Finding out why government mega projects fail management essay

Main purpose of this report is to identify the common failure factors by evaluating past cases of Government Mega Projects and describe the impacts of identified factors on project performance. Emphasis is given to the grouping of failure factors and the identification of individual and common factors for pursuing three different types of mega projects: Infrastructure, Aerospace projects, and Stadium and sports events. set of three different cases will be accessed to find common failure factors in a different kind of mega project management.

The results show that poorly defined project communication management, project scope management and project integration management are the common factors in all studied GMP. The findings are encouraging and will be helpful in the evaluation of most types of the mega projects. Moreover, result will give detailed affecting factors that can be considered beforehand.

Only a few study reports in the project management literature concentrate on the common factors that affect different types of mega project success or failure. Whereas many of these studies generate lists of critical success/failure factors, each list varies in its scope and purpose.

The main purpose of this report is to find out the common failure factor by evaluating past cases of mega projects and describe the impacts of that factors on project performance. Here, more focus is given to the grouping of failure factors and the identification of individual and common factors for pursuing three types of mega projects: Infrastructure, Aerospace projects, and Sports and sports events. The report is accessibly written for a broad audience and provides a convenient framework for addressing megaprojects

as a generic species. Many critical factors, such as factors related to project manager's performance, factors related to team members' environmental factors, lack of accountability and risk assessment became apparent with this study report.

This report will study GMP cases related to infrastructure, sports and airport construction and expansion projects. They were chosen as a study area because that area generally gets tremendous public attention. Three different cases within each area are included in this report. The correlation between each case studies findings and project management knowledge area will help understand, what are the common failures factors pertaining to knowledge areas. To recommend factors that have been neglected in past GMP and will need particular attention in future projects. The following are included GMP case studies and explained: Aerospace projects: Heathrow Terminal 5, Britain and France Concorde, and Denver International Airport; Infrastructure: Nassau Expressway Project, The big dig, and Channel Tunnel; Stadiums and sporting venues: Wembley stadium, London Olympic, and The Montreal Olympics 1976

1. 1 MEGA PROJECTS: Definition of mega-projects differs. Most are vague and tied to a specific project types (Qing, 1998 ; Gellert & Lynch 2003, p 15). The US Federal Highway Administration defines mega projects as an infrastructure investment project with a significant cost that is generally more than $1 billion or a cost that attract a political interest or a high level of public attention because of substantial indirect and direct impacts on the environment, community and budgets (Flyvbjerg, et al., 2003). Example of mega-projects are aerospace projects, airport construction and expansion,

water infrastructure projects, rail and rapid transit projects, stadiums and sporting venues, oil and gas extraction projects, military projects, weapons systems , building projects, dam and canal projects, power plants, information technology systems and Infrastructure and transportation (Arditi, et al., 1985; Flyvbjerg, et al., 2003).

1. 2 IRON TRIANGLE:

In most of the past studies, assumed that if projects completion time exceeded its due date, or expenses overran the budget, additionally, outcomes did not satisfy a company's predetermined performance criteria, the project was believed to be a failure. Any mega projects ultimate goal is delivering all that has been promised and planner -on time and within budget and scope also known as ' Iron triangle'. However, Weaver (2010) argues that Iron triangle is not enough, in many parts of the world, ignoring the aspects such as social, environmental and many more can cause projects to fail. Besides, It is complex to determining whether a project is a success or a failure . Delays in project completion times are common. Tukel and Rom (1995) noted that delays in project increases overall project costs. However, some of these projects are still considered successful. On the other hand, the other stakeholders might perceive a project that is considered as a success by a project manager and team members as a failure. Hence, some of the included cases are to focus entire life cycle of projects that are considered in terms of environmental, social and economic sustainability and feasibility of the project.

METHODOLOGY

Adapted methodology will be explained in this section . justification for selection of case studies will be given. Total sum of nine (9) cases of government mega projects will be analysed in this report. All the selected cases have two things in common all of them required significant modifications during the construction of the project due to unexpected conditions and required the use of new technology. All the selected cases are an example of cost and time overrun except Concord and Heathrow terminal 5, in these two uniquely compelling cases there were some factors that identified pertaining to project management area.

Overall, selected project case studies will demonstrate, various factors that identified during the course of the project, additionally had significant effects on the overall project. The factors that caused for cost and schedule deadlines overrun, along with the factors related to Project Management Knowledge Areas will be analysed and discussed in through the case studies. The Project Management Knowledge Areas are to organize the project management processes, and the Project Management Process is grouped into nine Knowledge Areas. These areas are Project Integration Management, Project Scope Management, Project Human Resource Management, Project Time Management, Project Cost Management, Project Quality Management, Project Communications Management Project Risk Management and Project Procurement Management (Source: Project Management Institute, 2004, pp. 9-10).

More importantly, the case study covers various Project Management Knowledge Areas within four project phases wherever applicable: inception,

development, implementation and closeout. Each case of GMP will be introduced, issues in context with project management will be identified, and conclusion will be given at the end. The case studies will be structured to allow an evaluation of the systematic processes of various Project Management Knowledge Areas in the discussion section of this report in order to provide a recommendation.

ANALYSIS OF THE CASE STUDIES

The following section addresses all selected 9 GMP case studies and informs affecting factors for pursuing three types of mega projects: infrastructure, stadiums and sporting venues, and airport construction/ expansion projects. Each GMP case study will be introduced, Issues related to project management will be identified and explained. Finally, conclusion will be given pertaining to the project management knowledge area.

AIRPORT CONSTRUCTION AND EXPANSION PROJECTS

HEATHROW TERMINAL 5

Introduction:

Heathrow Terminal 5 (referred as T5) has been recognized as one of the most successful UK construction project. T5 was completed on time and budget. Potts(2006) describe this culture as a watershed, where environment of problem solving is created for early stage As Merrow(2013) noted as a Front end loading work(FEL) where information is shared and collaboration take place. This collaboration can be achieved through, an emphasis on project integrated management.

Issues Identification:

T5 was planned solely for British Airways' (BA). Operation of T5 began on 27 March 2008. From the first day flights was cancelled and passengers were stranded, not only that, over 15000 baggage pieces were lost. House of Commons Transport Committee (2008) reported that mentioned issues and blunders resulting from inadequate preparation of BA staff and poor planning.

The House of Commons report (2008) provided the following information: Baggage handlers had not been adequately trained . additionally they did not have any backup or support on this extremely first day. The actual delays and failures that caused the disaster were all of relatively short duration, caused a ' normal accident' of considerable proportions (Perrow, 1984)

Whether the focus was on the the unsuccessful opening of T5 or the successful construction, the common element of both the success and the failure was the soft skills of project management that are stakeholder engagement and effective communication.

Conclusion:

Project Risk Management

Project Integration Management

Project Communication Management

Britain and France Concorde

Introduction:

Concord is the best example of the problem of moral hazard in the public sector considering the financial risks of mega-projects. It was a result of a joint venture between British and French airline manufacturers but under an international treaty between the French and British governments than under a commercial contract between the companies.

The Concorde operations did not make losses. On the other hand, Concorde made an operating profit of approximately 50 million a year for BA. In total BA made Approx. £1. 75 Billion in revenue for services against an operating cost of around £1 billion in sum of 27 years of concords commercial operation.(1976-2003). The decision of concord's closing down was made in 2003. However, ICMR(2003) analysis on the Concord life cycle informs that it remained a niche product, patronized by the high end members of the society and with costs of the Concorde project continuing to raise, and the economic case for concord abandonment was becoming ever stronger.

1. 2. 2 Issue identification:

The project was set up with little regard to the most basic rules of project management, such as a clearly identified leadership issues, there was no one in charge. Additionally a project's success chances were severely compromised by mainly two external factors, firstly, changes in fuel prices, and secondly, environmentalist opposition. In addition, the cost of travel was exceptionally high. At the end of closure of Concord, in the decision-making process, the sunk cost error, combined with the concern of political elites for

symbolic and reputational concerns, kicked in. The Concorde failed because the market was not ready for commercial supersonic travel. Jennings (2012) noted that concord is a victim of high politics. Concord is a remarkably good example of technical success and commercial failure of the mega project management

Conclusion:

Project Cost Management

Project Human Resource Management

Project Procurement Management High politics

Project Risk Management

1. 3 Denver International Airport

1. 3. 1 Introduction:

Poor decision-making can be one of the key factors for project failure, and the Denver Airport is a classic example. There was a need for a larger capacity airport, hence the city to construction of new state of art of the airport. This was going to be the largest airport in the United States with a land area of 140 KM2, capacity to handle 50 Million passengers per Annum (Neufville, 1994) at the time. The Denver airport construction cost was estimated around $1. 8 Billion, however final cost was more than $4. 8 billion.

1. 3. 2 Issue Identification:

A change in strategy: At the beginning of the project, strategic decisions were made that including set of the project direction. In the GMP case, a strategic error was made that concluded in flip-flop in part way through the project life. Such as, at the time of the bidding process the project management team assumed that each airline will make their own baggage handling arrangement (Poly & Schloh, 1996). However, Airlines had not made any arrangements and given the fact that the airport was not yet fully leased out.

Changes in strategies were inevitable as an integrated project management process required centralise control. Project management team being the only group with the ability to run the project. It is certain that the time management was extremely poor. This resulted in expenditure to maintain the empty airport costing Approx. $1. 1Million per day throughout the delay (Gibbs, 1994)

The decision to proceed: It is understandable factor of changes in strategy. However confusing parameter is why all the stakeholders decided to proceed with project construction in spite of there were clear indications of short comings in the objective and little time left for the project to complete. The main reason for chaos was associated with the baggage system, resulted the opening of the airport delayed by a full 16 months.

The Denver airport also suffered from pursuing factors: The underestimation of complexity ; Lack of due diligence ; A lack of planning resulting in subsequent changes in strategy ; Failure to understand the implication

change requests might have ; Making firm commitments in the face of massive risks and uncertainty ; Poor stakeholder management; Excessive schedule pressure ; Communications breakdowns; Poor design; ; Lack of management oversight(Calleam Consulting , 2008)

1. 3. 3 Conclusion:

Project Communication Management

Project Integration Management

Project Risk Management

Project Human Resources Management

Project Quality Management

Project Time Management

Project Scope Management

2 Infrastructure Mega Project:

Nassau Expressway Project

Introduction:

In the 1960's, the New York State Department of Public Works (NYDPW), began the planning processes for the 10-mile Nassau Expressway. The planning process, at the time, consisted of determining, the optimum alignment for the highway, based largely on engineering and cost considerations.

Issue identification:

Planning irrationalities: The most common institutional conflict for the Nassau Expressway project was between technical/design standards (technical rationality) and environmental standards (ethical rationality), in accordance with the planning relationalities described by Goulet (1986). Construction work had been stooped for eight years during it's life cycle.

Funds: There is no dedicated funding for highway capacity improvements. Another factor that complicates the funding for the Nassau Expressway is that the project is located in two different political jurisdictions and two different regional offices, each with a different constituency and different priorities.

Public participation: The public participation record shows the involvement of many community groups and local elected officials who were opposed to the project. The project team failed to consider ethnicity (Yiftachel 2006) in its assessment of community cohesion early in the planning process. Scott's (1998) review of the high-modernist approach to planning for generic unmarked citizens may also be relevant here.

2. 1. 3 Conclusion:

Project Cost Management

Project Communication Management

Project Procurement Management

Project Scope Management

Project Human Resources Management

Project Time Management

THE BIG DIG:

Introduction:

Boston's Tunnel Project is also commonly known as the Big Dig. In the NASA Article (2012) on big dig addressed big dig as the largest, most complex, and most technically challenging highway project in American history. Famous for cost increases. Its initial estimated cost was $2. 56 billion finally costing $14. 8 billion in 2007.

2. 2. 2 Issue identification:

Transparency: Big Dig data reported that the impact of inflation is a crucial cost-escalation factor causing half of the cost growth. However, Greiman (2012) argues that the actual rate of inflation do not support the claim, on the other hand, additionally noted that increase can be attributed to an unrealistic initial cost estimate.

Design and Construction Risks: Project documents showed that the challenges of subsurface conditions were substantially underestimated. The surprises included uncharted utilities, environmental problems, weak soil, ground-water conditions, and hazardous materials.

Diverse set of stakeholders: The unexpected discovery of 150-year-old revolutionary-era sites and Native American artefacts was one surprise complication and source of delays,

Integrated Project Management: The Big Dig relied on an integrated project management team where involvement of all stakeholders were needed in decision making processes. However, the Big Dig's project organization was not fully integrated until mid of 1998,

Conclusion:

Project Communication Management

Project Integration Management

Project Risk Management

Project Human Resources Management

Project Quality Management

Project Time Management

Project Scope Management

CHANNEL TUNNEL

2. 3. 1 Introduction:

The Channel Tunnel is a train tunnel running underneath the English Channel between the France and UK. The project planned for 5 years whereas took 6 years with about 80% over budget (at 4. 6 billion pounds vs. a 2. 6 billion pound forecast)(Moore, 2011).

2. 3. 2 Issue identification:

Changes in specifications for the construction of the tunnel. It was inevitable to have air conditioning systems to help improve safety. It was not included

the initial design resulting US $ 200 million scope increased (Veditz, 1993, p. 20).

This project had involvement of 700, 000 stakeholders and 220 lending banks (Genus, 1997, p181). The interdependency of these stakeholders made it difficult to address issues to everyone's satisfaction. As issues were not resolved in time can affect cost and time of the project (Anbari et al. p 9)

Over optimism planner, another interesting fact of this project was that a lot of revenue was projected. However, analysis ignored the presence of ferry operators and budgeted airline, it was not foreseen that they would react to this.

2. 3. 3 Conclusion:

Project Communication Management

Project Scope Management

Project Cost Management

Project Integration Management

Project Risk Management

Project Time Management

STADIUM AND SPORTS EVENTS

3. 1 Wembley stadium

3. 1. 1 Introduction:

Wembley stadium is known as home of English football and was rebuilt in the 2000. There was a significant amount of cost overrun additionally project took 5 years more that first estimated.

Issue identification:

Bidding Process : The contract was awarded to the lowest cost bids. It can create a winner's curse situation, it is more likely, in this sort of situation that the winner can be too aggressive in actual cost estimation process. There was a rise of 36 % in between acceptance of bid and the signing of the contract.

An unprecedented design: The construction of an arch was problematic, where the contractor originally appointed for the arch was replaced midway through the project that caused delay in project construction.

Lack of effective communication: The flow of Information during the project construction was never straightforward . there was legal action between the contractor, other stakeholders and sponsor of the project. Any delay had immediate implications for profitability. There was less willingness to conduct work in parallel between the sponsors and contractor due to mistrust of completion. Additionally, there were some changes in a project scope, However, the construction of the arch was a key factor in the delay (Strategic PPM, 2013).

Conclusions:

Project Communication Management

Project Integration Management

Project Risk Management

Project Human Resources Management

Project Time Management

Project Scope Management

Project Procurement Management

London Olympic

3. 2. 1 Introduction:

London Olympics was a massively complicated set of projects. It had to be coordinated and sequenced to come together seamlessly on time; in a concentrated period of activity; with an unmoveable deadline. That required both exceptional project management and delivery within individual organisations but also outstanding programme management to integrate what all the individual bodies were doing.

The original budget was £2. 4 billion, but this was increased almost fourfold to about £9. 3 billion. Was this budget a success? Jennings (2012b) informs it is too early to pass judgement on the long-term success and legacies of the London 2012 Olympics, despite sizeable cost over-runs. Further to this Flyvbjerg (2013) noted that although London 2012 is beset by the budgeting

pitfalls that have plagued all the Olympics since past 50 years, this should not affect the fact that London was on-schedule and fit for purpose.

3. 2. 2 Issue identification:

Bid Process: bid for hosting the game was a modest £1. 8 billion Jennings (2012b). Interest of short term in securing the event can lead to underestimation of the required commitment. This was increased to £ 4. 4 billion in submitted bid dossier and revised to 9. 325 Billion in government review of budget in 2007. This consists with evidence on the biases of mega projects considering cost inflation (Merrow 1988b, flyvbjer et al. 2002; Jennings & Lodge, 2012)

Scope Creep: One of the major factors of cost overruns in any mega project management is scope creep where growth in project specifications takes place. This can result from poorly defined project scope. For example, some changes in the design of the stadium roof that led to cost pressures for the main stadium for London 2012(Olymponomics, 2012). additionally lack of risk assessment were one the most vital factors in London Olympic cost overrun. Despite the attention of organizers to risk in the process of planning. Olympic planning can be viewed in the same way as Clarke's (1999) noted a characterization of disaster plans addressed as a fantasy document where stakeholders fantasise about their ability to cope with disaster.

3. 2. 3 Conclusion:

Project Procurement Management

Project Scope Management

Project Human Resource Management

Project Cost Management

Project Communication Management

The Montreal 1976 Olympics (Canada)

3. 3. 1 Introduction:

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. 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 Montreal Mayor 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 Montreal and Olympic Installations Board (OIB). The Québec government requiring the city government to increase property taxes to cover the latter’s share of the debt and with the remainder being amortized through a public lottery and a significant tax on tobacco (COJO, 1978, p. 58-59). Despite initial projections

that this income would clear the debt by 1982-1983, It was only paid off some thirty years later.

3. 3. 2 Issue identification:

Velodrome for Montreal design was modified because of the discovery of unstable and weak soil that factor had been missed by earlier geological studies, this was one of the major factors in cost increment.

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 Montreal 1976 Olympics

Conclusion:

Project Scope Management

Project Cost Management

Project Communication Management

INTERPRETATION OF THE RESULTS

In this section, an interpretation of the findings from the analysed case studies will take place. The findings have been categorised and codified for statistical analysis purpose. Statistical analysis will calculate the results to provide the list of project management area that are emerged from all the reviewed cases. This will also give the common factors that are affected GMP.

The results show that the GMP failure factors broadly fall into pursuing four categories, people, planning, control and execution. The sources of projects under-performance are next evaluated with regard to project management knowledge areas and uncertainties that affected upon either technical or economic dimensions of the projects.

The Following figure shows presence of lack of effective communication management and elected in 28 % of the cases. Project scope management emerged in 24 % of the assessed cases. It is certain from the results that communication and scope are the most ignored area in studied mega projects.

The above Pie chart represents the following factors:

Project Communication Management (7 out of 9 cases)

Project Scope Management (6 out of 9 cases)

Project Integration Management (4 out of 9 cases)

It is certain from the results that effective communication, clearly defined project scope and integrations of the project team are significant factors. In the following part, this area is explained and discussed in details.

4. 1 PROJECT COMMUNICATIONS MANAGEMENT

Communication is itself a human endeavour, and the complex communication that may be necessary for managing stakeholder relationships within an organisation or around its activities requires planning, monitoring and leadership (Weaver, 2010 p 23). The team must apply

analysis, skills and experience to succeed in communicating to engage stakeholders.

GMP : Channel tunnel and Wembley Stadium are a compelling example, where poor communication meant that senior managers were often less informed about project status than junior employees. Similarly, with London Olympics despite taking previous cases in to account London Olympic management fail to implement the measures.

4. 2 PROJECT SCOPE MANAGEMENT:

The major source of cost increases in mega-projects is project scope creep i. e. uncontrolled growth in project specifications. The scope of the project grows as it is developed, adding unanticipated elements and unforeseen complexity (Poole & Samuel 2011 p 4). Typical risks in large-scale or mega projects include: Changes in project scope and requirements (PwC, 2013 p 5). This can result from inadequate definition of the poor controls or project scope in management.

GMP: In the case of London Olympic, changes in the design of the roof of stadium led to cost pressures. In Wembley stadium, there were some scope changes; it appears that the construction of the arch that was a key factor in the delay. Whereas in the case of Heathrow terminal 5 BA spent £ 25 Million on prior roof trial. In the case of the Wembley stadium, contractors were asked to leave the work in the middle, and others were appointment it causing further delay and cost escalation this example demonstrate the significance of project cost management area. It demonstrate the significance of funds availability and collaboration between sponsor and

contractor, it is important for them to work together in order to achieve common objective in a project.

4. 3 PROJECT INTEGRATION MANAGEMENT:

This process coordinates all the other areas in order to work together throughout the project (PMI, 2013). Howitz (2010) noted that in integration Management, when the project is started, the plan is assembled, and the work is monitored, and verification of the results of the work is performed. At the end of the project, the project manager also performs the tasks associated with closing the project. Other knowledge areas are crucial; however, Integration Management is the area that covers the most control and management of the entire project.

GMP: In the GMP case of the Heathrow airport BA failed to properly engage their esteemed stakeholders staff yet expected them to be able to offer service to BA is other relevant stakeholders travelling public. BA failed because it failed its stakeholders, and paid the price of a tarnished reputation. On the other hand, in the case of big dig unexpected discovery of 150-year-old revolutionary-era sites and Native American artefacts led to a diverse set of stakeholder's identification that was a surprise complication and source of delays.

Overall Lesson Learned:

8 out of 10 GMP fall victim to cost escalation and time overrun.

Government Mega projects need to be carefully planned, adapting proved tools and techniques of project management.

Technical specifications and requirements need to be defined, moreover, should be validated at early stage to strengthen time and cost estimates.

It is vital to have strong change management plans, additionally it should be maintained throughout the project life cycle.

Projects stakeholders' responsibility and rolls should be defined up front to minimize risk and maximize efforts to control.

There should not be rushed in contracts or financial related agreements, each involved party should share risk with properly planned contingencies.

The project management team must have enough authority to behave in the interest of the project.

Successful projects and political issues cannot be mixed very well.

Slowing down is the key. Rushing through the project when there are technical problems that complex the risk factors.

RECOMMENDATIONS:

Mega project has been the hot pursuit of many cities and areas with its glorious appearance and versatility. As there are flowing of global finances, technologies and talents, more and more mega projects are being constructed around the world, and this trend will definitely keep for a long time. At this background, the researches of mega projects also become more and more popular. Some scholars study the micro factors like technologies and investments, more experts connect mega projects to society, economics and environment and other macro factors. Once being put at the background

of the entire society, the range of study for mega projects is vigorously widened, and maybe that is the reason why there are various studies of mega projects. This report takes the advantage of past GMP