Preface

From the BargainFinder experiment in 1995 to the now popular comparison-shopping destinations like Shopping.com, Web-based comparison-shopping as an e-commerce innovation has been enriching our online shopping experience for more than a decade.

Different from other electronic commerce innovations, comparison-shopping as an emerging e-commerce sector is shared by multiple players from its inception. This multiple-player environment allows both competition and mutual learning in a much faster pace compared with other ecommerce sectors. Thus, we found numerous incremental innovations of shopbot technologies in the past decade initiated by different shopbots. These innovations keep perfecting user experiences and eventually lead comparison-shopping into one of the top three B2C ecommerce shopping modes.

The existing research on comparison-shopping can be organized into three different domains: the technical design of shopbots, the comparison-shopping user behaviors, and the economics of comparison-shopping.

The first domain is the design of shopbots. Research on the technical design of shopbots started before 1995 and mainly focuses on how to retrieve data from heterogeneous data sources. Later, when comparison-shopping became popular, how to optimize the data retrieval algorithm and improve the consumer experience became the research trend. It also overlapped with user behavior research in the second domain.

Comparison-shopping user behavior is the second major research domain. Psychologists used controlled or semi-controlled experiment to explore the impact of comparison-shopping information display and functions. Major findings include the confirmation of shopbot efficacy as well as choice overload phenomenon.

Shopbots and comparison-shopping services are also being explored from economics perspective, which is the third domain. In this domain, the impact of comparison-shopping on market equilibrium and pricing strategy of vendors are investigated. Theoretical analysis, empirical data analysis, as well as simulations are three main methodologies. Empirical data collected from comparison-shopping services are used. It was found that comparison-shopping more or less decreased the equilibrium price in many commody and service sectors though evidence is not conclusive and the effects are not consistent.

As indicated above, though we there exist a considerable number of studies on comparison-shopping services, they are largely disintegrated from each other and failed to achieve synergy. On the other hand, comparison-shopping services or shopbot is both a Web-based technology and an innovative B2C ecommerce model. It is difficult to separate its technical design from its business model innovation. They are influenced by each other as indicated in the first chapter of this book.

In light of this situation, the goal of this book is to provide a cross-discipline summary of existing research on comparison-shopping, as well as online shopping in general. So researchers in their own disciplines like computer science, information system, marketing as well as psychology and economics

could get inspirations from other disciplines and conduct more fruitful research in the future. Following is a brief explanation of each chapter of this book.

OVERVIEW

Chapter I gives an overview of comparison-shopping services and shopbot design. The explanation of comparison-shopping services and shopbot design is followed by a brief account of the evolution of comparison-shopping in the last 13 years. Then four important research topics are discussed. They are the design of shopbots, the behavior of online shoppers when using the services, comparison-shopping as a new channel for small online vendors to reach consumers, and the impact of comparison-shopping on the pricing structure of the market. Comparison-shopping for travelling and health services is also discussed.

Infrastructure and Shopbot Design Issues

Chapter II to IV provided us three frameworks for the design and application of comparison-shopping services.

Chapter II first identifies the limitations and drawbacks of the current design of shopbots, in particular, with regard to the underlying technology for building such systems. It then discusses how these technical limitations can be overcome by making use of the Semantic Web and Web Services and how shopbots can truly serve the user by providing personalized, impartial and flexible services. This chapter will be especially useful for shopbot developers who are considering integrating Web services into their design.

Chapter III addresses how to accommodate the semantic heterogeneity problems that arise when data is collected from different information sources around the world. In this chapter, authors use examples to illustrate three types of semantic heterogeneity problems that a global comparison service may encounter. Then they propose agent architecture to mediate between the heterogeneous data sources and the users (or user applications). This agent architecture provides three services: data access, entity resolution, and context mapping. The feasibility of using the architecture to enable global comparison is demonstrated with a prototype application. An evaluation of the solution shows that it is scalable due to its capability to automatically generate necessary conversions from a small set of predefined ones. This chapter will be especially useful in light of current expansion of comparison-shopping services across country boundaries so the same product offered by vendors in different countries could be compared together.

Chapter IV investigates the search pattern of online shoppers for a specific product. The authors identify three search patterns, sequential, agent search and iterative search. Comparison-shopping is one type of agent search pattern. They examine the factors affecting the choice and the outcome of agent search pattern compared to the other search patterns. They found that agent search seems to combine low search costs with high efficiency. Sequential search still emerges as the dominant search pattern even though it leads to the most expensive purchase. The iterative search pattern was the slowest of them all.

Theoretical Analysis of Comparison-Shopping

Chapter V to VI presented a few theoretical models for the study of comparison-shopping as well as online shopping in general.

Chapter V explores the relationship between the complexity of products and services and their implications for comparison-shopping for both consumers and vendors. Products and services are different in terms of complexity and convenience for evaluation. Thus, we may expect that online shoppers anticipate a different set of comparison information when buying a book compared with buying a computer. For the former, all they need is overall price and expected delivery time. For the latter, a good comparison site should provide side by side function comparison for similar configurations but different manufacturers.

Chapter VI presents a fuzzy logic to human reasoning about electronic commerce (e-commerce) transactions. It uncovers some hidden relationships between critical factors such as security, familiarity, design, and competitiveness about using ecommerce. It explores how some trust models have been developed to address these issues. Some models promote familiarity and competitiveness as part of the exercise of assessing online trust. It also analyzes the effect of these factors on the human decision process and how they affect the Business-to-Consumer (B2C) outcome when they are used collectively. Finally, it provides a toolset for B2C vendors to access and evaluate a user's transaction decision process and also an assisted reasoning tool for the online user.

Empirical Investigation of Comparison Shopping

Chapter VII to XI is a series of empirical investigations of comparison shopping as well as consumer behavior in electronic market.

Chapter VII investigates the comparison-shopping market from a vendor perspective. Here, comparison-shopping services become a new marketing and sales channel for small online vendors to compete with brand name online portals. Online vendors have a wide range selection of comparison-shopping services to participate. There are mainly two types of shopbots for them to choose: those general shopbots that provide product comparison across multiple heterogeneous product categories (like shopping.com) and the specialized shopbots that provide comparison within a single or a few highly-related product categories (like addall.com on books and music CD). The chapter then examines the effectiveness of small online vendors' shopbot selection strategy. By analyzing data from shopbots and online vendors, the authors found that there is significant positive correlation between the number of shopbots an online vendor participates and its traffic rank, which indicates the general effectiveness of using shopbots as a marketing channel. They also found that for online vendors competing on a niche product like college textbooks, participating specialized shopbots brings in higher traffic. For competing in the mainstream market, there is less significant correlation between participating general shopbots and higher traffic rank for vendors. The conclusion is that using general shopbots is a reactive strategy for small online vendors while using proper specialized shopbots could provide an edge for small online vendors.

Chapter VIII explores factors that influence the use of comparison-shopping search engines. The authors conducted a survey of 650 Spanish online shoppers. They use logistical regression to analyze the influence of demographics, surfing behaviour and purchase motivations on willingness to use search engines for online shopping. Data analysis shows that experience as an Internet user and an Internet shopper are negative key drivers of search engine use. Most of the utilitarian shopping motivations analyzed predict comparison shopping behaviour. Demographics are not determinant variables in the use of search engines in online purchases. This research enables companies to know the factors that potentially affect search engine use in online shopping decisions and the importance of using search engines in their communication campaigns.

Chapter IX explores acceptance of mobile shopping from a consumer perception prospective. Mobile shopping has been an emerging shopping mode in recent years. It provides many conveniences for

shoppers to compare and purchase products in different locations. This chapter explores if perceived convenience, the most important feature of mobile shopping, is conducive or could positively influence the shopping intention of consumers. This has been extensively discussed in marketing and consumer behavior literature, but is not empirically validated in the context of mobile commerce. College students in Taiwan were used as subject. The data were analyzed to examine the relationship between perceived convenience and shopping intention. The result shows a significant relationship between the two variables, and a positive effect of convenience perception on shopping intention. The findings have practical implications for mobile commerce strategists by providing more understanding of the mobile commerce success factors from a consumer behavior point of view. It also provides useful information for mobile comparison-shopping service providers.

Chapter X identifies and analyzes the main factors that influence the users' perception regarding the service quality of online shopping agents, and consequently, the elements that determine the users' choice of online shopping agents. The various circumstantial or personal factors that can determine the choice of a specific searching strategy and shopping agent were tested. One hundred and twenty one people from the United Kingdom that have direct experience of using the shopping agents took the face to face interview regarding their use of shopping agents and their perception about the quality of shopping agents.

Chapter XI explores how multi-channel retailers utilizing an e-CRM approach stand to benefit in multiple arenas by providing targeted customer service as well as gaining operational and competitive advantages. To that end, it is apparent that multi-channel retailers better understand how satisfaction—a necessary condition for building customer loyalty—influences consumers' decisions to shop in one retail channel or another. The purpose of this study was to examine the influence of shopping experience on customers' future purchase intentions, both for the retailer and for the channel. Using a controlled experimental design, United States and European subjects responded to a series of questions regarding the likelihood of making a future purchase following either a positive or negative shopping encounter. Results suggest that shopping intentions vary based on the shopping channel as well as on cultural differences.

We also include a carefully selected reading list of comparison-shopping related research. It could be used both as a good reference and a starting point for new researchers in this field.

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