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# MEGA-PROJECT MANAGEMENT: A CASE STUDY OF THE LONDON OLYMPIC GAMES 2012

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# MEGA-PROJECT MANAGEMENT: A CASE STUDY OF THE LONDON OLYMPIC GAMES 2012

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## **Abstract**

*With so many government sponsored mega-project failures exposed in the press, this paper describes the ongoing project management of the largest construct project of its kind in the UK for over 150 years. The mega-project is twice as large as the new Terminal 5 at Heathrow Airport, and has to be delivered in half the time it took for T5 to be built. Important issues are discussed that should ensure the London Olympic Games is ready on time, within budget and will deliver world class sporting facilities as expected by the 11,000 professional athletes, 1 million visitors expected and a television audience expected to exceed 4 billion viewers.*

**Keywords:** project management, mega projects, Olympic Games

## **1.0 Background**

The British government has a history of failed large scale projects, and this notoriety is driving a culture of ‘get it right’ this time with the Olympic Games – especially with the world watching. A recent example of large scale failure was the Dome which was built for celebrating the new millennium. It was built on time and to requirements, but was over budget and empty for seven years after the millennium party. Even whilst empty, the Dome cost the UK taxpayer over ten thousand pounds every month in security and maintenance costs. Although relaunched as the O2 Arena under new management and now operates as the most successful pop concert arena in Europe, problems continue with, for example, a recent gas leak which resulted in the evacuation of 600 people and 27 staff being taken to hospital. Other failed projects include the Scottish parliament building, Airbus A380 and Wembley Stadium – the same construction company for Wembley is now building some of the Olympic venues.

A drive for professionalism now exists among the UK’s 260,000 project managers, partly motivated by fear of failure and also by enthusiastic amateurs. The Association

of Project Management (APM) helps fuel this drive with its application for Chartered Status from the Queen to raise the status of project managers to that of solicitors, dentists and doctors. Alistair Godbold from National Air Traffic System (NATS) explained that the senior management's attitude towards project management was 'If you could get out of bed in the morning then you could be a project manager'. This view continued until the public embarrassment of the failed delivery of the Swanwick Traffic Control Centre: 6 years late and £250m over budget. Godbold explained that the CMMI model is now used to facilitate project success, as recommended by the APM. In addition to the enthusiastic amateur approach, fake business plans were also created to justify a project to satisfy the internal finance requirements, and those responsible then enabled projects to proceed knowing they were unrealistic. The projects failed before they began with many fingers pointing at the project manager (Harrin, 2007).

Not all projects are genuine failures though, with some cancelled due to changing needs of an organisation rather than a failure usually related to severe delays, over spend or poor quality. These projects are often perceived to be failures and reported as such whereas they may have been controlled close downs. Under the PRINCE2 methodology, these are known as premature terminations and bear no reflection on the ability of the project manager concerned (Harrin, 2007). Mega-projects can be successful, however. For example one undertaken by London and Continental Railways Limited to transfer the London-based Eurostar train services to continental Europe from Waterloo Station to St Pancras Station is regarded as a success. The transfer was completed within budget at £5.8 billion. It is hoped the Olympic Games will add to the (much shorter) list of successes.

## **2.0 Introduction**

The first Olympic Games was held in Athens in 1896 and the famous 5 rings were first used at the Antwerp Games in 1920. The last medals to be made entirely from gold were given out in 1912.

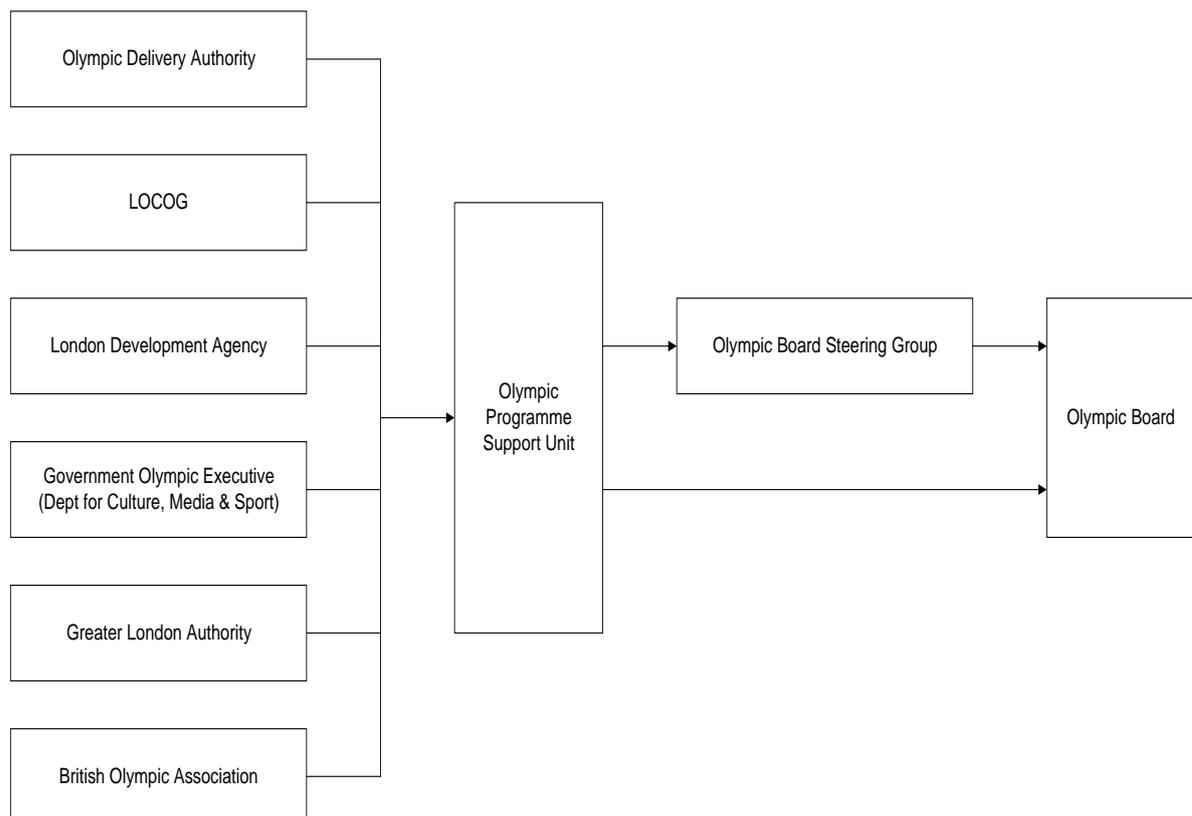
The Beijing Games were held in 2008 and cost £22b. Tens of thousands of local people were evicted to make way for the vast structure. Due to its design the main stadium is affectionately known as The Birds' Nest, but this is now another white elephant. On 6 July 2005 the International Olympic Committee (IOC) announced to the world that London would host the 2012 Olympic Games. There was an enormous cheer in Trafalgar Square that could be heard for miles around. The decision - although hoped for by the London team - was not at all expected. The London bid had been submitted to the IOC, but was seen as a complete outsider with Paris the favourite to win the biggest sporting event to be held anywhere in the world. In 1908 London also hosted the Olympic Games, and made a profit. (Rome was the host city but unable due to deliver due to a volcanic eruption.) 2000 athletes took part at the newly built White City Stadium (home to British athletes for years afterwards), with 250,000 well-wishers lining the streets. When the bid was won in 2005, London's mayor Ken Livingstone said, 'The Stadium will act as a beacon symbolising the extraordinary transformation and regeneration of East London'. At the 2012 Games 17,000 athletes and officials will be involved. The Athletes' Village will consist of 11 apartment blocks at a cost of £1.1bn, and employing 2,000 construction workers covering an area of 600 hectares. The Village was due to be converted to 3,500 homes after the Games, mainly for first-time buyers, but due to a reduced budget this has now been reduced to 2,800 with half allocated to affordable housing for low income families.

But this great sporting event held every four years has a troubled history. The Sydney Games in 2000 went into receivership months after the Games had finished. The Athens Games in 2004 was ready just days before the opening ceremony. Furthermore, security measures at Athens were only able to be implemented in the two weeks leading up to the Games with associated costs soaring at the last minute. 89% of the deliverables were achieved, with the 'base line' changing 4 times prior to the start of the Games. And already in London there was a large fire in November 2007 at the Olympic site which required 75 fire fighters to put out flames reaching 30m (100ft), see Figure 1 below.



**Figure 1. Olympic Site Fire**

The problems described above are not examples of good mega-project management. To ensure the same ‘failures’ do not occur at the London Games, the organisational structure shown below in Figure 2 has been created to oversee the management and implementation of this mega-project.



**Figure 2. Organisational Structure**

The government minister in charge of the Games, Tessa Jowell, has stated that success will be achieved for the Games by the government *not* trying to micro manage the construction but by delegating to world experts. Simon Wright of the Olympic Delivery Authority (ODA) added that it is too early for lessons learned, but emphasised a wider goal of delivering improved sports facilities across the UK before, during and after the Games. For example, the White Water Canoe Centre at Broxbourne will be in use by the public before the Games commence. In deed, the APM chairman believes that success should explicitly support sustainability, notably with the inclusion of ‘profit, people and planet’. In this vein, recycling will be achieved in part by the sale of 55,000 seats from the top tier of the main stadium. Chicago unsuccessfully bid for the 2016 Games but if it had been successful it would have bought seats from the top tier. Another reason for removing the top tier of the stadium is to prevent another white elephant being created. In addition, recycling the Games will reduce construction costs in the future and allow poorer countries to bid as potential hosts. It is expected to take two years to transform the stadium after the Games, with a further 5 years needed for the development of the various Olympic sites.

### 3.0 Planning

Planning applications consisting of over 10,000 pages were submitted to the Greater London Authority (GLA) and the government in 2006 for approval, with the full plan published in October 2007. The areas covered in the plans related to new sporting venues, highways, 18 bridges, river works and utilities. Major delays have been caused by the creation of several planning documents - and obtaining their respective approvals. The schedule is shown in Figure 3 below:

- July 05 - London announced as the winner
- July 07 - Site given to ODA
- October 2007 - Main stadium budget agreed at £496m
- November 07 - Stadium design released
- April 2008 - Construction work began
- August 08 - Beijing Games

August 08 - Olympic flag given to London Mayor  
September 08 - Merchandise available  
October 08 - Cultural Olympiad  
2010 - Volunteers recruited  
2011 - Tickets for sale  
July 2011 - Event testing begins  
July 2012 - Opening Ceremony  
October 2012 - Top tier of 55,000 seats removed

### **Figure 3. Planning Schedule**

The budget for the main stadium is, however, just an estimate with an 80% certainty of being the final cost. John Armit, chairman of the ODA explained, 'The full cost will not be known until one year before the Games when the construction is complete and testing of the venues begins'. It is worth considering two additional points here, how to control unauthorised changes and, how testers are tested. In some cases, project workers can spend over 50% of their time on unplanned work (Gostick, 2007).

The figure includes VAT, provision for inflation to allow for 2012 - and not 2004 - prices and conversion of the venues to enable the legacy plans to be realised. For example, the top tier of the main stadium will be removed and some of the newly built bridges will become narrower after the Games. With only one construction company (McAlpine) seeking the main construction contract, however, there was little room for negotiation. In addition, only one company bid to build the aquatic centre - after Eiffel pulled out of the bidding process leaving just Balfour Beatty to be considered. Few construction companies want to be involved with such large complex projects, significantly affecting the negotiation process. The Emirates Stadium, also built by McAlpine, is a similar venue but built at half the cost, at £220m. The bidding process for this stadium consisted of many construction companies prepared to drive down their costs in order to win the bid. High profile large construct projects in the past meant many of the large UK construction companies were reluctant to even bid. For example, Multiplex (now renamed Brookfield Construction) built the new £750m Wembley stadium but is still involved in a legal fight for £250m due to the long delays experienced. In 2005 Multiplex lowered its profit forecast five times. Terminal

5 also suffered after a grand opening attended by the Queen, with thousands of suitcases lost blamed on the new equipment. The Airline's Chief Executive, Willie Walsh, claimed several factors were to blame, including parking.

The Director of the Olympic Delivery Authority, Howard Shiplee, said there is an obligation in the contracts now for issues that may result in disputes at a later stage to be highlighted at the earliest possible stage. He has created a 10 member Independent Dispute Avoidance Panel to find commonsense solutions to disputes that cannot be resolved informally. Complaints already received include:

- International Cycling Federation claim Weald Country park in Essex is too flat to be used as the mountain bike venue
- British Shooting Federation do not want to use the Royal Artillery Barracks in Greenwich but want a facility built in Dartford
- Senior British equestrian figures claim the venue selected in Greenwich Park is also too small

The enormity of this mega-project has resulted in the creation of several bodies to oversee various aspects of the Games. These are shown in Table 1 below. Sebastian Coe and Tessa Sanderson are both medal winners from previous Olympic Games and sit on the Games Committee as ambassadors for the London Olympics. Coe is the chairman and Sanderson visits schools and colleges promoting sport. (The Olympic Board is a Corporate Member of APM, and chaired jointly by Tessa Jowell MP and London Mayor Boris Johnson.)

<b>Organisation</b>	<b>Responsibility</b>	<b>Further Information</b>
British Olympic Association (BOA)	Selection and training of the UK athletes	<a href="http://www.olympics.org.uk">www.olympics.org.uk</a>
British Paralympic Association	Selection and training of the UK athletes	<a href="http://www.paralympics.org.uk">www.paralympics.org.uk</a>
Department for Culture, Media and Sport (DCMS)	Oversee Olympic Games	<a href="http://www.culture.gov.uk">www.culture.gov.uk</a>
Greater London Authority	A strategic authority	<a href="http://www.london.gov.uk">www.london.gov.uk</a>

(GLA)	responsible for the regeneration, environment and legacy of the Games	
London Organising Committee for the Olympic and Paralympic Games (LOCOG)	Preparing and staging the Games	<a href="http://www.london2012.com">www.london2012.com</a>
Olympic Delivery Authority (ODA)	new venues and infrastructure	<a href="http://www.london2012.com">www.london2012.com</a>

**Table 1. Organisational Structure**

Designs were published at the end of 2007, as initial designs prepared to win the bid (and only took two months to create) and were submitted in early 2006. Transport plans were released in October 2007, ‘But the design will be an iterative process,’ John Armit reported. The ODA explained that there was not enough money to include a roof that covered the entire main stadium, so only two thirds of spectators will be covered in the new design and the rest - 26,000 - will be exposed to the weather. Rod Sheard added, ‘The Olympics is an outdoor event so we do not need a roof to cover the whole stadium. In addition, the legacy of the stadium also does not require a full roof’. Earlier in 2007 however, the House of Lords were discussing the stadium roof and arguing that all spectators should be covered. The Government responded by saying that fans are prepared, ‘To suffer considerably for their sport’. (The Millenium stadium in Cardiff cost £190m and has a roof covering the entire stadium - and is also retractable.)

A land acquisition programme consisting of £750m has been completed in order to relocate homes and 193 businesses which fell in the desired areas identified for the Games. 72 of the businesses relocated are still waiting for financial compensation. The transport programme includes £104m to upgrade Stratford Station which has already begun. The station will boast new lifts, platforms, subways and entrances to enhance passenger capacity and facilitate the goal for this Games to be the best connected Games ever. In all, the Games will be served by ten rail lines and three main stations (Stratford Regional, Stratford International and West Ham). The three

stations are expected to carry 240,000 passengers an hour at peak periods during the Games.

The Chief Executive of the ODA, David Higgins, said his goal was for this to be the Public Transport Games - with 100% of spectators using public transport, walking or cycling to watch the events. Over 80% are expected to use the rail services, equating to over 800,000 passengers a day. It is expected 118,000 will use Stratford Station during the Games in any three hour period on each morning, compared to just 37,000 in a three hour period normally. The journey time to the Stadium from St Pancras station in the heart of London will take just 7 minutes with 25,000 passengers an hour in peak periods. To facilitate the goal of reducing car usage to an absolute minimum, new trains, rail lines and platforms, enhanced stations, river walks, walking and cycling routes will be available to the visiting public. Approximately 4 million people live within a 40-minute bike ride of the main stadium and it is hoped they will take advantage of this opportunity to cycle using the new footpaths and cycle routes. A special lane through London to the Olympic Park will be available for disabled visitors, athletes, the press and officials - expected to total around 80,000. The exclusion zones put in place to keep cars away will be in force at all the sites being used to host the sporting events, viz: London, Birmingham, Manchester, Newcastle, Cardiff, Glasgow, Weymouth and Portland. The whole operation has been described as the largest peacetime logistical operation, with athletes taking part from 200 countries. The radical shift in mentality that is sought from the public in favour of using public transport is the start of a continuous process for all major sporting and cultural events in the future. In deed, two large park and ride parks serving the Olympic Park that were proposed in the original plans have been cancelled. It is expected the closest parking for spectators will be at Ebbsfleet International Station in Kent where services to St Pancras will depart. Many of the 20 bus routes to the Olympic Park will be doubled in frequency. Even the materials for constructing the Park are arriving on green transport, with over half arriving by rail or canals (able to accommodate 350-tonne barges). A new rail network across London called Crossrail should have facilitated the transport plan for the Games, but a delayed agreement on the funding structure for the £16b project means the trains will not be ready until 2017 – some five years after the Games have finished.

The dream to make the London Games the greenest ever is unlikely with orders from IOC members and other VIPs for over 3,500 chauffeur-driven limousines. The cars are needed for 110 IOC members, presidents and secretary generals from the Olympic committees of the 200 competing nations and senior executives from corporate sponsors. The IOC is also demanding dedicated traffic lanes so they do not get delayed during the Games. None of the 10,500 athletes will be able to use the cars. £450,000 has already been spent to drive a London bus to the Beijing Games, needing 8 drivers to drive the 5,000 miles (taking 3 months) to the Closing Ceremony. As part of the green plan, a government spokeswoman added she was more focused on looking at ways to encourage visitors already in London to spend more of their money rather than encouraging additional visitors to come to London. Organisers of the Beijing Games forced factories close to the main stadium to close during the Games to reduce air pollution, resulting in 1,100 businesses closing down, putting many of their staff on half pay. Foreign companies brought lawsuits for loss of earnings.

The Olympic Park will be a 2.5 kilometre<sup>2</sup> (500 acre) site. The area has suffered from years of neglect, pollution and contamination and been used by local residents and businesses as a dumping ground. Water quality in the area is poor. A special 50 tonne machine washed, sieved and shook 1.4 million tonnes of contaminated soil. Lorry journeys to and from the site to clear the rubbish and bring materials will be reduced with the use of the canals and rivers for transportation purposes. Access for walkers, cyclists and other leisure pursuits will then be improved, with new wildlife areas planned and steps to prevent flooding in the future. Demolition of 220 buildings on the site and subsequent clearing of the site is now complete, and the 'Big Build' – the construction of the sporting venues – has commenced, by builders Sir Robert McAlpine. Over 12,000 tonnes of steel will be used, less than any other venue of a similar size.

### **Main Stadium Summary**

- 53 metres tall – higher than Nelson's column
- Covers 40 acres – 5 times the size of Houses of Parliament
- 800,000 tonnes of soil removed, enough to fill Royal Albert Hall 9 times

- 10,000 tonnes of steel – the lightest stadium ever
- 80,000 seating capacity
- 55,000 seats to be removed from the top tier
- 1,000 construction workers needed
- 33 buildings demolished
- 24.5m<sup>2</sup> roof size – same as three and a half football pitches

Olympic stadiums tend to stay empty and unused after the Games have ended and acquire the notorious label of yet another White Elephant. With this in mind the architects have designed the main stadium with a focus on long term practicality rather than myopic artistic quality. Rod Sheard, chief architect at HoK Sport said,

‘The stadium may not be visually stunning but we did not want another white elephant after the Games. We had to come up with different answers. It will not be the biggest and best, but it is a cleverer solution’.

The Millennium Dome – now called O2 arena – with a 23,000 seat arena will host the basketball finals and gymnastics. Greenwich Park will host the equestrian events and some elements of the Pentathlon, although opposition has been received from ‘No to Greenwich for Olympic Equestrian Events’ (NOGOe). This is due to fear of increased traffic, damage to the Park’s ecology and horses being hurt. Cycling events will be housed in the new Velodrome with water sports taking place in the Aquatics Centre. Football will be held at St James’ Park, Newcastle, Hampden Park, Glasgow, Old Trafford, Manchester, Villa Park, Birmingham and Millennium Stadium, Cardiff. Sailing will take place at Weymouth. The Olympic Park will host athletics, basketball, BMX, cycling, diving, fencing, handball, hockey, pentathlon, swimming, synchronised swimming, water polo and volleyball. The ExCel conference centre will host weightlifting, wrestling, taekwondo, judo, boxing and table tennis. North Greenwich will host trampolining, gymnastics, handball and basketball. In addition, a new Media Centre consisting of 1.3m square feet is being built in prime inner-city Hackney to accommodate 20,000 journalists during the Games.

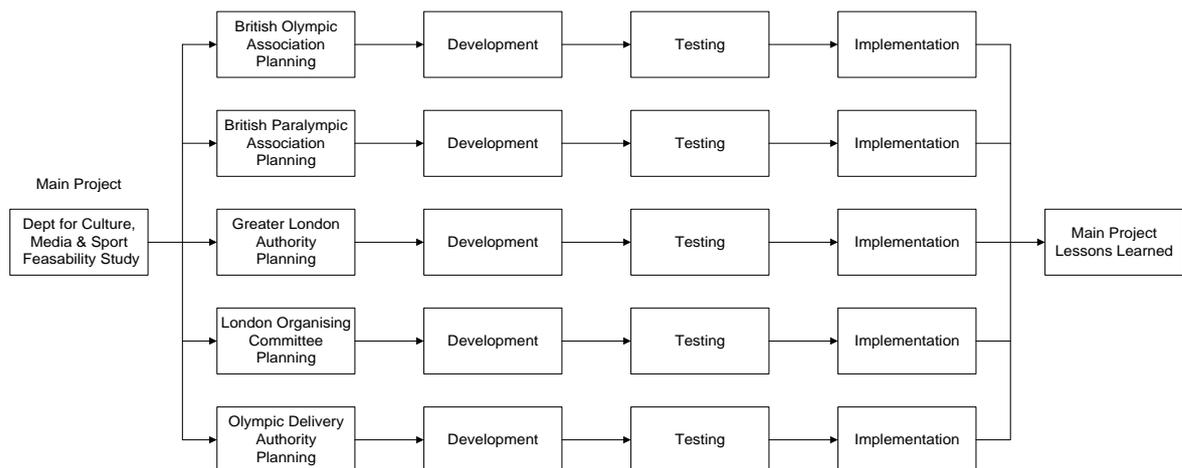
## 4.0 Mega Project Management

The typical stages a project goes through are shown in Figure 3 below.



**Figure 4. Project Life Cycle**

Although this mega-project, by definition, is large, it is not complex. However, it is clear to see smaller parallel sub-projects to be developed, known as *portfolio* or *dossier* management. The model representing how this is being achieved is shown in Figure 5 below, representing the organisational structure described above. The linear process identified in models is rarely the case in reality, however, and further research is needed to tailor models to more accurately reflect the dynamic nature of projects, particularly mega-projects such as the Olympic Games. Managing the sponsors and other key stakeholders is clearly a difficult task and needs to be done effectively by project managers to, in part, educate and encourage them about what is expected from them. For example, they should feed information to the project manager, and vice versa (Harrin, 2007).

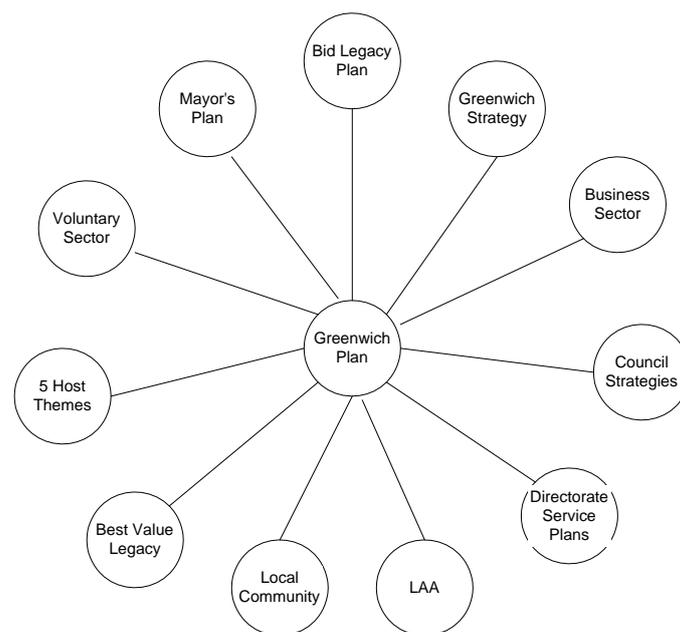


**Figure 5. Portfolio Management**

Within each of the five host boroughs there are further groups and sub-groups in place to plan and deliver a series of mini-projects at local levels. In Greenwich for example, the following groups have been created to enable strategic partnerships:

- Greenwich Olympic Strategy Group
- Greenwich Olympic Officers Group
- Greenwich Olympic Stakeholders Group
- Greenwich Olympic Venues Group
- 5 Olympic Host Borough Groups

These groups meet regularly with central government, other London councils, LOCOG, ODA and the GLA. This is represented in Figure 6 below.



**Figure 6. Greenwich Strategic Partnerships**

The London Borough of Newham is another of the five host boroughs, and John Herman of Newham Council was appointed to the new role of Head of Regeneration and Infrastructure to ensure local people are both informed and consulted over the large scale developments now expected in the area. Newham currently has a population of approximately 500,000 and is an area known for its ethnic diversity,

high unemployment and poor health record. Herman said, ‘This part of London has been striving for regeneration for a very long time but overlooked for decades’.

In contrast with the Beijing Games in 2008, stakeholders associated with the London Games are both numerous and diverse. Identifying and accommodating their individual needs is complicated and as such is one of the roles of these local sub-groups. In Beijing however, the issues of stakeholders and their necessary management is not mentioned in official communication or documentation. The Chinese government expected compliance and obedience, compared to participation and negotiation now expected by the London organisers. Over 600 ‘VIP’ tickets to the Beijing Games were requested by staff at the London Mayor’s office, London Metropolitan Police and government departments - to be paid for from the Olympic budget. The requests were described as ‘special cases’ needed to help prepare for the London Games.

The British government has said its goal with the London 2012 Games is that it is delivered within budget, on time and will provide a professional sporting facility, with future use as its legacy. This (generic) goal is described in more detail below.

#### 4.1 Deliverables

The government has published a list of 5 goals for this project, as shown in Table 2 below.

<b>Goal</b>	<b>Description</b>
Make the UK a world class sporting nation	With elite success in the Games, mass participation and improved sporting facilities at schools and coaching with £600m invested across the UK and, hosting the UK School Games
Transform the heart of East London	Construct the Olympic Park village, create over 9,000 homes after the Olympics has finished (largely for

	keyworkers), and improve transport infrastructure including railways, roads, bridges, footpaths, cycle routes, towpaths and 8.3km of waterways
Inspire young people to participate in volunteering, and cultural and physical activity	Through a 4 year Cultural Olympiad bringing cultural and creative activities to young people, running Volunteering Programmes to provide training for jobs during and after the Games, creating a Legacy Trust offering £40m to local community projects, creating an Education Programme to gain interest in the Games in young people
Make the Olympic Park a blueprint for sustainable living by minimising carbon and water use	Create a 4,000 (now revised to 2,800) home eco-village to be used as a template for the future, run a Games-related awareness programme to support the Olympic ideals by living healthier and environmentally-friendly lives, and rejuvenate East London's waterways providing habitats for fish and birds
Demonstrate the UK is a creative, inclusive and welcoming place to live in, visit and do business	Prove through the Olympic Games that London is creative, diverse and a sustainable city; embrace the long-term tourism benefits nationwide, host over 100 major championships leading up to the Games to boost the profile of other regions of the UK, create an online Business Opportunity Network for local businesses to benefit from contracts and other business opportunities

**Table 2. Government Goals**

One example of taking care of local wildlife during the preparations is the relocation of newts in Pudding Mill River so that it can be drained. In deed, the relocation of wildlife took over 12 months. Archaeological records have also been made. One of the host boroughs, Greenwich, as part of its legacy planning, has created a Sportathon for 2,000 children from 57 primary schools to take part in sporting events. Greenwich also secured other sporting events, including the Tour de France and 2009 Gymnastics. In addition, two local young people were selected to represent the UK in the European under 18 weightlifting championships.

## 5.0 Resource Management

To facilitate the successful delivery of these goals, the Government has assembled a team of experienced people with a mixture of skills, qualifications and experience. Members of Parliament, the Mayor of London, medal winners from previous Games, councillors from the five host Boroughs and a highly respected project manager with experience of mega-projects are all actively involved. Tessa Jowell MP made it clear that to ensure project success the government was determined to recruit, ‘The world’s best’. In conjunction with this policy was also a commitment to recruit local businesses where possible to provide the services, materials and other resources as required for all aspects of the project. This includes stationery, clothing and catering, in addition to the construction of the main stadium and other facilities. ‘BOOST’ is a service provided, via a website, where work due to start is advertised so that local businesses can put forward a tender document. John Armit explained it is better to use local people as suppliers, for example, can they deliver much faster than a supplier based in Scotland when needed. This also dispels fears of local communities of losing out on the benefits of the Games. In deed, the legacy of the Games is a paramount concern for the government, and intends to train local people to be able to both help with the Games and have a skill-set that will keep them in employment after the Games has finished. John Armit, in charge of this 5 year construction project, made this clear when he said,

‘We have given a great deal of thought to the legacy of the Games,  
probably more than to the Games itself’.

Other legacy commitments include the London 2012 charity mission: International Inspiration (managed by Unicef) and led by British Paralympic Dame Tanni Grey Thomson, with a budget of £25m from the Department for International Development, football's Premier League and the British Council. This Mission will enable over 12 million children in 20 countries in the Middle East, starting in Jordan, to receive free sports lessons, plus the disabled, young women and refugees. The work of the Mission is expected to be replicated by Rio in 2016. Additional benefits to London include the development of several new 5 star hotels:

- Intercontinental - 254 rooms, opens 2012
- Renaissance - 245 rooms, opens 2010
- Metropole - 283 rooms, opens 2010
- Shangri-La - 195 rooms opens 2012
- Firmadale - 100 rooms opens 2011

The councils affected are actively promoting positions prior to and during the Games in their respective Job Centres. When applicants are not suitable for the positions advertised, they are able to apply to be a volunteer helper – with an estimated 70,000 volunteers needed. There have been approximately 200,000 enquiries to date, although the official launch calling for volunteers for the Games *per se* will take place in 2011. On average 15 enquiries are received each week to register as a volunteer. Currently over 400 volunteers work mainly in the area of conservation but also in leisure and sports and commit over 12,000 hours per year. One scheme in operation is called the Big Tidy Up in the Lea Valley Region which recently resulted in the collection of 150 bags of rubbish from the area. The scheme will be rolled out in other areas as necessary.

In total 30,000 workers are involved in the construction process, with 75,000 opportunities for business worth £6bn through direct contractors and supply chains. 800 contractors have already won work, 68% are small to medium sized businesses and 98% are based in the UK. The Federation of Small Business (FSB) welcomes the efforts made by the ODA, citing the website for interested businesses to apply for contracts: [www.london2012.com/business](http://www.london2012.com/business). 78% of local SMEs employ less than 50

staff. Larger companies are being used for major projects, with Balfour Beatty constructing the 17,500 seater Aquatics Centre, Australian developer Lend Lease is constructing the Olympic Village, Carillion is constructing the Media Centre and Sir Robert McAlpine is constructing the main stadium.

Many of the smaller businesses were not relying on work from the Olympics but now it is a lifeline. To reduce the probability of insolvency, bills now have to be paid by the ODA within 18 days instead of 30 days to improve cashflow. The Construction Skills Network claims there are 180,000 vacancies for workers, including painters, bricklayers and managers. CSN said it was confident it could meet the shortfall with training and bring in immigrants. The ODA add there is £150m at risk to fraud and unprecedented levels of surveillance are in place to prevent fraud by contractors who, for example, promise more than they can deliver. Entry to all construction sites is by turnstiles relying on biometric identification – including fingerprints and iris recognition. This will also prevent companies claiming for more contractors on site than actually appeared. Whistle-blowing will be encouraged as up to 5% of the total construction budget is at risk of fraud, says Andrew Durant, fraud investigator. Co-founder of the Carphone Warehouse David Ross was brought in by Boris Johnson as senior Olympic Advisor on LOCOG to help control the mega-budget and conduct a review to check if the cost of the Games offered value for money. In his six month appointment, he attended only one meeting of the LOCOG committee. Ross later resigned due to personal financial irregularities.

## 6.0 Project Budget

The budget agreed between the Games Committee and the government for the Games is £9.325 billion, structured as follows:

## London 2012 Olympic Games Budget

Costs and Provision	£m	Public Funding Available	£m
<b>ODA Costs</b>			
ODA Core Olympic Costs	3,081		
Infrastructure & Regeneration	1,673	Government	5,975
Contingency (excluding tax)	500		
<b>Total (net of tax)</b>	<b>5,254</b>	National Lottery	2,175
Other Non ODA Costs	388	Greater London Authority	925
Other provisions		London Development Agency	250
Police & security	600		
Tax on ODA costs	836		
General contingency (including tax)	2,247		
<b>Grand Total</b>	<b>9,325</b>		<b>9,325</b>

When accused of ‘Having no clue’ (anon) regarding the ultimate cost of the Games, John Armit explained he has, ‘More than a clue, and he and his team check the expenditure on a daily basis’. The cost of the main stadium, however, has almost doubled from the original estimate in the bid documents submitted in 2005 of £280 million to £496 million. The cause is blamed, in part, on the rush to get the originals plans finished to meet the deadlines for proposals for the IOC from potential host cities. Many of the original plans have changed since winning the bid. Regarding the Aquatics Centre which will contain 2 x 50 metre pools and one 25 metre diving pools, the costs have more than doubled from the original estimate of £73m to £300m. When John Armit was asked to confirm the final cost of the Aquatics Centre he replied, ‘It is too early to say.’ Part of the jump from a total cost of £2.4 billion to £9.3 billion is due to £2 billion needed to clear and prepare the site and a further £1 billion for local transport links.

John Armit is not afraid of spiralling costs: ‘Costs increase when projects are late, and we will not be late!’ The budget also includes removal of the top tier of the main stadium and the regeneration of local areas - not just for constructing the sporting facilities. The budget of £9.3 billion now however, is not the figure put to the government in the initial proposal - calculated to be just £2.37 billion. Although the

initial cost has spiralled upwards, it is now similar to that for the 2004 Athens Games which cost £7 billion - although Beijing 2008 was expected to be £15 billion but completed at a cost of £22 billion.

The credit crunch crisis has resulted in greater difficulty for the government to secure private funding for the Games and has had to provide £135m in additional funds for the Media Centre and £326m for the Olympic Village. We are now half way towards the Opening Ceremony since winning the bid and Handball could be cut to save money. As a team sport it is more expensive to fund than other individual sports and the British team are unlikely to get a medal in 2012. Other vulnerable sports which could be cut include wrestling, volleyball, table tennis, judo and weight lifting. Money will be targeted at the sports where medals are more likely.

The cost of the Games is categorised as a UK Spend and includes regeneration of East London and the improvement of transport links, in addition to the construction of the main stadium and other facilities. As a UK Spend, Wales is losing £110m that is being redirected to the Games. The Heritage Lottery Fund is also losing £160m for projects between 2009 and 2012 as the money is being diverted to the Games. The Public Accounts Committee stated 'There are still major areas of uncertainty'. The LDA own the land on which the main venues will be located and the sale of land after 2012 is expected to recoup the losses incurred. In deed, some of the land is already up for tender with the aim of selling the land prior to the Games, then renting the land back for use at the Games and then returning back to the new owner(s) after the closing ceremony. Recently the property market in the UK has slowed down and it is feared the income from the sale of the land may no longer be sufficient to cover the expected costs. Furthermore, the Government has confirmed Lottery funding will decrease each year as the Games get nearer, with the additional funding needed expected to come from other projects in the UK (which will have their budgets cut to meet this demand).

The legacy conversion after the Games includes bridges, roads and landscapes in addition to the main stadium and aquatics centre. The £350m fund for this is considered insufficient say the London Development Agency – responsible for the conversion after the Games. The cost of the aquatics centre which will house the

Olympic Pool has now escalated to £214m, three times the original cost of £64m and enough to build 30 normal pools. The centre will contain two 50 metre pools, a diving pool and seating for 22,500 spectators. The location of the venue is partly responsible for the increase, claims ODA Chairman, David Higgins, as it is the main entry to the Olympic park, the main roadway to the Stratford shopping centre, most of the major services pass through it, it is the most contaminated part of the site, power lines go underneath, a canal runs around it, many archaeological finds have been found there and it is prone to flooding. Additional factors include the provision for VAT and inflation which were not originally included.

The LDA will ask for more money from the government as £230m of this money is allocated to the main Park at Stratford Park covering 270 acres (similar in size to 357 football pitches), and might have to come out of the £2bn contingency fund. This increase is in addition to the extra £10m a year agreed by the previous London Mayor Ken Livingstone for maintenance costs. The £400m Olympic Media Centre has already been bailed out with an additional £135m from the government. (Its original cost was just £134m and is the same size as Canary Wharf's Canada Square tower.) Parts of the mega-construction project have already been downsized as a result. The £1bn Olympic Village has been reduced from 4000 homes to 2700 to cut costs. (Beijing provided 3,276.) A new venue for the fencing event has been cancelled and will now take place in an existing venue (ExCel centre). The handball arena has been halved to hold just 6,000 spectators. Construction companies are now being asked to cover up to half the cost of building the venues, and to share the rental income after the Games.

The original budget of just £2.7bn was unrealistic and foreseeable costs ignored, claims Edward Leigh, Chairman of the Public Accounts Committee. This was done to win government (particularly the then Chancellor, Gordon Brown) and public support for the bid. Excluded from the original estimate were, for example, contingency provision (£2.7bn), tax obligations (VAT £837m), policing and wider security (£600m). Contributions from corporate sponsorship were also pipedreams (£738m). Sponsorship targets are now revised to £165m. The public and the government were undoubtedly misled over the true costs of the Olympic project. To help cover the shortfall, the Lottery has provided an additional £675m and £625m has come from

London council tax payers (£300m to be repaid to London tax payers if Games comes within budget). Tessa Jowell exclaimed the July 7 2005 bombings that occurred the day after the bid was awarded to London had impacted significantly on the security budget. She added, 'The original budget was based on the most accurate forecasts and best intentions'.

The Olympics Minister Tessa Jowell said, 'It is right we take steps to safeguard these projects for a successful Games with a real lasting legacy. Use of the contingency fund should not be seen as any kind of failure'. The legacy plan includes building 11,000 new homes, schools and health centres. The main venue will be available for use on 3 year licences, starting in 2015. Wembley stadium's legacy now includes transforming the venue for motor sport's annual Race of Champions. Recently the event attracted Formula 1 champion Lewis Hamilton.

She adds if she had known the UK was heading into recession the Government would 'almost certainly not have made a bid to host the Games'. 2009 promises further economic challenges with the world falling into a deep recession, the biggest construction project in Europe will need to step up construction and find solutions to its funding issues.

Other sources of funding is coming from sponsors (currently eight business partners including Lloyds TSB and EDF), the government and ticket sales. Beijing Games attracted 64 corporate sponsors including as Visa, Coca-Cola, Volkswagen, Adidas, Panasonic, BHP, Staples, Snickers, PricewaterhouseCoopers, Microsoft, Samsung, Kodak, GEC, Swatch and McDonalds. If other large sporting fixtures can be compared to the London Games, the tax revenue income streams can produce enough to repay the construction costs - tickets at the Beijing Games cost around £75 per event (Preuss, 2008). The bill for buying the necessary land (£650m) is expected to be repaid by selling it after the Games. The £2bn cost of staging the Games is expected to be recouped from ticket sales, merchandising and broadcast revenue. When asked the cost of tickets to the public, 'No idea,' was the reply from Sebastian Coe, stating that the price would be determined by individual events. 'Clearly the Men's 100 Meters, for example, is a premium event and we would charge more for this - our business partners would expect it.' Tessa Jowell added that there would be a balance

between maximising revenue and accommodating the ability to pay for a family ticket for those coming down from Scotland. She explained, 'The success of the Games is determined by the legacy and the view by the public that it was *their* Games.' Local communities will be able to obtain and afford tickets to enable this legacy to exist. 'It will not be an event only for the elite – the process will be socially responsible with train companies also consulted to make this happen.' In addition, some events will be free to spectators, such as some cycling races.

The ODA employs over 200 staff. Seven out of eight of the senior executives of the ODA have salaries over £200,000 which is more than the Prime Minister, Gordon Brown. The huge salaries have caused fears the £9.3bn budget (funded largely by taxpayers and Lottery cash) may climb even higher. The ODA Chief Executive earns £804k with £210k bonus. The Director of Transport earns £207,000, Director of Property earns £207,000, Director of Infrastructure and Utilities earns £207,000, Director of Communications earns £175,950. Each will also receive employer's pension contributions of approximately £20,000. There is an annual bonus pot of £1.8m and 29 department heads on £85k receive £18k bonus, 80 managers on £55k receive £9k bonus and junior staff receive £3.4k bonus. The British Olympic Association Elite Performance Director gets £300k. Richard Bacon MP sits on the Public Accounts Committee believes David Higgins may justify his salary as he helped deliver the Sydney Olympics but is unsure whether the others offer value for money. An ODA spokesman said the directors are world-class working on a high profile and demanding project. The salaries are consistent with market levels.

Mr Sumner, Director of Games Transport, said he wanted these Games to be the first car-free Games in history. For the Sydney Games in 2000, however, a new high capacity train station was built to accommodate 80% of the visitors and additional temporary buses to carry the remaining 20% to the Olympic Park. At the Atlanta Games in 1996 there was also a parking ban in place. New motorways and a tram service were introduced for the Athens Games in 2004 resulting in a transport planning success. For the Beijing Games in 2008, five new metro lines are to be added to the existing network tripling urban rail capacity, plus 125 miles of lanes for Olympic traffic only. No on-site parking will be permitted.

In contrast, the 1992 Barcelona Games suffered from transport chaos, with visitors and athletes fighting to get on trains in tears. One spectator stated it was easier to predict event winners than when the next train would arrive. There were reports of bus drivers leaving their buses en route due to angered passengers caused by the drivers' lack of local knowledge. One weightlifter missed his event because the bus driver did not know the way to the stadium.

## **7.0 Information Management**

The legacy needs to include a change to the requirements and ironically perhaps, the legacy should last for decades against several weeks for the Games and Paralympics.

For the newly skilled to remain in employment after the Games, the ICT skills legacy needs to be more explicit in the planning of the Games. New technologies should be integral in the planning and delivery of the Games in 2012. as such, ICT needs to be more visible in the official objectives of the Games – particularly with the history of failed legacies. Collaborative technologies are needed therefore to enable communication at the Games 2012 by the officials, and media to many countries, across different time zones using a myriad of technologies. The skills necessary to provide this seamlessly need to remain in London for the workforce to stay in long term employment. The key skills needed are:

- Provision of information and communication technology for workforce management, event planning & scheduling
- Provision of information and communication technology for medical services
- Timely and correct collation and analysis of event information to commentators and the media for distribution to the expected 3 billion audience
- Management of central operations, venues and helpdesk services
- Major contributor to the security services

Jacques Rogge, President of the IOC, said the IC teams are unsung heroes of each Games. This can be easily seen when you consider the infrastructure needed at the Beijing Games in 2008, and consider the 200,000 hours of testing conducted:

- 1000 servers
- 1000 security and network devices
- 10000 computers
- 4000 printers
- 4800 results terminals

In addition, one of the corporate sponsors, Visa, is promoting London during the Games as contact free which should result in shorter queues for smaller purchases. Web 2.0 and social networking sites are being used to encourage volunteers to register, find suppliers, keep local communities involved during the construction process and market the broader benefits expected from the Games and the legacy. Previous Games have not left an ICT legacy despite the rhetoric that occurred before each, although Beijing achieved more due to predominantly sourcing locally within the communities to meet the ICT needs.

In the current economic climate with unemployment increasing over a long period, there is an available workforce. Technical innovations are also being sought to meet the sustainability goals which include the lowering the carbon emissions. The London Games are an ideal opportunity to develop new skills and train the local workforce to become competent in their use. In deed, project management skills have certainly been highlighted as a key skill unlike never before, not only in construction but in many other industries. ICT will be an enabler of the socio-technical and economic legacy, probably more than is currently expected.

## 8.0 Green Issues

The Olympic Delivery Authority (ODA) is focused on the management of waste, energy, ecology, procurement, topography and sustainable development. In this vein, a target has been set to recycle 90% of the waste found and/or created. A wind turbine is being created to create energy and reduce carbon emissions. The ODA is responsible for keeping local communities updated on the progress of the project. This includes ensuring disruption is kept to a minimum and informing residents when noise and disturbance might be unavoidable. To facilitate this, the ODA has formed a

Community Relations team to enable close contact with residents of the 5 boroughs affected by actively visiting each area to provide information and answer questions. A free 24 hour hotline direct to the Relations Team has also been made available for local residents and businesses. It is hoped the future site and use by residents will justify any disturbance experienced during the construction project. The 'Big Build' commenced as planned in the summer of 2008.

In addition to the hosting of the Games *per se*, the legacy of the Games will be achieved through the multi-purpose nature of the facilities for use by local clubs. In deed, professional sport clubs have declined to show an interest in using the facilities for their own purposes post the Games *per se*. The main 80,000 seat Stadium will seat just 25,000 - in the lower tier - after the removal of the upper tier which will provide seating for 55,000 during the Games. Seats from the top tier will be sold off, either to Rio as the host of the 2016 Olympics or to the public as souvenirs. An additional 50,000 temporary seating will then be provided as and when required. During the Games, 2,250 seats will be provided for athletes and 5,500 for the media. The roof will only cover two thirds of spectators due to insufficient budget and legacy considerations. A 6 month study has been conducted and ruled out cross winds as preventing world records from being created.

The Paralympics is provided to enable disabled sportsmen and women to also take part in the Games. At the London Games the time between the Olympics and Paralympics is shorter than at any previous Games to show it is not a secondary sporting event but part of the main Olympics. In deed, after the Seoul Games in 1998 new rights were given to the disabled following a major shift in public opinion. The British paralympic team are very successful, and came 2<sup>nd</sup> after China, for 3 Games in a row. At Beijing they won 102 medals: 42 gold, 29 silver and 31 bronze. They sent 209 athletes, 198 officials, 86 freight boxes comprising of 43500 items of kit and 1500 shoes. The team took part in 18 out of 20 events.

Greenwich Borough has the following agenda:

- Greenwich Park will host the Equestrian and Modern Pentathlon events with a capacity of 23,000 spectators. The Olympic events will be held over 13 days and Paralympic events over 6 days
- Greenwich O2 (previously the Dome) and Greenwich Arena will host Basketball, Badminton, Gymnastics and Trampolining events with a capacity of 20,000 spectators over 15 days
- Royal Artillery Barracks will host the Shooting events with a capacity of 7,500 spectators. The Olympic events will be held over 9 days and Paralympic events over 6 days

## 9.0 Security

In light of the terrorism activities in recent times, security underpins everything to do with the Games, with a budget for security set at £600m. In deed, shortly after the IOC announced London as the winner to host the 2012 Games, terrorists attacked London on 7 July 2005. 'World experts' are being consulted to ensure the Games occur without an incident - although UK security experts were consulted in each of the last four Games and are therefore highly respected. Sebastian Coe confirms his satisfaction with the security measures in place. 'If I had to choose where I felt most safe as a spectator or sportsman I would say at the London Games.' He added the vigilance of the public is also necessary and the power of police presence is a significant deterrent. 'There must be a balance though,' he added, 'in having an amazing Games and locking everything down.'

The Opening Ceremony may come under the artistic director Damon Albarn who worked on the Beijing Games opening ceremony. One group which may take part in the opening ceremony is the Spice Girls who may reunite at the Games.

## 10.0 Future Games – Rio Games 2016, Brazil

Rio successfully hosted 2007 Pan-American Games and will host the 2014 football World Cup. 40,000 police will be on duty during the Games in 2016 as Rio had 6000 murders last year – one of the most deadly in the world. Fortunately it has the lure of Copacabana beach. 2020 Games: Rome and Venice will bid to bring the Games to Italy.

## 11.0 Conclusion

This paper has described the ongoing management of the construction of the sporting venues needed for the Olympic Games, to be held in London 2012. The government's notoriety with mega-projects is managed this time with delegation to world experts - without micro management from government ministers. In addition to the usual project goals of time, cost and quality, these Games extend quality to deliver not only a world-class Games, but also to leave a legacy of a sport culture with sustainable jobs and forced regeneration within the five host boroughs of London. The tunnels to carry the powerlines to the site have already been completed on time and on budget – in deed, the IOC recently reported the progress of the clearing of the sites is two years *ahead* of schedule. But with three years to go until the deadline (the Opening Ceremony) is reached, there is still much to be done. No tenant has been found for the main venue post Games to date, although League One football team Leyton Orient was interested and also West Ham. Tessa Jowell has recently made it clear, however, that the venue's primary purpose will be to host grand prix athletics and not football as originally thought. A new state school with a focus on sport will also move in to the stadium.

The Association of Project Management (APM) has applied for Royal Chartered status and an announcement on the outcome is expected in 2009. If successful, plans are in place to create a register for qualified project managers. Research is needed to show how responsibility will be held, individually and/or professionally, to enable those responsible for future project failures to be identified.

The London Olympic Games will undoubtedly be an amazing spectacle during the 10 day sporting event, with 7.7m tickets made available for sale to the public, plus 1.5m tickets for the Paralympics. British athletes won 47 medals at the Beijing Games, including 19 gold medals and a further 102 medals at the Paralympic Games which immediately followed. Britain's Olympic team is now aiming for fourth place in the medals league in 2012. With the economic slump showing no signs of improving, 2009 could define this Olympics project as economic Gold or costly mistake. The projected TV audience in excess of 4 billion people will be the final judge.

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