Chapter 18

A Mashup Application to Support Complex Decision Making for Retail Consumers

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ABSTRACT

Purchase processes often require complex decision making and consumers frequently use Web information sources to support these decisions. However, increasing amounts of information can make finding appropriate information problematic. This information overload, coupled with decision complexity, can increase time required to make a decision and reduce decision quality. This creates a need for tools that support these decision-making processes. Online tools that bring together data and partial solutions are one option to improve decision making in complex, multi-criteria environments. An experiment using a prototype mashup application indicates that these types of applications may significantly decrease time spent and improve overall quality of complex retail decisions.

INTRODUCTION

“Only an inventor knows how to borrow, and every man is or should be an inventor,” Ralph Waldo Emerson.

It has long been recognized that service customers have a dual role, being both consumers and producers (e.g., Chase, 1978; Lovelock & Young, 1979; Mills & Morris, 1986). The production role of the service customer is often referred to as “co-production.” Internet-based services are no exception and often require higher levels of
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cooproduction than in traditional services (Xue, Harker, & Heim, 2005). While effective IT solutions clearly provide benefits to internal processes, using IT applications in co-production activities has the potential to provide effective and efficient support to both the service customer and the provider. One way to do this is to provide online services that support decision-making needs of consumers.

Many consumer purchases require complex decision making and customers often use online sources for the information needed to select the product or service that best satisfies their needs (Oz, 2007). This information includes product specifications, reviews and ratings, availability, and pricing. Some consumer purchases require the balancing of multiple criteria and require coordinating purchases from several vendors (e.g., purchasing an automobile may involve tradeoffs between the cost of vehicle, fuel efficiency, vehicle safety, insurance costs, financing options, non-dealer options, such as GPS or satellite radio add-ons, extended warranties, and maintenance service contracts). The overload of information available from the Web makes finding and using reliable information for multi-criteria decision making problematic (Selamat & Selamat, 2005).

Search engines and other Web search techniques provide consumers with access to large amounts of information; however, the sheer volume of data available can lead to information overload and an inability to apply the information available to the decision-making task. Consumers desire information access during their decision making and such information access produces a more satisfied consumer (Kwon, 2006). However, simply finding appropriate information is not sufficient to enable consumers to adequately evaluate solutions to multi-criteria decision problems (Spira, 2006).

One way the Web is evolving to cope with the increased volume of information is through the development of Web 2.0 applications (e.g., wikis, blogs, social bookmarks and mashups.) Web 2.0 applications facilitate collaboration and information sharing (O’Reilly, 2005). These new applications are database-driven meaning they are data intensive and the more data they contain the more valuable they become (McFedries, 2006).

Web 2.0 applications provide a more interactive web experience and allow a variety of users, including retailers, manufacturers, consumer rating entities, industry experts, and consumers, to share in the generation, organization, distribution, and utilization of knowledge. These applications have the potential to fundamentally change the way the Internet is used, allowing for new business models based on value-added services. These systems can provide improved information and decision support to enable consumers to make well informed decisions more quickly than with traditional information sources or older standard Web technologies.

This research examines the use of a decision support mashup to facilitate and enhance multi-criteria consumer decision making. The mashup utilizes wiki-based knowledge repositories to improve the information content available for the consumer decision-making process. The primary contribution of our research is the measurement and analysis of actual benefits provided by a mashup. While consumer based mashup applications have increased significantly over the last two years (Fichter & Wisniewski, 2009), these applications are developed to satisfy situated consumer needs and may evaluate perceived benefits. Enterprises considering adopting mashup based decision support applications need to understand the realizable benefits to decision makers, including any reduction in the time required to make a decision and any resulting improvement in the quality of the decision.

An exploratory research experiment is conducted by implementing a prototype mashup application for designing a media room. This purchase decision involves integrating expert information, product specifications, quality ratings, and pricing and availability of the equipment from
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