White Paper on Reciprocal Allocation

What is reciprocal allocation?
As with any allocation method, reciprocal allocation is a way to distribute overhead or manufacturing support costs to some logical place such as product or customer.

It is common to use the terms "service departments" and "production departments" when talking about cost allocations. The service departments are the source of amounts to be allocated. The term "production department" can be considered as standing in for others such as product, customer, etc.

Often service departments use each other's services. For example, an IT department will use HR services and vice versa. In this situation, either the step method or the reciprocal method of allocations could be used.

The step method clears out the costs of one service department at a time, allocating to production departments and to service departments that have not been previously allocated. These are the steps. There are multiple choices of the order in which service departments are cleared out. The step method gives different results when different step orders are chosen. An unfortunate choice will reduce the already doubtful accuracy of the step allocation.

The reciprocal method takes simultaneous account of all reciprocal relationships among service departments. There is no need to be concerned with choosing a step order to minimize the inaccuracy.

The following example contrasts the results of the reciprocal method with those of the step method. Let's say we are dealing with a firm with four departments: A & B are manufacturing support (overhead) departments, C & D are product departments. We want to allocate A's & B's expenses ($100 and $200) to C & D. Let's further say that we have used activities to get a good basis for allocating A & B.

Here's how the use of services is distributed.
Dept A's services are used by: Dept B 50%; Dept C 2%; Dept D 48%.
Dept B's services are used by: Dept A 50%; Dept C 48%; Dept D 2%.

Note the difference in the results.

Final Allocation

Dept C	Dept D	
242	58	Step method - allocate A then B
104	196	Step method - allocate B then A
165	**135**	Reciprocal method

It's easy to see that in this example the two step orders give significantly different results from each other and that the (correct) reciprocal method avoids the extremes of the others.

What's better about it?

The reciprocal method is more accurate. It is the only one that gives the correct results. There isn't any controversy about this point.

Here's a quotation from Cooper and Kaplan, the founders of the Activity Based Cost movement, in *The Design of Cost Management Systems.*

> The following major solutions to handle reciprocal support departments have emerged in practice:
> 1. The direct method, which ignores all of the interactions between support departments
> 2. The step-down method, which ignores some of the interaction between support departments
> 3. The reciprocal method, which captures all of the interactions.

Here's something else on the reciprocal method from Atkinson, et al., *Management Accounting,* 2nd ed.

> This method recognizes reciprocal interactions between different service departments. .... The sequential method does not work in this situation....

These are very clear statements.

Why do we care about accuracy?

Accuracy of costs matters when cost figures are used to make decisions. A list of important decisions should include pricing, outsourcing, facilities, bids, acquisitions, adding and dropping products, and adding and dropping customers. Decisions won't be any better than the information they are based on.

Here is a timely example of the need for accuracy. Currently there is a great deal of interest in fine-grained profitability studies. The idea is that these studies can be used to drop the least profitable customers and products. When costs are allocated into many fine categories, any errors are likely to be proportionally large.

Do costs only need to be directionally correct to drop the least profitable customers? Unfortunately, there is an iron law of allocations: When one allocation is too high, another is too low. Errors will change the order of profitability so mistakes will be made when dropping the least profitable customers, for example. Dropping profitable customers is not a good decision.

How does this fit in with activity based costing?

Reciprocal allocation enhances the accuracy of Activity Based Costing without adding to the effort required to obtain activity based costs.

To briefly oversimplify ABC, it involves the assignment of service department costs to production departments based on measured use of those services rather than based on something arbitrary such as direct labor.

Reciprocal relationships figure into the calculation of activity cost pools. If reciprocal allocations are used to calculate these cost pools, then the Activity Based Costs are more accurate without requiring more measurements.

The additional potential for accuracy can be used in two ways: More accuracy for the same cost-of-ABC, or comparable accuracy for less cost-of-ABC. (The term "cost-of-ABC" is used to indicate the resources for collecting and using activity measurements and activity costs.) A low cost-of-ABC is important for the success of ABC projects.

Conclusion
The benefits of Reciprocal Allocation are clear. By using the OverheadCAM cost allocation component, it is now possible to do fast, accurate Reciprocal Allocations.