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WHITE PAPER IV

*Real* Customer Profitability  
Analysis – Isn't It About Time  
You Do It?

Part I: Methods and Measures

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# ***Real Customer Profitability Analysis— Isn't It About Time You Do It?***<sup>1</sup>

## **Part I: Methods and Measures**

**By**

**Roger K. Harvey, D.B.A.**

The last twenty-five years in wholesale-distribution has seen profitability measurement evolve from a “seat-of-your-pants” art to the science of “managing by the numbers.” During this period,

- ♣ industry academics developed the Strategic Profit Model as a framework for understanding corporate profitability
- ♣ industry I/S vendors produced the hardware and software for generating integrated corporate financial reporting
- ♣ industry trade associations began publishing benchmarking reports for corporate comparative profitability analysis.

Wholesale distributors who failed to transform themselves from “seat-of-your-pants” managers to “managing-by-the-numbers” professionals are no longer with us. If you didn't know where you were profitability-wise, you could go almost anywhere, and it was usually down.

Today, many distributors still evaluate their customers by the “seat-of-their-pants” rather than by evaluating them “by the numbers.” Are you one those CEO's, CFO's, or salespeople who still cannot answer these questions with hard numbers:

- } Who are my most profitable customers? (*Answer: It is not your largest customer.*)
- } Who are my losing customers? (*Answer: It may be your largest customer.*)
- } What percentage of my customers is profitable? Unprofitable? (*The answer doesn't follow the 80-20 rule—unfortunately, it's worst.*)

If you as a distributor can't answer these questions, or worst, if you don't know how to define customer profitability, then you are putting your company's overall profitability and survival at risk.

Today, as a distributor, you need to know the more than simply the profitability of your Balance Sheet assets—you also need to know the profitability of your biggest asset—your customer. Without knowing the profitability and the cost-to-serve individual customers, how can you intelligently...

- ♣ Decide where and how to allocate resources

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<sup>1</sup> This article was inspired by and draws from the work of Peter L. Mullins' book, *Customer and Product-Line Profitability: Beyond Turn and Earn*, (Washington, D.C.: NAW, 1984). A book that many say “was ahead of its times”. Now is the time.

- ♣ Change your customer’s buying behavior or your selling practices
- ♣ Focus salespeople and marketing activities
- ♣ Negotiate pricing and systems contracts
- ♣ Offer and price unbundled services
- ♣ Identify customers you want to survey for feedback (unprofitable customers will always tell you they want more of everything)

The answer to all these questions, of course, is that you can’t make intelligent customer decisions without individual customer profitability and cost-to-serve information. You can only make “seat-of-your-pants” decisions!

This article is the first of a two part series on measuring and evaluating the profitability of individual customers and groups of customers. “Real” customer profitability analysis goes far beyond sales and gross profit analysis by customer—*real* customer profitability analysis drives customer profitability to the “bottom-line” of a P&L statement for each of your customers and customer groups. Modern accounting methodology, mainly Activity-Based Costing, and Information Technology’s (I/T’s) business intelligence tools give you, as a distributor, the ability to measure direct customer profit.

Part I of this two-part article will develop the *Customer Contribution Statement* as the core document for reporting customer profitability and as the basis for defining customer profitability performance measures. Part II will present various I/T business intelligence solutions to the problem of measuring and evaluating customer profitability.

## **CUSTOMER CONTRIBUTION STATEMENT**

The basic financial document for reporting corporate profitability is the P&L Statement; the basic financial document for Customer Profitability Analysis (CPA) is the Contribution Statement. Exhibit I shows a Contribution Statement for an individual customer.

The Customer Contribution Statement starts with the *Net Sales* to the customer for the period—a month, quarter, or year. (The Contribution Statement may start with Gross Sales when Returns & Allowances are a significant item in the business.) *The Gross Profit* dollars for the customer are generated by your financial accounting system. Sales and Gross Profit are the easiest numbers to generate by customer and the “profit” line where most customer profitability analysis ends.

*Direct Operating Expenses* by customer are produced by an Activity-Based Costing (ABC) system. ABC is a relatively new cost accounting methodology that tracks operating expenses from the G/L to customers and/or to products. Historically, ABC was developed to perform product and process costing in manufacturing operations. ABC has more recently been applied to “cost-to-serve” modeling in wholesale distribution. It is in

## EXHIBIT I

<b>CUSTOMER CONTRIBUTION STATEMENT FOR CUSTOMER A For Year Ending 12/31/xx</b>	
<b>Net Sales</b>	\$100,000
<b>Gross Profit</b>	<u>18,700</u>
<b>Direct Operating Expenses</b>	
<b>Purchasing</b>	100
<b>Handling</b>	5,000
<b>Storage</b>	1,000
<b>Sales</b>	3,840
<b>Customer Service</b>	35
<b>Delivery</b>	500
<b>Capital Cost for A/R</b>	548
<b>Contribution</b>	<u>\$7,677</u>
<b>Business Management Expense</b>	<u>750</u>
<b>Customer Profit</b>	<u><u>\$6,927</u></u>

the context of determining the cost-to-serve individual customers that ABC is used to determine the Direct Operating Expenses attributed to a specific customer.

As an example, the *Delivery Expense* attributed to the Customer A in Exhibit I was determined by applying ABC to the delivery process. First, ABC was used to find the cost to make a delivery (= \$10) on Customer A's route. Second, this ABC determined number was multiplied by the number of deliveries made to Customer A during the period ( \$10 times 50 Deliveries) to arrive at the *Delivery Expense* for serve Customer A.

A detailed discussion of ABC for wholesale distribution firms is beyond the scope of this article, but the interested reader should refer to the author's White Paper series on the

subject.<sup>2</sup> White Paper II, *The ABC's of Activity-Based Costing for a Distribution Business*, shows how the numbers shown in Exhibit I were determined using ABC.<sup>3</sup>

The Cost of Capital shown in Exhibit I is driven by the customer's *average Accounts Receivable* balance during the year. Traditional financial management techniques may be used to determine your company's cost of capital. In our example, the cost to carry *Accounts Receivable* for a month is 1.7% or approximately 20% per year. Customer A's average *Accounts Receivable* for the year was \$2,740, therefore, the *Capital Cost* assigned to Customer A was \$548 (= 20% times \$2,740).

The *Direct Operating Expenses* and *Capital Cost* are summed and subtracted from *Gross Profit* to arrive at *Contribution*. The term "Contribution" comes from the fact that these are the dollars contributed by a customer to the company's overhead expenses, that is, to those expenses that haven't been directly traced to customers. Many of these expenses fall under the *General and Administrative Expense* category, although it is the purpose of ABC to assign as many of these expenses as possible to direct operating expense categories. A positive *Contribution* means that the customer is contributing to overhead expenses and profit.

(SIDEBAR: Some proponents of CPA suggest allocating operating expenses to customers based on your average operating expense to process an order, or even worst, based on the customer's sales as a percentage of total sales. They suggest dividing *Total Operating Expenses* on the P&L by the number of orders processed during the period to determine an average cost to process an order. A customer is assigned a "cost-to-serve" expense based on the number of orders s/he placed during the period. The assumption is that it costs the same amount to process every order, whether the order is a one-line, one item order or a 1000 lines, 1000 items order. Obviously, this is an invalid assumption especially for distribution companies where the number of lines and items varies greatly from order-to-order. Furthermore, orders are not homogeneous in most distribution lines: there are special orders, will-call orders, direct orders, warehouse orders, called-in orders, and EDI orders. You penalize the customer who places a large number of EDI orders, when in fact, it is possible you should be rewarding the customer.

The other simplistic method—the Percentage of Sales method—allocates all or selected *Operating Expenses* on the P&L Statement to a customer based on his/her percentage of the company's total sales. It is a peanut butter approach to "spreading" *Total Operating Expenses* over your customer base. A customer whose sales are 5% of your total sales is allocated 5% of your *Total Operating Expenses*. Big customers are allocated big chunks of operating expenses and small customers little chunks of operating expenses. The assumption here is that big customers are more expensive to serve than small customers are—again, a questionable assumption.

Both of these allocation methods lead to incorrect decisions about a particular customer's profitability, and to the fatal decision of rewarding poor customers or

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<sup>2</sup> Roger K. Harvey, *Throw-out Fixed Cost and Variable Cost Thinking—Bring in Activity-Based Costing for Distribution Decision-Making*. (Available at no-charge from Value Associates, Ltd., PO Box 1156, Carbondale, CO 81623, Voice: 970-963-1444, Fax: 970-704-9740, e-mail: [rharvey\\_2@yahoo.com](mailto:rharvey_2@yahoo.com))

<sup>3</sup> Available from Value Associates, Ltd. at no charge.

penalizing good customers. By contrast, ABC correctly calculates activity costs, and assigns them to a customer based on the customer’s consumption of the activities and their associated costs.)

Frequently, CPA stops at the *Contribution* line. ABC attempts to assign all expenses, especially those in the G&A category, to customers so *Contribution* is usually a good measure of customer profitability. Dollars left in the unassigned expense category often are expenses that support the organization as a whole (e.g., executive salaries) or don’t support existing customers (e.g., expenses associated with prospecting for new customers). For this reason, you may want to stop at this point and base your customer profitability performance measures on *Contribution*.

In Exhibit I, we have elected to allocate all of our expenses to customers, both direct expenses and overhead expenses. We have taken all the G/L operating expenses that could not be directly assigned to customers and put them into a cost pool called *Business Management Expense*. We then allocated these expenses to our customers based on an overall driver of costs in the organization, in this case, based on the number of invoice lines. The basis for allocating *Business Management Expenses* depends on the distribution industry and what activity measure tends to increase (and decrease) overhead expenses in your company. For example, in the service merchandising or candy/tobacco distribution industry, you might use number of stores served; in the chemical distribution industry, the number of gallons processed; in the metal service center industry, the number of tons processed; or in many other distribution industries, the number of invoice lines handled. When *Business Management Expenses* are allocated to customer, they are usually allocated based on some measure of activity that tends to drive-up organization costs.

Each customer’s allocated *Business Management Expense* is subtracted from their *Contribution* to arrive at *Customer Profit* (sometimes called *Direct Customer Profit*). In Exhibit I, Customer A’s *Contribution* and *Customer Profit* are positive suggesting that on a dollar basis, Customer A is a profitable customer. Customer A’s *Contribution* is not only covering the company’s overhead expenses, but it is also contributing to the company’s overall profits.

Although we discuss customer Performance Measures in the next section, we may classify customers as “Winners”, “Losers”, or “Marginal” customers based on the following Contribution–Customer Profit relationships:<sup>4</sup>

<b>Type of Customer</b>	<b>Contribution</b>	<b>Customer Profit</b>
<b>Winner</b>	Positive	Positive
<b>Marginal</b>	Positive	Negative
<b>Loser</b>	Negative	Negative

<sup>4</sup> This scheme was first introduced by Peter Mullins in his book *Customer and Product-Line Profitability: Beyond Turn and Earn*. Ordering information for the book appears at the end of this article.

A “winner” is a customer with positive *Contribution* and positive *Customer Profit*. Customer A in Exhibit I is a “winner.” A “loser” is when *Contribution* is negative indicating that Direct Operating Expenses and Capital Costs exceed the customer’s *Gross Profit* dollars. “Winners” are subsidizing “losers.” Incidentally, which type of customer will your competitors try to lure away? And, more importantly, who sent you the “losers” in the first place?

To more accurately classify your customers, you may want to use the Customer Contribution Statement to calculate a new series of customer performance measures. These measures will provide you with performance information beyond simply the *Contribution* dollars and *Customer Profit* dollars for each of your customers.

### CUSTOMER PERFORMANCE MEASURES

The Customer Contribution Statement itself and side-by-side Contributions Statements over time may be used to measure different dimensions of customer profitability. A customer’s Contribution Statement, when accompanied by the customer’s Accounts Receivable balance (and possibly any special inventory investment for the customer), may be used to calculate ROI-type profitability measures. Table I presents a series of customer performance indicators by major category.

Paralleling the methodology used in evaluating company-wide profitability, the customer profitability measures in Table I drill down from the Strategic Profit Model. The Strategic Profit Model proposes that profitability be evaluated on two dimensions: first, on profit margin—the “Earn” dimension, and second on asset turnover—the “Turn” dimension. The *Margin Measures* report the profit percentage “earned” on each dollar of sales to the customer. The *Asset Management* measures report turnover of the customer’s Accounts Receivable, which is a measure of a customer’s Days Sales Outstanding (DSO).

The customer *ROI Measures* defined in Table I should be used with caution because they give equal weight to both the Earn and Turn components. For example, with CMROR, .5 weight is assigned to Contribution Margin and .5 to A/R Turnover. It may be that margin should be more highly weighted because it is often more difficult to achieve higher Contribution Margins than it is to achieve higher A/R Turnovers. Another way of making the same point is that you might be willing to give up some A/R Turnover (that is, DSO) in return for some additional Contribution Margin percentage. The *ROI Measures* do not recognize these preferences for higher margin—they treat both margin and turnover equally.<sup>5</sup>

The *ROI Measures* combine the “turn” and “earn.” For example, Contribution Margin Return on Receivables (CMROR) is defined and combined as follows:

$$\frac{\text{Contribution}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Accounts Receivable}} = \frac{\text{Contribution}}{\text{Accounts Receivable}} = \boxed{\text{CMROR}}$$

<sup>5</sup> For precautions in using ROI-type measures in evaluating customer profitability, see Peter Mullins *Customer and Product-Line Profitability: Beyond Turn and Earn*.

**TABLE I**  
**CUSTOMER PERFORMANCE MEASURES**

	<b>Performance Measure</b>	<b>Formula</b>	<b>Comments</b>
<b>I.</b>	<b>Margin Measures</b>		
1	Gross Profit Margin (%)	$(\text{Gross Profit} / \text{Net Sales}) * 100$	Percentage of each sales' dollar available to cover operating expenses
2	Contribution Margin (%)	$(\text{Contribution} / \text{Net Sales}) * 100$	Percentage of each sales' dollar available to cover overhead and profit
3	Customer Profit Margin (%)	$(\text{Customer Profit} / \text{Net Sales}) * 100$	Profit Margin or Return on Sales for a customer
<b>II.</b>	<b>Asset Management Measures</b>		
1	Days Sales Outstanding	$\text{Accounts Receivable} / (\text{Net Sales} \div \text{No. of Days in the Period})$	Customer's payment period or collection period
2	Accounts Receivable Turnover	$\text{Net Sales} / \text{Accounts Receivable}$	Number of times during the period a customer's A/R dollars turnover
<b>III.</b>	<b>ROI Measures (Combined Measures)</b>		
1	Gross Margin Return on Receivables (GMROR) (%)	$(\text{Gross Profit} / \text{Accounts Receivable}) * 100$	A "Turn & Earn" measure because GMROR also equals Gross Profit Margin (%) times A/R Turnover
2	Contribution Margin Return on Receivables (CMROR) (%)	$(\text{Contribution} / \text{Accounts Receivable}) * 100$	A "Turn & Earn" measure because CMROR also equals Contribution Margin (%) times A/R Turnover
3	Profit Margin Return on Receivables (PMROR) (%)	$(\text{Customer Profit} / \text{Accounts Receivable}) * 100$	A "Turn & Earn" measure because PMROR also equals Profit Margin (%) times A/R Turnover

**TABLE I (Continued)**  
**CUSTOMER PERFORMANCE MEASURES**

	<b>Performance Measure</b>	<b>Formula</b>	<b>Comments</b>
<b>IV.</b>	<b>Growth Rate Measures</b>		
1	Percent Change in Sales (%)	$(\text{Net Sales}[t] - \text{Net Sales}[t-1]) / \text{Net Sales}[t-1]$	Measures trend in a customer's Net Sales
2	Percent Change in Gross Profit (%)	$(\text{Gross Profit}[t] - \text{Gross Profit}[t-1]) / \text{Gross Profit}[t-1]$	Measures trend in a customer's Gross Profit dollars
<b>V.</b>	<b>Cost Driver Measures</b>		
1	Average Order Size (\$)	Gross Profit / Number of Orders	Average Gross Profit dollars generated by each order processed
2	Average Invoice Line Extension (\$)	Gross Profit / Number of Invoice Lines	Average Gross Profit dollars generated by each line processed
3	Average GP per Delivery (\$)	Gross Profit / Number of Deliveries or Stops	Average Gross Profit dollars generated by each delivery or stop
4	Average GP per Item (\$)	$(\text{Gross Profit} / \text{Number of Items Sold to the Customer})$	Average Gross Profit dollars generated by each item (e.g., carton, pallet, gallon, ton, etc.)
<b>VI.</b>	<b>Potential Measures</b>		
1	Account Penetration Index	Subjectively Defined	Usually based on sales to the customer compared to potential sales to the customer

The challenge in evaluating and comparing customer performance is not measuring profitability; it is with the number of measures. Table I presents measures of margin, turnover, growth, cost, and potential. The challenge is how to evaluate your complete customer list (typically, 1000 to 2000+ in number) in terms of several or all the dimensions shown in Table I. One group of customers may be high growth, average margin, and slow pay; another group slow growth, high margin, average pay; still another may be average growth, average margin, average pay; and so on and so on. What constitutes a “good” customer? Who are our “poor” customers? How do you define a “winner” and “loser” when multiple measures are available?

One answer is a Customer Scoring Model where scores are assigned to customer attributes based on their position in a ranked list of each attribute. Weights are assigned to each attribute or dimension in term of its importance to your company. The scores and weights for dimensions are multiplied and summed to give a score or index for each customer. The customer profitability software solution *CPA for Windows*, discussed in Part II of this article, includes a software tool to create customer scoring models.

## **USING CUSTOMER PROFITABILITY ANALYSIS**

The real benefit in building Customer Contribution Statements, measuring customer performance, and calculating customer scores is using the information to improve the profitability of individual customers or customer groups. Knowing the profitability of your customers, you can work with your salespeople to reward the “winning” customers and to change the behavior of the “marginal” and “losing” customers. It is no longer necessary to argue with the salesperson over who is a good customer and who is a poor customer—you now have *real* profitability information on each of your customers. It is no longer necessary to give your salespeople vague marching orders on making a customer more profitable—you now know what costs and services are making a customer less profitable and/or by how much we have to change pricing or services to make the customer more profitable. Customer profitability drives corporate profitability analysis down to the level where we can do something about it.

Customer Profitability Analysis will allow you to classify your customers and differentiate your services and prices to them. Based on your customer-scoring model, for example, you might identify a group of “Platinum” customers or a group of “Gold” customers. Platinum customers receive special treatment such as anytime delivery or immediate answer, customer service phone numbers. At the other end of the continuum, we might have a group of “Collateralized” customers who pay delivery charges and receive no special treatment. As contemporary marketing literature proselytizes, all customers are not created equal and should not be treated equally. Those loyal customers who shop on service and quality, paying us for the value we bring to them, are treated like “gold”; while those customers who constantly buy on price and cherry-pick our inventory are treated accordingly.

We read about and practice product differentiation—customer profitability analysis allows us to practice customer differentiation. More importantly, it is a tool that allows us to improve our overall corporate profitability at the grass roots level—at the customer level. CPA coupled with today’s computer-based business intelligence solutions, turns “seat-of-the-pants” customer evaluation into evaluating customers based on “hard” numbers and proven methodology.

## **I/T Business Intelligence Solutions**

The methods and measures of CPA could not be implemented without today's information technology. As was painfully learned by any distributor who has attempted individual customer profitability analysis using legacy computing systems, the data and computational requirements of activity-based costing and customer profitability analysis quickly exceed what is typically available with most accounting and management information systems. G/L and accounting systems were never designed for managerial accounting applications and individual customer profitability analysis. Part II of this article presents computer hardware and software solutions for implementing customer profitability analysis in a wholesale distribution business.

Part II of this article discusses the following I/T solutions for CPA and ABC:

- ♣ spreadsheets and PC-based data base management systems
- ♣ dedicated ABC software
- ♣ on-line analytic processing (OLAP) software
- ♣ data warehouses and data marts

These I/T solutions will be discussed as they run on PC's, mid-range computers, and client-server networks.

## **ADDITIONAL SOURCES OF INFORMATION**

This article is meant to suggest a new way of thinking about customer profitability in distribution management. To learn more about Activity-Based Costing as it is applied to customer profitability analysis, you may wish to consult the following articles and books:

Roger K. Harvey, *The ABC's of Activity-Based Cost Accounting for a Distribution Business*—White Paper #2. Available at no charge from Value Associates, Ltd., PO Box 1156, 564 Graceland, Carbondale, CO 81623. Voice: 970-963-1444; Fax: 970-704-9740; E-Mail: [rharvey\\_2@yahoo.com](mailto:rharvey_2@yahoo.com) .

Roger K. Harvey & Peter L. Mullins, *Implementing Activity-Based Cost Accounting, Customer Profitability, and Product-Line Analysis in a Distribution Business*—White Paper #3. Available at no charge from Value Associates, Ltd.

Roger K. Harvey, *Activity Accounting and Customer Profitability Analysis for Distributors*, 1994, Value Associates, Ltd., Voice: 970-963-1444, Fax: 970-704-9740. (Updated version of the book to be published.)

Peter L. Mullins, *Measuring Customer and Product Line Profitability: Beyond Turn & Earn*, 1984. Available from Value Associates, Ltd., Voice 970-963-1444, Fax 970-704-9740. (Updated version of the book to be published.)