

# E-Shoppers' Perception of Web-Based Decision Aid

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## INTRODUCTION

The WWW, for better or worse, has forever changed the way retailers do business nowadays. E-shoppers, who become more sophisticated and mature nowadays, are demanding increased flexibility and intelligent aids in accessing product information, making purchasing decisions, and obtaining e-services (Anupam, Hull, & Kumar, 2001; Chen, Gillenson, & Sherrell, 2004). The Internet facilitates interactive selling approaches, whereby product offerings can be tailored to individual preferences. It allows e-shoppers to easily gather, retrieve, and analyze product information. Ultimately, the Web offers the ideal vehicle for delivering intelligent online support tools directly to customers (Grenci & Todd, 2002).

Unfortunately, most e-commerce sites are rarely aware of taking advantage of such Internet-driven customer aid. Rapid advancements in Internet technology have offered a solution of Web-based customer decision support system (WCDSS) that can improve transactional efficiency by providing tailored merchandising information, offering sales support and consultation, facilitating sales promotion and advertising, and enhancing the consistency, availability and quality of online support to e-shoppers (O'Keefe & McEachern, 1998). As the WCDSS aims to empower e-shoppers by enabling them to make informed decisions online, the question of how they would perceive such support arises.

In this article, we aim to establish a theory-founded framework to understand and explain e-shoppers' perceptions of the proposed WCDSS functions. We look at the key features of WCDSS functions that may have impact on e-shopper's perceptions, and how to scale and analyze e-shoppers' perceptions regarding specific functions. The specific objectives are threefold. We aim (a) to verify the role WCDSS can play in facilitating e-shoppers, (b) to identify the key issues that impact e-shoppers' perceptions of WCDSS, and (c) to suggest ways in designing and improving WCDSS functions and interfaces.

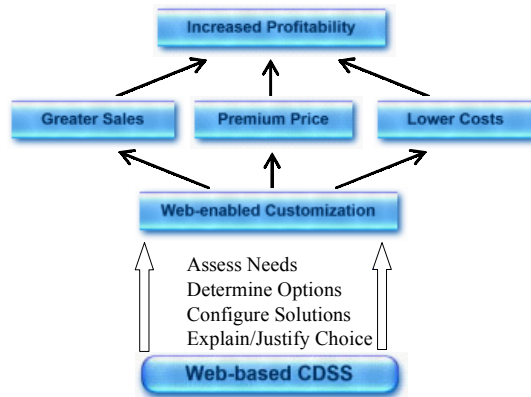
## BACKGROUND OVERVIEW

Throughout the e-commerce literature, customer-side researches have repeatedly stated that customers are at the core of all businesses no matter they are brick-and-mortar or virtually online (Hughes, 2002; Rodgers, Yen, & Chou, 2002). E-commerce success depends on effectively managing relationships with the customers and understanding their online behavior and preference in a comprehensive and interactive way (Rowley, 2002). With the advent of the Internet, customers have realized the benefits of shopping online including convenience, broader selection, and competitive pricing, but on the other hand, their involvement in online retailing is impeded by factors such as information overload and other technology barriers or unfamiliarity (Chen et al., 2004).

Taking advantage of the Internet-driven technology, WCDSS, a Web-based customer decision support system, offers an ideal vehicle that provides customized and intelligent real-time assistance for e-shoppers in overcoming substantial impediments to participation and satisfaction online. Starting more than 40 years ago, long before the Web and notions of e-commerce access, there has been great interest in the human decision making process (Forgionne, 2000). In Gregg, Goul, and Philippakis (2002), work on decision support development, they professed that "it is now possible to access these DSS using the Internet" (p. 233). A WCDSS is thus defined as a Web-based system that connects a company to its existing or potential customers, providing support for the customers' online decision-making process (O'Keefe & McEachern, 1998).

A WCDSS is believed to have the ability to offer significant value to the entire customer decision-making process, especially in the Internet era of self-service, configure-to-order buying (Grenci & Todd, 2002). The complexity of configuring and selecting the customizable goods and services sold on the Web suggests there is particular value in an interface that guides and directs customer choices and markets complex and customizable products (Grenci & Todd, 2002). Such WCDSS-enabled

Figure 1. WCDSS in support of e-commerce activities



personalization and customization will then lead to lower transaction cost, premium product pricing, and greater promotional sales which all together will result in increased profitability. Figure 1 depicts the aforesaid functions and features of a WCDSS and its impact on the e-commerce performance.

Although the WCDSS is gaining momentum in facilitating online shopping, much work has been done on the algorithms of the proposed approach with little consideration of the interaction with the potential customers (Anupam et al., 2001). One exception is a simple framework proposed by Chiasson and Lovato (2001) to understand the factors that influence the formation of a user's perceptions of a DSS innovation. Those factors include subjective norms, adoption stage, user competence, implementation processes, and organizational factors. However, e-commerce introduces new business objectives, enables

new business activities, and creates new channels in which the service experience and data gathering about the customer are closely coupled (Rowley, 2002). As a result, the old measures of customers' perceptions of general DSS functions may no longer apply in the context of e-commerce. To fill the gap, this study offers such an exploratory investigation on e-shoppers' perceptions of the specific WCDSS functions. The framework proposed in this study links the WCDSS features and functions to each e-shoppers' decision-making step, and helps WCDSS designers and implementers in their development, implementation, evaluation, and ongoing utilization of the system.

### FRAMEWORK TO UNDERSTAND E-SHOPPERS' PERCEPTION

To explore e-shoppers' perceptions of the WCDSS functions, we first look at the specific steps involved in the customer shopping process, what parts of the process can be supported by the WCDSS, and how the customers would perceive such Web-based support. From a decision-making perspective, the customer shopping process breaks down into five stages of decision-making steps (see Table 1).

Throughout the process, WCDSS could provide proper decision aids to facilitate certain tasks within each stage. Based on an early work on the impact of design elements and policies on customer attitudes (Hahn, 2001), we identify two dimensions of e-commerce system, which reflect the proposed WCDSS functions: Market Site-Structure and Market Techno-Structure. We define EC Site-Structure as related to the presentation and navigation of items or instructions. EC Techno-Structure refers

Table 1. Overview of e-shoppers' decision making stages

E-Commerce Shopping Stages	E-Shoppers' Decision-Making Steps (O'Keefe & McEachern, 1998)	General Decision-Making Steps (Forgionne, 2000)
<b>Need recognition</b>	E-shoppers must recognize they have a need that can be satisfied through a purchase online.	Intelligence—Observe reality and gain problem or opportunity understanding.
<b>Information search</b>	E-shoppers then search for a product or service that satisfies this need, along with outlets that can provide it.	Intelligence—acquire needed information; design—develop decision alternatives.
<b>Evaluation</b>	E-shoppers use decision heuristics to evaluate and compare goods, often using surrogate measures where limited information is available.	Choice—logically evaluate the decision alternatives and develop recommended actions that best meet the criteria.
<b>Purchase</b>	E-shoppers place an order, pay for it (or arrange payment), and possibly arrange for collection, delivery, or maybe installation.	Implementation—gain confidence in the decision, develop an implementation plan, and put into action.
<b>After purchase evaluation</b>	E-shoppers evaluate purchases with a view to future decision making.	Feedback loops—utilize the outputs to guide further decision-making process.

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