

# Chapter III

## A Study of Intelligent Shopping Support: A Case Study of Outbound Group Package-Tour Products in Taiwan

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### ABSTRACT

*The Internet and World Wide Web are becoming more and more dynamic in terms of their contents and usage. Agent-based shopping support (ASS) aims at keeping up with this dynamic environment by mimicking shoppers' purchasing behavior in the electronic commerce transaction process in the sense of matching the profiles of Web sites and shoppers. Evolutionary agent-based shopping supports are emerging as intelligent shopping support. This chapter contains the earliest attempt to gather and investigate the nature of current research. The idea of applying concepts of product characteristics from the matrix of Internet marketing strategies is introduced for solving problems of natural language information search. The process of focus-group research methodology is applied in acquiring the essential knowledge for examining shopper's knowledge of search. An architecture of ASS in the case of outbound group package tour in Taiwan is presented. This work demonstrates the process of knowledge acquisition to tackle the problem of ineffective online information search by a customer-centric method.*

### INTRODUCTION

**Commercial Web sites** are regarded as the virtual channel to communicate with shoppers by transmitting marketing messages online. Evolu-

tionary **agents** are emerging as bringing buying and selling together in the sense of mediating in the process of online business transactions. When **shoppers search** online product information, they place judgments on searching for the best place,

that is, the Web site in this case and the best offer to shop. From shoppers' points of view, an intelligent shopping support should complete search tasks without human interventions and know well both the domain of electronic commerce and what shoppers want. By taking this notion into consideration, a comprehensive study of agent-based shopping supports (ASS) is required with the aim to improve the shopping supports in the subject of electronic business. And this kind of study is lacking in current literature. The research objectives are twofold: The investigating of relevant literature of intelligent shopping support is conducted on one hand; the development of a knowledge-based ASS is carried out on the other hand. A business case of group package tour in Taiwan is selected to explore and demonstrate the feasibility for improving the search effectiveness of ASS based on knowledge engineering method regarding transforming human knowledge of search into the ASS's **knowledge base**. This chapter presents an ongoing research project; therefore, it is included the current progresses for acquiring essential knowledge by conducting a **focus-group interview** and an architecture of ASS.

This chapter is arranged as follows. In the second section, the background information of this chapter regarding the problems of ASS is investigated and examined. The third section proposes a shopper-centric solution and details the process of knowledge acquisition by an experiment of focus group. The fourth section presents the architecture of the ASS and its ontological knowledge base with some snapshots proposed in this chapter. Finally, results, discussions, and future trends are stated.

## LITERATURE REVIEW

### ASS in Supporting Online Shoppers

It is proposed that agents offer ways to buy and sell in electronic marketplace (Amin & Ballard,

2000; Liu & You, 2003; Vahidov, 2005; Yuan, 2002). It is also addressed that by knowing what human wants in terms of their profiles and buyer behavior are essential for keeping the efficiency of ASS. This chapter takes this notion as central for further explorations in the subject of agent-based shopping support. In other words, in view of the fact that the shopper-centric solution is proposed as a promising direction for agent developments it is required a comprehensive examination on current literature in terms of its unsolved challenges toward this direction. In this section, related works about ASS are analyzed regarding advantages and disadvantages of the efficiency for assisting shoppers.

There are a number of successful or unsuccessful cases of ASS in the Internet shopping domain (Hostler, Yoon, & Guimaraes, 2005; Liu & You, 2003), including *AuctionBot* in a consumer-to-consumer (C2C) e-auction system, *BarginFinder* and *Jango* in a business-to-consumer (B2C) e-shopping system, and MAGNET in a business-to-consumer (B2B) e-supply chain system. These ASSs are developed for assisting shoppers in the decision-making process which is modeled as the six stages: (1) **consumer requirements definition**, (2) **product brokering**, (3) **merchant brokering**, (4) negotiation, (5) purchase and delivery, and (6) after-sale services and evaluation. ASSs are commonly supported the first three stages as human users are in need to handle the problems of information overload. **Comparative shopping** and negotiation capabilities have been proposed lately. It is suggested that the context-aware multi-agent intelligent architecture should be adopted for implementing autonomous negotiation between buyers and sellers. In addition, **case-based reasoning** and negotiation mechanisms are utilized in the process of matching the best deal for shoppers. However, it is revealed difficult to gain the knowledge of human search from the literature as human mind have complex set of factors running for making a decision. In view of the mechanism of ASS, it

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