

Chapter XXIII

Telecommunication Customer Demand Management

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ABSTRACT

In the highly competitive environment, the real-time and dynamic customer demand analysis technology is required by the enterprise information systems in order to respond to customer demand efficiently and automatically. Based on a customer value hierarchy model, this chapter proposes a customer demand analysis method and proposes ways to capture customer demand knowledge. Then, we present a novel product recommendation approach, which involves the customer value hierarchy model into traditional recommender systems. Through the above steps, the telecom operators can get their customer demand and respond to their demand automatically.

INTRODUCTION

Telecommunication industry is a special industry. The products and services in this industry are immaterial, complicated and technical. Nowa-

days, telecommunication operators are facing more challenges. Globalization and technology innovation present radical challenges to telecom operators. The telecommunication operators must be more and more competitive in order to survive

in the future telecommunication industry (Zhang et al., 2004; Wang & Archer, 2007).

Today's telecommunication market encourages more competitions. It offers more choices for customers, such as lower price, and the improved service quality. As the previous monopoly situation no longer exists, new entrants come into the market. In an emerging economy, state-owned operators are fully or partially privatized in order to survive better (Stienstra et al., 2004).

Globalization also promotes the domestic competition. Global telecommunication market provides opportunities to some operators because of the economies of scale in telecommunication networks, such as BT and Vodafone. It also brings radical domestic competition since more new operators enter the market.

Internet technology causes an extraordinary growth of the Internet and IP services and applications. Customers are increasingly free to choose different service components from different vendors and assemble their own solution (Li & Walley, 2004). 3G (the third generation telecommunication technologies) and mobile Internet accelerate the production of new services (Pikkarainen, 2001; Keryer, 2001; Meier et al., 2003).

Industry deregulation, globalization, and IP make the telecommunication industry be full of intensified competition. The telecommunication market involves a shift from a stable market to an increasingly user-driven market place. The success of a telecom operator will entirely depend on the operator's ability to create services and applications that are embraced by the users.

The effective management of basic telecommunication infrastructures, full range of software platforms, increasing varieties of services, and a large scale customer base are very important for any operator who wants to win the market. The telecom operators must have the ability to rapidly develop, deploy, and manage services to meet customers' dynamic requirements any time and any where.

The innovation of the telecommunication products mostly depends on the mutual actions between telecom operators and customers. Therefore, Telecom operators should understand **customer demands** to know what customers want, and then provide them the products or services they need as well as possible. This is an essential way to improve customer satisfaction, upgrade customer value, acquire loyal customers, enlarge telecommunication market share, and maximize the operator's revenue, and shareholders' value.

Telecommunication customer demands can be managed effectively by analyzing customer psychology and behavior. By analyzing customer psychology, operators may radically understand the consuming motivation and purpose of the customer. However, the customer psychology is recessive, and is difficult to be obtained. In addition, customer behavior also can be used to analyze customer demands. Most importantly, it is obvious and can be obtained easily. However, the analysis based on the customer behavior cannot always reach the deep layer of customer demands. Therefore, the real-time and dynamic **customer demand** analysis technology is required for capturing customer demand knowledge.

Influenced by the consuming aim, consumption environment and individual preference, different customer groups have different customer demands (Sharp, 1997; Boulton, 2000). Previous studies mainly focus on these subjects: firstly, predicting customer preferences and repeat-purchase patterns through consume history analysis (Simpson, 2001); secondly, analyzing the antecedents and consequences of consumer behavior and **customer loyalty** (Srinivasan, 2002; Inoue, 2003); thirdly, classifying customers using clustering analysis (Wan, 2005). It's a bit excessively simple with such a low intelligence level and large manual work. Woodruff, Butz and Goodstein proposed the CVD (Customer Value Determination) model and built the correlative relations among the **customer demand** attribute layer, the consequence layer and the objective

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