Temporal Analysis of Information Technology Chargeback Systems

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Planning and controlling information technology remains a management priority in the 1990s. The importance of effectively using the substantial investment is increasing with rapid technological change and competition. Effectively using the information processing resource is becoming a management priority. Since initial implementations, effectively using information processing resources has been difficult. With the pace of technological change, increasing investments, and a growing diversity of users and usages, the importance of effective cost control has increased. A widely advocated method of bringing order to this state of affairs is the use of a chargeback system whereby users are charged and made responsible for the information costs which they incur. From the earliest applications, some organizations have adopted chargeback systems. While there have been studies in the intervening period on chargeback systems, chargeback remains a controversial management technique. In 1980, a study was conducted on the usage and practices of chargeback systems. This same set of companies recently provided information about their current practices. This paper reports the findings of the temporal comparison. The results suggest that chargeback is not a panacea. Further, the objectives in using, or not using chargeback systems have changed substantially. A new set of problems has emerged. Organizations are having difficulty adapting the chargeback approach. There is less satisfaction in using them, although chargeback systems are still widely used. The final section of the paper addresses reasons for these changes and suggests issues which have yet to be resolved in using chargeback effectively in the emerging information technology environment.

Uncertainty in both planning and execution are inherent characteristics of managing Information Technology (IT). These characteristics make management control of IT a difficult affair. An organization using IT to achieve competitive advantage can easily direct itself into waste and futility, or fail to control at all.

IT managers who have moved to new technologies, such as client/server environments, have found no easy technological fix and are encountering new management problems (Karon, 1994). There are increased pressures resulting from dwindling budgets, more demanding senior management, and a greater variety of clients, external competitors and alternatives for parts of operations, including outsourcing (O’Leary, 1992). Further, as a result of advancing technology and rising user expectations, most established information centers are experiencing a high demand for their services. IT centers are driven to offer increasing support and so are becoming demand-driven and burdened with responsibilities in attempting to achieve user self-sufficiency (Karten, 1986).

The costs of new technology are also higher than ever before. While the hardware costs tend to be less than mainframe hardware and software costs, ongoing costs of operations tend to be much higher (Toscano, 1994; Chisholm, 1994). Further, these costs are expected to increase in the future (Jayson, 1995). At the same time, according to a study by the Sentry Market Group (Stackpole, 1995), perceptions of price/performance are slipping. Companies are spending a lot of money on expensive technology. IT departments are finding that they have to
demonstrate their worth. This results in an increasing emphasis on metrics to support IT as a cost or revenue producing center (Cooke, 1992; Crowley, 1995; Henry, 1990).

To resolve these difficulties, many organizations have adopted control systems which measure usage and users are charged for IT services by means of a chargeback system. A chargeback system monitors who uses a company’s computer resources and allocates the costs back to those users. Chargeback encompasses management and control of an organization’s computer related assets. With changes in technology, writers in the field have not only encouraged the use of chargeback systems, but also have predicted increased usage (Rubin, 1992; Scott, 1992).

The purpose of this paper is to examine the changes in chargeback system practices and issues which have occurred. This a comparative study of the same organizations in 1980 and 1995. The objective is to gauge the changes which have occurred and identify emerging issues and trends. The practical impact is that organizations may evaluate their chargeback systems in the process of change. From a research vantage, temporal comparisons identify issues which are emerging and those that have failed to be resolved.

This paper discusses the current methods adopted by firms to plan and control the IT resource, emphasizing the chargeback practices employed by organizations. The concern is with the composite picture rather than the evaluation of individual projects or operations. The focus is on the changes which have occurred in the environment and management of IT. The next section reviews the progression of the chargeback approach to IT management. This is followed by the results of a comparative study of practices and issues in 1980 with the same group of organizations in 1995. In the final section, this temporal comparison provides a unique opportunity to examine the changes which have taken place and gain insights into the issues which are emerging in using chargeback systems to manage information technology resources.

**Chargeback Systems**

The problem of allocating the cost of computer resources to users was largely ignored until the late 1960s. Computing had been allowed to expand to meet demand and computer costs were rarely allocated to users. In addition, the operating systems of that era did not permit the easy capture of statistics necessary for accurate job costing. But the mild recession of the late 1960’s indirectly promoted an interest in allocating costs and pricing of computer services to users as a means of controlling costs. Discussion was primarily prescriptive taking a strong advocacy approach to the use of chargeback systems (Rethis, 1972; Nuben, 1970; Bookman, 1972). There were many theoretical papers but very few related to actual issues (Kriebel and Moore, 1980).

In the technical literature of the period, chargeback systems were clearly in vogue and received a great deal of attention in the literature. Dearden and Nolan (1973) discussed the advantages and disadvantages of chargeback systems. Wiorkowski (1973) the various approaches to developing chargeback algorithms and Cushing (1976), the accounting issues involved. By the late 1970’s, surveys revealed that more than half of organizations had already established chargeback systems (Informatics, 1978; EDP Analyzer, 1974).

While many organizations adopted chargeback systems, others that could have used this approach chose other methods of controlling IT resources. The basis of investigation changed to trying to understand why, and under what conditions, organizations would adopt or not adopt chargeback systems. Investigations of the 1980s focused more on organizational properties and context rather than on the methods themselves (Olson and Ives, 1982; Drury, 1980; Bergeron, 1986). These empirical studies postulated and tested conditions affecting the usage or non-usage, of chargeback systems. For example, maturity of use (Lientz and Swanson, 1980; Van Lengen and Morgan, 1994; Toscano, 1994) and decentralization of decision making (Drury, 1980; Hufnagel and Birnberg, 1989; Raghunathan, 1994) have been found to affect the usage of chargeback systems.

In the late 1980s, the adoption of chargeback systems seemed to have reached maturity and saturation (Buse, 1988; Call, 1987). The technical literature and the management literature both reveal that interest in chargeback systems waned. But with the development of client/server systems, proliferation of applications and users, and a shift to more control by users, chargeback systems have found a new resurgence of interest in recent years (CMG, 1993). Management has sought to control the mushrooming expenditure and change in IT. Many writers, particularly writing to IT managers, now advocate the use of chargeback systems (Mercy, 1991; Toscano, 1994; Graham, 1994). Encouraging user involvement in IT (Cooke, 1992), saving money (Fernberg, 1993) and assisting in the evaluation of new technology (Elms, 1993), are among the prescribed benefits.

Many corporations find chargeback to be a valuable financial and business management tool; however, other organizations disagree with chargeback’s aspect of control and limited scope (Butler, 1992). They argue that chargeback systems are not ready for the new environment (Karon, 1994) and that managers are not ready to use chargeback systems (Kobileus, 1992; Caffasso, 1995).

To examine changes in chargeback practices and issues in the current context, we collected new information from a group of organizations whose chargeback systems were studied in 1980. The next section describes our methodology and sample characteristics.

**Sample Characteristics**

In our first study, interest in data processing chargeback
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