



How does strategic uncertainty and project sponsorship relate to project performance?

Study of
Australian
project managers

A study of Australian project managers

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Abstract

Purpose – The purpose of this paper is to develop and test a model on the contingent effects of project sponsorship on project performance.

Design/methodology/approach – The propositions are tested with survey data from project managers and senior managers with project management oversight in Australian companies.

Findings – The results support the hypotheses that the level of perceived management priority has both a direct effect on project sponsorship and project outcomes, and a moderating effect on the effect of project sponsorship on project outcomes.

Research limitations/implications – This is an exploratory study into the relationship between project sponsorship and project performance. The model proposed is validated from a sample of Australian project managers. Further studies are needed to validate/modify the model in other culture/context.

Practical implications – The findings suggest that organisations could improve their overall project performance by demonstrating management attention to and appointing sponsors to projects with high strategic uncertainties.

Originality/value – Management support in the form of project sponsorship has consistently been cited as critical to achieving project objectives. Yet, there is mainly anecdotal evidence on the effect of project sponsorship and little validated knowledge exists on how project sponsors and senior management effect project performance. This study is the first to conceptualize and provide empirical support for the contingent effect of project sponsorship on project performance.

Keywords Australia, Project management, Sponsorship, Strategic leadership

Paper type Research paper

Introduction

The underperformance of projects (Williams, 2004; Johnson, 1995; Johnson *et al.*, 2001; Hayes, 2004; Flyvbjerg *et al.*, 2006) represents a significant but substantially avoidable loss of economic value. One factor that has been consistently ranked high among factors leading to project failure is the lack of executive support (Johnson, 1995; Johnson *et al.*, 2001; Hayes, 2004; Schmidt *et al.*, 2001).

Management support in the form of project sponsorship has consistently been cited as critical to achieving project objectives (Graham and Englund, 2004; Ross and Weill, 2002; Schmidt *et al.*, 2001; Love and Brant-Love, 2000). Yet, anecdotal evidence suggests that the existence of a project sponsor may not always help achieve a project's business outcomes. For example, meddling with the day-to-day management of a project by the project sponsor could result in a feeling of frustration or loss of confidence on the part of the project manager and consequently not realizing full potential of the project. A lack of understanding of project management on the part of the project sponsor could also result in under-achieving project outcomes (Englund and Bucero, 2006). It is therefore important to understand situations in which an organisation should use project sponsorship to protect project outcomes. The dearth of



validated knowledge on this question hampers the effective use of project sponsors for the successful delivery of projects.

Further, the theory on bounded rationality suggests that senior management's time and attention are limited and it is impossible for them to participate in all aspects of operation (Cyert and March, 1963; March and Simon, 1958). Similarly, it may be unnecessary and unlikely for an organization to appoint top managers as project sponsors to every project it has undertaken. Identifying the factors influencing the effects of project sponsorship on project outcomes is critical to the advancement of project management knowledge.

Drawing on management control theory (Simons, 1987, 1990, 1991), this paper argues that the level of perceived strategic uncertainty has both a direct effect on project sponsorship and project outcomes, and a moderating effect on the effect of project sponsorship on project outcomes. The propositions are tested with survey data from project managers and senior managers with project management oversight in Australian companies. The findings suggest that organisations could improve their overall project performance by appointing sponsors to projects with high strategic uncertainties.

In the following sections, the literature is reviewed and hypotheses are developed. The research design and analysis are then described, results are presented and their implications discussed. The findings have important implications for both research and practice development.

Theory and hypotheses

Systematic development of bodies of knowledge on project management started in the late 1950s and continued since (Morris, 1997). Earlier research focused on project-level planning and control techniques such as Program Evaluation Review Techniques (PERT) (Battersby, 1964) and Critical Path Method (CPM) (Archibald and Villoria, 1967). The 1960s and 1970s saw explosive adoption of project planning and controlling techniques (Morris, 1997). The conceptualization of project at the time reflects strong emphasis on delivery within constraints. A project was seen as a concerted effort to deliver a well-defined set of technical solutions within time, cost and quality constraints (Williams, 2004). Such a conceptualization sees project delivery as an operational specialty and the business consequences of the project as the natural by-product of the project. As long as a project has been delivered, the business benefits will be realized without much difficulty. As a result, strong emphasis has been placed on scope definition, planning, controlling and monitoring (Williams, 2004), and the project management approach tends to be one-size-fits-all (Shenhar, 2001). This traditional conceptualization of project works well in the building construction industry where most projects can be defined, specified and planned for in detail early on and where the business and project management efforts are squarely focused on time and cost (Walker and Sidwell, 1998). The effect on business bottom-line from project delay or budget overrun is straightforward.

Project management methods have been applied to information systems (IS) projects since the 1980s, during which time the success rate of IS projects has been persistently below expectations (Johnson, 1995; Johnson *et al.*, 2001; Hayes, 2004). Many IS projects are intended to deliver organizational or business benefits such as customer satisfaction, improved process efficiency and involve significant organizational changes. Conceptualizing such projects as IT projects rather than a business initiatives narrowly focuses the project effort into delivering technical

solutions and diminishes the potential to deliver business benefits. The problem is further complicated by the fact that business benefits are difficult to measure and typically realized after the development cycle (Remenyi and Sherwood-Smith, 1998; Marcus, 2004). A number of researchers advocate a new approach that sees a project as a business initiative and incorporates benefit realization as a critical project objective (Thorp, 1998, 1999; Remenyi and Sherwood-Smith, 1998; Marcus, 2004; Jugdev and Mathur, 2006; Mathur *et al.*, 2007). Such an approach conceptualizes a project as a complex endeavour to deliver a set of business objectives within constraints in a unique organizational setting and thus should be managed as a business initiative. Consistent with studies on project success/failure (Johnson, 1995; Johnson *et al.*, 2001; Hayes, 2004; Schmidt *et al.*, 2001), such a perspective suggests that business managers be heavily involved in managing the project. Appointing a project sponsor is a commonly used mechanism to ensure the business success of a project (Graham and Englund, 2004; Englund and Bucero, 2006; Kloppenborg *et al.*, 2007; Ross and Weill, 2002; Schmidt *et al.*, 2001; Love and Brant-Love, 2000).

The literature identifies four imperatives for project sponsors. First, in a fast-changing business environment, it is difficult to plan or design effective business strategies well in advance. A significant part of effective strategy-making is to deal with change and capitalize on opportunities that emerge unexpectedly (Mintzberg and Lampel, 1999; Eisenhardt and Martin, 2000). Project managers are not members of the senior management team and are unlikely to be conversant with the latest strategic intentions of the organization. Guidance and oversight from senior management on the conduct of the project is needed to ensure the project is on track to realize strategic benefits (Ross and Weill, 2002). Appointing a senior manager as the sponsor of a project could bridge such a knowledge gap (Englund and Bucero, 2006).

Second, a project's success in delivering business objectives depends on the commitment and involvement of stakeholders beyond the control of the project manager. Because of their decision-making authority and knowledge of business, project sponsors are in a better position than project managers to persuade stakeholders of the benefits from the project. Support from senior management to secure commitments from stakeholders is often seen as necessary to realize desired benefits (Graham and Englund, 2004). The problem is especially pronounced for IS implementation projects with multiple stakeholders (Marcus, 2004; Ross and Weil, 2002; Sauer *et al.*, 2001). For example, in one of the case studies the author conducted, an educational institution was developing and deploying an ERP system, the project is effectively owned by the divisions within the organization. Although the project manager was the central point of contact for the project, he has great difficulties in persuading the clients to implement changes that are needed to maximize potential benefits of the project.

Third, projects compete with other priorities for resources and commitments. Typically, a project manager does not have a stable power base and works outside the normal line reporting structure. Resources for projects have to be negotiated and bargained (Pinto, 2000). Therefore, it is important to have a senior manager to "provide air cover for the troops" (Graham and Englund, 2004; Sauer *et al.*, 2001). Finally, as a temporary endeavour, a project may be treated as secondary to permanent and continuous operations. Strong and visible commitment from senior management is critical to motivate the project team (Grover, 1993; Jarvenpaa and Ives, 1991; Sarkis and Sundarraj, 2003).

According to Simons (1994, 1995), there are four types of control systems that organizations can employ to manage their operations. These are diagnostic control

systems, belief systems, boundary systems and interactive control systems. This study focuses on the choice and implications of adopting interactive control systems, defined here as formal systems used by top managers to regularly and personally involve themselves in the decision activities of subordinates (Simons, 1990, 1991). With senior management involvement, the standard assumptions underlying project decisions can be challenged in the project team's search for innovative solutions (Simons, 1994, 1995).

Typically, an interactive control system is invoked in situations of high strategic uncertainty, where strategic uncertainty refers to uncertainties that are fundamental to achieving business goals and could provide threats or opportunities as circumstances change (Simons, 1990, 1991; 1994, 1995; Daft and Macintosh, 1981). Implicit in the definition is that uncertainty and importance combine to create "strategic uncertainty". It follows that effective senior managers focus their attention on issues that are both uncertain and important to business outcomes.

High uncertainty alone does not attract the attention of senior managers unless the events or factors causing the uncertainty are also seen as important to achieving critical organizational goals (Simons, 1990, 1991, 1994, 1995; Daft and Macintosh, 1981). Similarly, importance alone may not be sufficient to attract their attention. For example, Simons (Simons, 1991) reports that top managers of low-cost, high-volume US healthcare product businesses do not pay much attention to efficiency-related controls such as cost accounting systems. Instead, they focus their attention on the systems that produce and monitor information on the strategic uncertainties that threaten their vision of the future. In contrast, goal-setting and exception-based reporting are used to manage efficiency-related systems. In summary, strategic uncertainty is the product of management priority and uncertainty and it is high only when both management priority and uncertainty are high.

In project management, the attention of senior managers can be measured by the perceived level of management priority, which is a direct function of the level of strategic uncertainty (Simons, 1990, 1991, 1994, 1995). The use of project sponsorship as a form of interactive control in project management will increase as a consequence of high level of strategic uncertainty/management priority. Formally:

H1A. Project sponsorship is positively related to the level of management priority for achieving project outcomes.

The level of project risks in achieving project outcomes represents major uncertainties facing the project. Following (Simons, 1990, 1991, 1994, 1995), it could result in heightened management attention in the form of appointing project sponsors. *H1B* has been included to guard against the alternative explanation that interactive control in the form of project sponsorship takes place when a project's outcomes are uncertain regardless whether they are important to business (see limitations and future research section). Formally:

H1B. Project sponsorship is positively related to the level of perceived risks for achieving project outcomes.

Organizations today are faced with strong competition and demanding clients. Typically, at the beginning of a project, the clients have conflicting and incomplete objectives embedded in their requirements. Requirement change or scope creep has consistently been identified as a major cause of project failures (Boehm, 1991; Johnson, 1995; McConnell, 1996; Schmidt *et al.*, 2001). Similarly, other studies show that the quality of the requirements-analysis phase impact later phases (McConnell, 1996;

Zmud, 1980; Iivari *et al.*, 2000). Errors not identified in the early stages of a project are expensive to fix later (Boehm, 1991; McConnell, 1996). A large number of methods have been developed to improve requirements analysis, such as user involvement and participation, prototyping and incremental delivery. Generally, these methodologies have not met users' objectives (Iivari *et al.*, 2000). New methods are being proposed and tried (Iivari *et al.*, 2000) and warrant close attention from senior management.

Appointing a project sponsor is a mechanism to exercise interactive control over projects (Briner *et al.*, 1990; Frame, 1994). Project sponsors are not responsible for the execution of projects. Rather, their critical responsibility is to ensure the overall success of projects (Briner *et al.*, 1990; Graham and Englund, 2004; Ross and Weill, 2002). It follows that project sponsors should take interactive control of issues of strategic importance, such as achieving business objectives while the project manager retains responsibility for the day-to-day management of the project.

Product performance and process performance as defined by (Nidumolu, 1996) and corroborated subsequently in (Wallace *et al.*, 2004; Yetton *et al.*, 2000) are two distinct sub-dimensions of project performance. Product performance refers to the success of the product developed. As an example, the implementation of an ERP system demands the realization of business benefits (cost savings, customer satisfaction, shorter cycle time) (Sarkis and Sundarraj, 2003). Mere technical delivery within constraints will not deliver intended business benefits (Thorp, 1998, 1999). As discussed above, a project sponsor could facilitate the business success of a project in a number of ways. Formally:

H2A. Project sponsorship has a positive effect on product performance.

An implicit prediction from (Simons, 1990, 1991, 1994, 1995) is that the use of interactive controls, or project sponsors in the case of project management, will be more effective when strategic uncertainty is high than when it is low. In other words, the effect of project sponsorship on project performance is moderated by the level of strategic uncertainty. Since strategic uncertainty is indirectly measured by management priority (see Instrument design and validation section below), formally:

H2B. Project sponsorship has a stronger effect on product performance when management priority is higher.

Process performance refers to the successful delivery of the product within project constraints (Wallace *et al.*, 2004). The impact on process performance is secondary, remaining the primary responsibility of the project manager (Yetton *et al.*, 2000). For example, even if a project can be delivered within constraints, as long as the associated business objectives have not been achieved satisfactorily, the project is hardly a success. The primary concern of a project sponsor is to protect product performance. The sponsor's attention to and influence on process performance is limited. Anecdotal evidence suggests that some project sponsors do not have project management experience, let alone assisting project managers with their day-to-day running of projects. Formally:

H3. Project sponsorship has a weak or no relationship with Process Performance.

Perceived high levels of management priority could have a direct main effect on project performance through highlighting the project's legitimacy, elevating team morale and ensuring sufficient resources for undertaking the project (Grover, 1993; Jarvenpaa and Ives, 1991; Schmidt *et al.*, 2001; Englund and Bucero, 2006). The psychological effects

from strong management should not be under-estimated (Jarvenpaa and Ives, 1991). Formally:

H4. Management priority has positive effect on both product performance and process performance.

In addition to the possibility of attracting the attention of senior management (H1B), a high level of project risks reflect the perception about the possibility of not achieving expected project performance and therefore negatively impact on product performance and process performance. Formally:

H5. Project risk has negative effect on both product performance and process performance.

The hypothesized relationships are summarized in Figure 1.

Research design

The hypotheses are tested using survey data collected from Registered Project Managers of the Australian Institute of Project Management (AIPM). While project management practices are likely to vary across business units within the same organisation, within the business unit across projects, the difference in project management practices is likely to be small. Therefore, the business unit is adopted as the unit of analysis. Project managers were asked to respond to the questionnaire in relation to the business unit they had been most associated with. The questionnaire was sent to 746 programme/project managers and ninety five responses were received, resulting in a response rate of 13.0 per cent. All items (see Table I) are measured on five-point Likert scale except “Project sponsorship %” which is measured on numerical scale (0-100 per cent). Yetton *et al.* (2000) inspected over 50 published IS studies that used mailing lists to identify potential respondents and found that, while the response rate for such studies was typically between 10 and 20 per cent, Ewusi-Mensah *et al.* (1991) reported a response rate of 8.7 per cent, Nidumolu (1996) reported response rates of 6.4 and 7.6 per cent and Yetton *et al.* (2000) reported a response rate of 9.3 per cent.

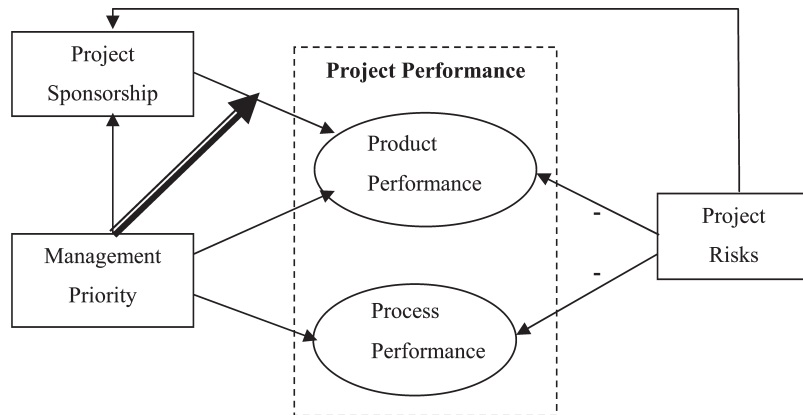


Figure 1.
The moderated effect of project sponsorship on project performance

Notes: The double line denotes management priority moderates the effect of project sponsorship on product performance

| Constructs | Instrument | No. |
|-----------------------|---|-----|
| Process performance | How satisfied are you with the following in relation to projects undertaken by your business unit? (Time performance against schedule) | 1 |
| | Please rate your business unit's performance in managing projects compared to your competitors or counterparts in your industry in relation to the following? (Time performance against schedule) | 2 |
| | How satisfied are the clients of your business unit's projects with the following in relation to the projects? (Time performance against schedule) | 3 |
| | How satisfied are you with the following in relation to projects undertaken by your business unit? (Cost performance against project budget) | 4 |
| | Please rate your business unit's performance in managing projects compared to your competitors or counterparts in your industry in relation to the following (Cost performance against project budget). | 5 |
| | How satisfied are the clients of your business unit's projects with the following in relation to the projects? (Cost performance against project budget) | 6 |
| | How satisfied are you with the following in relation to projects undertaken by your business unit? (Quality) | 7 |
| | Please rate your business unit's performance in managing projects compared to your competitors or counterparts in your industry in relation to the following (Quality). | 8 |
| | How satisfied are the clients of your business unit's projects with the following in relation to the projects? (Quality) | 9 |
| Product performance | How satisfied are you with the following in relation to projects undertaken by your business unit? (The performance in achieving clients' business objectives) | P1 |
| | Please rate your business unit's performance in managing projects compared to your competitors or counterparts in your industry in relation to the following (The performance in achieving clients' business objectives). | P2 |
| | How satisfied are the clients of your business unit's projects with the following in relation to the projects? (The performance in achieving clients' business objectives) | P3 |
| | How satisfied are you with the following in relation to projects undertaken by your business unit? (The performance in achieving clients' specifications) | P4 |
| | Please rate your business unit's performance in managing projects compared to your competitors or counterparts in your industry in relation to the following (The performance in achieving clients' specifications). | P5 |
| | How satisfied are the clients of your business unit's projects with the following in relation to the projects? (The performance in achieving clients' specifications) | P6 |
| Project sponsorship % | What proportion of the total number of IT projects undertaken by your business unit in the last three years had project sponsors? (%) | S |

(continued)

Table I.
Survey instrument

| Constructs | Instrument | No. |
|---------------------|--|----------------------------|
| Management priority | Please rate the priorities (from senior management's perspective) of the following project goals for a typical project undertaken by your business unit: a. Quality b. On-schedule c. Within budget d. To specifications/requirements e. Achieving clients' business objectives | M1 M2 M3 M4 M5 |
| Project risks | Please rate the uncertainties or risks of meeting the following project goals for a typical project undertaken by your business unit: a. Quality b. On-schedule c. Within budget d. To specifications/requirements e. Achieving clients' business objectives | R1 R2 R3 R4 R5 |

Instrument design and validation

Dependent variables

Project performance is defined as an organization's capability to satisfy expectations on cost, time and quality, functionality and achieving business objectives, as measured by each respondent's perceptions of overall performance, relative performance with competitors, and satisfaction of clients (see Table I for instruments). Following (Nidumolu, 1996; Wallace *et al.*, 2004), project performance is measured on two dimensions – product performance and process performance. The acceptable reliability indices (Cronback alphas) for the two dimensions are:

- (1) Product performance – 0.89 (6 items).
- (2) Process performance – 0.89 (9 items).

There are 94 (out of 95 returned questionnaires) for both product performance and process performance.

Exploratory factor analysis results are reported in Table II. Out of the 14 questions measuring project performance, there are two cross loadings of above 0.4 from the questions measuring product performance on process performance demonstrating good convergent and discriminant validities. The primary reason for using exploratory factor analysis is that the instruments are adapted from other studies and have not been validated.

Independent variables

Project sponsorship is measured by the percentage of projects that have been assigned a project sponsor. 92 of the 95 respondents provide valid answers for this question. Out of the 92 responses, 44 (46 per cent) assign project sponsors to all their projects, while four (4 per cent) do not assign project sponsors to any projects. On average, business units assign project sponsors to 71 per cent of their projects.

| Instruments | Process performance | Product performance |
|-------------|---------------------|---------------------|
| 1 | 0.626 | |
| 2 | 0.693 | |
| 3 | 0.738 | |
| 4 | 0.684 | |
| 5 | 0.564 | |
| 6 | 0.656 | |
| 7 | 0.709 | |
| 8 | 0.773 | |
| 9 | 0.723 | |
| P1 | 0.523 | 0.631 |
| P2 | | 0.653 |
| P3 | 0.486 | 0.636 |
| P4 | | 0.800 |
| P5 | | 0.810 |
| P6 | | 0.902 |

Notes: Extraction method: principal component analysis; Rotation method: Varimax with Kaiser normalization

Table II.
Exploratory factor
analysis for the
dependent variables

Management priority is measured by respondents' perception of senior management's priority in achieving specific project targets for a typical project. Project risk is measured by the level of risk in achieving specific project targets for a typical project undertaken by the business unit. The survey instruments are listed in Table I. There are acceptable reliability coefficients for the two constructs:

- (1) Management priority – 0.71 (5 items).
- (2) Project risk – 0.86 (5 items).

The number of valid responses (out of 95 returned questionnaires) for management priority and project risk are 94 and 93, respectively.

Analysis

H1A, *H1B*, *H2A*, *H3*, *H4* and *H5* are tested by regressing the dependent variables on the corresponding independent variables using Equation (1). Formally:

$$Y = \beta_0 + \beta_1 * X + e \quad (1)$$

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_1 * X_2 + e \quad (2)$$

where *Y* denotes dependent variables and *X* denotes the independent variables. A significant β_1 indicates the significant effect of the independent variable on the corresponding dependent variable.

The moderating effect as hypothesised in *H2B* is tested using Equation (2). A significant β_3 supports the hypothesis on a moderating effect (Venkatraman, 1989). Following (Cohen *et al.*, 2003), the variables are standardized to minimize the effect of multi-collinearity. Another reason for standardizing the variables is because the

variables are measured at different scales (some on a Likert scale and some on a continuous scale).

Results

Table III reports of the standardized regression coefficients. *H1A* is supported – project sponsorship is significantly related to perceived level of management priority. *H1B* is not supported – project sponsorship is not significantly associated with project risk. *H2A* is supported – Project sponsorship has a significant positive effect on product performance. *H3* is also supported – project sponsorship has a non-significant effect on Process Performance. *H4* is supported – Management priority has a significant effect on both product performance and Process Performance. *H5* is also supported – project risk negatively impacts on both product performance and process performance.

Table IV reports the standardized regression coefficient for the interaction term to test moderation. *H2B* is supported – Project Sponsorship has a stronger effect on product performance when management priority is higher.

Discussion

In this section, the implications for theory and practice are discussed, validity threats to the findings are reviewed.

Implications for theory

The specific finding of the positive effect of project sponsorship on product performance but not on Process Performance, provides further evidence for the contingent nature of management support. Specifically, the results question the view that top management support is required across all dimensions of project performance.

Sabherwal and King (1992) found that top management participates only in the projects they perceive as important. Here, the results show that management priority interacts with project sponsorship to impact on product performance. This study refines findings from (Yetton *et al.*, 2000) and (Sabherwal and King, 1992), concluding

Table III.
The main effects

| | Project sponsorship | | Product performance | | Process performance | |
|---------------------|---------------------|----------|---------------------|----------|---------------------|----------|
| | $\hat{\beta}$ | <i>P</i> | $\hat{\beta}$ | <i>P</i> | $\hat{\beta}$ | <i>P</i> |
| Management priority | 0.23 | 0.05 | 0.43 | 0.00 | 0.52 | 0.00 |
| Project sponsorship | N/A | N/A | 0.22 | 0.05 | 0.19 | n.s. |
| Project risk | -0.11 | n.s. | -0.28 | 0.01 | -0.36 | 0.00 |

Table IV.
The moderating effects
of management priority

| | Product performance (Adj. $R^2 = 0.23$) | | Process performance (Adj. $R^2 = 0.28$) | |
|---------------------|---|----------|---|----------|
| | $\hat{\beta}^a$ | <i>P</i> | $\hat{\beta}^a$ | <i>P</i> |
| Management priority | 0.51 | 0.00 | 0.58 | 0.00 |
| Project sponsorship | 0.15 | n.s. | 0.08 | n.s. |
| Management priority | 0.25 | 0.05 | 0.17 | n.s. |

Note: ^aProject sponsorship

that project sponsors have a direct effect on the product performance but not on process performance. When product performance is the key project performance criterion, high-risk projects are associated with high levels of user participation (Barki *et al.*, 2001; Yetton *et al.*, 2000). In those situations, the involvement of a project sponsor supports client/user participation. The sponsor engages senior managers from the client organisation as actively involved users. The sponsor is better positioned than the project manager to engage and negotiate with the client over variations to the project deliverables (Ross and Weil 2002; Sauer *et al.*, 2001).

Implications for practice

The finding that management priority has a positive main effect on both product performance and process performance indicates that management priority impacts positively on project performance even without the presence of project sponsorship. The lack of evidence supporting the link between project risk and project sponsorship and the negative effects of project risk on project performance suggest that project level risks need to be managed with other interventions—for example, leaving project-level risk management to project teams with little interference from senior management.

The findings reported in Table III suggest that, when a project faces a high level of uncertainty in project outcomes with significant business implications for both the organization and its clients, assigning a senior manager as sponsor to the project improves the chances of delivering the project as required. The project sponsor focuses attention on protecting the product performance, while leaving the process issues as the responsibilities of the project manager. The project sponsor's primary concern is to deliver the functionalities that meet the client's business needs. Project sponsors do that by exerting leadership, allocating the necessary resources to deliver quality and providing "political" protection for the project management team.

More importantly, the findings show that, above all, management priority placed on protecting project outcomes is paramount regardless of whether project sponsors have been appointed. Management priority influences the effective use of project sponsorship and they jointly impact on project outcomes. The results suggest that elevating project management priority could result in significant improvement in project outcomes.

There is an opportunity to reduce the level of strategic uncertainty. In that case, senior management can be relieved of the need for direct intervention to protect product performance. Instead, they would be able to focus their attention on other strategic opportunities to add value. The current developments in methodologies and process improvement are essentially efforts to reduce task uncertainty and improve project performance, which will eventually lead to the reduction of strategic uncertainty.

One promising approach lies in improving product performance by introducing best practice, and benchmarking with other project teams and organizations. In the long term, the focus should be on reducing task uncertainties to capture improved business benefits. The coordination of resources, roles and responsibilities can improve task programmability and, therefore, reduce organizational uncertainty. Similarly, methodologies and tools for the conduct of project tasks can contribute to reducing strategic uncertainty by reducing technical uncertainty.

Limitations and future research

The construct strategic uncertainty has not been directly measured in any existing study. This study attempts to measure the construct using a surrogate on the level of

management priority given to projects in a business unit. According to (Simons, 1987, 1990, 1991, 1994, 1995), the level of management priority should reflect the level of strategic uncertainty facing projects. Although the results support the hypotheses derived from Simons' theory, there still exists the possibility that interactive control in the form of project sponsorship takes place when a project's outcomes are uncertain regardless whether they are important to business. To guard against this plausible alternative explanation, project risk is measured and included in the analysis as a control variable. The non-significant relationship between project risk and project sponsorship suggests that the plausible alternative explanation is invalid. However, it should be noted that the project risk construct measures primarily project level risks rather than business risks. Future studies should control for business uncertainties.

Another plausible alternative explanation is that project sponsorship takes place when a project's outcomes are important to the organization regardless whether the outcomes are uncertain. Since the importance has not been measured independent of management priority, this plausible alternative explanation cannot be ruled out from the survey data. Nevertheless, the body of literature on the subject suggests that the plausible alternative explanation is unlikely (Simons, 1990, 1991, 1994, 1995). Future study should also consider measuring the importance of project outcomes.

Summary and conclusion

Consistent with the predictions from management control theory (Simons, 1990, 1991, 1994, 1995; Daft and Macintosh, 1981), management priority has a direct influence on the use of project sponsors. In contrast, project risk has no significant association with the use of project sponsors. Project sponsorship is found to have a significant positive effect on product performance but not on process performance.

This study finds that management priority has significant main effects on both product performance and process performance. Similarly, project risk is found to have significant negative effects on both product performance and process performance. Extending extant literature, management priority moderates the effect of project sponsorship on project performance. The two variables jointly explain 23 per cent of the variance in product performance.

In summary, this study finds that management priority and the interaction between management priority and project sponsorship protect the strategic project outcome, influencing Product Performance but not Process Performance. This contributes to the emerging literature on the contingent nature of project performance. The implications for both theory and practice are to reinforce the need to further refine and to extend the models of the contextual contingencies influencing project business deliverables. The findings provide insight on how to focus senior management attention and actions to protect the strategic outcome of projects.

To generalize the findings to other industries, further studies are needed to identify strategic project outcomes that need the protection of executive sponsors and to test the effect of project sponsorship on project outcomes in different contexts.

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