Introduction

Context

No major project of this scale has previously been planned and delivered in the UK in such exceptional circumstances on an inner urban brownfield site. The extent of the site, cost, programme and delivery constraints presented a unique set of challenges in masterplanning, design and construction. The magnitude and complexity of the task was matched only by the enormous potential for lasting change. Plans to tackle the ‘environmental, economic and social degradation’ of the Lower Lea Valley had not proved deliverable in the past.

Hosting the London 2012 Olympic and Paralympic Games created the unique conditions in which real and effective regeneration was achievable: an injection of public money, a focused and committed public sector organisation, a fixed development timescale and ‘catalytic event’.

The Olympic Delivery Authority (ODA) was faced with delivering two masterplans in parallel, with different development timescales and brief requirements. In 2006, it had to set in place the foundations for the future needs of the area, with an unknown legacy client or brief, and then adapt the long-term masterplan to create a stage for the 2012 Games.

Delivering a new, low carbon urban district and distinctive Olympic Park required unprecedented standards in sustainable and inclusive design. This ambitious vision faced a ‘maze of scepticism’ about the UK construction industry’s ability to deliver large complex projects on time and on budget.

The ODA’s own aspirations and public expectations for exceptional quality were under significant pressure; the London 2012 construction project was to be delivered at speed, to a non-negotiable deadline, on a large-scale and previously intractable site, with fixed public funding and uncertain future ownership. All this had to be achieved under the intense scrutiny of the UK media, government, the Olympic authorities and the rest of the world, with the international reputation of the UK at stake.

Research aim

The London 2012 Games provided an unparalleled opportunity to test both established and new methods of working that are applicable to other large-scale regeneration and development projects. The ODA has set up a Learning Legacy programme to extract and disseminate best practice and replicable lessons from its experience.

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1 Wembley Stadium, Pickett’s Lock, Millennium Dome and Heathrow Terminal 5.
The research paper highlights innovative regeneration, masterplanning, management, procurement, design and planning practice emerging from the London 2012 delivery programme.

This research paper forms part of that programme. It aims to draw lessons from the ODA's work as a masterplanning client that sought to create an inspirational Olympic Park with a lasting sense of place, capture the regeneration potential of significant public investment, and deliver design excellence within budget and to programme.

The research paper is structured as four chapters that explore the context and challenges the programme faced, and the measures and processes it adopted. It concludes that the ODA's aims were substantially achieved. The research paper highlights innovative regeneration, masterplanning, management, procurement, design and planning practice emerging from the London 2012 delivery programme. It also draws lessons from the effective application of tried and tested techniques.

The research paper is aimed primarily at public sector clients and those working on major regeneration and development projects in the UK construction industry, as well as academia and government.

**Methodology**

The analysis in this research paper is focused on the achievements of the ODA as the public body responsible for developing and building the new venues and infrastructure for the Games and their use after 2012. Other agencies – the London Development Agency (LDA) in particular – played a critical role in preparing the bid masterplan and assembling the land before the ODA was established.

The period covered by this study begins when the interim ODA was established soon after London won the bid to host the 2012 Olympic and Paralympic Games in 2005. This paper was written just before the 2012 Games began. It became possible to form an initial view, but not fully assess, the success of the delivery programme. This can be defined as whether the ODA's vision to create a memorable Games in the short term and a platform for social, economic and physical regeneration and sporting excellence in the long term has been successfully delivered through the masterplan and good design.

The extent to which the buildings and spaces will become a valued part of our heritage, generate pride, contribute to local distinctiveness and demonstrate design excellence can be measured now by critical opinions in the professional and lay media. Economic, functional, social and environmental value can also be measured by the commercial interest in the permanent venues and housing, the success of test events, the sense of place and local ownership created, and by the project's carbon footprint.

The long-term regeneration benefits are difficult to estimate with certainty now, but the final chapter of the full paper identifies early indications of change and investment.

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**Notes**

b The ODA was established by Act of Parliament in March 2006.

c As a major landowner, the Lea Valley Regional Park Authority was an active stakeholder throughout.

d The London Development Agency (LDA), Department for Culture Media and Sport (DCMS), the Greater London Authority (GLA) and the British Olympic Association (BOA) backed the London 2012 bid. The LDA led the bid masterplan and planning application process that was determined in 2005 by the Joint Planning Authorities team formed by the local planning authorities of Hackney, Newham, Tower Hamlets and Waltham Forest, in partnership with the London Borough of Greenwich and the GLA. The LDA also ran the competition to design the Aquatics Centre. The LDA assembled and acquired the land for the Olympic Park and were landowners of the Olympic Site until the transfer of land to the Olympic Park Legacy Company in July 2010.
At this point, when it is not yet possible fully to measure the long-term outcomes, the research paper focuses on best practice in the design and delivery processes led by the ODA. The analysis is primarily based on the experience of those closely involved in delivering and influencing the project as client, planning authority, design teams or key stakeholders. It also draws on external perspectives, including the Commission for Architecture and the Built Environment (CABE)^e advice letters, media reports and professional awards.

The ODA’s approach has been evaluated against the principles and objectives set in its core strategy and planning documents, as well as against these external opinions.

**Achievements and lessons learned**

The ODA’s commitment to a masterplan vision and high quality design was delivered through a comprehensive set of strategies, structures and processes from which much can be learned.

The ODA has delivered a major project ‘On time. On budget. Looking good’ which promises to set the benchmark for all future Games and major event planning, and permanently change UK design and construction culture. Public and critical opinion has now turned from early scepticism to an overwhelmingly positive response. In turn, a reputation for high quality delivery will be a major benefit for the UK construction industry.

With few exceptions, the London 2012 construction programme has been a success story up to this point – a story of challenges overcome and achievements that delivered against, and frequently beyond, expectations.

The ODA worked within testing cost constraints to achieve efficient and economic masterplanning and venue design. It overcame barriers to design excellence and delivered:

- a showcase for UK masterplanning, design and construction excellence;
- the physical platform for the ‘greenest Games ever’; and
- parity of facilities and accessibility between the Olympics and the Paralympics.

It managed the risks of top-down and high-speed regeneration, and delivered an Olympic Park with a coherent, relevant and distinctive sense of place. It promises the opportunity to improve participation in sport by leaving a legacy of permanent venues that are already creating valued settings for, and inspiring, sporting excellence.

The ODA overcame previously intractable physical barriers and reconnected the site to the surrounding city. Wherever practicable, the ODA prioritised Legacy to deliver long-term benefits after the 2012 Games through a long-life, loose-fit masterplan that set a framework of essential infrastructure for a future, low-carbon community without over-constraining long-term development options. It has laid the groundwork to achieve the overriding objective, promised in London’s bid, to use the 2012 Games as the catalyst for the regeneration of the Lea Valley and wider East London.

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^e From 1999–2011 CABE was the executive non-departmental public body, sponsored by DCMS and Communities and Local Government (CLG), that gave independent expert advice to help people create better buildings and spaces.
What were the attributes of the client body responsible for this success story? The ODA:

- understood what it was trying to achieve and saw it through in everything it undertook;
- clearly articulated an overall vision and delivered it through the masterplan and the projects within it;
- took forward the ambitions inherited from the London 2012 bid and solved problems creatively through the masterplanning and design process;
- promoted a culture of sustainable, inclusive and high quality masterplanning and design across the delivery programme, and upheld its commitments in decision-making;
- was a strong and disciplined leader, but open and flexible when required, tackling critical issues upfront and turning constraints to its advantage;
- acted as the lens that focused a broad spectrum of stakeholder interests;
- used the knowledge, experience and sound judgement of its internal teams to prioritise, and stay focused on what really mattered in the long term; and
- demonstrated an ability to build knowledge and learn from its own actions.

No development project of this scale can be run completely flawlessly. This research paper does not suggest that, for all its success, the ODA achieved perfection in every sphere of operation. In fact it encountered many problems and had to adapt to changes in circumstances along the way.

What the research paper does show is that by adopting a rigorous approach to masterplanning, design, procurement and delivery, an immensely complex project can become transformational. In conclusion, the ODA was an ‘intelligent client’ and other clients can learn much from its example about how to apply similar intelligence to their projects.

Overview of recommendations

- Set high aspirations, but make sure they are deliverable and pragmatic.
- Understand and articulate what you want to achieve.
- Take external expert advice to keep on track.
- Be clear and realistic, and where there is uncertainty, build in flexibility.
- Be a strong but adaptable leader – clients get the projects they deserve.
- Use efficient design to maximise the benefits of limited investment and minimise waste.
- Make a virtue of constraints to secure support, and drive quality and innovation.
- Front-load – deal with issues upfront.
- Follow through until the end of the process.
- Take a disciplined approach supported by clear governance to deliver objectives.
- Consider the long term and wider impact of measures from the start.
- Take account of the long-term value of investing in quality in decisions on programme and cost.
- Respond to the context to create a distinctive new identity as the basis for regeneration.
- Integrate disciplines, phases and elements for a coherent sense of place.

Peer reviewers

- Professor Steven Male, Universiti Teknologi Malaysia
- Peter Murray, New London Architecture: London’s Centre for the Built Environment
- Professor Richard Simmons, University of Greenwich

ODA steering group

- Jerome Frost, Head of Design
- Kay Hughes, Principal Design Advisor and Project Sponsor

External funders

- CABE

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Institute of Civil Engineers (ICE) research concludes that the intelligent client role requires an individual champion with a unique set of skills working in an environment of a supporting team and capable organisation. The client champion needs to be achievement orientated and able to articulate its needs, requires knowledge-based skills, and analytical and conceptual thinking skills tempered with flexibility.
Delivering a masterplan vision
A core ambition of the winning bid to host the 2012 Olympic Games was to create a platform for a sustainable legacy of social, economic and physical regeneration. After London’s unexpected success, the ODA faced the significant challenge of translating the vision, commitments and supporting planning consent (2004) into an ambitious and deliverable scheme that anticipated the future urban district.

Confronted with unique constraints, rising costs and extensive scrutiny, it was critical that the ODA maintained a strong position on all aspects of design quality to justify the level of public investment, time and effort. The ODA recognised from the start that creating a sense of place would play a key role in delivering social, cultural, economic and physical change.

The ODA was committed to using the 2012 Games to showcase the UK’s urban renaissance. Unprecedented standards were set across a range of objectives – delivering the greenest Games ever, parity between the Olympic Games and Paralympic Games, design excellence and the foundations for the long-term regeneration of the Lower Lea Valley.

The intention was to use London 2012 to set the benchmark for all future Games, and to permanently change UK design and construction culture. The ODA took on this challenge in the knowledge that complexity, time, cost and risk might increase. In fact, integrating the highest standards through a set of priority themes from the start in all aspects of the project ultimately secured support, solved problems and drove design innovation and creativity. In particular, the ODA made a virtue of the cost constraints by developing a philosophy, and aesthetic, of efficiency through an iterative design process.

Rationalising the masterplan vision
Early masterplan visions to secure stakeholder and investor buy-in perform a fundamentally different function to the delivered masterplan. London promised to stage a memorable Games and create a platform for future regeneration and sporting excellence. This dual objective proved instrumental to London’s success.

The challenge for the ODA was to broaden the focus of the bid masterplan from satisfying International Olympic Committee (IOC) requirements, to one that could deliver long-term benefits to the host city. This required the masterplan and design proposals for Games-time and the future communities to be developed through a succession of iterations before finally being submitted for planning approval.

Realising aspirations for both phases concurrently required the ODA to think in an innovative, pragmatic and delivery-conscious way. Programming in design time at the start was to maximise value, de-risk delivery and secure high quality. The iterative masterplanning and design process demanded intelligence, flexibility and resilience from the design team.

The speed and complexity of the project, in combination with ongoing essential changes, required a unique approach to design development and planning. The ODA had to balance the flexibility needed to deliver on value and programme, with enough certainty to satisfy the planning authority that design quality would be secured. To achieve this, the planning authority and the ODA agreed a practical and flexible planning application process.

A two-part, parameters-based outline planning application structure and ‘slot-in and slot-out’ process proved essential to accommodate the unusual degree of design changes, without undermining the integrity of the statutory process.

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g Of the London Organising Committee of the Olympic Games (LOCOG), government departments and agencies, Parliament, local authorities, British and international sporting bodies, the UK media, public and construction industry, as well as the International Olympic Committee and Olympic Broadcasting Service.

h The measures taken to anticipate the long-term regeneration of the site are examined in Chapter 5 Anticipating the future.

i Refer to the Learning Legacy Micro Report on The town planning client role.
In their final configuration, the permanent venues are in accessible locations and will play a critical role in the function and character of the area.

**Key recommendations for rationalising a masterplan vision**

- Think in a creative, pragmatic and delivery conscious, way to realise masterplan aspirations.
- Develop an efficient, sustainable and future-proofed masterplan where all elements are economically viable and have a critical lasting role to play in the urban context.
- Differentiate between the role of a masterplan aspiration and the measures required to make objectives deliverable and affordable within cost, time and site constraints.
- Programme in careful preparation and time for design from the start, balanced with planning, procurement and construction timescales.
- Work with high performance, resilient and flexible Masterplanning and design teams capable of engaging in an iterative design process from inception to completion.
- Establish a practical, flexible, but robust, planning process and application structure that can accommodate design changes without undermining the statutory process.
- Use expert external design advice to provide assurance of quality throughout the planning process.
Delivering the highest standards

The ODA’s overarching commitment was to meet the long-term needs of all people who will use the Park during Games-time and in the future. The broader social, community and environmental benefits of the London 2012 Games proved critical to securing political and stakeholder support and, ultimately, reduced the risk of delay or planning refusal.

Although legacy, sustainability, inclusion and design quality were core bid ambitions, the ODA was tasked with developing a structure to deliver them. It produced a range of corporate strategies in consultation with stakeholder groups to set out the process by which the commitments would be delivered. The early masterplan vision was translated into measurable targets (for sustainable development) and standards (for inclusive design) that could be embedded and monitored at every stage of the design, procurement, planning and delivery process.

A client review and conformance reporting process was established to monitor projects against six ‘priority themes’: Design and accessibility, employment and skills, equality and inclusion, health and safety and security, legacy and sustainability.

The projects were designed to minimise the long-term environmental impact and to be accessible for the convenience and enjoyment of everyone. As a result they were better buildings and spaces.

The example set by the ODA in delivering its commitments demonstrates what is possible to achieve, even on the most constrained project, and should bring about a much-needed culture change in UK design.

The Aquatics centre was redesigned to prioritise legacy use. Temporary stands accommodate the additional seating requirement for the Games. Post Games a smaller venue will achieve a better whole life of value without losing the spirit of the original competition winning scheme.

Design and accessibility, employment and skills, equality and inclusion, health and safety and security, legacy and sustainability.
Key recommendations for delivering the highest standards

– Make commitments to broader social, community and environmental benefits at the start to secure stakeholder and political support, and justify investment.
– Clearly articulate the objectives and address stakeholder expectations throughout the process.
– Crystallise the masterplan vision as measurable targets and standards embedded and monitored at every stage of the design, procurement, planning and delivery process.
– Incorporate measurable targets into team objectives, project briefs and contracts at the start to reinforce client expectations to design teams, project managers and contractors throughout.
– Establish a client review and conformance reporting process at regular design stages that monitors projects against measurable objectives.
– Create a forum (such as client review) that represents different stakeholder interests (such as access and inclusion) to resolve conflicts between competing objectives.
– Develop a project management structure that promotes cross professional working between the design, delivery and planning teams.
– Set shared objectives with the planning authority to support an efficient planning process and carry out extensive pre-application consultation with independent expert design advice.
– Address critical issues before planning applications are submitted.
– Secure targets as planning conditions or legal Section 106 commitments to give them weight in the design, client decision-making and planning process.
– Set clear objectives without prescribing how they should be delivered to leave scope for innovation and creativity.
– Integrate measures to deliver the highest standards of sustainable and inclusive design at all spatial scales and into every aspect of the design, procurement and delivery process from the start.
– Ensure that people with disabilities and sustainability experts participate in the design, monitoring and delivery process.

The compact design of the Velodrome creates an intense sporting experience, and minimises embodied energy, cost, and demand for space heating.
Delivering design excellence
A successful project needs to strike the right balance between time, cost and quality, which tend to pull in different directions and have different risks. The finite delivery timeframe and budget for this project, and the parameters of the public sector procurement route, created tough conditions for quality to thrive.

The ODA tackled cost constraints head on by prioritising investment where it mattered – in permanent and viable venues and infrastructure within the masterplan, and to realise the design intent and regeneration potential of legacy projects. Temporary elements were designed and constructed to keep costs and carbon emissions low.

The ODA embraced the core belief that ‘design adds value rather than cost to a project of this entity, ambition and scale’. The masterplan and many of the permanent venues such as the Velodrome went one step further and made a virtue of economy as the guiding principle for design excellence.

Using the knowledge and experience of its client team and expert external advice, the ODA developed a clear understanding of the essence of a design through a hands-on collaborative design process where the design was monitored and signed off at all stages by the client. This was not seen as an end in itself, but as an essential tool to meet its aspirations. The delivered projects show that investing time and skills in a client-led iterative design process, informed by expert external advice, will generate efficiencies, resolve competing priorities, and manage risk in the design, delivery and planning process.

The ODA’s tailored approach to design and build procurement, with time for design at the start, and supporting the value of design development, was critical to realising design intent in construction. The ODA’s proven ability to work within budget constraints and actively create value without compromising on quality should contribute to overcoming the construction industry perception that ‘good’ design means trying to deliver and pay for the unachievable.

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Investing time and skills in a client-led iterative design process will generate efficiencies, resolve competing priorities, and manage risk in the design, delivery and planning process.
Key recommendations for delivering design excellence

– Invest time and skills in a client-led collaborative and iterative design process that is both creative and pragmatic.
– Develop a clear Client and Design team understanding of the elements of a design that are critical to realising regeneration potential, design quality and intent.
– Make a virtue of economic constraints as the guiding principle for design excellence by developing a philosophy, and aesthetic, of efficiency. Do ‘simple things in a bold way’.
– Recognise when cost constraints have gone beyond the point where design innovation alone can produce a good outcome and reprioritise budget if necessary.
– Take the whole life value of buildings and infrastructure into consideration when prioritising project budgets to support economic, social and environmental sustainability.
– Appoint Design teams to develop proposals to scheme design stage (RIBA stage D) as a minimum to control quality up front and safeguard design intent.
– Retain the same Design team post-Royal Institute of British Architects (RIBA) Stage D either by novation to the contractor or, where that is not possible, by extending their appointment on the client side to oversee the project through to completion.

Waterpolo: The ODA worked creatively with recyclable materials and a standardised kit of components that could be returned to the supply chain in the design of temporary venues
Delivering aspirations for design excellence
The London 2012 delivery programme benefited from the culture established by CABE in which clients, designers and planning authorities have "the confidence to stand up for quality"[14].

With early advice and support from CABE and other stakeholders, the ODA established a client structure and disciplined design management process[15], underpinned by governance, to deliver its objectives against tough constraints, and within the parameters of public sector procurement. CABE’s existence enabled the ODA, as client and planning authority, to make design central to its decisions and ‘get the most out of the Park and venues for the long term’[16].

Successful building projects are underpinned by client teams who demonstrate strong leadership, have good organisation skills and are capable of making sound and informed decisions[17].

“Designing for Legacy”, published in 2007, set out how the ODA intended to define, procure, monitor and deliver good design. Firm and skilled leadership, project briefs and design guidance that inspired excellence, excellent design teams and objective evaluation including external scrutiny from CABE and the planning authority, were the touchstones of its role as a good client for design. Clients get the buildings they deserve.

The widely acknowledged success of the Park landscape, infrastructure and buildings is a testament to the quality of the ODA’s leadership and the design process it managed.

Strong client structure and leadership
In the crucial setup phase in 2006, the ODA worked in collaboration with CABE and other key stakeholders (including the Mayor of London’s Design Advisory Panel and the RIBA) to establish its approach to delivering design excellence.

In high speed and intensive development projects, strong leadership and high-level influence within the delivery organisation is essential to drive key objectives, including design. The ODA set in place a client governance structure with a firm commitment to design at every level from government, board and executive to client design team.

Consistent representation maintained the profile of design excellence, inclusion, sustainability and legacy in decision-making on procurement, programme and cost. The design management process underpinned the effective operation of the ODA’s client design team structure, enabling key issues to be identified early and escalated to board level.

The range of skills and experience within the ODA, as promoter and as planning authority, in combination with a flexible, but robust, approach, also proved critical to delivering objectives and driving quality.
Key recommendations for providing strong client leadership

- Establish a governance structure with representation for, and commitment to, client objectives at every level.
- Appoint a high profile and effective design champion to represent design quality at Board level.
- Resource complex masterplan delivery programmes and projects with the right range of skills, experience and influence.
- Adopt an open, flexible and politically adept leadership approach to difficult situations and changing circumstances.
- Work in collaboration with, and take advice from, a range of stakeholders and experts from the start to inform the strategic approach to design and delivery.
- Structure the client design team and design management process to promote joined-up thinking and ongoing learning between teams.

The ODA concentrated investment in the permanent Aquatics Centre, including six fluid concrete diving boards that promise to become an iconic asset in future.
The ODA defined its aspirations for design excellence in high-level strategy documents, masterplan design guidance and individual project briefs. At the start of the project, its commitment to quality, sustainability, inclusive design and designing for legacy, and the process by which they would be delivered, were published in a range of corporate documents.

The Design Strategy, Designing for Legacy, identified seven core objectives to assess design quality: value for money; on time; fit-for purpose; legacy; environment; health and well-being; safe and secure; inclusion. The ODA used these strategies to inform and direct its own internal design review process, its delivery partner and to address stakeholder and planning authority expectations.

The ODA client body and planning authority shared an ambition to promote design quality, sustainability and inclusivity while retaining scope for innovation and distinctive design character. In a direct delivery project the greater risk is creating a contrived and uniform scheme that works against regeneration through inflexibility during the development phase.

The design guidance in support of the planning applications set the expected level of quality without predicting design solutions. Well-refined project briefs informed by core client objectives were embedded in project procurement and planning. This approach provided certainty on delivery cost, and allowed the design to develop to respond to unique circumstances. With its design teams, the ODA succeeded in inspiring excellence, carrying design intent through to completion and creating a sense of place.

Chapter 2.2 ‘Delivering the highest standards’ examines how the ODA integrated inclusive and sustainable design in all aspects of the masterplan at the most fundamental level.
Key recommendations for defining a vision for excellence

– Clearly articulate the client understanding of design quality, and its purpose in improving the experience of a project for end users and the wider community.

– Define expectations for design quality in strategy documents, masterplan design guidance, planning documents and individual project briefs to secure the quality of the outcome.

– Leave scope in the planning process for innovation and distinctive design character for skilled design teams to develop design proposals in response to unique site and practical constraints.

– Develop clear, well-refined briefs informed by client objectives and proposals designed up to RIBA stage D and embed them in project procurement.

– Involve end-users and future stakeholders in developing project briefs as the basis for well-resolved designs fit for their long-term purpose.

The creative and innovative use of materials, texture, colour and lighting to reinforce legibility, identity and durability is described in the Design and Access Statement and design brief issued by the ODA.
The ODA prioritised design and artistic excellence in its design team selection criteria.

Procuring excellent design

Many experienced clients say the choice of the design team is the single most important factor in achieving high quality and is crucial to the long-term success of a project.20

The ODA prioritised design and artistic excellence in its design team selection criteria. This was an important step towards overcoming the misconception in parts of the construction industry that ‘good’ architects design expensive and complex schemes.21

Competing contractors and design teams were selected based on ability and quality, with core requirements embedded in tender documents. Integrated project teams that included skilled design professionals with the right experience proved critical to meet the wide, and sometimes conflicting, range of project requirements.

The ODA, along with the wider construction industry, signed up to diverse and inclusive procurement to create opportunities for a range of current and emerging creative talent.22 But the non-negotiable and nationally accepted requirement to manage risk, the complexity of delivering major venues and the nature of the public sector procurement process proved to be significant hurdles.

The ODA initially intended to procure a series of smaller structures across the Park and planned to establish and follow a tailor-made design Official Journal of the European Union (OJEU) procurement procedure to create opportunities for small practices.

In the end, the few smaller scale projects were delivered by LOCOG that was able to procure a range of emerging designers outside the limitations of public sector regulation.

The critically acclaimed completed buildings demonstrate that appointing project teams with the right skills, experience and a track record of design excellence is the essential basis for delivering best value and complex brief requirements without compromising on quality.

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1 Strategic Forum Task Group. 2006.
Key recommendations for procuring excellent design

- Select consultants and contractors on the basis of ability and quality of the team as a whole rather than basing selection on a specific competition scheme.
- Use independently approved lists of high quality consultants and outline schemes to benchmark design quality in the design team selection process.
- Use the expertise of senior members of the client team and an expert jury to advise on the design team selection process and reach a balanced consensus view.
- Monitor whether the selected design team is delivering the desired outcome and be prepared to bring in a new team if project briefs are not being met.
- Appoint integrated project teams that include skilled design professionals with the right experience to meet a wide range of conflicting and complex requirements.
- Identify opportunities to allow emerging practices access to larger projects within standard procurement guidelines by working with larger practices or contractors.
- Scale the procurement process (including professional indemnity insurance requirements) in proportion to the projects and make the process less bureaucratic to access emerging practices.
- Provide early, clear guidance to design teams on the client’s baseline policies and design requirements, and simplify the submission process.

Central Park Bridge: the ODA ensured that the professional indemnity and turnover requirements for this critical showcase project did not exclude applications from emerging design practices.

For example practices recognised in industry awards such as RIBA, Architect of the Year (AYA) and Young Architect of the Year (YAYA) or Architects Journal awards.
Evaluating design quality

A core ODA commitment was to establish a comprehensive design management process with its delivery partner to deliver design quality, functionality and value for money. The absolute need to get the project right first time required a focused hands-on client approach and a collaborative design process.

The ODA developed a disciplined client review process to track and report project performance and progress at every stage. The process informed client decision-making and drove design quality, innovation and creativity. In the context of a demanding programme, establishing a forum to address stakeholder issues from the outset was also critical to minimise risk to delivery.

Quality indicators played an important role in monitoring the measurable aspects of sustainability and inclusion in design. The ongoing iterative design and client review process was equally reliant on good client judgement, with advice from CABE and other stakeholders. In particular, the influence of the ODA’s principal design advisors, working together with the Project Sponsors, proved essential to reconcile competing objectives, to prioritise key aspects of design in managing budgets and project interfaces, and to evaluate the more elusive aspects of design. Testing its ideas on key strategic and detailed design matters with a range of stakeholders and experts at the appropriate stage in the design process proved fundamental to keep the project on track.

External reviews from CABE were considered crucial to give the planning authority confidence to support innovation and require design quality.

Key recommendations for evaluating design quality

- Establish a disciplined and collaborative design management process that tracks and reports on project performance at each stage.
- Closely monitor project performance and secure sign off from relevant stakeholders at each stage to drive quality, innovation and creativity.
- Develop good client judgement, informed by internal knowledge and experience and expert external advice, to prioritise design in project budgets and interfaces.
- Take external independent advice at key stages through a credible, design review service to ensure wider and long-term issues are considered.

The Velodrome team produced a sustainable and highly acclaimed venue by embedding priority theme objectives in every aspect of design development from the outset.
Creating a sense of place
Creating a Park with a coherent and relevant sense of place was considered central to delivering a platform for a sustainable legacy of social, economic and physical regeneration. The vast, semi-industrial, contaminated and largely isolated site, criss-crossed by infrastructure, in a deprived area of the Lower Lea Valley was identified as a preferred site to optimise the regeneration potential of the London 2012 Games. The latent positive physical attributes were also an opportunity to create a compact linear Park alongside the River Lea in an existing urban context.

The challenge for any regeneration project is to bring about positive and major change and, at the same time, root the emerging development form in the identity of the local area and people.

The ODA faced the significant task of transforming a huge area that had proved too difficult to regenerate in the past into an exceptional physical environment in only six years. There was a risk that, in the rush to build, site remediation and preparation would wipe away any vestigial character of the site.

The ODA committed to creating a Park that reflects the heritage and diversity of the Lea Valley and fosters a sense of ‘ownership’ in those who are most likely to use it. It led a contextual masterplanning process that grew out of its vision for, and an understanding of, what it would be like to visit, compete, live or work in the Park during and after the Games.

The design of the masterplan and buildings was measured at ODA Board level against its relationship to the location and context and its contribution to sense of place.

The sheer scale and compressed timeframe for the directly delivered first phase of the masterplan also required the programme to be managed as individual construction packages and submitted as separate planning applications.

The ODA’s client design team developed a design integration process to reinforce quality and consistency and minimise risk. This internal design review process, set against a background of a robust design strategy and principles, ensured that overall masterplan intent was not lost through disconnected decisions on individual contracts. The distinctive design character of the Park, which has emerged from a range of exceptional UK and international masterplanning and design talent, builds on the existing site characteristics and captures the excitement of the event.

Capturing local identity
The foundation of a successful masterplan is first to understand the physical context of a place – through urban design, and historic and landscape characterisation analyses – before trying to change those aspects that need changing.

At the start of the masterplanning process, the ODA and its masterplanning team invested time and thought investigating the wider socio-economic and topographical context. This early analysis was translated into the masterplan design principles, and the typologies and languages of the landscape, infrastructure and architecture.

When architectural teams were brought on board to develop the individual projects, a diverse range of designs emerged that were still grounded in the early masterplan thinking. The existing positive qualities of place also needed to be integrated into a strong new identity to bring about change.

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n Wards in and adjoining the Lower Lea Valley are generally within the 10 per cent most deprived in England, with some in the 5 per cent most deprived. Rose, D. 2006, p.11.
o Set out in Design Principles and the Design and Access Statement (ODA, 2007). In Design Principles the ODA and its design teams imagined what it would be like to compete in, visit, live and work in the Park during and after the Games in a series of scenarios.
The delivered Park landscape and buildings capture the spirit of place by re-presenting the industrial and riverine character in distinctive new forms, rather than literally preserving or re-using aspects of, or elements from, the site. The family of utilities buildings was designed to celebrate the industrial archaeology of the site and act as the ‘visible legacy of the Games infrastructure’.

The distinctive North Park landscape enhances the existing wetland topography and creates a strong context for the architecture. A clear attitude to landscape setting was fundamental to ensure all the large-scale permanent buildings contribute to the character and value of the Park in the long term.

A clear attitude to landscape setting was fundamental to ensure all the large-scale permanent buildings contribute to the character and value of the Park in the long term.

**Key recommendations for capturing local identity**

- Carry out a comprehensive site analysis at the start to inform the masterplan, and the typology and language of the landscape, infrastructure and architecture.
- Develop a strong new identity that builds on site characteristics by re-presenting existing character in distinctive new forms.
- Create a distinctive destination through the strong spatial quality of the public realm, and the character and setting of the buildings within it.
- Design large-scale object buildings (venues and utilities buildings) in response to their context, ensuring their form and setting contribute to urban character.

The common typology and language for the family of utility buildings was a celebration of the industrial archaeology of the site, characterised by dark industrial materials.
Reinforcing quality and consistency

The ODA was committed to deliver a large-scale, multi-functional Park with a strong character and design quality. This undertaking was grounded in the proven role of high quality and coherent public realm in creating value and a sense of place in regeneration projects. The overall composition and materiality of, and detailed interfaces between, the infrastructure, buildings and landscape will be central to the way people experience the Park. These aspects demanded as much consideration as the major projects themselves. The ODA established a disciplined design integration process to ensure all projects and elements worked together across individual budgets and programmes.

Leadership within the client and masterplanning teams on the detailed realisation of the masterplan as a whole proved critical. An integrated design approach to architecture, landscape, infrastructure and art, set within a coherent site-wide public realm strategy, was required from the outset. The planning process also provided a strong benchmark for consistency and design quality, primarily through approved guidance on street and infrastructure design.

From bid to delivery, a strong overarching narrative that drove the character of the masterplan and elements within it was necessary to communicate the vision and create consistency across the different development phases, design teams and clients.

An integrated design approach to architecture, landscape, infrastructure and art, set within a coherent site-wide public realm strategy, was required from the outset.

The Lee Valley Canoe Slalom course at Broxbourne is a positive example of a landscape-led masterplan.
Art has been physically integrated into the landscape and buildings across the Park in the design of lighting, wayfinding, bridge surfacing, retaining walls, and infrastructure enclosures.

Key recommendations for reinforcing quality and consistency

– Develop a strong overarching narrative to communicate the vision and create consistency across the different development phases, design teams and clients.
– Prioritise high quality streetscape and landscape design to create a sense of place, attract investment, and promote recreational and cultural uses.
– Foster a culture of integrated working between design teams to generate creative solutions to conflicts between projects within a masterplan.
– Appoint a senior member of the client team to take strategic responsibility for the detailed realisation of the masterplan.
– Appoint the masterplanning design team to support and advise on detailed delivery and the interfaces between projects and with the surrounding area.
– Ensure landscape teams have a significant share of design responsibility and budget from the start, and oversight across masterplan projects and phases.
– Develop an overall public realm strategy that integrates architecture, landscape, infrastructure and art from the outset.
– Establish a disciplined design integration process from the start to track and resolve project interfaces in collaboration with design teams.
– Commission and ring fence a budget for art at the start to ensure it is embedded conceptually, as well as physically, at the right time in the project.
– Develop site-wide strategies from the outset to co-ordinate small-scale infrastructure and other smaller elements across the masterplan.
– Use approved guidance on street and infrastructure design to set expectations for the quality and consistency of the public realm.
– Use prototypes and sample areas to communicate the quality and consistency required of predominant elements to different contractors.

Prioritise high quality streetscape and landscape design to create a sense of place, attract investment, and promote recreational and cultural uses.
**Anticipating the future**

The catalytic effect of Olympic investment has proved significant in the past. The London 2012 Games presented a rare opportunity to kick start regeneration in one of the most deprived areas of the UK. The London 2012 Games presented a rare opportunity to kick start regeneration in one of the most deprived areas of the UK. To realise the long-term potential of the project, the ODA followed the bid commitment to plan legacy and Games together from the start. But the two distinct phases with totally different development timescales presented a unique challenge in design and planning terms; particularly during the period before the future client body was established.

Four key strategies emerged that enabled the ODA to future-proof construction for the Games:

1. **Legacy was ‘locked-in’, as far as possible, to the design, planning and delivery process;**
2. **Investment in infrastructure was prioritised as the necessary basis for economically and environmentally sustainable regeneration;**
3. **The long-term impact of the Games-time masterplan on the quality of the urban environment was considered from the start;**
4. **Where it was not possible to achieve clarity from stakeholders about future requirements, the ODA opted for what was necessary to deliver the 2012 Games, leaving long-term options open as far as possible without compromising the event itself.**

In any long-term development project, it is not possible to fully predict the future. The London 2012 development project faced an exceptionally complex and uncertain context. Apart from the bid team, few had been confident that London would be selected to host the 2012 Games.

The Games-time masterplan was brought forward in a complex social context, changing political and economic circumstances and an evolving physical environment. Although a strategic framework for the regeneration of the Lower Lea Valley was in place, the masterplan had to be overlaid on a patchwork of local authority plans (Local Development Frameworks) at different stages of preparation. Fundamental long-term governance arrangements to deliver regeneration were unresolved. It was not always possible to achieve consensus between all the stakeholders, or to allow the time to negotiate consensus in many cases.

The critical question is whether the ODA put in place the best possible foundation for others to deliver long-term regeneration, based on the information and advice available at the time?

It will be difficult to measure the success with which the ODA has played its role in realising the potential of the Games to transform one of the 10 per cent most socio-economic deprived areas in the UK, for some time.

Whatever happens in the long-term, the ODA will leave behind a flexible development site with a framework of essential utilities, linkages, green space and social infrastructure to support a future low carbon community. The challenge set down for the Olympic Park Legacy Company (OPLC), since reconstituted as the London Legacy Development Corporation (LLDC), will be to ensure that Games-time public investment is secured as it takes forward the masterplanning and development of the strong platform it has inherited.

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**For example, the urban transformation generated by the 1992 Barcelona Games had far reaching economic and social impacts and was highly successful in harnessing the impetus and legacy of the Games (Brunet, Ferran Cid. 2002).**

**Paris was a strong long-term favourite to win the bid to host the London 2012 Olympic Games.**

**DCMS have commissioned a meta-evaluation to assess the legacy and impacts of Games-time investment.**
The ODA developed a unique multi-layered design and planning process to achieve the greatest possible continuity between the different requirements of each phase.

A long-life loose fit approach to masterplanning was adopted, ensuring that buildings and infrastructure delivered by the ODA did not preclude long-term development options. In the absence of a long-term client body, the ODA worked collaboratively with the LDA, as landowners and the proxy long-term masterplanning client, and with the surrounding boroughs, to take account of the future needs of the wider area. Strong political leadership, skills and capacity at local level proved crucial to maximise the regeneration benefits of Games-time investment.

Another governance model to allow the framework for future requirements to be set in collaboration with the Olympic delivery body, is to form a legacy company, or establish a proxy client, at the early stages. Alternatively the responsibility for future development could be embedded within the Olympic delivery organisation.

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6 The Olympic Park Legacy Company was established on 8 May 2009 as a company limited by guarantee with three Founder Members: the Mayor of London; the Secretary of State for Communities and Local Government; and the Secretary of State for Culture, Olympics, Media and Sport. Margaret Ford was appointed as Chair of the OPLC Board in April 2009 and Andrew Altman as Chief Executive in August 2009.

7 This was a legal requirement of the 2007 application.

8 ‘Long life loose-fit and low energy’ an expression coined by RIBA President Sir Alex Gordon, has been used by CABE to describe sustainable design and good design as ‘how a building, space or place meets the social, economic and environmental needs of the people it serves, and how it can be managed and adapted as those needs change over time.’ CABE, Sustainable Design, Climate Change and the Built Environment, 2007, p.2.

9 A lack of policy for what would happen to the 2000 Sydney Olympics Park after the Games and a delay in establishing the governance structure (2001) and long-term redevelopment plan (2005) has been identified as the reason for the post-Games hiatus and subsequent slow transformation of the site. Former chief planner for the Sydney Games Sue Holliday quoted in: Usborne, S (2008). 19 August.

10 The 1972 Munich Olympics set up a Regeneration Agency before the Games and the Olympic Village became a ‘showcase of regeneration.’ (Vigor, A, Mean, M and Tims, C 2004).
Key recommendations for locking in legacy

- Set in place a robust, but flexible, masterplan framework that maximises investment, secures quality without precluding options for future development.
- Adopt a collaborative masterplanning approach with the surrounding areas to maximise physical integration and regeneration benefits.
- Work in close collaboration with long-term stakeholders to take into account the potential impact of a masterplan on future phases and the wider area.
- In a project with distinct phases and development timescales, embed the interim and long-term vision in the masterplanning and planning process from the start.
- Establish an organisational structure with the remit, capacity and funding to consider different development phases together.
- Establish transitional arrangements if clients have to change during a masterplanning process and clarify the fixed elements essential to quality and community value.

The ODA developed a conceptual Legacy masterplan and deliverable post-Games masterplan in parallel with the Games time proposals.
Invest in essential utilities, transport, movement, green space and social infrastructure as the foundations for sustainable regeneration.

Regeneration of the Lower Lea Valley had been frustrated in the past by a combination of physical, social, economic and administrative barriers. In many respects, the challenge of transforming one of the most intractable and deprived areas in the UK could not be a better starting point to exploit Games investment.

To maximise the economic, social and environmental benefits of hosting the Olympic Games and Paralympic Games, the ODA invested in a flexible and future-proofed framework of infrastructure and facilities with the capacity to support sustainable regeneration.

A clear structure of transport and physical connections will break down barriers to movement and transform the Olympic site into an accessible public park. New power, water and gas networks will sustain a large-scale low carbon community. A large-scale, high quality and sustainable landscape will form the ‘nucleus’ of the long-term vision for the Lower Lea Valley and the East of London.

The location and scale of permanent buildings and infrastructure within the masterplan were designed to have a long-term positive impact on the quality of the urban environment.

The strategy of considering future needs will also minimise the time, cost and energy needed to transform the Park after the Games. London 2012 investment in essential social, movement, transport and green space infrastructure is already generating value, attracting investment and improving the life opportunities of local communities.

Key recommendations for investing in infrastructure and facilities

- Invest in essential utilities, transport, movement, green space and social infrastructure as the foundations for sustainable regeneration.
- Set in place a robust framework of critical physical connection points from the start as the basis for an accessible and integrated urban district to evolve in future.
- Future-proof the capacity and location of utilities, transport, movement and green space infrastructure in the first phase to deliver a high quality and sustainable long-term development platform.
- Size and locate viable permanent elements to meet long-term needs and retrofit temporary or adaptable structures to meet additional short-term requirements.
- Test the impact of the scale, land-take and location of roads and utilities dictated by technical standards on the character of the urban environment at the start.
- Make provision within the planning permission and transport impact assessment to adapt conventions where necessary and indemnity allows.
- Anticipate future demand in sizing transport and utility corridors to ensure the quality of the public realm is not compromised in the long term.

The objective stated in the Host Boroughs, SRF, 2009, p.1, was that ‘within 20 years, the communities which host the Olympic and Paralympic Games will enjoy the same social and economic chances as their neighbours across the London.’
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6 ‘The only way you will measure the legacy is in the long term, when there is proper infrastructure and schools and when jobs bring activity back into the community. That is the first measure: the deprivation indices’ David Higgins quoted in Great Britain. Parliament. House of Commons. 2007. Ev 9.


8 The bid budget of £2.4 billion rose to a £9.3 billion public-funding package in 2007. The ODA’s budget represented only £5.25 billion of that total (Great Britain, Parliament, House of Commons, 2008).


12 Tessa Jowell, then Secretary of State for Culture, Media, Sport and the Olympics, and UK Cabinet Design Champion. Speech to UK Design Champions at CABE, 12 December 2006.

13 The cost of the ODA’s construction programme cost was estimated at £6.77bn of the overall government funding package of £9.3bn (Government Olympic Executive (GOE), 2012, p.8).


15 ODA Design Principles, p.44.


18 ODA. 2007, Designing for Legacy, p.10.


20 CABE, Creating Excellent Buildings. 2010: Selecting the project delivery design team.

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Refer to full research paper on the Design Council CABE’s website for bibliography. Available at: www.designcouncil.org.uk/2012lessons