EXECUTIVE POLITICS, RISK AND THE MEGA-PROJECT PARADOX

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ABSTRACT

The management of large scale public-private projects, programmes and policies presents a special challenge for executive politics and our understanding of government more widely. Such mega-projects exhibit a “performance paradox” (Flyvbjerg et al 2003a), being prevalent and popular among planners despite suffering from extremely poor track records in terms of completion times, cost escalations and shortfalls in projected revenues and economic benefits. Through assessing the role of executive politics in the adoption and management of mega-projects it is possible to undertake comparative analysis of sources of their under-performance. This in turn provides insights into the comparative analytical power of models of executive politics and their validity. To do this, sources of mega-project failure are assessed and compared for a series of cases, specifically in relation to: 1) the role of high politics and institutions, 2) executive politics and the consequences of the design of project financing and administration (such as in the balance of risk between the public and private sectors), 3) biases in decision-making about project risks, and 4) uncertainties that can impact upon technical and economic dimensions of mega-projects -- undermining and ameliorating decisions taken in the world of high politics and those attempts at evaluation and measurement of risk in the world of new public management and the regulatory state.
THE PERFORMANCE PARADOX OF MEGA-PROJECTS

The management of large scale public-private projects, programmes and policies presents a special challenge for executive politics and our understanding of government more widely. Such large scale capital and investment projects can be identified from their scale, complexity and dependence upon large volumes of financial, human and material resources. These vast multi-billion dollar mega-projects are often commissioned through government or with state subsidies and are contracted to private firms, with the projects themselves tending to involve substantial uncertainties, complex technological, design and engineering requirements – whether these relate to roads, bridges, skyscrapers, dams, airports, computer systems or gas pipelines – often involving a mixture of public and private stakeholders often across multiple jurisdictions, which stimulate political interests and conflicts. Such projects include both civil engineering and construction works and information technology systems, as in taxation or benefits administration, and are notable for their scale and level of complexity. Examples of mega-projects in Britain include things such as Crossrail, the Millennium Dome, the NHS National Programme for IT (NPfIT), and the London 2012 Olympics. These mega-projects are vulnerable, however, to a “performance paradox” (Flyvbjerg et al. 2003a, p. 3), suffering from extremely poor track records in terms of their completion times, cost escalations and shortfalls in projected revenues and economic benefits (Merrow 1988; Flyvbjerg et

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1 In this chapter I use the term ‘mega-project’ broadly to refer to large scale infrastructure, construction and technology works in addition to other ‘mega’ programmes and mega-events, the latter of which tend to be large scale operations that are contingent upon the completion of large scale infrastructure projects (e.g. Jennings 2010; Jennings and Lodge 2010; 2011). Whether or not one wishes to focus upon mega-projects or mega-events, or the sorts of policy failures and disasters considered in other studies (e.g. Dunleavy 1995; Bovens and ‘t Hart 1996; Gray 1996; Moran 2001), the points herein are the same.
This optimism bias in planning is sometimes accentuated through the unique features of projects on this scale and the shortage of relevant experience or available expertise to inform projections (HM Treasury 2003, p. 85).

Famous examples of the relative under-performance of mega-projects include the cost over-runs on the Sydney Opera House, completed ten years late at more than 1,400% above the original estimates and the 1,250% cost over-run incurred at the Montreal 1976 Olympics which left the Montreal city government with a C$1 billion deficit that took thirty years to pay off. Closer to home, the Scottish Parliament at Holyrood was completed three years late and costing 1,000% more than its initial projections. Two joint British-French transportation projects, the Concorde supersonic airliner and the Channel Tunnel are, likewise, notable for their substantial under-estimation of costs (1,000% in the case of Concorde and 80% in the case of the Channel Tunnel) as well as for their over-estimation of commercial revenues. In most such mega-projects, there is some combination of public and private partnership, as a consequence both of the immense scale and financial risk of the undertaking, necessitating government support, and the uncertainties involved in complex and technical projects with macroeconomic impacts and such long-planning horizons. Why are such projects so prone to under-performance? How might the field of executive politics shed new light on this distinct category of large scale, complex, often politicised enterprises that incorporate a range of public and private actors?

Since the 1970s, the management of such projects has been subject to extensive change, as part of transformation of the modern state and its interaction with the private sector -- in the shift away from direct command and control activities in the administration of social and economic life, increasingly contracting out the provision of goods and services to firms and delegating responsibilities for the administration of policy to regulatory bodies and other autonomous agencies. This period has observed gradual withdrawal of the state from direct forms of interventionism, such as through public ownership and nationalisation of industries and in the use
of administrative controls over the economy. These centralised ‘command and control’ hierarchical 
bureaucracies of the state have been replaced, over time, with regulatory forms of governing 
(Majone 1994; Moran 2003, also see Lodge 2008 for a review of the literature). Whereas executive 
government once took direct steps to intervene in supply, it has since withdrawn to a hands-off 
role. This sort of thinking has seen the reorganisation of government, removing itself from direct 
functions and increasing separation of strategic decision-making and the delivery of policy. Further, 
since the 1980s the growing influence of the ‘new public management’ marked the spread of 
doctrines of managerialism and market competition in the public sector throughout Western 
Europe as well as in other political settings (see Hood 1991; Pollitt 1995). This has reflected a 
growing emphasis upon performance and evaluation, and the exposure of public administration to 
market forces, in the contracting out of projects and decision-making to the private sector. Within 
government, too, there has been a shift of the modern state towards acting as some kind of 
cybernetic controller, active in target-setting and performance evaluation regimes (Hood 2006; 
2007; Bevan and Hood 2006). According to this paradigm, then, public policies and projects must be 
justified on economic grounds and are often delivered through public-private partnerships or 
contracting out.

This shift towards a state that is geared towards ‘steering, not rowing’ (Osborne and 
Gaebler 1992) has also been manifested in the world of mega-projects where the state is the 
purchaser of the services of civil engineering and construction firms, programme managers and 
contractors required to deliver the project. The governance model for mega-projects is therefore 
consistent with the ambitions of the hollowed-out state, with its preference for contracting out, 
procurement from the private sector and the use of market mechanisms. And yet the performance 
paradox points towards the intractable, often uneconomic, nature of such projects. These are 
projects that often would not be adopted if subjected to scrutiny of cost-benefit analysis and 
rigorous testing of their assumptions. Mega-projects thus sit at a crossroads between the forces of
symbolic high politics and the controlling, rationalist and hands-off tendencies of the modern state, with its preference for measurement, evaluation through tools such as cost-benefit analysis, auditing, steering, markets and economisation (see Moran 2001, p. 418). Alongside the performance paradox that Flybjerg and colleagues (2002; 2003a; 2003b) diagnose as afflicting mega-projects, there is a further paradox, then, between the grand projects that are adopted in the realm of high politics and the attempts of executive politics and government -- in the age of the regulatory state -- to subject public policies and projects to rational and technical analysis and to technologies of measurement and audit (Power 1997; Moran 2001; 2003). It is preoccupation of decision-makers in the world of high politics with iconic and adversarial politics, Moran (2001, p. 418) argues, that “... encourages commitments to symbolic objects which are difficult to analyse in the technocratic language of the new world of public management”. Mega-projects are thus resistant to the measurement, forecasting and evaluation that is so widespread under the new public management, audit society and the regulatory state. This reflects an essential tension between the inherent riskiness and uncontrollability of mega-projects with the risk sensitivity that is so prevalent in the world of executive politics and in its preoccupation with delegated modes of governing and the management of risk.

The paradox here is that mega-projects have increasingly come into vogue just as the political-administrate state has become more interested in measurement, performance, targets, control, the use of markets and the eradication of risk. The pertinent question for scholars of politics and bureaucracy is, as Moran (2001, p. 415) puts it, “Why is the age of the regulatory state also the age of policy catastrophe?” Or to put such a puzzle in more narrow terms, why is it that decision-makers choose to adopt and continue projects subject to such great uncertainties that are also resistant to their preferred tools of evaluation, analysis and administrative control?

**What does Executive Politics tell us, or not tell us, about Mega-Projects?**
The predilection for over-confidence and over-optimism is a feature often observed in bureaucratic planning in grand projects (e.g. Hall 1981; Bovens and t’ Hart 1996; Scott 1998; Hood 1998, p. 149). Indeed, decision-making in the sphere of executive politics – of leaders, cabinets and bureaucracies at national and local levels – is diagnosed as a source of failure of large scale programmes, policies and projects such as in urban development and infrastructure projects, IT projects, taxation systems, schemes aimed at social or economic engineering and in planning for military conflicts (e.g. Allison 1971; Allison and Zelikow 1999; Janis 1972; Hall 1981; Merrow 1988; Butler et al. 1994; ‘t Hart 1994; Dunleavy 1995; McNamara and Van De Mark 1995; Bovens and t’ Hart 1996; ‘t Hart and Gray 1998; Scott 1998; Moran 2001; Flyvbjerg et al. 2003a; Altshuler and Luberoff 2003; Priemus et al. 2008). While it is clear, then, that failures of planning and administration in the realm of executive politics are contributing factors in the under-performance of policies and projects on such a large scale, these symptoms prompt a wide range of diagnoses; for example attributing them to institutional characteristics of the political system, adversarial politics involving parties or organised interests, the pursuit of ideological agendas, pork barrel politics, rent-seeking by contractors or other groups, the failure of elected officials to exert control over unelected bureaucrats, features of group-decision making processes, and modifications to technical specifications or structural requirements of projects and their construction.

Through focusing on executive politics, understood from a number of perspectives and intellectual traditions, it is possible to resolve a number of important questions about the comparative under-performance of mega-projects. This in turn provides insights on the analytical and inferential power of existing theories of executive politics and their validity. Specifically, the analysis explores: 1) the role of high politics and institutions, 2) executive politics and the consequences of the design of project financing and administration (such as in the balance of risk between the public and private sectors), 3) biases in decision-making about project risks, and 4) uncertainties that can impact upon either technical or economic dimensions of mega-projects and
their management. These alternative perspectives on the sources of mega-project failure are first considered, before being applied to a series of well-known cases.

The first of these emphasises the influence of high politics on the under-estimation of risk in mega-projects, where the adversarial conduct of politics, institutional structures and ideological politics shapes the behaviour of decision-makers inside government. Moran (2001, p. 420) suggests that such forces of “confrontation politics” are a source of policy catastrophes, overriding the calculative methods of technical analysis and evaluation that are so popular in the world of executive politics. To understand the political origins of the mega-project paradox, then, one must first examine the role of adversarial politics, and the influence of ideological agendas or pork barrel politics, in addition to identifying those institutional arenas within which decisions about the pursuit, design and management of these large scale projects and policies are taken. In line with such a view of the role of high politics and institutional power in under-performance of large scale public policies and projects, Dunleavy (1995, p. 68) argues that such policy fiascos “are serious and endemic problems of the British political/administrative system” which can be traced to the large scale of British policy making, the speed with which policies and projects are enacted, the relative hyperactivism of the British political system, over-confidence of its administrative elite and to “the periodic failure of internal checks and balances inside the core executive” (ibid). Such explanations geared around institutional design and executive power are liable, however, to over-emphasise the magnitude of effect of system-level factors in the under-performance of mega-projects and to under-emphasise the universal features of executive politics and decision-making that are replicated in mega-projects across different political systems, as well as over time. In contrast, adversarial politics tends to travel across contexts with greater ease.

The second perspective emphasises the direct consequences of executive politics in the use of administrative methods or doctrines such as new public management, regulation, and performance measurement regimes (e.g. Hood 1991; Majone 1994; Power 1997; Moran 2003; Bevan
and Hood 2006) to inform decisions concerning the evaluation and adoption of mega-projects, and as the sorts of mechanisms through which these are financed, designed and delivered. The selection of administrative tools therefore determines how project risks and uncertainties are measured and managed (for example through ‘command and control’ structures of management, public-private partnerships or technologies of risk management and audit). This can give rise to trade-offs between the benefits and blind spots of certain administrative forms. Because of this, the lens of executive politics is useful for evaluation of how certain approaches to public and private management can contribute to the under-performance of projects. Further, mechanisms that are in widespread use in the governance of mega-projects often tend to track wider trends inside executive government; such as the increasing outsourcing of risk to the market, for example in the procurement of goods and services from the private sector, such as from engineering and construction firms, and in the accessing of private capital through public-private partnerships (PPPs) or privately-financed initiatives (PFIs). Further, these sorts of governing arrangements tend to involve networks of stakeholders that are more extended than administration of large scale projects through traditional hierarchical bureaucracies.

Of these perspectives on sources of mega-project failure, the third concerns the effects of biases in decision-making. The performance paradox itself raises the awkward question of why it is that, given the recurring evidence of optimism bias of mega-projects that gives rise to cost over-runs, technical problems and late completion (e.g. Merrow 1988; Flyvbjerg et al. 2002; 2003a; 2003b; Shore 2008), decision-makers repeat the same mistakes again and again in both their planning and management. Mega-events such as the Olympics are, likewise, susceptible to decision-making biases in their organisation (see Jennings 2010; 2012; Jennings and Lodge 2011). Across a wide range of political settings, decision-makers struggle when faced with the uncertainties associated with projections of costs and benefits and in preparing for potential pitfalls of public policies or projects. The most prominent of these biases is over-optimism, reflecting the
more general psychological bias of individuals towards over-confidence in their plans and their ability to complete them (Kahneman and Tversky 1979). In addition to under-estimations of risk that arise from over-optimism, such cognitive biases can be manifested in ‘group think’ (Janis 1972, also see ‘t Hart 1994), in the failure of collective decision-making to challenge assumptions or to consider alternative scenarios. Another example of a cognitive bias that might be linked to the occurrence of policy disasters, and the cost over-runs that tend to affect mega-projects in particular, is the commitment of ‘sunk cost’ errors (Arkes and Blumer 1985), in which decision-makers are resistant to changing course after resources have been committed. Indeed, this decision-making error has also been named the ‘Concorde fallacy’ (Weatherhead 1979; Dawkins and Brockman 1980) in tribute to planners’ continuation of the supersonic airliner project long after it was known to be uneconomic. This bias leads resources continue to be poured into loss-making ventures, failing projects or doomed military actions on the basis of past investments. The physical presence of mega-projects can reinforce this bias in creating the impression that a particular project has unstoppable momentum, with no room for turning back or scuttling it.

Aside from the effects of biases in decision-making, the fourth and final perspective highlights how initial plans or projections of planners are hostage to uncertainties that are inherent to the technical or economic dimensions of mega-projects and their management. In this, the defining characteristics of mega-projects -- i.e. their large scale, dependence on high volumes of goods and services, their bias towards scope creep in project specification, extended time duration and complex procurement (Capka 2004) -- make them exposed to uncertainty in attempts to deliver outputs in line with project objectives and control costs. These uncertainties are manifested both internal to the project, such as in ‘scope creep’ in unplanned changes in technical specifications (which in turn can lead to costs higher than the original estimates), and in unanticipated exogenous shocks such as affecting domestic labour markets or global commodity prices. It is, therefore, also possible to link the under-estimation of project risks and the over-estimation of project benefits in
the worlds of high politics and executive politics with biases that affect decision-making under conditions of complexity and uncertainty.

Through examining the decision-making processes that are integral to the planning and administration of mega-projects it is possible to demonstrate how cognitive biases and unanticipated shocks undermine and ameliorate decisions taken in the world of high politics and attempts at evaluation and measurement in the world of executive politics – such as in the controlling logics of the new public management and the regulatory state. From these perspectives, then, it becomes possible to understand why large scale policies and projects are so vulnerable to failure and, in time, become disasters or catastrophes (setting aside the important question of the social, cultural and political construction of fiascos and crises, see Bovens and 't Hart 1996; Boin et al. 2005; 2008). Once biases that affect decision-making and the scope for unanticipated events in mega-projects are recognised, the performance paradox becomes less surprising, if not predictable in terms of where it will next hit. This observation is not to adopt a fatalist stance of the kind that concerns Moran (2001, p. 415). Rather, it highlights the inherent interaction between high politics, administrative controls and technical features of mega-projects on the ground. It is this that makes mega-projects so impenetrable to attempts both at institutional design and to the rationalist aspirations and technologies of the regulatory state.

THE EXECUTIVE POLITICS OF THE UNDER-PERFORMANCE OF MEGA-PROJECTS

To demonstrate the potential usefulness of executive politics as a perspective on sources of the under-performance of mega-projects, the analysis that follows examines a series of cases, drawn from the United States, France, Canada, Australia and the United Kingdom which date from the 1950s to the present day. The eight cases are selected with no particular claim to this representing a random sample, but rather as exhibiting some of the typical characteristics of an under-performing mega-project or mega-event: whether in terms of the incidence of significant
cost over-runs (the average cost over-run of the cases is around 700%), time delays in completion (the Sydney Opera House was finished ten years late and the Scottish Parliament at Holyrood completed some three years late) or structural or engineering problems. Further, these cases are observed at a number of different points in time, while the sample is drawn from across a range of political settings in conjunction with a number of different models of executive politics (e.g. public-private finance, ‘BOOT’ [build, own, operate, transfer] arrangements with private developers, public investment coordinated through commercial programme managers, state finance). This might or might not be expected to be of consequence both for the composition of high politics and for the mechanisms used in governance of mega-projects (i.e. one would not expect to see strong traces of NPM doctrines in cases before the 1980s, nor would one expect to see hierarchical controls of bureaucracies in the most recent cases). As a consequence, this exercise is designed to ascertain the source of project under-performance across a diverse sample of cases and, as such, the inferences from it should not be prejudiced. Details of each of the cases examined here are listed in full in Figure 1, with the names of the projects also listed below.

- The Sydney Opera House (Australia)
- Concorde (Britain-France)
- The Montreal 1976 Olympics (Canada)
- The Channel Tunnel (Britain-France)
- The Millennium Dome (Britain)
- The Scottish Parliament at Holyrood (Britain)
- Boston’s ‘Big Dig’ (United States)
- The London 2012 Olympics (Britain)

*The Evaluation of Mega-Project Under-Performance*
This set of cases illustrates the dual objective and constructed nature of mega-project under-performance and its interaction with executive politics. For example, in hindsight the Sydney Opera House cannot with any seriousness be described as a policy failure, now being an instantly recognisable global symbol of the city and a focal point for its waterfront development and future events such as the Australian Bicentennial Celebrations in 1988 and the Sydney 2000 Olympics. However, it does exhibit certain characteristics of mega-project under-performance and at the time was considered something of a planning fiasco (see Hall 1981), due to its 1,000% cost over-run (costing A$102 million rather than the initial estimate of $7 million in 1957) and opening some ten years later than the original completion date. Likewise, the Millennium Dome at Greenwich was subject to much scorn from the British public and media at the time, despite the level of cost inflation being low in comparison to the other cases considered here (even the Channel Tunnel), rising just 4% from expenditure of £758 million projected in its May 1997 budget to the final cost of £789 million (National Audit Office 2002, p. 2). The need for a 57% increase in the public expense of the project (funded through the lottery-funded Millennium Commission) was, instead, a consequence of shortfalls against the expected revenues. Later renamed as the O2 arena, however, the project subsequently found commercial success and popularity as the largest indoor, multi-arena entertainment venue in Europe, after being handed over to a private operator. In other examples of tension between objective and constructed perspectives of performance, the Franco-British Concorde supersonic airliner and Channel Tunnel projects were each heralded as national symbols of engineering achievement, despite their long term unprofitability for commercial developers and investors. While it is too early to pass judgement on the long-term success and legacies of the London 2012 Olympics, despite sizeable cost over-runs of around 300% even before the event, the Montreal 1976 Olympics provides an example of the tension between severe cost over-runs, which reached 1,250% above the projections made in its bid to the International Olympic Committee (IOC), and financial debt, and the symbolic benefits of hosting the Olympics and the
legacy of various hallmark structures and sporting facilities (some with their own technical issues, such as ‘the Big O’ stadium, which also became known as ‘the Big Owe’ due to the rising cost of the project and the Olympic Games). The last pair of cases considered here are Boston’s ‘Big Dig’ project (a large scale infrastructure project that rerouted the Central Artery through Boston) scheduled to be completed in 1998 was in fact finished in 2007, at around 500% more than the original cost projections, and construction of the Scottish Parliament at Holyrood that was completed three years late in 2004 at a cost 1,000% above the original forecasts. Across each of the cases, then, is some combination of characteristics including over-runs of the total or public cost of the project, shortfalls against the expected economic benefits of the project and late completion of the project against the original deadline. The sources of this under-performance are next evaluated with regard to high politics, executive politics, decision-making biases and the uncertainties that impacted upon either technical or economic dimensions of the projects.

1) High Politics

Across the cases, there is some evidence of the contribution of high politics -- in its various guises -- as a contributing factor in project under-performance. Construction of the Sydney Opera House, for example, suffered from technical difficulties in specification of the construction of the iconic shells of architect Jørn Utzon’s designs, which had not defined the actual geometry of the designs. Pressure from the New South Wales Government led construction to start in 1959, ahead of schedule, leaving the foundations and podium of the building in place while there were delays in engineering of the roof design. As such, political acceleration of the project during the design stage led to scope creep and increased uncertainty later on. Indeed, the modernist architecture of the Opera House, and its creation of the technical problems later encountered in project management, has parallels with the high modernist designs of the Concorde supersonic airliner project, Montréal 1976’s ‘Big O’ Olympic stadium, the UK’s Millennium Dome, the Scottish Parliament at Holyrood
and the Aquatics Centre for the London 2012 Olympics -- all of which, perhaps with the exception of the Dome, led to technical difficulties or cost over-runs in delivering the project. The design of the Dome, in contrast, proved to be less problematic to construct but had the unfortunate side-effect of creating a political symbol in the absence of any intellectual or ideological content for the planned millennium exhibition (just as the foundations and base of the Opera House had been constructed before designs were complete). The head of the Buro Happold project engineering team described it “…an engineering response to indecision” (Ian Liddell, quoted in Wilhide, 1999: p. 18). The Dome project nevertheless originated in the world of high politics under the Conservative government of John Major and, although the option of cancellation was considered by the new Labour government in 1997 (Select Committee on Culture Media and Sport 1998, para. 16), was adopted as a focus for the modernist aspirations of New Labour's ‘New Britain’. While the decision to continue with the project was notionally taken within Cabinet, a majority were in fact opposed to its continuation but were overridden with the Deputy Prime Minister, who chaired the meeting in the absence of Prime Minister Tony Blair, concluding that the final decision “should be left to Tony” (Rawnsley 2000, pp. 54-56, quoted in Foster 2004). It also been reported around the time that Blair thought the Dome would be “the first paragraph of my next election manifesto” (HC Debates, 13 November 2000, col. 715). Its failure instead turned out to be one of the most visible and embarrassing failures of the first term of the Blair Government, if not the most significant.

While political elements of modernist designs are detectable in most of the projects, there is somewhat less evidence of the influence of partisan or adversarial politics. That notwithstanding, Montréal's bid to host the 1976 Olympics was inextricably linked to the reputation of the Mayor of Montréal, Jean Drapeau, for ambitious projects, who engaged in "...a long, painstaking program of persuasion" (COJO ’76 1978, p. 54) to bring the Olympics to Montréal after an earlier rebuttal in the 1960s. London's bid for the 2012 Olympics was, likewise, politically accelerated, as official guidance on procurement for major projects was ignored in the realm of high politics “...despite HM Treasury
having been consulted and the bid agreed across Government” (Public Accounts Committee 2008, p. 9). Further, construction of the Holyrood building as prospective home to the devolved Scottish Parliament was conducted against the backdrop of the concern of decision-makers with adversarial politics. The historical experience of the reversal of devolved legislative powers to Scotland in 1979, before an assembly could be established, motivated concern on the part of the Labour government, elected in 1997, to ensure that its devolution reforms were irreversible (Fraser 2004, p. 240). This led to prioritisation of project completion above cost control, on the basis of adversarial considerations, echoing the sort of the ‘great leap forward’ politics that (Moran 2001, p. 418) identifies as a source of policy catastrophe. Last of all, high politics was also crucial in the instigation of the joint ventures between French and British companies that delivered the Concorde and Channel Tunnel projects. In the case of Concorde, formal commitment to collaboration on the project was established through a treaty between the British and French governments, rather than through a commercial contract between the airline manufacturers, the British Aircraft Corporation (BAC) and Aérospatiale. Indeed, the initial research into supersonic transport in Britain had been conducted as part of a consortium (the Supersonic Transport Aircraft Committee of the Royal Aircraft Establishment) which included representation from government ministries, airline companies and the major national aircraft and engine manufacturers.

2) Executive Politics

Due both to the extended time frame of the sample of cases -- from the 1950s to present -- and some variation in political institutions there are differences in the pattern of executive politics across the mega-projects considered here. Nevertheless, across all the cases there are similarities in the outsourcing of construction work and project management to private firms, but with the full burden of financial risk transferred to the market in just one of the cases, i.e. the Channel Tunnel, delivered through a ‘build-own-operate-transfer’ (BOOT) scheme. This balancing of financial risk
between the public and private sectors is a significant source of the under-performance of mega-
projects, since it further creates potential for principal-agenda control problems, moral hazard and
rent-seeking by contractors and project managers. As such, certain tools of executive politics, in
particular those focused on market-based mechanisms (such as contracting out and private finance
initiatives) or technologies of measurement (such as cost-benefit analyses) are themselves sources
of the under-estimation of project risks and costs.

While the Sydney Opera House project pre-dated the age of new public management and
the regulatory state by some distance (having been started in the 1950s), its tendering process for
designs and contracting of project construction firm Civil & Civic and engineers Ove Arup & Partners
displays a striking resemblance to the design contest conducted for the Millennium Dome project,
conducted in Britain much later in the 1990s, and to its financing through a state lottery and the use
of private engineering and construction firms to deliver the project (Arup were later responsible for
one of the feasibility studies into the costs of a ‘specimen bid’ by London to host the Olympics). The
Dome was specifically conceived as a vehicle for public-private partnership – in keeping with the
prevailing climate in executive politics at the time – with the government putting the contract for an
exhibition site and operator out to tender. The blind tendering exercise undermined development
of a comprehensive business model, and led to project delays, as the winning design concept of the
Imagination Group Ltd. had to be detached from the National Exhibition Centre in Birmingham and
reformulated for the chosen site on the Greenwich peninsula in London. Subsequent to outsourcing
of the Dome project, however, the government was unable to secure private equity to finance it and
“..[b]y June 1996 it had become clear that the private sector would not accept the risks associated
with mounting the exhibition and that they would therefore have to be met by the [Millennium]
Commission or the Government” (National Audit Office 2000, p. 13). This led to the decision to
deliver the project in the public sector, through a government-owned operating company. When
the Dome suffered shortfalls against expected revenues from corporate sponsorship and ticket
sales, the Millennium Commission (funded through receipts from the national lottery) was required to bailout the project. In planning for the London 2012 Olympics less than a decade later, the public sector was again required to step in to finance the construction of the Olympic Village after private developers withdrew due to the events of the global financial crisis. The failure of attempts to transfer financial risk to the market, suffering from a moral hazard in which private operators were insulated from risk and the public sector was liable for the final bill, was replicated in the business model for the Montréal 1976 Olympics and for the development of Concorde, as well as in the procurement processes for the Holyrood building and Boston's Big Dig. For instance, the Montréal Mayor Drapeau was determined the Olympics would be self-financing, with facilities and venues to be funded through long-term public investments (COJO ‘76 1978, p. 54), leading to a mixed public-private funding model. When the costs of the project increased, however, the resulting deficit of around C$1 billion was bequeathed to the City of Montréal and Olympic Installations Board (OIB), with the Québec government requiring the city government to raise real estate taxes to cover the latter’s share of the debt and with the remainder being amortized through a public lottery and a special tax on tobacco (COJO ‘76 1978, pp. 58-59). Despite initial projections that this income would clear the debt by 1982-1983, it was only paid off some thirty years later. In another example of the problem of moral hazard in the public sector assuming the financial risks of such mega-projects, the Concorde project was operated as a joint venture between British and French airline manufacturers, but under an international treaty between the French and British governments rather than under a commercial contract between the companies. As part of this agreement, the British government alone made contributions to support the project totalling more than £1 billion in current prices (see House of Commons Debates, 10 November 2003, c23W). This meant that an inherently uneconomic project was persisted with well past the point at which private investors would likely have pulled the plug.
In the case of the Channel Tunnel, however, the British and French governments issued a joint invitation for bids and awarding the contract to a private consortium of banks and contractors, as a build-own-operate-transfer (BOOT) project, that divided the design and construction, financing and operation of the project between a number of legal entities. This meant that the final burden of risk resided with the private sector (Stannard 1990, p. 50), unlike all the other projects considered here. Alongside this, the British and French governments acted as final arbiter over engineering and safety issues, later handing these responsibilities over to Channel Tunnel Safety Authority. These arrangements reflected the pre-eminence of NPM thinking during the 1980s, alongside the growing influence of logics of the regulatory state. The cost over-run on the Channel Tunnel project was 80% (with the final cost of £4.65 billion at 1985 prices well above the original forecast of £2.6 billion) which is lower in comparison to those mega-projects in which the public sector assumed the financial liabilities (with the exception of the Millennium Dome project which suffered from a lower rate of inflation in its total cost and public funding). This points towards the importance of executive politics, and its structuring of the problem of moral hazard, in the comparative performance of mega-projects.

In general, however, failure to subject projects to competitive pressure leads to substantial risk both of cost over-runs and late completion. In the Holyrood project, subsequent inquiries into its mismanagement (Fraser 2004; Audit Scotland 2004) found that the complexity of the approved designs and the use of a ‘fast track’ procurement method, instead of a standard private finance initiative (PFI), left the project open to risk. The rush to deliver the project led to failure of decision-makers to fully evaluate the risks inherent to the project (Fraser 2004, p. 240), in particular in the decision, taken without the approval of ministers, to adopt the procurement route of construction management. In presenting the findings of his inquiry into the Holyrood fiasco, Lord Fraser noted that “[a]ny building constructed under the procurement model of construction management costs what it costs.” In this sense, the Holyrood project defied both the influence of high politics and the
evaluative models of the regulatory state and the new public management. In itself, outsourcing of delivery to the market did not introduce competitive pressure on costs, but instead created scope for changes in design and the construction process leading to the escalation of costs far beyond the original forecasts.

3) Decision-Making Biases

Often, the presence of optimism bias in the planning of mega-projects is inferred through the subsequent increase of costs above initial predictions (e.g. Flyvbjerg et al. 2002; 2003a; 2003b). There are numerous reasons, however, alongside over-optimism, why project costs might be underestimated, and some sort of direct or indirect evidence of why the initial cost projections assumed a positive rather than conservative slant. As was noted earlier, the average cost over-run in the eight cases was around 700%, and exceeded 250% in six out of the eight. In some of the cases, at least, there is a basis for the claim that decision-makers were over-optimistic in their original decisions. In the planning for the Montréal 1976 Olympics, Mayor Drapeau’s confidence in the project led him to make the hubristic declaration that the “…Olympics can no more have a deficit than a man can have a baby” (Kaufman 1999), ahead of Montréal proceeding to incur a C$1 billion deficit. Formulation of London’s bid for the Olympics was likewise subject to optimistic assumptions in its use of successful bids of the past as a template for planning that set realism aside (see Luckes 1998). During the post-mortem into the Millennium Dome, a National Audit Office (2000, p. 3) report found that the initial projections of the visitor numbers and income required to sustain the finances of the project “were ambitious and inherently risky.” This over-optimism therefore exposed the project to financial risk. While the rising costs of the Holyrood fiasco were partly attributed to a lack of financial controls in the procurement process, the size of the cost over-run was foremost a consequence of the mythical nature of original projections (with estimates derived from feasibility studies proving an insufficient basis for future budgeting). This led the inquiry led by Lord Fraser (2004, p. 27) to conclude that “the
£40 million figure could never have been a realistic estimate for anything other than most basic of new Parliament buildings,” with optimism having been inherent to planners’ approval of “[t]he so-called budget, which never had any basis in reality” (ibid, p. 66). The optimism of planners about the Channel Tunnel project is rather less clear-cut than the other cases, yet development of the project through the private sector under the Thatcher government during the early 1980s (Gourvish 2006, Chapter 8) was optimistic given that plans for a government-funded project had been cancelled by the Labour government in 1975 after concern over escalating cost estimates, and in view of the long history of false starts of an underground transport link under the channel between France and the UK.

Alongside the over-optimism of planners, another decision-making bias that is a recurring feature in the management of such mega-projects concerns the sunk cost fallacy. This refers to the sensitivity of individuals to their past investments, rather than future returns -- contradicting one of the main precepts of classical economic rationality. The sunk cost fallacy provides an explanation of the phenomenon of escalating commitments, in which decision-makers fail to reverse decisions or behaviours with negative consequences (see Staw 1976, whose article title ‘Knee-Deep in the Big Muddy’ is adapted from Pete Seeger’s song on the fateful escalation of the Vietnam conflict under the Johnson administration). The cases here in which the sunk cost fallacy is most prominent are Concorde -- which gave its name to the decision-making bias observed by Weatherhead (1979) and by Dawkins and Brockman (1980) -- and the Millennium Dome. With costs of the Concorde project continuing to rise, and the economic case for its abandonment becoming ever stronger, there was ongoing deliberation of its future within British government. In 1974, the situation was that it would cost £245 million more to complete the programme than to stop it (Cabinet Minutes, 23 May 1974, p.
At this point in the decision-making process, the sunk cost error, combined with the concern of political elites for symbolic and reputational concerns, kicked in. The Secretary of State for Industry argued that “common sense demanded that a programme which was so nearly completed should be finished” (Cabinet Minutes, 23 May 1974, p. 9) and further that “cancellation of Concorde would gravely damage the reputation of British engineering and our credibility as a reliable partner in collaborative ventures (Ibid, p. 9). At the heart of this reasoning was that “… it might prove difficult for the Government to overcome the reproach of having thrown away for nothing the product of so much effort and expense over so many years” (Ibid, p. 9). While projects like Concorde might often be linked to over-optimism of planners in their original forecasts (e.g. Flyvbjerg et al. 2003a, pp. 18-19), the sunk cost error is perhaps the bias that is most consequential in the escalating cost of these mistakes once the mega-project gets underway.

In the case of the Millennium Dome, after opening on New Year’s Eve, the project suffered a 47% collapse in revenues against the original projections, falling from £359 million to £189 million as a result of shortfalls in the revenue generated through ticket sales and corporate sponsorship. With the project attracting growing criticism and much derision, the Millennium Commission was forced to increase public subsidisation of the project through a succession of rescue grants which raised its contribution from £399 million to £628 million. Much like the decisions to continue with Concorde, the approval of additional grants took into account wider reputational and economic considerations (National Audit Office 2000, p. 2), with the accounting officer of the Millennium Commission writing to the Secretary of State on two different occasions to request instruction to authorize payment of

2 In precise terms, the Lord Chancellor highlighted that “…[t]he cost of completing the programme of 16 aircraft was estimated at £361 million or £400 million if only 11 aircraft were sold; the cost of cancellation would be £120 million, with the possibility of a further £150 million if maximum damages were to be awarded” (Cabinet Minutes, 23 May 1974, p. 8).
additional grants in light of those non-financial considerations. Here, Moran (2001, p. 418) observes, the ambitions of the regulatory state, designed to resist either political or non-economic distortion of decisions failed to prevent continuation of the Dome project despite the clear rationale in favour of its scrapping. The succession of grants paid out in four discrete instalments during 2000—£60 million, £29 million, £43 million and £47 million—created a sunk cost problem, as decision-makers poured additional funds to support the project and avoid a premature closure.

4) Uncertainty

In most of the mega-projects considered here, cost over-runs were linked in some way to unanticipated changes to technical or economic dimensions of each project and their management, reflecting the high number of uncertainties associated with planning. The most widespread of these uncertainties involved scope creep and modification to designs, technical problems in construction, rent-seeking behaviour from workforces and contractors, and exogenous shocks affecting the input costs or projected revenues of the project. In the case of the Sydney Opera House, the programme of construction commenced after selection of Utzon’s iconic designs even while there were delays in engineering of the roof structure. This absence of definition of the original project scope, added to changes in the design of the main concert hall and other aspects of the project, contributed to an escalation of costs above initial projections. Similar uncertainties about the technical designs of the Concorde project (in particular its performance, engine noise and sonic boom), cost and commercial revenues led to political indecision over its future as “…the prospects for the project could not be assessed” (Anthony Wedgewood Benn, Minister of Technology, Cabinet Minutes, 1 August 1968, p. 5). While over-confidence in the realm of high politics was a factor in Montréal’s decision to bid for the Olympics, the eventual cost over-run was attributed to “a long series of body-blows, including technical difficulties that could not have been foreseen” (COJO ‘76 1978, p. 15). These unanticipated problems with technical designs were due to complexity of designs for the Olympic velodrome and
the belated discovery of fissured subsoil on the main site, requiring the digging of new foundations. Similar increases in the cost of a number of venues for the London 2012 Olympics also resulted from modifications to structural requirements and, in a notable parallel with Montréal, its velodrome was also subject to cost pressure because of “complex foundations and ground conditions” (Department for Culture, Media and Sport 2009, p. 47). For Montréal, effects of the global economic downturn during the early 1970s, and inflationary pressures in particular, added to the inflation of costs, while labour disputes resulted in delays of the project that had to be offset with increased expenditure on overtime. The Concorde project also suffered in this economic environment, as forecasts about its commercial revenue stream became increasingly uncertain as a result of order cancellations due in particular to the effects of the oil price crisis of 1973 on the civil aviation industry and the financial difficulties of a number of airline firms.

In other cases considered here, too, cost over-runs were directly linked to scope creep in the technical specification of projects. The escalation of costs of the Channel Tunnel was, for example, attributed to changes in technical specification regarding environmental factors, safety and security of the train link (Flyvbjerg et al. 2003a, pp. 96-97). While the cost over-run incurred in construction of the Holyrood building was attributed to inflationary pressures from the method of procurement and a prioritisation of quality over cost, changes to the technical specification of the project were also a contributing factor in the increased costs. In particular, major changes in requirements of the area and layout of parts of the building were not frozen in the planning process until as late as June 2000 (Audit Scotland 2004, p. 18). In some instances, uncertainties affected the balance of public-private finance for the project. The events of the global financial crisis led to a contraction of credit markets and investors willing to finance development of the Olympic Village for the London 2012 Olympics. This led the project to be taken back into public ownership, since the private sector was unwilling to assume the risks of the project (National Audit Office 2010, p. 13). Other changes in technical scope
of the plans for London 2012 included the expansion of security planning as well as enhancement of the design of certain venues.

Overall, these different sources of project failure offer some important insights both for the study of mega-projects and for our understanding of trajectories of reform in executive politics. In particular, similarities in under-performance are replicated across a number of cases, regardless of the political context or point in time. While the sorts of formal controls favoured by the regulatory state seem to have been all but missing from the case of the Sydney Opera House, its combination of over-optimistic planning and scope creep, fuelled by political pressure to get the project started as soon as possible, seem to be the principal causes of under-performance of the project much like most of the other projects. In the case of Montréal, too, technicalities of project management were the critical factor in the magnitude of the cost over-runs, although the ambitions of high politics were made to look especially foolish because of them. While the cost over-run for the Concorde project was a product of over-confidence in initial forecasts of both costs and commercial revenues, along with technical uncertainties inherent to the project and exposure to unanticipated shocks in the civil aviation industry, the weight of the losses could have been avoided if sunk cost errors in the decision-making process had been avoided. Here, then, the persuasiveness of Moran’s (2001, p. 415) thesis that policy disasters are attributable to failure of penetration of the logics of the regulatory state. Indeed, the presence of such project failures well before the dawn of the age of the regulatory state is testament to that claim. Meanwhile, at the height of the popularity of NPM doctrines and market values in public management in the late 1990s, the Millennium Dome project managed to resist the technologies of the regulatory British state, both in its over-optimistic assumptions and its investment of good money after bad, as its financial model of the project collapsed. Across all the cases, with the exception of the Channel Tunnel (which perhaps by no coincidence was one of the best performing), moral hazard was the underlying source of cost over-runs and late completion, as
private contractors or operators (and other rent-seekers) were insulated from financial risks and the public sector was liable for the final bill.

**CONCLUSION**

Wherever and whenever governments have sought to undertake projects and policies on a large scale, through their own bureaucracies or through delegation to private designers, engineers, constructors and manufacturers, the phenomenon of mega-project under-performance has often been replicated across both time and space. While high politics and institutional forms of executive politics are of some importance in determining where and when the critical decisions are taken, and in determining the level of political and symbolic distortion of these decisions, the essential features of under-performance related to general characteristics of poor or insufficient technical design, lack of foresight, technical difficulties or adjustment, scope creep and exposure of large scale projects to unanticipated exogenous shocks, in relation to costs, benefits and other aspects of planning.

While it is possible to diagnose over-optimism as an essential feature of the performance paradox of mega-projects, in historical and comparative perspective this over-confidence in initial forecasts and mechanisms of control, in particular in the age of the regulatory state, are realised in practice through sunk cost errors and the technical evolution of projects to their final end. To some, this might be viewed as a fatalist perspective of planning and design processes. However, in terms of analytical parsimony and causal explanation it highlights the over-determination of the causes of policy disasters in studies such as Dunleavy’s (1995), since the absence of political checks and balances, and the failure of penetration of logics and technologies of technical evaluation and control of the regulatory state, are insufficient to prevent under-performance. Make no doubt, such views of executive politics are important in establishing the sorts of institutional and administrative design that can help ameliorate both the frequency and severity of policy disasters, catastrophes, fiascos and mega-project failures. So long as there are grand projects with reputation and symbolic
features, political elites will adopt them against rational logics and technologies of evaluation and measurement. It is possible, however, to blame political institutions and adversarial politics, when complex interdependence of decisions is a crucial factor in leading to the end result of these cases. While high politics and high modernist logics each provide important insights into the broader environment of ambition and design within which such mega-projects are adopted and planned, the technical evolution of projects and their administration are equally if not more significant as such projects spiral out of control. The inherently problematic nature of decision-making under conditions of uncertainty is prone to the use of heuristics which, in turn, drive particular biases one way and then the next. In this analysis, for example, it is apparent that over-confidence in initial planning and projections is often replaced with sunk cost errors in the later stages. These cognitive processes might be argued to be enabled due to the incomplete penetration of the regulatory state, but at the same time there is a case that the controlling aspirations of the regulatory state lead to over-optimism in the capacity of technologies of foresight, evaluation and control to overcome these biases and mitigate exogenous shocks. Often in these cases, the inherent uncertainties that lead to mistakes in decision-making are present from the moment at which the original terms of the project are defined and from which point the momentum of the project often moves at greater pace than the teams of auditors, regulators and overseers trailing in their wake.

Whether or not it is possible to construct panoptic systems of measurement and control that prevent these cognitive biases and are resilient to exogenous shocks is a question for another day. What is important to note there is that much of the evidence here on executive politics points us in the direction of the banality of the (administrative) sources of project under-performance rather than distinctive institutional failures of planning, design and public-private management due to high politics or the dispersion of power in decision-making. The question ‘who is to blame?’ in the creation of policy disasters is quite different from that of ‘why do things go wrong?’ More often than not, the decision-making processes that contribute to the under-performance of large scale public
projects and policies exhibit similarities despite considerable variation in the institutional context in which these occur.

Is it true then, as Dunleavy (1995, p. 52) claims, that "...Britain now stands out amongst comparable European countries, and perhaps amongst liberal democracies as a whole, as a state unusually prone to make large-scale, avoidable policy mistakes"? The cases presented here could not be said to have been subject to random sampling. However, it is clear that there are recurring features across political and institutional contexts which reveal that high politics and executive politics are far from the only stories in town. Indeed, since Dunleavy’s claim the emergence of an impressive and extensive literature on policy fiascos and crises with cases clustered around the low countries of Europe and Scandinavia (e.g. Bovens and ‘t Hart 1996; ‘t Hart and Gray 1998; Anheier 1999; Brändström and Kuipers 2003; Boin et al. 2005; Resodihardjo 2009) suggests this is far from an Anglo-centric problem. Further as the logics and technologies of both NPM and the regulatory state spread across a growing range of political settings the incomplete penetration of technical processes of evaluation, measurement and control (Moran 2001, p. 415) may well be replicated in other contexts, giving rise to new and distinctive policy catastrophes regardless of the institutional design of checks and balances.
References


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**Figure 1. Executive Politics and Mega-Project Performance**

<table>
<thead>
<tr>
<th>Case</th>
<th>Date</th>
<th>Political Institutions</th>
<th>Politicisation</th>
<th>Executive Politics</th>
<th>Over-Optimism</th>
<th>Scope Creep, Technical Problems &amp; Unanticipated Shocks</th>
<th>Sunk Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concorde</strong></td>
<td>1962-1976</td>
<td>Parliamentary (UK) / Presidential (France) systems National Government</td>
<td>Symbolic concerns over technological and engineering prowess.</td>
<td>Treaty between the French and British Governments, penalties for cancellation of the project. Joint venture between private companies, British Aircraft Corporation (BAC) and Aérospatiale.</td>
<td>Cost ↑ 1,100%</td>
<td>Order cancellations due to a range of factors, in particular the effects of the 1973 oil crisis on the civil aviation industry, financial difficulties of airlines, environmental concerns and air show crash of the Soviet competitor aircraft.</td>
<td>Cost of cancellation cheaper than continuing with project known to be uneconomic (some uncertainty over legal liability according to the treaty between the countries).</td>
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<tr>
<td><strong>Montreal 1976 Olympics</strong></td>
<td>1970-1976</td>
<td>Federal System: Montreal City Government / Private Bid Corporation</td>
<td>Jean Drapeau, Mayor of Montreal renowned for ambitious projects.</td>
<td>'Self-financing model' under the Organizing Committee for the Olympic Games (COJO '76), but with financial guarantees from the City of Montreal.</td>
<td>Cost ↑ 1,250%</td>
<td>Changes in technical specification of Velodrome (due to subsoil), commodity price inflation and general price shocks.</td>
<td>Cost of reputational failure too high to cancel.</td>
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<tr>
<td><strong>Channel Tunnel</strong></td>
<td>1981-1994</td>
<td>Parliamentary (UK) / Presidential (France) systems</td>
<td>British Government not interested in funding the project. Supported private leadership of it.</td>
<td>Privately financed venture.</td>
<td>Cost ↑ 80%</td>
<td>Changes to the technical specification of the project in relation to environmental factors, safety and security.</td>
<td>No</td>
</tr>
<tr>
<td>Project</td>
<td>Period</td>
<td>System</td>
<td>Government/Politics/Planning</td>
<td>Funding/Procurement</td>
<td>Cost Impact</td>
<td>Time Impact</td>
<td>Shortfalls/Contingencies</td>
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<td><strong>Millennium Dome</strong></td>
<td>1992-2001</td>
<td>Parliamentary, National</td>
<td>Tony Blair considered it the 'first paragraph' of his re-election manifesto, overriding majority of opposition from Cabinet.</td>
<td>The New Millennium Experience Company (NMEC), financed through Millennium Commission grants and commercial revenues from ticket sales and sponsors.</td>
<td>Cost ↑ 4%</td>
<td>Public Cost ↑ 57%</td>
<td>On Time</td>
</tr>
<tr>
<td><strong>Scottish Parliament at Holyrood</strong></td>
<td>1997-2004</td>
<td>Quasi-Federal, Devolved</td>
<td>Political desire to fast track the project. Preference for ‘quality over cost’ in planning.</td>
<td>Publicly financed, contractors secured through tendering process, a joint venture between EMBT and RMJM Ltd.</td>
<td>Cost ↑ 1,000%</td>
<td>Time ↔ 3 yrs</td>
<td>Major changes in the client requirement for the area and layout of parts of the building.</td>
</tr>
<tr>
<td><strong>Boston’s <code>Big Dig</code></strong></td>
<td>1982-2006</td>
<td>Federal, State</td>
<td>Limited politicisation. Presidential veto in 1982, but appropriation given congressional approval soon after.</td>
<td>Partnership between the Massachusetts Turnpike Authority and private program manager Bechtel/Parsons Brinckerhoff</td>
<td>Cost ↑ 500%</td>
<td>Time ↔ 9 yrs</td>
<td>Technical problems with leaks (in ceiling and wall fissures) requiring repairs, allegations of use of sub-standard materials, criminal indictments over deaths due to a roof collapse which also led to its closure for a period.</td>
</tr>
<tr>
<td><strong>London 2012 Olympics</strong></td>
<td>1997-2012</td>
<td>Parliamentary, Public/Private Bid</td>
<td>Cross-party support for London's bid, but received support both of Tony Blair and London mayor Ken Livingstone in final lobbying of the IOC membership.</td>
<td>Olympic Organizing Committee financed through commercial activities. Financing of infrastructure by government, to be delivered by private consortia.</td>
<td>Cost ↑ 290%</td>
<td>On Time</td>
<td>Addition of value added tax, security and a programme contingency to the budget for the Games. Shortfalls in private financing of both the Olympic Village and infrastructure for the Olympic park/</td>
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