



# What impacts the performance of large-scale government projects?

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## Abstract

Government projects and programs contribute to national growth at a great magnitude. However, records show that they are not well managed, even when project teams follow established project management principles. As a result, this study aimed at identifying key characteristics of government projects and programs, and recommending how they can be used to improve performance. This paper analyzed 39 public projects undertaken in the U.S., UK, and Australia and reviewed officially by the national audit offices and government agencies, including the Los Angeles Metro, London Heathrow's Terminal 5, and the fatal Australia's Homeowner Insulation Program. Based on this analysis the paper suggests six key characteristics, 17 practical recommendations, and six research propositions. These findings can support government project managers to utilize project management approaches according to project characteristics. This paper can support policy makers and government officials in improving the approaches for the management of government projects and programs

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## 1. Introduction

Government projects and programs require a great deal of planning, coordination, and collaboration through established project management processes, strong team effort, and involvement of multiple stakeholders. These projects and programs can greatly contribute to the national growth and wealth. However, their management is, often times, challenging for government

officials and project managers because project objectives are not clearly identified (Kwak et al., 2014a,b), formal project management processes are not in place (Patanakul, 2014), and costs and benefits are difficult to justify and measure (Zwikael and Smyrk, 2012). Government projects also tend to have long durations, large budgets, multiple stakeholders, and a great deal of uncertainties that make them difficult to plan, implement, and manage effectively. Furthermore, governments worldwide are now under increasing pressure to meet public needs within more restricted budgets (Chih and Zwikael, 2015).

Facing these challenges, the application and performance of project management in government agencies have been historically poor as found in public records (ANAO, 2006, 2007; GAO, 1986, 2002, 2004, 2005a, 2006a, 2010; NAO, 2000). Many government projects are extended for years, failing to meet their objectives, wasting taxpayers' money, or are abruptly terminated in the midst of planning or implementation. Due to the fact that

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primary funding for government projects comes partially or entirely from constituents, government projects are often scrutinized and criticized by the general public, which exacerbates the image of government as a whole.

This research investigated recurring problems and challenges leading to the poor performance of large-scale government projects. In this study, a large-scale government project is defined as a project that has a planned budget over \$100 M. Some of these projects can also be classified as “megaprojects”, defined by the United States Federal Highway Administration, as “projects that cost more than \$1 billion, or projects of a significant cost that attract a high level of public attention or political interests because of substantial direct and indirect impacts on the community environment and budget” (Capka, 2004). Please also note that “large-scale government project” can be referred to as “government program”. For the sake of simplicity, the term “government project” is used in this paper.

While many studies have been conducted to investigate the performance of government projects, this study differs from others in various ways. First, it addresses a fundamental question of “what are the key characteristics of a large-scale government project that impact project performance?” Because project management approaches should be utilized contingently to the project characteristics (Shenhar and Dvir, 2007), a better understanding of these fundamental characteristics of government projects can benefit both researchers and practitioners to further refine project management approaches to improve project performance. Second, this study investigated the past performance and management challenges of 39 large-scale government projects from the United States, United Kingdom, and Australia using official reports and public documents. Third, this study covered both government-initiated and publically funded projects from three major sectors: transportation and infrastructure; defense and space; and information systems development and deployment. By investigating projects of different countries and across sectors, this research identified six key characteristics that impact performance and provided key recommendations for effectively managing large-scale government projects. The key findings of this study can help practitioners implement a more tailored management approach to the type of project in hand when they are involved in large-scale, complex government projects. This includes the policy makers, government officials, and project managers in governments around the world. This research also contributes to the theory by highlighting the challenges and opportunities related to applying and implementing project management principles in government, as well as raising research propositions.

## 2. Literature review

### 2.1. Performance of government projects

Previous studies of government projects have found underperformance in terms of cost, schedule, and deliverable quality (Kwak and Smith, 2009; Patanakul, 2014; Patanakul and Omar, 2011). In particular, studies have indicated that schedule delays are a source of great distress to both Project Owners

(government) and Project Managers (contractors), mainly because poor schedule performance can directly and indirectly impact other performance measures such as cost (Frimpong and Oluwoye, 2003; Han et al., 2009; Lyer and Jha, 2006; Majid and McCaffer, 1998), particularly in infrastructure and capital megaprojects (Flyvbjerg, 2007; Flyvbjerg et al., 2003a,b, 2004; Merrow et al., 1988; Stannard, 1990). As a result, both researchers and practitioners have continually focused on the analysis of schedule delays in large-scale projects to find ways for improvement (Assaf et al., 1995; Chan and Kumaraswamy, 1995; Flyvbjerg et al., 2003b; Williams, 2003). Studies have also found that poor performance of government projects is a result of structural complexity, for example the number and interdependence of elements, and uncertainty in goals and means (Bruelious et al., 1998; Kwak et al., 2014a; Williams, 2003, 2004). In addition to complexity, studies have indicated that delay of government-initiated infrastructure projects is a result of inadequate resources, public agencies’ and contractors’ financial difficulties, organizational deficiencies, frequent change orders, and considerable extra work (Arditi et al., 1985; Gil, 2007; Park et al., 2005). Lovallo and Kahneman (2003) suggested that overly optimistic Project Owners and Project Managers greatly contribute to schedule delays and cost overruns of large-scale projects.

Insufficient and poor risk management also contributes to project delays and cost overruns of government projects (Baldry, 1998; Kwak and Smith, 2009; Patanakul, 2014; Patanakul and Omar, 2011; Tysseland, 2008). Kwak and Smith (2009) explored key aspects involved in managing risk associated with acquisition projects within the U.S. Department of Defense in order to identify the strengths and weaknesses of overall program management practices. They found many incidents that indicated the impact of insufficient risk management on schedule delays and cost overruns. This includes the lack of accountability held by officials and the reliance on the contractors for managing project risks. In addition to the causes of poor performance mentioned above, other researchers suggested that problems related to system management, governance, project management, contract management, and acquisition management are common in managing government projects (Arditi et al., 1985; Han et al., 2009; Kwak and Smith, 2009; Patanakul, 2014). Focusing on government IS/IT projects, Patanakul (2014) found major problems and identified causes of these problems that may lead to poor performance. This includes problems related to requirements identification and system integration during system design and implementation. Problems specifically to project management are related to project risk management, project monitoring & control and change management, and project governance. Additionally, problems related to managing contractual arrangements were also found.

### 2.2. Previous efforts to improve performance of government projects

The literature has also offered recommendations for improving performance of large-scale projects. These recommendations included systems perspectives based on the concepts of large-scale living systems, hard systematic thinking, and soft systemic methodology (Yeo, 1995); time control (Jolivet and

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