



A customer-oriented organisational diagnostic model based on data mining of customer-complaint databases

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ABSTRACT

The purpose of this paper is to develop a customer-oriented organisational diagnostic model, 'PARA' model, based on data mining of customer-complaint databases. The proposed 'PARA' model, which is designed to diagnose and correct service failures, takes its name from the initial letters of the four analytical stages of the model: (i) 'primary diagnosis'; (ii) 'advanced diagnosis'; (iii) 'review'; and (iv) 'action'. In the primary-diagnosis stage, the customer-complaint database is comprehensively analysed to identify themes and categories of complaints. In the advanced-diagnosis stage, a data-mining technique is employed to investigate the relationship between the categories of customer complaints and the deficiencies of the service system. In the review stage, the identified weaknesses of the service system are reviewed and awareness of these weaknesses is enhanced among the organisation's employees. In the action stage, a strategy of action plans for improvement is developed. An empirical case study is conducted to demonstrate the practical efficacy of the 'PARA' model. The paper concludes by summarising the advantages of the proposed model and the implications for future research.

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1. Introduction

Customer satisfaction is recognised as one of the most important key performance indicators of success. However, it is always difficult to eliminate all causes of customer dissatisfaction and complaints. Customer satisfaction is influenced by such a variety of factors—including the attributes of a product or service, the individual needs of customers, and the service quality provided by front-line personnel—that even a fully 'customer-focused' service program cannot eliminate all product or service failures.

Most organisations are aware that service failures must be handled appropriately to avoid harm to the organisation's goodwill and profits (Hart, Heskett, & Sasser, 1990). *Service recovery* has thus become an increasingly important issue to prevent the loss of customers (Kelley & Davis, 1994; McColl-Kennedy & Sparks, 2003; McColl-Kennedy, Daus, & Sparks, 2003; Sparks & McColl-Kennedy, 1998; Varela-Neira, Vázquez-Casielles, & Iglesias-Arguëlles, 2008). The term 'service recovery' refers to remedial actions that are taken to re-establish the satisfaction of customers when product or service failure has occurred (Chaston, 1993; Zemke & Bell, 1990). Many studies have demonstrated that effective service recovery

can transform negative evaluations into positive impressions, thus maintaining good relationships with customers (Hoffman, Kelley, & Rotalsky, 1995; Karatepe, 2006; Kelley, Hoffman, & Davis, 1993; Maxham Iii, 2001; Smith, Bolton, & Wagner, 1999; Sparks & McColl-Kennedy, 1998; Spreng, Harrell, & Mackoy, 1995). Appropriate service recovery has also been shown to enhance the trust of customers and increase their willingness to re-purchase (Hung & Wong, 2007; Maxham Iii, 2001; Spreng et al., 1995; Tax & Brown, 1998, 2000; Yu & Dean, 2001). Conversely, ineffective service recovery is one of the main causes of switching behaviour (Keaveney, 1995).

Most studies of service recovery (Barlow & Moller, 1996; Boshoff, 1997; Boshoff & Leong, 1998; Johnston & Fern, 1999; Keaveney, 1995; Tax & Brown, 1998, 2000; Wirtz & Mattila, 2004) have focused on the effectiveness of specific remedial actions—such as exchanges of goods, apologies, or offers of compensation. Relatively few have studied the question of how to improve the service system by learning from the experiences of previous service failures and avoiding repetitions. It is the contention of the present study that the prevailing focus on remedial actions and compensation for a service failure is essentially a passive and *reactive* approach to the problem of service failure, whereas efforts to improve the existing service system represent a creative and *proactive* strategy.

To improve a service system and minimise service failures, it is necessary to collect and analyse customer-complaint data

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periodically and comprehensively. Although some studies have indicated that improvement actions should be based on customer complaints (Bosch & Enríquez, 2005; Gustafsson, Ekdahl, & Edvardsson, 1999; Tax & Brown, 2000; Tax, Brown, & Chandrashekar, 1998), these authors did not propose a comprehensive model to identify the sources of service failures. Chen, Yu, and Chang (2005), Chen, Yu, and Chang (2006), Chen, Yu, Yang, and Chang (2004), who have investigated the importance of service-system design and management, also emphasised the need to make better use of customer-complaint databases to diagnose failures in service systems.

Against this background, the present study seeks to establish a customer-oriented organisational diagnostic model of service failure based on customers' complaints. The proposed 'PARA' model takes its name from the initial letters of the four stages of the model: (i) 'primary diagnosis'; (ii) 'advanced diagnosis'; (iii) 'review'; and (iv) 'action'. The diagnostic model provides a systematic analysis of service failures based on the customer complaint database. Data-mining techniques are then utilised to establish correlations between the identified categories of customer complaints. The model then develops a strategy of improvement actions for the service system. The model provides constructive customer-focused recommendations for improvements in service delivery through scientific analyses of service failures.

The remainder of this paper is organised as follows. The next section reviews the relevant literature on organisational diagnosis. The development of the proposed 'PARA' model is then presented. The practical efficacy of the proposed model is then demonstrated in an empirical case study of public-sector services in Taiwan. The paper concludes with a summary of the main advantages of the model and the implications for future research.

2. Literature review of organisational diagnosis

The term 'organisational diagnosis' is commonly used to refer to a process whereby an external consultant enters an organisation, collects valid data about human experiences within the organisation, and feeds that information back to the organisation to promote increased understanding of the organisation by its members (Alderfer, 1981). The purpose of organisational diagnosis is to establish a widely shared understanding of an organisation, and, based upon that understanding, to determine whether change is desirable.

An effective process of organisational diagnosis and intervention promotes congruence between organisational objectives and the structure required to achieve those objectives (Nadler & Tushman, 1980). To achieve such an effective organisational diagnosis, Harrison (1994) suggested that diagnostic practitioners must attend simultaneously to three distinctive facets of the diagnostic process: (i) analysis; (ii) methods; and (iii) interactions.

Four approaches to organisational diagnosis are especially worthy of consideration: (i) 'sharp image'; (ii) 'open system'; (iii) 'political'; and (iv) 'customer complaint'.

Harrison and Shirom (1999) proposed a distinctive four-step approach to organisational diagnosis termed 'sharp-image diagnosis', which begins with a broad view of the organisation and proceeds to a tightly focused diagnosis of critical problems and challenges. The first step in 'sharp image diagnosis' is 'scouting', which seeks to clarify the nature of service failures in the organisation and to develop a preliminary view of the organisation's strengths and weaknesses. In the second diagnostic step, the core problems and challenges are organised as a reference for the examination of other parts of the organisation. In the third diagnostic step, one or more focused models are developed to shape the organisation's response to its critical challenges. In the fourth

diagnostic step, consultants provide clients with an emergent diagnostic model that incorporates the factors of time, resources, reward, and information feedback. According to Harrison and Shirom (1999), 'sharp-image diagnosis' bridges theory and practice by responding directly to the distinctive conditions that shape a particular organisation's operations and its options for change. The outcome of 'sharp-image diagnosis' is a model that provides clients with a highly focused, multi-dimensional image of conditions underlying basic problems and critical challenges.

The second approach to organisational diagnosis is the 'open system' perspective, which views the organisation as a system that obtains inputs from its environment, processes those inputs, and then produces outputs. According to 'open-system theory', systems have a tendency to run down if not provided with additional resources from the environment and a tendency to remain in a state of equilibrium if not disturbed (Ashmos & Huber, 1987). The open-system framework analyses any organisation in terms of the flows of inputs, the processing of those inputs, and the creation of outputs. According to Jackson (1991), organisational diagnosis in accordance with a 'systems approach' proceeds by a holistic approach that examines the overall environmental and organisational contexts within which problems arise and within which steps toward organisational improvement are enacted. System-based diagnosis thus seeks to distinguish between the symptoms of ineffectiveness and the underlying systemic causes of ineffectiveness. According to Senge (1990), this approach also enables organisations to identify the possible side-effects and unintended consequences of remedial actions. However, there are also significant limitations to the open-system approach to organisational diagnosis. In particular, some of the principles of the systems approach are too abstract to be useful, which can lead to the adoption of a superficial approach that overlooks important details of particular organisational operations and ignores the significant differences that exist among organisational contexts.

The third approach to organisational diagnosis is to treat an organisation as a political arena in which bargaining and exchange take place among internal and external stakeholders who are seeking their own particular benefits or goals (Bolman & Deal, 1991; Hall, 1999; Morgan, 1986). According to this view of organisational diagnosis, the stakeholders' involvement in the activities of the organisation can be harmful or beneficial for themselves and/or for the organisation itself (Donaldson & Preston, 1995). Stakeholders include shareholders, staff, customers, suppliers, and so on. They can be categorised as 'main stakeholders' (who usually maintain a formal contractual relationship with the organisation and have direct economic influence on it) and 'secondary stakeholders' (who include all parties that can influence, or be influenced by, the organisation) (Savage, Nix, Whitehead, & Blair, 1991). In conducting organisational diagnosis in accordance with the political perspective, the following steps are taken (Savage et al., 1991): (i) identify the main stakeholders; (ii) analyse each stakeholder's position; (iii) examine each stakeholder's power; and (iv) assess each stakeholder's capacity for action and impact. The political perspective thus emphasises interpersonal relationships within the organisation, the potential for conflicts among stakeholders, and the influence of stakeholder activity on the budget and other forms of resource distribution (Bartunek, 1993). The role of customers (in their capacity as stakeholders) thus plays some part in this model of organisational diagnosis; however, this approach lacks an operational model with established procedures to take proper account of the opinions of *all* customers as stakeholders.

The fourth approach to organisational diagnosis utilises customer complaints as the driving force for analysis. Bosch and Enríquez (2005) developed a customer-oriented model of organisational diagnosis by incorporating total quality management (TQM), quality function deployment (QFD), and plan-do-check-action

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