Abstract
This paper explores effective IT project evaluation practices in Australia among 36 companies operating in three industry sectors: Finance and Insurance; Mining; and Electricity, Gas and Water Supply. Qualitative analysis of 78 interviews was used to determine characteristics of effective evaluation practices. The study suggests that more formal and sophisticated evaluation methods do not necessarily result in more effective evaluation or better IT project outcomes. Rather, effective IT project evaluation outcomes are more closely related to the drivers of behaviour in organisations such as accountability for results, top-leadership commitment, a strong IT-Business relationship, alignment to strategy, an effective measurement regime, and a willingness to take action. Simplicity and flexibility were also key characteristics underlying effective practices. These conclusions provide both theoretical and practical insights into the evaluation of IT projects in complex environments.

Keywords: IT Projects, Evaluation, Accountability, Decision Making, Governance

Introduction
Given the high cost and strategic importance of many information technology (IT) projects, evaluation decisions about the feasibility, relative priority, and impact of these projects are important (Smithson & Hirschheim 1998; Irani et al. 2005). However, despite the extensive literature on IT evaluation (Irani & Love 2001, 2002), organisations appear to be no nearer a solution to meaningful evaluation than they were over a decade ago (Ballantine & Stray 1998). Long-standing difficulties with evaluating IT projects, such as the identification and measurement of relevant costs and benefits, are also exacerbated by a rapidly changing business environment and a high degree of uncertainty regarding IT project outcomes (Patel & Irani 1999; Melville et al. 2004). The result is that IT projects continue to experience high failure rates (Lubbe & Remenyi 1999; Standish 2004; Love et al. 2005).

In an effort to gain a better understanding of which IT evaluation methodologies and practices are being used today, which are most effective, and what value they bring, we conducted a series of 36 case studies in three industries in Australia. Our research question was as follows:

What are the most effective IT project evaluation practices used by organisations in Australia and why do they work?

The answer to this question is organised into five sections: literature review, research method, results, discussion, and conclusion. The conclusion is that the key to more effective IT project evaluation is not more formal and sophisticated methods, but rather, more effective governance structures and decision processes. Six key drivers of effective IT evaluation practices, that lead, in turn, to more efficient use of resources and improved IT project outcomes, are presented and justified.
Literature Review

According to Owen (1993, p.3) evaluation is “the process of providing information designed to assist decision making about the object being evaluated”. Evaluation is a key part of IT governance, in particular in the context of IT projects. IT evaluations may be conducted either prior to investment, during project delivery or after the project is complete. Thus, IT project evaluation is a technique that facilitates decision making (Irani et al. 2005) across the project lifecycle (Smithson & Hirschheim 1998) to derive the best outcomes for the organisation (McKay & Marshall 2004). These techniques are used for predictive evaluations (ex ante) and for prescriptive evaluations (ex post) (Remenyi & Sherwood-Smith 1999).

Predictive (ex ante) evaluations are used to predict the feasibility, cost, and impact of the proposed IT investment. Typically, predictive evaluations are used to: inform IT investment decisions, compare the merit of different projects, provide a set of measures to inform improvement efforts and to obtain commitment for the project (Farbey et al. 1992; Remenyi & Sherwood-Smith 1999). Prescriptive evaluations are conducted to assess the project, the impact of the system and to learn lessons for further process improvement. These typically occur ex post in the form of post-implementation reviews. The purpose of post-implementation reviews is to provide a comparison of planned with actual achievements to learn how well resources have been used and to improve the selection and management of future IT investments (Farbey et al. 1992).

The purpose of project evaluation is to inform action, enhance decision making and apply knowledge to solve problems (Patton 1990). Therefore, it seems reasonable to expect a correlation between effective evaluation practices and project success. Thus it is not unexpected that the high rate of IT project failure has been partly attributed to a lack of management tools for evaluating, prioritising, monitoring, and controlling IT investments (Hochstrasser 1992). This perceived correlation has resulted in numerous studies on methods and criteria for IT evaluation, and in a myriad of tools and techniques for predictive evaluations (Irani & Love 2001). Most of the prevailing research supports the view that the use of formal processes, more sophisticated methods, and more points of evaluation are generally related to effective evaluations, i.e., to evaluations that result in outcomes such as improved decision making (Remenyi & Sherwood-Smith 1999), consistency (Ward 1990), accuracy (Love et al. 2004) and corporate learning (Farbey et al. 1992).

The importance of good decision making regarding IT investment is even more critical for organisations that use IT for strategic purposes. In these organisations, as Tallon et al. (2000, p.154) argues, “there is an even greater need for these investments to undergo routine, systematic and recurring evaluation”. According to Tallon et al. (2000), organisations that made extensive use of IT evaluation methodologies had higher perceived payoffs from IT. Alshawi et al. (2003) and Love et al. (2004) also conclude that organisations need to undertake more systematic and rigorous evaluation processes before implementing IT if they are to achieve improvements in business performance. Despite these strong academic arguments for a more systematic monitoring and more rigorous evaluation of IT projects, it appears that (a) many companies do not collect much information concerning IT performance, and (b) evaluation practices remain patchy (Willcocks & Lester 1997).

While organisations normally carry out some form of predictive evaluation as part of a feasibility study or investment appraisal (Smithson & Hirschheim 1998; Irani & Love 2001), the literature suggests that post-implementation evaluations and benefits realisation are rarely carried out (Sohal & Ng 1998; Seddon et al. 2002; Lin et al. 2005). For example, Remenyi & Sherwood-Smith (1999, p.15) state that “ongoing evaluation of information systems projects,
once the projects are initiated, is generally not carried out with sufficient frequency or attention to detail”. Similarly, Lin & Pervan (2003, p.14) state that “much attention is paid to ways of justifying investments, with little effort being extended to ensuring that the benefits expected are realised”. Thus, empirical evidence of post-implementation evaluations runs counter to the perceived value of the practice as discussed in the literature.

Various reasons have been proposed to explain why formal evaluation methods are not widely or consistently adopted by organisations. One is that there is a host of practical difficulties with IT evaluation. For example, studies have consistently found that the identification and quantification of relevant costs and benefits is the greatest problem encountered during IT project evaluation (Willcocks 1992; Ballantine et al. 1996; Seddon et al. 2002; Alshawi et al. 2003). This is because cost and benefits change and evolve over time (Remenyi et al. 2000); some IT benefits tend to be intangible (Seddon et al. 2002); and IT projects are often complex (Melville et al. 2004). Consequently, organisations may decide not to use formal evaluation methods, either ex ante or ex post, since they are perceived as difficult or costly to implement (Lin et al. 2005) and involve too many people with political agendas (Smithson & Hirschheim 1998; Irani & Love 2001). A second reason is that managers do not understand the importance of the investment evaluation process or the concepts involved (Willcocks & Lester 1997; Remenyi et al. 2000). A third is that organisational problems—such as lack of time, management support, and organisational structure—can hinder the evaluation process (Ballantine et al. 1996).

In short, it would be fair to say that literature supports the conflicting views that (a) current IT project evaluation practices are inadequate, (b) more formal and sophisticated methods are required, (c) a wide range of techniques is already available, and (d) very few of the currently available techniques are used in practice (Irani & Love 2002). To help resolve the contradictory recommendations in the literature we argue that focusing on solving evaluation problems through new methods is not necessarily the solution because investment decisions depend not only on methods or techniques, but also on the organisational context in which they are embedded (Keyes-Pearce 2005). Moreover, very little is known about what constitutes an appropriate level of formality or rigour, or what specific practices are necessary for evaluation to be effective. Therefore, following Ballantine et al.’s (1996, p.139) advice that “the role of formal procedures in the IS/IT evaluation process needs to be more closely examined to identify whether their use results in any significant benefits”, this study adopts an holistic and systemic view of IT project evaluation. It focuses on identifying which practices that are used are more effective than others, and on why they are effective. The next section describes the research method used to identify such practices.

Research Method

Selection and Justification of the Research Method

An embedded multiple case study design with several units of analysis was used for exploring which practices are more effective than others. The primary unit of analysis is the organisation, and the higher industry level and lower project level were considered for context. Scheepers & Scheepers (2003, p.26) shows that “a failure to consider these interdependent levels of context runs the risk of partial or even incorrect conclusions being drawn”. Case studies are a sound research strategy for examining “a contemporary phenomenon within some real-life context” (Yin 2003, p.1). Also multiple case studies provide more opportunities for generalisation than single case studies (Yin 2003). A qualitative approach using interviews was adopted because it allowed a rich exploration of evaluation processes while remaining open to emergent issues.

Three Australian industry sectors were selected: Finance and Insurance; Mining; and
Electricity, Gas and Water Supply. These three sectors were chosen because they seemed likely to cover a range of IT evaluation practices. For example, according to a report by the National Office for the Information Economy (NOIE):

“*Australia has invested heavily in ICT, with expenditure on ICT now representing more than 8% of GDP. Sectors that have invested most heavily in ICT include finance, communications and utilities (electricity, gas, water), while ICT investment has been smallest in mining and agriculture*” (NOIE 2003, p.8).

**Data Collection**

Seventy-eight in-depth interviews were conducted with a total of 72 senior managers in 36 companies operating in the three industry sectors. The sample of companies was derived from a combination of opportunistic and snowball sampling (Sarantakos 1998). Since the interview was the primary source of data, care was taken to ensure that the person(s) selected were the most appropriate for each part of the interview. Those interviewed were either Chief Information Officers (or equivalents), Program Managers, Project Managers or other senior managers involved in the evaluation of IT projects. All interviews were conducted by the lead researcher. The time taken for each interview ranged from 45 minutes to two hours.

The interview process explored evaluation at various stages of the project lifecycle from opportunity assessment, priority setting and project approval (predictive evaluation) through the stages of project delivery and then to closure, post-implementation review and benefits realisation (prescriptive evaluation). The interview format had two parts: one that focused on IT project evaluation practices in the participant company in general, and one that focused on the evaluation practices used with a recently completed IT or E-business project. The questions were mainly open questions of an exploratory nature, such as ‘what?’; ‘how?’ and ‘why?’ In addition to the interviews, sample documents relating to project management and evaluation practices were collected to validate the interviews. Using multiple sources of evidence to triangulate and cross check different views is advocated by Patton (1990) and Yin (2003). A total of 362 such documents were provided to the researcher.

**Data Analysis**

This study applied Eisenhardt’s (1989) suggested steps for analysing data: within-case analysis, cross-case search for patterns, shaping propositions and proposition verification. The interview notes (over 540 pages) and other supporting documents were examined for themes and coded (labelled) using open coding techniques borrowed from the grounded theory method (Glaser & Strauss 1967). Satisfaction with evaluation processes and confidence that IT projects are producing business benefits, were used as indicators of both effective and ineffective practices. Interview notes were analysed based on participant descriptions of the strengths and weaknesses of company evaluation practices and, by inference, what constituted effective evaluation outcomes. These outcomes included characteristics like selection of the right projects, consistent and timely decision making, focused project delivery, corporate learning, timely stopping of projects, accurate estimation and measurement, and reduced politics.

The 36 case-study companies were individually analysed, then divided into three categories based on the effectiveness of evaluation practices. The intent of the categorisation was not to be definitive but provide a means for understanding and comparing practices across companies. Effective practices were contrasted with ineffective practices and also examined for their ability to address the significant evaluation challenges identified by the participants. While the general approach was to look for patterns in practices, it was also recognised that effective practices may come from a single case-study company. To protect the identities of participant companies,
in the discussion that follows each company has been given an identifier: F1 to F20 for Finance and Insurance; M1 to M11 for Mining; and U1 to U5 for the Electricity, Gas and Water Supply Utilities.

Results
Participants were asked to rate overall satisfaction with the IT evaluation processes in their company. Average responses from the 36 companies are shown in Table 1. The results show that most companies in the study perceive a need to improve evaluation practices.

<table>
<thead>
<tr>
<th>Evaluation dimension</th>
<th>Description</th>
<th>Mean satisfaction score (1=not at all, 5=very)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>F&amp;I</td>
</tr>
<tr>
<td>Approach</td>
<td>What the organisation plans to do</td>
<td>3.8</td>
</tr>
<tr>
<td>Deployment</td>
<td>How well the approach is actually implemented and adopted</td>
<td>3.5</td>
</tr>
<tr>
<td>Results</td>
<td>How evaluation results are monitored and used</td>
<td>2.8</td>
</tr>
<tr>
<td>Improvement</td>
<td>How evaluation processes are reviewed and improved</td>
<td>3.2</td>
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While 58% (21) of the companies rated satisfaction with their ‘approach’ as 4 or higher, only 36% (13) rated ‘deployment’ as 4 or higher. This suggests that, for most companies, the gap in evaluation practices extends beyond the actual approach taken in terms of the processes and methods used, to issues of implementation. Furthermore, one third (12) of the companies identified the consistency of processes and their application as a key area for improvement.

Participants were also asked to rate their confidence that IT projects were producing business benefits for their company using a scale of high, medium and low. Three companies rated confidence as low, 18 companies as medium and 15 as high. The main reasons for high levels of confidence were related to project selection and approval processes, and the review of benefits following implementation. The main reason for lack of confidence was the lack of measurement of benefits after implementation. Although confidence was also related to other factors, there appeared to be a relationship between satisfaction with evaluation processes, in particular project appraisal, and confidence that IT projects were producing business benefits.

Most companies placed a higher level of importance on predictive rather than prescriptive evaluations. Table 2 summarises the use and effectiveness of post-implementation review and benefits realisation processes in the case-study companies. Only 22% (8) of the companies had a process in place to track the benefits from individual projects and only 11% (4) of these were considered effective. A further 6 companies used their one-off post-implementation review process to measure benefits. Instead of benefits realisation, many companies relied on the accuracy of their project appraisal processes. Post-implementation reviews were often only conducted for larger projects or when ‘things went wrong’. The reasons for not conducting post-implementation reviews or benefits realisation included lack of management support, unclear ownership of processes, limited accountability, resource constraints, difficulties with measurement and attribution, and inadequate use of evaluation results.
Table 2: Post-implementation review and benefits realisation processes, by industry sector

<table>
<thead>
<tr>
<th></th>
<th>Post-implementation Review/Closure</th>
<th>Benefits Realisation</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>F&amp;I</td>
<td>M</td>
</tr>
<tr>
<td>Effective Process</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Have process</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>No process</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Key: F&I = Finance and Insurance; M = Mining; E,G&WS = Electricity, Gas and Water Supply

Overall, those companies with high levels of satisfaction and confidence tended to conduct evaluation across the whole project lifecycle and shared certain characteristics in common.

**Characteristics of Effective Evaluation Practices**

Across the 36 companies, the eight key characteristics of processes and methods and organisational drivers shown in Figure 1 were found to be related to effective IT project evaluation outcomes — such as selection of the right projects, consistent and timely decision making, focused project delivery, corporate learning, timely stopping of projects, accurate estimation and measurement, and reduced politics. These, in turn, lead to more efficient use of resources and improved IT project outcomes. Most of the effective practices were found within five companies: F2, F4, F5, F10 and M6. Four of these five were from the Finance and Insurance sector. By contrast, companies F12, M1, M2, M3, M4, M5, M9 and U2 were found to have the least effective practices.

**Processes and Methods:**

- Some level of formality (not too much)
- Simple and flexible processes
- Effective IT project evaluation outcomes
  - Selection of the right projects
  - Consistent decision making
  - Timely decision making
  - Focused project delivery
  - Corporate learning
  - Timely stopping of projects
  - Accurate estimation and measurement
  - Reduced politics
- More efficient use of resources
- Improved IT project outcomes

**Organisational Drivers:**

- Accountability for results
- Top-leadership commitment
- Strong IT - Business relationship
- Alignment to strategy
- Effective measurement regime
- Willingness to take action

Each of the eight key characteristics on the left of Figure 1 is now discussed in turn.

**Processes and Methods**

In terms of evaluation processes and methods, our study found that some level of formality was required but not too much. Also, simple and flexible processes were most effective.

(a) **Some Level of Formality (Not Too Much)**

Formality, in this study, refers to the existence of official and prescribed rules for evaluation in the form of procedures, review points, reporting, documentation and meetings/workshops. The study found that formal use of evaluation processes, methods and techniques did not distinguish those companies with effective practices from those without. Formality was not irrelevant:
some level of formality was needed for consistency, but processes and methods were not enough in isolation. On the other hand, too much formality reduced the effectiveness of evaluation processes, due to delays in decision making.

The level of governance and the formality of the processes applied to a project were commonly tiered based on the financial value of the project. In a few cases other criteria were used such as effort, risk, complexity and business impact. The study found that some minimum level of formality appeared necessary to select the right projects, make consistent decisions and avoid excessive political activity. This was most evident at the approval stage of a project and when determining relative priorities between projects. For example, those companies who were most satisfied with their priority setting processes used formal criteria but balanced this with management judgement. There was a view that formal tools could only go so far and that the management team ‘knew things that criteria could not account for’.

“Before the introduction of the Project Management Framework we used to work on projects for people who ‘shouted loudest’, there was no real respect for IT resources, projects were done three times because no processes were in place, and the business did not know how to facilitate a good return” (IT Manager, F19).

However, formally documented processes were not sufficient. Having formal processes did not mean that these processes were necessarily used or applied consistently.

“In general, we have processes documented but they are not strongly enforced. Projects run over the original AFE but no supplementary request for funding is put in. This is just the mining way” (Manager Accounting, M3).

At one extreme those companies without formal project governance had low levels of satisfaction and low confidence that IT projects were producing benefits. Decision making tended to be subjective and there appeared to be greater opportunity for political interference.

“All IT projects are not formally evaluated. IT budgets are distributed (not centralised) and Business Units have a fair degree of autonomy about how they spend this money. Project sponsors can initiate a project without any formal documentation no matter what the value is. It is not clear what constitutes an IT project. There are no consistent, controlled, uniform procedures and no centralised governance” (Project Management Officer Manager, M9).

At the other extreme too much formality was found to slow decision making and, in some cases, resulted in behaviours to avoid formal approvals such as the splitting of projects. Several companies, such as U5, M8 and F7, described their processes as ‘bureaucratic’. Others described processes that attempted to be too ‘scientific’ and were manipulated.

(b) Simple and Flexible Processes

In terms of the processes and methods used, this study found that simplicity and flexibility were key characteristics underpinning effective practices. Companies with flexible processes, such as F2, F4, F5 and F10, had more effective evaluation practices than companies with rigid processes. While flexibility was related to more timely decision making, simplicity was related to the consistent application of processes. In addition, the companies with flexible processes were most able to cope with the challenges of a dynamic environment.

Flexible processes included use of ‘lite’ versions of the processes with clear minimum
requirements; the ability to start work before all approvals are complete; flexibility in the use of stage gates, dependant on project size and the certainty of requirements; flexible budget provisions for pilot projects and scoping studies; contingency in budgets adjusted for risk; identification of sufficient benefits rather than all benefits; and a focus on continual review rather than full analysis upfront. For example, company F10 completes the initial analysis quickly but then continually reviews projects and has a high willingness to stop them.

“[Our parent company] looks at more detail than we would look at before approval. Therefore, the ‘burn’ rate starts early in the project and a lot of work goes into the business case up front. A business case can take several months to put up and then may not get approved. In [our company] we continually review and the initial approval may not be the most accurate but every time there is a change we go back for approval” (Head of Projects Office, F10).

Simple processes included a clear focus on what was important for the decision making process and a minimum of paperwork. While tiered levels of governance were found to be an effective practice, too many different levels, procedures and methods were not. Simplicity was particularly important given the environment of time pressure, rapid change and limited access to business resources described by participants.

“It is a very quick process and the standard presentation is 2-3 slides. If the CEO cannot be convinced in three minutes the manager gets knocked back and that is not good. Therefore, only the good proposals get to the top” (Head of IT Department, F2).

On the other hand, a ‘one size fits all’ approach to governance did not appear to be the solution. This practice was found to be inflexible and inefficient, particularly with respect to smaller projects. In the Mining sector, in particular, a common complaint was that the evaluation process was the same as that ‘required to buy a truck’. In company M4, for example, any expenditure greater than ‘one dollar’ required the completion of a standard capital expenditure request.

Simple and standardised processes were more likely to be consistently applied. When processes or methods were complicated, decisions were not made on a consistent basis and resources were not put to best use. Other practices that enhanced consistency were a single point of IT funding approval, IT relationship managers, clearly defined evaluation criteria aligned to strategy, and independent verification of project benefits (ex ante and ex post).

4.3 Organisational Drivers

As shown in Figure 1, six key organisational drivers of effective IT evaluation practices were identified: accountability for results, top-leadership commitment, a strong IT-Business relationship, alignment to strategy, an effective measurement regime and a willingness to take action. It was only when simple and flexible processes were combined with these drivers that IT project evaluation was most effective. Each of these six drivers is now discussed in turn.

(a) Accountability for Results

Companies that held business managers accountable for results had the most effective evaluation practices. Accountability was found to drive positive behaviours, improving the accuracy of business cases and providing the motivation to measure results after implementation. Furthermore, it appeared that accountability addressed many of the significant evaluation challenges identified by companies, in particular business engagement and ensuring
the accurate estimation of costs and benefits. The fundamental principle was that if managers were held accountable then evaluation got done.

“There is accountability for hard financial measures and if a project declares that it will reduce costs then this is reflected in the budget. They are tough on this. This is a good discipline and drives positive behaviours. I have worked in other organisations where they sign off on huge revenue increases, for example, but there is no consequence if they do not deliver. In these organisations there is no incentive to question the benefits claimed” (Head of IT Architecture, F1).

When managers were accountable for results there was no incentive to overstate benefits. Sixty-one percent (22) of the companies did not overstate benefits in order to get approval, and the main reason given was accountability. The other reasons related to rigour in the justification process, independent checks of benefits claimed and cultural conservatism.

Different companies achieved accountability in different ways, including reporting to an executive committee, budgets and/or personal scorecards/remuneration. In all of the companies with effective practices, success was clearly defined upfront and then measured. Some companies even had means for ensuring that benefits were not under-stated, such as using incentive payments capped at 120% of performance targets.

“Because of the governance processes they need to go to Program Promise and it is called this because they are making a promise to deliver and are held to it” (Head of IT Department, F2).

In contrast, those companies without accountability for results tended to have more issues with the accuracy of business cases and in particular the over-stating of benefits. 11 of the 14 companies who said that benefits were over-stated in order to get approval had no form of accountability for results.

“Benefits do get overstated and this is linked to lack of accountability for project benefits” (Global Manager IT Services, M5).

In relation to the appropriate level of accountability, those companies who measured results against performance targets at both the project and company level, tended to have more effective practices than those companies who tied accountability to only one of these levels.

(b) Top-Leadership Commitment

A second characteristic of those companies with effective evaluation practices was commitment from the top. If leadership does not think evaluation is important it will not get done. Companies such as F2, F5 and F10 spoke of cohesive top management, buy-in and support, resulting in more consistent and timely decision making. This was enacted through the involvement of the leadership team in the evaluation process, in both decision making roles and ensuring a culture of accountability.

“The business is totally engaged in this and it is driven from the CEO down” (IT Program Manager, F2).

Ownership and commitment from management was identified as a key improvement by 11 companies. Those companies without top-leadership commitment had less effective evaluation outcomes. For example, a previous attempt by company U3 to introduce benefits realisation
stalled due to lack of management commitment. Other companies also gave examples where evaluation processes became ineffective without top management support.

“\textit{The IT aspects of the budget get lost; say $30m in terms of billions. There is no IT Steering committee or other structures because they became ineffective. Managers would not turn up and would send replacements who could not make decisions}” (Project Management Office Manager, M9).

(c) Strong IT-Business Relationship

This study found that a strong IT-business relationship, based on trust and shared responsibility, provides the basis for effective IT investment decisions. Most companies identified that evaluation processes worked best when the business drove the processes rather than the IT department. For companies where a strong relationship existed, such as F10, this resulted in ownership by the business and more effective evaluation outcomes in terms of selecting the right projects, focused project delivery, accurate estimation and reduced politics.

“\textit{The engagement process with business is sound and it is not just what IT thinks is a good idea}” (IS Program Office Manager, M6).

In contrast companies, such as F12, said that they were viewed as a ‘service department’ rather than a critical ‘business enabler’. They described an ineffective IT-Business relationship in terms of lack of communication, IT being bypassed or not consulted during decision making, and the business unwilling to provide subject matter experts. Access to and engagement of the business was identified by 21 companies as a significant challenge.

Notably, there was a distinct difference in terminology used by companies depending on the relationship between IT and the business. When projects were driven by the business they were seen as ‘business’ projects or ‘IT-enabled’ projects and not ‘IT’ projects. The relationship between IT and the business was one of shared responsibility and not ‘order takers’. However, in the Mining sector, in particular, IT was often considered as ‘a commodity’. This resulted in greater challenges in terms of obtaining access and information from the business and had a serious impact on the effectiveness of IT project evaluation.

“A weakness is the tension between process ‘parochialism’ and IT ‘centricity’. This often results in: Business Units buying proposed solutions that do not meet corporate requirements or corporate IT infrastructure, and IT approaches unrelated to the Business Unit need, respectively” (Assurance Manager, M9).

(d) Alignment to Strategy

The study also found that it is necessary to align IT investment decisions to a corporate strategy in order to provide a consistent basis of comparison and select the right projects, balancing both short and long-term goals. If projects are not aligned to strategy, decision making is not tied to the direction of the company, and resources may not be used effectively.

There were two levels of strategic alignment. At the highest level those companies with effective evaluation practices drove IT related investments from the strategic plan. In other words, the strategy drove the projects not vice versa. To do this first required a clearly articulated strategy, which for some companies like U4, was not always in place. The next level of alignment occurred if a project came up out of cycle of the planning process and was evaluated against strategic fit or the existing strategies. The project was not driven by the strategy but was identified and then was tested against the strategy. The use of consistent
evaluation criteria tied to the strategic intent of the company for both project selection and priority setting was an effective practice. In some cases these criteria were also weighted to reflect relative strategic priorities or projected growth areas.

(e) Effective Measurement Regime
An effective measurement system is necessary for accountability. Effective measurement was also related to consistent decision making, focused project delivery, accurate estimation and corporate learning. Identification and measurement of costs and benefits was identified as a major challenge by 16 companies. In terms of benefits, only 55% (20) of the companies said that they identify all benefits and 28% (10) said that they adequately measure them. For costs, the picture was slightly better. Sixty-nine percent (25) of the companies said that they identify all costs and 75% (27) said that they adequately measure costs.

The key for those companies who were effective at establishing a baseline and then measuring results, was a robust company performance measurement system. In companies, such as F2 and F5, measurement was part of ‘business as usual’. For these companies the use of specific evaluation techniques also became more effective. For example, the use of results chains by companies F3 and F5 allowed them to overcome issues of attribution by understanding and measuring interim outcomes. These acted as lead indicators for higher level outcomes such as sales and profit.

“Benefits realisation is across three levels. Benefits are monitored at a project level by key performance indicators, the portfolio level by dashboards and then rolled up to the business level. There is a strong connection between project outcomes, the portfolio and the business” (Workstream Driver, F5).

Where a performance measurement regime was in place, the accuracy of estimates was also improved by an independent review of the benefits claimed, both upfront and after implementation. Those without any verification often noted the inaccuracy of estimates.

“The project Business Case justified savings of $31.7m over three years. As the Project Manager I did not see this as credible but my role was project delivery” (Project Manager: M1).

However, when measurement was an add-on because an effective performance measurement regime was not in place, it was more difficult to establish links to strategy and overall performance. Due to the additional effort involved, the measurement of benefits both to establish a baseline and measure results was unlikely to be done consistently or at all.

(f) Willingness to Take Action
An evaluation process, even one built on a solid foundation of measurement, means very little if the results are not acted upon. This study found that evaluation was effective when it formed the basis for action. In particular, effective practices were associated with a willingness to stop projects and redirect projects during delivery, to act on the findings of post-implementation reviews, and to enforce accountability for results through both incentives and sanctions. The effective use of evaluation results was not only associated with the continuous improvement of evaluation processes but also reinforced their use.

Companies, who were not willing to act on evaluation results, did not learn lessons and wasted valuable resources.
“My experience in this organisation is that they do not stop a lot of projects. There would be few projects that are shut down even if they are ‘off the rails’. They tend to ‘throw good money after bad’. I do not see a lot of projects shut down, but I have seen a lot that should have been” (Head IT Architecture, F1).

Significantly, only 5 of the 36 companies were satisfied with their overall use of evaluation results. In particular most companies who had post-implementation review processes made very little use of the findings from these reviews to improve processes or learn corporeally. The use of stage gates where funds were released in stages and periodic reviews (or health checks) for larger projects were found to be effective practices. These processes provided the opportunity to stop projects if circumstances changed or there were significant over-runs in cost and schedule. However, a key finding of this study was that periodic reviews are not effective by themselves; they must also be combined with a willingness to act. The companies who had both periodic check points and a willingness to stop projects and redirect resources were most effective. Trials of projects (or ‘pilot’ studies) also provided a similar opportunity to test assumptions and stop projects before too many resources were committed.

Discussion

Researchers have wondered for several decades why there are so many IT evaluation methods described in the literature but so few used in practice. This study suggests that the real problem of IT evaluation is not the choice of methods, nor the formality of evaluation processes, but rather, ensuring that effective decision making is reinforced through accountability, leadership, relationships, strategy, measurement, and action. Some level of formality helped improve evaluation and, ultimately, IT project outcomes. However, evaluation processes that were too formal were ineffective, resulting in dysfunctional behaviours. While regular evaluation across the project lifecycle was the goal of most companies, the key issue they struggled with was one of implementation. Many of these companies had documented processes and methods but these were not followed or applied consistently. Formal processes and methods alone were not enough. It was only when combined with the six organisational drivers shown in Figure 1 that those processes were used and so became effective.

Our study is limited in several ways. First, for six of the participant companies, only one person was available for interview. While these participants were interviewed twice to cover both parts of the interview format, the ability to explore divergent views was limited in these cases. Second, the research design raises some generalisation issues. The evidence presented is from 36 companies in only three industry sectors in Australia, so it is important to consider the broader applicability of the results summarised in Figure 1. Our argument is that since the 36 companies are themselves a diverse range of organisations by size, focus of operations (state, national and international), and ownership (public, private, government, and international), and since the drivers identified are related to management issues such as ‘accountability for results’, known to be important in organisations the world over, we believe that the model in Figure 1 probably applies to most organisations in the developed world.

6. Conclusion

This paper set out to identify the most effective IT project evaluation practices used by organisations in Australia and to understand why they work. Based on interviews with 72 senior managers in 36 companies in three industries, the study found that both (a) effective IT project-evaluation outcomes and (b) improved IT project outcomes, were closely related to six key behaviourally-related drivers, namely, accountability for results, top-leadership commitment, a strong IT-Business relationship, alignment to strategy, an effective measurement regime, and a willingness to take action (see Figure 1). The contribution of this paper is the finding that desired evaluation outcomes were more closely related to these drivers of evaluation behaviour.
in organisations than the use of specific methods and techniques. Further, it was when these six
key organisational drivers were combined with simple and flexible evaluation processes that
positive behaviours were reinforced, actions were aligned, and evaluation processes were most
effective. These conclusions provide important insights for improving IT evaluation practices,
and ultimately, IT project outcomes, both in Australia and around the world.

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