December 2004

Information Systems Evaluation: Mini-track Introduction

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Recommended Citation
http://aisel.aisnet.org/amcis2004/105

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INTRODUCTION

Information Systems (IS) evaluation continues to be a critical issue in the rich tapestry of concerns surrounding the development and use of modern technology. This AMCIS mini track is now in its fifth year and it is complemented by the sessions on the Measurement of IT Investment Payoff and notions of Business Value. It is of course a much older discipline and the literature stretches back to the early days of computing (Brynjolfsson and Hitt, 1993; Hares and Royle 1994; Dehning et al., 2003).

IS evaluation is not a narrow area that can hope to finally resolve its issues and move on. Every time technology makes a step forward, every time a new application area opens up the need to reappraise old methods of devise new ones will arise. Concern over evaluation was revitalised by the expansion of the Internet and online business in the Nineties and we are now seeing other issues coming to the fore.

ENTERPRISE APPLICATION INTEGRATION

The integration of internal business systems with online services presents a complex scenario and demands that we evaluate infrastructure and streamlining projects rather than direct development of new business systems. In turn, this has created a need to explore evaluation within the context of enterprise technologies that are affecting information system and investment lifecycles.

THE MATURING OF EGOVERNMENT

Another area of growth relates to eGovernment. Initial eGovernment projects simply aimed to provide access to information and electronic input of service requests. Now, under considerable political pressure, the public sector is also seeking greater integration and radical process change to deliver better value services to the citizen. Further, modern technology opens up vista of participatory democracy unparalleled since the time of the Greek city-states.

Within Europe and the UK evaluation of eGovernment systems is either volumetric – as in the European benchmarking indicators (as in Europe benchmarking indicators EU 2000; EU 2001) and the UK best value indicator 157 (ODPM, 2001) – or it is based on case study coverage of good practice (see for example SOCITM 2002). However, the whole notion of value in the public sector is quite different from that which drives private industry (Banister & Lalor, 2001). Local and regional authorities need the benefit targeted research to understand the both the risks and the strategic benefits that can be obtained in from IT investment.
Sound investment management and in project risk management require an understanding of the far-reaching effects of modern technology. In Korea, for example, Lee and Choudrie (2002) found that the use of broadband within government departments and agencies was having a catalytic impact on the quality of public services and encouraging previously bureaucratic organisations to reengineer the way in which services are delivered to citizens. The nature of such change is not clearly understood and it is difficult to predict from both social and technical perspectives, largely due to the cultural diversity or sensitive political motivations.

In a recent study of UK local authorities (Irani, et. al. 2004) systematic evaluation of IT projects was found to be marginalized with senior management showing lack interest in such activities or seeing little to be gained from it. Nonetheless the same managers expressed reservations about the high costs and low benefits being achieved from IT investment. The same study also reveals a lack of cohesion between the goals of the diverse range of services statute places within the remit of local government. This creates a specific element of risk in integration and infrastructure projects spanning several services.

Consequently the government has and will continue to produce much debate about the types of techniques that constitute meaningful justification when defining and selecting IT projects.

THE 2004 MINI-TRACK

This year 32 abstracts were submitted for this mini-track and after short listing we received 22 papers. Our thanks go to the many reviewers who have helped us [the mini-track chairs] develop the final programme. The papers were of a high standard and we believe that this year’s specific mini-track on ‘Information Systems Evaluation’ will continue to be highly beneficial to both AMCIS and the IS evaluation community. It will enable new and different insights into evaluation to be viewed in a more holistic and integrated manner.

The mini-track deals with evaluating and measuring effectiveness of information systems through a deeper understanding of people and change; and through broader perspectives of impact on the whole organisation. Based on the 12 papers selected for presentation we have tried to weave a coherent story to expose some of the underlying issues within the area of IS evaluation.

INVESTMENT PLANNING & DECISIONS

We begin this years mini-track with a session looking a developments in ex-ante evaluation of new IS projects. Board level management and external stakeholders are ever more concerned to see short-term financial returns from business activity. This view conflicts fundamentally with IT investment that seeks to reap intangible long-term qualitative benefits from infrastructure development. In the first paper Janet and Michael Williams look at an approach to effectively combine both qualitative and quantitative components of an ex-ante evaluation. Using a three-phase project model – Initiation, Implementation and Institutionalisation – they focuses on the Initiation phase and the importance of planned change management in facilitating the subsequent phases. This qualitative appraisal identifies and mitigates risks that could undermine the anticipated quantitative costs and benefits.

The second paper takes a different approach to the dichotomy of qualitative and quantitative measures by stepping back from the particular IS project to look at the firm as a whole. Instead of identifying what kind of benefits are measurable and what are not, Otavio Sanchez and Alberto Albertin propose a model based on managerial economics theory. This is used to reveal, ex-ante, effective IS measurement opportunities at the firm level. At the core of this model lies the resources and capabilities of the organisation where the IS is viewed as an enabling resource that complements the other elements. The last paper of this session also endorses this view. Research in progress, proposed by Paul Tuten and William Lomerson challenges several of the existing evaluation procedures for adopting a product-oriented view of IT. They argue that this biases the evaluation process inappropriately and that a service-oriented view should be adopted when evaluating and investment.

THE INDIRECT EFFECTS OF IT

One of the challenges in IS evaluation is to understand the indirect effect of adopting ICT. Many of the benefits or disadvantages realised in an IT project only emerge as second, third, or fourth order effects on the organizational structure and may take months or even years to become significant. In this second session we have three papers exploring this issue. In the first Souad Mohamed and Zahir Irani present the Management, Employee, Finance and Maintenance indirect human cost taxonomy. This is shown to facilitate the identification and allocation of indirect
human costs associated with IS adoption and the paper reports the findings from two case studies carried out in the banking sector.

As indicated in the introduction IT platform investments – such as ERP or CRM – present particular problems with evaluation because of their indirect impact on diverse aspects of the business. Daniel Svavarsson presents a conceptual framework for classifying the risks associated with platform investments and discusses how a real option methodology can be used to evaluate and manage them. This thesis is supported by a case study examining the adoption of ERM within the construction industry.

In most situations evaluation activities are concerned with organizational plans to adopt a system whose use will be mandated throughout the organisation. However, this is not always the case and organisations to also adopt technology with the hope that individuals will choose to use it in their daily tasks. In the last paper of the session Robbie Nakatsu et al present work in this area. They hypothesise a framework to plan organizational incentives that align with organizational objectives and increase technology diffusion.

**EVALUATING SYSTEMS IN USE**

In the concern to make the right investment decision we can overlook the all-important second stage of evaluation – namely the evaluation of a system after implementation to ensure that it is delivering the benefits expected and that the costs or risks are under control. There is no point in identifying opportunities and risks during the planning stage, unless we have the means to monitor change as the system is implemented and respond appropriately. This session turns to papers examining this question. The first paper from Hussein Al-Yaseen presents a survey of organisational policies in relation to ex-post evaluation and discusses the main benefits and barriers perceived in implementing this type of evaluation. Only about a third of respondent organisations carry out formal post implementation evaluations with pragmatic issues like excessive cost, difficult and availability of users being the most frequent cited barriers to such activity.

Darshana Sedera, Guy Gable and Taizan Chan return to the issue of evaluating platform systems with a study of the success of SAP in multiple government agencies. This paper makes a significant practical contribution by presenting a validated model and instrument for measuring enterprise system success. The work not only delivers a practical tool but also exemplifies good research practice in its methodical approach to the development of the measurement instrument.

The last paper examines the role of employee perception in evaluating the effectiveness of a system in use. Wei Wang and Vincent Wing-sing Cho build on DeLone and McLean’s model (1992) to propose a measure of IS effectiveness (that is IT system success) based on user responses to the system.

**EVALUATING THE IMPACT OF IT ON “THE FIRM”**

The first three session of this mini-track have focused upon the evaluation of particular IT systems or projects. In this last session we turn to broader questions of IT impact on the general health of the organisation rather than the effects of a particular project or application.

Kevin Dow and Jeff Wong present the first of two papers looking at the overall impact of IT investment on the organisation. Working with a sample of companies they examine whether different types of IT investments have had different impacts on the firm using a downside conceptualisation of risk. Downside risk is the risk of performance falling below some target value, rather that the more general concept of risk as the variability of performance both above and below a target value. In this approach the reduction in risk profile represents an alternative to examining incremental gains to productivity or financial performance as the measure of success. The distinctive perspective in this paper reveals some interesting new insights.

Another novel approach is taken by Kweku-Muata Osei-Bryson and Myung Ko in the next paper. They examine the overall impact of IT investment by applying data-mining techniques to a dataset from a previous IT and productivity study. This historical study covers about 20 years of operation for all hospitals in the state of Washington and again produces interesting new insights.

This year’s mini-track concludes with another historical study. In this Namchul Shin takes an even broader view by looking at measures of corporate diversification in an attempt to uncover the way in which IT investment is
changing the industrial landscape. This ongoing study is a contribution to our understanding of the impact of IT on the fabric of the business community rather than any single organisation.

CONCLUDING COMMENTS

The challenges facing the Evaluation area remain demanding and face a diversity of contexts and the wide range of managerial and strategic questions that depend upon the way it supports business processes. However, the contributions this year have again shown several underlying threads that draw them together:

- Concern to evaluate the long-term effects IS investment and attempts to model this through the mitigating or potentiating effects of IS systems as part of a process of change.
- A continuing need to question pure fiscal measures and develop a more appropriate notion of value.
- The need to take a company wide view both in integration and infrastructure projects and in evaluating the overall impact of ICT.

REFERENCES


THE AMCIS 2004 PAPERS


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