

Keywords

infrastructure planning; olympics;
planning and scheduling



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Delivering London 2012: organisation and programme

The UK's Olympic Delivery Authority (ODA) was established in 2006 to construct the new venues and infrastructure required to host the London 2012 Olympic and Paralympic Games. These responsibilities were carried out in conjunction with CLM, a delivery partner from the private sector. This paper reviews how ODA was organised and describes the programme management and assurance practices deployed. The delivery strategies established, coupled with an effective relationship between ODA and its delivery partner and rigorous programme controls, facilitated successful delivery of the £7 billion of venues and infrastructure needed for the games.

In the 7 years between the award of the 2012 Olympic and Paralympic Games to London in July 2005 and the opening ceremony in July 2012, the publicly funded Olympic Delivery Authority (ODA) had to be created and staffed and then deliver around £7 billion of major construction works on a largely derelict and polluted site in east London.

At the same time ODA needed to satisfy government, the media, local residents and the public at large that it was providing value for money, and was on track to provide both the infrastructure required to stage the games, and a lasting legacy for this deprived area of London.

This paper describes the set up of the ODA organisation and its delivery partner and the programme management and assurance processes deployed to keep the programme of works on track for successful delivery.

Establishment of ODA

Following award of the 2012 Olympic and Paralympic Games to London, ODA was created by the London Olympic Games and Paralympic Games Act 2006 (2006) and came into being in April 2006, 6 years ahead of the games. The authority was established as an executive non-departmental public body, accountable to the UK government's Department for Culture, Media and Sport (DCMS).

The act provided ODA with overarching legal powers and responsibilities to make preparations for the games in terms of land acquisition and the construction of infrastructure and venues. It also required the authority to ensure that arrangements were put in place for, 'the provision, management and control for transport in connection with the games'.

Much of ODA's early work was focused

on refining the definition of the scope of work that it was to deliver. This needed to be carefully dovetailed to early plans of the London Organising Committee of the Olympic Games and Paralympic Games (Locog), the body responsible for staging the games and providing temporary adaptation to existing sports venues to make them suitable for Olympic and Paralympic competition.

ODA was one of a number of bodies charged with delivering the games and a sustainable legacy for London and the UK as a whole. While it was responsible for the delivery of new venues and infrastructure, it was Locog that held the contract with the International Olympic Committee (IOC) and was responsible for actually managing the games. Both bodies were overseen by the Olympic Board comprising the Olympics minister, London mayor and chairs of the British Olympic Association and Locog (Figure 1).

Strategic framework

As agreed by the Olympic Board, ODA's strategic mission, objectives and 'priority themes' were as follows.

Mission

'To deliver venues, facilities, infrastructure and transport for the London 2012 Olympic and Paralympic Games on time, to budget and to leave a lasting legacy.'

Objectives

- To create infrastructure and facilities associated with games' venues to time and agreed budget in accordance with the principles of sustainable development.
- To deliver Olympic and Paralympic venues to time, design and building specification and agreed budget, providing for agreed legacy use.
- To deliver the necessary transport infrastructure for the games, and devise and implement effective transport plans which provide for legacy use.
- To assist the London Development Agency (LDA) in the finalisation of sustainable legacy plans for the Olympic Park and all venues.

Priority themes

As well as delivering a programme of construction projects meeting cost, time and quality objectives, ODA committed to contribute to the overall London 2012 vision of a broad legacy of economic, social and environmental benefits for London and the UK. To realise this, ODA defined six 'priority themes' to underpin its activity

- health, safety and security
- design and accessibility
- equality and inclusion
- legacy

- employment and skills
- sustainability.

ODA developed and published a strategy for each of these themes, outlining strategic goals as well as specific objectives which the authority committed to achieve in the course of delivering its programme of construction.

To ensure programme-wide objectives for the priority themes were delivered, specific targets were deployed through individual projects (such as the Velodrome) and to tier 1 contracts where applicable (Figure 2).

Delivery strategy

The programme was subject to some unusual overriding driving forces that are relevant when considering the delivery strategy, organisation and programme management that were deployed.

- An immovable deadline: the London Olympic Games had to open on 27 July 2012.
- A highly visible public profile.
- A large investment from the public purse, with attendant scrutiny from government bodies, the media and the public.
- Dual objectives of delivering both functional venues for the games and a lasting legacy after the games are over.
- Multiple clients, sometimes with

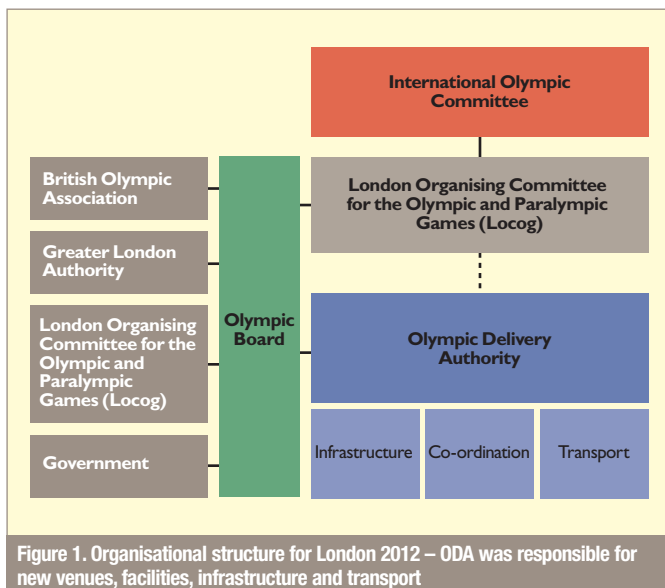


Figure 1. Organisational structure for London 2012 – ODA was responsible for new venues, facilities, infrastructure and transport

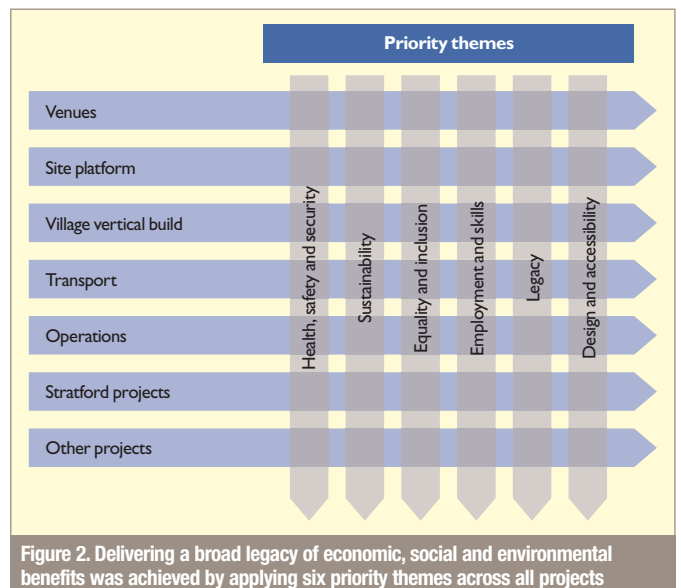


Figure 2. Delivering a broad legacy of economic, social and environmental benefits was achieved by applying six priority themes across all projects

conflicting objectives and with requirement specifications lagging behind ODA's construction programme.

- Potential reputation impacts for the UK and government.

These factors shaped the overarching delivery strategy which in turn led to the design of ODA's approach. The delivery strategy was based on a smaller number of important tenets.

- Getting the right people with delivery capability on board, fast.
- Setting a realistic budget.
- Nailing down the scope, programme, budget and funding early and sticking to it.
- Early and prompt decision making; saving time will save money.
- Procurement to employ NEC3 contracts to ensure cost transparency throughout project development.
- Allowing delivery partners to deliver.
- Active risk management from start to finish.
- Transparency and pro-activity in internal and external communications.
- Maintaining a collaborative approach with government partners.

People and delivery capability

With just 6 years from its creation to the games, ODA needed to move rapidly through the planning phase to all-out delivery. Building a fully skilled in-house delivery organisation from scratch was clearly impossible in the time available using public-sector employment practices. In addition, it was anticipated that the skills requirements would change as the project progressed and ODA needed to put in place a top-class workforce in a relatively short period.

After initial staffing of key positions in ODA, it was decided to employ a delivery partner with experience of large-scale construction projects and turn-key delivery capability. The role of the delivery partner was to manage the construction programme on behalf of ODA and to provide support in delivering its overall objectives.

Following an intensive period of competitive dialogue between ODA and

potential bidders, CLM was appointed delivery partner in August 2006 using a NEC3 Engineering and Construction Contract (ICE, 2005). CLM was a private-sector consortium of the three parent companies of CH2M Hill, Laing O'Rourke and Mace.

The consortium offered extensive large-scale programme management experience through CH2M Hill, including experience of managing prior Olympic construction programmes, and a breadth of construction project and contract management experience through Mace and Laing O'Rourke. The consortium also brought with it turn-key tools and processes, including design management, contract management, change control and cost and programme reporting. ODA therefore secured both the resource for each phase of the programme – through planning, design, procurement and delivery to commercial close out – and also the ability to tap into the expertise of these three major organisations.

CLM was appointed both as ODA's overall programme management partner and as project manager for the major construction projects. This was preferred over the alternative approach of separating project and programme management as it was judged there were clear synergistic benefits of a common programme and project manager, and the potential for conflicts of interest could be managed by virtue of having ODA in an overall assurance role. ODA therefore did not become a 'thin' client, but staffed up appropriately to ensure oversight of programme delivery.

The rapidly changing nature of the programme together with the delivery partner concept required a dynamic approach to organisational design and resource management. Joint reviews by ODA and CLM of organisational design took place during the programme life, with the objective of ensuring constant alignment of client and delivery partner organisational models, skills and resources.

Setting a realistic budget

The bid for the games included a high level description of the overall scope of ODA and an initial assessment of complete programme cost. Following a

detailed assessment of the work required, the final budget was confirmed by the Olympics minister in March 2007.

The process included a detailed analysis of expenditure escalation at previous games and appropriate contingency funding for a programme of this complexity. It was crucial to secure both a realistic budget that recognised the risks involved and funding certainty if and when contingency was required.

Nailing down programme and costs

To validate the budget estimate, at the close of the year of planning (mid 2007) ODA documented the entire programme scope in detail and submitted it with detailed budget assessments to the ministerial funders group and the Olympic Board for approval. The resulting programme baseline report – a detailed 500-page description of aligned scope, programme, budget and risk – was produced in November 2007 (ODA, 2007).

The report identified the items which ODA planned to deliver, the allocation of risk between ODA and funders (to govern any subsequent contingency allocations) and importantly, those items which were outside its scope. The development of this document was crucial in bottoming-out areas of scope uncertainty at an early stage in the programme and gave ODA a firm footing for programme delivery.

In November 2009, in recognition of a number of changes that had occurred since the original baseline report, a comprehensive update was produced – again with the intent of forcing any remaining issues of scope uncertainty to be surfaced and resolved. By this time Locog had a considerably clearer idea of the requirements for the games, and ODA's scope of works after the games had been agreed with the recently formed Olympic Park Legacy Company. The report was again shared with key stakeholders and funders so that there was absolute clarity of what was included and had been excluded from ODA's scope and budget.

Early and prompt decision-making

ODA decided from the beginning that the best value and lowest risk approach

to planning the programme would be to target completion in the shortest reasonable time, with the vast majority of work finished at least 1 year ahead of the games. Planning for an early finish would reduce risk in a number of areas such as scope creep, industrial disputes and cost overruns and would ensure availability of the venues for an extended period of testing by Locog.

A target programme was defined for construction that would complete significantly ahead of the dates required for the games. These dates were further translated into target programmes for contractors, building in more float. The constant focus on time encouraged an organisational culture that was highly action-oriented.

Programme processes and lines of accountability were designed with rapid decision-making in mind, and decision makers were always keenly aware of the potential cost effects of delays. In essence ODA decided to make delivery decisions at the earliest possible juncture even if some areas of uncertainty remained.

Procurement using NEC3 contracts

ODA decided to use the NEC3 suite of contracts for the majority of its procurement activity to ensure transparency of costs as the project developed and to encourage a collaborative approach with suppliers (ICE, 2005).

Further detail on the rationale for using the NEC3 contracts is given in a separate paper in this special issue (Cornelius *et al.*, 2011).

Allowing delivery partner to deliver

ODA employed CLM to manage the construction programme on its behalf. It was essential therefore that ODA formed an effective partnership with CLM to drive maximum value from the delivery partner contract, allowing CLM the lati-

tude to deliver the programme that had been agreed with ODA. This meant CLM determining, within budget parameters, the programme management systems and processes and associated information technology requirements.

As teams from both ODA and CLM were mobilised, a strategy of co-location was adopted which helped ensure alignment of objectives, processes and systems. In the spirit of the delivery partner concept, the CLM programme director and key supporting directors were included in ODA's executive management team. Building a team between the delivery partner and ODA was a specific focus of the executive teams of both organisations, manifested in joint team events and communications.

However, when the programme moved from planning into delivery and the partnership between ODA and CLM was well established, a decision was made not to co-locate ODA personnel when the delivery teams of CLM moved from the planning headquarters in Canary Wharf to the construction site at Stratford. ODA considered that one of its key roles was to act as a buffer, to protect the delivery partner from the 'noise' of potential changes of requirements until these were firm, and the physical separation helped reinforce the differing roles of ODA and its delivery partner.

Although freeing the delivery partner to deliver, ODA retained sufficient assurance and oversight of the agreed programme, which it implemented through the governance and assurance processes described later.

Risk management

From the outset ODA determined it needed to anticipate and manage risk both at a top-down strategic level as well as in bottom-up detail from the individual construction projects. Senior manage-

ment were fully engaged in risk reviews and recognised the changing nature of risk as the programme progressed.

Quantitative risk analysis was used at a project and programme level and was important in keeping a clear focus on the risks and adequacy of the contingency funds.

Communications supporting delivery

ODA understood at the outset that there would be huge levels of public interest in London 2012 given the scale of the ambition, the nature of the event and the significant investment of public money. It also recognised that the project could only be delivered in partnership and with the support of a large coalition of organisations, all of which had differing interests. As a result ODA adopted a highly proactive communications strategy from community and political engagement through to daily public site visits and media opportunities.

Transparency and accountability were critical. The project was divided into distinct phases and 10 milestones were published externally for each year of the construction period. These set out clearly where the project planned to be as the countdown to the games proceeded. In this way people could judge success for themselves against agreed targets. It also had the benefit of uniting the organisation around common objectives. For similar reasons quarterly financial updates were published to ensure everyone had visibility on costs and could track against budgets which were public.

Published milestones to the games are shown in Table 1. From September 2012 onwards the focus is on transformation: deconstructing the temporary venues and transforming the permanent venues and infrastructure into a configuration to hand over to the ultimate legacy owners.

Relationships with government partners

Developing a positive relationship with partners in government was critical to the successful delivery of the programme. In particular, ODA cooperated closely with the government's Olympic executive within the DCMS, which was responsible for overseeing ODA's activities. ODA worked closely with the executive's programme assurance team to design an

Table 1: London 2012 construction and infrastructure: project phases

| Organisation | Period | Activity |
|-----------------------------------------------------------------|--------------------------|-------------------------------------------------------------|
| London Development Agency | Year 1 (2006–2007) | Planning and land assembly |
| Olympic Delivery Authority | Year 2 (to Beijing 2008) | Demolish, dig, design |
| | Year 3 (to 27 July 2009) | 'The big build' (foundations) |
| | Year 4 (to 27 July 2010) | 'The big build' (structures) |
| | Year 5 (to 27 July 2011) | 'The big build' (completion) |
| London Organising Committee of the Olympic and Paralympic Games | Year 6 (to 2012) | Testing and commissioning, the Olympic and Paralympic Games |

assurance regime that was complementary rather than incremental, thereby reducing the burden on delivery teams.

Frequent formal and informal progress briefings of the executive by ODA helped with briefings of other government funding departments and responding to media and parliamentary enquiries, and also smoothed the path of financial and project approvals through government. This close relationship was supported by partial co-location of executive team members within ODA offices.

Programme organisation

ODA's remit encompassed delivery of both capital projects and operations (such as provision of site security). A work breakdown structure was defined to organise the scope of work and manage delivery and monitoring of the programme, with individual 'projects' defined, typically corresponding to a single venue (e.g. the Olympic Stadium) or element of infrastructure (e.g. utilities).

Each project was then planned, procured and run independently (with a dedicated project manager provided by CLM for venues and infrastructure) with overall integration at a programme level managed by CLM. Operations were also defined within the work breakdown structure, which thus represented the totality of scope for which ODA was accountable (even if delivered by others). This facilitated progress and financial monitoring in a common manner across the entire programme.

The high level programme breakdown is shown in Figure 3.

Roles of ODA and delivery partners

ODA performed the role as client and sponsor for the construction programme, responsible for setting policy and ensuring that programme outcomes were delivered. Specific responsibilities included

- defining the programme brief (ODA's programme baseline report, plus priority theme strategies)
- defining the project briefs
- producing the business cases for individual projects and securing a release of funding from government

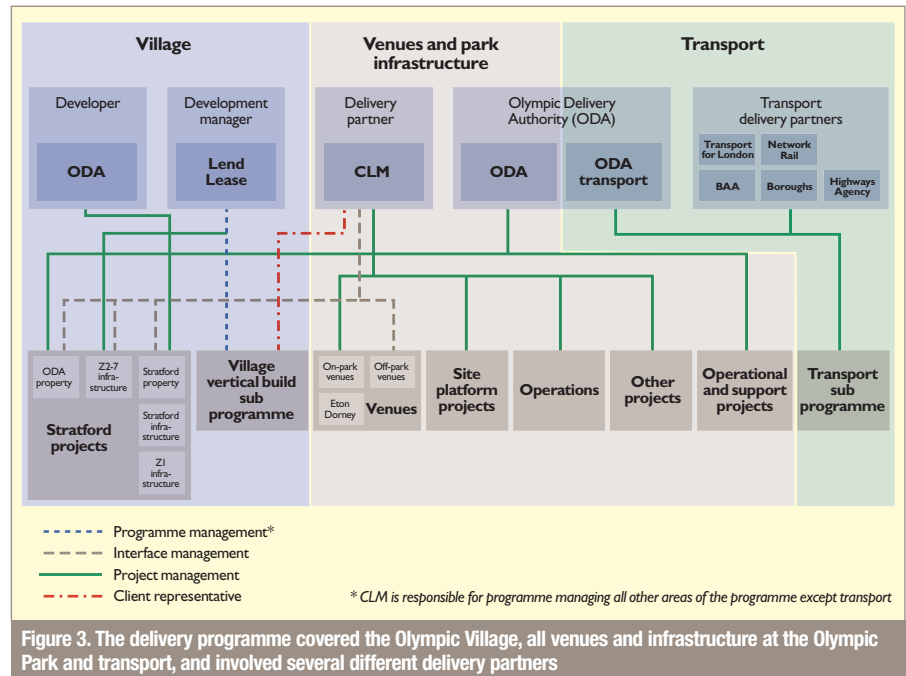


Figure 3. The delivery programme covered the Olympic Village, all venues and infrastructure at the Olympic Park and transport, and involved several different delivery partners

- managing stakeholders
- monitoring programme delivery
- providing assurance to government and other stakeholders that outcomes would be achieved
- approval of all changes beyond the delegated authority of the delivery partner.

For the venues and infrastructure, CLM was responsible for the delivery of projects to the defined brief, budget and required timing. Its responsibilities included

- programme managing the delivery of all infrastructure and venues
- interface/interdependency management
- project management of individual construction projects, including management of supply chains
- progress reporting
- change control.

Each project had an ODA project sponsor, responsible for defining the project brief, securing approval of the business case and managing stakeholders. The sponsors worked closely with the delivery partner project manager, who was responsible for delivery of the project (Figure 4). Delivery partners other than CLM were involved for the village and

ODA performed the role as client and sponsor for the construction programme, responsible for setting policy and ensuring that programme outcomes were delivered.

transport projects but the principles of organisation and roles remained similar.

Programme management

ODA deployed a typical programme and project lifecycle model to plan, deliver and close out the programme. As it was responsible for delivering a portfolio of individual projects, as well as some overarching programme-wide objectives, ODA required a programme management framework that encompassed both programme and project delivery.

The programme management process can be split into three broad stages

- start-up
- delivery
- close out.

These three phases are illustrated in Figure 5.

Start-up: defining the programme

The definition phase ran until the establishment of the original baseline in November 2007. The key product of

this phase was the programme baseline report discussed earlier. This detailed the scope, schedule, budget and risk for the programme.

Delivery: authorising projects

ODA exercised strong focus on project scoping and securing stakeholder buy-in to objectives before embarking on substantive design work. A three-stage project approval process was deployed, with the objective of progressively increasing delivery certainty prior to finalisation of the project business case and release of funding from government. The scope, schedule and budgets identified in the baseline report established the parameters within which projects were further developed.

The formal starting point for a project was a high-level project initiation document, which described the objectives and anticipated budget, and authorised initiation of design and development of the project business case and brief.

The second stage of project approval was the strategic outline case. This established specific requirements (project deliverables) and affordability for each project, and required approval by the Olympic Board. It also allowed ODA early engagement with the supply chain, achieving both higher levels of cost certainty (supported by real prices obtained through competition) and scope certainty (reflecting scope against which suppliers were prepared to contract).

Business cases were developed for each project within the overall portfolio, typically for a sports venue or set of services, using an ODA template based on the Treasury *Green Book* (HM Treasury, 2003). These established the project objectives, overall design parameters (including for legacy) and cost targets and were formally approved by government through the Olympic Projects Review Group. Approval of a business case initiated release of individual project budgets to ODA.

Project briefs were developed describing both the functional requirements, which were aligned to the IOC candidate file and Locog venue requirements, and the non-functional requirements such as statutory regulations and priority theme targets.

At the point of approving a project

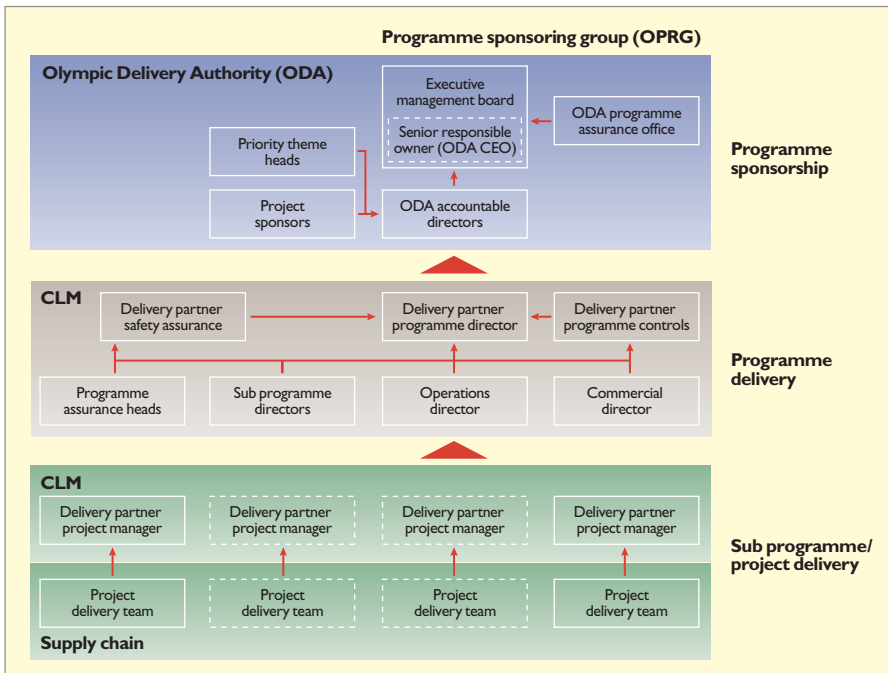


Figure 4. Project sponsorship and delivery roles

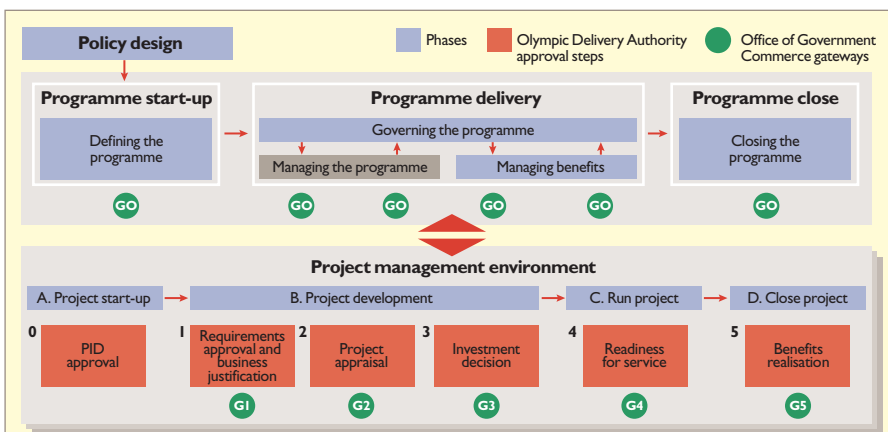


Figure 5. The programme management process was divided into phases of start-up, delivery and close

there was alignment between the project brief, the design solution (generally Royal Institute of British Architects' work stage D), the contractable scope and the business case. This alignment ensured the scope authorised by funders matched the design agreed with stakeholders and the solution proposed from the supply chain. Thereafter, a rigorous change-control process maintained the critical relationship between scope, schedule and budget and sought to manage any emerging 'requirements creep' (Table 2).

Delivery: programme control

Coordination and management of project delivery was undertaken by the delivery partner. Within a complex and dynamic delivery environment, exercising control focused on doing the basics well consistently across the programme. The key objectives were to agree scope, authorise project teams to deliver and then manage by exception based on current and validated project data.

The approach taken to project control was dependent upon the type of project in question. Projects which delivered capital works implemented earned-value control systems along with milestone tracking and risk management. 'Services' or operational projects were monitored against appropriate key performance indicators and cost efficiency, while funding contributions to external delivery partners (e.g. transport) linked payment and tracking to key milestones.

In addition to earned-value metrics, qualitative assessment (i.e. project manager commentary on progress and critical issues), milestone analysis, cost performance reporting, tracking of construction quantities and priority theme reporting were used to provide an overall assessment of project status.

Table 2. London 2012 project approval process

| Project approval step | Key document | Approved by | Purpose |
|----------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Start up | Project initiation document | Olympic Delivery Authority (ODA) | Establish the initial objectives and parameters for the project, obtain initial development funding |
| Requirements approval | Strategic outline case | Olympic Board | Agreement to need for project and approval of requirements |
| Project appraisal/ investment decision | Business case | ODA – or if above ODA delegation limit, Olympic Projects Review Group and minister | Approval of project deliverables and budget |
| Readiness for service | Takeover and handover documents | ODA then London Organising Committee of the Olympic and Paralympic Games or legacy operator | Acceptance of asset |
| Close project | Business case close-out report, commercial close-out report | ODA and government's Olympic executive | Report final status against business case deliverables, document lessons learned, document final commercial position |

There was considerable added value in standardising the project control and reporting of the venues and infrastructure projects. It provided a consistent approach to project management and common reporting across the programme.

Delivery: planning and baseline control

Through the approvals process, each project received authorisation to its scope, schedule and budget. The project's delivery baseline was established when the accepted programme was agreed with the tier 1 contractor (Figure 6). This included the contract work breakdown structure, schedule logic, milestones and time-risk allowances. At this time the project also agreed (with CLM's programme controls team) the time-phased budgets and methods of measuring progress to facilitate the monitoring of earned value.

The accepted programme was processed through a formal change-control process to update the performance measurement baseline. This was then the baseline against which perfor-

mance was measured and reported. Any change to scope, schedule or budget (beyond delivery partner level of delegated authority) was taken through the formal change-control process and approved by ODA prior to implementation.

Governance and assurance

From the outset ODA instituted processes and systems, meeting structures and delegations to ensure effective decision making and visibility of strategic direction, performance management and value for money. Governance was established at four levels (Figure 7)

- board – ODA board and its sub-committees
- executive – the executive management board and its sub-committees, responsible for strategic direction and decision making
- programme – decision making and assurance across the whole delivery programme
- project – focused on delivery of a specific construction project.

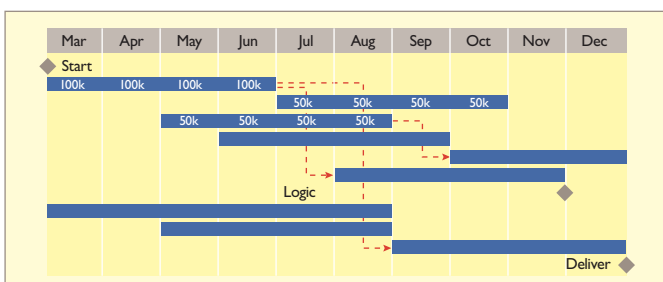


Figure 6. Time phase and budgets were built into project programmes

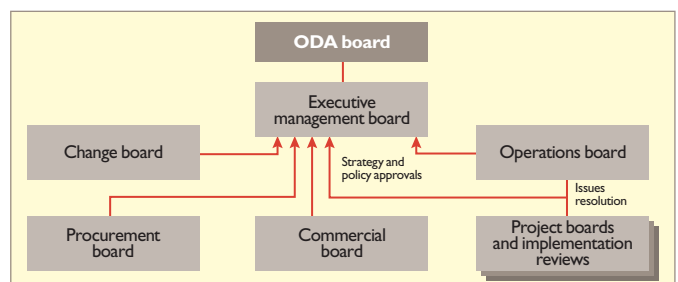


Figure 7. Programme governance structure

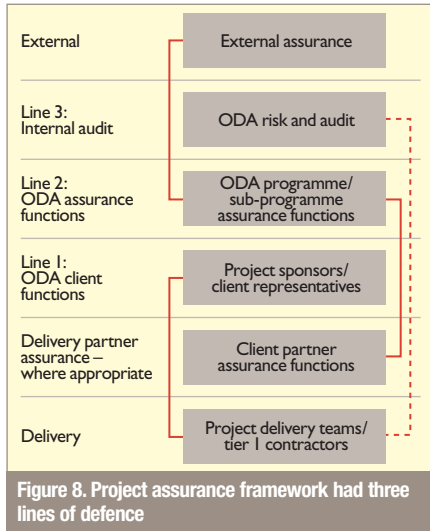


Figure 8. Project assurance framework had three lines of defence

The delivery partner was fully integrated into all aspects of governance, from the executive management board downwards, and was responsible for leading programme and project delivery review meetings, with participation from ODA.

The dynamic nature of the programme was considered in how governance was maintained, with twice-yearly reviews of governance structures, processes and delegations to ensure they were still fit for purpose and make any adjustments necessary.

Programme oversight and assurance

ODA implemented a ‘three lines of defence’ model to provide robust assurance of project and programme performance, and to ensure that risks were being appropriately managed. In this model those accountable for delivery, that is the project teams and line management, formed the first line of defence, responsible for managing delivery and risk.

The second line of defence was the ODA programme assurance office, a small team responsible for overall programme oversight and providing challenge to delivery teams. The programme assurance office’s second-line-of-defence role was supplemented by ODA functional activities, including external technical reviewers, health and safety assurance, finance and commercial departments.

The third line was provided by the ODA internal audit function, reporting to the audit committee (an ODA sub-committee). Additionally, the delivery

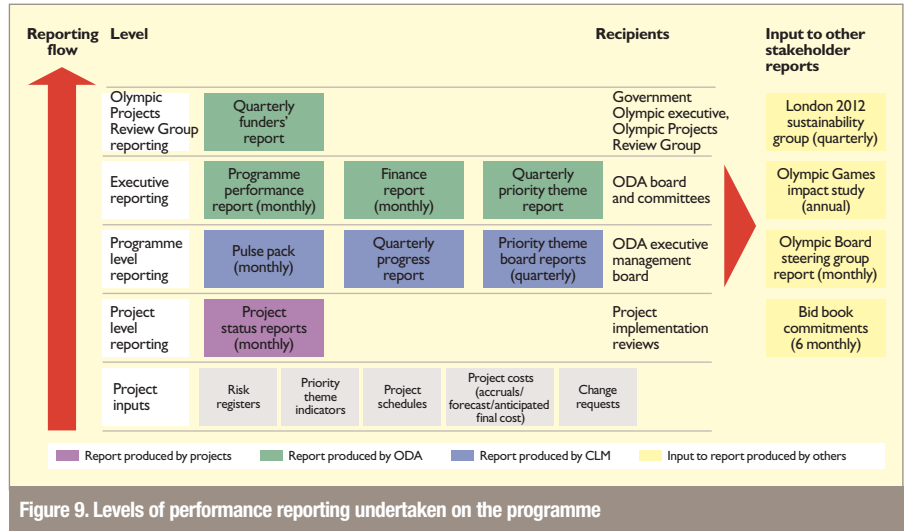


Figure 9. Levels of performance reporting undertaken on the programme

partner provided assurance of delivery to time, cost and quality across the programme (Figure 8).

Internal and external assurance

ODA was subject to high levels of scrutiny from external bodies. Employing its working principle of transparency, ODA sought to cooperate with scrutinising bodies to ensure maximum benefit from such reviews.

Wherever possible ODA designed its internal assurance processes, reviews and reporting to provide assurance to external parties, reducing the need for standalone audits wherever possible. Thus reports produced internally were also used to feed into external stakeholders and scrutinising bodies.

Figure 9 outlines the levels of performance reporting undertaken on the programme.

Conclusion

ODA’s approach to programme management and organisation was not revolutionary; rather it concentrated on the establishment of a clear delivery strategy, maintaining a high level of transparency, clear definition of scope and focused delivery.

The appointment of CLM as a delivery partner allowed ODA flexibility and agility in responding to the differing skills required at different stages of the programme, and the effective partnership between ODA and the delivery partner

underpinned the success achieved in delivery of the objectives.

A clear separation of roles between ODA and the delivery partner gave CLM the freedom to execute the programme, while retaining adequate oversight and assurance from ODA to satisfy all involved that the objectives would be achieved.

The rigorous approach to programme control and change management employed on the project was also a critical factor to its success.

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