

# What risks are common to or amplified in programmes: Evidence from UK public sector infrastructure schemes

Bernard Aritua<sup>\*</sup>, Nigel J Smith, Denise Bower

*School of Civil Engineering, University of Leeds, United Kingdom*

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## Abstract

The management of risk is critical in organisations that work in multi-project environments. Project risk management is relatively mature. However, the programme risk management body of knowledge is still evolving. This paper presents empirical evidence from the UK public sector highlighting the risks that are common to or amplified by working in programmes. In the main, these risks are associated with changes in government policy, diverse stakeholder aspirations and the challenges of multiple project procurement. These risks relate to the role of programme management in providing the link between individual projects and their strategic context.

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## 1. Introduction

It is a matter of definition that at a fundamental level, organisations exist for a purpose (Senge, 2006). In the public sector the purpose is generally concerned with the delivery of a service or with the delivery of a beneficial outcome in the public interest (Hill, 1991; Moore, 1997; Financial Times Ltd and University of Chicago. Graduate School of Business, 2000; Finlay, 2000; Joyce, 2000; Grundy and Brown, 2002; Leigh, 2003). The decision to invest in capital infrastructure is therefore usually prompted by a need which is meant to enhance the achievement of this primary purpose (Dallas and Chartered Institute of Building, 2006). Flanagan and Norman (1993) assert that the benefits of risk management are especially evident in capital infrastructure projects because of their dynamic nature and the cost implications of construction related decisions. Flyvbjerg et al. (2003) explain that the need for formal procedures for risk management is amplified in mega infrastructure projects of high value. Whereas Miller et al.

(2000) argue that the role of risk management is amplified as project ventures get more elaborate; which is often the case in infrastructure related projects. Thus, risk management should be an intrinsic part of capital infrastructure investment decisions.

As a result of this realisation, risk management is mandatory for capital infrastructure schemes in the UK public sector (PAC, 2001; Cabinet Office, 2002). However, in keeping with the developments in research, the emphasis has generally been on single projects. Risk management in multi-project environments is still an evolving area of research and industry practice (Maylor et al., 2006). This article focuses on programme risks and deals specifically with evidence from the UK public sector organisations. In the context of this article, risk is understood to be an event or condition that may occur, and whose occurrence, if it does take place, has a harmful or negative effect that can adversely affect the prospects of achieving a desired goal. Thus risk management relates to decisions about such potentially harmful or negative effects. This understanding is adopted with a keen awareness of the philosophical and pragmatic implications, and alternative definitions adopted by other authors.

Risk management may generally be synthesised into four basic sub-processes: identification, analysis, response and

<sup>\*</sup> Corresponding author.

E-mail address: [cenbar@leeds.ac.uk](mailto:cenbar@leeds.ac.uk) (B. Aritua).

monitoring. [Maytorena et al. \(2007\)](#) observes that the identification phase is critical since it has a big effect on the decisions that emanate from the risk management process. In a review article, [Williams \(1995\)](#) notes that little structured work has been done and published about typical risks, whereas [Chapman \(1998\)](#) points out that while risk identification has a significant impact on risk assessment and response, little empirical evidence exists on this phase. More recently [Allan and Davis \(2006\)](#) and [Aritua \(2010\)](#) have made the same point. Despite these observations, the bulk of risk management research is focused on the analysis and response phases; and yet it stands to reason that if risks are not identified they cannot be analysed and managed. Some researchers have undertaken studies of typical project risks in varying sectors and countries (such as [Schmidt et al. \(2001\)](#) on software project risks; [De La Cruz et al. \(2006\)](#) on construction project risks in Spain; [Roumboutsos and Anagnostopoulos \(2008\)](#) on PPPs in Greece; and [Ghosh and Jintanapakanont \(2004\)](#) in Thailand). These kinds of articles have proved to be a useful knowledge base to researchers and practitioners alike. However, such articles which provide empirical evidence of the inputs — as opposed to the outputs — of the risk management process are rare. Articles discussing typical risks which form the input to the risk management process are relatively few. Moreover, they are largely confined to single project environments. Most of the recent programme risk management research and best practice guidance have concentrated on how to use the outputs and some guidance exists on the process of risk assessment. In this regard therefore this paper constitutes an incremental but crucial step in building a body of knowledge which researchers and practitioners may tap into.

## 2. The need to investigate programme risk management — a literature review

For the purpose of this paper, the definition of programmes in the *OGC Guide Managing Successful Programmes (2007)* is adopted:

‘A programme is a temporary, flexible, organisation created to co-ordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver outcomes and benefits related to the organisation’s strategic objectives....During a programme life cycle projects are initiated, executed, and closed. The programme provides an umbrella under which these projects can be co-ordinated. The programme integrates the projects so that it can deliver an outcome greater than the sum of its parts.’

This definition makes explicit the contrast between achieving *outcomes* in programme management as contrasted with *outputs* in project management. Furthermore the function of linking projects and strategy through programmes is clear.

Risk management has become an important process for organisations that use the project based approach for delivering organisational goals ([Miller et al., 2000](#), [Renn, 2008](#)). This may be due to the ever-increasing pressures for improved performance in organisations or from increasingly challenging

external environments within which organisations have to exist ([Chapman, 2006](#); [Institute of Actuaries. et al., 2006](#); [BS 31100:2008, 2008](#)). Whatever the case, good risk management is considered a critical ingredient for the success of organisational endeavours ([Flanagan and Norman, 1993](#); [Akintoye et al., 2003](#)). Several professional institutions such as the *Project Management Institute (PMI)*, *Association for Project Management (APM)* and *Institute for Risk Management (IRM)* have undertaken to provide best practice guidance and risk management bodies of knowledge to enable organisations to effectively manage risk and to make decisions. Both public and private sector organisations have tapped into this body of knowledge to provide guidance on managing risk in project environments. Nevertheless, the emphasis of best practice guidance and risk management bodies of knowledge has largely been on single project risk management.

For a long time the general assumption was that programmes are merely scaled up versions or extensions of projects. Hence programme risk management guidance reflected this conception. However, several authors have now shown that the distinction between projects and programmes is crucial. For example, [Pellegrinelli \(in press\)](#) argues that fundamentally programmes must be conceived as being different from projects. As a result the common conception of programme management as an extension or variant of project management needs to change. [Shehu and Akintoye \(2009\)](#) conclude that lack of clear distinction between projects and programmes has a negative impact on effective implementation. Furthermore, based on a comparative bibliometric study of 517 programme management related articles and 1164 project management articles published in the last 21 years in leading scientific and business journals, [Arto et al. \(2009\)](#) demonstrate that programmes and projects need to be perceived differently. These articles reinforce the work of other authors who have made similar arguments ([Ferns, 1991](#); [Payne, 1995](#); [Reiss, 1996](#); [Gray, 1997](#); [Pellegrinelli, 1997](#); [Pellegrinelli, 2002](#); [Blismas et al., 2004](#); [Maylor et al., 2006](#); [Martinsuo and Lehtonen, 2007](#); [Pellegrinelli et al., 2007](#); [Aritua et al., 2009](#); [Shehu and Akintoye, 2010](#)). The emerging consensus is that projects and programmes are fundamentally different. The implication is that programme risks must also be perceived and managed differently from project risks.

[Maylor et al. \(2006\)](#) point to the consensus among leading experts that management in multi-project environments is a principal area in which new concepts and approaches are urgently needed to guide practitioners. Recent articles show that the project management research fraternity has responded to the research agenda (such as [Aritua et al. \(2009\)](#); [Whitty and Maylor \(2009\)](#); [Smyth \(2009\)](#); [Thomas and Mengel \(2008\)](#); [Gareis and Huemann \(2008\)](#); [Söderholm et al. \(2008\)](#); [Van Donk and Molloy \(2008\)](#); [Winter and Szczepanek \(2008\)](#)). However, as would be expected of any budding area of research, these articles are about the concepts of managing in multi-project environments. Moreover, articles presenting empirical evidence of how industry practice has progressed are few ([Shehu and Akintoye, 2009](#)). Therefore in order to contribute towards the emerging understanding of programme risk management, this paper reports on empirical evidence from

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