

IT SAVVY PAYS OFF¹

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Firms with more firm-wide IT savvy have better payoff associated with all their IT investments.² We studied 147 firms over four years and found that top performers have more IT savvy comprised of clusters of value enhancing practices and characteristics. High IT savvy helped firms achieve greater than industry average returns from each IT dollar invested in their IT portfolio. Previous briefings have introduced the IT Portfolio and its four asset classes, provided benchmarks (March 2003 briefing) and identified the returns to the IT asset classes (March 2004). This briefing builds on the IT portfolio approach and presents the increased returns for high IT savvy for each of the four asset classes in the IT portfolio across several measures of firm performance.

Characteristics that Create IT Savvy

We found that business leaders of firms with high IT savvy have developed five mutually reinforcing

characteristics described below. The first three characteristics are practices related to IT use. The last two characteristics are competencies needed for high IT savvy. The mutual reinforcement of both practices and competencies is necessary for high IT savvy.

- *IT for Communication*—high use of electronic channels such as email, Intranets and wireless devices for internal and external communications and work practices.
- *Digital Transactions*—a high degree of digitization of the firm's repetitive transactions, particularly sales, customer interaction and purchasing.
- *Internet Use*—more use of Internet architectures for key process such as sales force management, employee performance measurement, training and post-sales customer support.
- *Firm-wide IT Skills*—high capability of all employees to use IT effectively. There are strong technical and business skills among IT staff, strong IT skills among business staff and an adequate market supply of highly skilled IT staff.
- *Business Management Involvement*—strong senior management commitment and championing of IT initiatives. There is also strong business unit involvement in IT decisions resulting in a partnership between IT staff and business units to generate value from IT investments.

An example of a firm with high IT savvy is 7-Eleven Japan, the most profitable retailer in Japan with over 10,000 stores.³ 7-Eleven's "total information system" connects 70,000 computers in stores, at headquarters and at suppliers providing a transparency of the entire value chain. For example, recent sales, weather conditions, and product range information are provided graphically to each store as input for ordering fresh food. Fresh food is ordered and delivered three times a day into stores. The

¹ This research was made possible by the support of CISR sponsors in particular CISR Patron Microsoft Corporation and the National Science Foundation, grant number IIS-0085725. This CISR briefing is the third in a series on IT portfolios. The previous briefings are: "Managing the IT Portfolio: Returns from the Different IT Asset Classes," Vol. IV, No. 1A, March 2004 and "Managing the IT Portfolio (update circa 2003)," Vol. III, No. 1C, March 2003. For more technical details see "Top Performing Firms Have Complementary Capabilities and IT Investments," Sinan Aral & Peter Weill, MIT Sloan CISR Working Paper No. 343, August 2004. This research draws on and extends the material on IT portfolios in "Leveraging the New Infrastructure: How market leaders capitalize on IT" by Peter Weill and Marianne Broadbent, Harvard Business School Press, 1998.

² The total IT investment includes all centralized and decentralized IT spend (expenses and depreciated capital) both insourced and outsourced plus all people dedicated to IT services and management. The analysis based on 147 firms using data from 1999 to 2002. All results linking IT investments and performance presented in this briefing are statistically significant controlling for industry, firm size, R&D and advertising expenditure.

³ For more information, see Kei Nagayama & Peter Weill "7-Eleven Japan Co., Ltd.: Reinventing the Retail Business Model," MIT Sloan CISR Working Paper 338, January 2004.

result is that on hot days Tokyo's 7-Eleven stores have plenty of Bento boxes while on cold days there are lots of hot noodles for sale. But these practices alone are not enough; 7-Eleven Japan has worked hard to develop firm-wide IT skills and senior management involvement to conceive of and reinforce these practices. 7-Eleven Japan has company counselors who visit each store at least twice a week. The counselors work with the store franchisees or managers to improve the business, often by using data from their information systems to manage and order more effectively. The company counselors' visits increase the IT skills of the store operators while reinforcing the IT practices.

One of the reasons why 7-Eleven Japan's average daily sales are approximately ¥200 thousand (\$1670) higher than competitors' is that each of the total 200,000 store owners and clerks, including part time workers, is expected to participate in managing ordering and inventory. The collaboration leads to the appropriate orders, optimizes employees' capabilities, and maintains their motivation—differentiating 7-Eleven Japan from its competitors. The reinforcement of practices and capabilities comprising IT savvy has also helped to steadily increase profitability with gross margins per store increasing from 5% to over 30% from 1977 to 2003. The impact is also apparent in store and supply chain efficiency with the average number of deliveries to downtown stores dropping from 77 to 10 per day over the same period while stock turn decreased from 25 to 10 days.

The Extra Returns from IT Savvy

The figure summarizes the average returns and the impact of high IT savvy on investments in the four IT asset classes in the IT portfolio.⁴ IT savvy is measured by the strength of the five characteristics described above.⁵ Firms with high IT savvy achieved higher performance than other firms when they invested in all four IT asset classes. For example, investments in infrastructure coupled with high IT savvy were associated with superior returns for a broad basket of performance measures—costs, profits, innovation and market capitalization. IT infrastructure is the shared IT services such as the network, customer databases, pc/laptops, help desk,

⁴ The average firm studied weights its investments in its IT portfolio as: 13% Strategic, 20% Informational, 13% transactional and 54% infrastructure. The impact of IT savvy is described across four measures of firm performance.

⁵ For example, the strength the characteristic—digital transactions—was measured as the percent of orders and total sales conducted electronically which averaged 22%.

data center, servers, security, middleware and excludes applications. IT infrastructure creates business value by enabling faster, more efficient application development. In average firms, the impact of IT infrastructure on profit is negative in the year following the investment. The often several-year lag between infrastructure investment and effective use, and the significant cash outlay and disruption typically required by major infrastructure investments, helps explain this negative impact. However, the reinforcing practices and competencies in high IT savvy firms convert the impact of IT infrastructure on short-term profit from negative to positive. The market highly values IT infrastructure investments in the average firm but attaches premium value to these investments in high IT savvy firms.

High IT savvy firms also had higher performance associated with transactional IT investments typically made to automate repetitive transactions, cut costs, and increase throughput. Not only does the market value transactional investments in high IT savvy firms but these firms also have higher profits and get more sales from innovative products. The average firm also has lower costs associated with their transactional investments, a tribute to the value transactional investments can bring to any firm. However, low IT savvy firms have much lower impact on innovation, profits or market value from transactional IT.

Strategic IT is investment to create new business value or growth and is thus historically a high risk-high return IT asset class. But firms with high IT savvy mitigate the risks associated with strategic IT investments and have higher than average profits, innovation and market capitalization. In firms like 7-Eleven Japan, senior management involvement, high firm-wide IT skills and a culture of IT use are necessary for more successful strategic (and in other firms, risky) IT investment.

Informational IT includes many types of investments ranging from reporting requirements such as Sarbanes Oxley to customer relationship management. Again IT savvy makes a big difference. We suspect firms with strong IT savvy demonstrate particularly strong profitability because of the disciplines (e.g., common standards, IT skills of managers) required to use information effectively. Interestingly, we see no impact from informational IT on innovation, cost or market capitalization in the average firm.

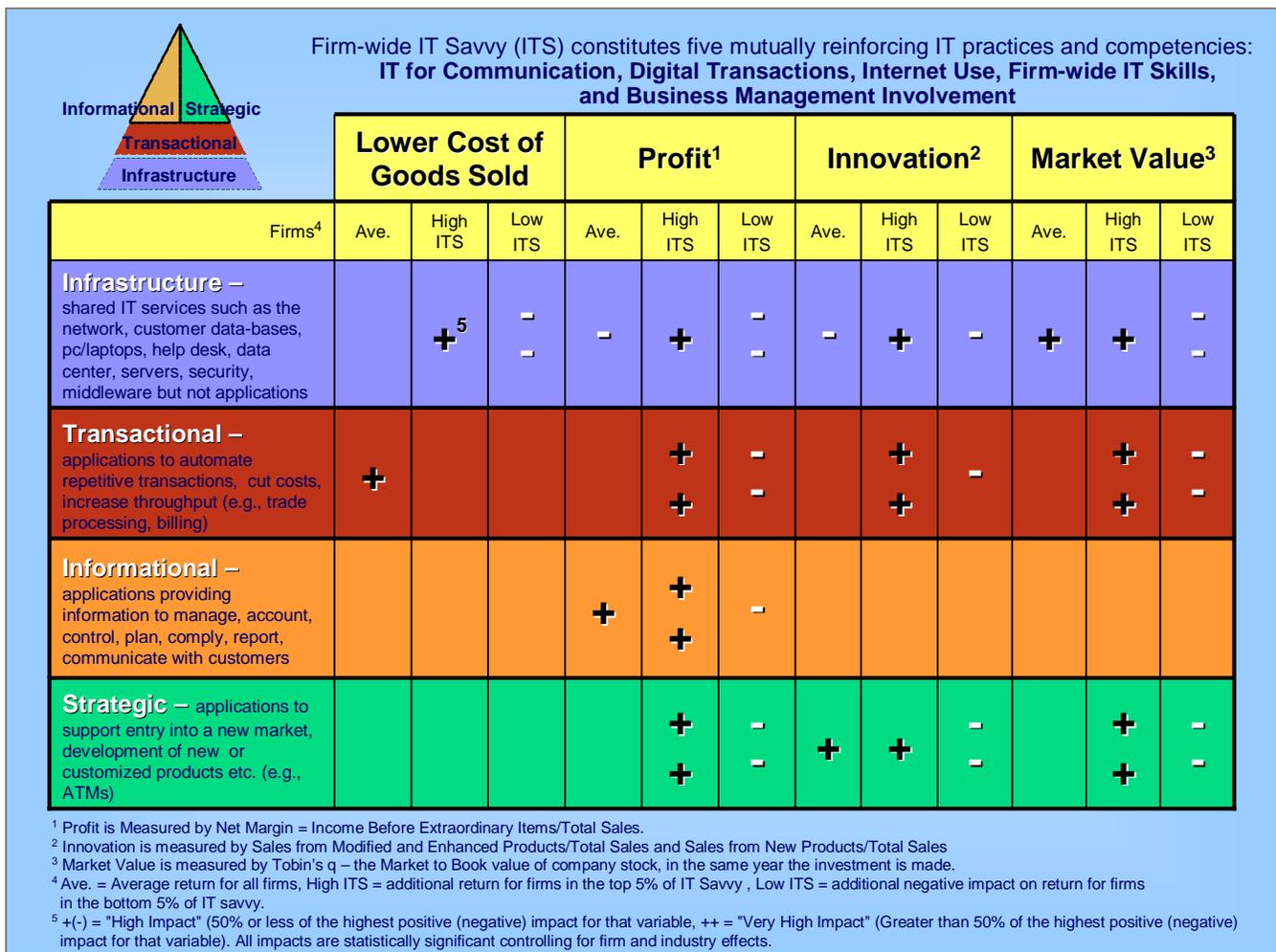
IT investments in firms with a low IT savvy were associated with lower returns from all four asset

classes in their IT portfolios. The situation for these firms is bleak with value leaking from most IT dollars they invest. These firms should reduce their IT investments to essential areas and reweigh their portfolios towards transactional IT until they improve their overall IT savvy. Otherwise, they will continue to leak value, particularly from the longer term and higher risk asset classes—infrastructure and strategic IT.

Firms with average or low IT savvy can increase their returns and reduce their IT risk without investing another cent in IT. Instead these firms should apply another scarce resource—management

attention—to increasing their IT savvy. The superior results from IT savvy are effectively a return on superior management capability, one of the few long term sources of competitive advantage. We suspect that the aspects of strong IT savvy we measured are reflective of superior capability in all aspects of management, including IT. Firms with a strong IT savvy like 7-Eleven Japan have developed a firm-wide culture of IT savvy that impacts every employee and process. The instinct and discipline to use IT effectively is part of every manager’s thinking and part of the firm’s DNA. IT savvy can be learned and it pays off.

Figure 1: Average Returns from IT and the Additional Value from IT Savvy



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