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Decision support system for service quality management using customer knowledge in public service organization

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ABSTRACT

As the service quality has been reconsidered in the public sector as well as private enterprises, the need for public sectors to adopt principle and practices of private sectors is concerned with customer-focused approach. However, the different business culture of public service organizations makes it difficult to improve service quality. It is required to establish a structured framework that leads employees to make efforts to improve their service delivery processes and supports continuous improvement of service delivery processes based on the data about the process performance from the customer-perceived value-oriented viewpoint.

In this paper, we propose a structured framework that identifies the key service processes, validates from customer perspectives and establishes the measurements to monitor based on the data about the process performance. It uses periodic customer satisfaction index (CSI) surveys (S.C. Park) for understanding customer-perceived values. The proposed framework consists of three phases; the questionnaire design, the key process (KP) identification from the integrated viewpoints of importance and contribution, and the key process indicator (KPI) derivation and management. For the application, we established a web-based decision support system for a public service organization for tourism in Korea.

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1. Introduction

In the early 1990s, quality improvement has been applied in the public sector as well as private enterprises (Carr & Littman, 1990). At the same time, there are tendencies to reclassify citizens as customers (Pollitt & Bouckaert, 1995). The development of information technology makes citizens to want faster, more convenient and efficient service at lower cost (Yang, Kim, Nam, & Lee, 2004). Leaders of public sectors urge to set standards of services with help of technology advances in private sector. The need for public sectors to adopt principles and practices of private sectors is concerned with customer-focused approach (or citizen-oriented services), which aims at improving the quality of public services (Mwita, 2000). However, the difference of business culture between public sectors and private service industries makes it difficult to improve service quality in public sectors as follows:

1. *Lack of urgency for improvement*: Usually there is no competitor and the goal of public service organizations is not an increase of profit. Most public service organizations are not willing to adopt changes have a tendency to “playing it safe” (Sherman, 1989; Skelcher, 1992). Organizational bureaucracy and lack of collaboration culture are some difficult problems to resolve. Employees are usually content to work to a standard with considerable commitment to rules, regulations and precedents. So, employees should be urged to improve their service delivery processes and their improvement efforts should be managed. The measurements or indicators for efforts can be a strong incentive for improvement.
2. *Unstructured management of service quality*: In practice, processes are mostly managed based on experts’ experiences, leaders’ insights, or political strategies. These ad hoc management activities often rouse employees’ antipathies and make them to refuse the changes. Or non-value added processes are sometimes over-controlled. It is required to support continuous improvement of service delivery processes based on the data about the process performance. So, selecting the measurements or indicators of the performance results is very important.
3. *Disconnection to value creation*: In non-quality oriented companies, employees usually perceive that “I just do this”. It is often totally unrelated to the services. Within the public service organizations, this divorce between the value of the organization’s output and an individual employee’s input is even greater. Furthermore, the *value* should be considered from the customer perspectives including internal customers (employees). It is required to make employees recognize the value of their daily work and to investigate the desired value by customers.

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Therefore, in order to provide customer-oriented (or citizen-oriented) services and improve the service quality, the public service organization should identify the key service processes and key customers and validate the value of employees' work from customer perspectives. The prioritization of constrained resources for improvement should be accompanied. Furthermore, the measurements to monitor and the management framework based on the data about the process performance are required so as to continuously encourage the employees to keep the efforts for improvement.

In this paper, we use periodic customer satisfaction index (CSI) surveys in order to understand customer and markets and assess the service quality. A CSI survey is not just a tool to measure customers' satisfaction level. The main purpose is to discover the strengths and areas required to be improved, and to provide guidelines for improvement from customer perspectives. The analysis of CSI surveys enables organizations to take further continuous improvements in order to meet, or even exceed, customer requirements, and hence to raise the customer satisfaction (Eklof & Westlund, 1998).

In the next section we will briefly review the previous studies on customer satisfaction measurements and shortcomings of analysis methods. Then, for service quality improvement based on CSI surveys, we will present the structured framework that designs questionnaires, analyzes, identifies key processes that are valuable to increase of customer satisfaction, and finally sets measurements for monitoring. We will apply the proposed framework to a public service organization for tourism in Korea. Finally, we make conclusions about the framework for service quality improvement based on CSI surveys and propose some directions for future research.

2. Literature review: customer satisfaction measurements

Customer satisfaction has traditionally been focused in marketing. In order to measure customer satisfaction, the various models have been presented so that they establish objective measures for the outcomes of the confirmation/disconfirmation process (Flint, Woodruff, & Gardial, 1997; Peter & Olson, 1996). The quality models in service marketing research and TQM have been under the discussion. The dimensions of quality have been determined by the researchers such as Garvin (1988) and Gronroos (1990).

There are several approaches to prioritize the quality improvement strategies. Parasuraman, Zeithaml and Berry suggest a "gap" approach (Parasuraman, Zeithaml, & Berry, 1985). After the measurement of customer expectation and the calculation of the gap between the expected and actual services, the attribute with the biggest gap is firstly targeted in quality improvement strategies. However, there is a problem that some attributes of large gaps may not be important to customers (Hemmasi, Masoud, Kelly C. Strong, & Steven A. Taylor, 1994). Parasuraman, Zeithaml, and Berry suggest another approach, a linear regression method (Parasuraman, Valarie, Zeithaml, & Leonard, 1988). They divide the service process into its key attributes (or sub-processes) and ask customers to evaluate each of these attributes. On the assumption that the service attribute with the greatest slope parameter will result in the largest increase in overall satisfaction per unit increase in service attribute performance, they operationalize by regressing overall customer satisfaction on the performance scores of the attributes. Unfortunately it has a shortcoming that customers' service utility is usually a nonlinear function of the component attributes.

In summary, traditionally in order to identify the key processes for customer satisfaction, organizations directly ask which process the customer considers important or let the customer rank the order of the importance of each process. Although organizations try to improve the process that has a high rank of the importance, there can be no remarkable improvement of overall customer satisfaction (Hemmasi et al., 1994). When there is not much margin for improvement, the improvement of the process has been already saturated. The expected effects from process improvement would be insignificant. Hence, the expected effect from the process improvement varies according to the process and its current position at performance level. The characteristics of process, which is whether the customers' service utility is a linear or nonlinear function of the attributes, is decisive to prioritize the quality improvement strategies. In this paper, we propose the framework that identifies key processes from three viewpoints; whether the process is important to increase overall customer satisfaction, whether customers are currently satisfied with the process, and whether the improvement of the process contributes to the overall customer satisfaction.

3. Methodology

We propose a framework of service quality management that uses customer knowledge from periodic customer satisfaction index surveys. It consists of five phases as shown in Fig. 1. We exclude detail descriptions about the second and the third phase because they can be executed as usual. First of all, the questionnaire should be designed to provide fully customer knowledge. It reflects all customer-related processes in a consistent viewpoint over all departments and includes customer information to identify key customer groups including internal customers (employees). In key process (KP) identification phase, we find KPs from multi-perspectives; importance, contribution, and current satisfaction level. And then, we establish key process indicators (KPI) to continuously improve and control identified KPs. Without measurements, the processes cannot be managed. Without management, the processes cannot be improved.

3.1. Design of questionnaire

We design the questionnaire with three parts as shown in Table 1. Quality variables (QV) for each service process describe the entire processes of departments. For decision making for service

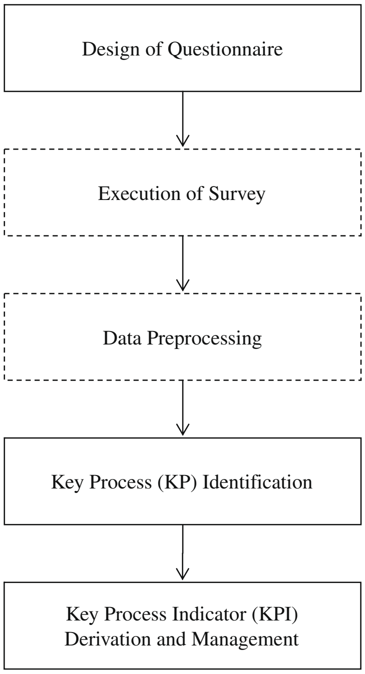
Design of Questionnaire
Execution of Survey
Data Preprocessing
Key Process (KP) Identification
Key Process Indicator (KPI) Derivation and Management

Fig. 1. The framework overview.

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