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The Economic Justification of MIS Chargebacks

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For many organizations it is an agonizing dilemma to decide whether to charge departments for the considerable costs of providing MIS services and, if so, which of these services should be assessed. Interestingly, the same rationale that supports chargebacks would also seem to indicate that a firm allow its departments to seek computer services externally, but this raises additional and even graver problems of control and security, which are beyond the intended scope of this paper. In any event, a negative answer to the subsidiary question of whether to allow use of external MIS resources does not per se impact the chargeback decision.

This paper provides a conceptual structure for decision making about instituting MIS chargebacks, and applies economic models (one for production, the other for trade-offs between inputs) to justify the use of chargebacks. These standard economic models help demonstrate (1) that goods priced artificially low will invariably be overused and even disguise a decline in productivity of the department's efforts for the firm, and (2) that charging departments for MIS services, is *always* advised except in the case where management desires to encourage projects with unproven output. The contribution of this paper lies in providing a general affirmative answer to the question of whether to introduce chargebacks unless, of course, the cost of a chargeback system exceeds the benefit to be realized--but this is highly unlikely.

The economic model of production specifies certain conditions in which a company must operate if it is to exist in a competitive environment. Chargebacks clarify these conditions for the departments of a company by forcing all users to be more accountable for, reflective upon, and less likely to overuse MIS services.

A firm considers a non-manufacturing department as a cost center if it incurs expenses but does not directly (as perceived by the firm) generate or enhance revenues. Whenever the MIS department is so regarded, its prestige and potential for strategic advantage invariably decline, a result that in many cases leads to lost opportunities for the firm as well as unwarranted MIS downsizing.

On the other hand, if MIS is permitted to be a profit center and is required to account for its financial actions in terms of demanded services (as it would under a chargeback

regimen), it will perform more efficiently and better meet the needs of the other departments--perhaps even reducing any applications backlog. The exertions of MIS to realize profits through chargebacks and the resultant scrutiny by the other departments of their billed services causes not only a disciplined use of MIS services but also a greater consciousness of the benefits of these services.

It would not be sufficient to have user departments justify their computer needs in the course of general budgeting, because in the absence of financial amercement they could simply overstate their requirements as a precaution against unforeseen events or in an effort to circumvent anticipated reductions mandated by management. Chargebacks reduce the incentive for any such tactical moves.

A negative view of chargebacks often stems from a feeling that the chargeback system itself generates unnecessary costs to the firm and interferes with other processes and computer runs. There are even those who claim that without chargebacks, management can more easily determine and pinpoint actual computer costs by examining only one department, namely, MIS. Still, the task of gathering the MIS cost figures is trivial compared to the efficiencies to be realized from a chargeback system.

An important consideration raised by Markus is that judgments based on "value economics" where users decide to substitute one service for another play a role in the success or counterproductivity of a chargeback system, particularly in regard to email, phone and fax systems. She also raises the issue of whether the purpose of chargebacks is to recover costs or to control usage. The answer proposed in our article is that chargebacks are designed to enhance both the financial and strategic performance of the company with regard to its use of MIS. This is accomplished by presenting two economic models that contrast the effects of utilizing chargebacks with those of not charging for MIS services.

Let us characterize (1) an economic *good*, in such a way as to include any computer service or output, that is, as something wanted or desired and commands a price, and (2) a *department* as an organizational unit that generates one or more economic goods, which we will designate *departmental output*, or *DO*. Typically, the value of this output is measured by either its transfer price or its cost of production, figures normally available from a firm's internal financial statements.

Thus it is appropriate to apply the general economic model of production, shown in Figure 1, which consists of three stages. The horizontal axis represents technical efficiency, while the vertical axis represents departmental output. With the inputs as shown, a business unit will profit by increasing production during Stage I, because its marginal output is positive, and its marginal revenue is greater than marginal cost. The line separating Stage I and Stage II is where marginal production intersects average production from above. Marginal productivity remains positive during Stage II, making it beneficial to continue the expansion of production. However, in Stage III, marginal productivity becomes negative and total production is deteriorating. No firm can continue its expansion in Stage III and pull through if its competitors are operating in Stage II--on

account of their lower costs. A reliable chargeback system enables all of the firm's departments to determine the point at which they would enter the danger zone of Stage III. Now, *marginal profit* can be defined as marginal revenue less marginal cost. It is beneficial to increase production up to the boundary between Stages II and III because a marginal profit of zero (where marginal cost equals marginal revenue) allows the greatest profits.

Whereas the model in Figure 1 assumes the firm is using its optimal mix of inputs, in Figure 2 we have a two-good model that illustrates the time-honored economic exchange of inputs K and L (capital and labor). Naturally, this model can be adjusted to represent two other inputs: MIS services and All-Other-Inputs (hereafter, AOI). The depicted curve is known as a *technical efficiency frontier* containing all points (without considering costs) where as few inputs as possible serve to generate the same, given output. At Point B, for instance, we have the greatest use of MIS services consistent with the least use of all other inputs (AOI) that can produce the given output.

On the basis of the relative productivity of MIS and AOI compared to their factor prices, there exists an optimal mix of these goods. Thus, an additional expenditure for MIS services that would produce a certain output value would be wiser than spending the same amount on AOI, if less output value is expected. Should the relative factor prices be changed, rational managers adjust their expenditures accordingly.

An interesting case arises if the cost of MIS services approaches zero; managers would consume whatever MIS services they could, while striving to remain at or under Point B. A point on the curve above Point B, like D1, would involve greater use of MIS and the same amount of AOI as another point on the curve, namely D2, which is directly below Point D1. It would be extravagant to operate at Point D1 when the same output could be achieved by operating at Point D2. Mutatis mutandis, if the cost of producing DO by using non-MIS services approached zero, it would be rational to exploit AOI and neglect the availability of MIS services, up to Point C. Point C represents the case where whatever can be done by AOI (e.g., manual processes) is at a maximal level. On account of the curve bending backwards at both ends, a department must try to remain on the curve between Points B and C.

Suppose there were some point, A, that marks a cost-minimization point for the firm, but perhaps not for the department. This point, A, must then represent either a case of least total cost for a given quantity of output or a case of greatest output for a given total cost of input. Point A must lie on the boundary point between Stages II and III of Figure 1; all other points on the curve in Figure 2 involve lower total output for a given input cost. Hence, whenever a departmental manager is charged an artificially low amount for one input, namely, MIS services, then the manager adjusts the mix of inputs to arrive at Point B, which, of course, is more costly to the *firm* than is Point A. Since the manager views Point B as a lower cost to the department than Point A, and it produces the same DO, it is to be expected that he or she views the marginal productivity of as Point B being higher as well

Therefore, whenever a manager is not realistically charged for use of an input, not only will he or she overuse that input, but might also have a mistakenly high impression of departmental marginal productivity and expect to be rewarded based on this impression. However, as shown in Figure 3, the manager would unfortunately be operating in the danger zone of Stage III rather than in Stage II.

The economic models presented here have enabled us to see that (1) there is some optimal combination of MIS services and all other inputs used to produce a department's goods, and (2) a chargeback system has value in assisting departmental managers to ascertain a technically and economically efficient use of available MIS resources. Note: References are available upon request.