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# **EXECUTIVE ASSESSMENTS OF BUSINESS VALUE FROM I/T INVESTMENTS**

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# EXECUTIVE ASSESSMENTS OF BUSINESS VALUE FROM I/T INVESTMENTS

Business value from I/T investment continues to be a big issue in U.S. corporations, given national and global competitive pressures. Economists, however, disagree about the payoffs from I/T investments. Some note that despite the large investments in I/T during the late 80's and early 90's, the payoffs do not appear in national productivity statistics. Others point to basic flaws in these statistics and find payoffs do occur at the firm level.

Therefore, we asked executives about their assessments of the realized impact from I/T on business value and the importance they attach to different dimensions of business value. Executives were asked to assess on a 1 to 10 scale (1=weak and 10=strong) the realized impact of I/T on 56 areas of business. The 56 items were designed to provide measures of 8 dimensions of business value. This report summarizes the responses of 219 business executives across 40 firms (15 manufacturing and 25 services firms).

## FINDINGS

**Rank and Performance of Business Value Dimensions.** Where do executives in these firms believe the impacts have been the greatest and where do they believe the impacts should be? Exhibit 1 displays the average rank and the average realized impact for the eight business value dimensions for manufacturing and services firms. The major findings are:

- Executives assess the business value of I/T investments to be average, or around 5 on a scale from 1 to 10.

- Both manufacturing and services firms executives agree that the *use of I/T has the most impact on* “organizational efficiency” and “organizational effectiveness”; two traditional areas of I/T impact.
- In *ranking* of the dimensions in terms of importance to corporate strategy, both manufacturing and services firms rank “customer relations” as most important.

**Exhibit 1. Assessment of Realized Impact of I/T to Business Value Dimension and Ranking of Importance of Business Value Dimension to Firm**

Manufacturing Firms	Realized Impact <sup>a</sup>	Ranking of Importance <sup>b</sup>
Organizational effectiveness	5.81	5 (5.79)
Organizational efficiency	5.62	7 (5.12)
Customer relations	5.19	1 (7.92)
Economies of production	4.80	6 (5.64)
Competitive dynamics	4.65	4 (6.15)
Supplier relations	4.51	8 (4.31)
Product & service enhancement	4.46	2 (6.78)
Marketing support	4.03	3 (6.16)
<b>Services Firms</b>		
Organizational efficiency	6.06	2 (6.95)
Organizational effectiveness	5.71	3 (6.48)
Customer relations	5.60	1 (8.66)
Economies of production	5.37	6 (5.76)
Competitive dynamics	5.15	5 (5.92)
Product and Service enhancement	4.75	4 (5.94)
Supplier relations	4.67	8 (2.78)
Marketing support	4.28	7 (5.67)

<sup>a</sup>The mean values are on a scale of 1 - 10 with 1 representing the “weak realized impact” and 10 representing “strong realized impact” of I/T.

<sup>b</sup>The mean values of the rankings (actual scores within parentheses) are on a scale of 1 -10 with 1 representing the “least important” and 10 representing “most important” strategically.

While manufacturing and services firms on the surface look similar in Exhibit 1, there are critical differences between the two types of industries.

- Across the set of business values, *services firms assess the realized impact of I/T to the eight business value dimensions higher than do manufacturing firms.*
- *Manufacturing firms rank efficiency and effectiveness as less important than do services firms. For manufacturing firms,*
- *product improvements as well as marketing support are assessed as of high importance.*
- *Supplier relations are ranked as "least important" for both manufacturing and services firms. Services firms assign an extremely low ranking to this dimension thus suggesting that among many services firms, the dimension of supplier relations is not considered as part of the mix of business values.*

#### DIMENSIONS OF BUSINESS VALUE

*Organizational efficiency* refers to the potential impact of I/T on costs through reduced labor or G&A expenses, which help to increase profit margins.

*Organizational effectiveness* refers to the potential impact of I/T on the improved functional of the firm as an organizational in areas such as decisionmaking, communication, coordination, planning and business processes.

*Economies of production* refers to the potential impact of I/T in helping to achieve economies in the production processes of firms through the reduction of design labor and customization costs, through improved production output, and through improved utilization of physical and human resources.

*Customer relations* refers to the potential impact of I/T in helping to increase flexibility and responsiveness to customers through development of detailed customer databases, electronic support systems such as order tracking, product ordering and product delivery times.

*Marketing support* refers to the potential impact of I/T in providing the firm with support for identifying and anticipating market trends, locating and serving new market segments, enhancing accuracy of sales forecasts, and tracking market response to pricing strategies, discounts, promotional or introductory pricing.

*Supplier relations* refers to the potential impact of I/T in making it easier for suppliers to handle orders, reducing supplier lead times, monitoring quality of products received from suppliers and facilitating the development of close relationships with suppliers.

*Product and service enhancement* refers to the potential impact of I/T on a firm's ability to introduce new products and services quickly, and to improve their quality, value and delivery time to customers.

*Competitive dynamics* refers to the potential impact of I/T in providing the firm with an edge over competitors by offering products competitors cannot immediately match, providing substitutes for competitors products, helping to delay competitor entry into firm's products areas and making it easier to capture distribution channels over competitors'.

Exhibit 2 displays the average rating by the executives (on a 1-10 scale) on each business value dimension compared with the ranking of the importance of these dimensions to corporate strategy. This provides a graphic representation of the extent to which realized impacts of I/T on business value dimensions are congruent with the rankings of importance of these dimensions to the firm.

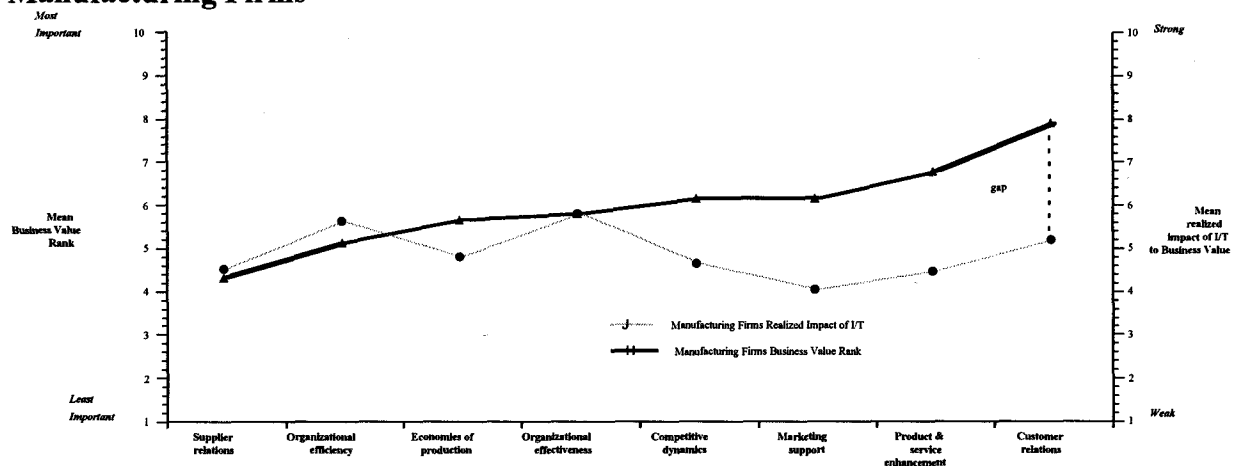
- Executives in both manufacturing and services rank “customer relations” the highest of all dimensions on the strategic importance scale. Yet, their rating of the current performance of information

technology on customer relations is no greater than other dimensions. This suggests that *more emphasis needs to be placed on the use of information technology on enhancing customers relations.*

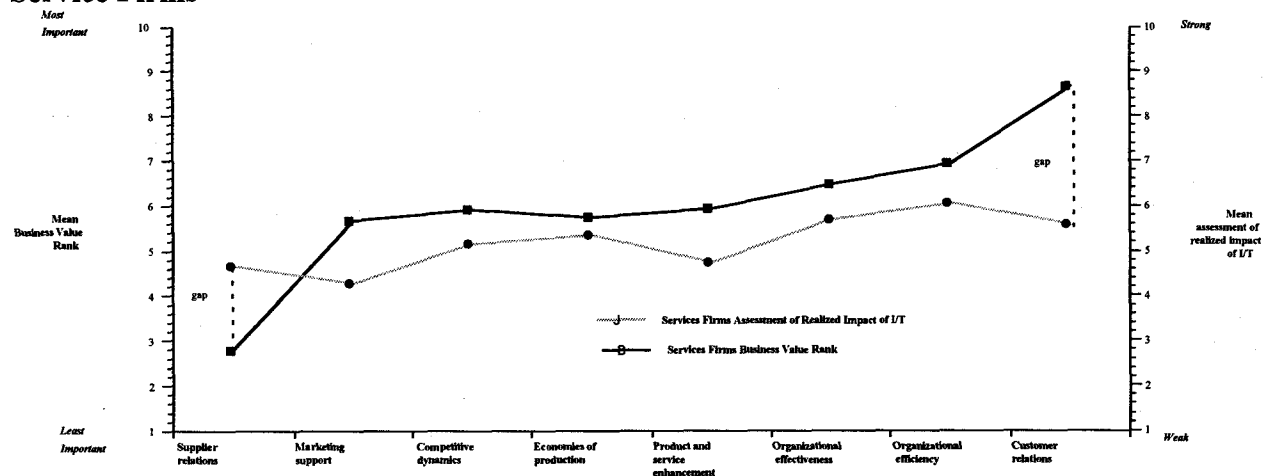
- The gap between rankings and realized impact is more pronounced for manufacturing firms than services firms. Particularly the areas of marketing and customer relations, i.e., the “selling of the product” with the aid of I/T are highly favored but as yet undeveloped.

**Exhibit 2. Comparison of Rank and Realized Impact of I/T To Dimensions of Business Value**

**Manufacturing Firms**



**Service Firms**



**Organizational Strategy and I/T Alignment.** Executives were also asked to allocate 100% with respect to three major strategies pursued by most firms. These findings are consistent with the rankings of the business value dimensions by the executives. The major findings are:

- *Services firms place significantly more emphasis on operational excellence, i.e., efficiency and effectiveness, than do manufacturing firms.*
- *Product leadership, including creative development, is valued more as a strategy for manufacturing firms than for services firms.*
- *Customer intimacy is equally valued by executives in manufacturing and service firms.*

## IMPLICATIONS

I/T is assessed to have the highest payoffs in areas concerned with operational excellence (e.g., organizational effectiveness and efficiency); areas that have traditionally benefited from information technology. Especially for services firms, these areas are also highly valued as important for the success of the firm. In contrast, product enhancement is more important within the manufacturing sector. These differences underscore the need to consider manufacturing and services firms separately.

What is particularly noteworthy for both the manufacturing and services firms, however, is the gap between realized impacts from I/T and those dimensions considered important in the business of the firm. For both manufacturing and services firms, the largest gap is that of customer relations. While there is a consensus that an important dimension of business value is the area of customer relations, I/T impacts in this area are assessed no higher than other areas. These findings indicate that development of I/T solutions to increase marketing and customer satisfaction would be valued by both manufacturing and services firms. This suggests that CEO's and CIO's may need to consider whether to realign I/T investment to close the gap

**Exhibit 3. Firm Strategy: Manufacturing vs. Services Firms**

	<b>Manufacturing (Mean percent)</b>	<b>Services (Mean percent)</b>
<b>Operational excellence</b> , i.e., emphasize efficiency and reliability, end-to-end supply chain optimization.	32%	46%
<b>Customer intimacy</b> , i.e., emphasize flexibility and responsiveness; customer services, market-place management	38%	36%
<b>Product leadership</b> , i.e., emphasize creativity, product development, time-to-market and market communications.	30%	18%

## APPENDIX A. MEASURES OF BUSINESS VALUE DIMENSIONS

The dimensions of business value are continuously being refined through additions and deletions of items along with an increase in the number of executives surveyed. Business value consists of eight identifiable dimensions.<sup>1</sup> The 8 dimensions and the items used in measuring the dimension are listed in Exhibit 2. The coefficient of reliability (C.R.) or Cronbach's alpha<sup>2</sup> is provided for each dimension.

### OPERATIONAL EXCELLENCE

#### Organizational Efficiency (.89)

- Facilitate the automation of core business process
- Reduce your corporation's labor and related expenses
- Increase your corporation's profit margins
- Reduce your corporation's selling and general administrative expenses

#### Organizational Effectiveness (.91)

- Provide better coordination among functional areas in your corporation
- Improve internal communication within your corporation
- Improve coordination among geographically separate units of your corporation
- Improve the process and content of decision making
- Improve strategic planning
- Help to enlarge your corporation's geographic market share
- Facilitate implementing new processes that constitute a better way of doing business
- Enhance the reliability of value chain linkages through integration of IT systems

#### Economies of Production (.95)

- Reduce the level of production/service delivery required for economies of scale
- Improve levels of production or throughput
- Improve the utilization of machinery
- Improve the productivity of labor through automation
- Make new areas of business technologically feasible for your corporation
- Enhance the value of products/ services by becoming a part of these products/services
- Reduce variance and uncertainty in product service/quality
- Enhance the creative capacity of your corporation through support for collaboration
- Reduce the production cost of tailoring products/services to market segments
- Make new areas of business economically feasible for your corporation
- Improve the effectiveness of your corporation's R&D activities
- Provide your corporation with unique opportunities for product & service innovation

### CUSTOMER INTIMACY

#### Customer Relations (.91)

- Facilitate a higher level of flexibility and responsiveness to customer needs
- Enable your corporation to provide administrative support to customers (for example, product ordering, inventory management, billing, etc.)
- Position customers to rely increasingly on your corporations' electronic support systems (e.g., order entry terminals, order tracking)
- Facilitate the development of detailed customer databases
- Provide on-line access of your corporation's products/services database to customers
- Reduce the variance and uncertainty in product/service delivery times
- Help your corporation coordinate closely with its customers

#### Market Support (.96)

- Track market response to promotional or introductory pricing
- Track market response to discounts
- Help to track market response to pricing strategies
- Facilitate targeted response to competitor's pricing strategies
- Provide support for identifying market trends through powerful analytical tools
- Enhance the accuracy of sales forecasts
- Increase your corporation's effectiveness in locating new markets
- Increase your corporation's ability to anticipate customer needs
- Assist your corporation in serving new market segments

### PRODUCT LEADERSHIP

#### Product & Service Enhancement (.95)

- Reduce the time-to-market for new products/services
- Reduce the cycle time for development of new products/services
- Reduce the development time for new products/services
- Reduce the cost of designing new products/services
- Facilitate the tailoring of products/services to individual market segments

#### Competitive Dynamics (.93)

- Help to delay competitor entry into your corporation's product/service areas because of the investments required in information technology
- Support your corporation in offering a product/service that your competitors cannot immediately match.
- Help your corporation to provide substitutes for your competitors' products/services
- Increase your corporation's market shares

#### Supplier Relations (.95)

- Facilitate the development of close relationships with suppliers
- Enhance the ability to monitor the quality of products/services received from suppliers
- Help your corporation to gain leverage over its suppliers
- Reduce transaction costs by making it easier for suppliers to handle orders
- Help your corporation coordinate closely with its suppliers

<sup>1</sup> These dimensions have been fairly constant over the three years of surveying although important refinements have been done. Our earlier instruments were unable to distinguish between efficiency and effectiveness. The most recent version of the instrument allows us to empirically distinguish the two concepts.

<sup>2</sup> Cronbach's alpha is a measure of the "internal consistency" of a scale; it is based on the average correlation of items within a scale. We assume that the items on a scale are positively correlated with each other because they are measuring, to a certain extent, a common entity. This measure varies from a 0 to 1.0. Generally, it is accepted that a scale is consistent if alpha is in the range of .70 to 1.00.

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