



# ABC GATHERS SPEED AT MOBIL

by Tom Kang, Mobil Oil Corporation

Imagine a tiny snowball slowly rolling down a hill, becoming bigger and bigger, gaining more and more momentum, until it is large, visible, and omnipresent. That would be somewhat like the development of ABC as a concept at Mobil. In the beginning, ABC was a small initiative in one affiliate of Mobil's downstream divisions (Marketing and Refining). Today, the ABC scope inside Mobil extends over sixty affiliates worldwide and is expanding to the other business units.

## Current scope of ABC at Mobil

Lubricants are one of the highest profit margin areas of Mobil's downstream business. This product category includes items that are readily recognizable to retail consumers, such as Mobil 1 passenger vehicle lubricant, and thousands of other industrial and commercial grade lubricants. Uncharacteristically complex, the lubricant business is an exception to the conventional pattern of the few products/high volume oil industry. Mobil is an integrated supplier of lubricants, meaning that it possesses the technology and infrastructure for producing lubricants from base components (such as crude oil and chemical additives) and delivering finished products to end-customers. There are over 30,000 lubricant stock keeping units (SKUs) within the Mobil Network with multiple raw material supply, manufacturing, and distribution centers.

Mobil operates lubricant businesses (called affiliates) in more than sixty countries with forty manufacturing locations (called Lube Oil Blend Plants, or LOBPs). Each country operates as an individual affiliate. These individual entities are loosely collected into regional groupings, which in turn sum to the global business. The principle business metrics are at the local affiliate level; profit and cost optimization occurs at this level.

This business is within the scope of ABC at Mobil today.

## The first ABC project at Mobil and its results

ABC's start at Mobil can be traced to

the US Lubricants Business in 1994, when its General Manager George Madden, recognizing that the US business had thousands of SKUs and multiple manufacturing facilities, suspected that the high degree of complexity was adding cost to his business. He wanted to know the cost of the complexity; that is, the return for maintaining such a complex business.

### Consulting firm

A.D. Little was hired to help analyze the situation. Focusing at first on analyzing manufacturing complexity (the product dimension), the joint Mobil and A.D. Little team quickly realized that the current cost accounting system had no way of reflecting the cost of complexity, because it treated all products equally. Stated simply, manufacturing costs of \$80MM were volumetrically



## Executive Overview—Manufacturing Industry

With over 30,000 stock keeping units (SKU's), and multiple facilities, Mobil, specifically, the US Lubricants Business, was looking to measure the cost of complexity for their business. They found the answer in activity-based costing. ABC started out as a small initiative at Mobil, but the current scope of the ABC project encompasses over 60 affiliates world-wide. By the end of 1998, ABC will be introduced to all of Mobil's major manufacturing locations and marketing affiliates.

In the past, Mobil's Lubricant Business had been applying costs using volume drivers, instead of activity drivers. By using the ABC methodology, fundamental differences in the cost to produce thousands of product/package combinations were witnessed. It was with these results that Mobil management decided to incorporate the ABC methodology into their everyday business decision making process.

applied to the 250MM gallons of lubricants which were manufactured. This method could not address cost to produce each product individually. At this point, A.D. Little suggested using ABC methodology to better reflect the real costs of producing the multiple product and package combinations within Mobil's Lubricant Network.

ABC proved to be the perfect tool for identifying the cost of complexity in Mobil's Lubricant Business. By using activ-

ity drivers instead of volume drivers, ABC could expose fundamental differences in the costs of producing thousands of product and package combinations.

In the past, when all costs were volumetrically applied to products, marketers added products with a high degree of manufacturing complexity to the product line by evaluating their economics on an incremental cost basis, believing that any new volume, regardless of production complexities, would decrease the unit cost. By applying costs using activity drivers instead, ABC exposed the weakness of the old school of thought.

The results were startling. They created a stir within the organization and were the start of a culture change. In surprisingly short order, the incremental volume/cost theory gave way to activity-based/full cost theory. The view of manufacturing costs shifted from one pole to another within a matter of months!

Management liked what they saw and wanted to incorporate ABC into everyday business decision-making processes. At this point, management took a risk. Without fully understanding the impact this new information would have on the decision-makers in the business, they decided to incorporate ABC into the single most important tool used to manage the business then and now: the profitability

reporting tool (called the Lube Profitability Report, or LPR). LPR contained the data used to evaluate all customer/product profitability. Every sales person

### TYPICAL PRODUCTION COSTS-CUMULATIVE

(PRODUCT 1 IS HIGHEST VOLUME—PRODUCT 100 IS LOWEST VOLUME)				
PRODUCT	PERCENT OF PRODUCTS	PERCENT VOLUME	PERCENT COST (TRAD)	PERCENT COST ABC
PRODUCT 1-10	10%	40%	40%	25%
PRODUCT 1-20	20%	65%	65%	50%
PRODUCT 1-50	50%	90%	90%	80%
PRODUCT 1-100	100%	100%	100%	100%

### TYPICAL PRODUCTION COSTS-INCREMENTAL

(PRODUCT 1 IS HIGHEST VOLUME—PRODUCT 100 IS LOWEST VOLUME)				
PRODUCT	PERCENT OF PRODUCTS	PERCENT VOLUME	PERCENT COST (TRAD)	PERCENT COST ABC
PRODUCT 1-10	10%	40%	40%	25%
PRODUCT 11-20	10%	25%	25%	25%
PRODUCT 21-50	30%	25%	25%	30%
PRODUCT 51-100	50%	10%	10%	20%

had access to it. The impact of ABC was to change the view of profitability of all products within LPR. LPR no longer reflected or rewarded indiscriminate volume growth. Enhanced with ABC, LPR now rewards profitable growth or divestment!

Management's risk paid off. In the years since adopting ABC into LPR, every business indicator has become more positive—profits, ROCE, manufacturing expense reduction. The only business indicator with a negative trend is volume, which decreased slightly during this period. A few years ago, this would have been anathema. Our principle metric had been volume growth for such a long time that some still have trouble comprehending the change, and some still manage the business primarily to optimize this metric. But an irrevocable culture change is underway. Profit focus and business simplicity are the themes, and the business results are their tangible manifestations.

It would be incorrect to assume that ABC was the only factor contributing to the positive business results, however. A multitude of other initiatives along with ABC contributed to the results—significantly, the closing of multiple manufacturing facilities with excess capacity. The impact of ABC must

not, however, be underestimated either. In many instances, ABC served as a catalyst for decisions that would not have been made in prior years, including divesting of large volume/unprofitable businesses, reducing product line complexity, focusing on target segments, and so on. This was the genesis of ABC at Mobil.

### Mobil's globalization of ABC

After the end of Mobil's 1996 fiscal year, Chairman Lou Noto announced a corporate-wide strategic goal to become Number 1 (most profitable) in lubricants worldwide. To that end, the World Wide Lubricant Strategy Study (WWLSS) was commissioned with the goal of achieving a 33% increase in after tax profits by the year 2000. The WWLSS recommended three broad strategies—growth, cost reduction, and a stronger competitive position. These strategies, while not in themselves revolutionary, set the tone for Mobil's Lubricant Business to begin developing tactical initiatives that would support these strategies. While growth and cost reduction were strategies that were very familiar to Mobil employees, the third strategy—strengthening competitive position—was not. To achieve this, they needed to leverage Mobil's global nature by identifying and sharing internal best practices used in the business around the world and creating a more efficient global manufacturing and marketing organization.

ABC was one of the key best practices identified by the WWLSS, based on the track record set by the US affiliate, which had already implemented ABC and increased profits, through improved business decision making and a change in culture. WWLSS suggested this best practice be shared throughout the Mobil Lubricant Network with the intent to produce beneficial results similar to those achieved in the US business. Subsequently, a team was chartered to develop a global ABC model template and determine the best method to implement ABC throughout the multiple affiliates. Late in 1996, a team

comprised of members from multiple global regions met in Brussels to develop a global model template and develop an implementation plan with costs/benefits and a timeline. The team also evaluated software. They selected Oros, for several reasons: Mobil's US experience with Oros; the recommendation of A.D. Little Consulting; and the features and performance characteristics of Oros. Two initial pilot sites were chosen—Mobil Korea and Mobil Brazil.

### The ABC pilot implementations

Korea and Brazil were chosen because of the size of their businesses in terms of volume/revenue and complexity. Both affiliates were medium-sized with moderate business dimensional complexity (that is, a manageable number of market segments, customers, and products). The global ABC model template was divided into two parts—Sales & Marketing and Manufacturing. The two parts would be brought together into one model to enable dimensional analysis.

For the initial pilots, the decision was made to implement the manufacturing part only in Korea and Brazil. At that time, ABC was still mainly perceived as a product costing tool and the implementation team concluded that driver quantities would be easier to obtain and validate (or defend) in manufacturing. We hoped to leverage the success of manufacturing ABC to promote the Sales & Marketing portion. In retrospect, this was a good decision.

These pilots were conducted concurrently in late February 1997. Both were one month long, and involved fifteen hour days, conquering language barriers, flying tens of thousand of miles between Sao Paulo and Seoul, and both were hugely successful.

Korea proved to be the most dramatic example of ABC's success. The affiliate was wrestling with a decision to divest a large portion of their business because of its apparent unprofitability. The management information available in Korea—the

traditional cost accounting that applied all manufacturing costs to products volumetrically—suggested that a Marine Lubricant comprising nearly 20% of the total affiliate volume was losing money. In lubricant manufacturing, however, there is tremendous variability in the effort, time, and capital required to manufacture equivalent volumes of various products. Activity-based analysis revealed that the Marine Lubricant was among the simplest and least expensive to manufacture on a unit basis. The existing cost accounting overstated production costs for Marine Lubricants by 300%! This was a real eye-opener as it corroborated the intuition that Marine business was profitable in

Korea. The affiliate had grown in volume in the last few years—mostly in the Marine product segment—and production unit costs had decreased and profits had increased nearly 100% over that period. ABC analysis helped explain these results.

What would have happened to cost/profit trends if the affiliate had grown in the most complex, expensive to manufacture products and segments? A similar relationship between manufacturing complexity and costs was seen in the other pilot as well. The tables *Typical Production Costs-Cumulative* and *Typical Production Costs-Incremental* reveal the distortion which traditional cost accounting introduced in the costs to produce various products.

As the tables show, the high volume, simple to produce products were subsidizing the low volume, complex products. Costs and profits were incorrectly reflected, thus distorting information and leading to incorrect decision making. When confronted with this new data, management asked the obvious next question regarding Sales & Marketing costs. Since all costs, excluding raw material costs, were volumetrically applied, it was reasonable

to theorize that other costs were similarly distorted. What would the results be if costs related to customers and market segments were applied using activity-based methodology?

To answer this question, the initial manufacturing ABC pilots were extended to include Sales & Marketing costs. The results were equally revealing. Two new dimensions—customers and market segments—were added to the existing product dimension. This allowed a multidimensional view of the business with the dimensional hierarchy following the order of market segments, customers, and products. This analysis opened up a Pandora's box at Mobil. Traditionally a marketing-controlled

the common profit value chain). The table *Global Lubricant Business Profit Value Chain* shows the global profit value chain.

Our current ambition is to help the business to understand costs and profits using the value chain and ABC methodology. When we begin using not only cost but also activity information, we will have migrated to activity-based management, the phase beyond activity-based costing. This advanced point is one which we have yet to reach.

**Current implementation progress**

The scope of Mobil's ABC initiative includes forty manufacturing locations and sixty Sales & Marketing affiliates (23 major affiliates and 37 minor affiliates). The project began in February 1997.

By June 1998, ABC had been introduced to 32 manufacturing locations and twenty-two Sales & Marketing affiliates.

By year end 1998 (less than two years after beginning the project), the plan is to have introduced ABC to all forty manufacturing locations and implemented Sales & Marketing ABC at the 23 major affiliates.

By year end 1999, ABC will be implemented at the remaining smaller marketing affiliates in a cluster approach. During this time frame, the focus will shift from implementation to communication and on-going use of ABC.

*Management liked what they saw and wanted ABC to be incorporated into the everyday business decision-making process.*

organization, marketing costs were not clearly identified and were assumed as fixed. By analyzing activities and their contribution to the market segment and customer dimensions, marketing expenses now became visible and identifiable. With visibility came accountability, and this was not necessarily welcome. As can be imagined, this created some resistance to ABC—some of which still exists today. More-over, having activity information regarding Sales & Marketing at Mobil is still relatively new and we are learning about the best ways to use the information.

In the interim, we use the cost information to evaluate the profitability of multiple profit dimensions. To do this, we developed a common global profit value chain using Oros to establish a common business language and develop a baseline for business discussions. (These replace the numbers reconciliation discussions which were prevalent before the adoption of

GLOBAL LUBRICANT BUSINESS PROFIT VALUE CHAIN								
SEGMENT/ CUST/ PRODUCT	RAW MAT COST	MFG. COST	DIST. COST	GROSS MARGIN	SELLING COST	ADV. COST	CORP. OVERHEAD	NET MARGIN
	ABC	ABC	ABC	ABC	ABC	ABC	ABC	

To get to the next level, tremendous challenges must be faced in the manufacturing and marketing affiliates that have begun implementing ABC. A critical period in an ABC implementation occurs during the lull after the initial excitement of the tool's introduction. Once ABC is



introduced, an all too human tendency is to put it aside, because it is an unfamiliar and not yet natural methodology. If this is allowed, ABC becomes a one-time exercise and most of the initial implementation work is wasted. During this vulnerable period, continual focus must be maintained. Critical in this is communicating the steps (and the resources) required to complete the phases of ABC implementation required to make a real and continuing difference which can impact an organization's P&L. See the table *Phases of ABC Implementation*.

ABC is not a one-time, static exercise. It is an evolutionary process which requires effort, time, and patience. Many organizations don't get past Phase 1 of ABC

implementation, primarily because they lack continued focus and resource commitment. Only organizations with long term focus, patience, and senior management commitment are likely to make it to the latter phases of ABC.

At Mobil, there is a normal distribution of affiliates at different phases of ABC implementation. Most affiliates have migrated to Phase 2; some are still mired in Phase 1 with very little progress; and a few have progressed to Phase 3 and are actively using ABC to make everyday business decisions. The principle differences between affiliates at Phase 1 and Phase 3 are clear—local management buy-in and resource commitment.

#### Expected benefits

The expected benefits of ABC can be defined from both local and regional/global perspectives.

#### Local benefits

- Identification of (non) profitable market segments/customers/products.
- Identification of process costs (enable outsource/capital in-

vestment/divest/pricing decisions).

- Reproducible activity-based business scenario building using Oros.
- Inter-department communication/cooperation leading to better (congruent) strategy building "actions yield predicted reactions."

#### Regional/global benefits

- Meaningful benchmarking/best practice sharing between affiliates—now "apples-to-apples comparisons" due to adoption of common ABC methodology and common profitability evaluation.

nal understanding of activity-based concepts. Through analysis of activity drivers, ABM provides insight into why an organizations' dimensions of profitability are profitable (or unprofitable). ABM provides decision makers with a lever to change and improve a business by managing the level of activities. Solid understanding of processes, costs associated with them, and returns from these processes is a precursor to making better business decisions, with positive impact on the bottom line. Without activity analysis, an organization only sees in itself what is captured in the ledger and no deeper, and

hence is not able to fully comprehend its strengths and weaknesses or the reasons for such.

ABM is a long-term goal

at Mobil. We believe that ABC will logically lead to ABM because the changes in business dimension profitability will lead to the reasons why.

Using ABC an organization can build a baseline of its business by getting its core processes under control. Once that line in the sand is drawn, improvement opportunities can be seized and exploited. Moreover, by sustaining ABC, subsequent improvement initiatives can be measured.

The quality of the results from an ABC initiative depend a great deal on people—the decision makers. As with any tool, the skill of the hands on the tool determine whether the results are ordinary or elegant. In the hands of a novice, a Stradivarius is only a violin and the music it makes is not much better than any other violin. A Stradivarius in the hands of a master, however, produces sounds of unmatched quality. The ABC potential is great. To actualize ABC's potential lies with its users.

We firmly believe ABC will help us reach our target of a 33% increase in after tax profits by the year 2000.

*We firmly believe ABC will help us reach our target of a 33% increase in after-tax profits by the year 2000.*

- Global manufacturing network optimization—meaningful product sourcing from the 40 LOBPs with potential capacity reduction.
- Better inter-affiliate communication/cooperation.
- Better regional/global strategy building

Like most corporate initiatives, the desired ultimate outcome of ABC is improved profits. But ABC is only information which can be used to make decisions which can potentially improve the bottom line. It is not a panacea nor a source of magical answers that translate to profits. Without good people who understand both ABC and the business to make good decisions, ABC is only an intellectually diverting accounting exercise. When used correctly, though, it is a powerful tool that highlights business improvement opportunities. ABC has the potential to sharpen and focus the strategic direction of an organization by providing insights into its dimensions of profitability.

Activity-based management (ABM) flows from a deep level of an organization's inter-

Lessons learned

Here are three important lessons learned from this global initiative:

- Manage expectations
- Evaluate local systems information prior to implementation
- Involve people with the correct skill sets to implement and sustain ABC

Managing expectations is critical to keep the ABC momentum going after initial implementation. ABC takes real effort to establish and sustain within an organization. We believe that the cycle of ABC introduction to its evolution to ABM is no less than a two-year proposition, and this involves concerted effort within these two years. This is not to say that information from ABC can't be used before the cycle is complete. On the contrary, there will be many uses of ABC information in the interim. A static point in time ABC analysis of the dimension of profitability of an organization is very useful and can have major strategic implications. Many organizations use ABC to redirect their current strategic focus. But to fully leverage ABC/M and institutionalize it into the business culture of an organization, the ABC/M cycle must be allowed to run its full course. For this to happen, there must be resources within the organization focused on implementing, validating, streamlining, automating, and communicating ABC information. Depending upon the size and culture of an organization, the resources required vary. Within Mobil, managing expectations has been a major challenge. One widespread but unrealistic belief that ABC is a "plug-in-and-go" solution. Continual communication is slowly eroding this belief and resources are aligning to support ABC. A recurring question asked when resources are needed and justification is required, is "What has ABC done for me so far?" When the answer is that ABC is a process that will yield the desired benefits only if the proper resources are assigned to it, the conversation has the potential to become a circular argument very quickly. To

break out of this closed loop, there must be a small "leap of faith." Examples of small victories or successes of ABC both within and outside the organization can help. These examples can also help allay management's impatience to get results. This statement may not be a culturally or organization behaviorally correct but, top management commitment and a top down driving of ABC initiative seems to be the most effective method to implement ABC and ensure its sustainability. This has certainly been the case at Mobil.

Another critical barrier to ABC implementation has been data integrity and availability from information systems. ABC is not and should not be a solution to fix data integrity from poor information systems. ABC is only as good as its inputs. Many affiliates within Mobil have looked to ABC to somehow correct data integrity problems existing within their present information systems. This expectation is incorrect on two accounts. First, ABC is not capable

implementation at Mobil, our motto has been "We'll build the best ABC model with the data available from existing information systems." The pilot implementations taught us that our task was not to re-engineer data resident in systems such as JDE and SAP. This in itself is a substantial task. We realized that we would never meet our objectives and goals if we attempted to do this. In instances which data integrity, availability, or accessibility was a problem, we identified this to the local management and built ABC solutions capable of using the data when it became integral or available. The identification of data problems became an unanticipated outcome of the ABC implementation process. The Mobil ABC model requires fundamental data from information systems—data which must be available independent of ABC. This data is generally scattered and its integrity is not often validated. ABC brings many of these key business data elements into a business profitability model. To balance a profitability model, the



Tom Kang

Tom Kang is the Global Planning/ABC-ABM Support Manager for Mobil Corp. Mr. Kang's current responsibilities include managing the global implementation of ABC to more than 40 affiliates, while developing and applying the common profit value chain. Mr. Kang holds degrees in both Chemistry and Business Administration.

PHASES OF ABC IMPLEMENTATION	
PHASES OF ABC IMPLEMENTATION	P&L IMPACT
PHASE 1: GETTING THE PROCESS UNDER CONTROL (BUILDING A BASELINE OF THE BUSINESS)	
A) SNAPSHOT IMPLEMENTATION OF ABC (PRODUCTS, CUSTOMERS, SEGMENTS)	LOW
B) EVALUATION OF RESULTS	LOW
C) MODEL VALIDATION	LOW
D) DEFINE INTERFACES TO TRANSACTIONAL SYSTEMS (SAP, JDE, ETC.)	LOW
E) DEFINE STANDARD REPORTS	LOW
F) TRAINING OF LOCAL AFFILIATE PERSONNEL IN ABC METHODOLOGY, OROS SOFTWARE	LOW
PHASE 2: AUTOMATION/STANDARDIZATION/ACCESS (BUILDING A RELIABLE/REPRODUCIBLE/USEFUL MODEL)	
A) AUTOMATION OF INTERFACES	MEDIUM
B) AUTOMATION OF STANDARD REPORTS	MEDIUM
C) STANDARDIZATION OF GLOBAL MODELS	MEDIUM
D) ADVANCED TRAINING	MEDIUM
E) LINE ROLL-OUT	MEDIUM
PHASE 3: DECISION MAKING (USING ABC INFORMATION TO IMPROVE THE BOTTOM LINE)	
A) PROFIT FOCUSED MARKETING USING ABC INFORMATION (PROFITABLE SEGMENTS, CUSTOMERS, PRODUCTS)	HIGH
B) COST REDUCTION USING ACTIVITY INFORMATION (VALUE ADDED VS. NON VALUE ADDED ACTIVITIES)	HIGH
C) NETWORK SOURCING OF PRODUCT BASED UPON ABC MANUFACTURING COSTS-NETWORK OPTIMIZATION	HIGH
D) REGIONAL/GLOBAL NETWORK BUILDING AND BENCHMARKING/BEST PRACTICES SHARING ("APPLES TO APPLES")	HIGH
E) MEASUREMENT/CHANGE OF GLOBAL SEGMENT STRATEGY USING ABC INFORMATION	HIGH

of doing this on a sustainable basis: this requires manpower-intensive data manipulation. Second, this doesn't resolve the real problem of data integrity and availability from existing information systems. In every ABC

data elements must match in assumptions and timing and be accurate. This was a persistent problem throughout the Mobil network. An unanticipated outcome of global ABC implementation was the identification of the

quality and usefulness of information systems in each affiliate.

At Mobil, we've learned that ABC is not easy. There are many elements such as management support, good data, and ample resources that are prerequisites to successful implementations. Even if all of the prerequisites are in place, ABC is susceptible to failure if the local implementation team does not have the technical and communication skills required to build an ABC model and effectively communicate the results. Building a reproducible model in Oros requires substantial database management skills, keen knowledge of the business, and good working knowledge of the software. It is critical that local personnel be trained for these skills. Moreover, the group with ownership of ABC must have visibility as well as credibility within the organization. ABC must be communicated to the business. If this is not done, it becomes an isolated tool used only by a select few with access.

The more people with access to ABC information, the better the buy-in and the deeper the ultimate impact ABC can have on an organization. This doesn't mean that everyone should have access to the ABC model. Within the business,

however, people should have access to information which they can impact. An important part of ABC is information collected from field personnel. So that they may provide the best input, they must be trained to understand the impact of their input. The best way to do this is to show them the output. The output will be challenged, but this is a healthy dialogue that can build a channel of communication that will ultimately help in developing a more accurate ABC model with better quality input.

#### **Next steps and conclusion**

The next steps are to continue implementations to new sites, support existing implementations and help them progress to latter stages of ABC, support the global lubricant manufacturing network optimization study, develop ABC best practice networks/databases, continue to train users, share the ABC experience with other business units within Mobil, and tie ABC to a performance measurement system.

One of the exciting next steps we are exploring is using ABC information in our performance measurement system—the balanced scorecard. Within Mobil, the balanced scorecard is “the Bible” and the basis upon

which variable pay (bonuses) is administered.

By using ABC driver information as performance measures and a behavior modification tool, we hope to link ABC to strategy. This will have the effect of allowing businesses to visibly manage the levers (activity drivers) which translate to positive business outcomes—increased competitiveness and profit. If properly incorporated, ABC will be used at the operational, mid-management level, and also at the strategic, senior management level. If we can do this, ABC's place within Mobil will be comfortably assured. If senior management begins to view the strategic initiatives from an activity-based perspective and begins to ask for activity-based information on a regular basis, ABC will transform from being a tool which is viewed as new or innovative, into one that is the norm—a tool which is an essential component to business decision making. When this occurs, the ABC/M life-cycle will have run its course and will be ready to evolve to more sophisticated uses. Some of us at Mobil are working to ensure that we get to this inevitable point before our competitors. We are confident that we will succeed. ♦