions. Many Web sites are loaded with large amounts of information, such as electronic catalogs in shopping malls (Yahoo! Shopping, shopping.yahoo.com) and auction sites (eBay, www.ebay.com). It is not surprising that users often feel lost and frustrated due to the disorganized, obsolete, and irrelevant information when they surf the information sphere. The situation is getting worse as the number of Web sites and the volume of data associated soar. Even though various search engines are provided in many of these sites, they cannot guarantee that the user can really find what he is looking for, because he may not be able to specify some attributes or keywords in the query (NUA Internet Surveys). The ultimate goal of an EC Web site is to attract and retain the visitors by providing better services rather than just providing more information, an attractive layout, or flashy advertisements. One solution is to provide a customized Web site for individual visitor where customization is based on the user preferences for information content, product display, and supporting functions.

Research in electronic catalogs has been fragmented. Issues that have been investigated include search and information retrieval mechanisms, architectures of multi-catalog systems supporting supplier/buyer networks, information presentation, and user interfaces. An integration of extant research into a comprehensive definition and structural design of electronic catalogs facilitates to specify the components, content, features, functions, and inter-component relationships. Since different stakeholders of the procurement process would have different needs for these components, it would be beneficial for designers to be aware of these needs. A prototype based on the structural design allows different stakeholders to evaluate the components hands-on. Systematic analysis of their evaluations can derive design guidelines for electronic catalogs.