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PROFIT CONTRIBUTION INFORMATION'S IMPACT ON INTERNAL INTEGRATION

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ABSTRACT

An exploratory quantitative study on the relationship between profit contribution information and firm-wide internal integration is presented. Specifically, the authors examine how profit contribution information availability impacts firm-wide internal integration and, subsequently, logistics performance. This study provides greater insight into the area; only a few studies have empirically examined the impact of profit contribution information within a firm. The primary implication is that firms should utilize specific types of information, i.e. profit contribution information, for making more informed operational and strategic decisions. The paper also underscores the managerial value of using profit contribution information in decision making and planning.

INTRODUCTION

Information/information exchange is the lifeline of business and has long been considered a potential source of competitive advantage (Closs and Xu, 2000). However, as Kim, Cavusgil, and Calantone (2006) note, information exchange by itself does not offer much benefit. The real value of information exchange is that it can contribute to the development of capabilities. The current

research explores the potential contribution of effective information utilization. Specifically, the research examines the relationship between the availability of profit contribution information (a resource) and firm-wide internal integration (a capability) and, ultimately, logistics performance. The type of information exchanged has important implications. It is argued that availability of one specific type of information—profit contribution information—positively enhances development of firm-wide

integration capabilities. Further, profit contribution information can be extremely useful in decision making and planning.

The next section provides a discussion of relevant background relating to the constructs of interest. This is followed by presentation of our conceptual model of the proposed relationships along with the theoretical grounding and development of hypotheses. Details are then provided covering the methodology and results as well as discussion of managerial implications.

BACKGROUND

Information Exchange

Information exchange—defined as the formal and informal sharing of meaningful and timely information—has been identified as a key component of successful supply chains (Stank, Daugherty, and Ellinger, 1996; Derocher and Kilpatrick, 2000). The exchange can involve transfer of information within a company or extend externally to customers and suppliers (Zailani and Rajagopal, 2005). Sharing information helps to support timely decisions, build strong relationships, and coordinate strategies and has generally been found to reduce total logistics costs and enhance value to customers (Brewer and Speh, 2000).

Information sharing influences both internal operations and interactions with external trading partners. Intra-company, cross-function information exchange helps to coordinate actions and gain efficiencies. External, cross-firm information exchange facilitates planning and can reduce uncertainty. The type of information made available has important implications, too. Simple operational and financial data such as production schedules or cost of goods is most likely commonly available. However, it is less common that vital strategic information such as forecasting, strategic goals, new product designs, and profitability analysis is readily accessible (Kwon and Suh, 2005).

Greater emphasis should be placed on generating and using more strategic information. As Barney, Wright, and Ketchen (2001) note, strategic information (including, but not limited to information on markets and customers) helps to ensure that firms are aware of changes in the environment and can result in a competitive advantage over slower, less informed competitors. The right information can be used to enhance a firm's position with its best customers. For example, customer profitability information can be used to guide strategic initiatives. Consider the example of a Fortune 500 chemical company that determined over 80% of their profit was generated by 50 accounts and more than 99% came from 100 accounts (Bowersox et al., 1995). They had considerably more than 100 accounts "on the books." By identifying the top accounts, they were able to put together programs to better serve those key customers. Eliminating unprofitable accounts freed up resources to better serve those customers with the most potential.

Information has long been suggested as a key element facilitating successful supply chain management; however, the type of information collected and used is critical. Often managers are overwhelmed. They have access to virtually every type of information imaginable, but not enough time to sort through all of it. A prioritization or suggested sequencing of use is needed. Sabath and Whipple (2004) identified profit contribution information of customers and products as critical to decision making and longer term strategic planning. From an economic or accounting perspective, profit contribution is "profit before fixed charges" (Hirschey and Pappas, 1996). However, Sabath and Whipple (2004) used it to mean—literally—the amount each sale contributes to overall profitability. Thus, it would refer to revenue generated minus fixed and variable costs. Profit contribution information can enhance a firm's internal coordination by allowing more informed decisions.

The Pareto principle states that: "Twenty percent of our customers account for 80% of our sales" or "Twenty percent of our SKUs account for 80% of our sales" (Juran, 1951). This phenomenon is a reality for nearly every company. Detailed profit contribution information can identify the top performing customers and products. Companies can then determine appropriate priorities and allocate resources accordingly. The 20% of customers and products that contribute the most to a firm's profit certainly deserve a high level of attention and service level. Of course, requisite service levels must also be maintained for other customers and products, but the top customers/products should always be the priority. Profit contribution information analysis also identifies the bottom (lowest performing) customers and products. This is equally important and can provide justification for dropping customers/products or can signal the need to make adjustments in service offerings and pricing structures.

Integration

Integration is "a process of interdepartmental interaction and interdepartmental collaboration that brings departments together into a cohesive organization" (Kahn and Mentzer, 1998, p. 56). Effective integration requires that "separate parties work together in a cooperative manner" (O'Leary-Kelly and Flores, 2002, p. 226). The "working together" can be within firm (internal integration) or cross firm (external integration). While definitions of integration vary, as Pagell (2004) noted, common themes emerge. Integration is generally believed to encompass cooperation, coordination, interaction, and collaboration with the intention of achieving mutually acceptable outcomes. Integration emphasizes a more coordinated and less functional way of managing.

With respect to the current research, internal integration refers to coordination and collaboration of logistics with other functional

areas within the organization while external integration refers to the integration of a firm's logistics activities with those of customers and suppliers (Stock, Greis, and Kasarda, 1998; Gimenez, 2006). Our focus is on internal integration.

Internal integration can be considered a building block for external integration and, ultimately, supply chain integration. As van Hoek and Mitchell (2006) note, most initiatives are critically dependent upon the active participation of other functions. Functional areas must share priorities and see opportunities similarly. It is a "fundamental concept of supply chain management that you cannot coordinate functions across companies within the supply chain if you cannot do this coordination first within your own company" (Mentzer, 2004, p. 29).

CONCEPTUAL MODEL AND HYPOTHESIS DEVELOPMENT

The Resource Based View of the Firm

The resource based view of the firm (RBV) provides the theoretical foundation for the current research. According to this view, a firm's resources can lead to a sustained competitive advantage, given certain resource attributes (Barney, 1991). Resources include a firm's assets, processes, information, knowledge, etc. that enable the firm to develop and implement strategies to improve efficiency and effectiveness (Barney, 1991). Resources should be viewed as inputs into the production process and are the source of a firm's capabilities (Grant, 1991). Examples of resources include items of capital equipment, employee skills, etc. (Grant, 1991). Capabilities are complex routines that determine the efficiency with which firms physically transform inputs into outputs (Collis, 1994). Capabilities can often be found in typical business activities such as order fulfillment, new product development, and service delivery (Day, 1994).

Building on RBV and the above definitions for resources and capabilities, we propose a model that consists of profit contribution information, firm-wide internal integration, and logistics performance, as depicted in Figure 1. We posit that profit contribution information is a resource that can enhance firm-wide internal integration, which in turn influences logistics performance of the firm. Profit contribution information is a resource that allows firms to develop effective business capabilities more quickly than can be achieved without the information (Teece, 1998; Autry et al., 2005). Information resources are inputs for firm-wide internal integration, a capability of the firm (Stank, Keller, and Daugherty, 2001). Consistent with recent research, firm-wide internal integration is proposed to influence logistics performance (Germain and Iyer, 2006). Logistics performance is a potential source of competitive advantage for firms through delivery speed, reliability, responsiveness, and cost-effective distribution (Morash, Dröge, and Vickery, 1996b).

Hypotheses Development

Bowersox, Closs, and Stank (1999) suggested that customer integration is one of the crucial types of supply chain integration, which involves identifying and satisfying the long-term requirements, expectations, and preferences of customers. However, they also noted that a more realistic approach is to build lasting and distinctive relationships with customers of choice rather than all customers. Their study also cited a manager's comment: "I

manage 24 different supply systems—23 for my best 23 customers and the 24th for everybody else" (p. 32). This is accomplished by tailoring product/service offerings to meet the exact needs and desires of specific customers, not the average needs of the average customer. Similarly, Lambert (2004) suggested that in a supply chain context, it is important to segment customers based on their value over time and work with them closely. Such focused customer relevancy requires the integration of relevant business processes.

While managers and researchers have emphasized the importance of the "best," "important," or "key" customers, how to identify these customers is not clear and warrants careful consideration. Also, supply chain integration requires a significant amount of resource commitment; therefore, the costs related to integration must be carefully examined (Bowersox, Closs, and Stank, 1999). Profit contribution information of different customers appears to be a particularly useful index to identify these important customers. Top customers are crucial to the company's long-term success; their profit contribution can also help to justify the cost related to integration. Although we emphasize the importance of profit contribution information, we do not have the intention to rule out other potentially important indices to evaluate the importance of customers.

The idea of using profit contribution information to guide decision-making is consistent with the concept of customer

FIGURE 1
PROPOSED CONCEPTUAL MODEL



selectivity. As discussed in the 1995 Michigan State University *World Class Logistics* book, "selectivity starts with the notion that firms should aggressively pick customers who have high potential and are best suited as business clients" (Bowersox et al., 1995). The same argument can be made for product selectivity, i.e., focus on products with the greatest potential.

As Sabath (2003) noted, profit contribution information helps to focus service efforts and sense demand changes in the market earlier. The profit contribution information also identifies priorities for integration efforts (Sabath and Whipple, 2004). For example, greater internal integration may be required to support planned expansion by a top customer or efforts may need to be shifted to coordinate manufacturing/distribution support on hot products, to generate better results. Therefore, it is proposed:

H1: Profit contribution information availability is positively related to firm-wide internal integration.

Research has been conducted examining the relationship between integration and performance (Shapiro, 1977; Stalk and Hout, 1990; Ellinger, Daugherty, and Keller, 2000; Gimenez, 2006; Kim, 2006). Increased integration is generally believed to lead to improved organizational performance (O'Leary-Kelly and Flores, 2002). Gimenez and Ventura (2003) found that when companies achieve a high level of internal integration, this leads to better absolute performance. Higher levels of internal integration are likely to be associated with coordination of more functional areas or processes. For example, increased operational or organizational performance has been documented in companies where two or more processes are integrated (Safizadeh et al., 1996; Narasimhan and Kim, 2001; Pagell, 2004). As Morash, Dröge, and Vickery (1996a) noted, "process integration across functional areas becomes a source of competitive advantage" (p. 58). Further, they proposed that cross-functional excellence can increase "performance synergies."

Thus, the current research looks at broad-based integration—extending across the organization rather than limiting the examination to dyadic-type integration between two functional areas. The broad-based integration provides results in terms of enhanced performance outcomes. It is proposed:

H2: Firm-wide internal integration is positively related to logistics performance.

METHODOLOGY

Sample and Data Collection

A survey was developed based on an extensive review of the literature and was subjected to the review of six highly qualified professionals. This included three academics, two consultants, and one executive from the electronics industry. They were asked to review the survey regarding domain representativeness, item specificity, clarity, and readability. The survey instrument was modified based on their inputs.

A total of 434 prospective respondents were selected from the logistics/supply chain executives of 2005 Fortune Top 500 companies and members of the Council of Supply Chain Management Professionals (CSCMP) based on job title (targeting Vice President and Director-level executives). After initial telephone contact, 253 executives agreed to look at the survey. Potential respondents had the option of completing the survey either in traditional mail format or in electronic format through a dedicated website. Past studies have shown homogeneity in responses via website and paper-based formats (Griffis, Goldsby, and Cooper, 2003; Deutskens, de Ruyter, and Wetzels, 2006). However, web-based surveys have shown higher response rates when compared with traditional mail surveys (Cobanoglu, Warde, and Moreo, 2001; Griffis, Goldsby, and Cooper, 2003; Deutskens, de Ruyter, and Wetzels, 2006).

A cover letter accompanied the survey explaining the purpose of the study. A drawing for a monetary reward (\$500) was used as an incentive to increase response. Two weeks after the initial wave of mailings and emails, a follow-up post card or email was sent as a reminder. At the end of the designated response time, 125 usable surveys were received, representing a 28.8% response rate (125/434). A response rate of 88.8% was noted for web-based surveys (111/125) and 11.2% for paper-based surveys (14/125). Independent t-tests were used to determine if there were significant differences between the two respondent groups (Field, 2000). No significant differences were noted between the web-based and paper-based respondent groups on any of the 14 variables.

With our survey, eight times as many website responses were returned compared to paper responses. Apparently the convenience of completing an on-line survey was very persuasive. Web-based surveys were definitely the preferred method of response. Other researchers may want to keep this in mind when selecting a delivery method. The response rate, along with additional benefits including cost, ready internet availability and low maintenance costs, and the ability to easily update and change surveys make web-based surveys very attractive. Perhaps of even greater significance is the fact that with web-based responses, data can generally be easily transferred or downloaded into files for further analysis. Respondent demographics are provided in Table 1.

Two approaches were utilized to examine potential non-response bias. First, the last quartile of responses (31), assumed to be most similar to non-respondents, was compared to the first three quartiles of responses (94). Comparisons of group means on individual survey questions revealed no significant differences for the primary variables (Armstrong and Overton, 1977). Second, 15 non-respondents were randomly chosen from the sample and asked to complete an abbreviated

version of the questionnaire online (Lohr, 1999). Follow-up phone calls were made to encourage them to complete the survey. T-tests of the same items in both full and short versions revealed no significant differences between respondents and non-respondents. Non-response bias was thus not considered to be a concern.

Constructs and Measurement

Profit contribution information availability was measured with newly developed scale items. Sabath and Whipple's (2004) study provided the rationale for the four items that measure a firm's profit contribution information availability for all customers, key customers, all products, and top products. A 7-point scale anchored by 1 = Not Available and 7 = Readily Available was utilized. Respondents indicated moderate availability levels of profit contribution information within their firms (mean measures ranged from 4.33 to 4.98).

Items from Rodrigues, Stank, and Lynch (2004) and Zacharia and Mentzer (2004) were used to measure firm-wide internal integration. Respondents were asked to indicate level of agreement with statements concerning the current level of internal integration within their firms (7-point scale with 1 = Strongly Disagree, 4 = Neutral, and 7 = Strongly Agree). Mean measures for the six items ranged from 4.84 to 5.54, indicating moderate to slightly higher levels of integration.

The logistics performance scale was adapted from Stank, Keller, and Closs (2001). Respondents were asked to evaluate their firms' relative logistics performance compared to competitors on a 7-point scale (1 = Much Worse, 4 = About the Same, and 7 = Much Better). Means of the four performance measures were moderately high (4.90 to 5.26). All items used along with their means and standard deviations are shown in Table 2. The correlation matrix of these three constructs is provided in Table 3.

TABLE 1
RESPONDENT DEMOGRAPHIC INFORMATION

Respondent Title	Frequency	Percentage
Vice President	36	28.8
Director	39	31.2
Other/Unspecified	50	40.0
Total	125	100
Industry		
Food and grocery	24	19.2
Personal care products	2	1.6
Automotive (suppliers to assemblers)	9	7.2
Office equipment and suppliers	2	1.6
Building and construction products	15	12
Computers/electronics	7	5.6
Other/unspecified	66	52.8
Total	125	100
Firm Size (Number of full-time employees)		
< 5,000	38	30.4
5,000 to < 50,000	31	24.8
>= 50,000	21	16.8
Not reported	35	28.0
Total	125	100

TABLE 2
CONSTRUCTS AND MEASUREMENT ITEMS

Constructs and Measurement Items	Mean	Std. Dev.
<i>Profit Contribution Information Availability</i> (Cronbach's Alpha = 0.904—newly developed based on Sabath and Whipple, 2004) (1 = Not Available, 7 = Readily Available)		
PCIA1. All customers	4.33	1.96
PCIA2. Only key accounts	4.98	1.69
PCIA3. All products	4.66	1.88
PCIA4. Only top (A-level) products	4.94	1.80
<i>Firm-Wide Internal Integration</i> (Cronbach's Alpha = 0.876—Rodrigues <i>et al.</i> , 2004; Zacharia and		

Table 2
(continued)

Constructs and Measurement Items	Mean	Std. Dev.
<i>Mentzer, 2004</i>		
(1 = Strongly Disagree, 4 = Neutral, 7 = Strongly Agree)		
INTG1. My firm extensively utilizes cross-functional work teams for managing day-to-day operations	4.86	1.42
INTG2. Within my firm, employees from different functional areas are encouraged to work together	5.54	1.21
INTG3. Middle managers in my firm are encouraged to share information and provide input to other functional areas	5.38	1.38
INTG4. Within my firm, employees from different functional areas are encouraged to share resources	4.93	1.36
INTG5. Managers across my firm informally work together in teams	5.21	1.20
INTG6. The orientation of my firm has shifted from managing functions to managing processes	4.84	1.52
<i>Logistics Performance</i>		
(Cronbach's Alpha = 0.861—Stank <i>et al.</i> , 2001)		
Your firm's logistics performance in comparison to competitors. (1 = Much Worse, 4 = About the Same, 7 = Much Better)		
LP1. The ability to reduce the time between order receipt and customer delivery to as close to zero as possible.	4.90	1.19
LP2. The ability to provide desired quantities on a consistent basis.	5.24	1.24
LP3. The ability to modify order size, volume, or composition during logistics operation.	5.00	1.21
LP4. The ability to accommodate delivery times for specific customers.	5.26	1.25

TABLE 3
CONSTRUCT CORRELATION MATRIX

	Mean	Std.	PCIA	INTG	LP
1. PCI Availability (PCIA)	4.73	1.62	1		
2. Firm-wide Internal Integration	5.12	1.06	.298**	1	
3. Logistics Performance (LP)	5.10	1.03	.276**	.343**	1

* $p < .05$, Correlation is significant at the 0.05 level

** $p < .01$, Correlation is significant at the 0.01 level

Scale Assessment

SPSS and AMOS 5.0 (AMOS5) were used for the statistical analysis. A basic analysis of the data, including examination of incorrect coding, item normality (skewness and kurtosis), means, standard deviations, and outliers, yielded acceptable results (Mentzer, Flint, and Kent, 1999).

Confirmatory factor analysis (CFA) using maximum likelihood estimation (MLE) was conducted to assess and validate the operational constructs (Gerbing and Anderson, 1988). All constructs were allowed to correlate with each other. The results of the CFA measurement model are presented in Table 4. Since chi-square fit index has proven to be unrealistic in most structural equation modeling (SEM) research (Byrne, 2001), the major fit indices examined include chi-square/degree of freedom ratio, comparative fit

index (CFI), and root mean square error of approximation (RMSEA). As expected, the test yields an unsatisfactory chi-square value of 144.355 ($df = 74$, $p < 0.001$). However, the relative chi-square value of 1.951 falls into the recommended range of 3 to 1 (Bollen and Long, 1993). Because CFI accounts for sample size, a common bias in index calculations, it has been argued to be the "index of choice" (Byrne, 2001). The current model has a CFI value of 0.928, above the suggested 0.9. However, RMSEA has been recognized as one of the most informative criteria in covariance structure modeling because it takes into account the error of the approximation in the population and is sensitive to the number of estimated parameters in the model (Byrne, 2001). The RMSEA value of 0.078 is within the suggested range (less than 0.08) for good model fit (Browne and Cudeck, 1993). The above critical indices all demonstrate superior fit between the measurement model and the data.

TABLE 4
MEASUREMENT MODEL RESULTS

Path	Standardized Weight	Critical Ratio
PCIA1 β PCI Availability	0.886	(Fixed)
PCIA2 β PCI Availability	0.826	12.207
PCIA3 β PCI Availability	0.863	10.195
PCIA4 β PCI Availability	0.778	8.344
INTG1 β Firm-Wide Internal Integration	0.630	(Fixed)
INTG2 β Firm-Wide Internal Integration	0.841	7.468
INTG3 β Firm-Wide Internal Integration	0.834	7.282
INTG4 β Firm-Wide Internal Integration	0.747	6.786
INTG5 β Firm-Wide Internal Integration	0.713	6.611
INTG6 β Firm-Wide Internal Integration	0.674	6.401
LP1 β Logistics Performance	0.655	(Fixed)
LP2 β Logistics Performance	0.835	7.528
LP3 β Logistics Performance	0.813	7.512
LP4 β Logistics Performance	0.813	7.469

Fit statistics:

Chi-square = 144.355 ($df = 74$, $p < 0.001$), Chi-square/ $df = 1.951$, CFI = 0.928, RMSEA = 0.078

Other AMOS5 outputs on CFA were used to examine the constructs' unidimensionality and validity. Standardized regression weights showed that all items loaded on appropriate factors (constructs) as expected. Critical ratios (CR) of these regression weights are all significant at 0.05 level (> 1.96), supporting the unidimensionality and convergent validity of the constructs (Gerbing and Anderson, 1988). In order to assess discriminant validity, nested models were examined for each pair of constructs, where the inter-factor correlation was fixed to 1. All chi-square differences were significant ($p < 0.001$), indicating the proposed measurement models have better fit with the data. This supports discriminant validity of the constructs.

Finally, a test of internal consistency reliability was performed utilizing Cronbach's coefficient alpha (Cronbach, 1951). The range of Cronbach's coefficient alphas was from 0.861 to 0.904; all are well above the suggested 0.70 (Nunnally, 1978). Therefore, all scales were considered reliable. Together, the above results support the overall reliability and validity of the scale items used to measure the hypothesized constructs.

Hypotheses Testing and Results

Given the overall sound assessment of the measurement model, attention now turns to the structural model and testing of hypothesized relationships. AMOS5 was used

for the SEM analysis. Individual hypotheses were assessed by reviewing the direction and significance in AMOS5 output.

As recommended by Hu and Bentler (1999), multiple fit criteria were considered in order to rule out measurement bias. The most commonly used fit indices were considered (Bagozzi and Yi, 1988). Model statistics are shown in Table 5. Although the chi-square value of 149.038 is significant, the chi-square to degrees of freedom ratio of 1.987 is below the suggested 3.00 (Bollen and Long, 1993). All other indices were within the recommended range, including CFI = 0.925 and RMSEA = 0.079. They meet or exceed suggested values, indicating good model fit (Browne and Cudeck, 1993).

AMOS5 outputs on paths' standardized regression weights with relevant critical ratios and p -values are shown in Table 5. H1 examines the relationship between profit contribution information and firm-wide internal integration. The SEM analysis results supported this hypothesized link (standardized regression weight = 0.324, CR = 3.139, and $p = 0.002$), suggesting that the availability of profit contribution information for customers and products can improve a firm's internal integration. Also, the positive impact of firm-wide internal integration on logistics performance was supported (H2: standardized regression weight = 0.412, CR = 3.623, and $p < 0.001$).

TABLE 5
HYPOTHESIZED PATHS TESTING

Path	Standardized Weight	Critical Ratio	p -value	Note
H1: Firm-Wide Internal Integration β PCI Availability	0.324	3.139	=0.002	Supported
H2: Logistics Performance β Firm-Wide Internal Integration	0.412	3.623	<0.001	Supported

Fit statistics:

Chi-square = 149.038 ($df = 75$, $p < 0.001$), Chi-square/ $df = 1.987$, CFI = 0.925, RMSEA = 0.079

DISCUSSION AND IMPLICATIONS

There is an old joke. One guy is trying to sell something and he's offering it at a loss. The potential buyer asks how he can stay in business. The answer: volume. Well, as we all know, that doesn't work in the real world. Firms must make informed decisions to survive long-term. Accurate profit contribution information has immense managerial value. If products or customers aren't profitable, different approaches must be considered. At the extreme, the customer or product can be dropped. A more realistic approach would be to make adjustments. This typically would involve repricing products or identifying ways to reduce resource consumption, i.e., adjust the cost structure (Cooper and Kaplan, 1991).

If products or customers aren't profitable, a pricing adjustment (increase) may be the answer. Also, investigation is warranted to determine what makes the accounts/products unprofitable. Can something be done to make such accounts/products profitable? If not, it may be necessary to drop them.

Perhaps not as obvious is the value of profit contribution information on products that are showing a profit. For example, is the current profit margin realistic and sustainable? Or is a large profit margin actually inviting competitors to enter the market? What stage of the product life cycle is the product? Examination of products based upon profit contribution and stage in the life cycle can indicate whether the right course is being taken. For example, profit margins typically decrease as the life cycle progresses from introduction to growth as competitors enter the market and drive price down (Levitt, 1965). In the decline stage of the life cycle when there are likely to be many fewer competitors, there is also likely to be a group of core loyal users. It may be possible to adjust prices upward at that time. Another consideration is elasticity of demand. A lower price—lower margin and

lower contribution to profit per item sold—may actually be desirable if a decrease in price will result in a marked increase in demand. Accurate profit contribution information will indicate if a price cut is doable.

The second option is to adjust the cost structure. Efficiencies may be gained through lean manufacturing, improved scheduling to avoid inventory build-up, outsourcing of transportation or warehousing, etc. Activity-based costing (ABC) can be used to view expenses and profitability at the product and customer level and can help to identify improvements that will have the biggest impact on the bottom line (Cooper and Kaplan, 1991). The information can also be used to negotiate with customers to adjust delivery schedules and quantities to gain greater efficiencies. Customers may be willing to consider adjustments in service offerings (fewer deliveries, longer lead times, elimination of customized options, etc. which can directly impact costs) in order to maintain the current pricing structure.

Our research looked at two important areas: 1) the relationship between profit contribution information and firm-wide integration and 2) the relationship between firm-wide internal integration and logistics performance. Not only does availability of profit contribution information have significant pragmatic value for guiding decision making, our research supports an information-integration relationship. Profit contribution information can reduce internal cross-functional arguments and allow management to move forward with speed on critical decisions. For example, if operational level rationing is required (such as which customer's order gets filled when shortages occur or which product gets moved up on the production schedule when they've reached capacity), profit contribution information can be used to determine who should be first in line. At a more strategic level, profit contribution information can provide

undisputed logic for product line extensions, product phase-outs, realignment of costing policies, and a myriad of other areas.

Internal integration is vital to today's complex, fast-paced business environment. Coordinated efforts and close interaction are needed to support decision making and manage complex processes. In spite of this, "internal misalignment" characterized by internal misunderstandings and disagreements rather than cooperation and coordination is often the reality in businesses (van Hoek and Mitchell, 2006). Our research provides empirical evidence that internal integration can positively impact performance—and may serve as justification for managers fighting to get the needed resources to increase coordinative efforts and integration.

CONCLUSION

While using contribution analysis may at first appear to be internally driven and not customer centered, we would argue it offers a sound long-term decision tool. Instead of being viewed as a metric to discriminate against lower volume, lower margin customers,

contribution analysis should be seen as a focused customer centered metric. By identifying the best performing products and best customers, companies can improve their economic health—and potentially be around much longer to serve not only A-level customers, but others as well. Many companies have the data readily available to create profit contribution information, they just haven't made the effort to analyze the data or haven't realized the value in doing so.

Our survey-based research provides important insights into the value of profit contribution analysis and its relationship to internal integration. However, our research findings should only be considered a starting point. For example, while the survey-based research findings can be generalized to broader settings, qualitative research is also recommended. Future research can utilize in-depth interviews to drill-down to gain greater insights and understand how profit contribution information and ABC analysis can be used to greater advantage. Documentation of how companies are actually using the information is needed.

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