# COMBINING VA AND ACTIVITY BASED COSTING TO ACHIEVE BETTER OUTCOMES

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#### Abstract

What *is* an Activity? There is nothing in accounting that addresses this question, yet failure to effectively identify activities is one of the main contributors to ABC problems. The Value method is the most powerful tool we have to help define Activities—because an Activity is always related to a function. Additionally, the FAST Value methodology assists in addressing the other big problem with ABC, which is the expensive proliferation of Activities beyond the number needed to solve business problems.

#### Bio information

Steve Holmes is with the Ministry of Transportation in Ontario, which is one of the main users of the Value methodology in Canada.

More information, and Photo to follow.



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Professor Scarbrough has been at Brock University since 1995 and has held several positions in the Faculty of Business. Prior appointments include Boston University and Bentley College. International teaching experience includes Waseda University [Tokyo] and Linnaeus University [Sweden]. He is also Vice President of the Asia Pacific Management Accounting Association

Professor Scarbrough is co-author of two books on Japanese cost management and has written many articles on cost management in Japan. One of the bedrocks of the Japanese cost management approaches is the Value methodology. His general research interests are cost reduction and the effect of corporate culture on the use of cost reduction methods. He uses

the Value methodology in teaching his Cost Accounting courses as a basis for both general analysis and ABC. He has extensive consulting experience, primarily in cost analysis for environmental and social responsibility projects.

### Introduction

Activity Based Costing (ABC) is a powerful tool, but the success rate is low (Velmurugan 2010). Although there are a number of reasons for the weak performance of ABC, there are two that are encountered frequently:

- 1. There is no accepted way to define what an Activity actually is;
- 2. The vast majority of Activities that will be defined are not helpful to solving business problems because they are detailed information about activities that are not controllable in the decision horizon, thus the effort at definition has no value.

The Value methodology is the only tool that gives control over these two underlying issues in ABC. Value Analysis assists in defining Activities and the FAST method helps prevent activity proliferation by keeping the scope clear.

Although it would seem that the concept of "Activity" would merit study, in fact, there is almost no discussion at all in accounting about what defines an activity. It is assumed that activities are obvious and do not need special thought.

In the following sections we introduce several concepts that are related to the way ABC is used and how the Value methodology can work together with ABC. First, we introduce the concept of the Solution Stack for human competencies, then we present the current state of ABC thinking about activities. Then we present how the tendency of ABC is to have unlimited growth to the number of Activities. Lastly, we show how the Value methodology can assist ABC by improving the identification of Activities and, through FAST, control the number of activities.

#### The Solution Stack for competencies

The Solution Stack concept was developed in Information Technology to describe how layers of technology are needed to solve problems. One of the first applications was to describe how to provide a web page, as seen in Table 1. Even for something as simple as a web page, there are many layers of technology needed. The two most common are shown in Figure 1.



We have found the same approach helpful in describing the human competencies needed for work. In Figure 2, we show an example of two solution stacks for ABC. Note that Value Analysis is a prior and supporting technology to ABC in our model, not a tool for ABC to use.



The graphic display stresses the point that the Value methodology is not a tool in the tool box, but a metaskill set that impacts everything above it. In this case, the decision to adopt ABC and the manner of implementation would be based on the Value methodology. So, ABC would actually be a tool of the Value methodology in our model.

### **ABC Thinking and Activities**

ABC has been a work in progress since the middle 1980s, and has gone through a number of permutations, all of which are still being used (Troxel and Weber, 1990). CAM-I has been one of the mainstays in ABC approaches. Their graphic description from 1990 is still the primary vehicle used, as seen in Figure 3. As we can see, Activities are the central part of the entire effort, nonetheless, there has not been an effort inside of accounting to study the nature of Activities. There has been extensive work on using the information, including extending it to budgeting.



#### **Problems with ABC**

There are two significant difficulties that reduce the value of ABC: poorly defined Activities and the huge number of Activities possible even for simple processes. For example in Ohio there is a pet food plant that makes one type of dry food for dogs. The product has 6 ingredients, mainly grains, and a single linear manufacturing process. Yet the ABC model has over 5000 activities. In a valiant attempt to be good analysts, the accounting staff just kept going and going to ever more granular descriptions. Ultimately, although accurate, it was extremely costly and did not help them make decisions, so they pulled the plug on the entire model (literally! During a PC upgrade they just unplugged the PC with the ABC model and did not reload the model on the new PCs).

The issue highlighted in this story is that accounting accuracy is not a **normal good** in the economic sense. That is, more is not always better. However there is no guidance in ABC to tell the analyst when to stop. The closest we have come is a rule of thumb that there should only be 7-12 activities in a model, which is not a very useful rule, it turns out.

One of the paradoxes of accounting measurement is that accuracy is not normally difficult to achieve if you have a clear idea of what the problem is. Unfortunately, many decision makers do not have this clarity and insist on more granular information even when not needed. For example in the following table we have what may appear to be a crude analysis of the cost of a customer account, however as long as you can only define 1 type of customer, there is no value to a more granular analysis. So, one of the main problems with ABC is actually non-value-added accuracy. If you focus on activities you will end up with a complex map similar to a VSM, but without the discipline of focusing on customers.



#### Using the Value Methodology to support the ABC process

The Value methodology can be used to fill in the gaps in the ABC models. The fit is not perfect because a function is not an activity, however they are strongly connected in most cases, and with a bit of care the process of identifying a function can be used to identify an Activity. Additionally, the FAST approach can

be used to control the tendency to describe too many activities by showing the analyst when they are moving to a possibly unnecessary level of abstraction.

For the following description we will focus on determining the cost of a Cost Object, and have the criteria that we need to use the minimum number of Cost Drivers to develop a cost.

A Cost Object is anything that we want to determine the cost of, while a Cost Driver is the activity that impacts the cost.

We need to keep in mind that VA and ABC have different goals.

- ABC is for describing costs
- VA is for problem solving, so

The normal VA language does not apply in the same way because the goals are different.

In VA, a function is not an activity, however we can use it as an "activity" in ABC as a starting point because sometimes our cost object is the result of a function.

In the following examples we use VA and the FAST method to make both points. Figure 4 presents a generic FAST diagram developed for ABC analysis.



Figure 5 emphasizes the feature most important for ABC analysis: the graphic depiction of how FAST makes it clear when the level of abstraction has changed.



In Figure 6 we show the example is a less abstract way, just to make it a bit clearer.



It is in Figure 7 that the ABC analyst will need to address the issue of whether "drill hole in part B35" should be in the model or not. This hint to stop and consider the relevance does not exist in the accounting literature.







When you change the level of abstraction in the FAST model, this triggers a decision point. It does not give an answer, but provides the indication that the ABC model may be going off track.

In general:

- Knowing the Cost Object permits rapid development of a ABC/FAST model at a high level of abstraction.
- Every time you change abstraction level you will see that the FAST model does not work smoothly.
- Ask: Is this change necessary for an accurate estimate of the cost of the Cost Object.

Analysts with the Value methodology as part of their solution stack would be able to develop models that are correctly limited to the relevant Cost Object, and not unduly complex.

#### References

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Velmurugan, Manivannan Senthil, (2010), The Success and Failure of Activity-Based Costing Systems, *Journal of Performance Management*, July 2010, Vol. 23 Issue 2, p3