

Six Rules for Finding IT Value

by Paul A. Strassmann

So far — to my best knowledge — nobody has been able to demonstrate that there is a positive correlation between money spent on IT and sustainable profits. Sure, there are articles about the positive contributions of IT. But the proof that could be applied to justify greater IT spending as a sure cure for poor financial numbers is still missing.¹

The quest for demonstrating the directly measurable value of IT can be added to the list of fascinating but hitherto unfulfilled ambitions to attract academic fame or consulting contracts. Unfortunately, the published findings neither reveal their data sources nor make public the metrics by which one can conduct an independent verification of the benefits. What is always missing is a repeatable technique for performing the calculations that would satisfy a firm's methods for making investment decisions. Even in the rare cases where someone

detects a trend favoring IT, one cannot find evidence that the cases picked to support the assertions were not biased.²

Just about everything that has been published on the subject of IT value can be found in either academic journals or sales brochures. I regret that I have not yet found a single academic paper that could be used to back up my frequent budget presentations. (Academic papers are, after all, published for gaining tenure, not for helping struggling CIOs.) With regard to the vendors' projections of huge ROIs from IT investments, a prudent CIO would be well advised to abstain from using such tainted goods.³

Nevertheless, there are ways of finding IT value — it's just that they are all indirect. You *can* plead that IT creates value, provided you come well prepared. Just as in

repainting a house, the most important part of the job lies in proper preparation, not in spreading the coating.

In this article I present six rules (from a larger collection) for how to prepare before you appear before a skeptical budget committee that aims to cut IT spending while you are ready to ask for an increase.

RULE #1: FOLLOW THE MONEY

The most important factor in making any claims about the contribution of IT to corporate value is a conservative attitude. Nothing will damage a CIO's (or vendor's) credibility faster than puffery about IT being the magic ingredient that surely delivers profits.⁴ Cost analysis will show that IT can be only an enabling catalyst and not the engine that delivers

¹You can always find people who become fascinated with discoveries that would offer fantastic benefits. The enormous energies consumed in the quest for perpetual motion machines, a medicine that assures immortality, the wisdom pill, or an unleashing of infinite fusion energy from tap water are just a few examples. I now add this quest to the list of elusive dreams.

²The critique of such research can be found in my books *The Business Value of Computers* [1] and *The Squandered Computer* [2].

³A consulting industry has grown to supply vendors with sales tools for making analytical arguments to support marketing pitches. Although the various sales models are easy to use and are graphically pleasing, they each contain an undisclosed bias. Using these tools uncritically is hazardous to anyone's career.

⁴A number of widely quoted economists, writing about the relationship of IT and economic value, rarely use IT dollars as the independent variable. They rely primarily on "information technology capital assets" to tease out the presumed business value of IT. That is nonsense. With leasing and outsourcing of the IT infrastructure, the value of IT capital assets is now less than 0.15% of revenue — which is a trace and not the most significant determination of profits.

shareholder value, as illustrated in Figure 1.⁵

The decisive contribution to an enterprise's profitability is its capacity to manage purchases. That is a major shift from IT's compulsive focus on internal cost management — what I call “the CFO's curse” — to managing its external relationships (which are increasingly international).

⁵I am using IT to include information systems that support all management processes. In cases where IT is deployed in generating revenue from paying customers, I classify that as the costs of goods sold. Figure 1 reflects median value of more than 2,000 US corporations in 2002. See [4] for further discussion.

IT should be deployed where there are the greatest opportunities. I find that this is in improving the management of the firm's purchases and in simplifying transaction costs. It just so happens that there is a strong link between these two cost elements, which account for more than three-quarters of all costs. The relationship between purchasing, transaction costs, and profits has not been adequately exploited.

RULE #2: DO NOT LET THE ACCOUNTANTS MEASURE VALUE

The greatest obstacle to the demonstration of IT value can be found in conventional accounting methods. Figure 2 illustrates the

distribution of the worth of assets for the firms in Figure 1.

Accounting practices deal exclusively with tangible assets, which explain only about 20% of the shareholder worth of profitable firms. (This can be also called “carcass accounting,” which considers only the expected salvage worth of a bankrupt enterprise.) The worth of the accumulated knowledge of employees, of software, of databases, of organizational capabilities, and of customer relationships does not show up on the general ledger, even though the worth of IT is best reflected in what it contributes to the capacity of people to deliver greater value to customers. Consequently, much of the potential of IT is lost when projects that would increase knowledge capital are said to contribute only to “intangible benefits.”

To demonstrate IT value, project proposals must be allowed to transcend the limits of conventional accounting, as defined by accounting rules, and include gains in knowledge capital.⁶

RULE #3: FOCUS ON THE SHAREHOLDERS' VALUE

Every dollar you propose to spend for IT is a deduction from what is available for the shareholders. Therefore, your “base case” should start with making no changes to how you deploy IT. The value of IT

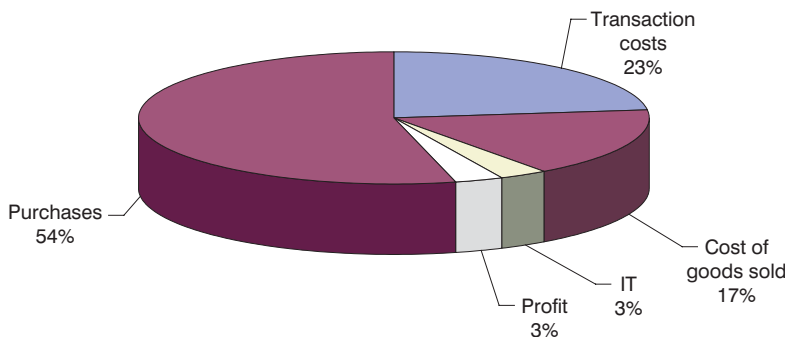


Figure 1 — The share of IT in corporate costs.

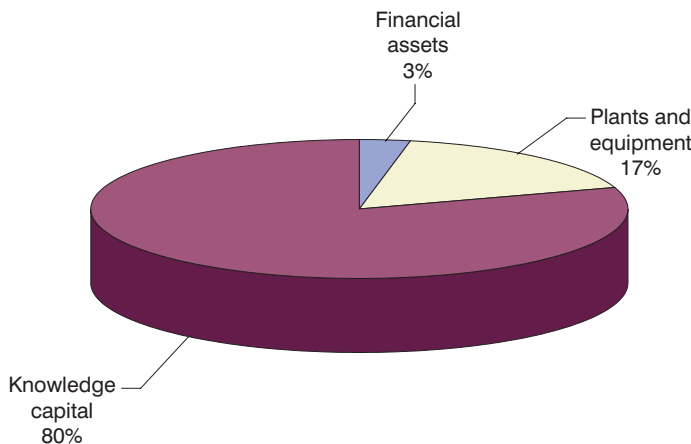


Figure 2 — Shares of corporate assets.

⁶This is an analytic challenge. For further discussion of how to cope with this, see a series of articles found at www.strassmann.com/pubs/km/.

will then be the difference between the discounted present worth of cash of continuing as you are — as seen from the shareholder’s point of view, using the shareholder’s cost of risk capital — compared with what you are proposing — as it would be included in the proposed corporate profit plan (see Figure 3).

A shareholder perspective will reflect the reality of all financial decision making: you cannot determine the worth of past decisions without the benefit of perfect (and unbiased) hindsight. It follows then that it is not possible to state what share of profits today are attributable to IT decisions made in the past. Therefore, proving rigorously what is today’s value of IT as a percentage of current profits cannot be known.

This is another way of viewing Robert Solow’s “computer paradox,” which states that you can see computers everywhere except in the productivity statistics. My answer is that you cannot prove exactly what the contributions of computers are because you are unable to replay history and generate what could have happened under different circumstances. Nor can you measure the worth of the future value of IT without the gift of

prophecy (which is notoriously absent among technologists).

All you are left to do then, in the quest for valuation of IT, is to evaluate the best decision you can make at the time when you commit to a credible plan. The logic of such reasoning propels you to the most obvious conclusion: making no changes to IT as it is presently can be the only valid basis from which all other options can be assessed. If your budget inquisitors can accept such reasoning, you may be able to claim (and get away with it) that the value of IT can indeed be calculated using conventional methods of financial analysis.

RULE #4: COMMIT TO VALUE AFTER DISCOUNTING FOR RISKS

One can propose an IT plan with low risks and consequently generate low business value. One can propose an IT plan that will show spectacular potential gains but with less certain results. Therefore, all IT plans must reflect, for the benefit of the shareholders, the certainty of the projected value of IT spending.

My preferred approach to dealing with this issue is to anticipate the naysayers and to offer them up front the worst-case potential

outcome of a proposed IT plan in addition to showing the usual “expected” value. That simply calls for restating the numbers in Figure 3 so that the most pessimistic business value of the proposed IT plan is still tolerable, even though it will kick down the ranking of IT on the list of investment priorities.

There are many benefits in sharing with everyone an understanding about the worst-case risks. Are they technological (even though that is nowadays a rare occurrence)? How much of the risk is managerial (recognizing that this is the primary culprit in every failed IT venture)?

The implicit purpose of early risk recognition is to initiate early risk-containment countermeasures. One of the principles of generating value is to focus not on winning — a compulsion of all technologists — but on making sure that you do not lose — a characteristic of all prudent investors. (Gaming theory will tell you that in a closely matched competition, the winner is whoever manages to lose the least.) The benefit of any risk-management approach to making IT investments will be to reduce the discount factor used in the calculation of the present worth (see Figure 3) from a high-risk to a

Profits After Taxes	Present Worth	2005	2006	2007	2008
With No Change in IT	\$378	\$100	\$110	\$120	\$130
With Proposed IT Plan	\$404	\$100	\$105	\$140	\$150
Value of IT	\$26				

Figure 3 — Value of IT from the shareholders’ standpoint.

lower-risk premium. This will allow shareholders to accept even seemingly risky IT proposals.

RULE #5: KEEP AWAY FROM REVENUE RATIOS

A number of consulting firms publish revenue-related ratios as indicators of gains attributable to IT. It is the economists' favorite approach because such ratios are easy to obtain.

Figure 4 shows that even for comparable firms with closely comparable ratios of revenue/employee, the profits show a wide range. Therefore, there is no possible reason why IT spending should depend on revenue/employee ratios to deliver value.

RULE #6: JUSTIFY THE INFRASTRUCTURE

During budget reviews, examiners will question the entire IT budget and try to cut growth. The CIO must present a well-reasoned case that is based on analysis of the total

spending package before plunging into a discussion of pet projects. One way to hold the full attention of any finance committee is to display the value of the entire IT portfolio, as shown in Figure 5.

The 58% of the total budget (\$25.6/\$43.8) that is spent on "ongoing maintenance and operations" but yields a zero ROI will immediately attract attention.⁷ It is the justification of spending to sustain a firm's infrastructure that gives today's CIO the most severe budgetary pains. It is also the number that small minds will focus on as the greatest opportunity for outsourcing because there will always be a vendor who will offer a lower price to take over.

To demonstrate the value of the infrastructure, three steps are necessary. First, one must demonstrate ongoing cost reductions. In Figure 5, this is the \$4.2 million that is

⁷The 50%+ spending on the IT infrastructure is a fairly typical ratio, although in a stagnant organization, the figure can be much higher.

spent on 18 projects to deliver a risk-adjusted discounted return on investment of 181%. That is a very decent performance — by any standard. It sets the benchmark that every outsourcer must match.

Second, IT value should also be harvested in improving "operating effectiveness." This typically involves gains in marketing, sales, production, logistics, and R&D. We have here 22 projects that are noteworthy for their dependency on user spending. This highlights the importance of participation by users and dispels the impression that these are purely IT investments.

Third, the budget reviewers will be offered a view of enormously profitable (but risky) "strategic gains." In this category, value is extracted by spending a dollar of user costs for every dollar of IT spending.

The value of the infrastructure lies then in the capacity to extract an ROI of 186% (20 times the cost of capital!) from 44 projects. The

Primary SIC	Company Name	Revenues (US \$ Millions)	Employees (Thousands)	Return on Equity (US \$ Millions)	Stockholders' Equity (US \$ Millions)	Net Income (US \$ Millions)	Revenues/Employee
2024	Yocream International	\$19	0.1	11	\$8	\$1	\$353,436
2040	Spigadoro, Inc.	\$162	0.5	-189	\$10	\$(19)	\$343,881
2040	Doane Pet Care Co.	\$887	2.7	6	\$136	\$15	\$327,792
2080	Coca-Cola Co.	\$19,564	56.0	34	\$11,800	\$3,050	\$349,357
2084	Constellation Brands	\$2,732	7.7	17	\$1,175	\$203	\$355,679
2085	Allied Domecq PLC	\$4,172	12.1	56	\$1,093	\$607	\$344,451

Figure 4 — Profits are unrelated to revenue ratios.

Investments (in Millions)	Number of Projects	User and IT Spending	IT Spending	Average ROI
IT Cost Reductions	18	4.2	4.2	181%
Operating Effectiveness	22	7.2	4.8	88%
Strategic Gains	4	18.7	9.2	240%
Total Investments		30.1	18.2	186%
Ongoing Maintenance and Operations		0	25.6	
Corporate Totals		30.1	43.8	

Figure 5 — Summary of a proposed IT spending plan.

value of the infrastructure can then be calculated by finding out how the investment payoffs would change if someone decided to cut it. Sooner or later somebody will have to pay, either in the form of increased costs or loss of profits.⁸

SUMMARY

These six rules are a sample drawn from a larger body of experiences collected after being subjected to inquiries that were customarily staged as budget reviews.

From 1955 until about 1995, the question of the value of IT was always disposed with customary increases, usually exceeding the growth rates of revenues and profits.⁹ That is not the case anymore. It now takes much harder work to make a case for IT spending. Following the rules suggested in

this article may be useful in preparing for encounters in which one must prove (beyond reasonable doubt) that IT does have value.¹⁰

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Paul A. Strassmann's career includes service as chief corporate information systems executive, VP of strategic planning for office automation, and information

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After serving as an advisor to the US Deputy Secretary of Defense since 1990, Mr. Strassmann was appointed to a newly created position of Director of Defense Information, in which capacity he had policy oversight for the Defense Department's IT expenditures. In 1993, he received the Defense Medal for Distinguished Public Service, the Defense Department's highest civilian recognition. He was recalled to government service in 2002 as the Acting Chief Information Officer of the US National Aerospace and Space Administration (NASA). In 2003, he retired from government service after receiving the NASA Exceptional Service Medal for improving the agency's IT architecture, security, and services.

Mr. Strassmann's distinguished career includes senior-level information officer positions with Xerox, General Foods, and Kraft. In 1997, he was named one of the 12 most influential CIOs of the last decade by CIO magazine. He has held faculty positions at the US Military Academy at West Point, the University of Connecticut, the University of North Texas, Syracuse University, and the Imperial College in London, England.

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⁸The mindless pursuit of reducing the costs of the infrastructure can result in catastrophic consequences, as I discuss in [3].

⁹As a CIO (or its titular equivalent), my first IT budget review was sometime in 1957. My last budget review was on 3 April 2003. Amazingly, all of the reviews addressed the same issues. Only the numbers got bigger and the reluctance to spend greater.

¹⁰I have started writing a new text for my classes at Syracuse University that will offer a more exhaustive list of CIO survival rules.