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Deploying effective service strategy in the operations stage of high-speed rail

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ABSTRACT

This paper utilizes a confirmatory passenger continuance behavior model to appraise high-speed rail service quality and performance. Surveys are administered for Taiwan High-Speed Rail (THSR) and Korea Train eXpress (KTX) corporations to gain an understanding of passengers' perceptions of the operational performance using a proposed satisfaction index. A modified importance–performance analysis is employed to enable elaboration of strategic service management decisions. The empirical study concludes that level of access to THSR station and personal space on KTX train are the top-priority quality indicators that need to be addressed to improve customer satisfaction and corporate profits.

1. Introduction

Quite a few quality indicators for the service industry have been proposed in numerous studies (Fornell et al., 1996; Anderson and Fornell, 2000; Hensher et al., 2003; Lin, 2007; Correia et al., 2008; Joo and Sohn, 2008; Nathanail, 2008). In service industries, the core values for consumers include not only the uniqueness of the products offered, but also various other factors such as the physical facilities, style, image, and quality of service delivery. While some studies indicated level of access to station is a critical dimension influencing rail use (Givoni and Rietveld, 2007; Brons et al., 2009), quality of the service offered by the provider is one of the indicators most frequently used to measure the success of a marketing strategy.

In contrast, to assess the delivery value of a service to customers and to quantitatively measure whether organizations meet or even exceed customer expectations, substantial research (Fornell, 1992; Fornell et al., 1996; Anderson and Fornell, 2000; Hensher et al., 2003; O'Loughlin and Coenders, 2004; Correia et al., 2008; Joo and Sohn, 2008; Nathanail, 2008; Yang and Peng, 2008; Shin et al., 2009; Sohn et al., 2009) has been devoted to the development of a customer satisfaction index (CSI) in various service industries, with the primary goals being to assess competitiveness and offer practical guidelines to the providers to allow them to improve the service.

Although various studies show performance evaluation and quality impact on passengers and providers in the transportation service industry, particularly in airline and bus services (Suzuki et al., 2001; Hensher et al., 2003; Yeh and Kuo, 2003; Stradling et al., 2007; Chen, 2008; Correia et al., 2008; Espino et al., 2008; Jou et al., 2008), rarely of the currently-established

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CSI evaluation methods have been adapted for high-speed rail (HSR) infrastructure management during its franchised operation.

Service quality is a significant antecedent of customer satisfaction, and strongly influences profitability, productivity, market share, return on investment, and cost reduction. Improved service quality can increase customer satisfaction, reduce customer complaints, and enhance customer loyalty (Chen, 2008; Chou and Kim, 2009). Restated, continuously improving service quality is important for increasing the competence of the infrastructure management business. Before improving service quality, decision-makers should understand the practical relationships between service quality, customer satisfaction, and post-purchase behavior, as well as service quality performance and its evaluation.

Nevertheless, there has been little exploration of service evaluation indicators for the high-speed rail (HSR) industry, let alone methods to measure their performance. Although the HSR seems to attract a significant number of passengers in the transportation market at the outset (Cheng, 2010), especially for long-distance travel in highly-developed cities, the provider's responsiveness to customers is vital for the long-term success of a corporation due to word-of-mouth communication (nowadays word of "mouse") and customer loyalty, which relate to customer retention, repurchase, and corporate profitability. Thus, knowledge of passenger characteristics and the identification of service attributes that the passengers consider to be priorities, along with the passengers' perception of the service's present performance status, are essential for efficient and successful service strategy management.

In this paper, we evaluate how incorporation of the Quality-Satisfaction-Loyalty (QSL) relationship (Chou and Kim, 2009) into a passenger satisfaction index (PSI) calculation, which adapts the frameworks of the American Customer Satisfaction Index (ACSI) (Fornell et al., 1996) and SERVQUAL model (Parasuraman et al., 1988), can be used to assess the quality of services provided by a high-speed rail corporation as experienced by the customers that use it. To improve and validate the understanding of corporate operational efficiency by owners in the service-oriented industry, this study compares overall and social demographic attribute-level satisfaction using structural equation modeling and importance–performance analysis (IPA).

The remainder of this paper is structured as follows. In Section 2, we review the prior work on service quality, customer satisfaction, and nationwide CSI models related to service industry and transportation management. Section 3 outlines the research methodology and analysis methods adopted for subsequent investigation. Section 4 describes the data profile, including construct indicators in the questionnaire and descriptive statistics. Analytical results of the proposed PSI for both THSR and KTX are provided in Section 5. The final two sections contain a discussion of the strategic implications for the HSR operations stage, concluding remarks, and directions for future research.

2. Prior work on service quality, customer satisfaction, and CSI models

Parasuraman et al. (1985) (PZB) conducted an exploratory study of the potential constructs of perceived service quality and identified ten potential overlapping constructs (Parasuraman et al., 1985). These constructs include tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access. Since its first development, SERVQUAL has been one of the preeminent tools used by scholars and practitioners to measure service quality. The applications of SERVQUAL have attracted extensive discussion related to service quality measurement, discrepancy paradigms, and instrument applications (Teas, 1993; Cronin and Taylor, 1994; Kumar et al., 2008; Chen et al., 2009).

Previous research has indicated that good product (or service) performance results in customer satisfaction and influences subsequent customer purchase behavior (Olsen, 2002; Wen et al., 2005; Park et al., 2006). Service quality is frequently used by both academicians and practitioners to evaluate customer satisfaction. To evaluate service quality, Parasuraman et al. (1988) considered five distinct dimensions to measure consumer perceptions of service quality (SERVQUAL): tangibles, reliability, responsiveness, assurance, and empathy. The SERVQUAL instrument was designed for use in a broad set of service businesses.

Customer satisfaction is defined as the psychological decision made on the basis of a specific service encounter when customers and service providers contact each other (Lin, 2007). It is generally recognized that customer satisfaction depends on the quality of the product (or service) offered (Anderson and Sullivan, 1993). Oliver (1997) discussed loyalty as an outcome of customer satisfaction and indicated that customer satisfaction includes three phases: cognitive, affective, and conative (Oliver, 1997). Thus, service quality and satisfaction are highly correlated and service quality is an antecedent of customer satisfaction (e.g. Churchill, 1982; Anderson and Fornell, 2000; Olsen, 2002).

As much of the literature has demonstrated, service quality is coupled with satisfaction and a loyalty relationship, but there are still chain effects that should be explored in the service industry. Previous studies have agreed that there is a positive relationship between quality and satisfaction and between satisfaction and loyalty (Anderson and Sullivan, 1993; Olsen, 2002; Chiou and Shen, 2006; Hsu, 2008). Liu and Zhao (2005), for instance, constructed a framework of the QSL chain in the Chinese insurance industry and presented empirical support for the expected relationship between perceived quality, perceived value, satisfaction, trust, and repurchase loyalty (Liu and Zhao, 2005). Joo and Sohn (2008) also showed the interrelationships between QSL constructs and measured the chain effects on the digital content industry (Joo and Sohn, 2008).

Corporate image refers to the overall picture that consumers construct of a given corporation (Gronroos, 1984; Liu and Zhao, 2005; Park et al., 2006; Lai et al., 2009). Hsu et al. (2006) demonstrated that corporate image has a positive effect