# Equity and the Problem of Return on IT Investment

Karl Reed

Much of software engineering focuses on producing systems that work to specification, with predetermined quality and performance, on time, and to budget. The bulk of our SE-badged conferences and publications reflect this natural, historic preoccupation. So, why would the TCSE propose a technical meeting focused squarely on quantifying information technology yields? Isn't this the job of accountants and economists? Possibly, but why shouldn't SE lead the development of a new knowledge domain with input from business analysts and others?
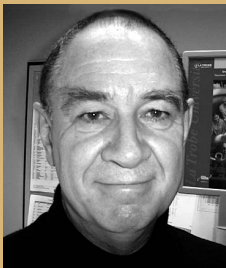
Nicholas G. Carr and "IT Doesn't Matter"

In May 2003, the *Harvard Business Review* ran a now extensively quoted article by Nicholas G. Carr titled "IT Doesn't Matter." Given this article's appearance during a global IT slump and its wide exposure, it clearly didn't help those of us trying to talk up investment prospects in IT. Nor did it increase our degree programs' attractiveness to prospective students.

I had heard comments like this before and wondered whether they could be true. I'd even responded occasionally (from 1978 to 1998, I had a regular column in Australian IT publications *ComputerWorld* and then *Pacific Com-*

puter Weekly), but I should have been paying more attention. For example, in 1993, Marianne Broadbent and Peter Weill reported on IT's impact on the five largest banks in Australia, which accounted for more than 80 percent of all banking.[1] Of the four of these banks that Broadbent and Weill studied, only one had clearly obtained a competitive advantage over the others from its IT use. This situation would have changed little today. (At the 7th European Conference on Information Systems, Daniel Moody and Peter Walsh later claimed this bank also spent the least amount of money on IT.[3]) Perhaps you could have been excused for thinking that if IT expenditure was universally effective, then they would have been more or less equal, with none having an identifiable advantage attributable to IT.

The issue was brought home rather forcefully when I picked up an IT magazine in San Francisco in 1998 with the cover story "ROI Is for Dummies." All this seemed a bit strange. My first production software system in 1965 paid for itself the first time it was used! Imperial Chemical Industries of Australia and New Zealand's Central Engineering Department required a breakeven time of not more than 18 months on any program development effort!

In Australia, the debate's intensity increased in 2002 when David Murray, CEO of the Commonwealth Bank of Australia (one of the country's five largest banks), shocked the World Congress on IT by attacking IT for failing to deliver not systems, but ROI. Murray's language

was so inflammatory that I don't dare use it here, but coming from the CEO of one of Australia's largest corporations (and most intensive IT users; the CBA claimed 2.5 million online users at the time), it received a lot of comment.

However, that was in Australia. In 2003, Chris Verhoef of Vrije University, in his keynote speech at the IEEE International Workshop on Source Code Analysis and Manipulation, claimed that there was little evidence of a positive correlation between IT investment and return on shareholders' investment. He was drawing on his own studies, plus those by Paul Strassman (the ex-CIO of the US Department of Defense), who claimed that no relationship existed between IT investment and company profitability.[2]

The press chose to make outrageous interpretations of both Carr and Murray's comments. More rational discussions of Carr's polemic appeared in a debate in the June 2003 issue of the *Harvard Business Review* and in an analysis in the Australian magazine *CIO*,[3] but they don't leave me feeling any more comfortable. Unfortunately, we do seem to have a problem. Assuming that we now know how to build large-scale systems, how can we guarantee that their deployment yields an ROI comparable to (or better than) that for other investments? If we're unable to do this, companies will cease investing in IT because, even if it's technically successful, it will negatively affect their bottom line. John Seely Brown and John Hagel III, contributing to the *Harvard Business Review* debate, cite a 2001 McKinsey Global report as showing "a significant positive correlation between IT investments and productivity in only six out 59 industries. … [The] other 53 sectors account[ed] for 70 percent of the economy."

Despite these reports of problems, most critics agree that IT is now a major part of any business. But we still seem to be left with the problem of effectively assessing the IT ROI in the first place. These days, all the "easy" applications have been done. So, in many cases, the obvious basis for an ROI calculation—increased productiv-

ity of capital or labor—might no longer hold. This could lead us to an obvious explanation for the confronting headline in the US IT magazine. Maybe it's not that ROI doesn't matter; perhaps the problem is now totally different. Consider the issue of competitive advantage, which could be related to market share. Even worse, consider the possibility of loss of market position. So we have a need—how do we analytically relate IT investment proposals to these and other bottom line issues?

To suggest that these issues aren't understood in the conventional business sector would be naive. However, some basis exists for suggesting that the IT community—developers, IT managers, and IT product and service vendors—might be too optimistic. As a result, as others have remarked, those directing investment might become nervous about demands for IT investment where the ROI claim is inadequate, unrealistic, or missing.

How does this affect software engineering?

We seem to need a better understanding of the process of *exploring quantifying information technology yields*—that is, the economic benefit flowing from an IT project proposal—or EQUITY, as Chris Verhoef has called it. This probably means pulling together and refining existing bodies of knowledge in SE and in business prac-

tice so that we can apply them more systematically to IT project proposals. Software project cost estimation is clearly one part of this; however, so are IT assessments. Other relevant areas include IT governance, auditing, due diligence, outsourcing, portfolio management, productivity, value, project business impact assessment, and project adoption impact assessment, as well as ROI determination.

As a result of Verhoef's proposals, the TCSE has decided to establish the IEEE International Conference on Exploring Quantifiable Information Technology Yields (IEEE EQUITY). The conference's broad objective is to promote the development and dissemination of an SE- and IT-centered approach to quantifying the yield, in the investment sense, of IT projects and project proposals. This is, of course, not limited to new projects, but must be applied to existing operational software and other examples.

If you're interested in participating, either as an author or as member of the organizing or program committees, contact Verhoef directly at x@few.vu.nl. 🎓

References

1. M. Broadbent and P. Weill, "Improving Business and Information Strategy Alignment: Learning from the Banking Industry," *IBM Systems J.*, vol. 32, no. 1, 1993, pp. 162–179.
2. P. Strassman and T. Pisello, *IT Value Chain Management: Maximizing the ROI from IT Investments*, Information Economics Press, 2003.
3. T. Mendham, "Fightin' Words," *CIO Magazine*, 2003; www.cio.com.au/index.php?id=1599085755.

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