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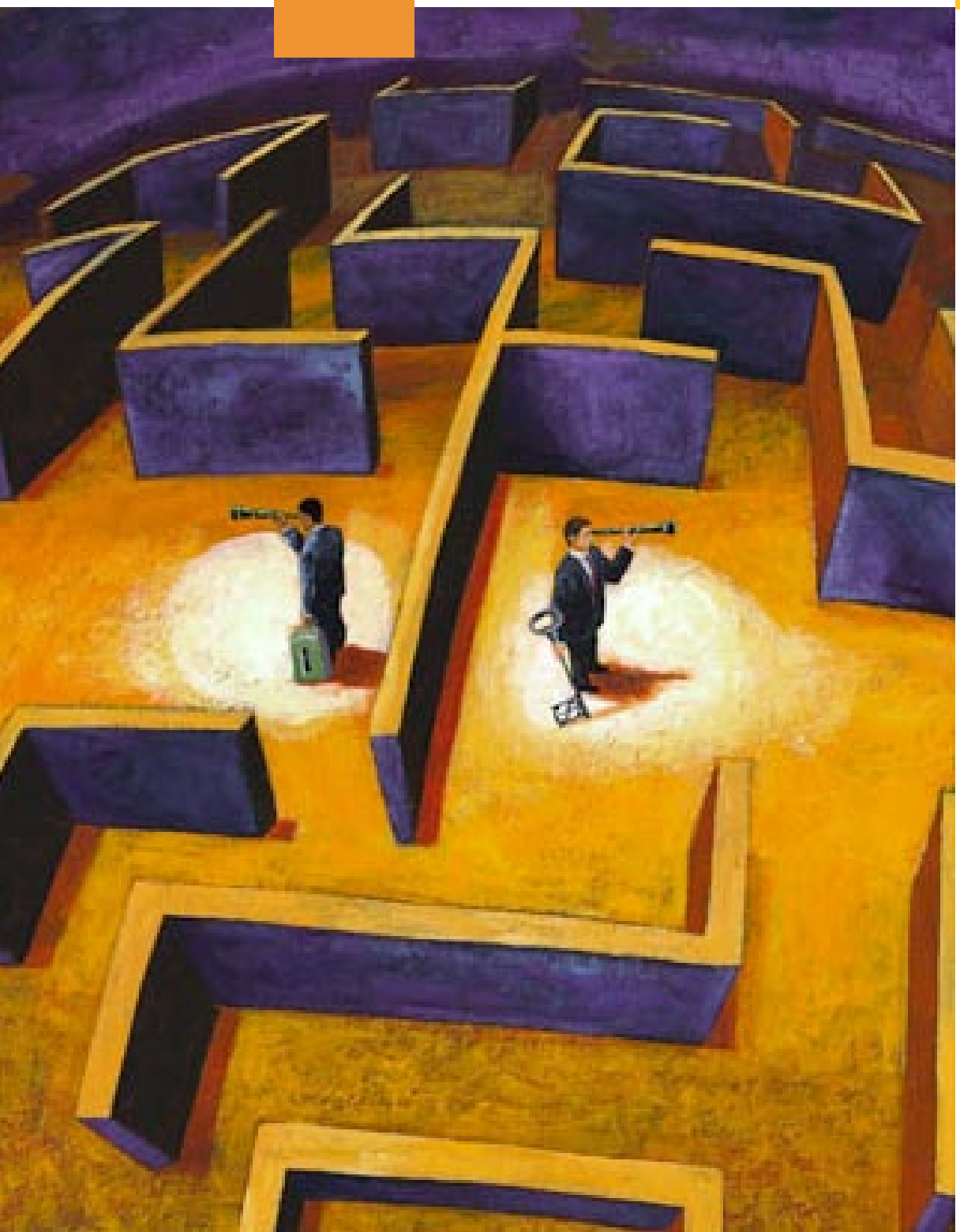

INTEGRATING Marketing and Supply Chain Management TO IMPROVE PROFITABILITY

Despite the increase in industry focus on supply chain management and its integrative philosophy, Fawcett and Magnan found that most of the organizations they studied are only at the early stages of inter-company collaboration[1]. Part of the explanation for this limited activity is that there remains a significant gap in terms of management's ability to integrate across internal functions due to different priorities, measures, objectives, processes, and terminology of operations-focused and customer-facing activities.

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INTEGRATING Marketing and Supply Chain Management TO IMPROVE PROFITABILITY

EXECUTIVE SUMMARY

The customer/product action matrix is a tool that managers can use to better balance supply and demand constraints and identify opportunities. In that context, the matrix enables marketing and operations managers to develop tactical and strategic plans that incorporate both operations and marketing considerations that target where to provide enhanced customer service, and how to prioritize product mix decisions. In particular, populating the customer/product action matrix is a useful exercise that can guide a company in its internal integration efforts, as well as assist in prioritizing collaborative opportunities with external partners. For example, with the growth and interest in sales and operations planning (S&OP), the matrix can assist managers by providing useful information to guide the S&OP decision-making process as well as to aid in scenario planning.

The customer/product action matrix is surprisingly simple to use. Fully-loaded costing techniques, such as activity based costing (ABC), can capture accurate costs and determine customer and stock keeping unit (SKU) profitability. Even if the fully-loaded costing information is not as thorough as it could be, this information is still generally better than the typical, allocated cost information often times used by managers to drive decisions. It is also important to have the ability to regularly reevaluate this information given the ever-changing nature of today's business environment. Most importantly, the matrix process is unbiased, which enables integrative discussions among customer-facing and operations-focused managers. This supports a common prioritization process that can guide cross-functional decision-making, enabling the operations-focused and customer-facing sides to work jointly to develop optimal firm-wide strategies and tactical plans.

While internal integration efforts have occurred to some extent within firms, opportunities for improvement remain by eliminating the dichotomy between operations-focused and customer-facing orientations. Demand side and supply side considerations are often in conflict with each other producing differences in goals and perspectives. Further, if one or the other dominates in decision-making, this can lead to decisions that are optimal functionally but sub-optimal from the standpoint of the overall firm.

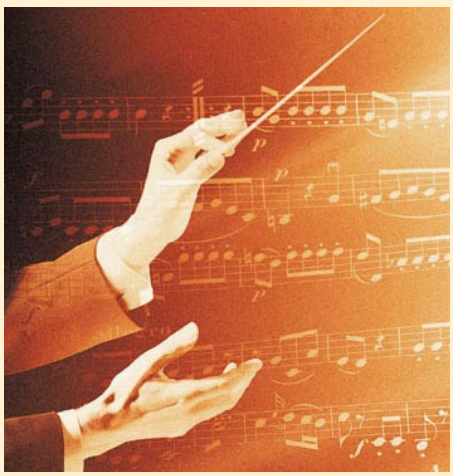
One issue that must be addressed is that not every customer or every SKU should receive the same level of service or attention. There can be as many as four segments of customers and SKUs (extremely profitable, highly profitable, marginally profitable, and unprofitable), and the benefit comes from a combined analysis of both customer and product segments in these four categories (A, B, C, D customers and A, B, C, D products). A cross-reference of customer segments against product segments generates the customer/product action matrix, a tool that can be used to evaluate and balance demand and supply side considerations, and improve overall firm profitability.

This *Explores…* is designed to give you an overview of how a tool such as the customer/product action matrix can be used to quantitatively segment products and customers in order to improve business planning and better integrate the customer-facing and supply chain processes to maximize profits. Further, it discusses case examples of successful application of the matrix, and a step-by-step discussion of the matrix is provided to allow managers to begin using and implementing this approach. In addition, details regarding characteristics that enhance the applicability of the matrix are provided, and different ways that the matrix can be used to enhance strategic level decisions are discussed.

INTRODUCTION

While internal integration efforts have occurred to some extent within firms, opportunities for improvement remain by eliminating the dichotomy between operations-focused and customer-facing orientations. *Demand side* and *supply side* considerations are often in conflict with each other producing differences in goals and perspectives. Further, if one or the other dominates in decision-making, this can lead to decisions that are optimal functionally but sub-optimal from the standpoint of the overall firm. The customer/product action matrix is a tool that can be used by managers to evaluate and balance such demand and supply side considerations. The matrix uses fully loaded costing information to determine customer and product profitability, enabling managers to drive cross-functional decision-making processes.

Even in discussions with managers who are aware that the goal of the matrix is, in part, to increase internal integration, the authors were fascinated by differing responses that stemmed largely from the managers' differing backgrounds: sales and marketing focused managers commented that to them, the matrix represented a purely operational focus for marketing issues, while supply chain and operations managers consistently observed that the matrix was actually focused on marketing, rather than operations. Instead, the authors believe that the matrix provides shared sheet music that can be used to orchestrate demand and supply side considerations.



Dealing with Dream Customers: How Demand Side Decisions Can Create Big Problems

Demand side considerations drive a "customer-facing" focus where the goal is heavily concentrated on achieving responsiveness through tailored service and product offerings that meet individual customer requirements. This process often requires high levels of inventory, SKU proliferation, and flexibility in service and pricing options, and places cost control as a secondary consideration to revenue growth. The following scenario illustrates the problem with a pure customer-facing approach.

Consider the fictitious case of a medium-sized manufacturer of consumer products, whose managers do not examine or understand its supply side costs. Imagine the internal celebration among employees at this manufacturer when it is selected as a supplier by a "big box" retailer after a lengthy negotiation process focused on price and other allowances. Within a short time, this retailer becomes the company's largest customer, as sales go through the roof.

Imagine the surprise when top management sees profits erode dramatically. What happened? This situation is not all that fictitious or unique. It grows from one-dimensional views focused on single measures or perspectives such as sales without looking at profit and customer profitability without looking at product profitability. The world is littered with disaster stories coming from the scenario of the dream customer unintentionally damaging, perhaps even destroying, the optimistic, but one-sided supplier.

Lean Distribution: How Supply Side Decisions Can Create Big Problems

Similarly, supply side considerations can drive an inappropriate "operations-focused" approach where the goal is too heavily concentrated on achieving efficiencies through cost-reduction and product/process standardization. Minimizing costs, while establishing consistent and predictable production plans, becomes the goal for operations-focused managers. This goal places customer service as secondary to cost control. The following scenario illustrates the problem with a pure operation-focused approach.

Consider the fictitious case of a distributor whose managers do not understand the role response time plays as part of the customer value equation. Imagine this distributor, faced with increased competition, deciding it must reduce prices and thus costs to motivate retail customers to not take their business elsewhere. One of the obvious cost reduction options is to reduce its distribution network from, say, 20 distribution centers to a smaller network of distribution centers. This solution would enable the distributor to consolidate inventory and reduce safety stock due to reduced demand variance across the network. In addition, this move would significantly reduce warehousing costs.

Imagine the surprise when top management sees an increase in customer complaints and a loss of customers. What happened? This distributor failed to consider the implications of the change in its service that would result from the smaller distribution network (e.g., longer lead-times, decreased ability to be responsive). The world is littered with disaster stories coming from the cost-cutting efforts of companies without the full consideration of the impact on customer service. What would have been the result if Henry Ford had required his company to stay committed to the "you can have any color you want as long as it is black" philosophy?

Given these one-dimensional scenarios, it is no wonder that firms have not always managed to integrate demand and supply considerations. The task of balancing trade-offs is difficult because of the various elements: cost-to-provide versus cost-to-serve, efficiency versus effectiveness, long-term strategic plans versus short-term production constraints, functional measures and rewards versus process-oriented goals.

Seeing the Light at a Snack Food Company

The customer/product action matrix illustrates the importance of a balanced view. Take the example of a snack foods manufacturer that looked at customer relationships and operational performance. Instead of focusing just on perceived, important customers or on ways to cut costs from the operation, the manufacturer used the matrix to rank both customers and SKUs according to their total profit contribution. This process allowed important customers and products to be recognized, enabling customer service and product mix decisions to be redirected to focus on growth opportunities that enhance profit. The new metrics for marketing, linked to operations, gave the company discipline and control across sales and marketing as well as operations. An important part of the effort was the immediate identification of opportunities for improvement produced by examining the cost layers which pinpointed not just the obvious winners, but also the hidden losers.

Sales and Operations Planning: One Method for Demand/Supply Integration

Recently, more attention has been placed on S&OP as a method of creating internal integration across this "divide." S&OP is "the set of business processes and technologies that enable an enterprise to respond effectively to demand and supply variability with insight into the optimal market deployment and most profitable supply chain mix."[2] Inputs into the S&OP process include the sales forecast (customer-facing side) and the capacity plan (operations-focused side), while outputs include the operational plan and the demand plan.[3] This process enables firms to execute business strategies and plans that have been prioritized and evaluated both by their opportunity and their associated risks. A recent study has found a link between S&OP and sales growth, profitability, and greater customer satisfaction; however, S&OP in the future must do more to enable firms to consider various scenarios in order to "execute the most profitable strategy."[4]

The general S&OP process can vary by firm, but generally operates on a monthly basis with a demand plan review and a supply plan review. Differences in these two plans are discussed and reconciled, and alternative plans may be created. A review of the combined plan with associated financial analysis is then conducted by senior management. The implementation plan is created and then acted upon. Metrics are tracked to determine the success of the plan. The process is an interactive one in that it creates a constant feedback loop between analysis, input, action, and measurement. The key to the process is the development of a "one number" plan that is agreed to by both the customer-facing and operations-focused sides of a firm, and that is also approved and supported by the executive management team.

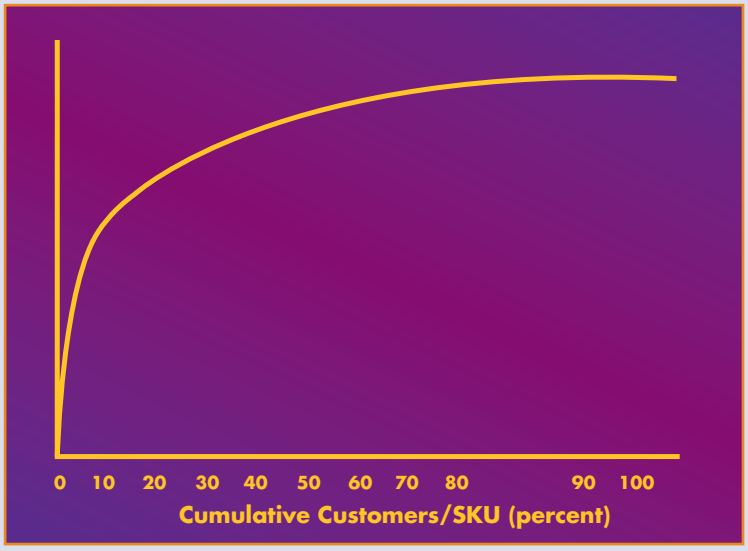
The customer/product action matrix can be used in various situations, but certainly can aid a firm in its S&OP process. One reason that this matrix is useful is that it focuses on providing the decision-makers with the right information. We all have seen the pitfalls of garbage in, garbage out (GIGO). If the operations-focused and customer-facing sides of the firm are not using the proper information, the resulting decisions will be flawed. What drives the customer/product action matrix is costing data that categorizes products and customers by their actual profit contribution, which assists in prioritizing decisions that lead to profit enhancing opportunities. Additionally, the next wave in S&OP (as well as other strategic planning methods) is to incorporate scenario planning tools so that managers can conduct "what if" analysis and determine the optimal outcome based on changing environmental conditions.

THE CUSTOMER/PRODUCT MATRIX

While managers consistently measure sales and,[5] at least informally, rank sales from largest to smallest according to customer or SKU, management may not base its decisions upon this data or rankings. Further, managers rarely base this analysis on profit rather than sales. They may intuitively recognize the most important customers, as well as the problem customers, but they do not necessarily have the data to confirm the intuitions and make data-driven decisions. Figure 1 shows the cumulative sales of a typical consumer products manufacturer by customer and by SKU. It is clear that a very small proportion of customers or products contribute a very large proportion of revenues.

The typical Pareto principle: "Twenty percent of the customers give us 80% of our sales" or "Twenty percent of our SKUs give us 80% of our sales" is reality for nearly every company. In most cases, the numbers are even more remarkable: a "super Pareto" scenario can exist where perhaps only a handful of customers or SKUs (e.g., four or five) represent 20-30% of profit all on their own. Here each customer is so important that it becomes its own market segment. Firms must be able to look customer by customer and product by product to distinguish the level of importance each one (and their combinations) has to the firm's bottom line. The end result of this analysis is an understanding of customers and products based on profitability.

Figure 1—Typical Cumulative Sales by Customer/SKU

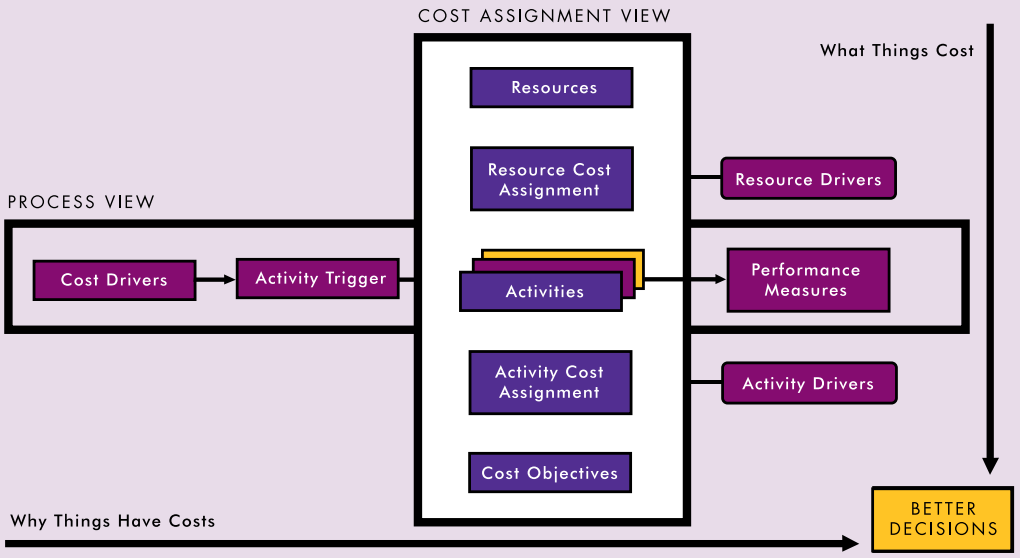


For managers to move beyond intuition, customer and product profitability must be formally ranked. This activity puts managers in a better position to develop customer and product strategies as well as to understand cost-to-serve trade-offs. This is important as there is often a difference between customer and product contribution to sales and their contribution to profit.[6] A customer who contributes significantly to sales may be highly demanding in terms of service and special requirements and, thus, not especially profitable. On the other hand, a customer that has mid-level sales contribution can be extremely profitable.

Understanding Profit Contribution

The customer/product action matrix is a tool that is useful for discussions focused on building consensus within a firm. It not only establishes customer/product priorities by profit contribution, but also supports discussions surrounding the development of a common goal that incorporates the firm's operations-focused and customer-facing considerations. The first step to establishing the matrix is to develop a simple, but accurate, cost model based on key activities, processes, and cost drivers as shown in Figure 2. The model, known as a "fully-loaded" cost model, determines the cost of particular products as well as the cost of particular customers. In other words, cumulative dollar profit by customer and cumulative dollar profit by product are developed (not profit percentage)

Figure 2—Fully Loaded Costing Overview



While the implications of using "fully loaded costs" are critical to enhancing management decision making, true fully loaded costs are not used nearly enough in business. Simply defined, a fully loaded cost is one that attributes very realistic direct and indirect costs to a specific customer, SKU, or other profit or cost center. The most popular approach to developing fully loaded cost is "activity based costing," which has had bouts of popularity and unpopularity over the years. Regardless, fully loaded cost is the only appropriate measure of true cost, especially in those businesses that have relatively high proportions of variable cost.

Why does the level of variable cost matter so much? Well, if a large percent of the firm's costs are variable, then, first and foremost, it is easier to allocate costs by customer/SKU. As such, it is easier to determine what the specific contribution is by customer and by product. Once contribution is understood, then changes made to the customer/product mix can have a dramatic impact on costs. On the flip side, if a large percent of a firm's costs are fixed, then product rationalization does not reduce the fixed costs: fixed costs (or "sunk" costs) remain despite the level of production. For instance, a third party warehouse operator knows the space allocated in the warehouse by customer, so it is easy to establish a per customer "cost" to estimate the impact of eliminating or adding customers. Contrast that with a steel mill that faces high costs associated with its manufacturing equipment investment. That equipment investment exists whether the mill runs at or below capacity.

Historically, the basis for most costs is "standard cost," which is computed based on direct costs, with simple proportional overlays of indirect costs. For most companies, standard costs are sufficient for broad planning purposes, but they lack the sensitivity to the special circumstances that generate costs and affect profit for individual or groups of products or unique or clusters of customers. Standard costs cannot adequately differentiate across customers' service requirements. Consider a customer that has high service needs on an equipment installation (e.g., a new customer that needs training) versus an existing customer that is upgrading equipment (e.g., no training is needed or short training on "improvements" plus the installation itself could be easier as the working conditions—electrical, space, etc—were already mapped out during the first installation). Alternatively, consider a customer that has a history of high returns of products versus a customer that never returns products, or a customer that requires a large number of product samples or test materials. On the supply side, some products can be produced with minimal scrap and some products generate a great deal of scrap, which may not be accounted for under standard costing measures.

Since any supply chain involves flows of materials and information, a means to assess total costs and performance across those flows is critical. Despite this, traditional standard costing systems group costs into aggregated categories that hamper the identification and understanding of cost trade-offs and their impact on performance.[7] An accurate, fully loaded costing system is one possible tool that can further define and organize data to allow managers to make process-oriented decisions.[8] The value of ABC, for example, as shown in Figure 2, is linking the performance of specific activities to the resources they consume.[9]

When managers need to make an important strategic decision, such as geographic expansion, new product development, acquisition, targeted promotional programs, or introductions of new service packages, the decision process inevitably includes fully loaded costing and the resulting profit effects. For that reason, when a company is in the midst of a key decision process, it is often a perfect opportunity to test the value of fully loaded costing. Some companies embrace ABC or an alternative fully loaded costing method only when they have a major strategic initiative to consider. In other words, they only want to go through the "agony" of ABC once and then operate from that collected data until the next major strategic initiative needs to be evaluated years down the road. This "quick and dirty" method is limited in value, because costs are dynamic and change frequently (e.g., special promotional packaging, a customer's special service request, material cost fluctuations, seasonality).

Several of the companies whose examples are featured in this *Explores…* started their customer/product action matrix process in the midst of a major decision analysis, initially using one-time fully loaded costing to support the decision effort. Only after recognizing the superior value of fully loaded costing did these companies move to adopt the costing process on an ongoing basis. From fully loaded cost, an extremely accurate profit measure is generated, so that the profit of individual customers and SKUs can be monitored, as can the specific profit generated by an individual SKU sold to an individual customer. Further, the cost information can be updated whenever major cost changes are incurred.

When measuring cumulative profit by customer and by product/SKU, the results follow the Pareto principle in that a small number of customers and/or products generate a large portion of profitability. However, the relationships between SKU and customer profitability are direct and obvious. Customers that have the highest total dollar profitability (not percent of profit) tend to buy SKUs that are also profitable. After all, customer profitability is the direct result of SKU profitability, plus customer management/service costs (e.g., sales support, receivables, returns and rebates, special requests, etc…).

Companies usually manage with a focus either on "assumed profitable" customers or "assumed profitable" products, but rarely with a balanced and highly accurate view of both. Additionally, sales, rather than profit, drives the attention and emphasis of many companies. This lack of a balanced view, decisions based on less than accurate costing information, and emphasis on sales may be sufficient when all is going well or in times of high demand. But this view can become precarious and produce dangerous results when considered under the backdrop of rising prices, global competition, rising shareholder expectations, and other challenges present in most industries today. Using the customer/product action matrix, developed from an accurate costing approach, prevents these problems.

How Can Customers and Products be Differentiated?

Once the cost data is provided for both customers and SKUs, managers can categorize the results generally into four ranked segments: extremely profitable, highly profitable, marginally profitable, and unprofitable. Based on the cost information, the four segments are relatively straightforward to determine, because when customer and product profitability are ranked (on a spreadsheet, for example), clear gaps or large drops in profitability will generally appear. A manager can assign customer and product segments based on where these gaps occur.

In virtually every circumstance, an extremely small number of customers and products (as shown in Figure 1) are highly profitable (e.g., maybe as few as five or ten each). As a group, this small "franchise" segment may contribute between 20-60% of profit. The second and larger segment, "bread and butter" customers/SKUs usually make up 15-40% of profit, while the third and often largest segment, "break-even" customers/SKUs only generate a small amount of profit (e.g., 20-40% of customers/SKUs generating only 0-20% of profit). The final segment, "dogs," represent customers/SKUs whose total profit contribution for the year is negative. Often, "dogs" reduce a company's profit by 5-25%.

Customer/Product Differentiation

When focusing on cumulative profits by customer, most cases have shown an exceptionally small group of customers (often as few as two or three), account for an extremely high proportion of profitability generally ranging from 20% to 60%. These A-level customers are so important that service to all of them should be perfect.

The next group of customers (signified as B-level) is also significant, as they are considered highly profitable. However, in this category there are far more players, and each customer contributes relatively less to overall profitability. Managers should identify which B customers could potentially become A customers, and form strategic plans to encourage this movement. Service levels to all B customers should be high and measured based on the customers' criteria – segmented where possible.

The next category, C customers, is marginally profitable. As such, these customers are nice to have, but do not warrant special attention. These customers may not be highly profitable, but their sales may take up excess production capacity thereby increasing economies of scale. Standard service packages or templates should be designed for C customers. Deviations from standard packages should have identifiable added costs that would be charged to the customer.

D customers are often unprofitable and can reduce a company's overall profitability by 20 to 50 percentage points. It is not generally in our mindset to turn away customers even when we recognize they are not profitable. When faced with this information, managers often want to keep serving D customers in the hopes that they may grow to be more profitable customers or, if they were at one time large customers, that they can rebuild the previous relationship. These are valid reasons for keeping some D customers—but often not for the long term. Loss-generating customers should be managed on a transactional basis, where each specific transaction request is examined to determine if it is profitable. Only those profitable transactions should be allowed.

The benefit of this approach is to provide managers with information to make better cost/service decisions that integrate operations-focused and customer-facing considerations. If there is a strategic reason to serve D customers, managers can at least understand and agree on this action while setting boundaries to minimize profit loss (e.g., limit the time to wait for a D customer to develop into a C customer). This approach is also not meant to be a way to justify substandard customer service. Rather, it is a way to ensure strategically planned service levels are actually achieved. In fact, when this approach is used, customer service can actually improve for all customers, including D level customers.

When cumulative profits by products/SKUs are analyzed, they also tend to fall into the four categories described for customers: extremely profitable, highly profitable, marginally profitable, and unprofitable. For ease of explanation, products will be identified as 1, 2, 3, and 4 (to differentiate them from the categories used for customers). The management strategies of the four categories of SKUs are comparable to the customer-based categories described above.

Figure 3—Customer/Product Action Matrix

CUSTOMER CATEGORY	PRODUCT CATEGORY 1	2	3	4
A	Perfection/ Never Miss	Regular/ Priority Schedule	Reserve Capacity/ Inventory	Tough It Out/ Outsource
B	As Promised	Regular Schedule	Schedule Capacity/ Inventory	Redirect/ Outsource
C	If Available/If Scheduled	If Available	Only if Capacity or Inventory are Available	Only if Transaction is Profitable
D	Respond to Transaction	If no Conflict	Only if Inventory is Available/Cull Candidate	Cull

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The four categories of customers (A, B, C, D) when cross-referenced against the four categories of SKUs (1, 2, 3, 4) generates the customer/product action matrix as shown in Figure 3. Each of the sixteen categories has an appropriate approach to managing each subgroup. For more details on customer/product differentiation see sidebar excerpt from Sabath and Whipple (2004).

Key Takeaway on Differentiation by Profitability

From this discussion, it is quite clear that not every customer or every SKU should receive the same level of service or attention. This is not necessarily a new concept, although it flies in the face of convention. ABC classification of customers and products has been described in various textbooks and articles as a method for managing inventory. However, what these previous discussions often neglect is the fact that there can be four (not three) segments of customers and SKUs that exist (extremely profitable, highly profitable, marginally profitable, and unprofitable) and that the real benefit comes from a combined analysis of both customer and product profitability. More importantly, the matrix, shown in Figure 3, provides the quantitative analysis to enable consensus to develop across operations-focused and customer-facing managers, supporting internal integrative efforts. From a quick glance at Figure 3, it is apparent that "A" customers, regardless of their SKU mix, deserve impeccable service. Even when an "A" customer needs a loss SKU, response should be perfect. On the other hand, there is no reason to justify selling a "4" product (unprofitable) to a "D" customer (unprofitable) as it is a lose-lose proposition. In the case where a "D" customer wants to buy a "3" or "4" item, then it calls for closer managerial attention to determine if the transaction is profitable or not.

The process of cross-referencing customer and SKU profitability provides the most important insight, because it encourages decision-making across the operations-focused and customer-facing sides of an organization. Further, it provides a common measurement tool (profitability) that drives the cross-functional integration and results in the appropriate customer/product portfolio across the spectrum of A-D level customers and 1-4 level products.

Appropriate actions vary from "perfect service" in the upper left cell to "cull" in the lower right. Certainly, the most attention should be paid to the "sweet spot" of categories A-1 through B-2, where low cost and perfect response capabilities can deliver astonishing results in these four extremely profitable cells. In many companies, these cells account for a large portion of sales (50% to 75%) and generally close to 100% of total profits. While "D" and "4" categories pose a challenge, it is important to recognize that D-4 transactions generally result in a loss.

It is clear that any movement from the bottom right toward the top left, in Figure 3, is beneficial. A variety of activities—either operations-focused or customer-facing—can encourage this movement. Improvements in information sharing about future plans (e.g., new product development, promotion, major opportunity) can reduce the cost to serve by avoiding traditional surprises. Newer collaborative approaches can also affect cost–to-serve and cost-to-produce and could move a relationship toward the upper left corner of the matrix. Any actions that improve efficiency in the operating processes (e.g., product line efficiency, staggered sales incentives that coincide with production lows, improved scheduling) are also important. Even a simple action, such as a price change to a "4" item, can have a profound impact on total profit.

This matrix is not a "one-time only" tool, however. When significant costs change by customer (e.g., redesigned ordering/delivery processes) or by product (e.g., production process innovation or revised pricing), the matrix must be updated to reflect accurate costing information. This is true over the life of the customer relationship and the life of the product.

RESULTS: CASE EXAMPLES USING THE MATRIX

This section provides examples based on working with various companies that have used the customer/product action matrix. These examples provide the situations these companies faced, how the matrix was implemented, and the corresponding results of this implementation. In addition, scenario planning opportunities are discussed. The examples are broad and highlight the use of the matrix in various ranges of sophisticated analysis.

Light Commercial Air Conditioning

Consider an example of a manufacturer of light commercial air conditioning units, the type used for individual stores in strip shopping centers and standalone buildings. The company was facing competition and considered various scenarios. One scenario was network optimization: should the current network of 16 distribution centers (DCs) be changed? Fewer DCs would obviously reduce operating costs, while more DCs would provide better service.

After reviewing the demand pattern for light commercial air conditioners, it was determined that 85% of the units were sold to the replacement market. Replacement air conditioners are nearly all sold on the hottest days of the year because air conditioners fail when they are operating, not when they are idle. A retailer whose air conditioner has broken down is at risk to lose business until a replacement is operating in the store. For this reason, availability of a suitable model that can be installed immediately drives the demand for replacements, and price is a far lower criterion. Changes that would reduce service (e.g., increase lead time, reduce responsiveness) would result in a lost sale if there were a suitable alternative available.

Further, the manufacturer realized that many of its products were variations on just a few "base" models, but with special adjustments to accommodate alternative airflow linkages to the venting in place at various customer locations. Trying to forecast these custom-

ized linkage requirements was virtually impossible, resulting in the need for significant field inventory—too much inventory on many items that ended up becoming obsolete and too little inventory on other items resulting in lost sales. A stock-out in this firm's business meant more than just a lost sale. Rather, it meant a "permanently" lost customer since air conditioners are generally not replaced frequently (not to mention the loss of ancillary business from service parts, etc…).

The answer was two-fold: postponement and network redesign. First, the manufacturer recognized that the large number of models currently in the product line was unruly to manage. As such, management committed to a much smaller product line of high volume and more flexible "base" models. These models could be modified in the field by sheet-metal specialists to accommodate individual customer air handling requirements. Critical to this strategy was the development of new, closer relationships with sheet metal workers near key customer markets.

Second, the manufacturer used a location model that was optimized based on maximum profit. It was determined that the number of distribution nodes should actually increase in order to grow revenues and hence profit by providing exceptionally responsive, local service. With the smaller product line, however, not all products needed to be carried in all locations. The new solution involved changing from 16 private full-line warehouses to a mix of 60 private and public warehouses. The public warehouses provided seasonal flexibility. Two locations carried the full product line, and the remaining locations carried only a small number of units which, with sheet metal modifications, could accommodate 98% of replacement product demand. This new strategy increased supply-chain costs by 24%, but doubled total profit, while increasing market share by 20 points. Managing for profitability, based upon understanding customers and products, provided substantial benefit over the traditional, one-dimensional management focus.

Produce Manufacturer

A manufacturer of fresh, packed fruits and vegetables introduced activity based costing into its processes. With the advent of total costing, analyses could be conducted and decisions could be made looking at the fully loaded profit of each customer and each SKU, and more importantly, the combinations among them. Using the matrix, critical decisions could be made which immediately improved revenues, profitability, and customer relationships.

With a better understanding of customer profiles, several outcomes resulted from the analysis. In one case, a customer located in Tennessee consistently bought large volumes of product at a reasonable markup and paid its bills promptly—it was not a customer that the sales group wanted to lose. Nonetheless, the firm found that this relationship generated a loss to the company while similar-sized customers in other regions were profitable. This prompted the company to conduct further analysis with respect to this customer. It was quickly recognized that this customer was the only one of any significance within its geographic area. Hence, it was absorbing exceptionally high salesmen transportation costs, shipping costs, etc. The solution became targeting and developing new customers in the same area. The plan worked, and the company was able to drastically reduce the cost to serve the original customer while adding new, profitable customers. Eventually, the original customer became one of the firm's top five customers, ranked by profitability.

Additionally, a customer whose profitability ranked near the bottom consistently asked for, and was always given, special discounted pricing. After looking at fully loaded profitability, the decision was made to eliminate special pricing incentives in order to ensure that prices better reflected the actual costs associated with delivering these products. The situation was explained to the customer, who accepted the new policy, but was surprised the supplier had previously agreed to incentives it could not really afford to offer.

In another scenario, a high-loss customer was flagged because it lost money each year. It became obvious, however, that that particular customer should continue receiving excellent service and attention from the manufacturer: it was the development kitchen of the manufacturer's largest and most profitable customer. Maintaining a relationship with the development kitchen was an extremely good strategy, allowing the sales and marketing team to demonstrate its commitment to the ongoing relationship with the larger customer of which it was a part. This illustrates that firms may not eliminate all D-level customers or 4-level products, but rather, strategic choices should be allowed that make sense based on each customer/product scenario.

Food Manufacturer

Another food manufacturer with highly perishable products responded to optimistic long-term forecasts by purchasing high volume production equipment. Within a year, the equipment was running smoothly, but freshness problems pervaded in-store inventories: more than 15% of product at the retail level was past its freshness date. The new high-speed equipment produced the most popular flavors at a rate which matched consumption. Unfortunately, because changeovers were extremely time consuming, the new equipment was not well-suited to the lower demand flavors, and the long cycle times between production of those flavors led to extended time in process and on the shelf. What went wrong? Optimistic sales forecasts led to a blind focus on efficiency, rather than a pragmatic balance between high-volume (manufacturing driven) and low-volume (customer need driven) SKUs.

Luckily, an effective solution came from understanding the needs and costs of alternative manufacturing models, coupled with a closer sensitivity to working relationships with retailers.

First, the old, lower volume production equipment was reinstalled in a lower volume, quick changeover manufacturing plant, to be used for the lower volume SKUs. As such, two production models were created: one for high volume items and one for low volume items that allowed for more cost-efficient changeovers. The result was that capacity for the high volume items increased! In other words, unmatched demand existed in the marketplace for high-volume products, and that demand could now be filled due to extra capacity (i.e., capacity no longer tied to low volume SKUs and long product changeovers). Low volume products, which sales management deemed still important to the product mix, continued to be provided but with no freshness problems from longer production runs.

Additionally, the manufacturer realized that when production was greater than demand, it needed to move product quickly before freshness became an issue. Taking less profit on these "overruns" was more important and less costly than taking back outdated product from the store shelf. The manufacturer considered which of its "A" customers had the flexibility to develop quick promotional programs and lean supply chains, and thus, could quickly move "overrun" product through their stores with special promotions to immediately reduce inventory. The result was not only a reduction in "out-of-date" inventory, but also an increase in demand in certain markets. Further, closer relationships with key retailers created a win-win opportunity.

Building Systems Distributor

A distributor of building systems components had a long track record of consistent, though not exciting, growth. Each time a new competitor entered the market, the distributor's market share eroded and, yet the company remained a market leader. Customer turnover was relatively low, but it was not low enough to be a competitive advantage. Service quality was exceptional, but it did not appear that customers were willing to pay for it.

Senior management expressed its desire to clearly differentiate the company. The data from the matrix allowed straightforward, practical, and highly achievable solutions to emerge. To everyone's surprise, the solutions were much easier to implement than prior, elaborate sales incentive programs or price/promotional discount solutions. They relied on the matrix to identify where to build relationships with targeted customers and to identify what precuts to focus on.

Customers were ranked according to their total profit contribution during the previous 12 months. The top five customers (franchise or A customers) contributed 55% of the company's profit. The strategy for these customers was perfection—never a disappointment, never a missed shipment, never an unanswered inquiry, never anything that could be disruptive. The target service level was 100% since the loss of one of these customers could reduce profit by more than 10%. These top customers also bought primarily high profit SKUs, which should come as no surprise since that's how they became high profit contributors. However, even for low profit or loss items, the service had to be perfect for the franchise customers.

The next 25 customers (bread-and-butter or B customers) contributed 40% of the company's profit. Finding the next franchise customer within this group could make the company's numbers for the next three years. Careful targeting was critical as assuming that every B customer could move up to the A category would significantly waste resources. Finally, maintaining solid relationships with these customers was critical, though the means had to be more general, and the targets a bit lower than perfect.

Among the next 200 customers (breakeven or C customers) there were likely to be a few that would move up to the bread-and-butter category, but for the most part, many of these customers would remain marginal. The challenge to customer-facing employees was to identify those customers that could have growth potential so that these relationships could be monitored as they progressed, and special service could be offered to entice movement to a higher customer level. Once again, dramatically increasing blanket service to this segment would be extremely costly, while providing little benefit.

Within the final group of customers (dogs or D customers) were those whose entire relationship yielded a loss to the company. The new set of rules for these customers included accepting only profitable orders, and serving them only after higher priority customers were served. Further, these customers continued to be monitored, with price adjustments made if needed to reflect the true cost of service. The new set of rules may appear strict, but the most common response from these customers was: "I can't believe it took you this long to act."

What happened? As a result of implementing the segmented service policy, the distributor grew revenues by 20% and profit by 35% within one year. Often, managers worry that the matrix will be used to justify sub-par service levels. On the contrary, this example illustrates the ability for the matrix to pinpoint where service levels must increase (A-level customers) to protect long-term profitability as well as where high service levels may not be warranted (D-level customers).

Table 1 illustrates how service (measured here by fill rate) can follow a stratified approach. In the table, the new service levels focus predominantly on the upper left-hand corner in order to improve service to "franchise" and "bread-and-butter" customers, while high service levels for D-level customers and 4-level products in the lower right-hand corner are not warranted. The overall level of service actually improves by a slight degree between the old and the new plans. However, the service to the most important customers across the most important products increases substantially. More importantly, top customers and top products do not subsidize services for "dogs." Is this approach fair? Absolutely, because any product or customer can move to the upper left-hand corner, and it actually is more fair than the old service plan since the top customers and the top products have the service that they have earned.

Table 1—Multi-Echelon Approach to Service Levels

% OF PROFIT

	A	B	C	D	
1	40%	18%	9%	-2%	65%
2	18%	11%	8%	-4%	33%
3	9%	8%	4%	-4%	17%
4	-2%	-4%	-4%	-5%	-15%
	65%	33%	17%	-15%	100%

OLD SERVICE LEVELS

	A	B	C	D	
1	95%	18%	9%	-2%	
2	95%	11%	8%	-4%	
3	95%	8%	4%	-4%	
4	-95%	-4%	-4%	-5%	
					95%

% OF SALES

	A	B	C	D	
1	38%	13%	5%	1%	57%
2	15%	7%	3%	1%	26%
3	6%	4%	2%	1%	13%
4	1%	1%	1%	1%	4%
	60%	25%	11%	4%	100%

NEW SERVICE LEVELS

	A	B	C	D	
1	100%	97%	95%	80%	99%
2	99%	93%	92%	80%	96%
3	97%	90%	90%	75%	93%
4	95%	96%	80%	0%	66%
	99%	33%	92%	59%	96%

CHARACTERISTICS THAT ENABLE THE MATRIX TO OFFER GREATER BENEFITS

The matrix can be used in multiple industries, across various products, and with varying customers. The matrix can also be used by companies at different levels in the supply chain (e.g., manufacturers, service suppliers, distributors/wholesalers, and retailers). However, there are some characteristics that allow the customer/product action matrix to offer greater potential benefits. These characteristics relate to products, customers, and firm-level culture and organization structure and are examined below.

Product Characteristics

The matrix is more applicable when either the product or the product/service package can be customized. One of the main reasons for this is that the ability to differentiate the product across the four levels becomes easier to accomplish when products are customized or differentiated. Highly standardized or commodity products are not differentiated by their nature and, thus, are less applicable to division across the four levels of product profitability. Further, the customization reflects additional costs (e.g., packaging, delivery requirements, engineering design, etc…) that may not be captured under a standard costing mechanism as these costs are generally absorbed by all products through standard allocation methods.

Customer Characteristics

When customers are highly consolidated and/or when demand is highly concentrated (e.g., geographic regions, industry segments) the matrix is highly applicable. Highly consolidated customers or highly concentrated demand often provide high volume levels, but without analysis based on profitability that volume may in fact be unprofitable without the company knowing it. The process described here helps to focus the organization on profit, rather than allowing infatuation with unprofitable volume to take root. We discussed earlier in this *Explores…* the fallacy of a dream customer that may provide high volume sales but, due to various factors, may not be as profitable as once dreamed. Further, as illustrated in the produce manufacturer example, a very good customer was almost eliminated because managers assumed low profitability due to the customer's characteristics when in reality, low profitability existed because

that customer was in a geographic region where demand was not highly concentrated. By refocusing efforts on increasing demand in that geographic region, the true importance of this customer was recognized. Additionally, concentrated demand areas tend to cover (or clarify) fixed costs creating accurate customer/SKU profit calculations.

The matrix also works well when managers examine current customer relationships in order to look for additional opportunities. The food manufacturer example pinpointed ways to move overstock product such that its total costs (e.g., not just the cost of manufacturing the product, but also the cost of taking outdated product back) were reduced, while its relationship with key customers was improved by coordinated promotions and advanced information.

Another example of how key relationships can assist in this process occurs when firms consider what to do when A- level customers buy 4-level products. When this situation arises, firms have to choose between continuing to sell an unprofitable product and discontinuing the product altogether. By discussing the situation with key customers, the firm can assess how important those 4-level products are to top customers. What they may find is that the customer is unaware of complementary products that are actually more profitable. Alternatively, the firm may find that the 4-level products, while not purchased in high volumes, are very important to particular customers. Either of these scenarios leads the firm to make better decisions, because they have more accurate information. In one case the firm may be able to remove a product from its line without causing damage to its core customer base. In another case, the firm may use a different strategy (e.g., outsourcing) in order to satisfy its core customer base.

Individual Firm Characteristics

Many of the characteristics that allow the matrix to work well are related to the culture and organizational structure of the individual firm. Perhaps, one of the most important firm level characteristics for successfully utilizing the matrix is an integrated culture that enables respectful internal communication to occur between the operations-focused side of the firm and the customer-facing side of the firm. While we maintain that the matrix is a good tool for instilling more cross-functional discussions, it is certainly easier to implement the matrix when those two sides already communicate and get along. As such, if a firm is already utilizing an internally integrative method, such as sales and operations planning (S&OP), the matrix will assist managers in making better decisions, because it provides the tools to truly analyze those decisions.

Further, if the firm operates with a reward structure that supports cross-functional collaboration, the matrix can also be more valuable. Firms that reward on a cross-functional team basis (e.g., a team incorporating individuals from sales, customer service, manufacturing, and logistics) can offer greater encouragement to utilize the matrix in order to make better decisions that balance demand and supply considerations. Contrast this to the situation where sales representatives are given traditional volume-based incentives. Volume-based incentives encourage sales representatives to focus on selling what products are easy to move, not necessarily what products are profitable.

In addition to a collaborative internal culture, high quality financial information greatly improves the matrix's value. Implicit in this statement is that the financial information allows for fully loaded costs to be extracted on a customer as well as a product level. Having said that, in order to benefit from the matrix, a firm must be willing to use a more accurate costing method that examines individual customer and individual product profitability. Some of the companies highlighted in this *Explores*…had significantly more sophisticated costing methods than others. In spite of this, less sophisticated costing methods, as long as they provide an assessment of customer and product profitability, can still be utilized successfully with the matrix.

The use of the matrix must be supported by top management. Nothing will derail good intentions faster than wavering support from senior executives. Part of this support is an acceptance that by using the matrix some customers and some products may be given less priority, may be charged higher prices, given lower service, or may be eliminated altogether. Senior management must understand that these options are not punitive, but reflect the costs associated with service to marginally profitable or non-profitable customers and products. Further, a willingness to truly differentiate service levels across the four types of customers and four types of products will have the effect of greater fairness as well as offering greater opportunities. Table 1 illustrates how a stratified approach can be developed based on service levels that offer greater fairness because top customers and products no longer subsidize less profitable/non-profitable customers and products.

Finally, firms that have the ability to manage for exceptions can also achieve greater success using the matrix. Companies that take a "one size fits all" approach will not have the culture and flexibility to differentiate across customers and products. As such, the matrix will not work as well, because the point of the matrix is to understand the cost-to-serve as it intersects with the cost-to-produce and then maximize profitable opportunities while minimizing profit losses across the board. Further, the matrix provides the scenario tools to assess "what if" with respect to exceptions as they occur.

ADDITIONAL MATRIX APPLICATIONS

Once a firm creates its initial customer/product action matrix, it can extend the use of the matrix into additional areas. First and foremost, it is important to understand that whenever major changes in costs are realized, the matrix should be updated and reevaluated. Major changes could include when customers significantly change their order volume or change their service requirements or when production volumes or costs change. Additionally, when a new product or customer is introduced, inadequate history may be available or volumes may be insufficient to build a realistic costing model. In such cases, volume and cost estimates should be used and reevaluated once more reliable data exist.

One of the key areas for extended use of the matrix is in strategic decision-making to assist managers in identifying key targets that can be examined for growth potential, rationalization, or standardization. Obviously, the upper left corner of the matrix highlights key customers and products that can be targeted for future growth. That may mean focusing on B-level customers to identify a few that can be targeted for movement to A-level as well as A-level customers that can be targeted for relationship management programs.

The matrix can also be utilized for product and customer rationalization decisions as well as to determine whether various service options are worthwhile. For example, many firms are just beginning to consider individual customer return on investment (ROI) or SKU-level ROI, as opposed to customer segment or product family ROI. Why is this important? If you consider the product proliferation that has occurred in many industries, an example of the difference between product family and SKU-level ROI becomes readily apparent. If a food manufacturer with 20 flavors of product measures product family profitability, it would average the highly profitable flavors with the unprofitable flavors, while SKU-level profitability would make each flavor its own "family" and probably point to areas for product deletion.

Suppose a manufacturer is currently limited in its production capacity, but has a new product prototype that it feels is important to its long-term growth and stability. If the manufacturer needs to discontinue the production of certain products in order to free up new capacity to produce the new product, the matrix certainly points to which products may be eliminated without negatively impacting profit. Also, the matrix information can lead a firm to product standardization opportunities. In examining 4-level products, management notices several SKUs within one product family are in this unprofitable category. If the differentiating factors across those several SKUs are unimportant to top customers and/or the products are seen as acceptable substitutes for each other, the firm could standardize the SKUs by only producing one or two of them. This decision would hopefully increase the volume for the remaining SKU(s) and by doing so may raise the level of profitability for that SKU.

Another key benefit the matrix can provide is focusing managers on determining the real cost to serve customers as well as the real cost to produce products. No company wants to have discriminatory pricing practices, and managers often get uncomfortable discussing tiered pricing and/or service options. However, when managers have accurate costing information which illustrates the actual cost-to-serve and cost-to-produce then pricing "menus" are not discriminatory, but are actually fair and balanced. This cost information allows for more open discussion with customers in order to explain the costs associated with products and with service requirements. This enables customers to understand cost increases and cost menus.

The matrix can be used to perform root cause analysis which has often found the cause of unexplainable and illogical problems. As shown in the example of the produce manufacturer, one customer consistently bought large volumes of product at a reasonable markup and paid its bills promptly, yet was in the D category, because it was located in an isolated market. The reason for the customer's limited profitability was revealed by the matrix and led to a decision to target and develop new customers in the same area. The original customer eventually became one of the firm's top five customers.

Finally, the customer/product action matrix can be used to conduct scenario planning, which is increasingly more important as a strategic tool in today's constantly changing business environment. Whether the firm uses S&OP or other planning tools, the next generation of these tools will incorporate more "what if" analysis. This scenario planning piece may be as simple as using the matrix to consider the customer's request for price reduction or putting the sales organization in a better position to conduct more sophisticated negotiating. The scenario planning piece may be used in a more advanced and complex manner to evaluate new product or new market opportunities as well as to consider supply chain optimization alternatives.

The reason the matrix is so useful in scenario planning is that the matrix allows managers to identify top priorities based on profitability. For example, the firm could analyze what would happen to overall profitability if a 3-level product (that is a complementary item for a 1-level product) is used as a loss leader. Take the historic example of razors and replacement blades which are made exclusively to be used only on particular razors. Assume for a moment that the blades are 1-level items, but the razor itself is a 3-level item. Manufacturers obviously want to price the razors to encourage their purchase because that drives demand for the replacement blades. The matrix would allow scenario planning to occur to analyze the pricing decision—e.g. should the razor remain at a low profit position (3-level) or should the razor even become non-profitable (4-level) if it leads to significantly higher sales of replacement blades?

CONCLUSIONS

The customer/product action matrix is a simple-to-use, analytical tool that applies a fully loaded costing technique, such as Activity Based Costing, in order to capture the right costs to determine customer and SKU profitability. With the various combinations of customer and SKU-level profitability better understood, managers can employ an unbiased process to prioritize customers and products based on their profitability. This prioritization can guide decision-making to support demand-supply planning from a cross-functional standpoint. In doing so, it contributes to S&OP, and it brings a common view to the operations-focused and customer-facing sides of an organization for a joint approach to strategy development. Further, strategy development can be more targeted, with different strategies developed specifically for each of the cells of the matrix.

Using the customer/product action matrix in cross-functionally integrated processes offers significant potential advantages. In particular, better clarification of which customers and products are (or have the potential to be) more profitable can be leveraged in a number of ways. Strategies can be tailored to ensure the highest service levels are applied to the extremely profitable customer and product combinations. Rationalizing D-level customers and 4-level products or by adjusting services offered to those customers and products can improve profit by a significant amount (perhaps 5-15%) without adding any costs. Further, the matrix serves as a tool for advanced scenario planning, which is critical in today's ever-changing business environment.

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