

White Paper

Introduction

Time-Driven ABC (TDABC) is a methodology that can be used in certain types of organizations to simplify the process of building and maintaining ABC models. Dr. Robert Kaplan originally proposed TDABC as a way to address the difficulty of scaling employee surveys for use in large complex organizations and as a more flexible cost model for capturing complexity in business operations. Instead of the time-consuming process of surveying employees on how they spend their time, managers estimate the practical capacity of each resource supplied from their department and the amount of time it takes to perform each activity. Driver rates are then derived from these two pieces of data and used to assign costs to transactions, products or customers.

Benefits

Proponents of the TDABC approach say it has three key benefits:

- 1) Employee surveys and time logs are not needed as they are replaced by the time unit estimate for each activity.
- 2) Excess capacity costs are not assigned and therefore do not distort ABC model results. Reporting the quantity and cost of capacity supplied vs. the capacity used lets managers analyze the effects of unused capacity.
- 3) Complexity of business operations can be modeled more simply.

Time-Driven ABC Using Activity Analyzer

Activity Analyzer has been adapted to support TDABC in environments where the use of time equations applied at the transaction level is not practical or needed. Our approach provides the main benefits of using TDABC without requiring transaction level integration with the ERP system.

Activity Analyzer Methodology

At the resource level, the practical capacity of each resource, expressed in units of the resource driver, is estimated and entered into Activity Analyzer. Actual resource consumption, as measured in units of resource driver, is calculated by the software.

Resource level data includes:

- Resource Cost - \$560,000 for a staff of 28 full time service reps
- Resource Capacity - 700,000 minutes available
- Driver Cost Rate - \$.80 per available minute ($\$560,000 / 700,000$)
- Resource Utilization - 593,600 minutes used

Employee Master

Employee ID: 1 Name: Customer Service Rep

Detail List Activities Expenses

Wages	560,000.00	Budget Type	Fixed
	0.00	Cost Type	Fixed
Expenses	0.00	Resource Attribute	People
Total	560,000.00		

Budget	0.00	Position	Service Rep
	0.00	Classification	Non-Exempt
	0.00	User Field	
	0.00		

Head Count	28.00	Resource Driver	Available Minutes
FTE	28.0000	Actual Qty	593,600.00
		Rate	0.80
		Capacity Qty	700,000.00

At the activity level, the total number of times the activity was performed, as represented by the activity driver quantity, is calculated and entered for the activity.

Activity level data includes:

- Activity - Process Customer Orders
- Driver Quantity - 51,000 orders

Activity Master

Activity # 1 Description: Process Customer Orders Level 1

Item Master Root Cause Measures

Detail Advanced Activity List Employees Expenses Activity Resource Used In Processes Cost Objects

Activity Center		Value Added %	0	Head Count	28
Process		Budget Type	Fixed	FTE	16.32
Attribute 3		Activity Driver			
Attribute 4		Driver	Customer Orders	Quantity	51,000.00
Attribute 5		Rate	6.4000		
Attribute 6		Capacity			
Attribute 7		Capacity	0.00	Rate	0.0000
Attribute 8		% Utilized	0.00	Excess \$	0.00
Total Cost		326,400.00			
Budgeted Amount		0.00			
Resource Driver					
Driver					
Quantity		0.00			
Rate		0.0000			

Also at the activity level, the time unit for the activity is estimated and entered into Activity Analyzer. The time unit represents the amount of time required to perform the activity once.

- Time Unit per Customer Order: 8 minutes

The screenshot shows the 'Activity Master' window with the following details:

- Activity #: 1
- Description: Process Customer Orders
- Level: 1
- Time Unit: 8.00 Minutes
- Best Practice \$: 0.00
- User Field 2: 0.00
- User Field 2: 0.00
- Non-Value Added \$: 326,400.00
- Non-Value Added %: 100.00

Set		Activity Cost	Direct Cost	Support Cost
<input type="radio"/> 1	Fixed	326,400.00	326,400.00	0.00
<input type="radio"/> 2	Variable	0.00	0.00	0.00
<input type="radio"/> 3		0.00	0.00	0.00
<input type="radio"/> 4		0.00	0.00	0.00
<input checked="" type="radio"/> Open		326,400.00	326,400.00	0.00

The activity's time unit of 8 minutes is multiplied by the 51,000 times the activity was performed (51,000 orders) to calculate the total number of minutes (408,000) utilized by the activity. The minutes are costed at the driver rate of \$.80 per minute assigning \$326,400 of resource costs to the activity.

Activity Analyzer's activity costing program can then use either the actual resource driver quantity or the capacity quantity to assign resource costs to activities. When the capacity quantity is used excess capacity costs are not assigned out to activities.

Benefits vs. Limitations

Activity Analyzer provides two of the key benefits of the TDABC method:

1. Eliminates the need for employee surveys and time logs
2. The affects of capacity are made visible and don't distort model results.

The limitation of the Activity Analyzer method is that the time units are averages. For example, if there were just two types of orders, new and repeat, and a new order takes 10 minutes to process whereas a repeat order takes 6 minutes, using the average time unit of 8 minutes would not capture the difference in costs. In Activity Analyzer the workaround is to define two activities – one for processing new orders and one for processing repeat orders. As long as the list of order variations is not too large this method works fine.

Modeling Complexity with Time Equations

Time equations can be used to model business process complexity when the number of variations makes the use of multiple activities impractical. Time equations are applied directly to transactions, products or customers. In this methodology, the cost influencing parameters of a customer order are identified and a time estimate made for each one as follows: Rush Order = 3 minutes, New Customer = 6 minutes and Order Placement = 8 minutes. For a rush order with a new customer the time equation would be $3 + 6 + 8 = 17$ minutes. For a rush order the time equation would be $3 + 8 = 11$ minutes. Instead of being averages the time units are calculated using the time equations. If the resource cost were \$.80 per minute the first order would receive \$13.60 of cost and the second \$8.80. To implement this method requires that the detail order transactions from the ERP system be integrated with the ABC software so that the time equations can be applied.

Activities and Cost Objects

In the described TDABC method, activity costs are assigned to cost objects in the usual way. In Activity Analyzer this means that a bill of activity is used to relate activities to cost objects and each activity's cost rate is applied to the cost object's driver quantities.

Compiling driver quantities for the cost objects can be an extremely time consuming task. Activity Analyzer provides the capability to calculate activity driver quantities based on the rate at which cost objects consume their activities. Instead of compiling how many times an activity was performed for each cost object, managers simply estimate the rate at which each cost object consumes the activities assigned to it. The driver quantities are then calculated by the software.

Summary

The Activity Analyzer methodology for TDABC is designed for organizations where the use of time equations applied at the transaction level is not practical or needed. It can be selectively applied so that within the same model some activities are handled in the traditional way and some use the TDABC approach.

Detailed information about using Activity Analyzer for TDABC can be obtained by contacting Lead Software, Inc.