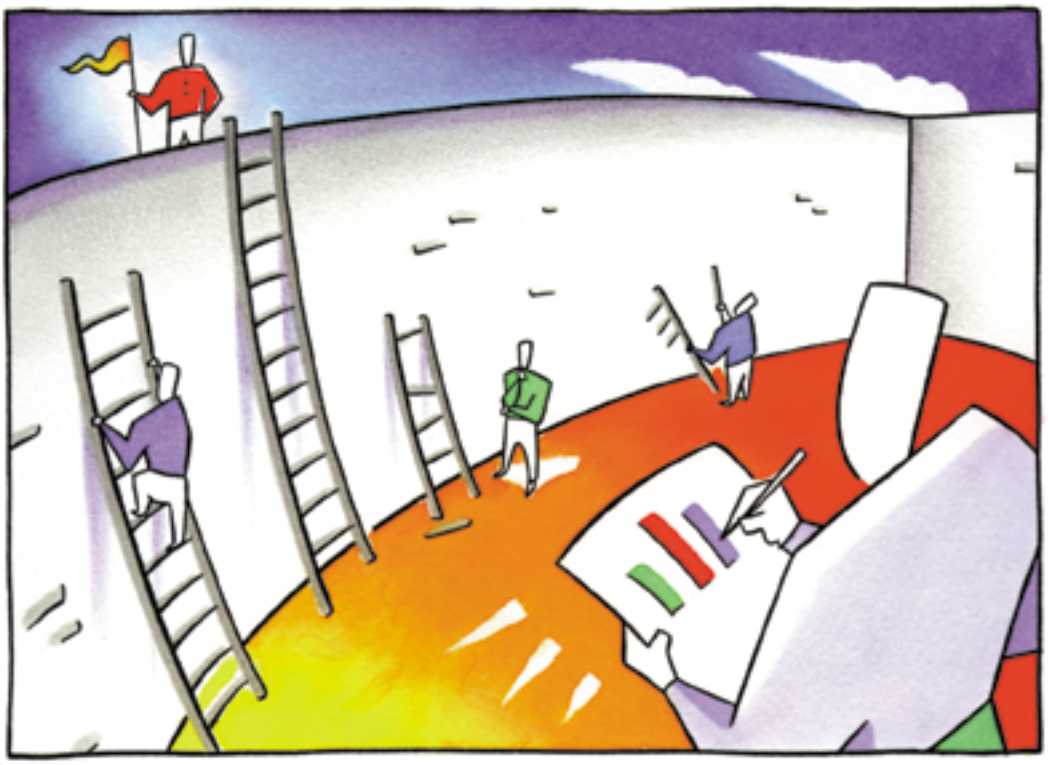
BENCHMARKING CONSORTIUM STUDY

ACTIVITY-BASED MANAGEMENT

• final report •



AMERICAN PRODUCTIVITY & QUALITY CENTER
123 NORTH POST OAK LANE, HOUSTON, TEXAS 77024 • 713-681-4020

PROJECT PERSONNEL

Consortium Study Managers: Leigh-Ann Sonnier, benchmarking specialist
APQC International Benchmarking Clearinghouse

Subject Matter Expert: John Miller
Arthur Andersen

Editors: Vicki J. Powers

Designer: Eric Heisserer

Illustrator: Beth McCash

STATEMENT OF PURPOSE

The purpose of publishing this study is to provide a reference point and insight into the processes and practices associated with certain issues. It should be used as an educational learning tool and should not be used as a "recipe" or step-by-step procedure to be copied or duplicated in any way. This report may not represent current organizational processes, policies, or practices because changes may have occurred since the completion of the study.

CONTENTS

OF REPORT

SPONSOR COMPANIES

Armstrong Laing
ABC Technologies
Acxiom Corporation
Advanced Micro Devices
AGT Ltd.
Alyeska Pipeline Company
American Greetings Corporation
Ameritech
AMP, Inc.
Arthur Andersen
AT&T
The Boeing Company
Chrysler Corporation
Cott Beverages
Delta Systems
Digital Equipment Corporation
Eastman Kodak Company
Electronic Data Systems
Emerson Electric Co.
Ernst & Young
GTE Corporation
Grumman Aerospace
Harris Corporation
Hewlett-Packard
Honeywell, Inc.
Hughes Aircraft Company
IBM Corporation
Intel Corporation
Johnson Controls
Kohler Company
L.M. Ericsson Data
Martin Marietta Energy
McDonnell Douglas Corporation
Mead Corporation
Merck & Co., Inc.
Monsanto Chemical Company
Motorola
NCR
National Semiconductor Corporation
Northrop Corporation
PHH Corporation
Pennsylvania Power & Light Company
Pennzoil Company
Public Service Electric & Gas
R.L. Polk
Rhone-Poulenc Rorer Inc.
Rockwell International
Schlumberger
SEMATECH
Space Systems
Stentor Canadian Network Mgt.
Stern Stewart
Telephone and Data Systems
Texas Instruments Inc.
Union Carbide Chemicals & Plastics
U.S. Department of Defense
Valmet

Acxiom Corporation

The Boeing Company

United Technologies Corporation—Carrier

Current, Inc.

Deere & Company

Electronic Data Systems (EDS) Strategic Support Unit

First Tennessee Bank

General Motors—Delco Electronics

General Motors—Service Parts Operations

IBM-Endicott Panel

McNeil Consumer Products

Parker Hannifin Compumotor Division

PCS Health Systems, Inc.

Texas Instruments

Valvoline Company

EXECUTIVE SUMMARY

The American Productivity & Quality Center's International Benchmarking Clearinghouse, the leader in cooperative benchmarking, and the Consortium for Advanced Manufacturing-International (CAM-I), the leading consortium in the field of activity-based costing and management practices, joined together to conduct this study of best practices in the area of activity-based management (ABM) and activity-based costing (ABC). The study and related survey represent the most comprehensive piece of work undertaken in the emerging area of ABM. The intent was to identify best practices in the installation, application, and use of ABM information systems.

SCOPE

As part of this study, the organizations attempted to identify all known ABM implementations undertaken in North America. More than 750 of the 3,000+ organizations identified were invited to participate in a detailed survey designed to identify best practices in ABM. The instructions with the survey stated that only those organizations that had achieved positive results from ABM efforts need complete and respond to the survey. Overall, 167 qualified responses were received.

Based on the survey responses, 40 companies were identified as best practice sites—15 of which participated and hosted site visits. Criteria for selection of best practice sites included maturity of installation, scale of coverage, scope of application, results attained, and anticipated learning opportunities. The 15 site visits were selected as representative of the 40 organizations identified as best practice. The selection of site visits was based on availability, scheduling, and willingness to participate.

PROPRIETARY INFORMATION

This consortium study was funded by 60 sponsoring organizations. Some of the study results and findings are proprietary to these organizations. This final report is a summary of the study results and findings and contains no proprietary information. Eleven of the best practice companies agreed to release summaries of their site visit write-ups, which are contained in this report. Additional reports and documents developed as part of this study include the following:

- *Kick-off Meeting (September 28, 1994)*
- *Mid-study Review (December 15, 1994).*
- *Executive Summary (February 1995).*
- *Proprietary Survey Database (April 17, 1995).*
- *Final Study Review and Best Practices Model (April 17-18, 1995).*
- *Presentation Material (April 17-18, 1995).*
- *Proprietary Site Visit Database (June 30, 1995).*

METHODOLOGY

The data collection tools used to collect information included both questionnaires and site visit interviews. The two questionnaires included (1) a detailed questionnaire designed to collect objective and quantitative data, and (2) a site visit questionnaire designed to collect qualitative information about the development, application, and use of ABM information systems.

The survey questionnaire was designed to be completed in one hour and consisted of 44 questions, five of which were optional. Many of the questions provided multiple answers. In total, 104 discrete pieces of data were gathered from each of the 167 companies that completed the survey. The survey was subdivided into nine areas: company/organization information,

best practice site information, installation criteria, data collection, status of ABM information system, evaluation of ABM information system, result of efforts, implementation environment, and optional questions.

As this was a comprehensive study covering many aspects of ABM, the site visit questionnaire was designed to provide flexibility and allow the best practice company to select specific agenda areas for review and discussion. The three principle areas for discussion were results achieved, linkage to business environment, and integration with existing information systems.

Areas of discussion for results achieved included:

- *Process improvements,*
- *Decision support information,*
- *Measurements,*
- *Competitiveness, and*
- *Innovation.*

Topics under linkage to business environment included:

- *Improvement initiatives,*
- *Strategy, rewards and recognition,*
- *Compensation and benefits, and*
- *Supply chain management.*

Topics related to integration with existing information systems included:

- *MIS and function integration,*
- *Credibility/acceptance,*
- *Cultural characteristics,*
- *Ease of data collection,*
- *Ease of use, and*
- *Internal/external customer requirements.*

These focused one-day site visits at each of the 15 best practice companies allowed the research team to gain insights into interview questions and to experience the organization's culture. In addition, subsets of sponsors attended each site visit to participate in discussions with best practice companies. A free-flowing question-and-answer session also was allowed at the conclusion of each site visit.

The study concluded with a sharing day where eight of the best practice companies presented an aspect of their ABM initiative to the sponsors over a two-day period. The presentation areas included:

- *IBM—Changes in the business environment that prompted the move to ABM*
- *First Tennessee Bank—Organization support and transfer of ownership/support to operations*
- *GM Service Parts Operations—Customer and distribution channel profitability*
- *Parker Hannifin Compumotor Division—ABM use in total purchasing and design for manufacturability*
- *UTC Carrier Corporation—ABM use as a decision support tool*
- *Delco Electronics—cost improvement process*
- *Acxiom Corporation—training and education of personnel in ABM techniques and uses, and*
- *EDS—embedded ABM reporting system.*

KEY FINDINGS

This report contains a summary of the key findings and significant contributions of the ABM Best Practice Study. These key findings, covered in detail elsewhere in this report, include the following:

ABM Best Practices Model

Perhaps the most significant contribution of the ABM Best Practice Study was the development of the Best Practices Model for ABM. Widely used and frequently quoted, this Model is a structural framework to understand best practices in the development, application, and use of ABM.

The Model groups best practices around themes of methodology, management needs/direction, applications, integration, and embracement. Since its release in April 1995, the ABM Best Practices Model has become the industry standard and has been used in articles, publications, and presentations.

ABM Value Cycle

Another significant contribution of this ABM Best Practice Study was the development of the ABM Value Cycle that specifies 16 frequently used applications of ABM information. The study consolidates the benefits

and value of these applications into three areas: process related, decision making, and performance measurements.

Best practice companies have learned that single and limited use of ABM information fails to capture the full value and potential of the information. Therefore, they consistently seek new applications and uses of ABM information.

Consistent Application of ABM Methodology

Best practice companies consistently apply generally accepted ABM methods, procedures, terms, techniques, and practices. Examples include the consistent use of the CAM-I ABC Basic Model and its Glossary of Activity-Based Management, the IBC Process Classification Framework, and general and industry-specific activity dictionaries.

Most of the time the methods and techniques were adapted to the specific requirements of the best practice companies. Each organization insisted on a common language that could be understood across the organization. For example, the ABC two stage cost tracing methodology is well known and understood, and people clearly understand the distinction between ABC and ABM.

Management Commitment and Priority

Leadership commitment and support were identified as critical success factors to a successful ABM implementation at every best practice company. Thirteen of the 15 best practice companies identified senior management commitment to ABM as either a high or top priority. The ABM initiatives at each of the best practice companies had high visibility and were important to the success of the organization.

At best practice companies, commitment and priority were not only stated in words but also demonstrated through the commitment of resources. Examples include the commitment to training, level of ABM sponsorship, the frequency of involvement by senior and operations managers, and the percentage of total personnel involved in the implementation.

Cost Efficient, Reliable, and User-Friendly Systems

Best practice companies place significant emphasis on installing the systems, procedures, and methods necessary to collect and report activity-based information on a regular basis. The frequency of ABM reporting ranged from continuous and real time to periodically (quarterly or yearly). Most often the reporting period was monthly.

In general, those organizations using ABM information in the applications of process improvement, cost control, measuring operational performance, and day-to-day operational decision making tended to report ABM information more frequently and in more detail. Best practice companies that used ABM information in the more strategic applications, like product cost and customer profitability, tended to report ABM information less frequently.

Either way the systems, procedures, and methods that are installed are responsive to the needs of the users, easy to update and maintain, reliable, and cost efficient. If the ability to collect and report ABM information to the level of specificity required at the frequency demanded by the users is absent, the ABM implementation is a non-event. A lesson from the Best Practice companies is that the systems and software aspect of the ABM implementation cannot be ignored; in fact it must be emphasized

Culture that Supports Change

Best practice companies manage their internal environment by nurturing a culture that supports change. Teamwork, trust, and a common vision were evident at each of the best practice companies. While all of the best practice companies acknowledged that external factors were the drivers to implement ABM, each was willing to embrace change and meet the challenge created by the external environment.

For example, best practice companies position ABM as a business analysis tool that serves as an enabler for decision making and process improvement. ABM is used to address the entire value chain for their products and services. Suppliers are used to support product development and reductions in total part costs.

Customers are used to support product development and reductions in customer support costs.

Emerging Management Tool

Every best practice company indicated that it had not fully implemented ABM and had a long way to go. Each expressed surprise as to having been selected as a best practice company, as no one is satisfied with the status of his initiative. The lesson here is that we must continue to "push the envelope" in terms of understanding the use and application of this management tool.

SUMMARY

When we initiated this ABM Best Practice study in September 1994, we intended to make this the most significant and comprehensive study ever conducted in the emerging area of ABM. We wanted to create a landmark work that would provide value and long-term impact to those managers and organizations that elect to implement ABM in their organizations.

The combined knowledge and resources of the APQC and CAM-I, sponsorship by more than 60 leading companies, involvement by six subject matter authorities (including two from academia), 167 organizations willing to complete a detailed survey of ABM, and the willingness of 15 best practice companies to share their insights and knowledge, would indicate that we accomplished our objective.

Our vision for the study included sharing knowledge gained, lessons learned, insights, methods, and practices of successful ABM initiatives with others. Our vision was to lay a foundation for others to build upon and improve. This final report document is the fulfillment of that vision and mission.

KEY FINDINGS

FINDING

NUMBER ONE

ABM Best Practice Model

One of the principal and most significant contributions of the ABM Best Practice study was the development of an ABM Best Practices Model. Widely used and quoted, this model represents a structural framework to understand best practices leading to effective implementation and use of ABM.

The ABM Best Practice Model, Figure 1, groups best practices around themes of methodology and technology, management needs/direction, applications, integration, and embracement.

ABM BEST PRACTICE MODEL

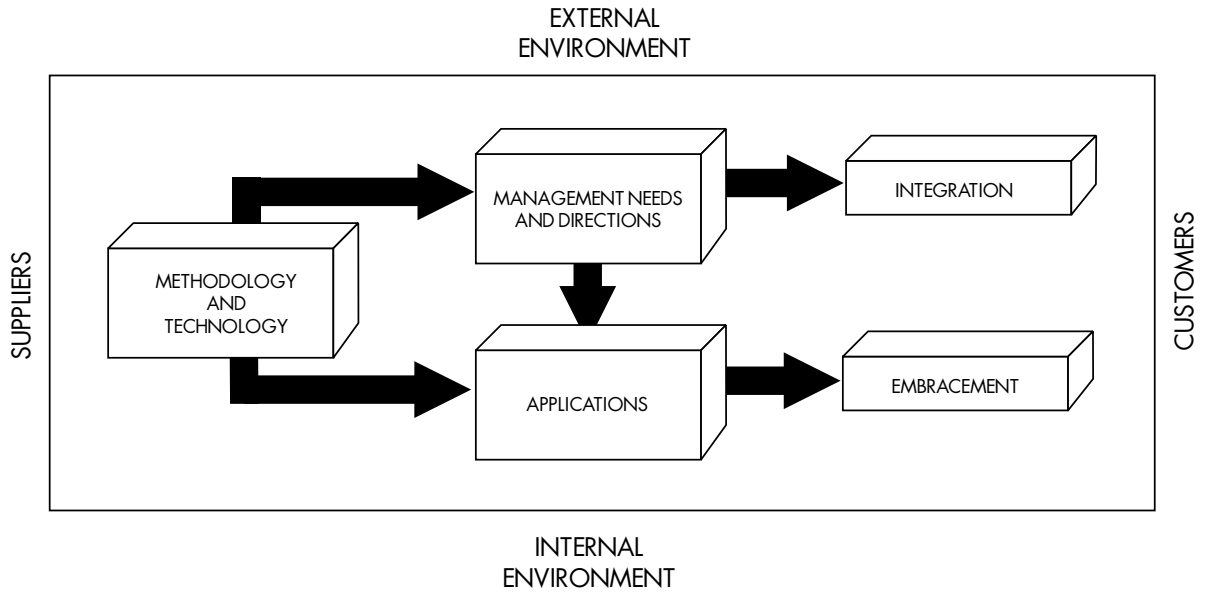


Figure 1

Best practices of methodology and technology include the development of the ABM system and the use of activity dictionaries, activity and cost driver analysis and definition, user training, management involvement, and implementation teams. Best practices of management needs and direction include accuracy of information, level of detail and specificity, frequency of update, ease of access and use, flexibility and relevance. Best practices for applications include balanced scorecard performance measurement, decision support, and new reports and applications.

The ABM Best Practices Model makes an important distinction between best practices for integration and best practices for embracement. Best practices for integration include how well the information is integrated with the legacy financial and operating systems and the ease of update and system maintenance.

Best practices for integration also include the integration of the information system with the business itself—its strategies, goals, initiatives, and plans. Best practices for integration, in effect, deal with tying the ABM system to the existing strategies, systems, practices, and procedures of the organization.

Embracement goes beyond integration. Embracement occurs when the people who use the information take ownership. Best practices for embracement include accountability, acceptance, and use of the information for self-monitoring.

The ABM Best Practices Model also takes into consideration the overall business environment, including suppliers and customers (the entire value chain). The external environment describes the competitive situation that exists, while the internal environment documents those internal factors in best practice companies that lead to success.

The ABM Best Practices Model has become the industry standard and has been used in numerous articles and presentations.

FINDING

NUMBER TWO

ABM Value Cycle

The ABM Value Cycle specifies 16 frequently used applications of ABM information and consolidates the benefits and value of these applications into three areas—process related, decision making, and performance measurements.

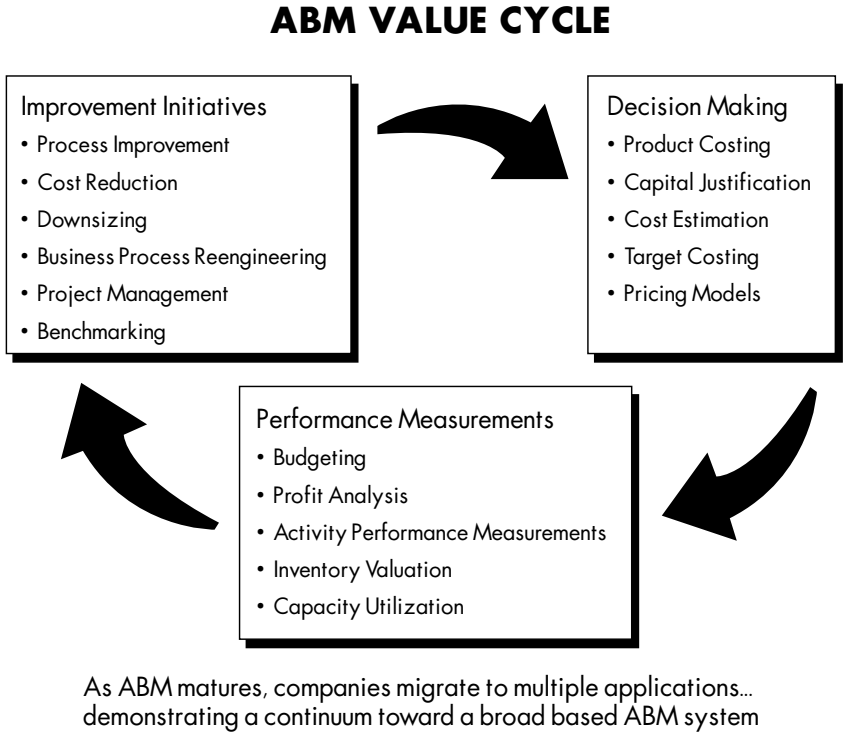


Figure 2

Organizations can enter the value cycle at any point. As the ABM system matures, organizations migrate to multiple applications. This migration is important because a single use or application of activity-based information may not provide sufficient value to offset the cost of implementing and maintaining the system.

While the dominate initial ABM application is for product costing, best practice companies have learned that this single and limited use of ABM information fails to capture the full value and potential of the information. Best practice companies consistently seek new applications and uses for ABM information. Figure 3 displays the number of primary and secondary applications used by the best practice companies.

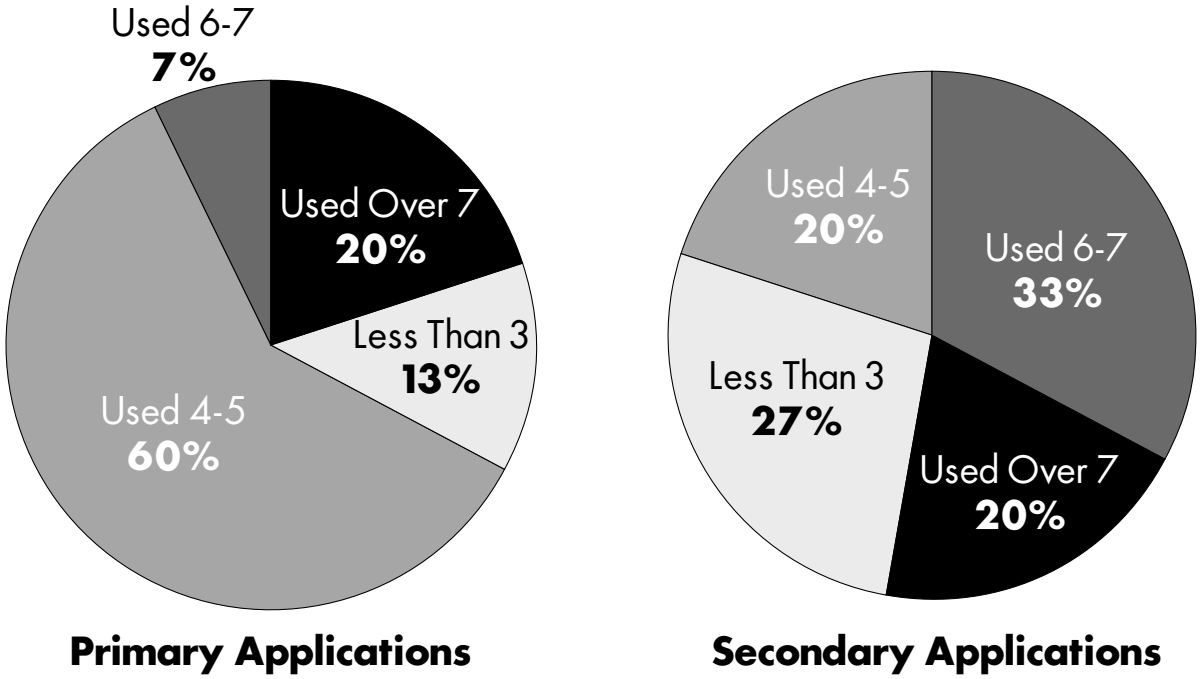


Figure 3

FINDING

NUMBER THREE

Consistent Application of ABM Methodology

Best practice companies consistently apply generally accepted ABM methods, procedures, terms and techniques, and adapt them to their specific requirements. Examples include consistent use of the CAM-I ABC Basic Model and CAM-I Glossary of Activity-Based Management terms and definitions, tested data collection methods and techniques, generic process classification frameworks, and general and industry specific activity dictionaries.

The CAM-I ABC Basic Model, or CAM-I Cross, Figure 4, is a conceptual model used to explain the basics of activity-based costing.

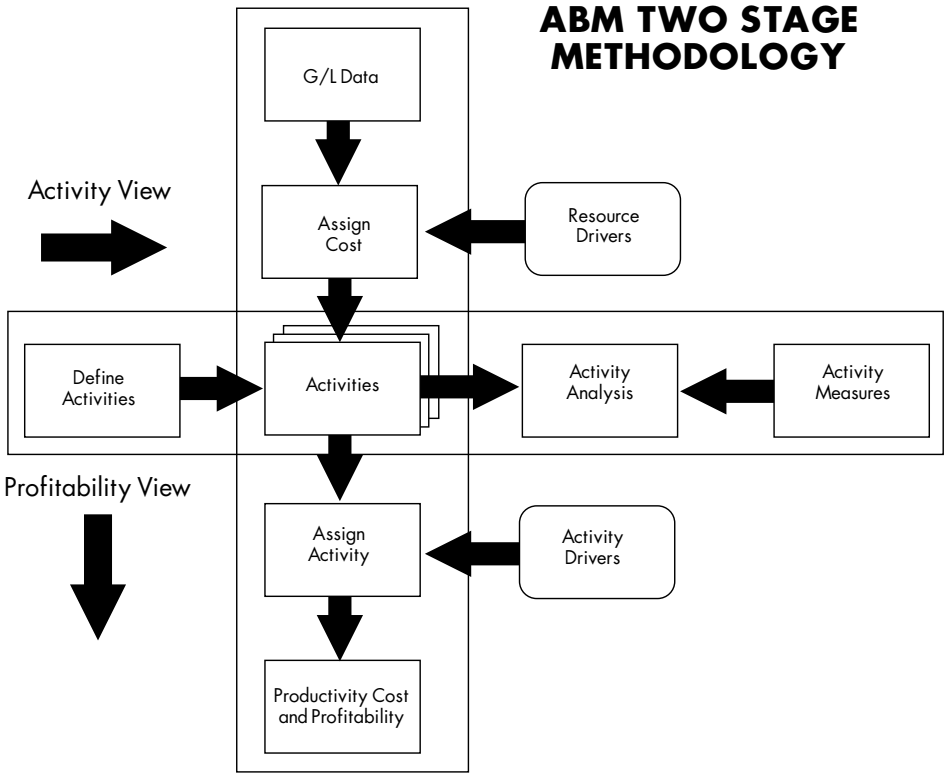


Figure 4

There are two axes to the CAM-I ABC Basic Model. The vertical axis deals with the classic two-stage cost assignment view, where resource costs are traced or assigned to activities that, in turn, are traced or assigned to cost objects (products, services, customers, distribution, and channels). These are based on use and consumption of the activity by the cost object.

The horizontal axis contains the process view and identifies the cost drivers (cause of cost) of the activity together with measures of activity performance. Best practice companies consistently used the ABC two-stage cost assignment methodologies for tracing costs and consistently identified cost drivers and performance measures for their key and significant activities.

Another example of the consistent application of ABM methodology is the use of standard and accepted terms—the source of the CAM-I Glossary of Terms. When developed, the primary objective of this glossary was to unify, standardize and, when necessary, develop a set of terms pertaining to ABM. When published in 1993, the purpose of this work was to facilitate the understanding of ABM and to encourage better communication among those involved in the research, development, and implementation of this discipline.

This body of work has been enormously successful in eliminating confusion caused by lack of definitions. The terms and definitions of the CAM-I Glossary of Terms have been incorporated into most commercial ABM software products, in all the leading public seminars and conferences, in leading business books, and in new editions of cost accounting and management textbooks taught in leading institutions like Stanford University and the Harvard Business School. Dr. George Foster, Professor at Stanford University, and Dr. Dan Swenson of the University of Idaho, both served as subject matter experts on the project team responsible for delivering this ABM Best Practice study.

Yet another example is in the consistent use of data collection techniques and methods. Eight specific data collection methods (manager interviews, worker interviews, questionnaires, existing documentation, observations, group based interviews, work measurement, and process mapping) were identified by the survey. Best practice companies identified the methods used and rated their use of each technique from little to extensive. Figure 5 identifies the number of methods used by best practice companies.

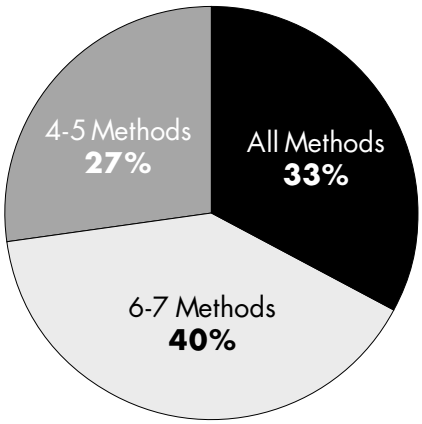


Figure 5: Number of Methods Used by Best Practice Companies

Another way to graphically display the consistent use of ABM data collection methods is based on the degree the method was used. The number of times the method was cited as frequent or extensive use for the best practice companies is described in Figure 6 on page 18.

The final example of the consistent application of ABM methodology is in the use of generic process classification frameworks and in standard and industry specific activity dictionaries. Many of the best practice companies use or reference the International Benchmarking Clearinghouse's Process Classification Framework in the identification and classification of business processes and activities. Best practice companies consistently prepare and maintain an activity dictionary to document the activity definitions, outputs and output measures, annual activity costs and outputs, cost drivers, cost per unit of activity output, performance measures, and activity process maps.

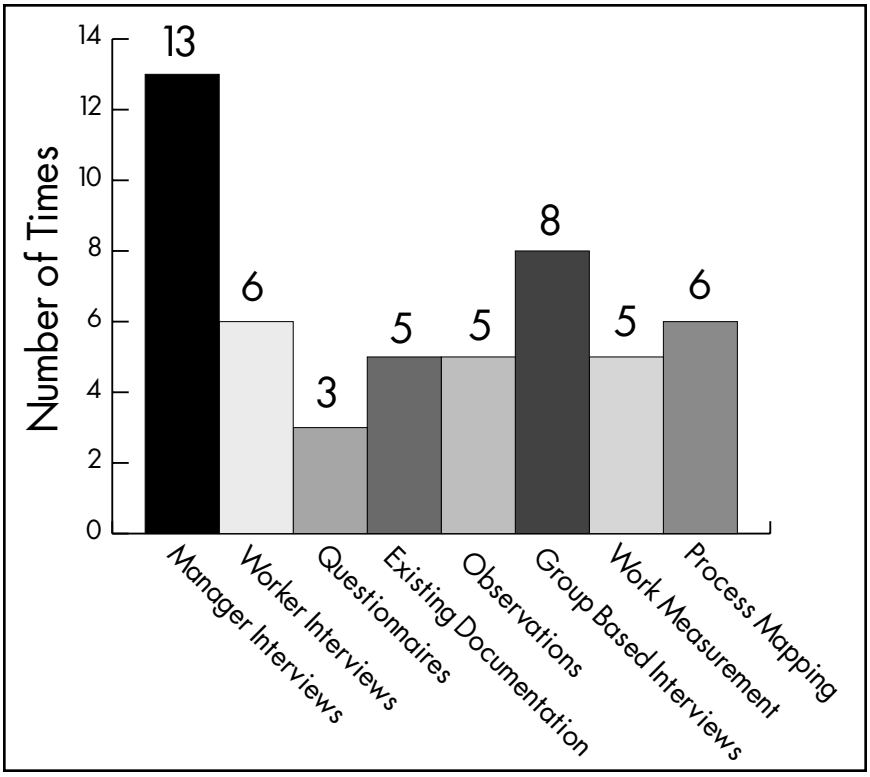


Figure 6: Frequent or Extensive Use by Best Practice Companies

FINDING

NUMBER FOUR

Management Commitment and Priority

Thirteen of the 15 best practice companies identified a level of senior management commitment to ABM as high or top priority. Leadership commitment and support was identified as a critical success factor at every best practice company. The priority of ABM at the best practice companies was evident from the site visits and the survey questionnaires. Examples include the level of ABM sponsorship, breadth and scope of training, ABM project implementation resources, and level of management involvement.

LEVEL OF ABM SPONSORSHIP

In general, the ABM sponsor or champion is placed high in the organization. Figure 7 demonstrates the level at which ABM is sponsored.

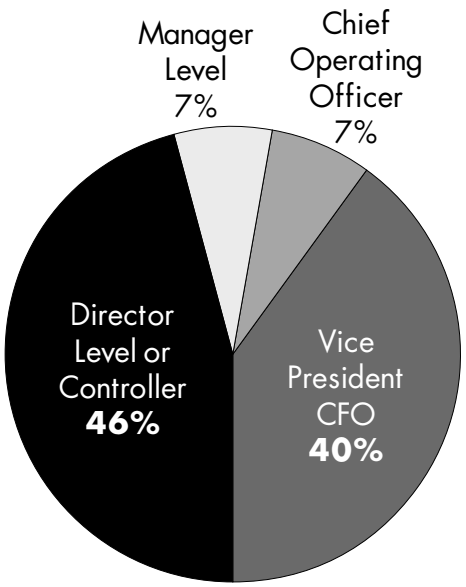


Figure 7: Level of ABM Sponsorship

BREADTH AND SCOPE OF TRAINING

Commitment also was evident in the breadth and scope of training offered to users of ABM information. Each of the best practice companies was asked to identify types of training provided to users and ABM implementation teams. Figure 8 on page 20 reflects the frequency that the best practice company identified using a certain type of training. For example, all 15 best practice companies provided conceptual training. Nine of the best practice companies used in-house seminars.

Another way to look at commitment and priority of training is by how many different types were used by each best practice company. One-third of the best practice companies offered all six types of training.

ABM PROJECT IMPLEMENTATION RESOURCES

Commitment and priority also were evident in the composition of the ABM project implementation team. Almost every best practice company had a full-time project leader assigned to the ABM initiative. In fact, a full-time project leader and dedicated ABM implementation team was identified as a critical success factor by eight of the best practice companies. Figure 9 on page 20 illustrates the number of full-time equivalents (FTEs) assigned to the ABM initiative at the best practice companies.

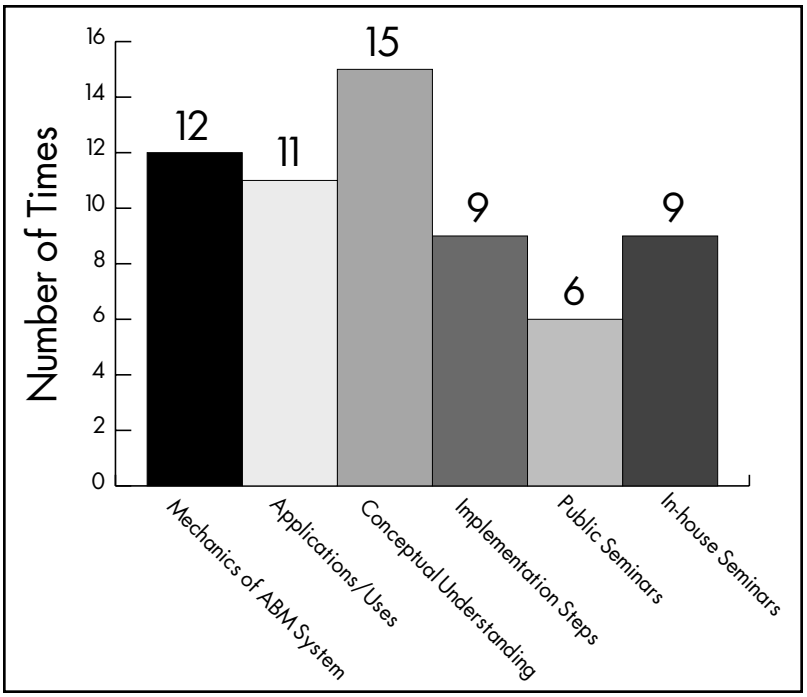


Figure 8: Types of Training Provided to ABM Teams

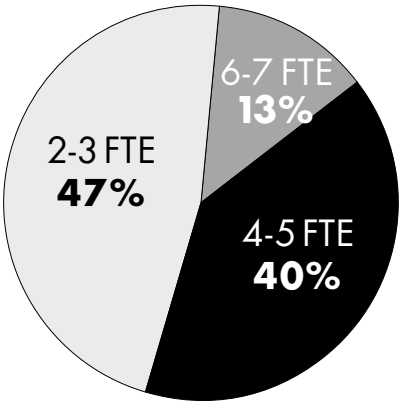


Figure 9: Number of FTEs Assigned to ABM

USE OF CONSULTANTS

In addition to a fully staffed project team, most often headed by a full-time project leader, best practice companies also used outside consulting services to supplement their internal resources (see Figure 10).

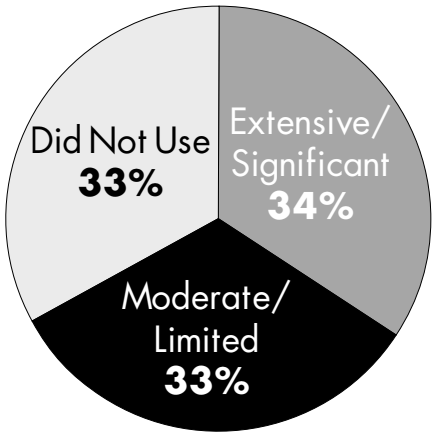


Figure 10: Use of Consultants

The commitment and priority to ABM also can be demonstrated by looking at the percentage of the ABM site personnel that were interviewed or involved in the implementation. In the survey, best practice companies identified the percentage of personnel at the best practice site that participated and were involved in the implementation (see Figure 11 on page 21).

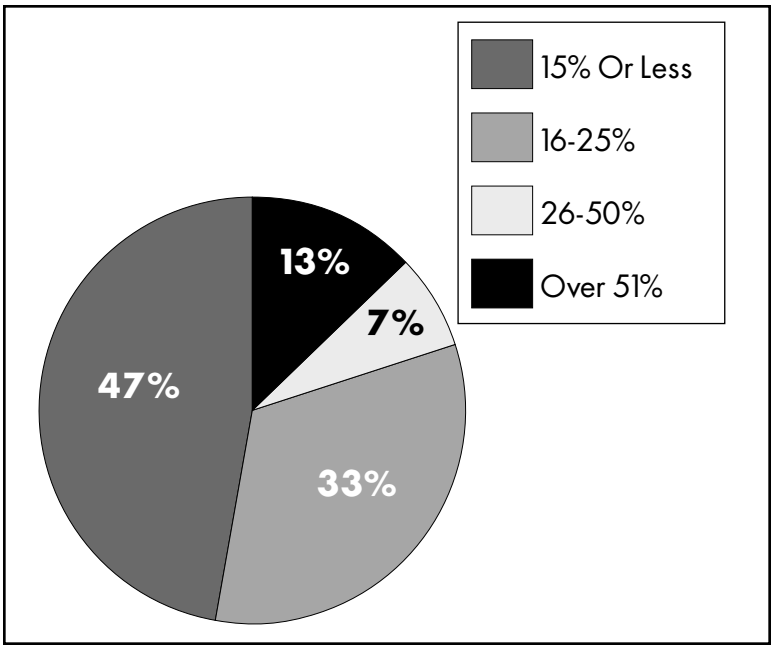


Figure 11: Personnel Involved in Implementation

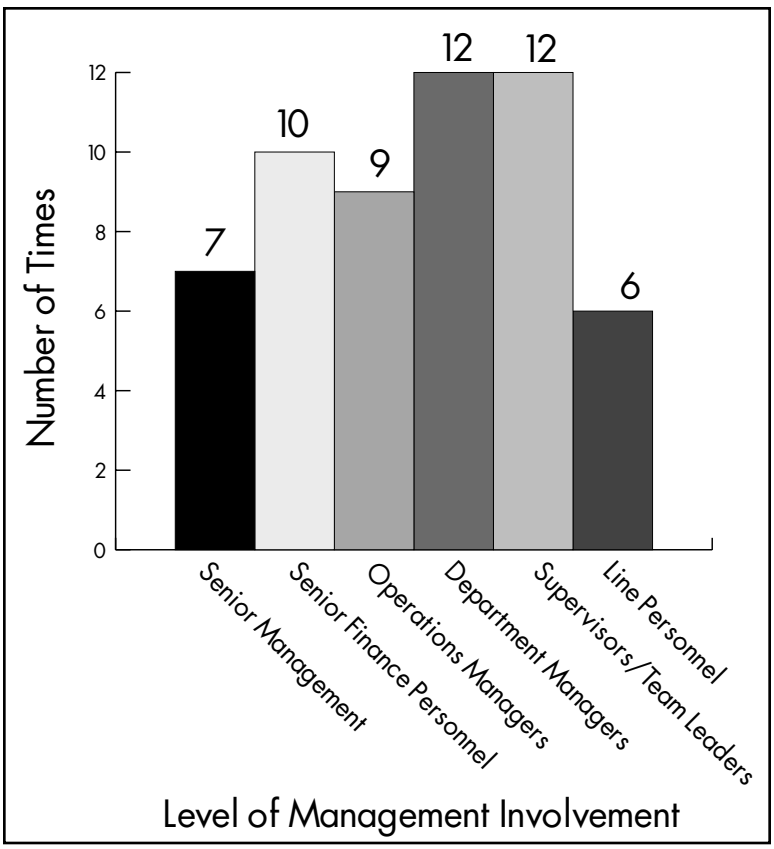


Figure 12

LEVEL OF MANAGEMENT INVOLVEMENT

A final way to look at the commitment and priority of ABM is to examine the level of people who were significantly involved with the ABM implementation at best practice companies (see Figure 12).

Clearly ABM best practice companies have demonstrated that management commitment and priority represent keys to successful implementation. For ABM to be successful, it must have the backing of key management personnel and a project team with strong leadership and adequate resources.

FINDING

NUMBER FIVE

On-going, cost-efficient, and reliable ABM systems are required.

Best practice companies place significant emphasis on installing the systems, procedures, and methods necessary to collect and report activity-based information on an ongoing basis. The systems, procedures, and methods that are installed are responsive to the needs of the users, easy to update and maintain, and reliable. Best practice companies have learned that the systems and software aspect of the ABM implementation cannot be ignored; in fact, it must be emphasized.

Best practice organizations address the long-term total ABM information needs of the organization and use a total or holistic approach to implementation. This includes emphasis on the selection and development of cost-effective ongoing data collection and reporting systems to collect and report ABM data at the level of detail, accuracy, and frequency required by the users of the information. ABM system design considerations used by best practice companies include purpose and use, accuracy, frequency of update, and relevance.

PURPOSE AND USE

A key consideration in the design of the ABM information system is its purpose and use. Best practice companies design their systems to meet the needs and requirements of the organization. The purpose and use of ABM drives both the amount of information that must be collected and the detail that must be obtained. In general, ABM applications that are process and performance related, such as process improvement, reengineering, project management, activity performance, and benchmarking require more detail and frequency of the reporting than those decision-related applications such as product costing, capital justification, and target costing.

LEVEL OF ACCURACY

The level of accuracy required by the ABM information system is another key design consideration used by best practice companies. The accuracy of the activity-based information system is dependent on the accuracy of the data entering the system. Traditional cost data are often plagued by allocations, misapplied costs, assumptions, or incorrect coding that make the data unreliable. Data from other operating systems can be equally unreliable. Best practice companies recognize that high levels of accuracy require fact-based, reliable data.

Best practice companies also recognize that the selection and use of activity and resource drivers will affect system accuracy. Activity and resource drivers are often estimated, the most common of which is the resource driver for tracing salary/wage costs to activities. Accuracy is an issue when using estimates of how people spend their time. Best practice companies use reliable methods of collecting this data.

FREQUENCY OF DISTRIBUTION AND UPDATE

The frequency of distribution and update, another design consideration, is largely a function of the system's

purpose and use. Where the purpose is more strategic in nature (product cost, profitability analysis, service line profitability), the frequency of update is annually or quarterly. Where the purpose is more operational in nature (process improvement, performance measurement), the frequency is monthly or continuous. When both strategic and operational information is required, it would not be unusual for a best practice company to report cost and performance measurements on a weekly basis for some activities and on a quarterly basis for others.

At ABM best practice companies, the ABM information systems are designed so that users can compare relevant internal costs and performance measures of activities with externally driven targets. Activity-based systems designers anticipate and plan to compare internal costs and measurements with external standards and requirements. Management sets standards or highlights performance gaps for a particular activity or business process. Design specifications take into account such techniques as benchmarking, best practices, and target costing.

FINDING

NUMBER SIX

Culture that Supports Change

Best practice companies manage their internal environment by nurturing a culture that supports change. Trust, teamwork, and team building were evident in all of the best practice companies that were visited. Missing from most best practice companies are "hidden agendas."

Best practice companies have a high degree of organizational acceptance that includes senior management involvement and commitment and strong linkage with other management initiatives (see Figure 13). In general, there is high delegation of authority with operating people requiring and using ABM information. Operating management is a partner with finance and has focus on process orientation. Communication is open, honest, frequent, visible, and multi-faceted.

Best practice companies tend to be learning organizations that initiate extensive broad-based/multi-level training and cross-functional learning. Training beyond the traditional organizational structure is evident. At the ABM best practice sites, the learning process is institutionalized rather than ad-hoc.

Best practice companies position ABM as a tool to support decision making and process improvement. At best practice sites, ABM is not a score keeping tool; rather, it is used as a business analysis tool. Best practice companies use this tool to address the entire value chain for their products. Suppliers are used to support product development and reductions in total part costs. Customers are used to support product development and reductions in customer support costs.

Best practice companies achieve measurable process improvements by aggressively linking ABM information with improvement initiatives. Internal and external benchmarking and ABM data are used to drive and support improvement initiatives. Best practice companies used ABM data to select areas for improvement.

Best practice companies transfer ownership of ABM to line management. Activities and processes are defined by responsible managers, and relevant ABM

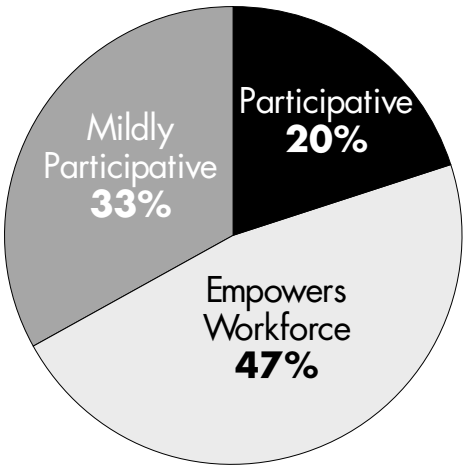


Figure 13: Senior Management Involvement and Commitment

data is made available to them to self-monitor their activities. At best practice companies, managers invent new uses of ABM information.

Best practice companies use total cost in decision making and process improvement. Cost improvement initiatives are viewed in a holistic manner and exhibit a high level of customer-driven cost consciousness. Costs are viewed in terms of value created, and partnering concepts are used with both suppliers and customers.

FINDING

NUMBER SEVEN

Still an Emerging Management Tool

If there was bad news in this study, it would be that the application and use of ABM information systems is not nearly as far along as we would have expected and hoped. ABM is still an emerging management tool. This study was conducted at a very critical point in the evolution of ABM as an emerging management tool. Only a handful of organizations had been engaged in their ABM initiatives long enough to have made significant impact from their efforts and to have learned those factors that are key to success, such as which ABM applications create value for their organizations and what obstacles to avoid. It takes a while to learn what works, what doesn't work, and why.

Every best practice company indicated that the information currently provided by their ABM systems could be used more effectively to improve the organization. Each best practice company listed their top three specific ABM application priorities for the future. These applications were summarized and assigned values based on the priority given by the best practice company and the frequency that the application was identified as a priority. The number one priority application was assigned a three, the second priority a two, and the third priority a one. The highest value possible for one application would be 45, where each of the 15 best practice companies listed the same application as their top priority. The result of this summary and analysis appears in the following table:

APPLICATION	ASSIGNED VALUE
Process improvement	26
Customer profitability	13
Product/Service design	11
Performance measurement	8
Other applications	32
Total assigned values (15X6)	**90**

OTHER FINDINGS

In addition to the knowledge contribution of the best practice companies, the ABM Best Practice Study also created a forum where sponsors (many of whom had their own ABM initiatives), study participants, practitioners, consultants, thought leaders, subject matter experts, and experts from academia, could all contribute to this emerging knowledge base of ABM methods, procedures, applications, and benefits.

The most significant of these forums was the final meeting of the ABM Best Practices Study held April 17-18, 1995, where eight of the 15 best practice companies gave presentations describing their ABM initiative. As part of this meeting, companies formed break-out groups to capture the knowledge, insight, and experience of those who participated in this study. Some of these key learnings and "take aways" are summarized on the following page.

Breakout of functional silos

ABM information reflects the process- or horizontal-based view of the organization. The key challenge is to get people to think and use information differently. To a large degree, this amounts to a change in culture for many organizations, from managing costs to managing activities.

Teamwork (cross-functional teams)

Teamwork will be a key element for success as organizations move from early pilots and tests of ABM in portions and parts of their organization to more comprehensive and enterprisewide ABM implementations.

Defining what information will be most meaningful

Beware of data overload. An enterprisewide ABM information system could involve hundreds of activities together with the related and associated cost drivers, performance measures, and activity and resource drivers. Using ABC for product/service costing could involve thousands of products or services. The detail and specificity at which activities are defined adds to the base of ABM information. The key challenge is to select and define activities that are appropriate for decision making.

Apply to compensation package

Longer-term compensation and pay should be linked to activity performance.

Linking ABM to strategic direction/decisions

Senior-level managers are users of activity-based information. A key challenge is to get senior managers to see ABM as a tool that will enable the execution of strategy and strategic decisions.

Dealing with two sets of cost data

While the total expenditures of an organization are the same under both a traditional and an activity-based view, they are often shown and expressed differently. A key challenge is to communicate the differences and to let people understand what those differences are.

Crisis is the best motivation

People respond to a crisis or an emergency. Crisis creates a sense of urgency and teamwork that is necessary to make ABM successful.

Use a phased approach to implementation

Strive for measurable results in each phase of implementation. The implementation plan should be well-defined.

SUMMARY

Best practice studies can be done two ways with a given resource. They can be broad and wide to cover a square mile of knowledge a foot deep. They can be narrow and deep, covering a square foot of knowledge a mile deep. This ABM Best Practices Study was intended to cover a square mile of knowledge and included best practices in the application, development, and use of ABM information systems. This broad base of knowledge enabled us to develop the ABM Best Practices Model and the ABM Value Cycle.

The good news that came from this study is that ABM is being linked with other initiatives. We learned that best practice companies are moving to a process view of their organization. We learned that companies are admitting that they have "a long way to go," and that ABM implementation methodology is consistent.

The good news/bad news was that initiatives were often driven by the external environment. Although there was limited evidence of linkage of ABM information to compensation, most organizations identified this as essential to long-term sustainability of the ABM system.

We were disappointed to learn that ABM was not as developed as we thought. Many organizations are still not thinking "total cost" and '"total value." ABM is still being applied mostly in those areas where a unit cost traditionally existed (i.e., unit product cost). We also learned that, like any measurement and information system, the benefits of using the information to improve processes and activities and to make better decisions can be difficult to quantify. Outside of the best practice companies, there was a low level of resource commitment by most organizations that have understood ABM initiatives.

COMPANY PROFILES

COMPANY PROFILE

Acxiom Corporation

Industry Group:	Service
Best Practice Areas:	Process Improvements Measurements Cultural Characteristics
Management Style:	Empowers workforce
Scope of Implementation:	Companywide
Site Data:	
Annual costs	$ 101-250 million
Number of people	501-1,000
Number of activities	101-250
Number of products/services	26-100
Number of resource drivers	26-50
Number of activity (output) drivers	26-50
Primary Applications:	Process Improvement Profitability Analysis Performance Measurement

ABM Reporting System: Internally developed, fully integrated ABM information and data gathering system. Updated continuously.

Results of ABM Efforts: Significant changes for process steps and incentive compensation. Moderate quantified dollar improvements were achieved in product/service design, production, and customer satisfaction.

Critical Success Factors: Senior Management Commitment. Linkage to Continuous Improvement. Project Management. Leadership. Focused Resources (project team). Speed and Sense of Urgency. External Consultant Guidance

BACKGROUND

Acxiom Corporation, located in Conway, Arkansas, is a service company that provides data processing and related computer-based services and software products to marketing departments of large corporations in the United States and the UK. In addition, it provides outsourcing services for data processing departments. Its clientele includes Allstate Insurance Co., Citibank, and AT&T. Acxiom has annual sales of approximately $200 million and employs 1,800 people.

In 1992, Acxiom Corporation initiated an extensive quality improvement initiative called Race for Excellence (RFE). To create a sense of innovation, creativity, and entrepreneurial spirit, Acxiom Corporation was initially interested in activity-based costing to establish transfer prices for services performed by support departments to the operating business units. The initial exposure to this ABC transfer cost application led to a more complete understanding of activity-based management (ABM.) When the ABM initiative was formally undertaken, the primary applications were process improvement, performance measurement, and profitability analysis. Later, product (service) costing became a primary application.

The ABM initiative at Acxiom is companywide (exclusive of offsite divisions), representing more than 80 percent of the organization's total cost structure. As a result, accounting/finance, production, information services, product management, customer service, and research and development were involved in the implementation.

Acxiom Corporation lists its core competencies as software development, data center management, and information management technology. These technical capabilities led Acxiom to design, develop, and install a permanent ABM information system, including a robust database of ABM information accessible using Microsoft Access PC tools. This relational

database system, which is updated continuously, is integrated with Acxiom's internal financial reporting, operating, and product (or service) cost systems.

Perhaps the most impressive part of the ABM initiative at Acxiom is the ownership of the initiative by top management and operating personnel. Acxiom's President has been very proactive in the implementation and development of ABM and was instrumental in making ABM a part of Acxiom's business culture. The initiative is owned by the Chief Operations Officer and led by the Chief Financial Officer. Activity-based thinking is driven from the top down and being integrated with gain sharing, performance measurement, and compensation systems. The goal of top management is to weave ABM into the base fabric of Acxiom's culture, values, mission, and vision.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the process improvements, measurements, and cultural characteristics of Acxiom's ABM initiative. The accomplishments together with insights gained are covered for each area.

PROCESS IMPROVEMENTS

Product delivery took too long and the cost was too high. The numerous process improvements that had been implemented contributed the following results: 90 percent of all print jobs routed to the LAN, 150 job steps eliminated, 80 percent reduction in tapes produced, 220 man hours per month eliminated, 75 out of 240 DASD datasets eliminated, overall processing cost reduced 72 percent, and 61 percent reduction in weekly CPU time.

Multi-million dollar customers were dissatisfied with timeliness and quality of work. Thus project teams representing four business units gained complete understanding of the process and activities. Improvements were implemented resulting in the reduction of time to build the databases by 50 percent. Manpower utilization was reduced 61 percent, and CPU costs were reduced 54 percent. Acxiom received letters of commendation from customers indicating improved response rates.

Insights

- *To facilitate improvement, Acxiom mapped the process and identified activities for potential reengineering.*
- *The company used ABM information to prioritize opportunities for improvement.*

MEASUREMENTS

Acxiom developed an integrated, customer-driven performance model to link the company's overall strategic vision and goals to performance measures and requirements for customers, associates, managers, executives, and other stakeholders. Performance measures were then developed for each business unit. In conjunction with a Corporate Measurements Task Force, these measurements were validated and linked with gain sharing objectives.

Acxiom also has embraced value-based measures, such as economic value added (EVA), as a tool to calculate the value created by the organization and its business units. Economic value added is now a key factor in Acxiom's incentive compensation structure where many of the measures are derived from ABM information. ABM performance measures are used as key indicators of processes and process performance levels that result in value created.

A specific business unit needed a measurement system to drive customer satisfaction to meet customer expectations. The business unit executive and a team of associates defined customer expectations and implemented a tracking system for monthly reporting. The measures included cycle time, number of projects completed on time, order accuracy, and associate productivity. Goals were established and communicated to associates with monthly results reported to customers.

Insight

- *The use of ABM measures to refocus resources and marketing strategies of an existing product line.*

CULTURAL CHARACTERISTICS

At Acxiom, continuous improvement is embedded in the culture of the organization. ABM not only had to be linked with improvement initiatives like RFE but also integrated with its culture. The Acxiom business culture is centered around three fundamental goals: 100 percent customer satisfaction, 100 percent employee satisfaction, and 15 percent profitability. Business culture is driven by leadership, a professional services environment, customer focused products and services, associate development, and continuous improvement. Acxiom has made significant progress in integrating ABM with its cultural characteristics.

Insight

- *Leadership at Acxiom consists of its vision, beliefs, principles, and values. Leadership also includes having the right people at the right place at the right time; communication; and people who are willing and able to be champions. ABM is being integrated with these cultural characteristics and positioned as a tool to achieve leadership.*

The professional services environment that Acxiom operates in is well defined. This environment includes a flat organization, franchised business units, empowerment, ownership, accountability, boundaries, teaming, and project/process management. The ABM initiative was designed to link with these desired cultural characteristics. For example, the activity analysis portion of the implementation was geared to each of the franchised business units, and teams were formed in the units to define business unit activities, costs, cost drivers, and performance measures.

Insight

- *ABM was focused on the needs and requirements of the business unit leader. Since some leaders and business units required more detailed information than others, the system was designed to provide the necessary flexibility.*

Associate development is a fundamental part of the culture of Acxiom and one of its values. Associate development is achieved through recruiting, education and training, compensation, peer evaluations, and recognition programs. Now, ABM is being integrated with associate development. Activity information and performance is being integrated into pay raises, job classifications, job performance evaluations, and recognition systems.

Insights

- *ABM training is provided to all levels of the organization and is part of the new hire orientation training program.*
- *ABM also is included as an integral part of all of Acxiom's process improvement training. For example, process documentation training links cost and activity performance to the flow chart.*
- *Acxiom continues to drive activity-based thinking into the culture of the organization. For example, when recruiting, consideration is given to the activities the recruited individual will perform and the level of skill required to perform the activity.*

Customer focused products and service is basic to Acxiom's culture and success. For Acxiom, that means establishing partnerships with customers, providing industry application solutions, retaining core competencies, and utilizing customer feedback.

Insight

- *ABM is being integrated with these basic cultural characteristics by linking activities to the core competencies and using activity and cost information in the partnering process with customers.*

SUMMARY

At Acxiom, continuous improvement is more than an initiative, it is part of the culture and includes understanding requirements, business planning, process mapping, ABM, measurements, benchmarking, and FADE (focus, analyze, design, and execution). So well

embedded in the Acxiom culture, the acronym ABM is sometimes used interchangeably with continuous improvement.

Critical success factors and enablers for Acxiom included a business structure where activities are customer driven. At Acxiom, initiatives like RFE were undertaken to create this structure. Associates were empowered to make decisions based on the ABM data and involved in establishing performance measures. At Acxiom, the goal was to create measures for associates, not clubs for managers. Systems, which are updated continuously and available on-line by users, provide customer driven feedback about activity and services performance. Improved performance is reflected in compensation, rewards, and recognition. At Acxiom, improvements and gains are shared with associates. ABM information is used in part to determine the gains to be shared.

COMPANY PROFILE

United Technologies Corporation–Carrier

Industry Group:	Discrete/Assembly Oriented Manufacturing
Best Practice Areas:	Decision Support Information Measurements Linkage to Improvement Initiatives
Management Style:	Mildly Participative
Scope of Implementation:	Multi-Operations
Site Data:	
Annual costs	More than $ 500 million
Number of people	1,000+
Number of activities	26-100
Number of products/services	Over 10,000
Number of resource drivers	6-10
Number of activity (output) drivers	6-10
Primary Applications:	Product Costing Profitability Analysis Performance Measurement Cost Reduction

COMPANY PROFILE

ABM Reporting System: PC-based commercial ABM software. Mostly integrated with internal financial reporting and product cost systems Partly integrated with operating systems. Updated annually or as required for strategic decisions.

Results of ABM Efforts: Very significant changes to outsource activities/processes and to reorganize/restructure. Extensive dollar improvements were achieved in product/service design, production, overhead support, and product/service profitability.

Critical Success Factors: Senior Management Commitment
Strong Focused Leadership
Ownership
Adequate Cross-Functional Resources
Credibility

BACKGROUND

The plant site in McMinville, Tennessee, is one of several large manufacturing plants for Carrier air conditioners. ABM at Carrier has tremendous support by corporate headquarters in Syracuse—in fact, two managers from Syracuse joined the site visit in McMinville. During the visit, the plant engineering manager and the plant controller accompanied the research team the entire day.

This ABM implementation covers multiple sites and operations at Carrier. ABM was initiated in about 1991 and covered the primary applications of product costing, profitability analysis, performance measurement, cost reduction, capital justification, and business process re-engineering. Later, target costing, cost estimation, and capacity utilization were added as primary applications. Carrier Corporation lists its core competencies as designing and developing innovative products and services, delivering a high quality of service, and providing cost effective, timely distribution.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the areas of decision support information, measurements, and linkage to improvement initiatives. The accomplishments together with insights gained are covered for each of these areas.

DECISION SUPPORT INFORMATION

ABM has supported the drive to reduce complexity in the plant. Using ABM information and analysis, the McMinville site supported the purchase of inexpensive dedicated equipment. Thus, some manufacturing processes became more cost effective when inexpensive dedicated equipment replaced flexible but expensive CNC equipment. With dedicated equipment, the plant achieved fewer and less expensive change-overs. WIP and cycle time also decreased.

Insights

- *ABM was designed to support other corporate initiatives already in place, such as Just-in-Time (JIT) implementation.*
- *Certainly ABM, by itself, was not the primary reason for the shift to dedicated equipment. The primary initiative was JIT, but ABM provided credibility to the numbers that were used to justify the changes. Imperatives that require change often occur more quickly when the financial impact is highly visible.*

The product design team used activity cost information to reduce the cost of new products. For one new product, the design team brought the part count down from 160 to 60 parts. Previously, engineering prided themselves in developing unique, elegant parts. Now the ABM information showed engineers how they could use activity cost information to design cost-effective parts. Their objective is to use existing component parts for the production of new products. Failing this, they attempt to leverage existing processes for new designs. For one particular part, three design attempts were necessary before a new product met a targeted cost.

Insights

- *Product designers use the ABM information on a routine basis. Once again, the visibility of cost information influences change.*
- *Product designers are part of an engineering team that includes manufacturing engineers. The team works with manufacturing to introduce products at the lowest possible cost.*

Activity-based information also is considered and used in outsourcing decisions. Two examples include sheet metal painting, which was outsourced to suppliers, and contracting with a supplier to run McMinville's non-production service parts warehouse.

From simply a material and direct labor standpoint, outsourcing the painting operation could not be justified. ABC quantified the support costs associated with in-house painting and illustrated the cost effectiveness of making this change.

ABM analysis also illustrated the financial benefits associated with contracting with a supplier to run the non-production service parts warehouse. The supplier staffs the warehouse and is responsible for purchasing, stocking, and scheduling service parts. When all of the support costs were included in the ABM model, transferring these activities to a vendor was found to be cost effective.

Insights

- *Intuitively, management was confident that outsourcing the painting operation was a good decision. Yet the site manufacturing engineer and the plant controller were convinced that without the hard ABM data, management would not have supported the change.*
- *Outsourcing non-production service parts and copper tubing helps management focus on its core competency—designing and manufacturing state-of-the-art cooling systems. Also, many of Carrier's suppliers have a lower cost structure (e.g., lower labor costs).*

MEASUREMENTS

Carrier actively compares manufacturing costs among its facilities. During the site visit, the McMinville plant was dropping some product lines and adding others. The ABM information was used in at least two ways: (1) ABM reported relatively lower production costs for some product lines at the McMinville site, when compared with other Carrier sites. Therefore, some of these products were moved to McMinville. (2) ABM information helped McMinville better understand product profitability and adjust its product mix.

Process costs are measured across the Carrier plants for internal benchmarking purposes. Complexity costs are measured by dividing batch and product-sustaining costs by total product costs. Complexity reduction targets exist for existing products and new product designs. An activity dictionary with common process definitions is used among the Carrier plants. This enables management to compare processes and go after reducing high cost areas.

Insights

- *The complexity measures are part of a formal complexity reduction program. Thus, supervisors devote more time to managing their areas following complexity reductions and process improvements in the plant.*
- *Complexity cost measures are straight forward, direct measures that everyone understands.*

LINKAGE TO IMPROVEMENT INITIATIVES

ABM at Carrier is linked to an overall corporate objective of reducing product and process complexity. Product complexity is reduced by using common components and modularity. If common components cannot be used, the next best thing is to use common processes. Through the JIT initiative, Carrier developed a process view of the organization and considered "process management" as important as "product management." Material handling was recognized as a major cost driver, and a modular design of the factory simplified the work flow.

Carrier views complexity as a major cost driver. Therefore, it has instituted a formal complexity reduction program. (Part proliferation is a problem. For example, it currently has 280 circuit breakers and 580 fasteners.) ABM was linked to these goals and initiatives.

ABM supports the move to reduce complexity. The activity cost information substantiates the financial benefits of reducing complexity. Since ABM consists of costing processes and parts, the mapping of plant processes during the JIT effort was beneficial.

The dollar savings associated with complexity reductions are monitored. Once a "critical mass" of complexity reduction occurs, structural costs savings (or additional capacity) are possible. The complexity reduction process has produced results and provided tools for future use, such as a preferred parts list.

Insights

- *ABM is viewed as a tool to support JIT. ABM provides a tool for cost and profitability analysis. In some cases products were either dropped, or potential business avoided because it appeared to be unprofitable.*
- *Complexity was more a function of the number of unique part numbers than the total number of part numbers in the product.*
- *Employees throughout the site are very cost conscious. Other Carrier sites have closed, and they realize that without improvements, the McMinville site could close as well.*

SUMMARY

In the current competitive environment, management at Carrier is very concerned about cost behavior and steps to reduce costs. Since Carrier is isolated as a separate reporting unit to the investment community, the stakes are higher. In this new environment, ABM is viewed as an enabler for profitability improvements at the manufacturing sites. It provides a tool management can use to channel their cost reduction efforts. Cost management and cost management reporting now has much higher visibility.

COMPANY PROFILE

Deere & Company

Industry Group:	Discrete/ Assembly Oriented Manufacturing
Best Practice Areas:	Decision Support Information MIS and Function Integration
Management Style:	Empowers Workforce
Scope of Implementation:	Multi Plants/ Operations
Site Data:	
Annual costs	More than $ 500 million
Number of people	1,000+
Number of activities	26-100
Number of products/services	Over 10,000
Number of resource drivers	11-15
Number of activity (output) drivers	11-15
Primary Applications:	Product Costing Product Profitability Analysis Product Performance Measurement

COMPANY PROFILE

ABM Reporting System: Permanent (eight years), internally developed product cost system. The system is updated continuously for new part/product cost, monthly for cost information on product production, and annually to update overhead activities and rates.

Results of ABM Efforts: Significant changes to component parts, processes and to outsource activities/processes. Significant and extensive dollar improvement in distribution.

Critical Success Factors: Management Commitment
Dedicated project/implementation team
Fully trained personnel

BACKGROUND

The site visit at Deere & Company included the corporate office and a manufacturing site, both located in Moline, Illinois. Product costing, which has always been very important to the Deere organization, is as important today as it was when ABC was first implemented in 1988. Product costs are a strategic operating metric within Deere, and the activity cost information supports a variety of cost reduction efforts.

Recently, Deere has expanded its ABC scope to evaluate post manufacturing costs for its replacement parts operations. By considering these costs, Deere is able to measure "total part costs."

The distribution paths for after-market parts is very complicated. The parts are made either by a factory or a supplier, and they can go to the Moline distribution center, one of 11 parts depots, or directly to dealers. Each route has cost implications. Deere wants to move from a factory orientation to a total company orientation. For all products, the product cost/price ratio is very important.

Profitable service parts represent 29 percent of the part numbers; 71 percent of part numbers lost money. One of the big problems with after-market costs is part proliferation. The factory managers were not aware of the problem and thought that 75 percent of the part numbers were profitable.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the decision support information, MIS, and function integration areas of its ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

DECISION SUPPORT INFORMATION

Deere has excellent buy-in from the other functional areas. Engineers use the ABM information during the product design phase. Cost information supports the selection of cost effective component parts and processes. It also supports target costing.

Some production managers use ABC to monitor activity costs for their area of responsibility. One pro-

duction manager described how the activity information helped a consulting engagement. The engagement's objective was to improve plant layout and to streamline the manufacturing process.

Engineering has used ABC information to avoid adding costly product options that provide little in the way of incremental value to the product. The ABC information provides an objective format to discuss the cost/benefit trade-offs of adding equipment options.

More accurate information about service parts costs is helping Deere improve many business processes. For example, the cost information helps Deere decide whether to change the price, drop the product, require minimum dollar value purchases, or sell the parts in a package.

Insights

- *Users go directly into the system (on-line), see where the high cost areas are, and define opportunities for cost reduction. They have the ability to begin with relatively high-level activity costs and "drill down" to more levels of detail. Users also have a simulation screen to look for opportunities. Initially, in 1988, 50 users queried the ABC system on a monthly basis. In early 1995, 800 users make inquiries and 90,000 transactions are recorded per month.*
- *The ABC system contains detailed information about activities (e.g., material handling, and its effect on cost behavior). To support a consulting engagement at one factory, "what if" scenarios were used to develop a new plant layout with better product flows. This engagement would have taken up to six months longer had the activity and cost information from the ABC system not been available.*

Target costing is an important part of the decision support information. The process begins with surveys to determine customer wants and the features for which they are willing to pay. The engineers consider the cost benefit trade-offs in their designs when they evaluate part weights or use of common components. The team has detailed discussions about factors that drive costs and what steps can be taken to reduce those costs. They are attempting to estimate the cost of part attributes in their ABC model based on part size and material movement, and handling.

Insight

- *Throughout the corporation, management is focused on product costs. While product costing is an important activity, Deere has found that using the cost information for cost reduction efforts is also useful.*

For after-market or replacement parts, Deere is adding distribution-related costs to manufacturing costs in order to develop total product costs (TPC). Eventually, it would like TPC for all products. (By focusing on product costs only, however, it ignores customer driven costs. For example, some small customers are more expensive to serve. Therefore, the cost of parts for these high-cost customers are averaged with the costs for the low-cost customers.)

Insights

- *Through ABC analysis for service parts, Deere better understands the cost-benefit trade-offs for make vs. buy analysis for service parts. Many of the low-volume parts were out-sourced. Those that remain are produced in a specialized part of the factory designed for small volume runs (this improves costing accuracy as well).*
- *Managers in the service parts marketing area championed the move to ABC for after-market parts. (Initially the ABC team developed post-manufacturing costs for after-market parts on their own, but the project failed, primarily due to a lack of cross-functional commitment.) They now have a cross-functional team that includes an engineer, who also has expertise in finance and ABC.*
- *In addition, Deere also implements cross-functional training. For example, a member of the product development team at the Moline plant is an engineer with a considerable amount of training in finance and ABC.*

MIS AND FUNCTION INTEGRATION

In general, Deere does not have a "traditional" cost accounting system. The corporate cost accounting system is ABC. The ABC system is the official source of standard costs and data used for inventory valuation.

For service parts distribution costs, however, there are no current plans to embed this model into the corporate cost accounting system. Output from this independent model is available in DB2 tables. The decision to go with ABC is strictly voluntary for the plant sites. Some sites feel as though they do not have the process complexity or the product diversity to justify the cost (man-days, processing) to implement ABC. Even though ABC is strictly voluntary for the factories, it has been implemented at 11 sites, representing 75 percent of cost of goods sold. The remaining 25 percent includes smaller sites with less process complexity and less product diversity.

Insights

- *Management accounting is now considered a value-added activity. Prior to ABC, design engineers mistrusted product costs. If a target cost was not being met during product design, the numbers were down played because they were not considered to be accurate. With ABC, the costing methodology is now believable, and if costs are too high, steps are taken to remove costs from the product.*

- *Design engineers now try to ensure that the value of new product features is justified by the additional cost. They have increased the use of common components, removed weight, and made other improvements to take cost out of the process.*

- *The ABC system relies primarily on information that is already available in the system.*

- *When necessary, the ABC model uses conceptual averages rather than actual data. For example, the ABC team for material handling consisted of accounting, computer systems, and engineering personnel. Initially their terms were very detail-oriented and required a considerable amount of computer horsepower. It now relies on less data collection and uses more subjective methods. The team intuitively understands process capabilities when computing the consumption of activities in the departments.*

SUMMARY

Clearly the ABC methodology is embedded at Deere. This is unlikely to change, even if key managers leave the company. There are many reasons for this. First, ABC is embedded throughout its accounting systems. In addition, personnel throughout the corporation are encouraged to take continuing education classes (as noted in a *Business Week* article). ABC is included in this training. Finally, the ABC information is used extensively throughout the corporation.

COMPANY PROFILE

Electronic Data Systems Strategic Support Unit

Industry Group:	Service
Best Practice Areas:	Process Improvements Linkage to Improvement Initiatives MIS and Function Integration
Management Style:	Participative
Scope of Implementation:	Strategic Business Unit
Site Data:	
Annual costs	More than $500 million
Number of people	1,000+
Number of activities	1,001-9,999
Number of products/services	101-250
Number of resource drivers	26-100
Number of activity (output) drivers	Over 100
Primary Applications:	Product Costing Process Improvement Budgeting Performance Measures

COMPANY PROFILE

ABM Reporting System: Internally developed and fully integrated ABM information system. Updated continuously.

Results of ABM Efforts: Moderate changes were made to processes, process steps, customer support/service, and strategic focus. Extensive dollar improvements were achieved in service profitability, service design, production, and customer satisfaction.

Critical Success Factors:
Leadership Commitment
Dedicated Project Team
Information Technology
Accessibility of Information
Links to Quality and Re-engineering

BACKGROUND

The EDS best practice site began with one Strategic Support Unit (SSU), which was comprised of eight large data processing centers in the United States and Canada. The expense budget was roughly $500 million annually. The success of the initial pilot and subsequent reorganizations have expanded the scope to include small U.S. data processing centers and also European, South American, and Asia/Pacific data processing centers. The current scope of activity-based costing and management reporting includes annual costs of $1.5 billion, of which 70 percent is included in the ABM information reporting system.

The ABM initiative is focused in two areas. The first area includes the primary ABM applications of process improvement, budgeting, performance measurement, cost reduction, business process reengineering, and benchmarking. These applications are directed towards providing information and data required to manage the processes and activities of the SSU. The second area of focus is on product (service) costing and cost estimation.

The most impressive part of the EDS installation is the information system used to collect and report activity-based management information. The detail required by operating personnel to affect process improvement and measurement in the support areas required capturing and reporting data on approximately 1,600 activities. Cost objects (service cost) were between 101-250. Over 100 activity drivers and output measures were required to trace activity costs to these cost objects. To meet these requirements, EDS designed, developed, and installed a fully integrated internal reporting and operating system, a permanent ABM information system, and a data gathering system that is updated continuously.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the process improvements, measurements, improvement initiatives, MIS and function integration, credibility/acceptance, and ease of use areas of their ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

PROCESS IMPROVEMENTS

The EDS SSU has achieved significant and continuous improvements through its use of improvement methodologies such as TQM, benchmarking, reengineering, and technology. EDS installed the ABM information tool to drive and support improvement initiatives and to support the decision making process. Individuals, teams, and managers use the ABM information tool in process improvement initiatives and decision making.

Insights

- *EDS placed emphasis on the systems aspect (collection and reporting) of ABM information. For the ABM implementation to have credibility in an information service organization like EDS, activity-based data had to be available on a timely basis, valid and reliable, easy to access, clear and readily understood, and accessible at all levels of the organization. The ABM system developed and installed by EDS met this operational requirement.*
- *In-house systems and systems development expertise, as well as significant database expertise are an integral aspect of the ABM project.*
- *The existing improvement initiatives facilitated the acceptance of ABM information and the benefits of that information to support the existing systems.*
- *EDS's culture understands and values information.*

EDS introduced and implemented activity-based budgeting (ABB) with the SSU. ABB was first tested within the SSU by using activity-based information to test the validity of existing budgets and staffing levels. Using estimates of activity outputs (based on variable volumes of estimated product and service usage) and historical activity-based unit cost information (average), the total cost resources were determined and compared to the traditional budgets. Activity-based actual and budget comparative reports are prepared quarterly and reviewed with management.

Insight

- *The relationship of activity outputs to product and service usage are clearly understood.*

LINKAGE TO IMPROVEMENT INITIATIVES

EDS linked ABM to its quality improvement process and used ABM to pull all EDS improvement initiatives together. EDS accomplished this by positioning ABM as a tool to support its BPR, best-in-class, value analysis, benchmarking, and quality initiatives. ABM measurements were used as a change mechanism.

Insights

- *EDS positioned ABM as an operational/management tool, not a financial tool.*
- *Information from internal customer surveys was linked to the ABM initiative and used to help identify processes and activities that were important to the customer.*
- *Activities were classified as value added, redundant, or necessary and tied to the Cost of Quality.*
- *ABM was positioned as a tool to create value and not just for cost control.*
- *EDS effectively handled and relieved the resistance, fear, and accountability for real ABM data.*
- *The use of the ABM tool was not forced. It was used as part of compensation by linking job raises to activity performance rather than as a club to intimidate employees.*

MIS AND FUNCTION INTEGRATION

The ABM system is fully integrated with internal financial reporting, operating systems, and product cost systems. Automated interfaces between the general ledger, equipment/volume tracking, and human resource systems feed the relational database. The relational database provides on-line reporting options for product, quality, cost driver, process (activity), and value-added. The system is accessible to 428 users at 70 sites worldwide. The system effectively meets the needs of diverse users, most of which are operating personnel.

Insights

- *The system provided the ability to use existing data sources in a relational database (Informix).*

- *The client/server system (Sun Server) was based in an on-line information environment with multi-platform access by Macintosh, DOS/Windows, and UNIX.*
- *The systems and system interfaces were developed so that general ledger cost data and ABM cost data always agreed. At EDS, absent agreement, the ABM data would lose credibility.*
- *Systems are updated continuously so that current and relevant information is available when required.*
- *Extensive training programs were designed for use of the system.*
- *It is important to define the system requirements for measurability so that ample room is available for expansion.*
- *The system balanced the level of precision, detail of reporting, and frequency of change so that information is useful.*

SUMMARY

The ABM project sponsor and champion, Director of the SSU operations, Dudley Wolf, attended the site visit meeting and offered his views on how he sees ABM at EDS. His comments were as follows:

- *Successfully using ABM information requires the right mindset. Existing mindsets may have to change. The mindset is one of managing activities as the focal point of cost management and not managing the cost directly. Activities must be seen as the common denominator.*
- *Getting people to use the ABM information can present frustration. In the final analysis, he concluded that he was the problem. It is management that must change first. Management must request, review, and use the ABM information. The information must be used to make value-based decisions.*
- *It is important to keep a balanced scorecard. The ABM information system must be balanced in the sense that the information can't just be cost. Information about quality, customer satisfaction, cycle time, productivity, and effectiveness of activities is also required to balance the activity performance scorecard. Dudley is driving towards the use of ABM information to include the customer and tie activity performance to customer perceived value and to a customer metric.*

He also offered his views on what must be done to improve and expand the use of ABM information at EDS. The effort involved to keep and update the system must be minimized.

More emphasis must be provided on current information. At EDS it is important to use the ABM information to drive future performance and not just document what has been done in the last three to six months. Incentives must continue to be linked with the ABM information. People do what they are incented to do. Keep the information relevant and useful as ABM can create information overload.

COMPANY PROFILE

First Tennessee Bank

Industry Group:	Commercial Banking
Best Practice Areas:	Process Improvements Decision Support Information Linkage to Improvement Initiatives
Management Style:	Empowers Workforce
Scope of Implementation:	Companywide
Site Data:	
Annual costs	$26-100 million
Number of people	1,000+
Number of activities	101-250
Number of products/services	26-100
Number of resource drivers	26-50
Number of activity (output) drivers	26-50
Primary Applications:	Product Costing Profitability Analysis Pricing Models Process Improvement Capacity Utilization

COMPANY PROFILE

ABM Reporting System: Product/service cost system updated on an annual basis. Minimal integration with operating and financial reporting systems.

Results of ABM Efforts: Very significant changes for pricing strategy, product mix, and strategic focus. Significant/extensive quantified dollar improvements in sales, marketing, product/service design, and product/service profitability.

Critical Success Factors: Simplification
Project Champion Support

BACKGROUND

First Tennessee Bank (FTB) is the largest commercial bank in Tennessee. In the late 1980s, management at FTB was concerned about the value added by the cost management group at the bank. In fact, they even considered eliminating this department. ABC was viewed as a tool by which the cost management group could provide relevant financial information to management.

When the ABM system was first implemented in 1989, the primary applications were product costing, profitability analysis, and pricing models. Other primary applications that came later included budgeting, cost estimation, benchmarking, target costing, and capacity utilization. FTB lists its core competencies as customer service/support, quality services, and low cost provider.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the process improvements, decision support information, and linkage to improvement initiative areas of their ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

PROCESS IMPROVEMENTS

ABM supported a reengineering effort to streamline bank operations. This effort reduced the cost of preparing bank statements and loan servicing, especially for small value loans. Process teams became responsible for entire processes. They developed processes that utilized fewer steps with fewer handoffs among workers.

Insights

- *Activity analysis illustrated the financial benefits of reducing the number of inspections, the number of error corrections, and the amount of paper movement and storage.*
- *Prior to ABM, FTB was viewed as a hierarchical organization. ABM helped promote a process view of the organization.*
- *The bank developed an employee retention program. (Employee turnover created many inefficiencies and inhibited the ABM effort.)*

DECISION SUPPORT INFORMATION

Business managers use ABM to support many types of decisions: (1) pricing, especially on bids for services; (2) accurate cost information improves FTB's

ability to evaluate whether a service provided to a customer is worth the cost; (3) to move closer to a fee-for-service environment; and (4) make vs. buy-type decisions (e.g., determine whether to use an external service provider).

Management used the ABM decision support system to improve its understanding of cost behavior and focus its marketing programs. Low dollar value loans (which were not profitable) were given less emphasis. Even relatively high dollar value loans lost money after 19 months because loans are amortized, which means the amount of interest earned falls while the cost of servicing the loan remains constant. Small personal trusts produced little return for the effort while large personal trusts were profitable.

Large corporate (employee) trusts, on the other hand, are generally unprofitable. Corporate trusts contain many customer driven costs so they are difficult to manage due to employee record keeping and reporting requirements. Adjustments are necessary when employees are hired or quit. Due to their complexity, large corporate trusts often are less profitable than the smaller corporate trusts.

Insights

- *The information was used to gain high profits through product/service mix decision.*
- *ABM cost information helps the bank determine whether it should participate in new markets.*

The expense of some activities was misallocated, which caused dysfunctional behavior. For example, prior to ABM the trust department was not charged for the (internal) safekeeping of customer documents it held. Therefore, trust would occasionally waive this source of revenue for some customers. Yet once the department was actually charged for safekeeping services, it was less inclined to give away the revenue.

Insight

- *The ABM effort targeted key areas in the bank that needed better information for decision making. Through ABM the bank developed a defensible methodology to understand and explain cost behavior.*

LINKAGE TO IMPROVEMENT INITIATIVES

ABM is viewed as a way to support TQM and BPR. The activity analysis was used to streamline processes, reduce errors through people retention, reduce cycle time, and improve customer satisfaction. Prior to ABM, FTB was viewed as a hierarchical organization. ABM takes a process view (bank processes flow horizontally) and supports process improvement.

Insight

- *The ABM group continuously strives to give its internal customers "something they can use."*

The ABM department is considered to be a good training ground for managers at the bank. Due to the process mapping-type requirements of ABM, working in this department is an excellent way to learn FTB's banking business. This helped create acceptance of ABM throughout the organization.

Insight

- *Management recognized the value of ABM to the bank. Managers who worked in the ABM department achieved visibility through the organization.*

COMPANY PROFILE

General Motors Service Parts Operations

Industry Group:	Service
Best Practice Areas:	Decision Support Information Linkage to Improvement Initiatives Strategy MIS and Function Integration
Management Style:	Mildly Participative
Scope of Implementation:	Companywide
Site Data:	
Annual costs	More than $500 million
Number of people	1,000+
Number of activities	101-250
Number of products/services	501-1,000
Number of resource drivers	Over 100
Number of activity (output) drivers	26-50
Primary Applications:	Profitability Analysis Cost Reduction Business Process Re-engineering

ABM Reporting System: PC-based commercial ABM software package mostly integrated with existing internal financial reporting, product cost systems, and operating systems. Updated quarterly.

Results of ABM Efforts: Changes made in process steps and strategic emphasis. Quantified dollar improvements achieved in process steps, and product/service profitability.

Critical Success Factors: Top Management Commitment
Full-time Dedicated Resources

BACKGROUND

General Motors Service Parts Operations (SPO), headquartered in Flint, Michigan, provides replacement parts to GM dealers, non-GM distributors, auto parts stores, and mass market retailers. SPO's primary mission is excellent service for the GM vehicle owner, not profitability. The level of service is determined primarily by its customers' needs.

The primary application for ABM is product, customer, and channel profitability analysis, followed by process improvement. While identical parts that arrive at SPO carry the same initial product cost, the delivered cost to the customer can be quite different. With the old system, costs were only attached to parts, not channels or customers. Yet cost differences occurred based on the quantity packaged, volume shipped, delivery speed, and number of returns. Now, SPO uses the activity cost information to understand the most cost effective (and profitable) way to deliver products to the customer.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the decision support information, improvement initiatives, strategy, and MIS and function integration areas of its ABM initiative. The accomplishments, together with insights gained, are covered for each of these areas.

DECISION SUPPORT INFORMATION

To evaluate customer profitability, part and part family profitability, and channel profitability (dealers, distributors, parts stores, and mass retailers), SPO utilizes market based pricing and product mix decisions that are strategic in nature.

The ABM model is hierarchical and granular enough that it can aggregate costs according to product, customer, or channel. Costs are pushed down to the lowest level in the hierarchy—enterprise, market-related (advertising, such as car racing), channel related (terms), customer related (parts management, returns, sales support, complexity to serve), order related (some order types, such as rush orders, are more expensive to pick), part related, and material. This extensive hierarchy provides many options for profitability analysis based on a matrix of parts, channels, distribution methods, and markets.

Insights

- *The ABM effort is viewed as a "team sport." A top notch ABM team was critical to its success. Team members included finance, sales, operations, and information systems.*
- *Since parts distribution is primarily a customer support activity, having a high-level sales manager as one of the project champions was critical.*
- *ABM is a high priority, and resourcing has been sufficient since the onset of the project.*
- *As the ABM model was being developed, the project team would work with users throughout the organization to interrogate the model to ensure that it could answer key strategic questions.*
- *Rather than pursue new data, they used data that was already available. In addition, they limited the number of drivers and activities.*

LINKAGE TO IMPROVEMENT INITIATIVES

ABM demonstrated the need for SPO to improve process flows and take costs out of the value chain. To link ABM to an improvement initiative, SPO is using the information to develop a less complicated view of service parts operations. Prior to ABM, the accounting model was only semi-related to activities in the distribution process and provided limited information for decision making. ABM was supported by an "enterprise model," which provided very detailed mapping of process flows. The enterprise model was used to understand and cost activities for product costing. Interviews were then used to validate the model.

Insight

- *By focusing on the primary activities that drive parts distribution, the processes became more understandable. Operations were broken down to a series of activities that were connected to cost objects.*

STRATEGY

At SPO, ABM is an important tool to support strategic decision making. SPO wants to avoid using the cost information and profitability analysis to "revenue shed." Instead it works with its customers on program changes to eliminate high cost/low value activities, and improve profitability.

Insights

- *During systems development, the active involvement by users of the ABM information allowed the system to sell itself. As a result, user requests for ABM information are overwhelming the ABM team.*
- *The ABM system has been designed to meet user needs. Throughout the model's development, operational managers have maintained heavy involvement. For example, during presentations of cost behavior, the users were generally able to explain the output of the ABM system (it intuitively made sense). If the output could not be explained, the ABM team would research its methodology and make any necessary changes.*

MIS AND FUNCTION INTEGRATION

SPO's ABM strategic cost management model can determine profitability by part, channel, or customer. For the previous system, costs would only attach to parts, not channels or customers. This extensive hierarchical model provides many options for profitability analysis based on a matrix of parts, channels, distribution methods, and market. SPO developed their ABM model in-house using the Microsoft Access software. ABM accounted for cost differences based on factors such as the quantity packaged, delivery speed, and volume. Activity information was collected using the enterprise model and confirmed with interviews. Data is refreshed quarterly.

Insights

- *To support benchmarking, SPO maintains a common data dictionary for all of their sites while maintaining control of the ABM system centrally.*
- *Most of the data used in the ABM system is already being captured by their information systems for other purposes.*

- *There is a high level of acceptance of the ABM system by the user community.*
- *Users were represented on the ABM team and intimately involved in the model development.*

SUMMARY

ABM is successful at SPO for several reasons. The organization received tremendous management support and resources as well as a dedicated cross-functional team. For SPO, in particular, ABM seems to be a good fit due to the following:

- *Non-material costs are a substantial part of the cost structure.*
- *SPO has tremendous flexibility with the way it delivers products to its customers, based on the nature of its business,*
  - *Mix decisions—many delivery choices exist according to channel and customer.*
  - *Choices about price, terms, product returns policy, and discounts.*
  - *Delivery alternatives—basis, overnight, VIP (e.g., they will search their dealer network for parts and pay for delivery).*
  - *Cost tradeoffs (e.g., if dealers maintain a minimum number of part numbers in inventory, they will receive certain discounts).*
  - *Packaging options—bundling, minimum amounts, delivery choices.*

ABM is on track to become embedded at SPO as it successfully challenges and makes changes to the status quo. Initially it has worked on special requests, but this will be followed by standard reports and, eventually, budgeting.

COMPANY PROFILE

IBM Endicott Panel Manufacturing

Industry Group:	Process/Recipe-Oriented Mfg.
Best Practice Areas:	Measurement Competitiveness Linkage to Improvement Initiatives Compensation and Benefits Supply Chain Management
Management Style:	Participative
Scope of Implementation:	Single Plant
Site Data:	
Annual costs	$26-100 million
Number of people	501-1,000
Number of activities	101-250
Number of products/services	101-250
Number of resource drivers	6-10
Number of activity (output) drivers	26-50
Primary Applications:	Performance Measurement Project Management Benchmarking Employee Involvement

ABM Reporting System: Commercial ABM software package, fully integrated with operating systems. Minimal integration with internal and external financial reporting and product cost systems. Updated quarterly.

Results of ABM Efforts: Significant changes were made to strategic focus, product mix, processes and outsource activities. Significant dollar improvements were achieved in production, product profitability, overhead support, distribution, and customer satisfaction.

Critical Success Factors:
Need to Reduce Costs
Management Support
Total Involvement
Dedicated Project Leaders

BACKGROUND

The plant site in Endicott, New York, which manufactures printed circuit boards, lost its position as a captive IBM supplier. IBM's downstream facilities could buy from anyone; thus Endicott competed for this business through a bidding process. In 1993, Endicott also became a profit center. These two factors combined to create a sense of urgency for improvement initiatives.

A consolidation of printed circuit board manufacturers is currently occurring in this industry due to improved manufacturing efficiencies and customer demands for fewer and smaller boards.

One key ingredient of Endicott's strategy is to pursue business external to IBM. If it can win external customers, this will bolster its confidence as a long-term IBM supplier. Currently, 10 percent of its business goes to external customers, with a target that approaches 50 percent.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the measurement, competitiveness, linkage to improvement initiatives, compensation and benefits, and supply chain management areas of its ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

MEASUREMENTS

ABM supports IBM's objective to stabilize the workforce, reduce outsourcing, create extra capacity, improve yields, reduce cycle time, reduce material costs, and implement ABC. Endicott has reported savings of $5-6 million in material costs since the inception of the ABM program, which also supports extensive benchmarking. Some benchmarks are specific to the PC board industry while others are generic for manufacturing organizations.

Benchmarks come from many sources. Drilling costs, a very specific benchmark, came from a supplier. Their industry inputs drilling costs, quality, and productivity data into a "blind" database. IBM also benchmarks generic activities, such as the cost of information services. Information services costs average 2.5 percent of sales at manufacturing firms, yet, the Endicott site was being charged 5 percent of sales by its corporate office. Therefore, IS was targeted for cost reduction. In addition, Endicott monitors customer satisfaction (quality, delivery, etc.) through customer surveys.

ABM translates activities into financial terms, thus providing a common language for all levels of the organization and keeping a focus on profitability improvement. Quality measures are taken daily to quickly identify quality problems and pursue root cause analysis. Once the cause is understood, and the responsible party is known, corrective action (whether internal or external) is taken. For example, Endicott identified a quality problem with chemicals early in the production process. The ABC system provided credible cost information to support a claim to a vendor, which then reimbursed IBM for all costs related to the defective chemicals. Benchmarking helps direct improvement efforts. If it is already best of breed in one area, Endicott concentrates on areas where greater opportunities for improvement exist.

Insights

- *Daily "core team" meetings were used to review quality, workflow, and any other open issues. Employees at all levels of the organization receive financial and nonfinancial performance measures.*
- *Endicott has been effective at narrowing the focus of its performance measures to key areas that all employees understand throughout the site. For example, they "talk about everything in terms of dollars."*
- *The site manufacturing manager is one of the biggest proponents of ABM. He personally hired the manager who implemented ABM.*

COMPETITIVENESS

Endicott has achieved excellent quality, which is demonstrated by its very low warranty expense (i.e., 0.6 percent of sales vs. 3.0 percent for the industry). Instead of being a high-volume commodity shop, Endicott is a high-value, specialty manufacturer. Therefore, it has an extensive range of products-4,000 part numbers with 1,000 currently in production.

Endicott felt the need to become cost-focused to improve its competitiveness. For example, the ABM information was used to dollarize the impact of many of its performance measures. To emphasize the impact of poor quality, scrap costs are based on lost revenue.

Insights

- *Endicott supplies it customers with engineering expertise during product development.*
- *An awareness throughout the site of the need for low-cost, high-quality manufacturing.*
- *A strong emphasis on growing the business as opposed to cutting heads.*

LINKAGE TO IMPROVEMENT INITIATIVES

Within the last few years, Endicott instituted a continuous flow manufacturing (CFM) program to streamline its manufacturing processes. Initially, ABM was viewed as a tool to cost activities and processes. Eventually, ABM took shape as an "umbrella" over all other improvement initiatives to support and measure their benefits.

Through ABM, Endicott has a disciplined approach to managing costs. It conducts daily meetings where it uses the ABM information to evaluate scrap and other operational issues. These "core group" meetings include members from operations, industrial and manufacturing engineering, production control, and finance.

To support the quality management program, scrap data is recorded by the operators directly into the ABM system on a daily basis (which is linked to the manufacturing floor control system). If parts are scrapped on line, the operator will enter the quantity

and the cause, (e.g., operator error) directly into the computer system. The ABM system will then cost the scrap according to its stage in the production cycle.

Insights

- *As part of the CFM program, process mapping-type information was provided to the ABM team to facilitate the ABM effort.*
- *Through CFM, Endicott developed a process view of its organizational structure, thus "jump starting" ABM.*
- *The reports are displayed on a common manufacturing reporting system that can be viewed by all employees.*
- *By using sales dollars to cost quality, everyone talks the same language. Employees relate to selling prices, and a sense of competitiveness has developed among the work teams.*

COMPENSATION AND BENEFITS

The employees' annual performance evaluations are based on merit, which in turn affects compensation. They are influenced by the ABM performance measures (as an individual and as a team member). The evaluations come from customers, supervisors, and peers.

Insight

- *The performance measure must be viewed as fair by the employees. Therefore, they must understand the ABM system.*

SUPPLY CHAIN MANAGEMENT

ABM is used to support make vs. buy-type decisions. For example, some manufacturing steps, which had been outsourced, were brought in-house. Endicott partnered with a drill bit supplier and reduced its drilling costs by 40 percent. This partner delivers inventory to the shop floor, re-sharpens bits, provides technical support, and supports new product development. IBM has reduced the inventory and support costs associated with the drilling process. IBM also has been developing partnering relationships with both internal and external customers. The ABM information is used to help them cost effectively engineer new products for customers early in the development cycle.

Through the partnering relationship, the drill bit supplier now has an employee residing permanently on site. As Endicott develops new products, any special needs related to drilling technology can be communicated to the supplier very early in the design process. Another benefit from this partnering relationship is a reduction in product development time. Following the change in Endicott's organizational structure (from hierarchical to process teams), the site began to develop new products using concurrent processes instead of serial processes. In one case, the product development cycle fell from two years to three months. This reduction in time was critical to landing a new external customer.

Insights

- *Early involvement by suppliers in the design of new products was critical.*
- *The system involved frequent contact with customers (both internal and external) about satisfaction with existing products and new product designs.*
- *Customer feedback about quality problems parallels Endicott's policy to address any customer quality problems that arise within seven days. It begins by examining the process that caused the problem. If possible, it will either correct it immediately or develop an action plan to correct its root cause in the near future. The customer must "sign off" on the corrective measure before closure. Usually there is immediate action and a long-term action plan. All customer comments are part of a performance measure system for Endicott.*

SUMMARY

While most of the results discussed at the Endicott site were quite good, one of the few problems was systems related. ABM relies on the general ledger for financial information; however the reports are not available until 25 days after month end. (The operating system, however, reports scrap and material usage daily.) The ABC system links to the general ledger

and the operating system to develop activity-based costs. Essentially, ABC interprets and explains the results of financial reporting. The analysis shows both activity and product cost details. Differences in the line-by-line amounts sometimes exist, but the bottom line is generally explainable.

Profitability analysis is delayed by the general ledger reporting system. Much of the cost information from the general ledger is not available until after closing. If Endicott had this data on a more timely basis, the profitability information would help it become more responsive to requests for bids on new products, and it would help fine tune its product mix.

COMPANY PROFILE

Parker Hannifan Compumotor Division

Industry Group:	Discrete/Assembly Oriented Mfg.
Best Practice Areas:	Decision Support Information Measurements Linkage to Improvement Initiatives
Management Style:	Empowers Workforce
Scope of Implementation:	Single Function
Site Data:	
Annual costs	Under $25 million
Number of people	Under 100
Number of activities	Under 25
Number of products/services	101-250
Number of resource drivers	Under 5
Number of activity (output) drivers	6-10
Primary Applications:	Product Costing Process Improvement Budgeting Performance Measurement Business Process Re-engineering

COMPANY PROFILE

ABM Reporting System: Internally developed ABM information system, updated monthly. Minimal integration.

Results of ABM Efforts: Moderate changes made to component parts, processes, customer support, and restructure/reorganize. Moderate dollar improvements were achieved in product service design and production/ manufacturing.

Critical Success Factors: Better Performance
Performance Measurements
Better Standard Costs

BACKGROUND

The Compumotor Division of Parker Hannifin employs 190 people, 60 of whom are in manufacturing. Manufacturing employs self-directed work teams and has no supervisors on the shop floor. The division's general manager provided the plant tour and spent several hours with the project team members. Compumotor produces printed circuit boards that are used for motion control in motors. Compumotor shares a field sales force with four Parker divisions that use the same distribution network. It also uses distributors for better market coverage. All of Compumotor's production is JIT, and many products are customized according to each customer's specifications. Parker's core competency is excellent customer service through very short lead times (five days) and very high quality.

In 1992, the competitive environment was characterized by low entry barriers, decreased sales prices, shorter product life cycles, and increased customer demands for higher quality. Major improvement initiatives had been implemented (see process improvements), but none of these programs addressed cost. The company has moved closer to a paperless factory (there are no routing, bills of material, or inspection sheets). Cost information has had very little visibility, so ABM helped fill this void.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in decision support information, measurement, and linkage to improvement initiatives areas of their ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

DECISION SUPPORT INFORMATION

ABC supports pricing and mix decisions. To some degree all products are customized, and this makes accurate product costing critical. Engineers use the activity cost information to support product development decisions. Design improvements are viewed as benefiting the product throughout its life cycle. A flexible ABM model with "what if" capabilities supports these decisions.

Some basic training in financial analysis is provided at all levels throughout the organization. Cost tools are now considered essential and all new hires at

Compumotor receive two days of training in financial analysis. This training helps drive home the importance of having a "cost focus" at the company. ABM also helps diverse functional areas communicate in financial terms.

Insights

- *Employees are selected very carefully. A primary consideration is their ability to fit in with other team members. Therefore, before becoming permanent hires, new employees must work as temporaries on the team.*
- *New ways to apply the ABM information such as purchasing or product development are essential and desired.*

MEASUREMENTS

Compumotor monitors process costs on the shop floor including crimping wires, and prepping parts. Since all products are customized, process costs are more important benchmarks than product costs. Therefore, the ABM reporting system tracks process costs on the shop floor. If a change in plant operations (or any other factor) causes a process cost to increase, corrective action is taken.

Metrics for the total cost of purchased parts are tracked. Compumotor built a "supplier cost model" by considering the total cost of purchased parts. The ABC supplier cost model develops a total purchase price cost by adding inventory holding costs, vendor-related costs, and quality costs to the purchase price.

Insights

- *The self-directed work teams in the plant are process owners and empowered to make improvements based on their own initiative.*
- *ABM reports have replaced (not just supplemented) other financial reports.*
- *The reward structure at Compumotor is carefully designed to avoid dysfunctional behavior. Rewards are based on output for the entire shop as opposed to output for individual teams.*
- *Compumotor had to sell this methodology to its parent company, Parker Hannifin. Parker Hannifin requires purchase price reductions of 5 percent. Total cost is now used versus just purchase price to meet the corporate goals for reducing purchase price. If purchase price was the only cost it considered in the decision process, the company might switch to vendors that are actually more expensive to buy from due to higher quality costs, handling costs, and holding costs.*

LINKAGE TO IMPROVEMENT INITIATIVES

ABM is positioned as a tool to support the larger corporate initiatives of JIT, quality, and design for manufacturability initiatives. Process improvements are generally accomplished and attributed to these initiatives. ABM provides cost information that is unavailable to the improvement initiatives, and activity cost analysis has supported process improvements throughout the shop. Through the JIT program, teams were established that had a process view of operations, a necessary condition for ABM.

Insights

- *The ABM implementation was easier because the site had already successfully implemented other corporate initiatives that involved change. For example, radical changes were required for the JIT program—a completely balanced line with minimal WIP, multiple skill sets, cross-functional training for each employee, and excellent quality.*
- *The team members on the shop floor are all cross-trained. Therefore, members can move from one team to another to balance the workload. Compumotor strives to break down barriers among the teams.*
- *Rewards are based on output for the site, not individual team output. Otherwise, team leaders might be reluctant to allow members to temporarily move to another team. Personnel policies that result in higher output for the entire facility (global optimization) are encouraged, as opposed to those that only consider output for the individual team (local optimization).*

SUMMARY

ABM is viewed as successful at the Compumotor Division. During our site visit, a financial manager from an Australian Division of Parker Hannifin was there to evaluate the applicability of ABM to the Australian location. The ABM facilitator at Compumotor also has conducted workshops at other Parker Hannifin sites in the United States.

After activity-based budgeting, Compumotor will use ABC to analyze customer driven costs that are quite high. Customers require considerable amounts of technical support, and this support can be provided by either Compumotor or Compumotor's distributors. Furthermore, some distributors are much more knowledgeable and provide much better support than others. Customers that buy from the weaker distributors will make more calls directly to Compumotor. As part of its TQM program, Compumotor monitors, tracks, and analyzes all customer phone calls. Therefore, Compumotor would like the selling prices that it charges distributors to reflect the level of service that is provided to the final customers.

COMPANY PROFILE

PCS Health Systems, Inc.

Industry Group:	Service
Best Practice Areas:	Process Improvements Decision Support Information Measurements Competitiveness
Management Style:	Mildly Participative
Scope of Implementation:	Companywide
Site Data:	
Annual costs	$101-250 million
Number of people	1,000+
Number of activities	501-1,000
Number of products/services	251-500
Number of resource drivers	Over 100
Number of activity (output) drivers	Over 100
Primary Applications:	Product Costing Profitability Analysis Cost Estimation Pricing Models

COMPANY PROFILE

ABM Reporting System: PC-based ABM commercial information system fully integrated with internal financial reporting. Updated monthly.

Results of ABM Efforts: Extensive dollar improvements achieved in product/service profitability, product/service design, overhead support and customer satisfaction.

Critical Success Factors: Getting managers to own the information.
Showing managers how to use the data to make their jobs better.

BACKGROUND

The site visit for PCS Health Systems was in Scottsdale, Arizona, where it employs 1,600 people. PCS, a division of Eli Lilly, processes prescription drug claims for insurance and large self-insured companies. It strives to help its customers control prescription drug costs by providing additional services beyond claims processing. For example, PCS works with doctors to substitute generic drugs in place of expensive branded products.

The evolution of ABM at PCS included product costing and profitability analysis followed by activity cost analysis for process improvement and activity-based budgeting.

Line managers at PCS are organized with business managers, responsible for sales and business unit profitability. New product managers are responsible for developing new programs/services. They work closely with the business managers on new ideas. Process managers are responsible for business operations such as processing claims and producing membership cards.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the process improvements, decision support information, measurements, and competitiveness areas of its ABM initiative. The accomplishments and lessons learned are included in the following section.

PROCESS IMPROVEMENTS

When ABM was implemented, the accounting and management information systems were modified to account for processes, thus providing a horizontal view of the organization. Later, the organizational structure changed as well. PCS reorganized from a functional organization to one based on processes. ABM was a major factor in the decision to reorganize. Prior to the reorganization, some process managers viewed ABM as a nuisance that provided little value. Following the reorganization (as well as training on the ABM system), these process managers are champions of the ABM effort. They can actually use the activity cost information to make a difference.

PCS has reengineered many processes. Process improvements have allowed PCS to handle considerably more volume with little increase in headcount. The organizational structure now contains "process owners." They have responsibility for entire processes and are empowered to make changes. Prior to the reorganization, operations managers were responsible for only pieces of a process.

Insights

- *PCS strives to keep the users happy. Unless the process, new product, and business managers feel they are getting something useful from ABM, they will not support the system.*
- *Reviewing organizational process structure allows for greater understanding among users.*

DECISION SUPPORT INFORMATION

ABC is used to cost all new bids for services (bids are an ongoing activity) and for the profitability analysis of the business units. To accomplish this, PCS developed an actual costing system. All employees, from the president down, complete monthly time sheets. Time is recorded by activity on a spreadsheet. Based on actual costs in the general ledger, the ABC reports produce activity cost information. Labor reporting is thought to be accurate so labor assignments to the business units can be challenged by the business managers. Standards are not used because the business environment at PCS is constantly changing.

Insights

- *Prior to ABC, PCS felt as though it did not understand profitability by business unit and that cost allocations were arbitrary.*
- *The users had to see a benefit from the ABC system. Prior to ABC, no one understood which products (services) at PCS were profitable. ABC produces accurate cost information, and an ABC analysis is required for all bids.*
- *The organizational structure now assigns profit responsibilities to business units. The business units are responsible for their own sales and marketing activities, and they bid on new customer contracts. Furthermore, cost tracing is now granular enough that the business unit can go to the process owners for an explanation of charges. Even though they will occasionally challenge high cost activities, the accounting system, based on actual costs, has a high degree of credibility.*
- *ABM provides cost information that is not available through a reengineering program. PCS management felt as though the cost information was necessary to show which reengineering efforts would be worthwhile.*

MEASUREMENTS

ABM supports business unit profitability analysis and provides process cost information. Both are used to measure performance. Managers throughout the company continuously asked finance to develop better ways to measure results. ABM provided the tool.

Insight

- *The ABM team first developed an understanding of the business including operations, management goals, and objectives. The ABC model was then designed from the ground up to support management's needs. Also, the ABM group convinced management that white collar workers could be measured.*

COMPETITIVENESS

PCS offers insurance companies a "call back" service where PCS works with doctors to control prescription drug costs. PCS employs trained pharmacists that call physicians and suggest replacing expensive branded drugs with generic products. PCS's information system will also track drug usage and highlight noncompliant patients such as ones who abuse or take too much of a drug.

Insights

- *ABM quantifies the benefits of the call back program to its customers. Having developed a track record of savings in this area, PCS uses the information to sell new clients on the service.*
- *PCS has a dedicated staff for new program development. ABM gives this group a tool to quantify the benefits of new program concepts.*

SUMMARY

ABM is embedded at PCS. For product costing and profitability analysis, PCS relies exclusively on ABC. Some marketing managers have noted that they would be unwilling to bid on new business without an ABC analysis.

ABM is also key to process improvement and cost reduction initiatives. For several years the ABM system has calculated process costs. Yet the organizational structure was such that functional managers were responsible for only pieces of each process. Therefore, PCS reorganized to create process owners empowered to affect change and improve their processes.

COMPANY PROFILE

Texas Instruments

Industry Group:	Process/Recipe Oriented Mfg.
Best Practice Areas:	Process Improvement Decision Support Information MIS and Function Integration
Management Style:	Mildly Participative
Scope of Implementation:	Single Plant
Site Data:	
Annual costs	$101-250 million
Number of people	501-1,000
Number of activities	26-100
Number of products/services	251-500
Number of resource drivers	Under 5
Number of activity (output) drivers	Under 5
Primary Applications:	Product Costing Process Improvement Profitable Analysis Cost Reduction

COMPANY PROFILE

ABM Reporting System: Internally developed and integrated process/product cost system. Updated semi-annually.

Results of ABM Efforts: Significant changes to product mix and component parts/ process steps. Quantifiable dollar improvements in product/service design, manufacturing and product/service profitability.

Critical Success Factors: Support from Factory and Product Mgmt. Access to Quality Operational Information Systems Support

BACKGROUND

The two Dallas-based site visits included a trip to Texas Instruments' (TI) corporate headquarters and a Linear Wafer Fab plant. During the visit we discussed three of TI's accounting systems: (1) their "traditional" accounting system; (2) CMS, a corporate ABC system on their mainframe; and (3) a stand-alone ABM model used by the Linear Wafer Fab group. The stand-alone ABC model was built on a factory capacity planning work station.

The CMS system has been in place for several years. It handles inventory valuation and standard costing, but it is not used as an operational tool in the Linear Wafer Fab facilities. The traditional accounting system is no longer used by the groups using CMS or ABC.

Executive sponsorship for CMS was at a very high level with the CFO serving as the project champion. A cross-functional team, which included operations, developed the CMS system. The ABC team has modified the CMS system to capture process costs and support the needs of operations.

The stand-alone ABC workstation model for the Linear Wafer Fab plant is much more operationally focused. The Linear Wafer Fab ABC group is currently trying to obtain the necessary resources to network their ABC model with the other business systems.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the process improvements, decision support information, and MIS and function integration areas of their ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

PROCESS IMPROVEMENTS

ABM at the Linear Wafer Fab helped to quantify and prioritize improvement initiatives including reductions in diversity and unique manufacturing processing steps. According to a product manager (who has product design and manufacturing engineering responsibilities), the plant is never short on profitability enhancement opportunities. These initiatives generally improve yield, or reduce processing steps through redesigns. The products they develop have fairly long life cycles, so cost improvement opportunities are important.

Insights

- *Prior to ABC, diversity was often viewed favorably by the engineers. They developed unique process steps and products since they had little insight into the additional manufacturing costs. Now ABC assigns higher costs to low volume wafers that use non-standard processes. These non-standard processes are de-emphasized in favor of standard processes. Engineers also minimize complexity by referring to a formal process diversity list.*
- *The product manager must establish a proper balance between the cost trade-off of bringing products to market very quickly and taking longer to develop cost-effective designs prior to product launch. Once the product has been launched, taking cost out of the product becomes more difficult.*
- *The plant has developed a better understanding of cost behavior including the difference in product, batch, and unit-related costs.*
- *Through ABM, the cost of diversity now has much more visibility.*

DECISION SUPPORT INFORMATION

The corporate CMS model emphasizes inventory valuation and product costing. However, the stand-alone ABC workstation model for the Linear Wafer Fab group is designed to support operations (by measuring the cost of key activities and processes), product designers (by including "what if" capabilities to support design to cost capabilities), and marketing (by providing cost information about the products they wish to introduce.)

Prior to ABC, there was little financial incentive for product managers and process engineers to avoid developing unique process steps. This was due, in part, to the traditional product costing system, which spread the cost of diversity to all products.

Insight

- *ABC identified unique process flows and costed them at a higher rate than standard processes. ABC then assigned the entire cost of diversity to the responsible product. Therefore, substantial cost subsidies were eliminated, and product managers had financial incentives to simplify operations by using standard process flows. In TI's semiconductor unit, process diversity increases factory costs more than product diversity.*

TI built a capacity model to measure the cost of nonproductive capacity. Nonproductive capacity occurs through plant inefficiencies (plant responsibility), and idle capacity, which results from unsold capacity (business responsibility). Given that TI was trying to maximize output, the elimination of nonproductive capacity was a priority.

Insight

- *At the ABC site, ABC is being aligned with the capacity model, where the activity cost information is used to help eliminate nonproductive capacity.*

The Linear Wafer Fab plant has reduced process flows from 360 to 300. It also has dropped some low-volume products that were viewed as unprofitable. In some cases, discontinued products were transferred to other TI facilities where they could be made more cost effectively.

Insights

- *The ABM information gives the planning and product development departments a tool for selecting cost effective designs. In the past, they had a tendency to develop "elegant" designs, due to the traditional cost system's inability to capture the additional cost of product diversity and complexity. Common processes are now encouraged due to their lower costs.*
- *Based on market prices, the ABC model helps TI determine whether to bring a new product to market. If, based on current market selling prices, the product will produce an inadequate profit, TI can adjust the level of diversity to meet a target cost or abandon the new product introduction.*

MIS AND FUNCTION INTEGRATION

The Linear Wafer Fab site built a stand-alone ABC workstation model that has three levels of cost. The first is base flow, which is a generic routing. Next is module cost, which includes additional process steps that are not in the base, but fairly standard. The last level is diversity cost, which includes any other processes not in the base or module. Product diversity causes down time due to product specific runs, which under-utilize batch capacity, and increases changeovers.

This tool helps product development engineers select cost effective designs. The dynamic model supports "what if" and "design to cost" analysis. For example, product features and the level of diversity can be adjusted to meet target costs. Common processes are encouraged due to their lower costs.

TI has abandoned its "traditional" cost accounting systems that were used to develop standard costs and value work-in-process and finished good inventory. Yet TI has not abandoned its "traditional" financial reports, which report costs for direct labor, direct material, and overhead. TI is currently migrating toward a system that will report the cost of major processes, with the capability to "drill down" and see the cost of resources such as labor and supplies that support each process.

Insights

- *The initial data collection necessary to build the ABM model is not viewed as a problem. Maintaining the ABM system is much more challenging than its initial development.*
- *Users require direct access to the ABM data and cannot rely on published reports alone.*

COMPANY PROFILE

Valvoline Company

Industry Group:	Process/Recipe Oriented Manufacturing
Best Practice Areas:	Decision Support Information MIS and Function Integration
Management Style:	Empowers Workforce
Scope of Implementation:	Multiple Plants
Site Data:	
Annual costs	$251-500 million
Number of people	251-500
Number of activities	Under 25
Number of products/services	501-1,000
Number of resource drivers	6-10
Number of activity (output) drivers	11-15
Primary Applications:	Product Costing Process Improvement Budgeting Profitability Analysis Performance Measurement Cost Reduction

COMPANY PROFILE

ABM Reporting System: PC-based commercial ABM software package. Fully integrated with internal financial reporting, operating systems, and product cost systems. Updated quarterly.

Results of ABM Efforts: Moderate changes to pricing strategy, product mix, processes, and strategic focus. Moderate quantifiable dollar improvements in sales and marketing, product design, manufacturing and product management.

Critical Success Factors: Senior Management Commitment
Full-time Team Members with Operations Accounting Experience
Complete Support of Plant Personnel

BACKGROUND

Valvoline, in Cincinnati, Ohio, has a multiple plants/operations implementation, with 250-500 employees and $251-500 million in annual costs. Primary applications have been for product costing, process improvement, cost reduction, inventory valuation, and cost estimation. Valvoline has been using ABM for approximately two years. Valvoline identified less than 25 activities, between 501-1,000 cost objects, and between six and 15 resource and activity drivers. Heaviest involvement has been from accounting & finance, manufacturing personnel, and operations managers. While product costing was the original goal of the ABC initiative at Valvoline, this quickly led to using ABM information to support continuous improvement.

BEST PRACTICE AREAS: KEY FINDINGS AND INSIGHTS

The site visit included discussion and review in the decision support information, and MIS and function integration areas of their ABM initiative. The accomplishments together with insights gained are covered for each of these areas.

DECISION SUPPORT INFORMATION

The organization became more aware of set-up and changeover costs from its ABM analysis and focused on cost reduction that resulted in a reported 20 percent improvement in productivity. It eliminated blow-molding of bottles. The organization focused on streamlining bottleneck operations, line speed and blending balance, and enhanced true operational efficiency.

Insights

- *Management supported the need to better understand product cost and used ABC as a communication tool.*
- *The Senior Vice President of Branded Group intuitively understood that not all branded products should be costed the same but could not prove it, until ABM.*
- *Enhancement of operational efficiency was accomplished by the analysis of activity.*
- *By focusing on branded complexity issues management gained important insights in its approach to marketing.*

ABC/ABM information is critical to the decision making process at Valvoline. To help in this process, all conversion costs are developed with ABC data and all management reports are produced with activity data.

Major capital investment decisions are justified using ABC data. In fact, the decision to consolidate motor oil operations in Cincinnati was ABC driven. Outsourcing and insourcing decisions have been viewed in the context of ABC data. The decision to blend the antifreeze products (from a recent acquisition) is an example.

Insights

- *The batch-related costs and the cost of product diversity was disclosed through the ABC data.*
- *Some of the medium and low volume products are no longer left in the distribution channel, but are made to order with longer lead time for delivery than previously guaranteed. This enables Valvoline to reduce the total cost of product delivery and reduce the number of changeovers.*
- *Daily, weekly, and monthly charting of activity data. What was thought to be an operation that was running at nearly 85 percent efficiency was found to be sub-optimal at 60 percent. With the ABC data analysis, it has improved to 75 percent efficiency.*
- *Until the introduction of ABC, bottle product was commonly costed. Now private label product is recognized to be distinctly different.*
- *The ABC data indicated that the private label business was contributing only 14 percent of earnings that management had believed, based on the prior costing system.*
- *Private label product is now viewed very differently, recognizing the added cost of short runs and changeover.*

Valvoline used ABM information in its decision making process with its suppliers and customers to reduce the cost of the oil containers that cost more than the oil. Valvoline worked with its vendors to reduce part proliferation, complexity, and adjusted shipping schedules to reduce cost for both parties. Valvoline met with suppliers and explained the ABC model in order to develop a buy-in to the concept.

Insight

- *By sharing information, the supply chain participants understood and became more supportive of the suggestions and decisions.*

MIS AND FUNCTION INTEGRATION

The organization downloaded general ledger data into EasyABC software (now using Oros) and uploaded conversion cost information from ABC to product costing. All U.S. plants are using ABC. The international locations are just now coming on stream. The ABC plant implementations are very systematic. One week is devoted to downloading data, one week visiting the plant, and one week for uploading the system.

Insights

- *Valvoline possesses a high level of acceptance and integration with operational decision making and product management. Senior management would appear to have accepted the data as not only valid but also essential to the future well-being of the organization.*
- *Implementation is less than four weeks at any given site.*
- *All information is PC-generated—no mainframe involvement outside of downloading of data.*

SUMMARY

The Valvoline operation has done an excellent job of utilizing the ABC approach to improving its understanding of the operational complexities of the manufacturing practice. It has not used the approach for anything except the shop floor environment. Operational complexity arises not in manufacturing itself, but in the variety of ways a product can be packaged and shipped. Run volumes have a significant impact on the cost of the product.