Chapter 14

Improvement of Restaurant Operation by Sharing Order and Customer Information

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ABSTRACT

In full-service restaurants, it is important to share customer information among staff members in real time in order to perform complicated operations. Conventional point of sale (POS) systems in restaurants were developed to improve the verification and transmission of order information passed from the dining hall to the kitchen. However, POS systems have remained insufficient to share customers’ order information among many staff members in different positions. This paper introduces an information sharing system for full-service restaurants using an advanced POS system with which staff members can share order information in real time. Using this system, kitchen staff members can grasp the total number of orders and the elapsed time for preparation of each order. Moreover, service staff members can grasp the status of each customer quickly. Using this system in a large-scale restaurant, preparation processes can be made more efficient and reduce customer complaints.

INTRODUCTION

Recently, science and technology are expected to improve service industry productivity because many existing services are thought to be provided less efficiently than manufactured products (Sako, 2006). Service engineering is a new research field to support actual services by integrating academic disciplines such as engineering, computer sciences, human sciences, and social sciences (Kimita et al., 2008, Shimomura et al., 2008, Spohrer & Maglio, 2008, Ueda et al., 2009). For the promotion of service productivity, both streamlining service operations and enhancing values for customers are
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necessary. Therefore, service engineering focuses on various topics such as optimization of service provision, elucidation of customer satisfaction and value co-creation among stakeholders (Cronin et al., 2000; Moller, Rajala, & Westerlund, 2008; Shimomura, Hara, & Arai, 2008; Spohrer & Maglio, 2008; Takenaka & Ueda, 2008; Ueda et al., 2008; Voss et al., 2008).

From 2007 for instance, the Japanese Ministry of Economy, Trade and Industry started a national project promoting service engineering to improve service sector productivity (Japanese Ministry of Economy, Trade and Industry, 2007). The Japan Productivity Center also established Service Productivity and Innovation for Growth (SPRING) in 2007 (Morikawa, 2008).

Restaurant industry is one of the biggest service industries from the viewpoint of workforce in many countries. On the other hand, it has been less scientifically-studied than manufacturing industries because it includes many human factors of employees and customers. Now, the service management of a restaurant is a good research target for service engineering because both streamlining service operations and enhancing values for customers are needed to enhance the service productivity.

In Japan, the industrialization of restaurant businesses generally started in the 1970s. Up to that time, restaurant businesses were mainly family run. As the market scale of restaurant businesses increased, some restaurants started to introduce chain store systems. In addition, large restaurants were introduced to increase productivity. Consequently, the market scale of the restaurant industry in Japan increased from approximately 8,000 billion Yen (90 U.S. billion dollars) to 250,000 billion Yen (2.8 trillion U.S. dollars) during the 1970s – 1990s. In the latest report, approximately 737,000 restaurants were operating in Japan in 2006 (Japanese Ministry of Internal Affairs, and Communications, 2006). The increase of restaurant markets also brought severe competition among companies. Nowadays, restaurants must improve service operations and to reduce costs. However, provision of services in large restaurants is more difficult than in small restaurants. As chain stores expand, it becomes more difficult to educate staff members to learn high-skill services.

In restaurant businesses, information technologies have played important roles in areas such as in inventory control (Ngai et al., 2008), supply chain management (Murphy & Smith, 2009), and knowledge-based management (Muller, 1999). In the 1980s in Japan, restaurant industries introduced point-of-sale (POS) systems that had been originally developed for retail and convenience store (CVS) businesses (Stein, 2005; Trappey & Trappey, 1998) to improve store operations. Different from the usage of POS systems in CVS, restaurants used them for management of customer orders. As a result, POS systems in restaurant businesses added ordering systems. The system obviated the need of servers to go to the kitchen after accepting orders. Moreover, check-out operations were improved because they were calculated automatically for each table. As Jensen (2007) pointed out, smooth check-out is important because it affects customer satisfaction.

Although innovative for restaurants, the restaurant POS system had persistent problems. When service staff transmitted order information using a handheld registration device, the information was carried to kitchen staff members on paper for each table, which created the need for the kitchen staff to calculate the number of dishes repeatedly. When kitchen operations were rushed, kitchen staff became unable to remember the elapsed times from receiving an order because the POS did not record the elapsed time of each order. The waiting time for dish is a crucial factor for customer satisfaction and complaints (Mittal et al., 2008).

Therefore, we need to pay more attention to the information sharing of customer information among various staffs from the viewpoint of customer satisfactions. Because the conventional POS systems mainly focused on the management