



# Costing IS Services—Avoiding The Sting In The Tail

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## ABSTRACT

*Activity-based costing (ABC) is an accounting methodology that is said to analyze business costs more precisely than traditional cost accounting to give managers a more accurate picture of where resources are used and where costs are being incurred. The IT division of a large multinational company that uses ABC models alongside traditional cost models is studied to determine if the ABC models are improving the accuracy and relevancy of decision making. The results suggest that ABC is providing a clearer understanding of business processes, better cost control, and allowing managers to make more informed decisions.*

## INTRODUCTION

Today IS managers are charged with the responsibility of providing higher quality IS services at lower cost in a rapidly evolving technological environment. In this era, business cost pressures demand a greater focus on reducing the IS group's total costs while the emergence of new platforms, tools and technology promise greater efficiency and effectiveness from this expenditure. Gallivan (1994) provides a summary of the factors motivating a change in contemporary IS department management techniques:

- Business cost pressures – resulting in a greater focus on reducing the firm's operating costs;
- Business service pressures – highlighting a need for better quality and customer service;
- Technology push – the emergence of new platforms, tools and standards; and
- IS service pressure – the need to improve the effectiveness of delivering the service to users.

However, determining the true cost of providing IS resources is often an elusive task. The end result is that management decisions based on inaccurate or less than accurate cost information can be dubious at best—quite an uneasy result given that these decisions have widespread impact on the use and growth of IS within the organization.

## THE IMPORTANCE OF INFORMATION SYSTEMS COSTING

Information technology (IT) resources comprise a growing proportion of most organization's budgets. In large firms, 2-5% of gross revenue is typically spent on IT activities (Frenzel, 1999). As a result, IS managers are faced with increasing scrutiny regarding these IS expenditures.

More precise costing of IS services is vital to enable management to make well-informed decisions to fulfill stakeholder expectations. For example, IS departments must have the capacity to determine an accurate cost for their services to internal and external customers to enable the measurement of a required profit component or contribution margin. Performance monitoring and benchmarking also requires better cost information. According to Brewer and Vulinec (1997), the three most pertinent issues relating to costing in today's IS environment are:

1. How to charge customers for using IS resources including; mainframes, networks and help-desk services;
2. How to benchmark the cost of providing these services against competitive standards; and
3. How to provide justifiable price quotes to customers interested

in using their organization's computing and communication services.

Traditional methods of IS costing, particularly in relation to chargeback systems, have been developed in more centralized IS environments where capital cost and direct labour comprise the significant proportion of total costs. Although these traditional methods were effective in these centralized environments, the growth of decentralized computing, the rise of eCommerce and the consequent shift to different IS cost structures is now rendering these traditional methods of IS costing obsolete.

## THE LOST RELEVANCE OF TRADITIONAL COSTING METHODS

The criticisms of traditional cost accounting techniques became increasingly prevalent around the time of Johnson and Kaplan's book "Relevance Lost: The Rise and Fall of Management Accounting" (Johnson and Kaplan, 1987). This work is generally credited as being instrumental in alerting managers to the inadequacies of traditional management accounting methods and the dangers in relying on the information produced by them. Indeed as the title purports, traditional management accounting information was losing its suitability as a tool for management decision making.

The major problem with the reliability of traditional cost accounting methods was and remains the way in which these methods distribute indirect [overhead] costs to products and services. The term products is used to denote both goods and services. The result is that some products are forced to bear a disproportionate allocation of costs while other products are under-costed. Within the IS domain this deficiency with traditional management accounting has been recognized as a major cause of inappropriate allocation of overhead while such costs increase as a proportion of total cost (Drury 1997). A consequence of costing errors is that over-costed products are over-priced and not competitive and under-costed products generate high demand but overstate their real profit margin, which is often negative. The costing errors and their consequences increase with the ratio of overhead to total cost.

IS departments use management accounting to determine several important components of cost measurement. These include costing services and service-level agreements, capacity-planning, software development, problem management, failure recovery, service level reporting and chargeback accounting (IEE 1995). Managing the IS department potentially involves managing costs for all of these inter-related functional activities. Specifically, charg-

ing business units for their use of IT services is evolving into an essential issue in most large organizations (Lauren Gibbons 1994).

One contemporary management accounting method that could be particularly suitable in an IS environment is activity-based costing (ABC) (Cooper and Kaplan, 1991).

### THE ABC ALTERNATIVE

Activity-based cost accounting analyzes costs more accurately than traditional cost accounting to better reflect resource consumption. It has been around for quite a while, but interest in this system has increased over the past few years. As a result, many companies are reengineering their accounting systems to either replace their traditional systems with ABC or at least to use ABC as a supplement.

The building block of an ABC system, as the name suggests, is the analysis of activities. The analysis of activities identifies the activities of each department, why and under what circumstances the activities are conducted and how often and for whom the activity is performed. It then identifies the resources consumed in completing the activities and what factors determine or “drive” the activity.

In essence, the aim of ABC is to provide enhanced management information, which can serve as a powerful tool for continuously rethinking and improving products, services and processes to improve business performance. Through greater dissemination of cost information, greater decision-relevance can be achieved. The structure of an ABC system is illustrated in Figure 1.

As Lambert suggests, different cost objects, such as different customers, consume activities in different proportions (Lambert and Whitworth, 1996). Traditional costing systems that allocate indirect costs based on a common denominator such as labour hours, machine hours or output volume do not recognize this variation in activity utilization. This is the major cause of misleading cost information. Cokins (1998:34) suggests that “ABC is cost information for employees and managers, not just accountants... ABC makes visible the economics of the organization and serves as an enabler to improvement programs”.

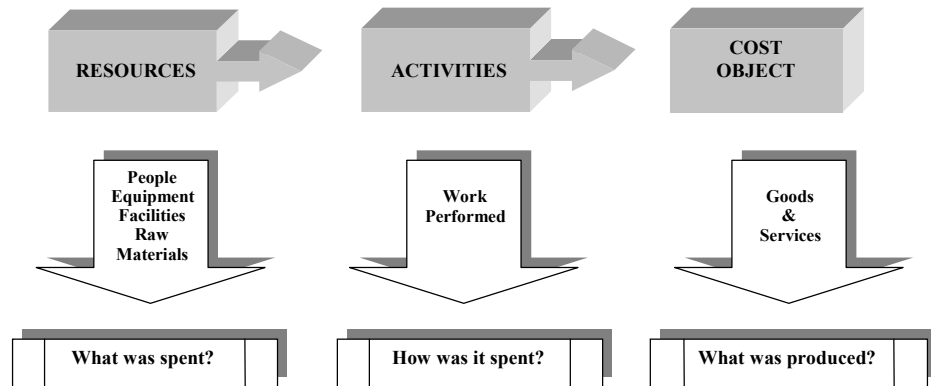
In the INSPEC Proceedings of Decision Sciences Institute 1994 Annual General Meeting in Honolulu, a theoretical paper on ABC in an IS environment was presented highlighting the benefits of ABC over traditional methods for more accurately determining the cost of IS services (Jyh *et al.* 1994). The paper describes the limitations of traditional IS service costing methods and their inability to address non-monetary components of IS costing. The value of ABC, they argue, is its ability to recognize qualitative cost causation, that is, the spiraling indirect or support component of total IS costs.

### RESEARCH OBJECTIVES

This paper examines the potential of activity-based costing to better cost IS services in a changing, decentralized IS environment. The two principle objectives of this research were:

1. To investigate a major IS department’s current cost mechanisms in order to evaluate their ability to effectively manage the cost of IS service provision.
2. To assess the potential of ABC to improve IS service costing mechanisms and identify issues to which further research can apply.

Figure 1: ABC Structure



The first objective involved assessing the ability of current IS costing methods to provide information that enables IS resources to be efficiently and effectively deployed at the least cost in the chosen organization.

The second objective was to provide a foundation for the assessment of the ability of activity-based costing to potentially rectify any identified deficiencies.

### METHODOLOGY

The research is based on a case study within a large multinational organization that, in 1998, generated profits of over US\$1 billion and had over 50,000 employees in 50 countries. The IS division of the organization is herein referred to as “The Division.” The Division is divided into multiple IS groups that use both traditional cost models and, to different degrees, ABC, for estimating and charging the use of IS services, and for benchmarking and performance evaluation. The amount of detail in the ABC models varied significantly between the IS groups. These groups provide IT and systems services to all of the corporation’s businesses in addition to the provision of services to external clients.

A case study approach involving interviewing and listening to the views of respondents within the different IS groups was considered to be the most appropriate method of data collection due to the depth and detail of information that could be secured. This approach also allowed the ability to conduct flexible semi-structured interviews enabling the use of additional probing questions.

Interviews were undertaken with respondents from high, middle, and lower level management in order to analyze consistency of operational and practical issues, facilitating an hierarchical comparison of responses. Two types of data were collected. Secondary (contextual) data was gathered during discussions and site visits prior to conducting the interviews. Primary data was collected during interviews with eight respondents. Due to the focus on decision-making, all respondents were managers. Care was taken to include managers at different levels and across three different product groups so that horizontal and vertical analyses would be possible. In the data analysis hierarchical differences did not become apparent so an holistic view was adopted instead of the vertical analysis. Examples of the opening and probing questions were:

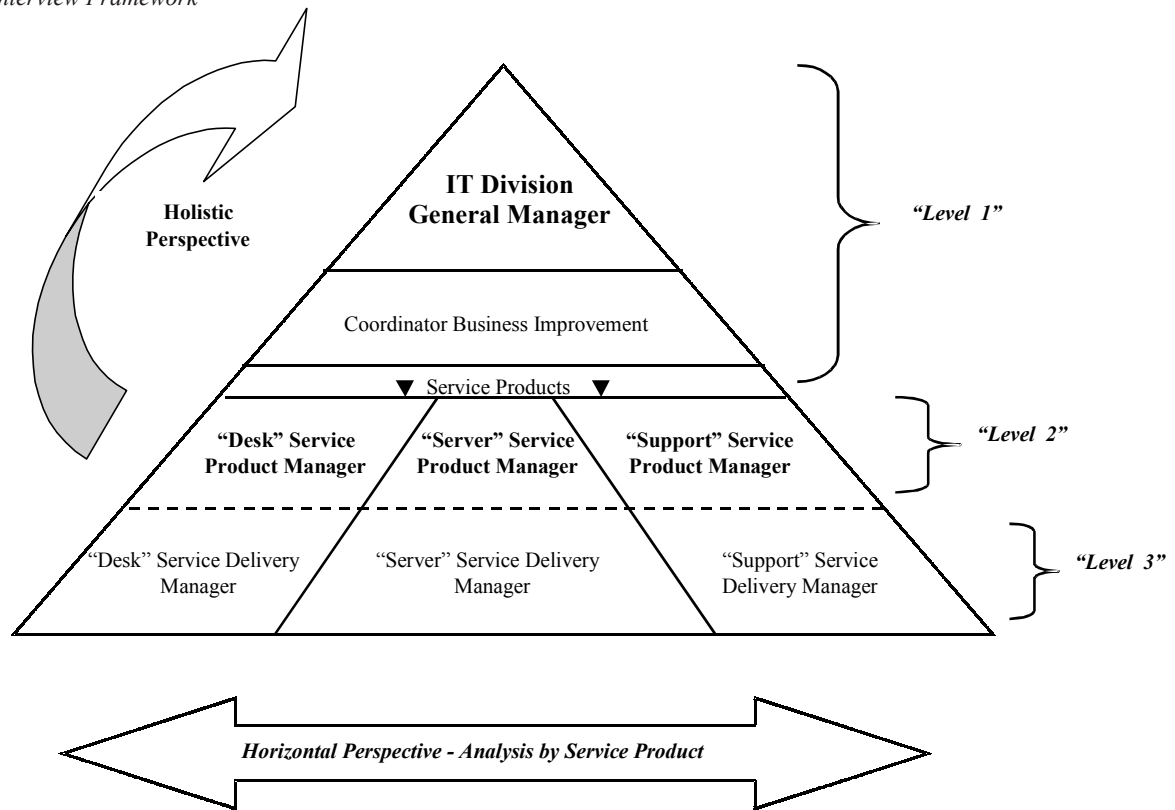
Question: What are your major cost components?

Probe: What percentage of total cost does each comprise?

Question: What is the predominate use of your costing information?

Probe: Is the information accessible/ timely?

Figure 2: Interview Framework



The "holistic" and "horizontal" perspectives of the organization are illustrated in Figure 2. The holistic analysis (i.e. based on a pooling of all data) primarily addressed issues relating to the value of current costing mechanisms and any perceived deficiencies for costing IS services, for charging customers and providing quotes, as well as from their ability to facilitate benchmarking. Using a "horizontal" perspective, responses from different IS groups revealed different experiences consequent upon their different levels of ABC usage. This perspective primarily aimed to address the operational and practical issues relating to using different IS costing models.

## RESULTS AND DISCUSSION

First we discuss key issues raised by the case study respondents relating to the use of traditional cost models—we briefly describe the problems identified, the impact of current practices and where changes were considered desirable.

### 1. Costing Systems Must Breakdown Complexity

Decentralization of IT services was seen to have caused an increased complexity of operations and, hence, IT costs. Respondents highlighted the general inability of traditional cost models to cope with this increased complexity and this resulted in a reduction in competitiveness resulting from inaccurate quotes delivered by those groups using traditional cost models.

The effect of this trend on the IS group's cost models was a marked increase in the number of individual cost models and an increase in the overall complexity of costing. A loss of control over support costs had come as a direct result of complexity. The direct impact of this loss of control was the inability of traditional costing systems to provide competitive quotes.

### 2. Costing Systems Must Improve Cost Visibility

A significant problem with traditional cost models was shown to be the manner in which indirect labour and overhead costs were allocated. The control over external overheads was a concern because the IS groups were allocated a percentage of external overheads but they could not see where these costs were coming from or how well they were being estimated prior to inclusion in their own cost models. Essentially, costs were imposed upon groups without sufficient explanation. As a result, their control over overhead costs was compromised. Cost visibility is essential to control the effective management of overheads. Visibility enables overhead to be traced back to the service itself within the cost model. Only when costs are visible is continuous improvement possible.

### 3. Costing Systems Must Support Benchmarking

The study revealed substantial difficulties with using traditional methods to compare IS services to competitive standards. The methods used to benchmark the provision of services ranged from comparison to market survey standards such as "Gartner" figures, to anonymous phone calls to competitors and "gut feel." This inconsistency and lack of confidence inhibited the competitiveness of IS services and confidence in these figures. Evidence from this study clearly indicates the inadequacy of traditional costing methods for benchmarking and the need for further investigation and research into this area.

### 4. Costing Systems Must Be Flexible

One manager commenting in relation to the inflexibility of current cost information said: "There is generally a lot of human intervention somewhere in the process because our systems don't adequately meet our needs. Particularly when we need changes, systems tend not to be flexible. So you fudge it, do a few spreadsheets here and there at the end of the month. We are rather like a

*plumber with a leaky tap, we are an IS organization and yet we are so busy looking after our customers that we don't really look after ourselves."* Users must be given costing systems that enable data from different systems such as spreadsheets, accounting packages and other databases to be easily combined, processed and presented in a user-friendly way.

### 5. Costing Systems Must Be Easy To Use

Many respondents highlighted the difficulty of extracting data from existing systems and the inability of current systems to provide both timely and individually tailored information. One respondent rated the traditional costing systems he used as "*two out of ten*" because of their inability to provide the information his IS group required when they needed it and said that he spent too much time locating the information he needed only to find it too late. Of the systems mentioned the major problems were "*inaccuracy, inability to easily extract data and the specialized knowledge it takes to pull costing information out*".

### 6. Costing Systems Must Provide Timely Information

Systems that fail to support cost models were seen to directly inhibit decision-making when they provide untimely or incomplete cost information. If the effort required to manually manipulate or locate the cost information is extensive this reduces managers decision making time and leads to less effective management. The timeliness of cost information must be balanced with its accuracy. In fact, timeliness was identified as a more desirable attribute than complete accuracy. While accuracy is important, a decrease in the level of accuracy was considered acceptable in return for cost information which enabled timely decision making for enhanced competitiveness.

### Perceived Impact of ABC Systems

Where ABC cost models were used within the IS groups, attitudes towards ABC were overwhelmingly positive and supportive, albeit with some important conditions. This finding is consistent with many similar studies in other service industries, (Bussey 1993; Lambert and Whitworth 1996; Norris and Innes 1996) as well as innumerable manufacturing industries (Cooper 1988; Cooper and Kaplan 1991; Innes and Mitchell 1995; Walker 1998). Respondents from those IS groups that were using activity-based costing suggested that ABC is benefiting the business in the following ways.

#### 1. ABC Provides a Clear Understanding of Processes

ABC was widely seen to provide a better understanding of what processes were being performed and how these processes react to different inputs and variables. It allowed the IS groups to understand the causes of costs and the relationship between various activities. When problems did occur the users had the necessary data at their fingertips to simulate tradeoffs that could quickly highlight potential corrective action.

#### 2. ABC Provides Cost Visibility and Flexibility

It was also suggested in the IS groups that ABC provided both high cost visibility and flexibility. One respondent commented, "*It's important to keep a knowledge of what we do and it's particularly important in the outsourcing area where a client may say well I don't want that service so I can easily take it out [of an ABC model] and re-price. A lot of other service providers cannot do it and that is the beauty of activity based costing.*" In this sense, ABC was seen as an excellent tool for determining customer profitability.

#### 3. ABC Enables Process Improvements

ABC was seen as an enabler to identifying several improvements in existing processes. This was achieved by focusing on those activities that had the most impact on cost and discovering the small number of activities that often consume a vast majority of the costs. The awareness of costs generated by using ABC was also seen as a significant factor for its acceptance.

#### 4. ABC Opens Lines of Communication

Another important benefit of ABC resulted because it opened up opportunities for greater communication and increased understanding as to what was going on across many areas of the business. The managers, IS professionals and accountants all commented on the potential of ABC to quickly identify business problems and provide them with the necessary cost information to take corrective action. The fact that everyone had more faith in the accuracy of the figures also led to more cooperation between the different groups.

#### 5. ABC Does Require Changes to Work Practices

The main reservation in respect to ABC systems lay with the problem of measurement of some activities and the maintenance of detailed information. Even though detailed cost information was desirable at lower levels of management, there was some resistance to the increased labour and effort required in recording this detail. Potential users of ABC should be aware that a drive for excessive detail could result in subversion of the recording process causing inaccuracy of cost information. A balance must be achieved between the level of detail at which the cost information is to be recorded and the time needed to record such data. Achieving this balance was considered to be vital for both the system's success and its continued accuracy.

## CONCLUSIONS

The study indicates that a growing increase in IS complexity combined with an expanding proportion of overhead cost, is largely responsible for the inability of traditional costing methods, such as standard cost and full absorption costing, to provide sufficient cost information for management decision making. This complexity has been exacerbated by the diversity of support-related mechanisms that are now required to maintain decentralized IS services.

These factors make estimating IS costs, justifying them and using these costs for competitive purposes extremely difficult. In an increasingly competitive environment, the lack of accurate cost information leads to a loss of the ability to control costs and a consequent inability to provide accurate IS quotes. This often culminates in a significant decrease in the competitiveness of IS services and directly inhibits profit generating capabilities.

This study has highlighted several areas where ABC could potentially improve the quality of IS based information. The responses also revealed a strong correlation between the degree of activity-based costing information incorporated in the cost model, and the level of satisfaction with the IS cost information produced for decision making. In this context, satisfaction referred specifically to the model's ability to:

1. Effectively cost IS services for competitive bids and quotes,
2. Justify these costs to potential customers; and
3. Compare these costs to competitive standards.

Properly implemented, ABC was seen to offer a range of benefits. ABC provides a clear understanding of what the processes are and it shows how these processes react to different variables. ABC reveals the causes of costs and the relationship between ac-



tivities. It was seen to give users the opportunity to do tradeoff analyses and, in many instances, ABC helped to quickly recognize business problems and reveal potential corrective action plans. Activity-based costing also opened up opportunities for greater communication and understanding as to what is going on within all areas of the business.

These findings show strong support for the potential of activity-based costing in an IS environment and highlights its ability to overcome many of the deficiencies of traditional costing methods.

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