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Chad Lin

*Curtin University of Technology*, [elin@cc.curtin.edu.au](mailto:elin@cc.curtin.edu.au)

Graham Pervan

*Curtin University of Technology*, [pervang@cbs.curtin.edu.au](mailto:pervang@cbs.curtin.edu.au)

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## **IS/IT Investment Evaluation and Benefits Realisation Issues in a Government Organisation**

Chad Lin and Graham Pervan

School of Information Systems  
Curtin University of Technology, Perth, Australia  
elin@cc.curtin.edu.au , pervang@cbs.curtin.edu.au

### **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 researchers, academics, and practitioners. This is as true in Australia as it is in the rest of the developed world. Thus, a detailed program of research into the current Australian practice and processes of IS/IT investment evaluation and benefits realisation was initiated. As part of this research program an in-depth case study of these practices and processes in a large government department, with a mix of insourced and outsourced IS/IT activities, was conducted. Issues arising from the study include a lack of a formal IS/IT investment evaluation methodology and a lack of understanding of the evaluation approach used, a lack of any (formal and informal) benefits realisation methodology and a lack of understanding of benefits management practices, the use of an informal IS/IT investment evaluation process, focus on quantitative IS/IT investment evaluation measures, conflicting motivations for outsourcing, different perception of success of the contracts by stakeholders, IS/IT skill shortage within the organisation, embedded contract mentality, complicated contract arrangements, over-reliance on a single contractor, lack of user involvement/participation in contract development, and general lack of commitment by contractors.*

### **Keywords**

IT Investment; IT Evaluation; IT Benefits Realisation; IS/IT Management

## **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. 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). This is the notion that 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). On one hand, studies conducted by many researchers (e.g., Strassmann (1997)) have suggested that IS/IT investment produces negligible benefits. On the other hand, other studies (e.g., Lee and Barua (1999)) report a positive relationship between organisations' performance and IS/IT spending. This debate is still on-going. Given the financial stakes involved, determining the impact of IS/IT investments on performance and organisational processes has been and will continue to be an important research concern for both practitioners and academics (Sriram et al., 1997).

### **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). The

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expenditure on IS/IT investments by UK and US organisations is also large and rising. The recent Computers in Manufacturing Survey (Bowman, 1996 in Irani et al., 1997) has reported an 8% rise in UK corporate IS/IT expenditure in the manufacturing sector during 1996. In the US, the investments in IS/IT equipment grew from \$55 billion to \$90 billion in the 1980s, representing an annual growth rate of almost 15% (Willcocks, 1992). 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).

Dhillon and Backhouse (1996) have pointed out that, amid all these IS/IT expenditure increases, several research studies have suggested 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). Around 70% of all IS/IT investment seems to give no adequate return on investment (Hochstrasser and Griffiths, 1990 in Renkema, 1998). 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 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).

Ballantine et al. (1996) identified a number of problems that are frequently encountered during evaluation practice. These include difficulty in identifying and subsequently quantifying relevant benefits and costs, and neglecting intangible benefits and costs. These problems in IS/IT evaluation are usually complex and, therefore, can affect the determination of the expected IS/IT benefits. These include: (1) the budgeting practice of many organisations often conceals full costs; (2) the traditional financially oriented evaluation techniques (i.e. ROI, NPV, PI, cost/benefits) can be problematic in measuring IS/IT investments; (3) many project managers overstate costs at the feasibility stage, with the express purpose of making sure that they could deliver within time and budget; (4) many organisations have failed to devote sufficient time and effort to IS/IT and (5) the lack of IS/IT planning and hence the failure to create a strategic climate in which IS/IT investment can be related to organisational direction can lead to measurement problems.

All the recent studies and research have pointed to a rising trend for IS/IT investment expenditure. Despite this, gaining business value from, and justifying current IS/IT investments still remain as the most critical but difficult management issues in Australia, UK and the US (Pervan, 1998). As a result, most project justifications seem to be a fiction and organisations often want to exert bottom line control over their spending (Simms, 1997).

### **IS/IT Benefits Realisation**

Therefore, not only is it 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, 1992a). 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.

The above issues regarding research and practice on IS/IT investment evaluation and benefits management might be expected to also hold true in Australia. For example, Sohal and Ng (1998) found that in large Australian organisations the potential of IS/IT has not been utilised to meet the competitive challenges due to inadequate and inappropriate appraisals/evaluation of the proposed IS/IT investment projects. Moreover, they reported that 45% of the responding organisations do not evaluate whether IS/IT systems are still consistent with business objectives and 59% do not determine whether expected benefits are being achieved. Another survey of large Australian organisations found that although most seemed to have an existing process for IS/IT evaluation and benefits management, only about one-third of organisations claimed to have a formal benefits realisation methodology (Lin and Pervan, 2000). Therefore, a research program has been developed to investigate this and

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related issues through surveys and case studies aimed at assessing current practice and developing models and approaches to the problem (Lin et al., 2000). The initial survey was conducted and completed in 1999 and results show some similarity to much of the non-Australian studies (Lin and Pervan, 2000).

## **RESEARCH APPROACH**

One of the key objectives for the research program mentioned earlier is to develop an approach and model 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, observation, and document review 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. This paper reports, in particular, on the issues arising which reveal a number of aspects of these practices that confirm much of the (non-Australian) literature as well as the Australian survey conducted in 1999 (Lin and Pervan, 2000).

## **CASE DESCRIPTION**

The case study was carried out between November 1999 and August 2000. In total, 10 interviews were conducted with six participants from a government department (“hereafter referred to as the Department”) and one participant from each of the three major outsourcing contractors. The questions asked during the interview were related to the Department’s three major outsourcing contracts, contractual relationship between the Department and the contractors, IS/IT investment evaluation methodology deployed, benefits realisation process used, and contract transition period management. All interviews were taped and the transcripts were sent to the interviewees for validation. Only two interviewees had minor amendments to their transcripts. In cases where there were differences in opinion between participants, either follow-up interviews were conducted or emails were sent to clarify their positions. In many instances, interesting differences of opinion persisted. Other data collected included some of the actual contact documents, planning documents and some minutes of relevant meetings. More than 150 pages of transcripts were coded and analysed. The analysis was conducted in a cyclical manner and followed guidelines (ie. multiple interpretations) set out by Klein and Meyers (1999). Moreover, this case study is grounded in theory, drawing reference from published literature and linking it with the interview data, contract documents, and other relevant materials.

## **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**

The interview data suggests that there was a lack of formal IS/IT investment evaluation methodology or process on any of the three major outsourcing contracts, even though most of the participants claimed that the methodology or the process was put in place for these contracts. These measurements were mostly related to the contract control mechanisms specified in the Service Level Agreement (SLA) within each contract and no formal IS/IT investment evaluation methodology, process, or technique (i.e. Information Economics) was ever mentioned by any participant. This is not really surprising given that many organisations in practice paid little attention to the formal evaluation of IS/IT investment (Farbey et al., 1999). The result is consistent with findings of others. Ballantine et al. (1996) suggest that there is a lack of formal evaluation procedure within organisations while Taylor and Norris (1989, in Norris, 1996) have indicated in their UK survey that almost half of the responding organisations could not point to any kind of process for evaluating contribution or following up promises of benefits. According to Sohal and Ng (1998), their research findings in large Australian organisations suggest that the potential of IS/IT has not been utilised to meet the competitive challenges due to inappropriate evaluation of the IS/IT investments, and 59% of the responding Australian organisations did not determine whether expected benefits are being achieved.

### **Issue 2: Complete Lack of IS/IT Benefits Realisation Methodology**

Most participants admitted that there was, in fact, no formal benefits realisation methodology or process for any of the three major outsourcing contracts. Those who indicated some process existed were actually referring to the contract control and evaluation mechanisms specified in the SLA. However, no formal IS/IT benefits realisation methodology (e.g., the Cranfield Process Model of Benefit Management (Ward et al., 1996)), technique, or process was mentioned or specified by any of the participants or any contract documents. Overall, the result is consistent with the survey research in Australia (Lin and Pervan, 2000) and in UK (Ward et al., 1996) where the

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adoption rates of the benefits realisation methodology by large Australian and UK organisations are only 32.8% and 22.6%, respectively. The fact that few organisations have a benefits management methodology or process is not really surprising as much attention is paid to ways of justifying investments, with little effort being extended to ensuring that the benefits expected are realised (Ward and Griffiths, 1996).

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

All interview participants seemed to have a problem of understanding the exact meaning and purpose of IS/IT investment evaluation methodology or process. None of the participants was able to mention any formal IS/IT investment evaluation process or methodology (e.g., Return on Management). Instead, several participants mistakenly thought contract control and evaluation mechanisms specified within the SLA such as scorecards process, annual reviews, formal meetings, or benchmarking constituted their IS/IT investment evaluation methodology or technique. This is consistent with the findings in the earlier survey conducted by Lin and Pervan (2000) where many respondents indicate they evaluated the success of the contracts or projects through some sort of reviews, meetings, or user feedback.

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

Both the Department and the outsourcing contractors knew that they needed some sort of informal IS/IT investment evaluation process or technique to control and monitor the performance and progress of the contracts. Although these informal mechanisms or measurements cannot be used to totally replace a real and robust formal IS/IT investment evaluation methodology (e.g., Balanced Scorecard (Kaplan and Norton, 1992)), they were, however, able to help the Department evaluate and measure, to certain extent, 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 purchasing guidelines (SSC, 1999).

### **Issue 5: Lack of Understanding of Benefits Realisation Practices**

As mentioned previously, no formal benefits realisation methodology, technique or process was utilised for any of these three major outsourcing contracts. While half of participants readily admitted that there was no benefits realisation methodology or process being used, the other half of the participants disagreed and stated that benchmarking, value added activities, budgetary process, or annual reviews were used for managing benefits for these outsourcing contracts. However, these contract control and evaluation mechanisms had nothing to do with “the process of organising and managing such that potential benefits arising from the use of IS/IT are actually realised” (Ward and Griffiths, 1996). The result seems to be consistent with a view expressed by many researchers and academics that there is still a lack of understanding of the benefits realisation methodology or process by most organisations (Remenyi, 2000).

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

All but one of the measures specified in the SLA within all three outsourcing contracts are quantitative and accounting based measures. These quantitative and accounting based measures did not seem to assist in full evaluation of the contract performance and the 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). The result here seems to confirm the reports about the inappropriate measurements and other problems with the Australian Federal Government’s outsourcing contracts which had led to constant budget blowouts, dubious savings, and user dissatisfaction (Douglas, 1999; Mitchell, 2000).

### **Issue 7: Conflicting Motivation for Outsourcing**

Several reasons were put forward by the participants as the main motivation or objectives for IS/IT outsourcing. Five out of nine participants cited cost saving as the main motivation for the three major outsourcing contracts, although three of them had doubted that IS/IT outsourcing had actually resulted in any dollar savings to the Department or the State Government. This is consistent with prior surveys (Willcocks et al., 1992a; Lin and Pervan, 2000), where cost saving is usually the first reason quoted for IS/IT outsourcing. Increased service level and access to technical skills were also mentioned by other participants as major reasons for outsourcing.

### **Issue 8: Success of the Contracts Perceived Differently by Stakeholders**

In terms of meeting the benchmarks mentioned in the contract, two out of the three outsourcing contracts were generally seen by the participants as successful. Although the degree of success of these three major outsourcing contracts, in many instances, seems to be measured in the context of the benchmarks set for it, none of the three

major outsourcing contracts had contained detailed descriptions about the use of the benchmarks. This may have indicated that the measurements that were utilised to evaluate the performance and the benchmarks that were used to determine the success of the contracts could somehow be interpreted differently by various stakeholders since there was no pre-determined set of benchmarks. Other criteria often used by the participants to determine the success of a particular contract were cost savings to the Department, fulfilment of the contract conditions, and service delivery. Furthermore, a contract that was perceived successful in terms of one criterion did not mean it would be perceived successful in terms of another criterion.

#### **Issue 9: IS/IT Skill Shortage within the Department**

Several participants stated that one of the main reasons for outsourcing was to access the required IS/IT expertise. To do so, the Department had to transfer most all of its IS/IT staff to the external contractors. Although the IS/IT staff transfer process was regarded by all participants as being highly successful, ironically many participants expressed their concerns about the loss of the Department's technical staff, and its ability to evaluate and manage these outsourcing contracts. The loss of IS/IT staff had later forced the Department to often rely on external opinion on its IS/IT requirements.

#### **Issue 10: Embedded Contract Mentality**

There seems to lie a contract mentality as the operation of the contracts was all based on the specifications set out in the Service Level Agreement (SLA). All performance measurement and evaluation were done just to fulfil the specifications or requirements set out within the SLA because the rewards and penalties were all linked to the scorecards specified in the SLA. There was simply no incentive for either party to introduce more qualitative and formal metrics (or methodologies). The use of the scorecards and other quantitative contract evaluation mechanisms within the SLA were generally useful in measuring, managing, and monitoring the performance of these contracts. However, by having an embedded contract mentality among the contractors and the Department, the Department was unable to (1) prove whether any benefits had actually been realised as result of these three major outsourcing contracts; and (2) get a more balanced and truthful picture of these contracts' performance, and hence, maybe resolve some of the difficult issues. The lack of more qualitative measures as well as formal IS/IT investment evaluation and benefits realisation methodologies had also directly affected the perception of success by the stakeholders in terms of several criteria such as cost savings, meeting benchmarks, and improved services delivery. The implementation of more qualitative measures and formal methodologies or techniques by the Department may have improved the measurement and monitoring of the progress of the contracts and hence, the actual performance of some of these contracts.

#### **Issue 11: Complicated Contract Arrangements**

The contract arrangements for all three major outsourcing contracts appear to be unnecessarily complicated. One of the contractors was dealing with one and half of the three contracts whereas the other one was dealing only in half of one contract. Moreover, all three original outsourcing contractors were taken over by other companies at least once during the life of these three major outsourcing contracts for the Department. Furthermore, it was also possible that the loss of almost all of the Department's technical staff limited its ability to manage these contracts more successfully as well as to determine whether or not it was better for the Department to simplify its contracts arrangement in the first place. The Department may have realised later that it would be in its interest to simplify its contract arrangements by breaking up one of the contracts and merging it into another.

#### **Issue 12: Over-reliance on a Single Contractor**

As mentioned previously, one of the contractors was taking over more and more of the Department's IS/IT services. This is due to the fact that the contract was perceived by the stakeholders within the Department as the most successful contract in terms of meeting the benchmarks set out for them. However, some concerns were expressed by several stakeholders including the Department, and by other external outsourcing companies who have been bidding for the State Government's IS/IT services. Interestingly, there were others inside the Department who felt it would be in the Department's interest to have less contractors to deal with as communication among the contractors and the Department, according to some participants, were the main problem for having several external outsourcing contractors.

#### **Issue 13: Lack of User Involvement/Participation in Contract Development**

According to Lin and Shao (2000), user participation has a positive influence on the successful outcome of system implementation. However, none of the current contract managers and coordinators were involved with any of the original outsourcing contracts negotiation processes. They were only brought in from other departments to manage these contracts in recent years and had no prior experience in managing the outsourcing

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contracts. The Department seems to have paid the price of not having enough trained staff to properly manage these outsourcing contracts when it transferred most of its technical staff. Since they had no prior experience in managing these contracts and had not been involved in the contract negotiation, it is not surprising that they just did their best to fulfil the requirements set out in the SLA within these three major outsourcing contracts. In addition, by not involving the users in the original contracts negotiation process the stakeholders may not have perceived these outsourcing contracts as successful as it could be in terms of user satisfaction, user attitude, and systems usage.

#### **Issue 14: General lack of Commitment by Contractors**

According to the guidelines set out by the State Supply Commission (SSC, 1998), partnership can help both parties to: (a) share of risks and benefits between the outsourcers and the contractors; (b) translate their individual objectives into common objectives; and (c) strive to achieve the same goals. However, this does not seem to be the case for these three major outsourcing contracts although all of them were in partnership arrangement. For instance, one of the contractors had fiercely opposed the use of the surveys because the results from the surveys could decrease the points on the scorecard and hence, penalise the contractor financially. Another contractor has placed its own interest in front of the Department by trying to maximise its profit. This result appears to confirm the studies conducted by several researchers which indicate that not only many organisations from either private or public sector are sceptical about partnership (Hancox and Hackney, 2000), but also that the partnership type of contract is not the most successful because the profit motive is not shared (Lacity and Hirschheim, 1994).

## **CONCLUSION**

This case study has been conducted as part of a larger research program on IS/IT investment evaluation and benefits management (Lin et al., 2000) that was initiated with a survey of current Australian practices (Lin and Pervan, 2000), and continues with this case. The 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 include a lack of a formal IS/IT investment evaluation methodology and a lack of understanding of the evaluation approach used, a lack of any (formal and informal) benefits realisation methodology and a lack of understanding of benefits management practices, the use of an informal IS/IT investment evaluation process, focus on quantitative IS/IT investment evaluation measures, conflicting motivations for outsourcing, different perception of success of the contracts by stakeholders, IS/IT skill shortage within the organisation, embedded contract mentality, complicated contract arrangements, over-reliance on a single contractor, lack of user involvement/participation in contract development, and general lack of commitment by contractors.

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 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 and benefits management (as mentioned in Issues 1-5). For example, if formal IS/IT investment evaluation and benefits realisation methodologies were adopted by the Department, more qualitative measures would have been used to evaluate the outsourcing contracts (Issue 6). The follow-up case study of a successful application of DMR Benefits Realization Model (DMR, 1997) within another major government agency has now been conducted, and is being analysed and may reveal factors which will lead to success in managing the IS/IT investment evaluation and benefits realisation.

IS/IT investment evaluation practice remains as one of the most controversial and debated topics in the IS literature to date. However, as mentioned earlier, most of the studies that have been done to date in this area have been carried out in UK or the USA. Very little published work has been conducted in Australia and there are still a lot to be learned in the area of the processes and practices of IS/IT investment evaluation and benefits management in Australian organisations. It is the hope of the authors that more studies in the practice of IS/IT investment evaluation will benefit other researchers in this field and the business community as a whole. Through the research program introduced in this paper it is hoped that better approaches may be made to Australian organisations.

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