

2009

Returns on IT Investment: Could We Do Better?

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Recommended Citation

Hodgkinson, Robert; Brooks, Laurence; Barua, Anitesh; Kohli, Rajiv; Worthington, Sean; and Zukis, Bob, "Returns on IT Investment: Could We Do Better?" (2009). *ICIS 2009 Proceedings*. 28.
<http://aisel.aisnet.org/icis2009/28>

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RETURNS ON IT INVESTMENT: COULD WE DO BETTER?

Panels

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Abstract

Spending on IT continues to show long-term growth throughout the economy, apparently reflecting a belief in the economic benefits of IT. However, we also see organizations struggle in practice to demonstrate such benefits. Conventional thinking suggests that individual organizations can improve their performance in this area through better financial analysis of opportunities. But does this characterization of the solution reflect the real problem? Is there more value that can be achieved through IT at a macro level or are we simply seeing market competition with winners and losers? And will better understanding of the detailed financial consequences of IT systems enable businesses to improve decisions and achieve greater returns? This panel session will challenge conventional thinking on IT value both at a macro and micro economic level. In the process, it will balance the perspectives of research with those from practice and consider the role of alternative theoretical lenses.

Keywords: Business value of IS/value of IS, CIO, Decision making/makers, Economic impacts, Firm performance, IS research agenda, IT investment evaluation, Measurement models/methodologies/metrics, Organizational dynamics, Strategic IS management

Session objectives

Debate on the value of IT investment today has moved far beyond Solow's productivity paradox, and his observation that the substantial expenditure on new computer systems was not reflected in improved economic productivity. While this dominated early research efforts, a number of studies have subsequently disproved this paradox (Brynjolfsson and Hitt, 2003) and Solow himself moderated his view (Clement, 2002). Likewise, while Carr may have argued a few years ago that "IT Doesn't Matter" due to the lack of competitive advantage possible from a general purpose technology (Carr, 2003), there are few today that would stand by that view (e.g., Marquis, 2006).

However, measuring the financial consequences of IT investment remains challenging. It is broadly recognized that at the heart of this problem is the complex way that IT can be used to create a return on investment. It is contingent on many different factors which mean that the return realized from the same IT investment can vary enormously, depending on the business model adopted, wider organizational factors and the competitive position of the business. As a result, separating the contribution of IT and robustly measuring its value have proved elusive in many cases.

The difficulties of research into IT value at a macro level are mirrored at the micro level, as researchers and businesses struggle with the application of financial analysis techniques to specific IT projects. Surveys consistently show that standard investment appraisal techniques are not widely utilized for IT projects, resulting in decision making frequently based on a leap of faith or a fear of the consequences of not investing.

The recent report from the Institute of Chartered Accountants in England and Wales (ICAEW), *Measuring IT Returns* (ICAEW, 2008), considered much of this evidence, with the aim of helping managers do a better job of applying financial analysis to IT investments and thereby make better decisions. This position is based on two clear premises:

- There is more value that can be achieved from IT systems; and
- Individual organizations can achieve greater value by applying robust financial analysis to IT investments.

However, are these beliefs true?

The objective of this session is to debate these two beliefs. It aims to stimulate debate on the future of research into IT value and its relevance to those in business who are trying to achieve returns through the use of IT systems. As a result, the panel will represent a range of perspectives from academia and business and relates directly to the conference theme of "Doing IT Research That Matters."

The session will have broad appeal to IS academics. It addresses a central question for IS researchers, namely the profound difficulty of capturing the value of the technology they study. It will provide an opportunity to understand some of the leading research in the area. It will give some insight into the challenges and practices of those dealing with IT investment in businesses. Finally, it will enable the community to take stock of the current direction of IT value research and consider whether new research questions are needed. While a popular view of 'IT' might focus on the hardware and software associated with the capture, processing, usage and communication of information, the session will draw on broader lessons from applying technology to information and the impact of technology on business and the economy as a whole.

The session will be written up and submitted for publication to relevant journals, such as the *Communications of the AIS*. The ICAEW will also publish key points from the session through its communications with the business community.

Questions for debate

Question 1: Is IT failing to deliver the value it should be?

Economic progress and technical development have been strongly linked together through history. Karl Marx considered how technology changed power relationships in a capitalist society to maximize the wealth of the owners of the means of production. Joseph Schumpeter (1943) described how economic cycles were driven by technological innovation. Given the central role of information to the existence and operation of all firms, IT could be expected to

be a particularly powerful technology in this regard. IT holds out the promise for strong macro economic benefits, which are reflected in the continually growing level of spending on IT in all sectors of the economy.

In practice, though, we also see frequent failures of individual IT projects, including many large-scale government-sector projects. This suggests that IT is not delivering the promise of value that it appears to give and there is a major failure on the part of the IT industry and individual organizations to achieve the potential value that is out there.

Is this an accurate characterization, however? It could be said that these failures are simply the noise to be expected from the development and implementation of any new technology. Marx (1894) summarized his observations of “the great difference in the cost of the first model of a new machine and that of its reproduction” and “the far greater cost of operating an establishment based on a new innovation as compared to later establishments” with the blunt observation “trail-blazers generally go bankrupt”. Therefore, as in the case of any innovation, while individual organizations may lose out, progress is made at a macro level. Looking at individual failures creates a false perception of lost value and misses the tremendous benefits that have been gained overall.

In this context, investment in IT is all about competitive strategy and getting an advantage over competitors before they get ahead of you and destroy your business, whether through sustainable lower costs or customer differentiation (Porter, 1985). It is about creating new business models which embrace industry turbulence and capture the new opportunities presented by IT. Inevitably in this process, there are winners and losers and the failures we see reflect this simple economic reality, rather than general industry and management under-performance.

Underpinning this debate remains the challenge of measuring IT value - how can we move the debate forward while it continues to be so difficult to isolate and measure the value of IT investment?

Question 2 – Does the use of financial measures improve decisions on IT investment?

The conventional thinking of accountants says that measurement frameworks are central to the management processes of any organization. They support robust decision making, focused implementation activity and accountability for actions. They also provide a way to set expectations and generate confidence amongst different stakeholders in what the organization is doing. Therefore, without robust frameworks, IT investments are open to both suspicion about their real value and unrealistic or inconsistent expectations as to what they will achieve.

We have established that organizations find it difficult to apply financial measures in the case of IT, resulting in decision making frequently based on a leap of faith or a fear of the consequences of not investing. But does this actually reflect a failure in decision making processes? Will decisions really get better if organizations can improve their use of financial analysis frameworks?

Furthermore, the challenge of linking specific IT investments with financial consequences, far from reducing, is likely to increase. As technology becomes increasingly pervasive in all of our interactions, the nature and location of economic benefits may change. Linking economic outcomes with investments in networking and social technologies, for example, is likely to prove increasingly difficult. Collaboration also provides challenges to the traditional analysis of firm-level benefits as economic value can be spread along the supplier chain.

With new collaborative technologies, financial metrics may be difficult and rather inappropriate measures to use in justifying IT spending. Often the value of IT investment is the “cost” of not investing, for instance, in security of databases. How can we demonstrate the value of continued IT investment in this new, highly diffuse environment of value?

Underlying theme

For both questions, the panel will also consider the role of other theoretical lenses in providing us with meaningful guidance for the future. While economics may dominate the debate and analytical paradigm, what can wider organizational theory tell us about the drivers for IT investment and how decisions are actually made in organizations? While there may be a financial case for change, what about the other factors driving change, such as organizational power, control and politics? Can this enrich our understanding of IT value beyond pure economics?

Panel format

The panel will be based around a discussion between panelists and questions from the audience. There will be no formal PowerPoint presentations, although each panelist will have an opportunity to put their case forward.

The session will be divided into two discussions, each lasting 40 minutes, plus a brief introduction to the panel and a concluding summary by the chair. Each question will be initially posed by the chair and then addressed by 3 panelists (5 minutes each). This will be followed by questions from the audience (25 minutes). We will look to engage the possible audience before, during and after the event through some kind of social networking technology (e.g., a blog or Twitter) to gather questions and feedback on the issues.

The panel is made up of representatives across a number of sectors and this will provide diverse opinions on both of the questions.

- Perspectives from business and academia
- Perspectives from macroeconomics and microeconomics
- Perspectives from organizational strategy and organizational theory
- Perspectives from Europe and the USA

Robert Hodgkinson will chair the debate and provide a perspective based on the experience of ICAEW members. Finance directors, in particular, are frequently charged with measuring the financial value of IT investments as part of an investment process, and Robert will approach the panel with the problems as seen by this community. Given that this is a long running and perennial debate, Robert will also challenge panelists with how much genuine progress can be made in this area and what improvements we might realistically see in 5 or 10 years.

Question 1 - Is IT failing to deliver the value it should be?

- **Anitesh Barua** will provide a macroeconomic and macro-strategy view, and will lead the debate on the first question of whether IT is failing to deliver the value it should or whether we are simply seeing the rough and tumble of market competition, charged by powerful new technologies.
- **Bob Zukis** will provide a practitioner-based perspective on Question 1. He will talk about the recent research undertaken by PwC on failures to maximize the value from IT projects and how leading companies approach the question of competitive strategy through IT.

Question 2 - Does the use of financial measures improve decisions on IT investment?

- **Rajiv Kohli** will provide a perspective in the debate that is focused on the microeconomic aspects of IT value and how to link IT investment with specific financial consequences. He will lead discussion on the second question.
- **Sean Worthington** will provide a practitioner-based perspective on Question 2. He will talk about the challenges of decision-making in practice, the benefits that can be achieved through better financial analysis and opportunities for improvement in this area.

Laurence Brooks will provide an alternative view to that of the economists on both questions. He will talk about the role of organization structure and power in driving IT investments, providing a different theoretical lens with which to consider these issues.

Conclusion

The session will conclude that, although the challenges of measurement are likely to increase, the economic value of IT should remain a central concern of IS researchers in the future. IT executives will continue to look for ways to capture the value of their investments and without progress in this area, IT investment will remain vulnerable both to suspicion of under-performance and over-optimism. The panel will conclude that economic research needs to be supplemented by other theoretical lenses, so there is a basis for providing a richer managerial picture of the value of IT and its impact on the organization, and new theoretical perspectives to interpret our world.

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Summary of panelists

Robert Hodgkinson

Robert Hodgkinson is the Executive Director, Technical at the Institute of Chartered Accountants in England and Wales (ICAEW). The ICAEW is a world leading professional body which represents 132,000 members, over half of whom work in business. He is responsible for the ICAEW's seven specialist faculties in audit and assurance, corporate finance, finance and management, financial reporting, financial services, IT and tax. The IT Faculty published a report into the area of IT value in 2008, entitled *Measuring IT Returns*, of which Robert was a co-author. He is a Chartered Accountant and a Board member of the International Federation of Accountants. He graduated in Philosophy, Politics & Economics from Corpus Christi College, Oxford University.

Laurence Brooks

Dr Laurence Books is a lecturer in the School of Information Systems, Computing and Mathematics at Brunel University in the UK. He received his PhD from Liverpool University. His research interests focus on understanding the use of Information Systems in Organizations, from both the organizational and human/social perspective. His research has been published in the *International Journal of Information Management*, *Journal of Intelligent Systems*, *Information Society Journal* and *Journal of Value Chain Management*. He is the immediate past president of the UK AIS and an associate editor of the Human Behavior track in ICIS 2009.

Anitesh Barua

Anitesh Barua is the William F. Wright Centennial Professor of Information Technology, Stevens Piper Foundation Professor of 2001, University of Texas Distinguished Teaching Professor, Bureau of Business Research Fellow, and Associate Director of the Center for Research in Electronic Commerce at the McCombs School of Business, the University of Texas at Austin. He received his Ph.D from Carnegie Mellon University in 1991. His research and teaching interests include measuring business value of information technology, analyzing strategic information technology investments, enterprise modeling using information economics, and economics of software development and maintenance. Over 50 of his research articles have appeared in refereed journals, conference proceedings and edited book chapters. He is an Associate Editor of *Management Science*, *IEEE Systems, Man and Cybernetics*, *Information Systems Research*, *Electronic Commerce Research*, *MIS Quarterly*, and the *Journal of Organizational Computing*.

Rajiv Kohli

Dr Rajiv Kohli is an associate professor of Management Information Systems at the College of William & Mary. He serves as an Associate Editor for *MIS Quarterly* and as a member of editorial boards of several international journals. For over 15 years, Dr. Kohli has worked or consulted with IBM Global Services, SAS Corporation, United Parcel Service, AM General, MCI Telecommunications, Westinghouse Electronics, Wipro Corporation and Godrej Industries (India), in addition to several healthcare organizations. Prior to joining full-time academia in 2001, he was a Project Leader in Decision Support Services at Trinity Health. Dr. Kohli has held positions at the City University of Hong Kong and as an Erskine Fellow to the University of Canterbury, New Zealand. In 2008 he was a visiting scholar at MIT Sloan School of Management and to the University of Cambridge, England. Dr. Kohli's

research is published in *MIS Quarterly*, *Management Science*, *Information Systems Research*, *Journal of Management Information Systems*, and *Communications of the ACM* among other journals. He is a co-author of *IT Payoff: Measuring Business Value of Information Technology Investment* published by Financial Times Prentice-Hall. Dr. Kohli has been a recipient of several grants in information systems research.

Sean Worthington

Sean Worthington is Vice President of IT Business Services at Cisco Systems, Inc. A member of the Cisco IT Senior Leadership Team, Sean reports directly to Senior Vice President and Chief Information Officer, Rebecca Jacoby. Sean is a seasoned Silicon Valley executive with extensive IT leadership experience. Before joining Cisco in February 2007 he was CIO and Vice President of Customer Success at ITM Software Corporation. His previous roles have been with other leading high technology organizations including Silicon Graphics, Inc, Aspect Communications and LSI Logic.

Bob Zukis

Bob Zukis is the National IT Strategy & Operations Lead Partner at PricewaterhouseCoopers. Bob has been with PwC for 25 years and has an extensive range of people, process and technology consulting experience. His areas of specialty include IT Strategy, ERP Selection and Implementation, SaaS and Cloud Computing, Business Process Reengineering, Change Management and Project and Portfolio Management. He is a thought leader in identifying IT mega-trends shaping the way technology creates corporate value and was co-author of a recent report from PwC entitled *Why Isn't IT Creating More Value?*