A Public Sector Case Study on Evaluating and Managing the Benefits of IS/IT

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ABSTRACT

The issue of expected and actual benefits realised from IS/IT investments has generated a significant amount of debate in the IS/IT literature amongst the researchers, academics, and practitioners. As part of a research program an in-depth case study of these practices and processes in a large government agency, with a mix of insourced and outsourced IS/IT activities, was conducted. A number of issues have emerged from the analysis of the text data and the key issues are presented below in some detail.

INTRODUCTION

Information systems / information technology (IS/IT) now represents substantial financial investment for many organisations (Willcocks, 1992). Information systems and technology managers have found it increasingly difficult to justify rising IS/IT expenditures (Silk, 1990) and are often under immense pressure to find a way to measure the contribution of their organisations' IS/IT investments to business performance, as well as to find reliable ways to ensure that the business benefits from IS/IT investments are actually realised (Singh, 1993). This problem has become more complex as the nature of IS/IT investments and the benefits they can deliver has changed rapidly (Willcocks, 1992). Furthermore, the evaluation of these IS/IT investments is a complex tangle of financial, organisational, social, procedural and technical threads, many of which are currently either avoided or dealt with ineffectively (Mirtidis and Serafeimidis, 1994).

LITERATURE REVIEW

While organisations continue to invest heavily in IS/IT, research studies and practitioner surveys report contradictory findings on the effect of the expenditures on organisational productivity (Grover et al., 1998). Therefore, it is not surprising to see that the term "productivity paradox" is gaining increasing notoriety as several studies point toward fairly static productivity and rising IS/IT expenditure (Hochstrasser, 1993). Despite large investments in IS/IT over many years, it has been difficult to determine where the IS/IT benefits have actually occurred, if indeed there have been any (Willcocks and Lester, 1997). For example, Strassmann (1997) suggests that IS/IT investment produces negligible benefits, but Lee and Barua (1999) report a positive relationship between organisations' performance and IS/IT spending.

IS/IT Investment Evaluation: Recent Research

Globally, it has been estimated that computer and telecommunications investments now amount to half or more of most large organisations' annual capital expenditures (Willcocks and Lester, 1997). IDC has reported an estimated annual global expenditure of over US$1.8 trillion on IT in 1997 (Bannister and Remenyi, 1999). In Australia, the Federal Government announced that, starting in 1998, it would commit $1.2 billion over five years to boost the effective use of IS/IT in business and investment industry (Mitchell, 1998). The worldwide spending on IS/IT in 1996 was estimated to be around $1.076 trillion (Strassmann, 1997).

Dhillon and Backhouse (1996) suggest that at least 20% of the IS/IT expenditure is wasted, and that between 30-40% of IS/IT projects realise no net benefits. Investigation into the benefits of IS/IT projects have regularly shown that, 60% of the time, IS/IT projects are either discontinued or provide benefits at levels well below those expected (Hochstrasser, 1993). Other studies have reported that 75% of large-scale systems do not function as intended or are not used and only 1.8% of software is used as delivered (McGunagle, 1995).

Emerging Problems/Challenges

Evaluation and management efforts regularly run into difficulties of three generic types: (1) many organisations find themselves in a catch-22 situation. For competitive reasons they cannot afford not to invest in IS/IT, but economically they cannot find sufficient justification, and evaluation practice cannot provide enough underpinning, for making the investment (Willcocks and Lester, 1997); (2) as IS/IT infrastructure becomes an inextricable part of the organisation's processes and structures, it becomes an increasingly difficult to separate out the impact of IS/IT from that of other assets and activities (Carlson and McNurlin, 1992); and (3) there is widespread lack of understanding of information requirements as well as IS/IT as a major capital asset, despite the high levels of expenditure (Ballantine et al., 1994).

IS/IT Benefits Realisation

Therefore, not only it is important for organisations to direct their IS/IT expenditure into the areas which have closely aligned with the organisations' business directions at the right time, but also to understand and improve the evaluation and benefits realisation techniques and processes for their IS/IT investments (Willcocks, 1992). A survey conducted by Wilson (1991) put measuring benefits as one of the most important barriers to setting up and implementing IS strategy. According to Ward et al. (1996), in order to determine if the desired benefits have been achieved in practice, it is necessary to measure and evaluate post-project. If no measurable effects can be identified post-project, other than the implementation of the technology itself, then it would be safe to assume that no benefits have actually been realised.

RESEARCH APPROACH

One of the key objectives for the research program mentioned earlier is to develop approaches and models based on the fit between theory and practice of IS/IT investment evaluation by large Australian organisations. To satisfy this objective, the case study method was considered an appropriate mechanism for gathering information. Semi-structured interviews were used for the case study in this research project to gain a deeper understanding of issues surrounding the current industry and government practices and norms in managing IS/IT benefits and investments evaluation.

CASE DESCRIPTION

In this case study seven interviews were conducted with four participants from a Western Australian state government department ("hereafter referred to as the Agency"), and two participants from each of the two major external outsourcing contractors. The questions asked during the interview were related to the formal benefits realisation methodology used by the Agency, major outsourcing contracts, contractual relationship between the Agency and the contractors, and IS/IT investment evaluation methodology or technique deployed. All

interviews were taped and the transcripts were sent to the interviewees for validation. In cases where there were differences in opinion between participants, either follow-up telephone interviews were conducted or emails were sent to clarify their positions. In some instances, interesting differences of opinion persisted. Other data collected included some of the actual contract documents, planning documents and some minutes of relevant meetings. Around 80 pages of transcripts were coded and analysed. The analysis was conducted in a cyclical manner and followed guidelines for interpretive research (ie. multiple interpretations) set out by Klein and Myers (1999).

CASE STUDY RESULTS

A number of issues have come from the analysis of this text data and the key issues are presented here in some detail.

Issue 1: Lack of Formal IS/IT Investment Evaluation Methodology

Most of the participants claimed that some sort of formal methodology or process was put in place for evaluating these contracts. However, closer examination of the participants' responses reveals that what was described did not constitute a formal IS/IT investment evaluation methodology. Participants wrongly considered various contract control mechanisms as a formal IS/IT investment evaluation methodology or process. Responses to the formal methodology question included:

- Measurements or evaluation instruments such as service level agreements (SLAs), monthly reports, standard contract management, standard project management methodology, and the guidelines provided by the state government (four participants).
- Requests for tenders (RFTs), requests for quotes (RFQs), requests for proposals (RFPs), and evaluation of RFTs (two participants).

Issue 2: A Formal IS/IT Benefits Realisation Methodology Was Used

Every participant was aware that a formal IS/IT benefits realisation methodology was being used by the Agency for its outsourcing contracts and projects. One of the contractor's Benefits Realization Approach was used as an end-to-end process to assist the Agency in: (1) providing a rigorous process to select the right projects to implement; (2) placing responsibility and accountability at the appropriate level within the organisation; (3) driving process re-engineering through changes in the organisation; (4) ensuring benefits are realised; and (5) ensuring agreed re-investment of time savings applied as expected. In fact, almost every participant was able to describe the methodology in some details.

Issue 3: Lack of Understanding of IS/IT Investment Evaluation Methodology

The confusion indicated in Issue 1 about what constitutes a formal IS/IT investment evaluation methodology demonstrates a lack of understanding of such methodologies in the Agency. This may be due to the fact that the Agency was unable to introduce a formal IS/IT investment evaluation methodology to the organisation because it was required to follow the state government's outsourcing guidelines (MOPC, 2000; SSC, 1999b)

Issue 4: Existence of an Informal IS/IT Investment Evaluation Process

Despite the fact that no formal IS/IT investment evaluation methodology or process was used by the Agency, these contract control and evaluation mechanisms specified within the SLAs or government guidelines do represent an informal IS/IT investment evaluation process. Although these informal mechanisms or measurements may not totally replace a real and robust formal IS/IT investment evaluation methodology (e.g. Kaplan and Norton's (1992) Balanced Scorecard), they were able to assist the Agency in evaluating and

measuring the performance of the outsourcing contracts. These contract control and evaluation mechanisms or measurements are largely based on the guidelines set out by the standard state government contract process and purchasing guidelines (SSC, 1999a; 1999b).

Issue 5: Good Understanding of Benefits Realisation Practices

A benefits realisation methodology, called Benefits Realization Approach, was introduced to the Agency before the outsourcing of its IS/IT functions because there was a concern within the organisation that IS/IT investments did not deliver value and this may have jeopardised the government's future funding for the Agency. In order to ensure that the IS/IT investments deliver the promised value and benefits as well as bring the focus back to the Agency's main business, a large internal change program was required by the organisation. Unlike its understanding of the IS/IT investment evaluation process, the Agency had determined in the very beginning that a formal benefits realisation methodology was needed for the organisation. Since the Agency had no technical expertise to undertake a large scale internal change program, it was important for the organisation to search for a formal benefits realisation methodology. As a result, the Benefits Realization Approach was chosen to assist the Agency to manage the change program as well as to realise the benefits from the IS/IT projects undertaken by the organisation.

However, the success of the methodology depends largely on the acceptance of the change program and understanding of the principle of the benefits realisation by the users within the Agency as a whole. Many within the organisation had found the methodology to be very useful. The Agency has tried to sell and educate the principle of the methodology to everyone within the Agency. It is expected that almost all of the Agency's staff members would understand the benefits realisation process in a short time. At the same time, the Agency is trying to minimise user resistance while maintaining the pressure for them to comply with the Agency's change program. The Agency's Value Management Office (VMO) was set up to educate the users about the benefits realisation methodology and to minimise the users' resistance to the implementation of the methodology. This clearly demonstrates the resolve by the Agency to implement the methodology as well as ensure its acceptance.

Issue 6: Focus on Quantitative IS/IT Investment Evaluation Measures

Many traditional accounting-based measures do not assist in measuring how IS/IT adds net value to an organisation (Willcocks, 1992). According to Shaw and Fairburst (1997), the exclusive use of a 'hard', quantitative approach could miss some of the important subtleties of performance. Similarly, the Agency's measures for investment evaluation appeared to be quantitative and traditional accounting-based. This is probably because the quantitative measures were easier to use and define than the qualitative measures. However, without employing more qualitative measures (e.g., relationship, culture and leadership) and a formal IS/IT investment evaluation methodology or process, the use of quantitative or accounting based measures alone would not assist in full evaluation and monitoring of the performance, and status of these contracts since IS/IT evaluation is "a process, or group of parallel processes which take place at different points in time or continuously, for searching and for making explicit, quantitatively or qualitatively, all the impacts of an IT project and the program and strategy of which it is a part" (Farbey et al., 1999). Moreover, all research participants seemed to have a SLA mentality; the main objective for measuring or evaluating performance was just to fulfil the requirements under the SLA within each contract (and the measures specified in the SLAs were traditional accounting-based measures).

Issue 7: Different Motivations for Outsourcing

Several reasons were put forward by the participants as the main motivation or objectives for IS/IT outsourcing. Six participants indicated access to the required technical expertise as one of the main

reasons for outsourcing. Four out of eight participants cited cost saving as one of the main motivations for outsourcing. Government policy and concentrating on core functions were quoted by three participants each. Only two of the four contractor representatives cited access to the required technical expertise as one of the Agency's reasons to outsource. Interestingly, two other contractor representatives either did not know the main reason for the Agency's outsourcing or did not respond to the question. On the other hand, all of the Agency's four participants mentioned access to the required technical expertise as one of the main reasons for the Agency to outsource some of its IS/IT functions.

Therefore, it can be said that the Agency's motivation for outsourcing was perceived somewhat differently by the contractors. Access to the required technical expertise was perceived by the Agency's participants as their number one motivation for outsourcing. However, the contractors either did not know (or care?) why the Agency outsourced, or mentioned several reasons include cost saving, access to the required technical expertise, and concentrating on core functions. They could not agree on a single reason for outsourcing. The result here is not really unexpected, given that virtually all contractors are in business to maximise their profit (Grover and Teng, 1993). This could run counter to the Agency's interests and so one cannot expect the contractors to be able to perceive correctly the Agency's real motivation for outsourcing.

Issue 8: Success of the Contracts Perceived Differently by Stakeholders

Several criteria for determining the success of the outsourcing contracts were put forward by the participants. Customer satisfaction, achieving the contractor's projected revenue, bringing value/benefits to the organisation, and meeting the SLA provisions were mentioned by two participants each. Other criteria mentioned by the Agency's participants include technical competence to deliver what is required, risk factors, contractors' experience in a relevant area, and business continuity of the contractors. Interestingly, both representatives from the first contractor mentioned achieving the projected revenue for themselves and satisfying customers as their only criteria for determining the success of their outsourcing contracts with the Agency. This may indicate that the first contractor's aim is to maximise the profit while maintaining a certain level of customer satisfaction. However, participants from the Agency seemed to have used different criteria for determining the success of the outsourcing contracts. Bringing value/benefits to the organisation, meeting the SLA provisions, and pricing/cost were mentioned by three out of four participants from the Agency.

From the above, it is not difficult to see that the Agency and the contractors, especially the first contractor, have different agendas in mind despite the fact that these contracts are all partnership type of arrangements. The first contractor's criteria for success seemed to be maximisation of profit/revenue while keeping the customers satisfied. On the other hand, the Agency was trying to maximise the value/benefits to the organisation while keeping costs down and to ensure that the contractors fulfil their SLA obligations.

Issue 9: Better Control Over the IS/IT Skill Shortage Within the Agency

As mentioned earlier, access to the required technical expertise was the most often cited reason for outsourcing. It was mentioned by six out of eight participants because the Agency did not have the required IS/IT expertise to implement a major internal change program and outsource some of its IS/IT functions. In order to obtain the required technical expertise and skills from outside, the Agency had to transfer some of its IS/IT staff to the first contractor. According to most of the participants, those who went across to the first contractor were quite happy about the whole process. However, the Agency did not seem to lose the ability to manage and assess its own IS/IT needs, after relinquishing the control of some of its IS/IT functions and staff,

as has happened in many outsourcing organisations previously (Currie and Willcocks, 1998). This is because:
(1) only a small percentage of the Agency's of IS/IT staff were transferred to the first contractor;
(2) the second contractor was prohibited under the contract from recruiting any staff from the Agency;
(3) most of the Agency's staff were required to understand the Benefits Realization Approach; and
(4) the second contractor assigned at least one experienced staff to every one of the Agency's projects under the contract.

Unlike other outsourcing organisations, the Agency was able to manage its outsourcing contracts through its own staff without undue external influence or assistance. This was done by transferring as few IS/IT staff to the first contractor as possible while learning some of the required IS/IT skills and expertise from the second contractor under the contract. The result here is consistent with Jennings (1997) who found there is a need to retain a progressive understanding of the outsourced activities and technologies because the knowledge possessed can assist the organisation to monitor outsourcing decisions and their revisions.

Issue 10: Embedded Contract Mentality

As mentioned earlier, staff of the Agency seemed to have a "contract mentality" as the operation of the contracts was all based on the specifications set out in the SLAs within the outsourcing contracts. Several participants clearly indicated that there was a pre-agreed set of evaluation and control mechanisms in the SLAs within the outsourcing contracts such as metrics, monthly reports, reviews, and regular meetings. Moreover, half of the participants thought these contract control mechanisms were all part of the IS/IT investment evaluation methodology or process.

The use of both a formal IS/IT investment evaluation methodology and a formal benefits realisation methodology would probably help the Agency measure these contracts' performance more accurately and hence, realise the projected benefits. However, a formal IS/IT investment evaluation methodology was not employed. This is probably due to the fact that the Agency, as a state department, must follow the contract guidelines set out by the state government (SSC, 1999a; 1999b). It may not be easy for the Agency to adopt a formal IS/IT investment evaluation methodology and follow the guidelines set out by the state government. Nevertheless, an embedded contract mentality among the participants of the contractors and the Agency meant that the Agency was unable to get a more balanced and truthful picture of these contracts' performance.

Other Issues

Other issues arising from this interpretive analysis are listed below but are not discussed due to space limitations. Details are available from the authors.
- Issue 11: Lack of user involvement/participation in contract development
- Issue 12: Conflict between motivations and success criteria for outsourcing
- Issue 13: General lack of commitment by contractors
- Issue 14: Restrictive government outsourcing contract guidelines
- Issue 15: Benefits realisation methodology provides rigorous processes
- Issue 16: Ability to manage the outsourcing contracts without external influence and assistance

CONCLUSION

This case study was conducted in a large government agency with a mix of insourced and outsourced IS/IT activities (probably typical of many public and private sector organisations these days). Issues arising from the study included a lack of a formal IS/IT investment evaluation methodology and a lack of understanding of the evaluation approach used, the use of a formal benefits realisation methodology and a good

understanding of benefits management practices, the use of an informal IS/IT investment evaluation process and a focus on quantitative IS/IT investment evaluation measures, conflicting motivations for outsourcing and different perceptions of success of the contracts by stakeholders, an IS/IT skill shortage within the organisation, an embedded contract mentality, lack of user involvement/participation in contract development, conflict between motivation of outsourcing and criteria for determining the success of the outsourcing contracts, general lack of commitment by contractors, restrictive government guidelines, and rigorous benefits realisation process.

While the Department appears to operate without any major problem, the mostly negative issues shown above indicate weaknesses in the way the organisation deals with the level of formality and integration in applying the methodologies. The problems mentioned in Issues 6 -14 were mostly caused by the lack of attention to the IS/IT investment evaluation (as mentioned in Issues 1, 3, and 4). For example, if formal IS/IT investment evaluation was adopted by the Agency, more qualitative measures may been used to evaluate the outsourcing contracts (Issue 6). Through the research program introduced in this paper it is hoped that better approaches may be made to Australian organisations.

REFERENCES

References available on request.

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