

Host cities

Creating better places
to live and work through
event-led development



A successful host city will...

generate social and economic benefits,

reinforce its global image and brand,

boost community health and wellbeing,

and create a legacy to be proud of.



Long-term benefits

A city is buzzing with excitement in the run-up to and during a games, tournament or expo.

The immediate impacts of hosting a major event are tangible: economic stimulus, global media coverage, higher visitor numbers, and shiny new stadiums and arenas.

But long after the crowds have gone, what's the legacy?

The measure of success for a host city has to be more than delivering a major event on time, on budget and selling out all venues.

This is because hosting an event – sporting, business or cultural – represents a unique opportunity to masterplan infrastructure development that can spur a wide range of long-term socio-economic benefits.

Urban regeneration

The preparation for, and delivery of, an event will support a substantial amount of economic activity: urban regeneration, new businesses, direct job creation and skills training.

Events will create new opportunities for volunteering and engaging the public, strengthening people's sense of citizenship and civic pride.

Hosting sporting events raises interest in sports participation and physical activity at the grassroots level, which will contribute to healthier lifestyles and improved wellbeing.

The event lifecycle also brings many different agencies and stakeholders to work together in a spirit of joint endeavour. Post-event many will continue to collaborate to tackle wider societal issues.

Catalyst for change

If planned with foresight and staged successfully, major events can be a catalyst for change that extends far beyond the arena to improve communities and the lives and livelihoods of the people who live in them.

We have a proven track record of working with host cities to achieve ambitious and transformative outcomes through innovative, cost-effective and resilient solutions that provide return on investment and socio-economic sustainability.

Work with us to realise the potential of event-led development and your goal will be our goal. We never forget our responsibilities to the people – your citizens – who should ultimately benefit from the solutions we plan, design and deliver.

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Sport for all

Harnessing the power of sport to drive social and economic change



Widening opportunities

The unifying power of sport was witnessed by billions of viewers around the world when athletes from North and South Korea marched together as one team at the opening ceremony of the Winter Olympics in PyeongChang.

Sport not only brings people together across borders between countries, it can also heal divisions within societies.

This is what more and more governments and policymakers are realising: how beneficial sport can be in promoting social inclusion.

A legacy of investing in new sports venues and leisure infrastructure should be that it widens opportunities to participate in social, recreational and cultural activities, especially for marginalised groups of society, which will ultimately strengthen cultural diversity and counter discrimination.

We know this holds true for both developed and developing countries seeking to tackle inequality and improve the wellbeing of its citizens.

Positive impacts

The winning bid by Paris to host the 2024 Olympic and Paralympic Games was supported by our work on several developments, all designed to have positive lasting impacts, such as getting more women and children involved in sport. A pavilion that will stage badminton and volleyball matches, to give another example of this legacy planning, will later be converted into a sports hall dedicated to disability sport.

For the 2014 Commonwealth Games in Glasgow, we devised a travel demand management programme that encouraged visitors to cycle to events. The post-event legacy is that more people are riding bikes and leading healthier lifestyles than before the games.

In Nepal we sponsor a charity founded to address gender discrimination through the game of cricket. Coaching sessions have proved an ideal way to encourage teenagers to challenge attitudes that lead to gender stereotyping and the exclusion of girls and women from sport and recreation. It proves that sport can be the spark to engage people who are not engaged by traditional education methods, turning them into ambassadors for change in their communities.

Sporting success

The host country will always want to succeed at a home games or championships, using it as a springboard to achieve sustained success at future events.

This requires a structured programme of investment in developing elite athletes encompassing sports science, sports medicine, youth development and – the most tangible legacy of hosting major sporting events – modern venues and elite training facilities.

The construction of world-class sports infrastructure will underpin sporting attainment at the highest level, helping to boost a nation's medal tally, and attract further high-profile games, tournaments and competitions. Investment in elite sport also kindles interest in the general population to get involved in sport and keep fit and healthy, enhancing social wellbeing.

We help clients to harness this enthusiasm by planning, designing and delivering facilities that are widely accessible post-event to support all levels of sporting participation, amateur as well as professional, encouraging both young and old to take up sport and emulate the success of their sporting heroes.

Economic benefits

The construction or refurbishment of major sports venues and facilities will often trigger the regeneration of the surrounding area's infrastructure and living and work spaces. Our reference list includes the development of stadiums that by themselves have injected millions into the local economy.

Calculating the direct and indirect impacts on jobs and gross value added will support the business case for developments, and enhance proposals to realise economic and social benefits.

Effective public consultations will secure stakeholder buy-in and support the delivery of what could be radical urban transformation programmes.

It is about much more than sport. We have seen how hosting events and building stadiums can help to empower and unify people, improve the quality of their lives and deliver sustainable outcomes for future generations.

Islands build bridges through sport

15,000
Capacity of the new stadium



Images: Fictional Pixel

- Project**
Mauritius Multisports Complex
- Location**
Cote D'Or, St Pierre, Mauritius
- Client**
Mauritius Multisports Infrastructure Limited
- Expertise**
Lead consultant, project management, sports design, structural design, MEP design, civil services design, procurement, masterplanning, document control, construction supervision

In the spirit of the Olympics, the Indian Ocean Island Games were created to foster regional co-operation through the development of sport, as well as build friendship and mutual understanding between the peoples of the islands of the Indian Ocean.

Mauritius, host of the 2019 Indian Ocean Island Games, aims to secure a further legacy of elite and grassroots sport development through the construction of a multisports complex consisting of a 15,000-seater stadium with football pitch and athletics track, aquatic centre and gymnasium.



After its completion, the complex at Cote d'Or will not only be the centre of sporting activity in Mauritius but a flagship for sporting achievement and training across East Africa and the Indian Ocean.

Besides hosting future competitions and championships, the facility will be the focus of extensive outreach programmes designed to inspire people of all ages and backgrounds to get involved in sport and adopt healthy lifestyles.



As lead consultant on the project, we are responsible for all engineering design services, project, programme and commercial management, and construction supervision.

To deliver the project, we formed the IOG Infraworks JV with Ruben Reddy Architects and subcontracted engineering consulting and quantity surveyor services to local firms LUX and MLC respectively.

An accelerated programme had to be planned and implemented to meet the tight schedule. When the initial cost estimate exceeded the client's budget, our integrated team employed value engineering to make

the project affordable, drawing on the expertise available through Mott MacDonald's global network by consulting colleagues in the UK, India and South Africa.

One team, one goal

Whatever your ambitions, needs and challenges, and no matter where you are, we'll align the right combination of sector knowledge and expertise.

Outcomes focused

At Mott MacDonald, we work as one team centred around a single goal – to deliver results for our clients. We're joined up across all sectors and geographies, giving you access to an exceptional breadth and depth of expertise and experience.

We can offer fully integrated cross-disciplinary advisory, design and delivery services across the whole event lifecycle or services for a single aspect of the project to suit your needs.

We are always looking for opportunities to think across boundaries, and around problems, to create the best outcomes for clients and end users.

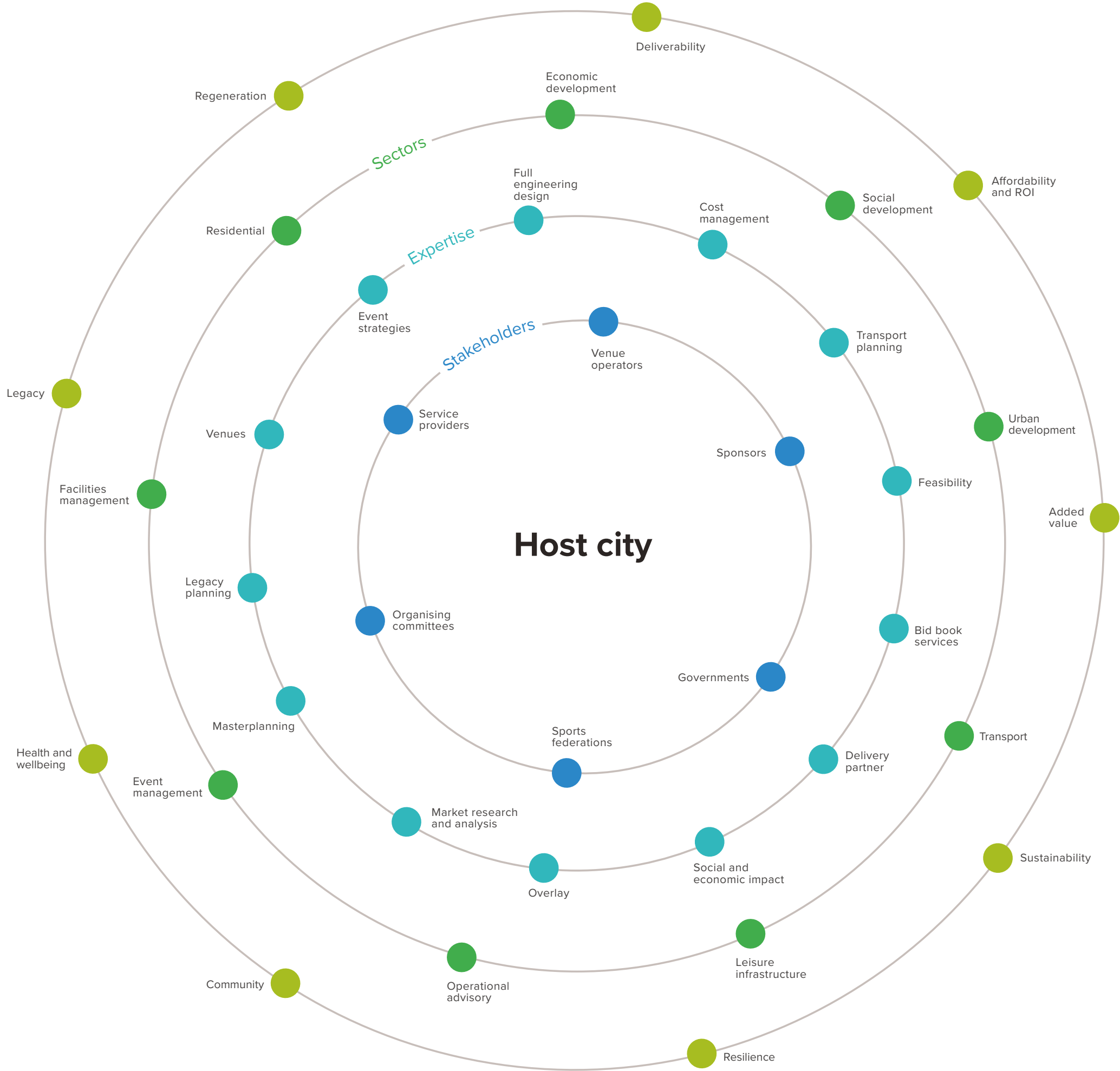
Proven track record

Our services are founded in decades of technical and commercial delivery of a wide range of sports infrastructure, venues, multisport events and urban development projects for host cities around the world.

This means our advice is always practical and technically complete, and you can rely on us at any stage of a project to find a tangible means of enhancing performance in commercial, sporting or community dimensions.

As an employee-owned management, engineering and development consultancy, we have the independence of mind and freedom to see and do things differently. We constantly stretch our thinking to seek out innovative solutions.

You can rely on us to offer a fresh perspective to any challenge.

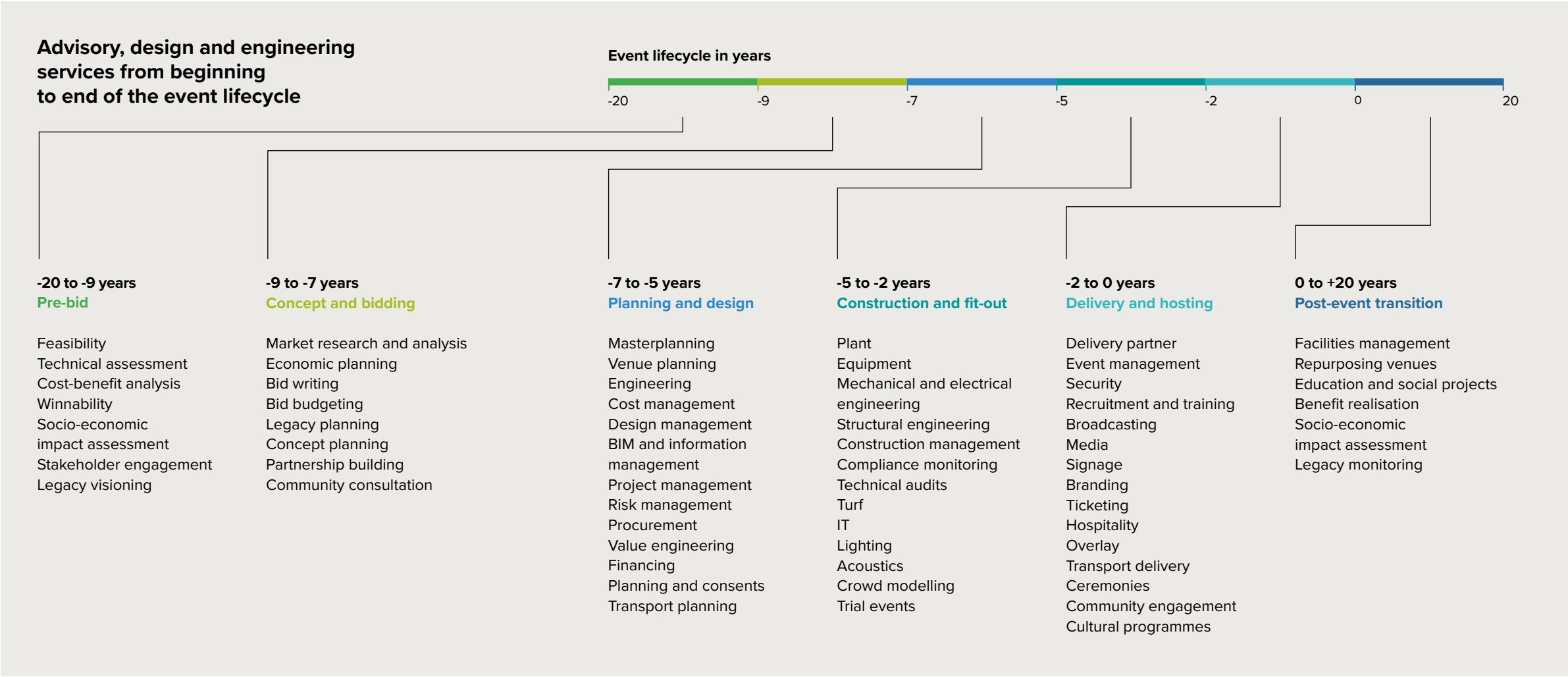




Planning and building a sustainable and resilient legacy

It is our detailed understanding of all phases of being a host city, from pre-bid to post-event, that enables us to give you the best-informed advice.

This makes us a trusted partner that can stay at your side throughout the entire project lifecycle, adding value and helping to deliver your event and aims for a lasting legacy.



Bidding for the right events



How we can help you



-20 to -9 years

Pre-bid

Feasibility • Technical assessment • Cost-benefit analysis • Winnability
Socio-economic impact assessment • Stakeholder engagement • Legacy visioning

Engaging stakeholders is key to delivering an economic and social legacy

Building a common vision

Major events can bring transformative change to a city but the issues around hosting them are various and complex. Their effective delivery requires the appropriate resources and infrastructure, as well as the involvement of a multiplicity of agencies, all of which have different objectives.

An effective event hosting strategy will recognise these realities. It will highlight the need for a partnership approach between stakeholders and governmental leadership, and provide mechanisms for resourcing event organisations and harnessing the private sector.

A key outcome of such a strategy is a process or set of guidelines to help inform which events to prioritise, as all too often, decisions about what to bid for are not made strategically but in response to short-term pressures.

If analysis is undertaken, in many cases it only measures whether an event will be good for a city, region or country economically. The potential of wider, societal benefits can be overlooked, jeopardising the vision for a resilient legacy.

Strategic approach

“Will this event deliver our legacy objectives?” – it’s the first question decision makers should ask themselves when considering bidding for or creating an event.

A single standalone event may not be the long-term answer, rather a series of events that builds towards achieving city-wide regeneration could be a more effective, more sustainable solution.

This kind of analysis requires a strategic, legacy-driven approach and the collaboration of all the various agencies that will be involved in the bidding and hosting process. It also entails evaluating potential events. Criteria should be established for each of the goals of the city and its partners, and then events can be assessed against them and compared.

Work with us and we will help you to develop the strategy and methodology which will ensure your city will be bidding to host events – the right events for the right reasons at the right time – that will best meet your objectives.

How we add value: Optimum

Optimum is a software tool we developed to improve inter-agency co-ordination during the planning of major events. Used most recently to support Birmingham’s successful bid to host the 2022 Commonwealth Games, it brings information from different teams together in a single database to create a time-sequenced 3D model to aid integrated planning.



Birmingham’s bid is a winner

Project
Birmingham 2022

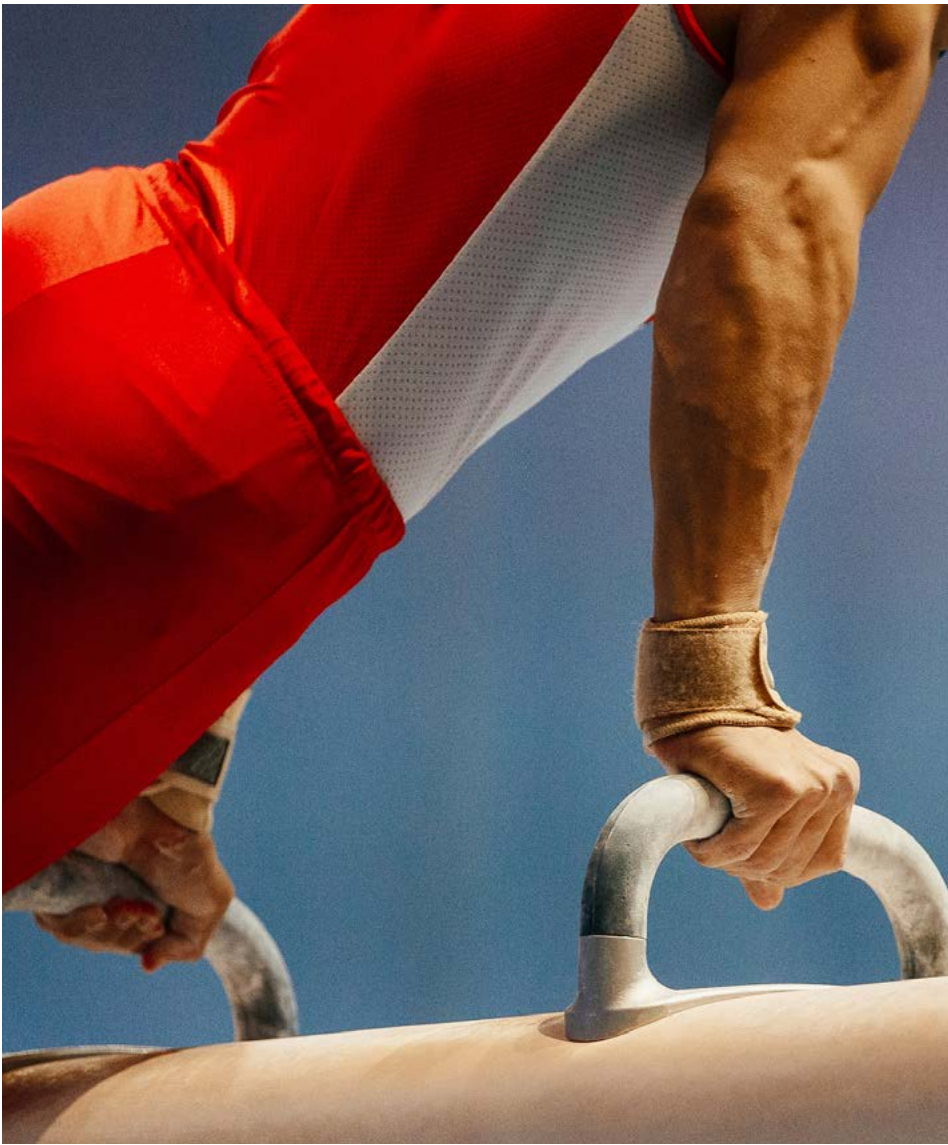
Location
Birmingham, UK

Client
Birmingham City Council

Expertise
Cost management, feasibility, transport planning, business planning, legacy planning, overlay

Birmingham was investigating the feasibility of bidding to host the 2026 Commonwealth Games when the 2022 Games were taken away from Durban. In the face of competition from Liverpool and international bidders, England’s second city decided to focus instead on a 2022 bid.

Working to a tight timescale, our multidisciplinary team supported the bid committee and wider stakeholders to help the city shape its vision for the games, which is to celebrate diversity, create opportunities and drive business links.



The feasibility, evaluation and candidature file stages of the bid process called on our expertise in transport planning, legacy planning, cost consultancy, geographic information systems, masterplanning and overlay. We undertook a number of technical and financial feasibility studies, and supported evaluation visits to several of the proposed venues.

Following a comprehensive evaluation process, Birmingham was confirmed as the UK’s nominated host city. In December 2017 it was officially awarded the 2022 Commonwealth Games by the Commonwealth Games Federation.

Event planning pays off for Glasgow

Project
Glasgow 2014 Commonwealth Games

Location
Glasgow, UK

Client
Glasgow City Council, Glasgow 2014 Commonwealth Games Organising Committee, Transport Scotland

Expertise
Feasibility, technical assessment, cost-benefit analysis, winnability, travel demand management, transport co-ordination and incident management

‘Best in class’ model for Ottawa

To help Ottawa maximise the success of bids to stage major events, we developed an event hosting strategy to plan and co-ordinate the city’s decision making on event opportunities.

Our specialists developed a ‘best in class’ event hosting, delivery and funding model, as well as providing a detailed examination of the business case for greater investment in the major events sector.

The study resulted in a comprehensive plan to maximise event hosting resources in Ottawa and clearly outline roles, priorities and direction for the city’s primary partners and community organisations.

Our role in planning and delivering the 2014 Commonwealth Games started with a feasibility study to inform the decision of the Scottish Government and Glasgow City Council to support the bid process.

The study comprised a technical assessment (venues and infrastructure), cost-benefit analysis and winnability assessment. Our analysis meant that both the bid and hosting of the event were based on a proper understanding of the costs and benefits.

We later led the development of a travel demand management programme to keep the travelling public in Glasgow moving smoothly during the games.

The programme was delivered through travel advice to businesses and spectators, travel information systems, and a marketing campaign to make the public aware of alternative transport options.

According to surveys, our input had a very positive impact by changing people’s travel behaviour: the public heeded messages to avoid travelling by car or train at peak periods and more than a quarter of spectators walked or cycled to events.

Project
Ottawa event hosting strategy

Location
Ottawa, Canada

Client
City of Ottawa

Expertise
Pre-bid and bidding advisory services, cost-benefit analysis, socio-economic impact assessment, legacy planning

Preparing a winning bid



How we can help you



-9 to -7 years

Concept and bidding

Market research and analysis • Economic planning • Bid writing • Bid budgeting
Legacy planning • Concept planning • Partnership building • Community consultation

Legacy must be an intrinsic part of event planning from the start

Forward planning

A clear, coherent and deliverable legacy vision – one that stirs excitement and anticipation in the city – is essential to preparing a bid that will impress event organising committees, for whom legacy is increasingly part of their official remit.

In our experience early stage planning is critical to ensuring that economic, social and community benefits are realised and maximised. We advise clients that legacy goals need to be informed by research and evidence from primary sources, considered at each planning, investment and strategic decision-making stage, and embedded into all policies and plans.

Business case

A winning formula for a successful bid is one where the economic, social and community dimensions are supported by a robust business case.

This requires sound economic planning, making sure the concept is deliverable, bringing developers on board, and the provision of adequate funding – be that through public funds or by attracting private investors and sponsors.

It also involves building political consensus and capturing the imagination of voters by demonstrating the value and legacy benefits an event will bring in return for investment of taxpayers' money. Public consultations and greater transparency will help to win support across the board.

Delivery processes

Major events involve co-ordinating activities and delivery across a range of organisations that would not normally work together or may not even exist before the event. Individual objectives have to be agreed, and resources and responsibilities identified and allocated.

Therefore it is equally important to invest in high-quality project delivery processes and protocols. This will build transparent accountability structures that make it clear what each organisation is responsible for delivering and implementing.

Putting together bids and, if successful, preparing to host a major event can stretch over more than a decade. A host city has to be able to modify plans and its delivery model must be flexible so it can adapt to economic and political changes.

How we add value: Transport toolkit

We have produced a detailed transport toolkit to assist event organisers in the planning and delivery of integrated transport solutions. The document is based on best practice we have identified from helping to plan transport operations, including travel demand management, for major international multisports events around the world.



Culture takes centre stage in Hong Kong

17
Number of performing arts venues

Project West Kowloon Cultural District
Location Hong Kong
Client West Kowloon Cultural District Authority
Expertise Urban, environmental and sustainability planning, statutory EIA and planning approvals, infrastructure design, financial modelling, environmental monitoring and auditing

Stretching across 40ha of reclaimed land, the West Kowloon Cultural District is one of the largest cultural projects in the world, blending art, education and open space.

Designed to attract major international exhibitions and trade events, it will boast 17 performing arts venues, a museum, an exhibition centre, retail and dining, hotels, offices and homes, plus a major waterside park.

We have had a leading role on the HK\$21.6bn development, providing urban, environmental and sustainability planning and infrastructure design, as well as developing a financial model for the district, and setting out the spatial and functional requirements for all of the new venues.

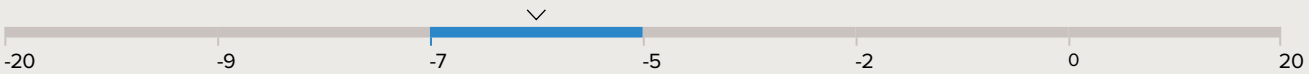
Our team has worked closely with West Kowloon Cultural District Authority and architect Foster & Partners to harmonise the functional requirements of the venues with the masterplan.

We have assisted stakeholder consultations, enabling the West Kowloon community and wider public to express their ambitions and expectations for the area. We also advised on ventilation and air quality, noise, drainage, open space, building height and sight lines, ensuring the development meets Hong Kong’s rigorous town planning, environmental and other statutory requirements.



Designing the best facilities

How we can help you



-7 to -5 years

Planning and design

Masterplanning • Venue planning • Engineering • Cost management • Design management
BIM and information management • Project management • Risk management • Procurement
Value engineering • Financing • Planning and consents • Transport planning

Digital technologies and flexible designs will deliver sustainable world-class venues

Optimised solutions

Innovative, economic and legacy-driven design is a requisite for achieving the best financial, socio-economic and operational performance of event-led developments.

Good design of venues supports form and function, taking into account the pressures asset owners and operators face: financial constraints, keeping pace with new technology, changing consumer trends, statutory requirements and the demands of the media.

Other key design aspects include public safety, sightlines, pitch health, communications, carbon footprint, and impact on local infrastructure, such as power systems and water supply. By considering future maintenance needs during the design process, operational costs and disruption to event schedules will be reduced.

Digital design

Our specialist teams use building information modelling (BIM) to unlock significant efficiencies in the design of football and athletics stadiums, aquatics centres, velodromes and multipurpose arenas.

Beyond material efficiencies and the elimination of risk in the capital delivery phase, BIM can also be harnessed to realise efficiencies in operation. It will reduce the whole-life costs of assets and optimise spectator comfort, energy efficiency and ease of maintenance – and demonstrate that designs work, allowing departures from codes that would conventionally limit the design.

This enables architects to ‘open up’ a venue, creating world-class facilities, unique spaces and iconic structures – showpiece buildings that for decades will continue to be attractive to sporting bodies and corporate clients seeking impressive venues to stage events.

Adapt and reuse

Designs with built-in flexibility add value by accommodating variable fields of play for multisports venues and overlay designs for concerts, exhibitions and other events, enhancing the legacy of projects.

BIM can be utilised to design low-cost temporary venues – redeployable architecture that, once an event is over, can be simply disassembled and the components reused. The prospect of renting the key structural components for an entire venue is a real one, and one that will significantly drive down capital costs, in line with the recommendations contained in the International Olympic Committee’s New Norm Report.

How we add value: Overlay services

We were among the first to apply building information modelling (BIM) to the design of sports overlay. Our BIM library contains thousands of standardised virtual components that can create temporary infrastructure, even venues such as basketball arenas and shooting ranges, with ‘drag and drop’ ease.



London to Jakarta in half the time

Project

Asian Games 2018

Location

Jakarta, Indonesia

Client

ES Global/Asian Games 2018
Organising Committee

Expertise

Infrastructure planning,
design and specification

50%

Time saved on construction



Fresh thinking was needed when Jakarta, host city of the 18th Asian Games, approached us to advise on the viability of delivering a new permanent velodrome facility to host track cycling events.

There was a relatively low budget available, while the authorities only had half the time typically required to tender, design, procure and build a velodrome.

Working in partnership with contractors ES Global and Wika and architects Cox Architecture and BKM, we demonstrated that a permanent velodrome building could be delivered within the time and budget by using a temporary venue design and delivery approach.

Prefabricated structural components, previously used on the water polo and shooting venues for London 2012, were re-engineered so they could be deployed on a permanent-use building in a seismic zone.

A world-class cycling track, housed in a humidity-conditioned environment to provide both track longevity and comfort for the 3000 spectators, is on programme to be delivered in 50% less time than typically achieved. Moreover, the facility is costing less than many naturally ventilated venues.

Constructing the best facilities



How we can help you



-5 to -2 years

Construction and fit-out

Plant • Equipment • Mechanical and electrical engineering
Structural engineering • Construction management • Compliance monitoring
Technical audits • Turf • IT • Lighting • Acoustics • Crowd modelling • Trial events

Delivering venues on time, on budget, and identifying opportunities to generate post-event revenue streams

Construction management

An open, inclusive approach to project and contract management will keep stakeholders informed, providing early warning of any issues and promoting a collaborative ethos to solving problems. Robust tender and contract documentation will help to manage scheduling, cost, quality and risk.

The development of efficient operational, crowd safety and facilities management plans and procedures will support the transition from construction to operation, helping to meet the expectations of user groups, event owners and regulators.

Smart stadiums

New technology and digital innovations, notably the smartphone, have made it possible to create an interactive and unforgettable fan experience. Spectators are demanding change in their stadium experience, looking to personalise the way they digitally interact with an event and transform the way they enjoy their day out.

In short, technology is redefining fan entertainment and is an important tool in maximising the revenue of a stadium. With each refurbishment, intervention or new build, owners and operators of venues – stadiums, arenas, conference centres, exhibition halls – should seize the opportunity to create a platform that fully supports interactive personalised services.

Better facilities, higher revenues

Improving the fan experience in other aspects will generate further opportunities to increase revenues. Analysing customer demand to provide a greater choice of food and beverage options will be one way to increase sales.

Sports venues will be able to host more high-profile international events if their lighting systems comply with the requirements of broadcasters and rights holders.

A stadium’s acoustic performance can be monitored, assessed and modified by experts to enhance crowd ‘roar’ or communication on the field, and to support the diversification of venues by holding concerts to provide new revenue streams.

How we add value: STEPS

STEPS, our software tool for simulating pedestrian movement, has been used on landmark projects including the New Yankee Stadium and Wembley Stadium. It can model multiple scenarios, including ingress, half-time break, normal egress and emergency evacuation, and covering vertical circulation, clearance time of tiers and levels of crowding on concourses.



Hat-trick at Euro 2016



Project
Euro 2016

Location
France

Client
Foncière du Montout, City of Nice/Métropole Nice Côte d'Azur, City of Bordeaux

Expertise
Lender's technical advisory services, business plan review, construction supervision, operation monitoring

Acting as lender's technical advisor, we monitored the design and construction of three of the four new stadiums built for Euro 2016, the world's second biggest football tournament.

Our teams provided due diligence and independent reviews of business plans, helping to bring each project to a successful commercial and financial close, on budget and on schedule.

We continue to monitor the operational and sustainability performance of all three stadiums: Parc Olympique Lyonnais in Lyons, Allianz Riviera Stadium in Nice and Matmut Atlantique in Bordeaux.

The €400M 59,000-seater Parc Olympique Lyonnais, since renamed the Groupama Stadium, is France's first fully privately financed stadium.

We were involved in this project, alongside football club Olympique Lyonnais and its lenders, from the very beginning and played an instrumental role in making the deal bankable and securing the necessary financing.

Euro 2016 featured 51 games played at 10 locations and broke all records in terms of attendance and revenue.

Multipurpose venues are legacy of World Cup

Stadiums we helped to design and deliver for the 2010 World Cup in South Africa now serve as multipurpose sports and events venues, generating further prosperity and driving positive social change in local communities.

We were the principal structural engineer for the upgrade of Soccer City in Johannesburg, which hosted the opening match and the final. It is Africa's biggest football stadium with a capacity of 94,700.

On a cost per seat basis, the venue has proved to be one of the most affordable modern stadiums built in the world in recent years.

We used state-of-the art modelling and analysis techniques to design the lightweight roof structure for Mbombela Stadium in Mpumalanga province. Given the project's stringent budget and deadlines for completion, it was important to retain high levels of efficiency and buildability.

At 55kg per square metre, the cable-supported roof of the stadium weighs only half as much as the average trussed stadium roof, setting international standards for structural efficiency.

Ease and safety of construction was achieved by making every element of the roof light enough to be lifted using conventional cranes.

Our engineers were also responsible for all the structural design relating to the inner bowl of seating at Moses Mabhida Stadium, Durban, and controlled and co-ordinated the upgrade of Ellis Park Stadium, Johannesburg.

Project
FIFA World Cup 2010

Location
South Africa

Client
Various

Expertise
Structural engineering services



Hosting an outstanding event



How we can help you



-2 to 0 years

Delivery and hosting

Delivery partner • Event management • Security • Recruitment and training
Broadcasting • Media • Signage • Branding • Ticketing • Hospitality • Overlay
Transport delivery • Ceremonies • Community engagement • Cultural programmes

Keeping the city moving and providing a safe, enjoyable spectator experience

Ambitious scale

Sporting, business and cultural events are becoming more ambitious in scale. Often the bigger they are, the more spectators they attract.

To a significant degree, the commercial success of multivenu events and the reputation of the host city depends on delivering a safe and enjoyable experience for visitors and spectators.

Preparing for thousands, or perhaps millions, of visitors arriving from all over the world is a complex task requiring wide-ranging skills and expertise.

Seamless mobility

The ability to run a major event is invariably unproven in the host city and will place extraordinary pressures on the transport networks.

Confidence needs to be quickly built that the city's transport system can rise to the challenge and operate to meet the unique demands of the event.

Effective transport planning and management by event organisers, transport operators and local and central government will ensure that everybody – the event workforce, competitors, spectators and those who live, work and play in the host city – all get to where they need to be on time.

Travel demand management, which we have successfully implemented at major games, is a cost-effective way to remode, retime, reduce and reroute travel to lessen the burden of high-profile events.

If problems occur, transport operators must be able to respond swiftly and appropriately to incidents. Smart management systems that facilitate decision making and data sharing between different agencies will get traffic on the move again with minimal delays.

Safe and secure

A smooth, trouble-free journey is just one aspect of delivering an amazing spectator experience.

Managing major events and their day-to-day operation also requires investment in crowd control technologies, smart ticketing systems, hospitality, and safety and security inside and outside the arena.

It will all contribute to a successful event and the creation of a positive impression of a host city in the eyes of a global audience, measured in the billions, watching via broadcast and social media.

How we add value: Merlin

Merlin, our incident management system, allows transport co-ordinators to share critical real-time information via a secure web-based platform. We used Merlin for transport co-ordination during the Glasgow 2014 Commonwealth Games and London 2012 Olympics, where we were responsible for the design, implementation and operation of the Olympic route network.



Going for gold in efficiency

A major international multisports event in Queensland, Australia, saw up to 6500 athletes and officials from 71 countries compete at 18 sports venues over 11 days. As part of our engagement with the client, we provided a full-time BIM co-ordinator to oversee processes and identify new efficiencies.

One focus was to overhaul the production of building services load schedules, which are used to estimate the amount of power that will be needed for an installation.

We devised a bespoke solution using AutoDesk Dynamo, a visual scripting language, to load information from an Excel spreadsheet onto an overlay design model and carry out the necessary calculations to produce load schedule summaries.

With traditional load schedules, the value is lost as soon as the design changes or new engineering information is received. However, our bespoke solution provided an agile and powerful tool to keep load data current as the model was updated.

This automated process reduced the time it took to produce load schedules by more than 95% compared to traditional methods.

Taking into account the 18 venues and the continuous updates to designs between planning and the end of the event, our work cut several hundred working hours from the schedule, allowing public money to go further, while helping to deliver an efficient and successful event.

Overlay solution keeps Olympics on schedule

In August 2016, Rio de Janeiro became the first South American city to host an Olympic and Paralympic Games.

Our 15-strong team played a vital role designing the overlay – the huge amount of temporary infrastructure needed for the duration of the games to meet the needs of teams and the army of officials and staff involved in running the event venues, as well as the media and spectators.

Overlay work doesn't involve construction in the conventional sense. Much of it is about getting standardised structural components – whether that's toilet blocks or broadcast trailers – in the right numbers, in the best configuration, and in the optimum place to meet needs. Even landmark buildings can be created using standardised components, most of which can be sourced from the rental market.

At Rio, with US\$500M worth of infrastructure to design for 55 sites in just six months, we introduced building information modelling (BIM) to provide the clarity, speed, flexibility and accuracy the project demanded.

Site layouts were in a state of flux during the early stages of the programme and the team had to reconfigure its designs up to five times. Our BIM working methods allowed changes to the overlay design to be accommodated quickly and easily.

With designs flowing from our design team six times faster than industry standard, we enabled fast-track procurement of infrastructure, while also finding cost savings of up to 20% on capital-intensive overlay, such as power generation and water supply.



20%
Savings in capital costs

Project
Major international multisports event

Location
Queensland, Australia

Client
Confidential

Expertise
BIM co-ordination, event overlay design, park and ride services, transport demand modelling, transportation design



Project
Rio 2016 Olympic and Paralympic Games

Location
Rio de Janeiro, Brazil

Client
Organising Committee for Rio 2016

Expertise
Infrastructure planning, overlay design and specification

Securing a sustainable legacy



How we can help you



0 to +20 years

Post-event transition

Facilities management • Repurposing venues • Education and social projects
Benefit realisation • Socio-economic impact assessment • Legacy monitoring

Achieving outcomes that will bring long-term benefits to communities

Legacy transition

Post-event we continue to support clients by helping them to deliver the long-term legacy they planned for many years previously when they prepared their bid.

First, there is the physical legacy – the infrastructure. The hallmark of a successful host city is that everything it builds for a games, tournament or business or cultural fair will have a future use, identified during the concept and planning stages.

This will avoid making the mistakes made by other host cities blighted by white elephants of forlorn, crumbling stadiums and arenas.

The immediate task is to manage the transition of temporary and permanent venues and facilities. These can be repurposed where appropriate – converting an athletes’ village, for example, into social housing.

The profitable working life of stadiums and arenas can be extended through effective facilities management – venue enhancement audits of lighting, acoustics and catering and hospitality will identify hidden opportunities to increase revenue generation.

Revenue-based design can reinvent a stadium by securing new income streams – by attracting supplementary sports and entertainment events and providing an improved fan experience – while covering the costs of investing in the facilities and technologies that will make this possible.

Quality of life

Second, there is the non-physical legacy – the social and economic benefits. These can be summed up in one word: livability. This is the sum of the factors that add up to a community’s quality of life: the built and natural environments, economic prosperity, social stability and equity, educational opportunity, and cultural, entertainment and recreation possibilities.

Cities that adopt an effective event-led development strategy will be able to sustain such development and its outcomes in the long term through the economic growth generated and by attracting ongoing investment from the private sector.

This is the rationale for a city to host major events: the economic uplift will enable and accelerate wider objectives for socio-economic improvement delivering a legacy, be it bricks and mortar or soft infrastructure, to benefit and inspire future generations.

How we add value: TEAM

Our Transparent Economic Assessment Model (TEAM) can help prove project viability and unlock funding by calculating the economic, social and environmental impact of legacy projects. TEAM quantified the socio-economic benefits of redeveloping Bermuda’s international airport, enabling the island’s government to communicate the project’s critical importance to the electorate.



Lasting legacy of London 2012

The reconfiguration of the Olympic Stadium in London to maximise its potential has been key to securing a lasting, sustainable legacy for the 2012 Olympics. The London Stadium, as it is now called, is home to football club West Ham United but remains a world-class venue for athletics.

We were involved at all stages of the project, from initial feasibility studies to site supervision throughout the construction phase, and reviewed all services including architectural, civil, structural, mechanical electrical, public health and fire engineering.

Our remit was extended to include the role of Category III checker of the roof in legacy mode. The new roof is a gravity-stressed cable net structure that covers approximately 46,500m², far greater than the 25,000m² provided by the original roof, and required strengthening works to accommodate the additional loads.

This task involved reviewing the structural design philosophy, producing independent structural analysis models, calculating applied roof loads, and checking all structural

elements (including connection forces) and the adequacy of foundation remedial works.

Our review of the proposed roof design added significant value to the project by reducing the weight of steelwork, achieving a saving of £30M.

Another crucial aspect of the project was the analysis of spectator movement. Our specialist pedestrian modelling team used both static analysis and dynamic modelling to evaluate the capacity of the infrastructure to permit safe access to/from the stadium, spectator circulation around the outer podium and emergency evacuation.

Our analysis demonstrated that the podium and the six permanent bridge approaches would have sufficient capacity to accommodate spectator flows during normal operations and in the event of an emergency for both sporting events and concerts at the stadium.



Project
London 2012 Olympic Stadium Transformation

Location
London, UK

Client
Olympic Park Legacy Company

Expertise
Technical advisory services, construction supervision services

£30M
The amount of money saved by our alternative roof design

Same venue used for two major games

Organisers of London 2012 wanted a shooting venue that was low cost but world class, temporary but distinctive. In an Olympic first, we used one range for two of the four disciplines, cutting the venue footprint and cost by 25%.

The structural frame used standard, rented steel trusses and columns, covered inside and out with recyclable PVC fabric. Foundations were lengths of reclaimed oil pipeline. Steel rings mounted on lightweight frames, braced off the primary structure, tensioned the fabric by pulling and pushing it out of plane, giving the façade its distinctive ‘bullet hole’ aesthetic.

Compared to conventional tensioning, our method halved the cost of the envelope. The rings created apertures for natural ventilation; the fabric’s translucency minimised artificial lighting, keeping building operating costs low.

Our client allowed 18 months for construction, but using BIM we worked with the main contractor to rehearse construction. Including a two-month ‘buffer’, the venue was completed in six months.

After use, the structure was dismantled and its components used to build the shooting venue for the 2014 Commonwealth Games in Glasgow.

Project
London 2012 Olympic and Paralympic Shooting Ranges

Location
London, UK

Client
LOCOG

Expertise
Total engineering design, sustainability and cost consultancy



10 reasons why you should choose us to be your partner

1.

Collaborative approach

We work closely with all stakeholders to understand their goals and constraints, then find opportunities to add value and optimise solutions to achieve the best and most cost-effective outcomes. We do this by drawing on our in-depth multidisciplinary expertise, covering all aspects of venue design and development and event-led regeneration.

2.

Transparency and trust

We insist on the highest standards of integrity in everything we do. We were the first consultancy firm to be certified to BS 10500, the UK's anti-bribery management standard, recognised as the most stringent in the world. This assurance of fairness, openness and honesty applies to all our staff, subconsultants and suppliers internationally.

3.

Improved communities

A successful event will act as an anchor within its host city, injecting investment into an area directly through the construction and operational phases, and indirectly improving the city through the strengthening of tourism and its identity. Our financial and socio-economic modelling will increase understanding of the wider positive community impacts and how to realise them.

4.

Increased revenues

Optimising existing facilities and the creation of new assets through our revenue-based design approach will give access to new or enhanced revenue streams that can provide a positive economic legacy and improve grassroots sports development.



5.

The wow factor

We take the time to really understand the needs of spectators and how we can not only meet but exceed their expectations. We create vibrant, atmospheric venues where the fan experience is unbeatable.

6.

New investment, better returns

As the world's leading technical advisor on public private partnerships (PPP/P3), we know how to unlock investment to get projects off the ground. We are able to maximise returns for investors and sponsors through our detailed understanding of the technical and commercial factors affecting project deliverability in the sports and events sector.

7.

Keep people safe

We can help you to keep residents, visitors and spectators safe and stay within the law. Our specialists can guide you on how to comply with FIFA, UEFA, EPL, IAAF and other sports standards on spectator safety and comfort, and we know the national and international guidance for licensing purposes that is required for venues hosting business and cultural events.

8.

Clean and green solutions

We will work with you to save energy, cut carbon and use fewer resources throughout the project lifecycle. Our environmental responsibility does not stop at project handover and we provide our customers with the skills and support they need to achieve the highest possible standards of environmental management into operation and maintenance.

9.

Lasting legacy

We provide specialist knowledge in legacy planning and sustainability, contributing to long-term success, including the design, reuse and adaptation of existing venues. We collaborate with clients from the earliest phases of a project to create cutting-edge designs that are tailored to their specific requirements and will provide optimum whole-life financial, environmental and social performance.

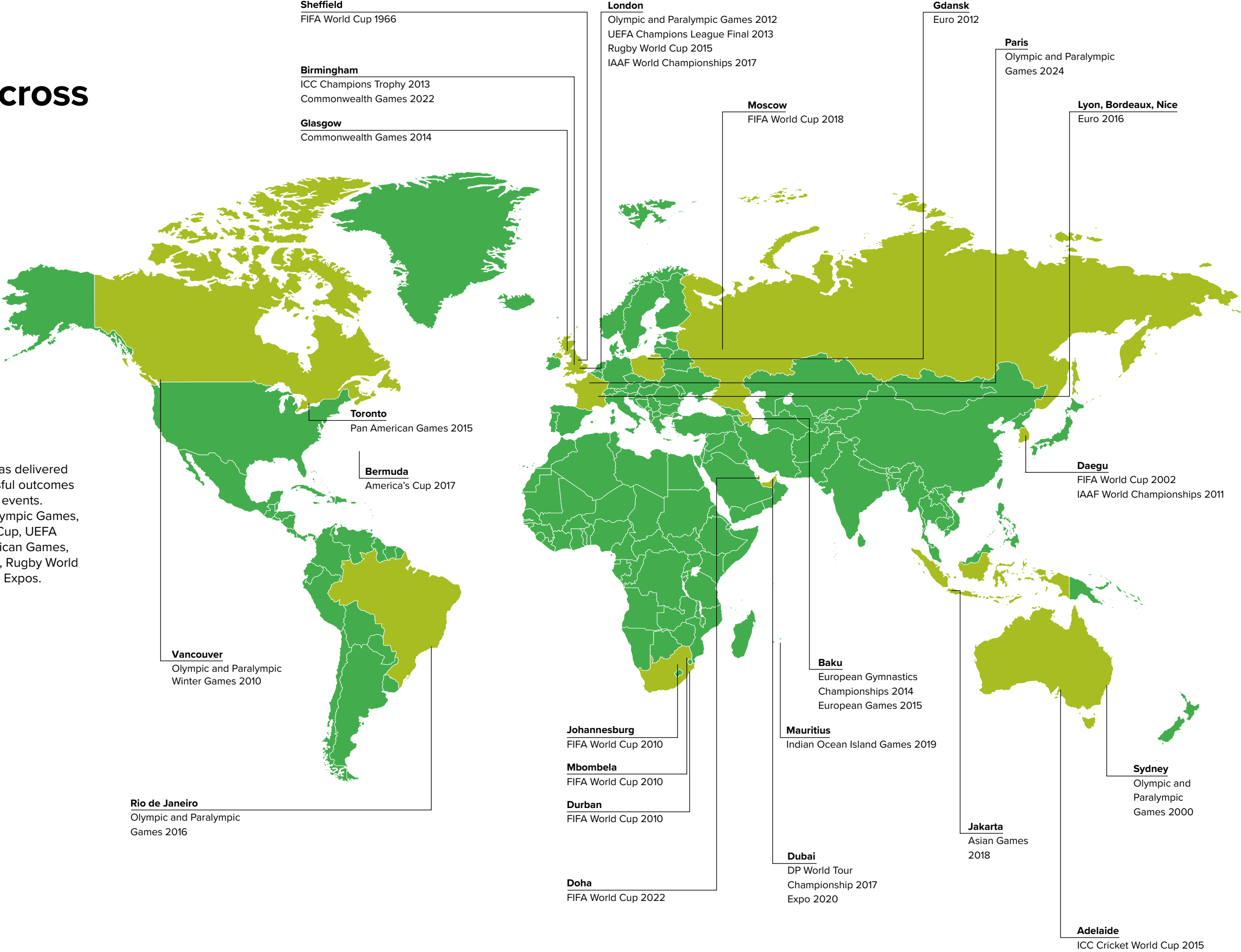
10.

Better mobility

The key transport aims of every host city are that spectators, athletes and officials can get to venues smoothly and safely with minimal disruption to other transport users. We'll come up with a comprehensive, environmentally-friendly mobility solution to support a great event and keep your city moving and functioning efficiently, helping businesses to make the most of the economic opportunities arising from the event.

Delivering across the globe

All over the world Mott MacDonald has delivered – and is working to deliver – successful outcomes for cities hosting or co-hosting major events. These include the Olympic and Paralympic Games, Commonwealth Games, FIFA World Cup, UEFA European Championships, Pan American Games, Asian Games, ICC Cricket World Cup, Rugby World Cup, top golf tournaments and World Expos.



Opening opportunities with connected thinking.

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