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**IT Savvy Pays Off: How Top Performers
Match IT Portfolios and Organizational Practices**

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Title: IT Savvy Pays Off: How Top Performers Match IT Portfolios and Organizational Practices

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Abstract: Information technology is major investment for most enterprises and constitutes a portfolio of investments. Just like any other investment portfolio, the IT portfolio must be balanced to achieve alignment with business strategy and the desired combination of short and long term pay off. This portfolio balancing is the role of senior management and should be integrated into firms' IT governance processes. Top financial performers have matched particular organizational practices and competencies with IT portfolio allocations to achieve specific business goals. In short, they have more IT savvy and it pays off.

Keywords: Retail, business model, IT and information management, IT enabled strategy, outsourcing.

12 Pages



IT Savvy Pays Off: How Top Performers Match IT Portfolios and Organizational Practices¹

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Matching IT Investments and Organizational Practices Enhances Returns

7-Eleven Japan, with over 10,000 stores, is the most profitable retailer in Japan. 7-Eleven Japan “counselors” 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.² By matching practices and information technology (IT) investment, the typical 7-Eleven store offers an industry leading 70% new items for sale per year. This product mix agility has contributed to the average store’s daily sales doubling from 1977 to 2004. 7-Eleven CEO Toshifumi Suzuki, explains:

“It is not enough to exchange information. The information has no value unless it is understood and properly integrated by the franchisees and makes them work better.”

7-Eleven’s “total information system” connects 70,000 computers in stores, at headquarters, and at supplier sites providing transparency across the entire value chain. Recent sales, weather conditions and product range information are provided graphically to each store for ordering fresh food. Fresh food is ordered and delivered three times a day into stores. The 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 business management involvement to conceive of, and reinforce, these practices. The company counselors’ visits increase the IT skills of the store operators while reinforcing the IT practices.

One reason why 7-Eleven’s average daily sales is 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 ordering, often testing hypotheses for new product offerings. The collaboration leads to more effective ordering, optimizes employees’ capabilities, and maintains motivation—differentiating 7-Eleven Japan from its competitors.

The matching of practices, capabilities and IT has helped steadily increase profitability with gross margins per store increasing from 5% to over 30% from 1977 to 2004. The impact is also apparent in store and supply chain efficiency with the average number of deliveries to downtown stores dropping from 77 to ten per day over the same period and stock turn decreasing from 25 to ten days.

7-Eleven Japan has made effective IT investments for their business strategy and matched the resulting IT portfolio with IT practices and capabilities to create industry leading financial returns over more than 20 years. We call this reinforcing set of practices and capabilities “IT savvy.” We found this pattern of success is repeated by top performing firms that have stronger IT savvy and derive greater value from each dollar invested in their IT portfolio. We studied 147 firms over five years and found that top performers had developed value enhancing IT savvy to support their IT portfolio. Top performers have matched particular practices (e.g., the percent of firm transactions that are digital) and competencies (e.g., IT skills of all staff) with IT portfolio allocations to achieve specific business goals (e.g., growth, profit or innovation).

¹ The authors gratefully acknowledge the support for this research from all the MIT CISR Patrons and Sponsors (<http://mitsloan.mit.edu/cisr/>) and the National Science Foundation, grant number IIS-0085725. In particular, we would like to acknowledge the input of Jeanne Ross of MIT Sloan CISR and Shafeen Charania of Microsoft.

² For more information see K. Nagayama & P. Weill “7-Eleven Japan Co., Ltd.: Reinventing the Retail Business Model,” MIT Sloan CISR Working Paper 338, January 2004.

Why Use IT Portfolios for IT Investment

To better enable senior executives to match IT investments with strategy, many firms use IT portfolio management.³ Just as investors address their risk and return objectives using portfolios of financial investments, firms have portfolios of IT investments. We found there are four different management objectives that motivate firms' investment in IT. Each objective results in a different IT asset class with a unique risk-return profile. Just like any other investment portfolio, the IT portfolio must be balanced to achieve alignment with the business strategy and the desired combination of short and long term pay off. This portfolio balancing is the role of senior management and should be integrated in the firm's IT governance processes.⁴

Four Management Objectives Leading to Four IT Asset Classes

We found business leaders have four different management objectives for investing in IT:

- Transactional – to cut costs or increase throughput for the same cost (e.g., a trade processing system for a brokerage firm). For 7-Eleven Japan, the store ordering system, which efficiently processes millions of transactions a day, is a transactional investment.
- Informational – to provide information for any purpose including: to account, manage, control, report compliance, communicate, collaborate or analyze (e.g., a sales analysis or reporting system). For 7-Eleven Japan, the sales analysis to identify what products are (or are not) selling well is informational.
- Strategic – to gain competitive advantage or position in the market place (e.g., ATMs were a very successful strategic IT initiative for the innovating banks increasing market share). A successful strategic IT initiative for 7-Eleven Japan was the introduction of a bill payment service where customers can pay their utility and other bills in stores. The service is growing at 20% per year. In a few years this strategic initiative will lose its competitive advantage as other outlets provide the same service and what was once strategic will become transactional.

About the Research

This paper is based on a survey of CIOs and IT managers at 147 U.S. firms and supplemented by discussions with IT managers in large U.S., European and Asian firms over the last five years. The survey was designed at the Center for Information Systems Research (CISR) and the Center for eBusiness at MIT and conducted in person and over the telephone in 2001/2/3 by the research firm Harte Hanks. The firms surveyed accounted for \$448 billion in output in 2001 and provided three years of data on IT investments and organizational practices between 1999 and 2001. Performance data was obtained for four years between 1998 and 2002 from the Compustat database. The total IT investment includes all centralized and decentralized IT spend (expenses and depreciated capital) both in-house and outsourced, plus all employees dedicated to IT services and management. The survey sample is composed of 58% manufacturing and 42% services firms, which mirrors the composition of the S&P 500 and the Fortune 1000. The results are all statistically significant from regression analysis controlling for size, industry, R&D and advertising expenditure. Interviews and discussions with CIOs and other senior executives were conducted to further understand how IT savvy was implemented during 2003/4/5. For more details on the technical analysis see—Weill, P. & Aral, S., *IT Assets, Organizational Capabilities and Firm Performance: Asset and Capability Specific Complementarities*, MIT Sloan CISR Working Paper No. 343, August 2004.

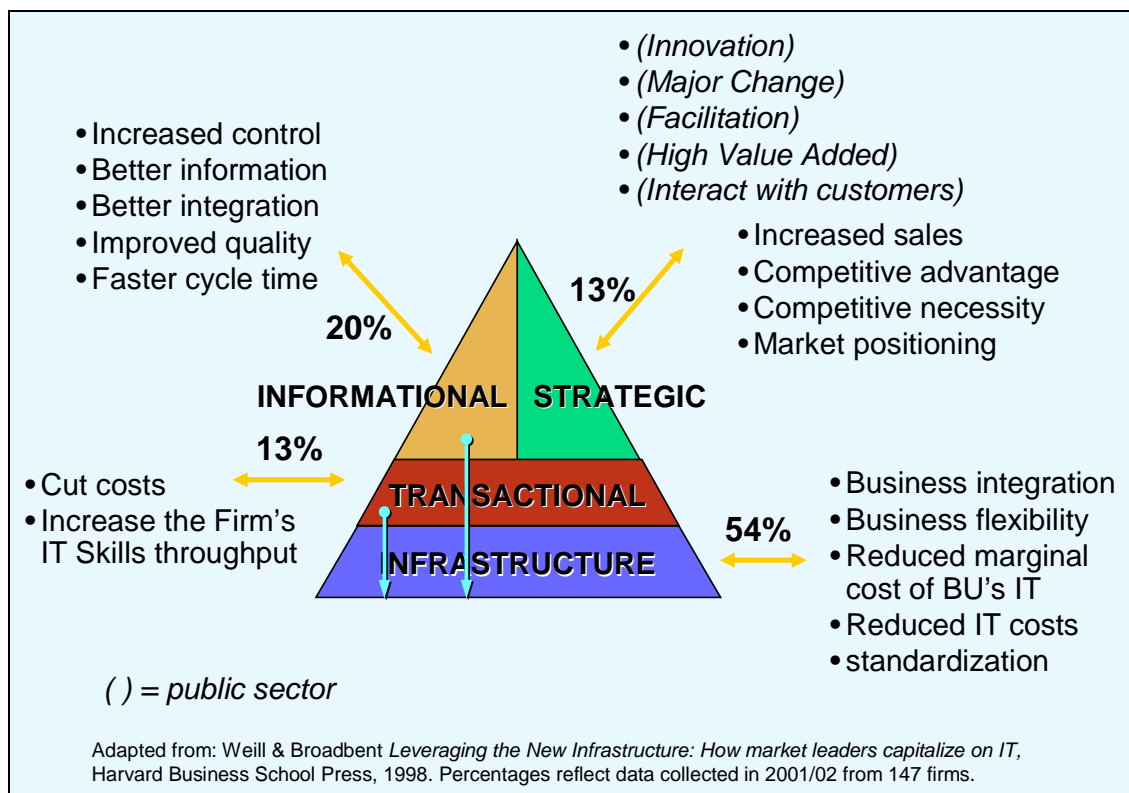
³ See 1) Jeffery & Leliveld, "Best Practices in IT Portfolio Management," *MIT Sloan Management Review*, Spring 2004, who report 24% of firms had effectively implemented IT portfolios and 78% expected implementation by the end of 2004; 2) *Leveraging the New Infrastructure: How Market Leaders Capitalize on Information Technology*, P. Weill and M. Broadbent, Harvard Business School Press, 1998; 3) P. Weill and J. Ross, *Managing the IT Portfolio (Update Circa 2003)*, MIT Sloan CISR Research Briefing, Vol. III, No. 1C, March 2003 available in CISR Working Paper 340 "CISR Research Briefings 2003"; and 4) P. Weill and J. Ross, *Managing the IT Portfolio: Returns from the Different IT Asset Classes*, MIT Sloan CISR Research Briefing, Vol. IV, No. 1A, March 2004 available in CISR Working Paper 351 "CISR Research Briefings 2004."

⁴ See P. Weill and J. Ross, *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*, Harvard Business School Press, 2004, Chapter 3.

- Infrastructure – the base foundation of shared IT services used by multiple applications (e.g., servers, networks, laptops, customer databases). Depending on the service, infrastructure investments are typically made with the objective of either reducing IT costs via consolidation and/or providing a flexible base for future business initiatives. In 7-Eleven Japan, the satellite, ISDN and mobile network linking the stores, headquarters and suppliers supports many different applications and is a large infrastructure investment.

Investments in the four management objectives become an IT portfolio with four distinct asset classes (see Figure 1). The average firm studied allocates 54% of their total IT investment each year to infrastructure. Utilizing the infrastructure are the transactional systems, accounting for 13% of average IT investment. Informational systems conceptually sit on top of and use both the transactional and infrastructure systems, accounting for 20% of average IT investment. Similarly, strategic systems use both the transactional and infrastructure systems and account for 13% of average investment. Just like a personal investment portfolio with cash, bonds, equities, property etc., the four IT asset classes have different historic risk-return profiles and must be re-weighted as objectives change.

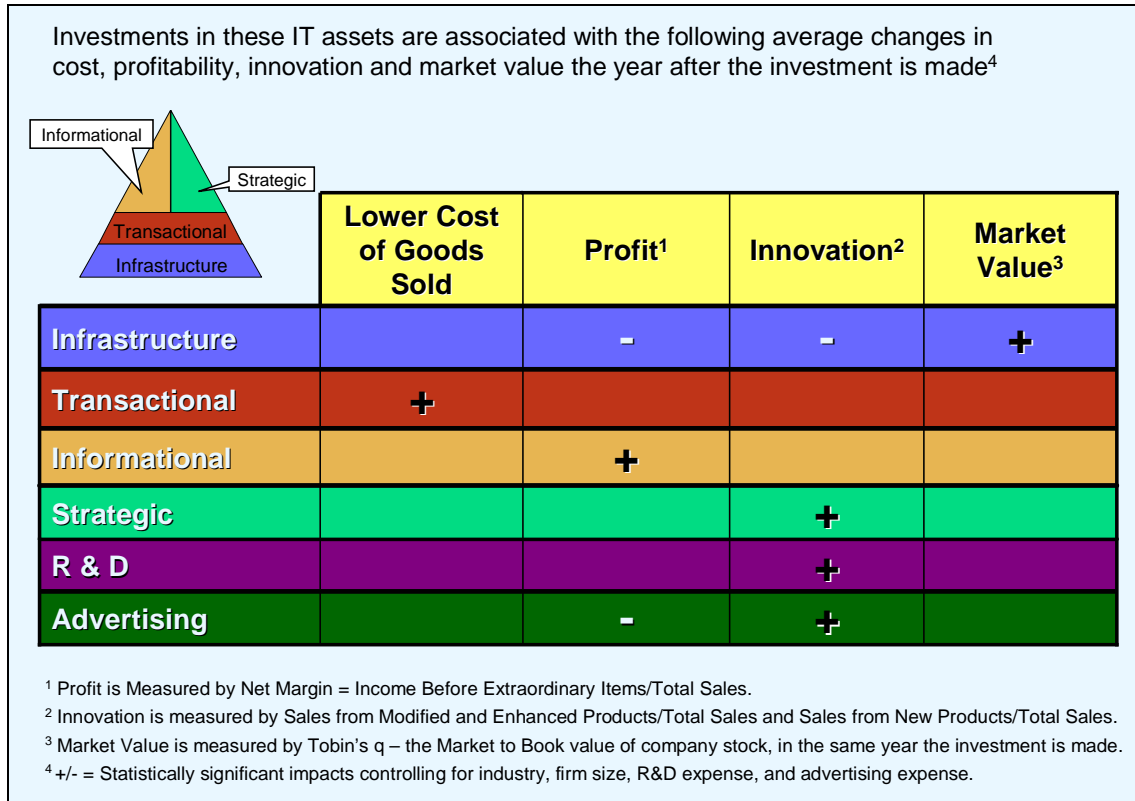
Figure 1: Rethinking IT as an Investment Portfolio



Investment for any single project can be allocated over one or more asset classes. For example, the senior executives of a large technology firm allocated their recent multimillion dollar investment in a customer relationship management system (CRM) as 60% informational (providing customer information), 5% strategic (to gain competitive advantage), 25% transactional (to cut costs) and 10% infrastructure (to provide shared IT services). This allocation raises a critical issue about the role of technology. The same technology can be applied with different managerial objectives in different firms. The technology firm was relatively late in adopting CRM and expected only 5% of the benefits would be strategic. They also had much of the infrastructure needed for the implementation and thus only 10% of the investment was for shared infrastructure. By comparison a competitor had successfully implemented CRM three years earlier with a higher total project cost and a different allocation of resources—more strategic and infrastructure and less informational. The portfolio allocation works because it underscores the importance of how firms use

technology instead of the technology itself. Making a sensible allocation of an IT project investment into the asset classes requires senior management clarity about what they wish to achieve and who will be held accountable—a matter of strategy rather than of technical specifications.

Figure 2: Different IT Assets Deliver Different Value



The Returns from the Four IT Asset Classes

IT investments in the transactional asset class aim to reduce costs and increase productivity. Firms that invested more heavily (than their competitors) in transactional IT had superior productivity (measured by sales per dollar of assets) and lower costs (see Figure 2). The results suggest that transactional investments pay off by using IT to support or automate repetitive business processes. For example, UPS, a very successful but cost conscious logistics firm, provides free package tracking information on their website or integrated into their customer's ERP systems. Before on-line tracking, customer calls to their call center cost UPS around \$2 each; sometimes there were two follow-on calls within UPS to locate the package, costing a total of \$6. With on-line tracking, there can be six million tracking requests per day during the Christmas rush period and each costs UPS only a few cents.⁵ If the firm's strategy is to use IT to cut business costs and increase productivity, weighting the IT portfolio with transactional investments more heavily than the 13% average makes sense.⁶

Investments in the informational asset class aim to provide more and better information to manage, control, report, comply with regulations like Sarbanes Oaxley, or analyze customer needs. Firms that invested more heavily in informational IT had higher quality and larger margins. Thus these firms, such as 7-Eleven Japan, proactively used the output of their informational investments to make better decisions, often about customer needs. Information on its own doesn't create business value; it is the systematic application of the information to the business issue that creates value.

⁵ See J. Ross, "United Parcel Service: Delivering Packages and E-Commerce Solutions," MIT Sloan CISR Working Paper 318, August 2001.

⁶ See the MIT Sloan CISR Research Briefing (March 2003) in footnote 3 for benchmarks by industry.

Investments in strategic IT aim to gain a competitive advantage by positioning the firm in the market place for growth and innovation. Successful strategies include electronic connections that provide customized services (e.g., Amazon's recommended books service) and customized products (e.g., TD Waterhouse's personalized investment analysis) to the customer.

Strategic IT is a high risk-high return strategy with high failure rates (we estimate 50%), but large potential upside with successful initiatives gaining a two- to three-year lead on competitors. But the lead doesn't last; ATMs are now a lower cost channel for banks, illustrating that effective strategic investments eventually become transactional. Firms with more strategic IT investments generate more revenues from modified and enhanced products indicating that these investments are effective in increasing sales through product innovation.

Investments in IT infrastructure serve multiple purposes. Some infrastructure investments aim to reduce cost through standardization and consolidation (e.g., server or data center consolidation). Other infrastructure investments provide a platform for delivering firm-wide initiatives such as a shared customer database for a single point of customer contact. Still other infrastructure investments, such as implementations of modular architectures, enable future IT initiatives and flexibility. More infrastructure capability is expected to reduce time to market for new business initiatives.

The returns from the IT infrastructure asset class reflect this complex set of objectives and present a strategic choice for senior executives. Firms that made more investments in IT infrastructure did have higher valuations and faster times to market. However, there is also a cost. Firms with more IT infrastructure investments showed a short-term impact on their profitability with lower margins and return on assets in the same year as the infrastructure investment, demonstrating that there is typically a lag to receiving the benefits. However, the stock market appears to reward long-term investments such as IT infrastructure. Firms that maximized their infrastructure investments had higher market valuation but lower short run margins and ROAs. A CEO in financial services responded to this finding, "That balancing act makes sense to me. We constantly make the same tradeoffs in all our infrastructure investments such as people, brand, buildings and research."

Understanding each of the four IT asset classes' return profiles and the portfolios for top performers helps managers make more informed IT investment decisions that are linked to their strategic goals. The portfolio approach helps put IT in business terms and provides a common language for business and IT professionals.

Since 1999, Eli Lilly has used this approach to categorize its IT investments. "We tend to want to have five percent [of our projects] in strategic areas, 15% to 20% in the informational category, and the remaining percentage split between the infrastructure and transactional," explains Sheldon Ort, Lilly's information officer for business operations. He says that at the enterprise level, those percentages have remained fairly consistent. This model allows Lilly to balance the risk and reward of its IT investments in business teams.⁷

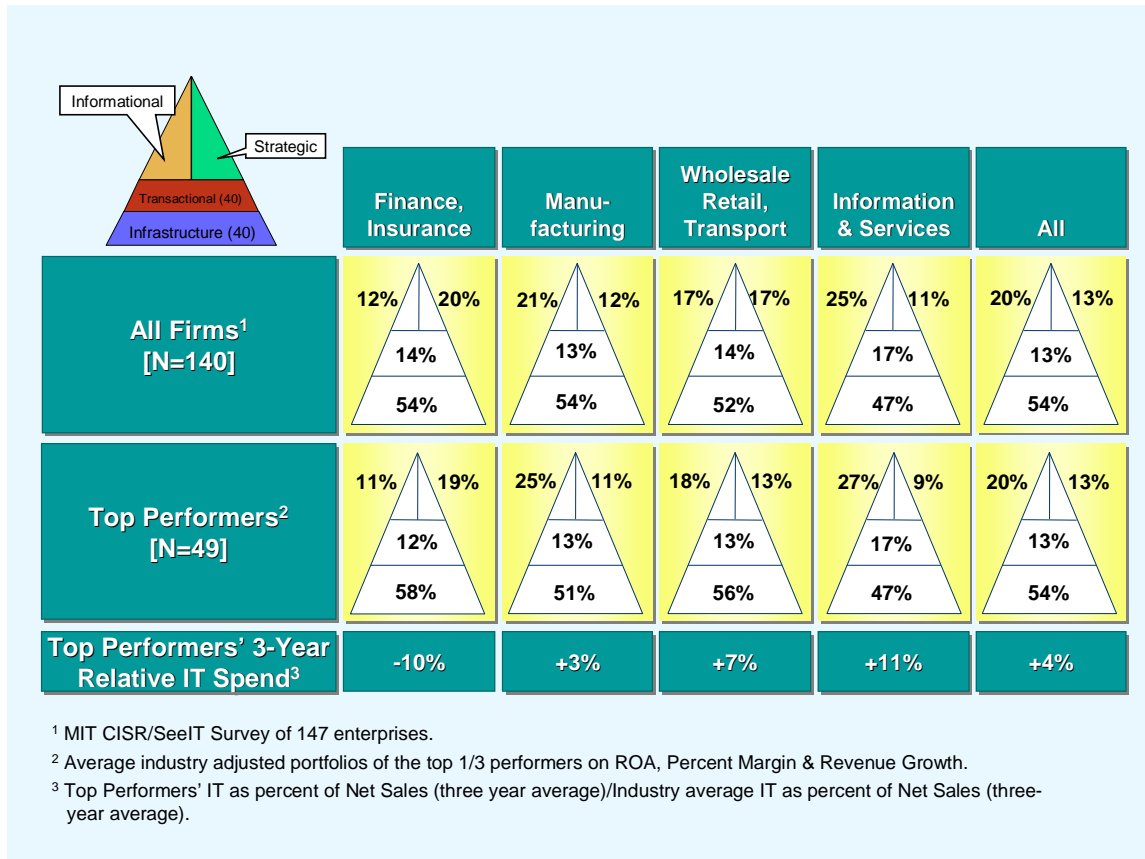
For comparison, Figure 2 also provides the measurable returns from firm-wide investment in research and development and advertising. For many firms, investments across these different areas require tradeoffs and coordination. This evidence of the different average returns associated with each type of investment provides interesting input for these often politically charged discussions.

Figure 3 provides a comparison of IT investments and portfolios for all firms studied as well as top performers. Top performers averaged across all industries spend 4% more on IT and have similar portfolios to the average firm. The industry differences are interesting. For example, top performers in financial services spent 10% less than the average firm, but have portfolios more weighted to infrastructure. IT investment is so fundamental to all financial services firms that IT is mature with much of the advantage coming from more efficiency and effectiveness. Top performers in wholesale, retail and transport spent 11%

⁷ Adapted from Todd Datz, "Portfolio Management – how to do it right," *CIO Magazine* 1 May 2003.

more than the average firm, indicating there was still potential benefit to strategically increase IT spending and create value.

Figure 3: Portfolios of Top Performers Are Different



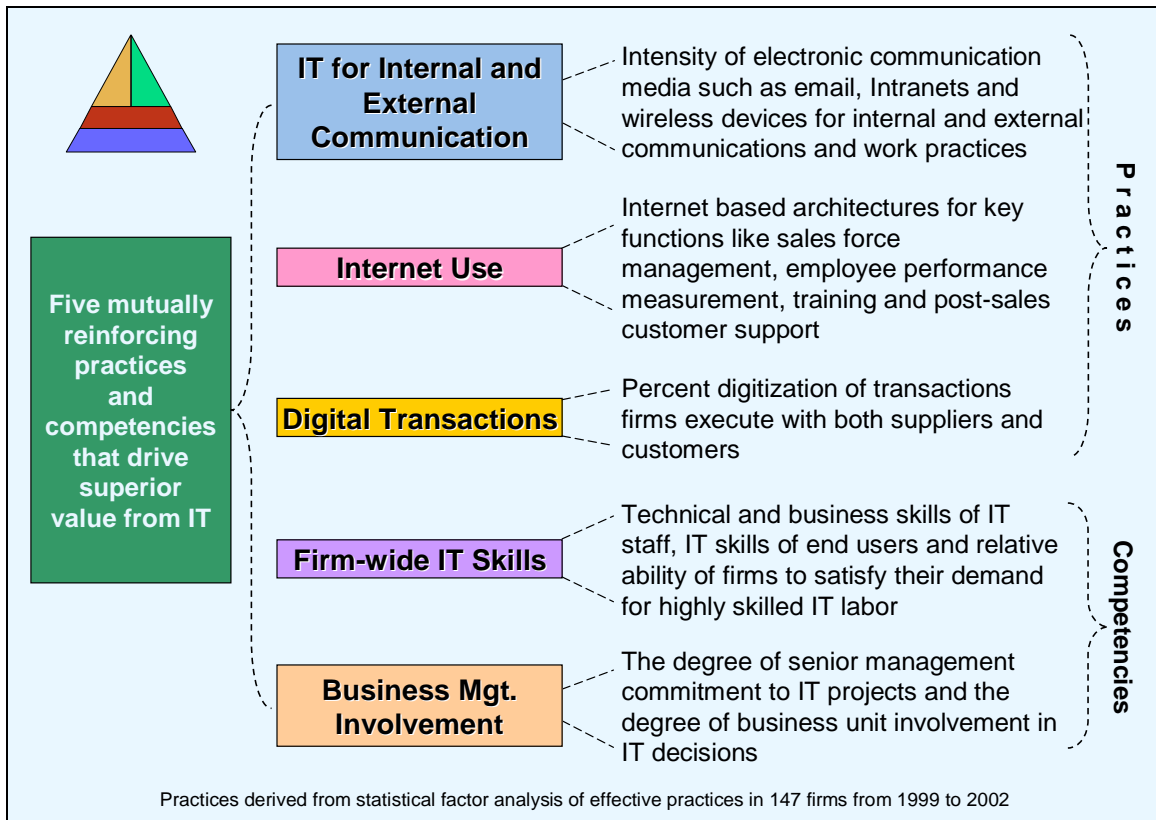
Just like a personal investment portfolio, an enterprise's IT portfolio must be aligned to its strategy and balanced for risk and return. Firms use the results in Figures 2 as one would use stock brokers' reports containing historic returns to different asset classes and the average asset class composition of high return portfolios. The objective is not to aim for the same profile as the benchmark but instead to answer the following question. As a senior management team, can we explain the difference between our IT portfolio and the benchmark by our strategy? If the difference can be convincingly explained, then alignment between strategy and IT investment is typically achieved.

Just making IT investments is not enough. Above industry average returns per dollar invested are achieved by matching IT investments, capabilities and management practices—i.e., more IT savvy—as in the 7-Eleven Japan example. Again just like a personal financial portfolio, investing the right amount in the right assets classes is only the first step—above average management capabilities are also needed to achieve above industry average returns.

Firms with Superior IT Savvy Have Above Average Returns

Firms with more IT savvy derive greater value from each IT dollar invested in all four IT asset classes in their IT portfolio. Firms achieving these above industry average returns from their IT investments have developed a 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 DNA of the firm.

Figure 4: Firm-Wide IT Savvy



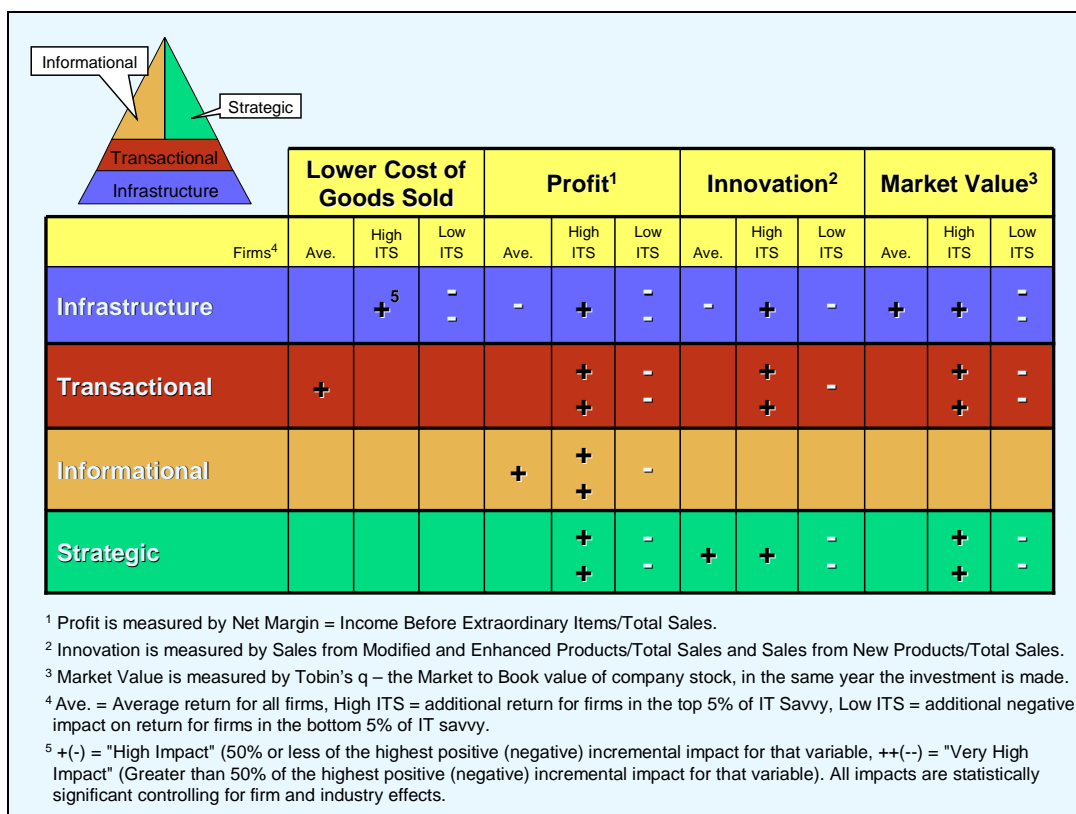
Characteristics That Create IT Savvy

Business leaders of firms with high IT savvy have developed the 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 and these five characteristics are representative but not exhaustive of firms with stronger overall IT savvy (see Figure 4).

- *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 processes 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 help generate value from IT investments.

Based on these five characteristics we assessed each firm's IT savvy relative to the other firms in the study.⁸ The impacts of high IT savvy are compelling and Figure 5 summarizes the premium on four different performance measures achieved by firms with high, average and low levels of overall IT competency.

Figure 5: Firm-wide IT Savvy (ITS) Impacts Performance

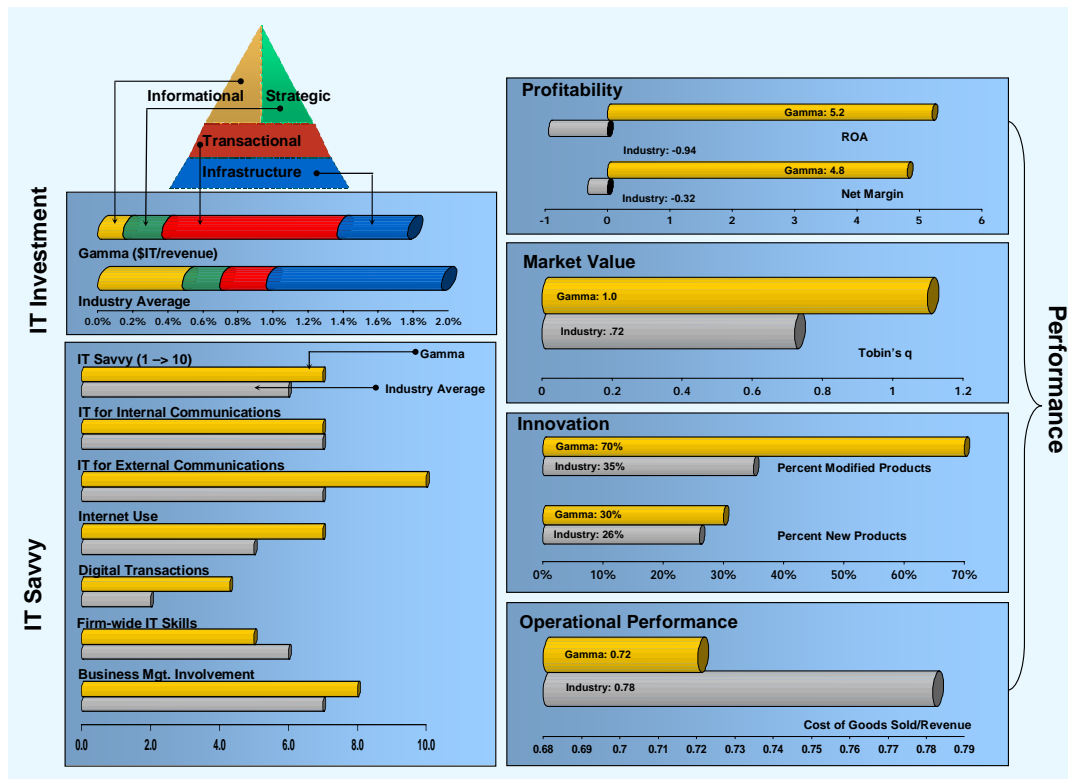


The Extra Returns from IT Savvy

Figure 5 summarizes the average returns and the impact of high IT savvy on investments in the four IT asset classes in the IT portfolio one year after investment. 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 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 help 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 firms with high IT savvy.

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

⁸ For example, the practice—digital transactions—was measured as the percent of orders and total sales conducted electronically which averaged 22%. Each firm's IT savvy was calculated by a linear combination of the five characteristics in Figure 4.



The IT Portfolio and IT Savvy at Gamma

Different IT assets contribute to different performance benefits for firms, and matching asset allocations with particular components of IT savvy improves value creation. Gamma, a real but disguised manufacturing firm, spends less than their industry's average on IT, but leverages thoughtful asset allocation and strong IT savvy to achieve greater profitability, market value and innovation than its competitors. Spending more than the industry average on strategic and transactional IT, and leveraging the Internet for sales, procurement, training, employee evaluation and customer support helps Gamma achieve greater product innovation and close to the industry average cost of selling. Below average human resource capabilities may prevent Gamma from achieving operational excellence that exceeds their industry competitors. Although Gamma spends slightly less than their industry's average on informational IT and infrastructure, their use of the internet and strong IT management competency (cooperative links between IT and business units; and top management championing of IT initiatives) enable them to achieve greater profitability and market value than competitors in their industry.

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 with objectives to create new business value or growth is 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, business management involvement and a culture of IT use for communication are necessary for more successful strategic (and in other firms, risky) IT investment.

Informational IT includes many types of investments including reporting requirements such as Sarbanes Oxley and 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., firm-wide IT skills of managers including the use of common information and standards) required to use a common set

of 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 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 lower risk 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.

Maximizing the Business Value of Your IT Portfolio

Just making IT investments is not enough. Better returns are available by matching the type of IT investments made with the firm's objectives. Even better returns are available by having higher IT savvy and matching IT management practices and competencies with the mix in the IT portfolio. IT portfolio management is a proven way to make stronger returns possible by raising awareness of how IT dollars are spent. Here are some suggestions for applying IT portfolio management and matching IT savvy.

1. *Identify the current and previous year's IT portfolios.* Using our portfolio categorization, estimate your firm's IT portfolios for the last three years and the proposed IT portfolio for next year.⁹ At an IT investment committee or governance meeting discuss whether these investments are appropriate for the strategy of the firm. A recent discussion with an insurance firm looking back over the last four years of IT portfolios raised these important questions:
 - Why did the firm's percentage of strategic IT investments fluctuate so dramatically?
 - Will the low infrastructure investments planned for next year adversely affect our strategic agility?
 - Does our method of decentralized and departmentalized decision making about IT investments fritter away our IT resources in a "bottom up" approach which doesn't support the major strategic direction of the firm as a whole?
 - Why do some business units with different strategies not have different IT portfolios?
2. *Understand IT asset class performance and benchmarks for your business.* Using the results reported in this article and other benchmarks, assess whether your current IT portfolios are appropriate for your firm's or business unit's strategic goals, IT savvy and appetite for risk. An attractive alternative to using benchmarks is to compare multiple business units within your firm. As each business unit has a different strategy and IT savvy, comparing the alignment of their objectives, practices, capabilities and IT portfolio will help highlight where IT investments are applied thoughtfully and what changes should be investigated.
3. *Understand and track your firm's IT savvy.* Given the impact on the business value generated from IT, firms should assess and actively manage IT Savvy. The practices and competencies described in Figure 4 provide a starting point for assessing IT savvy. Again, comparing IT savvy across multiple business units is particularly informative. Firms or business units with low overall IT savvy should consider re-weighting their IT portfolios towards the less risky transactional and informational investments. At the same time, low IT savvy firms can focus on improving IT practices and competencies that are most important for the asset classes where most of their key investments are made. Figure 6 summarizes the impact of IT savvy. The column on the right identifies the key components of IT savvy that add the most leverage to the asset classes in the IT portfolio for each performance goal. To improve IT savvy, start with characteristics that provide leverage for the most important asset classes in the firm's (or business unit's) IT portfolio to improve firm-wide performance. Practices from strong IT savvy business units can be codified and transferred to lower IT savvy units.

⁹ To estimate your portfolio using the MIT CISR IT portfolio framework please go to: <http://web.mit.edu/cisr/MITCISR-ITPortfolio.doc> to get a brief questionnaire.

4. *Balance the portfolio for alignment and risk-return profile through a transparent process.* Using the results from the previous three steps, senior management must make judgements about the firm's IT portfolio. The judgements are based on management's intuition concerning the strategy, the appetite for risk, the firm's IT savvy, the economy, available capital etc. Having an IT portfolio *process* makes this judgement explicit and trackable over time instead of hidden within the budgets of each project or department.
5. *Re-weight portfolios annually and when major changes occur.* Objectives, economic conditions and many other important factors change and like personal investments, IT portfolios need to be re-weighted as needs change. For example, as firms achieve a high overall IT savvy rating they could effectively invest more in IT and take more risk in their portfolio relative to competitors or previous investments.
6. *Incorporate the IT portfolio approach into your IT governance framework.* Effective IT governance specifies the decision rights and accountability framework to encourage desirable behavior in the use of IT. IT investment is one of the key IT decisions that needs to be governed. Effective governance institutionalizes the disciplines of IT investment (often incorporating IT portfolio management) in a repeatable governance process that is understood and followed by all managers and linked to the incentive and reward systems of the firm. Organizational learning is predicted, in part, by the time between action and feedback. The shorter time lag the faster the opportunity to learn. Tracking the impacts of IT investment decisions and using these results to inform the next cycle of IT investment promotes enterprise learning and the faster the better.

Firms with average or low IT savvy can increase their returns and reduce their IT risk without investing another cent in IT. These firms should apply another scarce resource—management attention—to increasing their IT savvy. The superior results from IT savvy reflect 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 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 6: IT Investment-Savvy Profiles for Different Goals

