THESIS RESEARCH REPORT NOTE
The effect of intervening conditions on the management of project risk

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Abstract

Purpose – The purpose of this paper is to highlight the main findings of a successfully defended doctoral thesis that studied factors or interventions causing the discrepancy between how adequate project risks should be managed and how project risks are actually managed.

Design/methodology/approach – The approach involved interviews and a survey using questionnaires gathered data from project managers about their experiences with project risk management during two phases of fieldwork. The first phase included in-depth interviews with information technology (IT) project managers in order to explore patterns involving risk mediators and their influence on project risk management. A web-based survey was used in the second phase for the purpose of testing these patterns on a wider range of project managers.

Findings – Specific risk-related interventions strongly influence the effective use of project risk management: project managers tended to deny, avoid, ignore risks and to delay the management of risk. Risks were perceived as discomforting, not agreed upon. IT project managers were unaware of risks and considered them to be outside their scope of influence and preferred to let risks resolve themselves rather than proactively engaging with them. As a consequence, factors such as the lack of awareness of risks by IT project managers appeared to constrain the application of project risk management with the result that risk had an adverse influence on the outcome of IT projects.

Practical implications – The underlying rational assumptions of project risk management and the usefulness of best practice project risk management standards as a whole need to be questioned because of the occurrence of interventions such as the lack of information. IT project managers should first prevent risk-related interventions from influencing the use of project risk management. However, if this is not possible, they should be prepared to adapt to risks influencing the project outcome.

Originality/value – The paper contradicts the myth of a "self-evidently" correct project risk management approach. It defines interventions that constrain project manager's ability to manage project risk.

Keywords Project management, Risk management

Paper type Research paper

Introduction

Many organisations, regardless of size, engage in at least one, and often many information technology (IT) projects and programmes each year. Yet, these projects and programmes such as the National Health Service national programme or the implementation of the Avis Enterprise resource planning or the Sainsbury supply chain system (KPMG Management Consulting, 1994; The Standish Group International, Inc., 2007) often have a high rate of failure. It could therefore be considered that despite well-established best practice project management processes, current project managers still appear to be ineffective in preventing project failure.

Project and programme management, in its modern form, began to take root only a few decades ago. Starting in the early 1960s, businesses and other organizations began to see the benefit of organising work around projects and to understand the critical need to communicate and integrate work across multiple departments and professions. Standards in project management are various. Most dominant are those of the Project Management Institute – PMI (2004) and the Association for Project Management – APM (2005). Those offered by the PMI are widely used and are considered to be a competency standard (Pender, 2001). The purpose of these "conventional" project management methodologies is to manage entities such as tasks, requirements and objectives in advance, and is reliant on hindsight as a predicator for future changes. Williams (2005, p.2) describes these bodies of knowledge as a "self-evidently correct" set of processes and techniques, which heavily emphasises the action of planning. The fundamental assumption of project management standards such as PMI Body of Knowledge guide is that the project is decoupled from its environment. That is to say that, once the project is planned, changes should happen only occasionally. However, IT project failure is most commonly attributed to a lack of top management involvement, a weak business case and inadequate risk management. The highest ranked factor for project failure (Whittaker, 1999) is project risk management, the systematic process of identifying, analysing, and responding to risks as project-related events or conditions which are not definitely known and which have the potential of adverse consequences on a project objective (PMI, 2004). Despite well-established and accepted project risk management processes such as Prince2 (Office of Government Commerce – OGC, 2007) or PRAM (Chapman, 1997; APM , 2005), project managers commonly perceive these processes as not effective for managing project uncertainties (Pender, 2001). Hence, this study addresses the research problem (RP) of whether risk-related interventions influence the application of project risk management by project managers in the context of IT projects:

RP. Do IT project managers think that risk-related factors constrain the effective use of project risk management?

The RP was empirically investigated in the context of IT projects. Organisations delivering IT projects may include computer service providers (CSP). Firms in this line of business include Unisys and IBM as stand-alone providers. In addition, many firms have this function provided as an in-house support function. Typical services that are provided by include "planning, operation, implementation and use of computer hardware, computer software and computer personnel" (Howard, 2001, p. 2). Examples of projects include "Roll outs", the implementation of "User help desks" structures or "Outsourcing" projects. In 2001 in the UK, such services alone represented £20 billion in turnover for

the stand-alone CSPs of which approximately 50 per cent of this service volume was delivered through project work (Howard, 2001, p. 8). The strategic importance and costs involved in developing IT systems have raised the stakes associated with the project outcome.

I empirically investigated the RP and research questions by using a grounded theory-orientated research approach to explore concepts such as project risk management. The first phase of empirical research includes the use of grounded theory for exploring project managers' experiences in managing risk in IT projects. Unstructured interviews were used to enable me to fully understand how IT project managers manage risk, what risk-related interventions influenced their efforts to effectively and optimally manage risk and what influence these ultimately had on their achievement to meet project objectives they considered to be important. The data analysis followed an iterative process of proposing patterns from one case and checking these patterns with those in other cases. The process of proposing and checking came to a conclusive end once new patterns ceased to emerge and existing ones were confirmed.

Once I understood patterns that emerged about how, for example, which interventions led to sub optimal or ineffective project risk management, a survey to test these patterns on a wider population of project managers was conducted in order to further explain the relationships between the concepts explored. Overall, over 2,200 project managers who were members of the PMI and the APM received an invitation to participate in the online survey. The data analysis included descriptive as well as multivariate regression techniques.

The findings show that IT project managers encountered difficulties in managing project risk because of several risk-related interventions such as denial, characterised by anxiety among stakeholders due to the identification and analysis of risk. These interventions tended to influence project risk management in such a way that project managers overlooked risks that later materialised and resulted in an adverse effect on the project outcome. Hence, these risk interventions contributed to the inability of project managers to prevent risks from materialising and thus negatively influencing the achievement of the project objectives of scope, cost and time and other objectives IT project managers consider to be important such as team satisfaction (Table I).

This study contributed to our knowledge of managing risks as follows: first, it shed light on how effectively project managers think they have applied project risk management and to what degree risks influenced the project outcome. Second, it increased the understanding of what kind of risk-related interventions prevail in IT projects and how these risk interventions constrain IT project managers in effectively managing risk These findings are important given the lack of current evidence about how "optimal" project risk management is applied. Through the management of such interventions such as denial and avoidance of uncertainty, the use of project risk management may be improved.

Context of the thesis
The research study was part of a Doctor of Philosophy (PhD) thesis undertaken at the University of Bath in the UK. The PhD was funded by the Economic and Social

Research Council (ESRC), one of the UK's leading research funding and training agencys addressing economic and social concerns.

As part of fulfilling its mission, the ESRC provides studentships for the support of full- or part-time postgraduate courses. In total, + 3 studentships are four year awards comprising of linked Masters and PhDs (applied for together). About "1 + 3" is a generic term used by ESRC to denote one year of Master's research training plus three years of study towards a PhD. (For part-time students this equates to a 2 + 5 programme.) About " +3" means that a candidate has already completed the research training year and is only applying for a three-year period to complete the PhD study.

These studentships provide a training programme for full- and part-time students who have not previously completed a programme of substantive research training. Each Master of Philosophy – MPhil/PhD student receives personal supervision from one or more members of academic staff with expertise in the relevant area. This relationship is a key aspect of the degree. In addition, great emphasis is placed on research training to support students throughout their research degree and to build a community of research scholars. At the University of Bath (School of Management), PhD students were expected to attend the core units of the MPhil and complete five associated assessments (5,000-6,000 words long). This research training programme included modules on:

- research design;
- research methods (quantitative, and qualitative); and
- research philosophy.
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A range of other training opportunities such as "Project management for PhD students" or "Communication skills and assertiveness" were also available through the university.

The findings of this government funded PhD study were consequently published (Kutsch and Hall, 2005). Similar to Pender's (2001) work, this study offers evidence to counter argue the "self-evidently" correctness of deterministic and rational risk management processed successfully by the PMI (2004), OGC or the APM (2005) and highlights the need to include behavioural aspects into the management of risk.

Intervening condition	Definition	Description
Denial of uncertainty	The refusal by risk actors to reveal to other stakeholder risk-related information that may hold negative or discomforting connotations	*Risk as a "taboo"* Denial of uncertainty in order not to expose stakeholders to something perceived as negative Denial of uncertainty in order not to jeopardise long-term relationship with stakeholders Denial of uncertainty in order not to be perceived as a "doomsayer" Denial of uncertainty in order to present the project as being "certain" and "certainly" successful for stakeholder
Avoidance of uncertainty	Lack of attention to risk-related information due to insufficient trust or belief in the efficacy of that information	*Distrust in risk estimates* Avoidance of uncertainty because of mistrust between risk actors Avoidance of uncertainty because of conflicting confidence levels about risk estimates between stakeholders Avoidance of uncertainty because of conflicting perceptions of stakeholders about the legitimacy or ability of others to manage certain risks
Delay of uncertainty	Failure to consider or resolve risk due to apathy, lack of interest or general approach to project management	*Different risk management preference* Delay of uncertainty because of different expectations of stakeholders about how to manage risk (active or reactive)
Ignorance of uncertainty	The complete lack of awareness of risk-related information by stakeholders	*Unawareness of threats* Ignorance of uncertainty because of the unwillingness to spend (more) resources on the scanning of the environment Ignorance of uncertainty because of the inability to scan and intercept the environment because of factors such as complexity and dynamics

Source: Kutsch (2006)

Table 1 Intervening conditions in project risk management

Discussion and conclusion

Research has shown that many IT projects fail because scope, cost and time objectives are not met despite the existence of "self-evidently" correct best practice project management standards. This study aimed to investigate the influence of risk-related interventions on the specific project management process of project risk management on the outcome of IT projects. Literature indicates that project managers in general appear to have problems "optimally" preventing risks from adversely influencing the project outcome. The exploratory and explanatory findings of this study suggest that IT project managers face specific risk mediators which tend to adversely influence the effective use of project risk management and which ultimately affect the project outcome of IT projects.

Overall, the key discipline of project risk management lacks the optimality that is assumed in best practice standards. Renn (1998, p. 64) argues in this context that the set of assumptions of a mainly objective analysis of risk "is a virtue as much as it is a shortcoming". The findings underline the criticism of some researchers such as Ritchie and Marshall (1993), that the normative model of expected utility theory (EUT) as an underlying model for project risk management is inadequate to describe how decision makers manage risks. In addition, it appears that the findings of this study about the influence of interventions on project risk management also apply in a wider context and are not confined to the specific context of IT project management. In other areas such as organisation theory, the resistance to managing uncertainties because of denial, avoidance, delay and ignorance seems to be confirmed through research being conducted in various settings. This firstly may underline the robustness of the findings of this research and secondly indicates that the optimal conditions of EUT as underlying assumptions of best practice standards in project risk management tend to be violated.

On the one hand, an action by an IT project manager to delay risk response actions may be described as irrational, at least under the premise that those mediators may not lead to the optimal choice of reducing the impact of uncertainties on the project objectives of scope, cost and time. On the other hand, Otway (1992) argues that a person who only focuses on the statistical probability of threats and their impacts and ignores any other information would be truly irrational. Hence, a project manager would act sensibly by, for example, rating the importance of a long-term relationship between provider and customer higher than the actual short-term avoidance of disruptions through the management of project risk. Therefore, if people persistently act in violation of EUT, the account of rationality according to EUT may be questioned (Anand, 1993). Furthermore, the practical implications of the interventions established in this study have to be taken into account in order to understand the limitations of project risk management and, if possible, to manage them.

Under the assumption that risk interventions can be prevented, the influential risk mediator of avoidance, ignorance and denial of uncertainty may be averted by risk actors through the prevention of decision-maker related factors of uncertainty: tolerance of ambiguity, experience and locus of control.

Tolerance of ambiguity refers to the extent to which an individual seeks clarity and specifies vague and unclear information. Research has shown that persons with a

higher degree of tolerance towards ambiguity spend more time scanning the environment for the purpose of uncertainty reduction (Ashill and Jobber, 1999; Dollinger, 1984; Ramgopal, 2003; Wang and Chan, 1995). In a project environment, risk actors with a higher tolerance of ambiguity may perceive uncertainty as an opportunity instead of a threat and may seek to overcome uncertain situations and try to seek consensus on conflicting risk-related information with the result that the mediators of avoidance, ignorance and denial of risks are decreased.

A further way of preventing risk mediators from influencing project risk management is experience. Ignorance and avoidance of uncertainty may impose fewer barriers to optimal project risk management depending on the amount of variety and duration of experience risk actors have gained. The problem of complete unawareness of threats as well as conflicts about what risks are "true" may be avoided through the involvement of risk actors with greater experience or the greater accumulation of relevant historic data in the decision-making process in project risk management.

In addition, delay, avoidance and denial of uncertainty by risk actors may be decreased with increased locus of control. Locus of control is the amount of control, which an individual has over his life (Miller and Jean-Marie, 1986). In a project, this may be the extent to which a project manager has control over internal and external factors. If managers perceive their environment as more controllable (internal locus of control), they tend to be more proactive (Govindrajan, 1989). Lack of perceived control might arise through disagreements or lack of consensus, a characteristic of the mediator of avoidance of uncertainty (Morgan and Henrion, 1990). Furthermore, risk actors who find their environment to be less controllable may perceive it as more threatening with the result that they may deny risks (Ashill andJobber, 1999; Ashill and Jobber, 2001). Hence, in a project environment, risk actors with a high degree of internal locus of control may contribute to reducing the mediator of delay, avoidance and denial of uncertainty.

Risks may, however, always remain inadequately managed and cause disruptions to projects. Two suggestions to compensate for the impact of materialised uncertaintyis the arrangement of multi-layer reserves to absorb the impact of unforeseen events (Pender, 2001) or adding contingencies to establish a fit between the environment and the project's structural and process characteristics (Barki et al., 2001). The adaptation to unforeseen situations may include project managers being flexible and dealing with situations only as they arise and with information only when it becomes available (Pavlak, 2004). With the prospect of unsuspected changes in the project, the project manager may want to prepare himself to be able to react to any unpredicted disruptions in the project. In this respect, flexibility is considered an important way of dealing with uncertainty (Dreyer and Gronhaug, 2004; Eppink, 1978; Gustavsson, 1984; Leuuw and Volbreda, 1996; Carlsson, 1989). In project management, although considered to be a critical success factor, flexibility is unacknowledged (Hornby, 2001). Although the concept of flexibility addresses residual uncertainty caused by risk mediators on the management of risk, it has been given little attention in project risk management literature so far.

Unless we stop being human and become godlike creatures, our environment is characterised by interventions such as lack of knowledge, distrust or discomfort. Those interventions faced by IT project managers may impose a barrier to effective

and optimal project risk management. This research leads to a better understanding of which interventions exist in IT projects and how they influence the effective use of project risk management. Consequently, this understanding may result in an improvement in the application of project risk management by project managers. This means, that the fundamental principles of an expected utility-based project risk management process may have to be taken into account and questioned. As a result, IT project managers may have to reduce the impact of risk interventions on the use of project risk management or be prepared for materialising risk in order to minimise the effect of uncertainty which materialises during a project with adverse consequences on the achievement of project objectives, and ultimately to avoid project failure.

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