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HYPERION ACTIVITY-BASED MANAGEMENT SOFTWARE: A TOOL FOR ANALYZING COSTS AND OPERATIONAL PROCESSES

*By **Alan I. Blankley** and **Craig E. Bain***

UNDER AN ABM APPROACH, the cost of each activity is measured and assigned to products using appropriate drivers.

CPAs in industry, accountants, controllers, and other financial managers need to be able to make business decisions quickly. They need to offer practical, accurate information on matters of cost and cost allocations, customer and product profitability, and the expected results of important business decisions. Furthermore, they need to be able to link their financial analyses to their firms' strategic objectives. Activity-based management (ABM) provides accountants and financial professionals with the tools and information to help managers make better decisions. ABM not only provides more accurate costing for activities and processes than traditional accounting methods, but it also allows for thorough operational analysis, constraint checking, and sensitivity analysis.

Organizations must perform certain activities to provide the products and services they sell. Each of these activities consumes resources. Under an ABM approach, the cost of each activity is measured and assigned to those products or services requiring the activity, using appropriate assignment bases (drivers). This provides an accurate picture of the real cost of producing each product (many users find that costs have been miscalculated or misallocated). Thus, ABM provides powerful insights into not only the costs associated with company operations, but also the nature and efficiency of company operations.

The software described in this article is effective for both large and small companies. It is the first analytic application to combine activity-based costing, ABM, capacity planning, constraint analysis, scenario planning, and a graphical tool in one package, providing users with a realistic view of the drivers of business performance and their financial effects.

The Software

The software was developed by Sapling Corporation, a wholly owned subsidiary of Hyperion Solutions Corporation. Now called Hyperion Activity-Based Management (ABM), the software uses a process-modeling approach focusing on the flow of work through an enterprise. The model forms the basis for cost accumulation, which allows cost modeling and analysis, analysis of activities and resources, and business process analysis, while also recognizing physical or operational constraints. The software supports an iterative decision process of evaluating multiple business scenarios and comparing alternatives to improve business performance.

The Process

The process of establishing an ABM system with Hyperion ABM can be distilled into four steps:

Define the Project. Initially, the scope of the project, including its "reach," must be defined. In other words, does the project extend firmwide or simply across a particular division or line of business? Also, the time period over which the implementation will extend and the time period being measured will need to be determined. Is the business more suited to monthly, quarterly, or annual measurement? In general, this step also requires analysis of the major activities of the business, including the appropriate units of measure for each activity, as well as resources and demands.

Develop the Operational Schematic. The schematic is a graphical representation of the operational activities from step 1. The model is developed from the bottom up in consultation with key members of the functional areas. Each operation or activity and its supporting resources are identified and placed in context. The model clarifies the interrelationships among the demands, activities, and resources of the project. The end result is an accurate model of the entire business process.

EXHIBIT 1
INCOME STATEMENT
Year ended December 31, 1999

In Dollars:

	Commercial	Residential	Retail	Service	Total
Revenue	$578,240	$973,400	$175,000	$100,000	$1,826,640
Cost of goods sold	280,000	700,000	106,250	12,500	1,098,750
Gross profit	298,240	273,400	68,750	87,500	727,890
Overhead	108,445	271,113	41,151	4,841	425,550
Income	$189,795	$2,287	$27,599	$82,659	$302,340

In Common Size:

	Commercial	Residential	Retail	Service	Total
Revenue	100%	100%	100%	100%	100%
Cost of goods sold	48.42	71.91	60.71	12.50	60.15
Gross profit	51.58	28.09	39.29	87.50	39.85
Overhead	18.75	27.85	23.51	4.84	23.30
Income	32.82%	0.23%	15.77%	82.66%	16.55%

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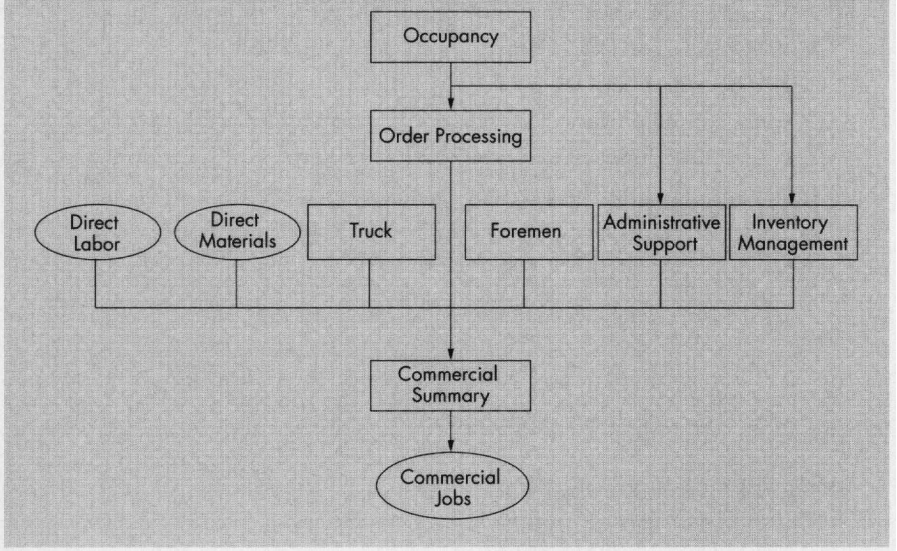
EXHIBIT 2
SYSTEM REQUIREMENTS AND SPECIFICATIONS

Operating System: Windows 95, 98, or NT 4.0 or later; Sun Solaris 2.6 or later.
CPU Minimum: Pentium 100 MHz.
RAM Minimum: Windows, 32 MB; Sun, 64 MB.
Hard Disk Space Minimum: Standard Edition, 40 MB; Enterprise Edition, 100 MB.
Network Capabilities: Multiuser TCP/IP; Enterprise Edition is client-server.
Import/Export Format: DDE, ASCII; OBDC compliant; Essbase OLAP embedded in package.
Annual Software Maintenance Fee: 18% of list price.
Training Information: Public and onsite available.
Documentation: Full HTML and PDF documentation online. Software includes printed installation guide and modeling template. An applications guide with examples is also available.
User Support: Telephone, web, e-mail, and quarterly newsletter.
Base Price: $20,000
Contact: Hyperion Solutions Corporation, 1344 Crossman Ave, Sunnyvale CA 94089, (408) 744-9500, Fax (408) 744-0400, www.hyperion.com

Collect the Data. The schematic from step 2 helps pinpoint the data needed. At this stage data is gathered concerning charges, operational efficiency, and costs. Such data could include, for example, the volumes produced by various machines, how long each machine runs, the downtime associated with each machine, the cost of operators, and the average number of order lines associated with orders for particular goods.

Build the Model and Validate Results. The operational model developed in step 2 is entered into the software and the various details captured in step 3 are linked to each component of the model. For example, if order processing is identified as an activity in step 2, then the average number of lines per order by product line would be linked to the activity, as well as the number of order processors and their salaries and benefits.

FIGURE 1
HYPERION ABM MODEL FOR COMMERCIAL PLUMBING DIVISION



The goal is to take the entire operational model and reproduce it in the software, linking every component of the model to relevant operational and financial details. Once the model has been built and validated, it can be used to evaluate unlimited "what-if" scenarios.

Example

To illustrate the process described, we took a potential business situation that could benefit from activity-based management, then developed the model. Our example includes a partial schematic, screen capture shots showing the results of the model, and finally, the results of scenario playing.

The business is a plumber with four divisions:

- Commercial, which includes office buildings, restaurants, and hotels.
- Residential, which primarily includes single family dwellings.
- Retail, which consists of a storefront that handles direct sales of individual items such as sinks, toilets, and showers.
- Service, which handles general plumbing problems called in by customers.

Management is concerned that the residential division is not very profitable and is considering dropping it. Gross margins are significantly lower in this line of business, and the net profit margin is less than 1% under the company's standard costing procedures. This is especially disconcerting as the area is expected to grow by 10% per year for the next several years. Management does not want to miss out on the growth but also does not want to shift crewmembers from more profitable divisions. The following narrative and the financial statements shown in *Exhibit 1* describe the business.

Overhead is currently allocated on a weighted average cost of cost of goods sold (COGS) by division divided by total COGS multiplied by the total overhead dollars. For example, the commercial division allocation for overhead is $280,000 / $1,098,750 x $425,550 = $108,445 (rounded).

Further investigation reveals the following:

- The company rents and pays casualty insurance premiums on a building.
- The commercial and residential divisions each have a foreman and laborers.
- One employee performs administrative support, including customer sup-

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port, bookkeeping, secretarial, and office management.

- The company has a truck for deliveries.
- One employee handles inventory management.

Figure 1 displays the portion of the overall model relating to commercial jobs. The lowest portion of the model, an oval, represents the ultimate demand for commercial work.

The rectangle immediately above the demand symbol is called a summary box. It captures all the inputs belonging to the commercial jobs, then rolls the aggregated costs from the various inputs into the commercial jobs based on some unit of measure (in this case, the job). The arrow from the commercial summary box to the commercial jobs oval indicates that, operationally, all relevant factors, processes, activities, and resource costs are first aggregated, then applied.

The commercial summary box has two variable costs, direct labor and direct materials, represented by ovals, called supply boxes. There are also five rectangles, which may either represent a resource, like the truck, or an activity, like order processing. These rectangles, called process boxes, may represent resources, activities, or summaries. Each represents a part of the business process that supports commercial jobs. So, for example, commercial jobs require both a truck for deliveries and a foreman to manage the work crew, as well as administrative support, order processing, and inventory management activities. These last three activities are supported by an occupancy resource, indicating that these activities are allocated space in the company's building.

For each of the other demands (residential, retail, and service), the same sort of model is developed, then combined with the commercial jobs model to give an overall operational view of the company's business processes. Once the operational model is complete, the financial data is applied to the model from the top down. Starting with the highest level process box or supply box, the costs of the resource, activity, or supply are allocated based on the operational model to the next lowest activity, which is rolled down until all costs are ultimately applied to the final demands.

Figure 2 illustrates a screenshot of the order-processing activity window in Hyperion's ABM. The small rectangle labeled OCCY indicates that occupancy supports order processing, and the costs associated with occupancy (e.g., rent and insurance) are allocated based on the square footage that the order-processing department utilizes. The diagram indicates that order processing uses 500 square feet of space.

To the left of the order-processing box are two costs, one for salaries and benefits, and one for other expenses. In order to arrive at the total salary cost for the department, salaries are applied to order processing based on the average salary of $22,500 multiplied by the number of order processors in the department. The other costs are $200 per order processor and are likewise multiplied by the number of order processors.

To the right of the box, the practical capacity of the order-processing department is identified based on the relevant factor, the number of order lines. Each order processor can process 300 lines per hour. This rate is multiplied by the number of order-processor hours, times the number of order processors, times the number of weeks in the period. This yields the practical constraint in the process. The company will be unable to process orders once the constraint is reached without either an increase in productivity or adding another order processor.

The bottom of the box displays an arrow pointing to four summaries. This indicates that order processors perform activities for all four divisions. The costs associated with order processing (salary, other expenses, and allocated occupancy

FIGURE 2
HYPERION ABM SCREENSHOT OF THE ORDER-PROCESSING WINDOW

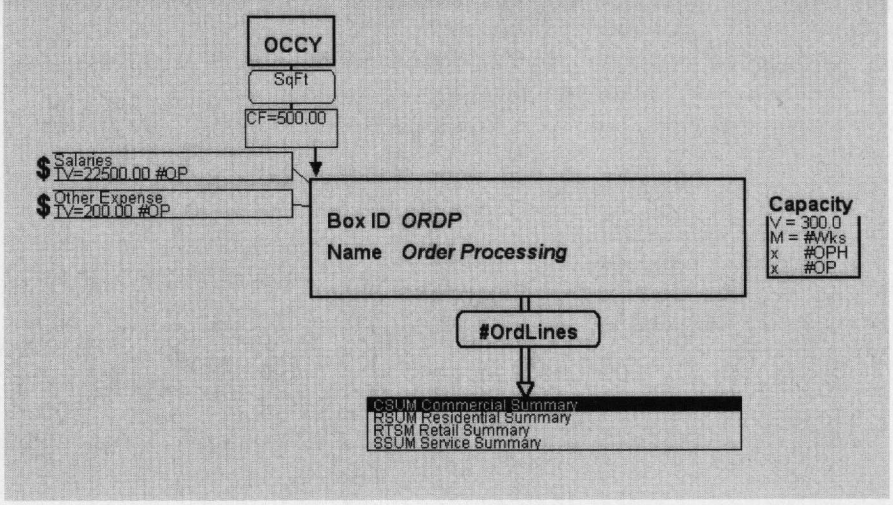

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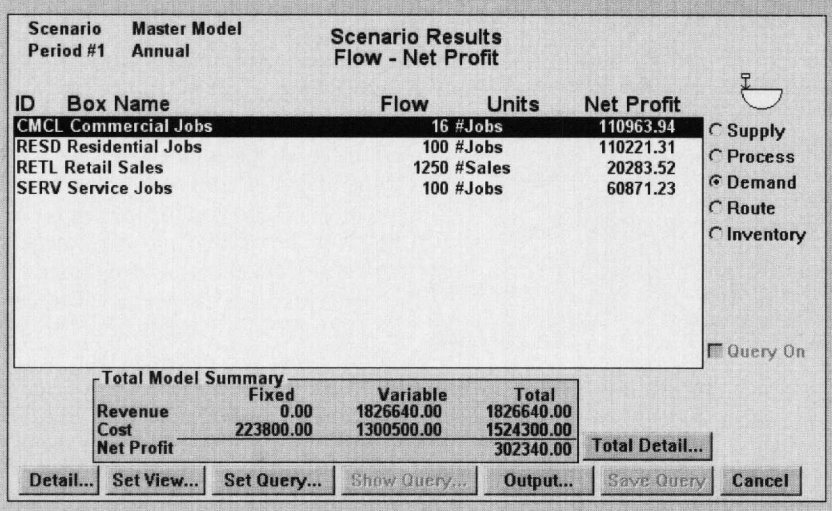
FIGURE 3
RESULT OF HYPERION ABM MODEL FOR PLUMBER



costs) are allocated to each demand based on the number of order lines required by each demand. The number of order lines is used here as the unit of measure. Another possible unit of measure could be the number of orders. However, this would probably result in some distortion, since commercial orders may have, say, 1,000 lines per order, while a residential order may have less than 50 lines per order. Given that order complexity varies, the number of order lines proves to be more effective.

ABM Results

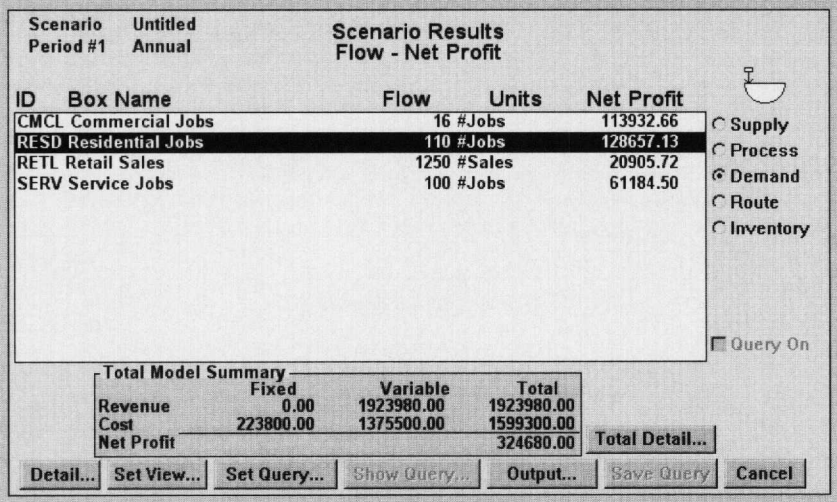
By developing the operational model first, then overlaying it with the relevant financial data, the company is able to see its "true" cost and profitability for each demand. The ABM software recalculates the $425,550 of overhead and comes up with a different profit picture. Note from *Figure 3* that the four demands—commercial, residential, retail, and service—have the associated profits listed to the right under the net profit heading. The total profit at the given level of demand remains the same, but the recalculated level of profitability for each division is different. Under the ABM model, the commercial division is still the most profitable, providing $110,963.94 toward the company's overall profitability. Surprisingly, the residential division now adds $110,221.34 toward overall profits, which is far better than under standard cost allocations. This information would allow management to pursue further growth in its residential division.

Assuming that with these new insights, management wished to grow the residential division by 10%—the forecasted rate of growth—the software provides for scenario playing. Each scenario can be saved, then compared with original results and all other scenarios if desired. *Figure 4* shows that at 10% growth, residential jobs would provide $128,657.13 toward increased overall profitability of $324,680.

Use of the sensitivity analysis capabilities gives management a sense of how much growth it can accommodate given current capacities. For example, if it is assumed that the company achieves 100% growth in three of the four areas, the software clearly sounds an alarm that there is not enough direct labor available to support this sort of growth.

Technical information on Hyperion ABM is listed in *Exhibit 2*. The software is an excellent tool for use in companies wishing to undertake ABC for divisions, segments, and product lines. It allows financial professionals and accountants to act as business partners in the truest sense: developing the operational model, helping the company redesign business processes, assisting with important business decisions, and developing plans for growth. ❑

FIGURE 4
PROFITABILITY ALLOWING FOR A 10% INCREASE IN RESIDENTIAL JOBS



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