Activity Based Justification for IT Investments

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Abstract
The activity based cost (ABC) approach has been used to relate costs and benefits to various cost pools that drive product profitability within an organization, so that relationships can be established between investments and product profitability. In this paper, using a particular case, we demonstrate the value of the ABC approach for IT investment justification under certain conditions, and discuss its implications.

Case
A few years ago, a manufacturing firm decided to provide their sales team access to product configuration knowledge using expert systems to reduce rework costs and order processing delays. After they developed the system for configuring a simple product and used centralized access-to-access product configuration knowledge, they wanted to do the same for complex products. But, this required access to large databases and significant user interaction, and the only effective way to make this work was to provide their sales people with a notebook that had the configuration knowledge, database and other related software (worth about $8,000). The issue was could they justify the investment when such a technology had to be provided to over 400 sales people? The firm could not clearly justify the benefits of such an investment, but after some long debate, made a decision to wrap this investment under “sales force automation” and went ahead with it for “competitive reasons.” Interestingly, one of the primary motivators for this large investment (product configuration of complex products) has been discontinued. The question that lingers on still is would the firm have made a different decision if it had an opportunity to assess the impact of its investment on product profitability, especially of complex vs. simple products?

We will address this question in the following research using the ABC approach to IT investment analysis.

Introduction
IT literature has proposed several methods to evaluate IT projects. These include both the traditional approaches such as NPV, IRR, payback, etc., and non-traditional methods such as risk analysis, heuristic approaches, multi-criteria based models, etc. [1,2,3,7,8]. In these days when the focus of management is to control costs by identifying various cost pools that have a direct impact on the product profitability and bottom-line, it is critical that we assign the “IT costs” to various activities associated with each product.

Of course, there are situations when IT investments may be treated as infrastructure costs and not assigned to any particular product. The ABC approach [4,5,6,9] addresses the consumption of resources by the product. As ABC attempts to match resources (the IT investment) with the consumers of these resources (products), the specific question we ask is, “How is the IT investment influencing the product profitability?”

Research Model
A research model (shown in Figure 1) was developed and is being tested against the investment scenario discussed above. The technology investments are studied under three different design architectures: distributed processing (notebooks), centralized processing with online interaction (current system for simple products), and centralized processing with remote batch processing (current system for complex products). Each of these design architectures link IT and business activities (sales force activities) differently. Three different operational scenarios are considered for the sales activity, where the relationship between the business activities (e.g. selling) and products sold spans from “direct” to “overlapping”.

Our hypothesis is that when technology architecture is distributed across business activities and when business activities are distributed across products (lower-left hand corner of Figure below), then the ABC approach is appropriate and easy to apply for IT justification. As a matter of fact, activity based IT justification can help set the stage for effective assessment of such investments on product profitability. On the other hand, if the design architecture is distributed across activities but business activities are overlapping (are not distributed) across products, or vice versa, then the ABC approach for justification becomes more complex. Accurate information is needed to ensure proper assignment of all IT costs to various activities associated with product profitability. However, when the design architecture is centralized and the business activities are highly overlapping (upper, right-hand corner), then the effort to implement an ABC based IT justification may not be worth the cost of gathering the needed information. In other words, it may be better to treat the IT investment as an infrastructure cost. W will refer to this as Activity Based Justification (ABJ).
Implications and Conclusions
Currently, the problem discussed is being addressed in detail and by the time of the conference, we will have the analysis complete and will present the results. The primary motivation for this research is to ask the basic, yet age old question, how much information is adequate to make a decision (here, it is investment decision) and when would such information add value not only to answer the question: is this a worthwhile investment, but also the question: is this investment worthwhile in some cases and not in others? We hope to address this question, thus helping us provide a means to justify investments based on the impact they have activities, which determine the product profitability?

References