

Why ROI ratios are now crucial to IT investment

The technology arms race is over and economic criteria are now the benchmark for IT investment decisions

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Requiring the calculation of return on investment (ROI) is a generally accepted and obvious measure for any business venture. ROI calculations have been a requirement for just about every corporate capital appropriation request since they were introduced by DuPont in the 1920s and then rapidly adopted by the automobile industry and by the General Electric Corporation as models for investment analysis.

Inconclusive discussions about the need for producing ROI ratios for IT investments have been a favourite topic in CIO meetings for many years but hardly ever followed up in practice. Why then has this issue become such an urgent matter in the last year? Why has this matter, long avoided and then deferred, become a mandatory requirement from the Boards of Directors of most large corporations?

The plain fact is that over the past ten years corporations have overlooked economic rationality for justifying IT expenditures. Let me demonstrate that. One of the generally accepted theories was that spending on information technology would reduce assets. That is not so. Computerisation proponents said that IT investments would make companies more efficient, but the ratio of corporate transaction costs to the costs of goods, which is a measure of overhead expenses, increased from 19.5% to 29% from 1982 through 1999.

Furthermore, when you examine corporate overhead personnel trends, the costs of coordination labour are up despite heavy spending on automating information work. We were growing costly headcount in the big office towers faster than revenues or profits.

At the end of a decade-long binge of spending on IT everybody now acknowledges that profit forecasts for corporations worldwide aren't good. Therefore, corporations are looking for added sources of profits. What is then the easiest source for increasing profits? It will be where everyone suspects profligacy.

A typical chief financial officer (CFO) will say that Moore's law suggests that IT should reduce its costs every year 18%, so he's going to propose cutting the IT budget by a comparable amount. When that happens the only defence for the CIO is to demonstrate superior ROI as compared with all other investment proposals.

One should remember that there was a time when investments in information technologies had the proper fiscal controls. That was when IT reported to the CFO. I see the current re-emphasis on ROI as moves by the CFO to re-assert controls over IT that were lost during the heady expansion years.

For the first 20 years of the IT era such

investments were under tight controls because they dealt with displaceable clerical costs and particularly because until about 1975 IT was part of the financial controllers' organisation.

By 1975 the financial executives acquired the capacity to know what happened in a factory even before the plant manager knew about it. So a race started when the manufacturing and marketing people had to acquire sufficient information so that they could counter inquiries from financial analysts. That was necessary because the purely financial measures were inadequate.

The financial people were using conventional accounting indicators. The plant manager needed data about quality, reliability, yields and so forth, metrics that don't get captured in any accounting systems. Marketing people needed data about market share, competitive pricing and so forth. So information competition was launched in contests between finance and everyone else.

In the race for acquiring the best and most recent information technologies everybody became a buyer of computers as the demand for information shot up. The economics of such purchases can be best understood in terms of an arms race – with departments escalating their spending to both support their particular business goals as well as protect organisational empires – not in terms of economic analysis. During an arms race your Army, Navy and Air Force will be always able to obtain funds without much regard for questions of economics.

The dynamics of how IT escaped from the hold of the financial establishment offers an insight into why ROI justifications could be avoided. The cause of this can be traced to the time when the mainframe was under the financial controller. As a way of dealing with the CFO's information monopoly, manufacturing, engineering and marketing people started buying mini computers. The threshold costs for that were sufficiently low, particularly in manufacturing, that often the equipment was not even classified as IT but showed up in IT industry statistics.

The acquisition wave after 1975 to circa 1985 gave a big kick to the growth of information technology's share of total business investment. From 1960 to 1985 that share rose from less than 10% to 18%. After 1985 every clerk, secretary, and administrator received a personal computer as part of his or her job descriptions.

This new wave of IT purchases was never justified by any measures of payoff; therefore, there was no ROI. Whatever savings were claimed could never be verified after the fact.

In this way, the ratio of IT investment to total business investments got ratcheted to 28% by 1995. After 1995, even the pretence of arm waving about alleged productivity gains was abandoned when IT was justified as “strategic necessity” and as a “requirement for competitive survival”. The IT investment ratio finally peaked in the first quarter of 2001 at 46%.

The changes in technology are now so rapid that corporations never finish one information arms race before starting on the next investment cycle. Finally, in the 2001 recession, these uninterrupted investment escalations had to come to a halt.

The growth in the share of IT as a percentage of total business investment had been increasing 2-3% per year. At this rate, within less than 25 years American businesses would be spending money on nothing but information technologies! It is now finally accepted that the recent steep rises in IT spending were not propelled by prospects of increased profits but by fears not to be left lagging behind competitors. The compulsion to produce ROIs is a backlash reaction and is the only sober way by which corporate investments in IT can be guided from now on.

The question before us is then about what controls on IT investments can be put in place that will contain profligate spending and align IT with corporate profit objectives. The answer to that is not as obvious as it seems.

All corporations have an existing financial measurement system. The shareholders and the stock market look at published financial reports for evidence of good performance. The fatal flaw of the existing ROI methods is that anybody can make projections about future benefits if they know the actual results will be untraceable by means of conventional financial reports.

Unless a CFO keeps the score in terms that are related to the ways shareholders, financial analysts and operating managers view the financial reality, whatever the IT people claim has little validity. Unless the IT perspective is recast into the financial executive’s perspective, you will never be able to have valid ROI calculations.

That means that the IT justifications, which are usually couched in terms of technology will also have to be mapped into what the CFO measures, such as in terms of improved cost of goods sold, sales general and administrative (SG&A), depreciation, and so forth. You must be able to translate any IT plan into classifications that will be reported as periodic budget variance, in accounting terms.

This is really the cruncher, because once you flip over the IT promises into the format of financial budgets, you can go to the accountable executive and ask for explanations in terms of monthly or quarterly budget variances.

In a nutshell, the current ROI IT measurement methods ignore top executive concerns. This must be remedied by every corporation providing their struggling CIOs with a defined methodology of how to present a business case for making an investment in



information technologies.

Top management has to give to the CIO forms or a software package that is unambiguous about the questions that must be answered. There must be a method that everyone accepts agree is a valid justification. When I became the Director of Information for the Defense Department that is exactly what I did. All proposals had to be sifted through logic that was available to everyone on a floppy disk.

There will be always conditions under which a company can think it will achieve an ROI, and yet achieve either no return or one much smaller than expected. Therefore risk analysis must be always included in any IT investment proposal because such ventures are inherently risky and expectations often meet with disappointments. For each project you will have an expected case, an optimistic case, and a worse case.

The only thing a CIO does not want to happen is for the outcome of a project to be worse than his or her worst case. Most importantly, when the CIO goes to present a worst case, the executives ought to spend most of their time understanding what can drive the project towards the worst case and taking the necessary precautionary measures to protect against such happening. If you build a five million dollar beach house 80 yards from the Atlantic coast you’d better do something to protect from hurricanes.

I’m very much a worst-case man when I present projects for approval. That focuses the attention of management. In just about all of the cases the risks are not technical but managerial. Management can thus focus on what needs to be done to remove success-inhibiting effects.”

The worst thing to do is for the CIO and particularly the vociferous vendors to promote IT systems as a magic potion for solving all corporate ills. The worst offender here is the frequent parading of investments as delivering “intangible benefits.” Much of IT spending has been driven by hopes about miracle cures and

ephemeral gains rather than careful diagnosis to assure the delivery of tangible results

I view the arm waving about intangible benefits as an excuse of every failed CIO. IT costs real money. Therefore all the benefits should be real. There are no intangible dollars. Vendors and consultants accept only sums deposited to their accounts, so that all of your paybacks should be ultimately traceable to cash gains. One of the most frequently used emotional appeals for spending IT money liberally are the alleged improvements in customer satisfaction.

Well, "satisfaction" is not entirely a psychological phenomenon. Customer satisfaction can be measured primarily by two variables: gains in market share and in premium prices earned as compared with competitors. If your customer is willing to pay more for your product than your competitors' products and if you can steadily increase your market share that will be the most reliable measure of customer satisfaction. Market share gains become translated into revenue gains. Premium prices are reflected in gross margins that are larger than your competitors' gross margins. Dissatisfied customers will not deliver that.

One of the frequently pandered solutions to the problems of economic justification is to recommend that the IT function should be set up as a separate department in its own right. That assumes that isolation of IT costs would somehow make the calculation of ROIs easier.

I have found that neither consolidation and outsourcing nor distribution of computing power are consistent predictors of IT fiscal credibility. Both approaches work, both structures have incidents of failure. Most of the fatal cases of IT irresponsibility occur when the ROI is originally proposed for funding by easily convinced executives. Most projects are doomed to failure the day a euphoric sales pitch is made to get it approved.

I have spent the last 45 years operating in a variety of private and governmental organisations and have learned that getting a handle on verifiable IT investments is as much a matter of organisational politics as of economics.

Information technology is the extension of bureaucratic contests by other means. The last thing to examine in the case of a failed project is to investigate the technology that was used. First you have to understand the power relationships, not only within a firm, but also outside of the firm, because each firm is surrounded by wholesalers, dealers, brokers, suppliers and the suppliers' suppliers.

Information technology threatens the interests of all intermediaries in the chain between supply and demand. Every wholesaler is threatened by information technology because you don't need a wholesaler if you can connect directly the sources of supply. Every firm has its layers of middle management who will be always compromised whenever workflow analysis reveals what they actually do for the salaries they receive. Before you install information technology, you have to examine what interests you will either corrode or barricade behind a wall made of software-

enforced procedures.

Unfortunately, the amount of learning that would help in overcoming institutional inertia is quite limited. Information pathologies are unique and organisation-specific. Therefore a handbook on how to fix information-caused problems cannot be written, though every consulting firm will offer to you their version for a hefty fee.

Every situation involving information technology investments is unique, because every firm's competing interests are unique. It all depends on who extracts how much profit (or cost) out of the system. There are organisations where the administrative bureaucracy is rather small and most resources are controlled by marketing.

There are organisations where the problem can be found in poor engineering. You have to examine the value chain before you can figure out what will be the ROI after installing information technology that perturbs existing relationships. Truly effective information technologies alter the environment into which they are inserted. Information technology is an instrument of unbalancing existing economic and power relationships.

Of course, there are instances where some firms and especially government agencies can benefit from consulting help. Installing information technology into organisations is not rocket science or molecular physics. To insert information technology makes it more of a political phenomenon than a scientific tool. When seen from the standpoint of politics it could be prudent to spend \$5 million with a consulting firm to tell you what you already know anyway.

Firms need independent strangers to announce the obvious because if an insider makes the identical recommendation, it will be always viewed as a way of manoeuvring for a gain. If you want to be the next president of a company, the last thing you want to do is be seen as a hatchet man who will have to ultimately obtain the cheerful cooperation from the survivors.

The only thing to remember in calculating ROIs is that good ones don't need consulting help to do that - that's why they're good. They need help only if a new and expensive technology comes along which costs too much to adopt using their own resources. If there is a firm that has already incurred the heavy up front fixed investment and you can then buy the technology at a marginal cost you would be well advised to buy the product or service. One strategy is to let others break their teeth, and then come in second or third when it becomes a sure bet.

The size of the projected ROI cannot be the only measure to be applied whenever a company considers IT expenditure. There are legal issues and there are morale issues. There is a long, company specific list that must be considered before one starts installing information systems. But ultimately, corporations are in the business of making profit. Therefore, a favourable ROI will be always the single most important factor to consider whenever making an investment decision.

At a glance

- ROI is at the top of the agenda of boards of directors after a period in which companies have spent an increasing proportion of their investment on IT.
 - The time when IT could be justified as part of a 'technology arms race' are over.
 - IT expenditure justifications must be related to accounting objectives.
 - Top management has to give to the CIO forms or a software package that is unambiguous about the questions that must be answered.
 - Plan for best case and worst case scenarios.
 - Let others break their teeth on new technology.
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