Exploring a “Gap” Model of Information Services Quality

WILLIAM J. KETTINGER
University of South Carolina

CHOONG C. LEE
Salisbury State University

Due to the growth of end-user computing, information technology (IT) decentralization and alternative sources of supply, the information systems (IS) function now serves customers that possess substantial discretion in their use and purchase of IS services. To continue to effectively deliver systems and services that IS customers perceive valuable, IS management must become expert in determining and assessing IS customers’ expectations and perceptions. One important source of guidance in such a market-driven environment is to look to the service marketing and operations literature for frameworks that may permit IS to more effectively determine and convey customer value of IS services and IT. This paper outlines IS service quality improvement as a means to cope with this customer-driven IS environment. Specifically, it adapts a widely accepted conceptual “gap” model from the marketing field as a framework for IS service quality management. This model has as its premise that service quality improvement is a continual process of determining and comparing customer expectations and perceptions and, then, modifying products and services based on the results of this assessment. Applications of this model in both research and practice are discussed.

The inability of the Information Systems (IS) department to deliver systems on a timely basis, combined with the rise of personal computing and networking, have caused many firms to fundamentally question past IS deployment and management practices. These factors coupled with poor economic conditions and corporate mergers have forced many firms to make drastic cut-backs in central IS resources. In the extreme view, some argue that there may no longer be a role for a formal IS function (Dearden, 1987). Ironically, while industry and internal factors have encouraged such “downsizing” and decentralization, the need for strong enterprise information capabilities is recognized to be of premier importance (Niederman, Branchau, and Wetherbe, 1991). This recognition is manifested in high demand for responsive information systems that can quickly change the nature of business operations to meet new market conditions. These trends seem to suggest that for the IS function to prosper, it must adopt a proactive posture that better meets customers’ expectations.

Over the past decade, business has come to recognize external customer satisfaction as the key competitive performance measure (Kumar & Sharman, 1992). More recently, the combination of this customer focus with a process view of the business has focused attention on internal customer satisfaction throughout a product’s value-chain to ensure product quality. Representative of this new orientation, Bhote (1991, p.14) states:

There is a growing realization that the main objective of a business is not merely profit, but customer satisfaction! Industry tends to respect (if not worship) the external or final customer. But internal customers are at best taken

Manuscript originally submitted June 23, 1994; Accepted October 28, 1994 for publication.
for granted... The internal customer needs to be cultivated and his needs, requirements, and future expectations determined... if the external customer is king, the internal customer is at least a prince.

As both a vital support service and product delivery platform, IS can be viewed within an external and internal customer context. Treating “service recipients” as “customers” is not an entirely new idea for IS, nor is the emphasis on internal customer satisfaction in the chain of quality improvement. However, a customer focus has taken on an increased relevance in the emerging “free market” era of IS service delivery. As IS moves to this free market, customers may pick and choose those products that best meet their needs, at the best price (Boynton & Zmud, 1988; Cash, McFarlan, & McKenney, 1992; Loh & Venkatraman, 1992). Often, these customers may purchase IS services from outside the firm (out-sourcing) if expectations for quality and cost are not met by internal IS. In addition, alternative sources of supply within a firm (in-sourcing) are directly competing with traditional centralized IS. A critical issue facing IS management is how to respond to these changes.

This paper outlines IS service quality improvement as a means to cope with this customer-driven IS environment. This approach is based on several assumptions: 1) IS should be viewed as a service enterprise responsible for providing business solutions rather than solely technical support (sometimes these solutions may be strategic to a firm). 2) Individuals and groups serviced by IS should be viewed as customers rather than as users. 3) IS customers wield substantial influence concerning IS resource allocation decisions including the potential of out-sourcing, in-sourcing, “managed services” or “shared services”*. 4) An awareness is needed, within IS, of marketing and quality improvement concepts to more effectively determine and convey the value of IS services. 5) Service quality improvement is a continual process of determining customer expectations and modifying services appropriately.

Based on these assumptions, we hope to contribute to the IS field by applying quality concepts from service marketing and operations in the IS context. In general, this article will present a framework for continuous improvement in IS service quality that should be beneficial both to IS management and to the firm as a whole. This will be accomplished by first discussing IS as a customer-driven service enterprise. Next, this article will outline why service marketing and operations concepts of quality improvement meet current IS management challenges. This will be followed by a presentation of a conceptual model of IS service quality. Finally, implications and conclusions for the IS practitioner and researcher are presented.

**IS As a Customer-Driven Enterprise**

Through the years, researchers have attempted to define a service enterprise (Chase & Tansik, 1983; Heskett, 1987; Parasuraman, Zeithaml & Berry, 1985; Sasser Olsen, & Wyekoff, 1978; Shosatack, 1977; Snyder, Cox, & Jesses 1982). Typically, in contrast to manufacturing processes, services processes possess some, but not necessarily all, of the following characteristics: intangible and perishable output, that is frequently variable or nonstandard in nature; high customer contact, with customers participating in the service process; labor intensive and typically not mass-produced; measurement that tends to be subjective, with quality control being primarily limited to controlling the service delivery process; and more complex pricing options. Many of these characteristics can be readily applied to the IS services context. First, IS services are basically intangible: they tend to produce actions or performances rather than objects. Second, IS services are heterogeneous: their performance often varies from user to user, from system to system, and from day to day. Third, IS service evaluation tends to be subjective and may have complex pricing schemes.

As early as 1974, Lucas (1974) recognized the importance of service quality as a major determinant of a user’s positive reaction toward computerization. Many early IS innovators, such as Citibank, changed their “backroom” IS functions to a more decentralized customer service orientation (Matteis, 1979). Additionally, much IS research on user satisfaction (Bailey & Pearson, 1983; Baroudi & Orlowski, 1988; Doll & Torkzadeh, 1988; Ives, Olson, & Baroudi, 1983) and equity models (Joshi, 1990) identified service delivery as vital. However, while much of this earlier IS research served to raise awareness of the customer satisfaction paradigm, it did not have as its major focus the changing nature of the IS/customer relationship or the growing importance of marketing-oriented IS management.

In this regard, the IS/customer relationship may roughly be conceived as evolving through four phases. During the 1960s, data processing was predominantly a backroom function with little customer interaction. The principal responsibility of IS was to ensure high reliability of transaction-based systems. The 1970s saw a period of distributive computing and decision support technology requiring an increased level of user interaction and involvement. In addition, the identification of information and technology as resources of the firm gave greater exposure to IS and, in return, elevated the level of expectation for results (Edelman, 1981).

The 1980s might be described as a period of decentralization and end-user computing, as individuals and departments grew proficient in the use of PCs and client-server technologies. The combination of higher demand expectations with alternative sources of supply dictated that the IS function begin to act as a “business within a business,” providing a marketing mix of services (Cash et al., 1992, p. 255). The scope of technologies to be coordinated by the IT business also expanded tremendously as computers, communications, and office technologies merged, and as product offerings moved into new consumer services such as electronic mail, publishing, networking, and computer-aided de-