

COST MODEL: SPORTING VENUES



Temporary madness or permanent insanity — the true cost of a temporary venue

With the popularity and size of major global sporting events continuing to grow against the backdrop of the current economic climate and the need for reducing public expenditure, Hein le Roux of Davis Langdon, an AECOM company, examines the pros and cons of utilising temporary venues for major sporting events.

Major sporting events occur across the globe on an annual basis (Summer Olympics, Winter Olympics, Commonwealth Games, Pan American Games, FIFA World Cup, IAAF World Championships, etc.) which bring with them significant benefits, but do these benefits justify the cost? Do major event organisers still believe they must provide iconic venues and facilities and will these permanent venues necessarily provide the lasting legacy required? The eyes of the world will be watching — and event organizers must ask themselves if they want to be remembered for iconic facilities, such as the Bird's Nest, or for potentially failing buildings as were seen in some recent events? Alternatively, can a temporary venue provide a better solution, or do they represent a false economy? Is there more to a temporary venue than meets the eye?

Construction works for major events represent significant capital expenditures, which are primarily funded by governments. For example, the total expected government costs for the London and Rio Games are approximately £8 billion and £9 billion, respectively. The pressure is on to reduce the capital expenditure given the current economic climate. Recently, the 2013 Mediterranean Games were awarded to Mersin, Turkey, as a result of the financial crisis in Greece. Tarragona, Spain, the host for the 2017 edition, has already indicated significant investment cuts given the current austerity measures in the country. One option is to incorporate the use of temporary venues — a strategy already adopted by London 2012 and Rio 2016.



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This paper explores the underlying drivers that are pushing organisers towards either permanent or temporary solutions for major events and considers the wider context in which organisers must deliver appropriate solutions. Starting at a high level, it begins with issues around size and scale, growth trends, legacy, infrastructure, sustainability and the environment, and then hones in on stakeholder demands on accommodation. Finally, it considers the holistic cost of a temporary venue and highlights the hidden complexity and the underlying drivers, thus taking cognisance of the infrastructure as well as the operational aspects — the planning, design, construction, acquisition, operations, maintenance, renewal and rehabilitation, depreciation and cost of finance and replacement or disposal.

What are the drivers behind the decision to go temporary or permanent?

Catering for the size and scale

Mega events are extremely complex in that they must cater to thousands of people, in a proximal location, while utilising significant areas of land. The land demand is high, with a typical Commonwealth Games or Olympics requiring anything in the order of 200ha to 1500ha — and that is typically only the main park and Athletes' Village. Hambantota's proposal for the 2018 Commonwealth Games will require approximately 350ha for the proposed park; the Sydney Olympics utilised 640ha; the Beijing Olympics was 1200ha; and the 2012 London Olympic Park is 245ha. The proposed Main Barra da Tijuca site in Rio de Janeiro, while only 118ha, is only due to host 31 of the 61 Olympic and Paralympic events, meaning an additional three parks are required.

Once a location has been selected and the broad infrastructure requirements determined, one can begin to consider the venues in greater detail. Determining the appropriate combination or ratio of permanent to temporary venues can be a demanding and challenging exercise. In fact it's more complex when you consider all the potential options for each venue:

1. New permanent
2. Refurbish existing
3. Convert existing
4. Half-permanent/half-temporary
5. All temporary new
6. All temporary existing
7. Part new permanent/part refurbish or convert/part temporary.

Then there is the overlay, consisting of temporary works to support venues, other temporary facilities specific for the event, other temporary infrastructure and permanent enabling infrastructure, etc. In terms of venues and facilities, the overlay could contribute up to 60% of the games' total accommodation (Gross Floor Area) requirements and could physically occupy up to 10% of the overall site area. The proposed overlay design for Hambantota's 2018 Commonwealth Games bid occupies in the order of 21ha (or 6%). This, in itself, is an extremely complex arrangement requiring careful planning and analysis. For example, the Commonwealth Games manual advises on 17 varying categories of items required ranging from portable toilets to a complex field of play (FOP) with space for officials, judges, press, monitoring equipment, etc.

Overlay requirements also typically include provisions for sponsors (i.e., temporary venues for entertainment, accommodation, food and beverage facilities, parking and VIP facilities, viewing areas, exhibition space, and temporary services like power, water, waste, etc.).

Mega events are extremely complex in that they must cater to thousands of people while utilising significant areas of land

Trends in major event growth

With sponsorship deals ever increasing in value, one is likely to see these demands grow.

Major events like the Olympics have seen significant growth over the years. Table 1 summarises this during the period from 1984 to 2008 (source: <http://olympic-museum.de/statistics/statistics2004.htm>)

It is this growth that underpins the extent to which major events receive media interest and, subsequently, sponsorship funding. According to Dmitry Chernyshenko, Sochi 2014 Chairman, the Sochi 2014 Winter Games has achieved sponsorship funding in the order of US\$1.2 billion to date, thus exceeding the levels achieved for the 2008 Beijing Summer Olympics.

Other major events, like the FIFA World Cup and UEFA Champions League, are equally popular due to their continuing growth. According to FootBiz, the UEFA Champions League games attracted €179million in television rights in the UK alone during the 2009-2010 season. The total across 14 countries amounted to €562 million. Similarly, the 2010 FIFA World Cup attracted revenue of US\$2.408 billion through TV rights alone and drew on average of 49,600 spectators to the 64 matches during the event, as reflected in their financial statements for the period 2007 to 2011.

As these typical major events become more popular and more countries participate – increasing the numbers of athletes and hence increasing the demands on site area – there will be even more pressure on host cities to provide more infrastructure and venues. Thus, the necessary quantity of temporary venues will greatly increase, but host cities will continue to find alternatives to venues that hold little or no legacy prospect.

The Rio de Janeiro 2016 Olympics illustrates a possible trend; on the Main Barra da Tijuca site, of the 14 competition venues (excluding the practice FOP, the International Broadcasting Centre and the Media Press Centre) at least five will be temporary, two or three existing venues will be refurbished, meaning there will only be six completely new venues. Of the new venues and refurbished ones, all will feature prominently as part of a proposed Olympic Training Centre (OTC), developed as part of their legacy vision.

Of the 14 competition venues on the main Barra da Tijuca site, at least five will be temporary, two or three refurbishments of existing venues, with only six completely new



Image courtesy of London 2012

Games	Nations	Athletes	Sports	Events
1984	140	6,797	23	221
1988	159	8,465	25	237
1992	169	9,367	28	257
1996	197	10,320	26	271
2000	199	10,651	28	300
2004	202	10,882	28	301
2008	204	11,028	28	302

Table 1. Olympic Games statistics

Event vision versus legacy vision

A key objective for the host city/country is to align the vision for a mega-event with the country, region or city's long-term needs and objectives. In other words, establish if there is an ultimate legacy requirement that will take priority. This legacy need could stem from a myriad of issues.

Taking Rio 2016 as an example, the OTC is a key part of their sports development strategy and national pride, as it will provide high performance training facilities to Brazilian and international athletes. Additionally, venues such as these can be used to address national health issues, such as obesity or alcoholism — both serious problems in Russia — for example.

There may be a desire to 'kick-start' regeneration of an area, as is the case in London 2012 and the 2002 Manchester Commonwealth Games. There might be a plan to create an academy to improve medal standings, with the Manchester Velodrome and the recent success of British cyclists demonstrating the value of its legacy.

There may simply be an overwhelming desire to host the event because of national pride and the sheer significance of the undertaking. For example, Istanbul created an Olympic law in 1992 which states that Istanbul shall bid for the Olympic Games until it is successful. The law is also intended to release funding into sports development, which is viewed as a key aspect of youth development within Turkey.

Assuming various requirements can be articulated and aligned with the necessary venues and facilities, there are some obvious questions that should be asked including does the business case exist and can it be financed? Can it be packaged in a way so that it will become main-stream (if not, it won't become a catalyst for change)? Will the local community support it? Specialised sport venues may provide great legacy in theory, but if the sports they are intended to host are not indigenous, then why would the local population use them after the event?

If none of these questions can be answered positively, should this lead to a temporary solution being sought rather than a permanent one?

At the recent IOC meeting in Lausanne, Switzerland, Sebastian Coe (head of London's organising committee for the 2012 Olympic Games) offered his advice on avoiding such 'white elephant' facilities to the 2020 prospective host cities, stating: "The legacy thinking has to be enshrined in the very beginning. Where legacy is a problem, it is because it has been an afterthought." Thus host cities must carefully consider what to do with the venues, infrastructure and facilities after the Games.

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Lord Sebastian Coe

With this in mind, i.e., no legacy potential — to what extent could a temporary venue be dismantled and recycled? This is a great notion in theory and while the level of opulence and the iconic nature of a facility may have to be downscaled to reduce its cost and complexity, it is technically possible. However, there is a threshold at which point a venue's design is driven by the demands of the event itself — the intrinsic requirements of the games and the requirements imposed by the organisers.

Consider, for example, a stadium hosting the FIFA World Cup final — the overriding requirement (FIFA Technical recommendations and requirements 4th Edition) is a venue with a minimum capacity for 60,000 spectators. Larger venues have not been discouraged to date, such as Berlin (74,500) or Soccer City Johannesburg (94,700). Similarly, the Commonwealth Games Manual requires seating for 40,000 for athletics and ceremonies. The Summer Olympics recommendation is for 80,000.

At this scale, it becomes increasingly difficult to create 'temporary' elements that can a) fulfil structural demands in terms of loads, spans and dynamics; b) still be more cost efficient in terms of raw material, labour, manufacturing, transportation, installation, etc., than a permanent version; and c) remain sufficiently modular and/or generic so as to have a market value post-games. Without significant adjustment to the events' demands, it is unlikely that smaller venues, for certain events/disciplines like football or ceremonies, will be acceptable in the short-term.

However, perhaps a shift is possible — the 5th Edition of FIFA's Technical recommendations and requirements does not state minimum overall capacities, but rather includes statements like, "Stadium capacities should be decided after discussion with the legacy stadium management to project event seating potential." It also states, "There are, of course, no known formulas for determining a stadium's optimum capacity. It is very much a choice for those in charge of its development."

FIFA also supports modularity. Green Point Stadium in Cape Town had 68,000 seats during the World Cup – it was meant to downscale to 55,000 in legacy, which has not yet happened. On this basis, is it naïve to think that a country could actually provide demountable venues that get shipped to emerging nations after an event?

Perhaps not, but one has to consider the overall context too – how does one get 3.2million people to and from 64 matches during a FIFA World Cup (the number of spectators during 2010 in South Africa)?

Without significant adjustment to the events' demands, it is unlikely that smaller venues will be acceptable for certain events like football or ceremonies



Image courtesy of London 2012

Infrastructure and transport

Major events require extensive investment in infrastructure and transportation, which is vital to their success. For certain events their importance and expenditures surpasses all other requirements. Nevertheless, one must not forget that the venues remain the destination — as they are the stage — and are therefore the cause or driver behind all of the subsequent development to a greater extent.

However, where is the logic in building a temporary venue if permanent infrastructure must be provided (at twice the cost potentially) to support them? Of course, if the temporary venue is removed after the event and replaced with a permanent one, then this might be justified, but this requires further consideration around the legacy of that venue. If there is no obvious legacy for expensive infrastructure and/or a supporting business case, then does this equate to a temporary solution with temporary infrastructure?

Considering the venue as the destination suggests that the inherent functionality demanded by the sport in question and in turn the hosting venue is what determines the overall requirements. This is a fundamental consideration that should be considered in great detail at the outset, but can it all be done in a temporary state?

The sheer cost, technical requirements and regulations for a temporary solution would vastly outweigh the benefits. In theory, a temporary railway line could be laid, but the material, labour, time constraints, technical constraints and regulations would be no different from a permanent solution — hence no real benefit plus the additional cost of removal.

This brings it back to planning and being able to provide for the games and the future use with a single solution. Host cities must be responsible and accountable for this to ensure that unnecessary infrastructure is not constructed to destinations that will only exist for two or three weeks and conversely, that no venues are constructed without the means to access and operate them in the future.

Considering transportation, there are additional challenges to be overcome from the perspective of the organising bodies. In order to create an environment that is safe, convenient, efficient, pollution-free and integrated appropriately into the existing city fabric, the host city must often prioritise the concerns of the Games' extended family, including the athletes/players, officials, media and sponsors. The requirements of the millions of spectators are important too, but the focus will be different and ultimately the host city's residents will benefit after the event through the transportation and infrastructure legacy that remains.

In considering an Olympic Games, the Candidature Acceptance Procedure addresses five key questions which require consideration of all existing transport infrastructure, all currently planned infrastructure and all additional requirements — it also requires cities to explore their current and future challenges. Host cities must 'map' out all travel routes and examine distances and travel times. Organising bodies must engage the local private/public transport authorities to ensure that any proposals and strategies are feasible and can be implemented at a local level. These stakeholders will influence decisions that ultimately determine the extent of development.

Host cities are responsible for ensuring that unnecessary infrastructure is not constructed to destinations that will only exist for two to three weeks

Travel times and distances are important issues for the Games. Organising bodies place significant emphasis on the proximity between villages and event venues as well as villages and practice venues. Some athletes may travel to and from practice venues more than five to 10 times, yet will only compete once. Proximity to the main city is important too, not only for athletes who may want relaxation time, but for the legacy use of the village.

The requirements of spectators are important and while spectator modelling may resolve many issues, the key insights stem from ticket sale forecasts which will help determine where people will be travelling from and to which venues. Certain events will be more popular than others which will influence transport patterns, location, spectator capacity and, ultimately, the permanent or temporary nature of a venue.

Delivery agents and host cities must ensure that the relationship between the Games village and the key venues are appropriate and in accordance with the organising bodies' expectations, both for the Games and the legacy use. Organising bodies like the IOC or FIFA will test this during the early stages leading up to an event.

Modern host cities have rapidly growing central business districts (CBDs) and the perception of heavy congestion and pollution has become a point of concern for organising bodies. Host cities must overcome this challenge and best leverage their existing infrastructure. They must also consider the logistics of bringing in the sports equipment, kit and ancillary items that is required by the athletes, media and Games family. A primary solution that draws on support from reliable partners using tested technology and methods is essential. Secondary modes are often frowned upon, but careful logical planning can ensure maximum benefit. Cities can innovate though — local services can often be re-packaged and incorporated into an offer.

Both the Sydney 2000 and Athens 2004 Olympics used ex-taxi drivers as IOC volunteer drivers, as well as ex-transport general staff, to utilise existing skills and knowledge at village and key venues.

Proximity to the main city is important too, not only for the athletes who may want relaxation time, but for the legacy use of the village



Image courtesy of London 2012

Environmental protection and sustainability

In order to responsibly host a major event, cities face the dual challenge of managing the major investment and infrastructure development necessary for the event to be a success, while making sure that it is undertaken in a sustainable manner, with particular concern for the environment being the third pillar of the Olympic Movement. Further, many will argue that an event cannot be called world-class unless it is hosted in a socially and environmentally responsible manner.

Cities desire hosting major events because they can be a catalyst for major redevelopment and improvement. To do this responsibly though requires the implementation of an Environmental Programme (EP) that addresses the requirements for an Applicant City, as well as meeting the expectations of organisations like the United Nations Environmental Programme (UNEP), in the case of Olympics and affiliated events, or FIFA's Green Goal in the case of football. Host cities must also consider their obligations for reducing greenhouse gas emissions (including CO₂), their renewal energy targets and the energy-in-use demands of the various facilities.

It should be noted that while most major events are short, from two to six weeks, the main impact is primarily seen in the three to five year period beforehand (during construction and development) as well as the 10 to 15 year legacy period afterwards (during operation and maintenance). Temporary alternatives still have to be manufactured somewhere, and therefore contain embodied energy and carbon, but at least their impact (pollution, energy, transportation) can be controlled and minimized to a greater extent.

A healthy, pollution-free environment is of paramount importance for athletes and the creation of such an environment benefits the city and wider community. By implementing sustainability targets, the host city will continue to benefit beyond the Games. The quality of air and drinking water will be the key indicators – recall the restrictions and measures that Beijing imposed on the city's residents and businesses in an attempt to achieve target levels for particulate matter (PM₁₀) in accordance with World Health Organization (WHO) standards. While its efforts to reduce pollution were commendable, they did not provide a long term solution.

Other crucial factors to consider are the current environmental conditions and associated actions plans, Games-specific and legacy environmental action plans and their impact on city/regional environmental and sustainable development strategies as well as the environmental impact assessment (EIA) on proposed venues and associated legislation ensuring compliance at various stages.

Additional considerations relate to the meteorology of the host city. In many instances it is necessary to implement Venue Environmental Control Systems (as a result of the local climate). This might mean that venues need to be heated (such as a Winter Olympics or the 2018 FIFA World Cup in Russia) or cooled (such as Athens 2004 or Rio 2016). Modern venues must also incorporate the most energy-efficient options which utilise renewable energy solutions. Such approaches will ensure that a host city's carbon footprint is kept to a minimum, greenhouse gas emissions are reduced and that pollution targets are sustained.

One could also consider leaving off roofs or facades, which would be possible in Rio. However, the benefits must last during and beyond the Games and ultimately support the long-term legacy use of the buildings. If there is no planned legacy use, or a building cannot be run efficiently (due to lack of funding or no business case or simple building control systems), serious consideration should be given to whether or not that venue becomes a temporary one and dismantled post games. Venues must be cost-efficient to operate while promoting health and well-being, not a burden on the local community promoting degradation.

Furthermore, it is essential that political support and stakeholder buy-in are accomplished at all relevant levels through every stage, from design through procurement and implementation. Without this, venues cannot be adequately incorporated into the long-term planning of communities and neighbourhoods.

Accommodation demands from Games stakeholders

Organising bodies like the IOC, CGF and other international federations (FINA, FIBA, FIFA, IAAF, etc.), alongside the press operations, all contribute to the design and functionality of a venue. Certain requirements must be included and no amount of negotiation will alter the scope envisioned by these various stakeholders. Thus, the complexity of the venue does not diminish by virtue of its temporary status and the functional requirements are as onerous as for a permanent equivalent version. Hence, the demands on servicing, accommodation needs, space requirements, seating, lighting, FOP, and security are still significant cost drivers. However, the key issue is to understand what portion of that venue would be necessary after the event to enable its legacy use and what portion is necessary to host the event, which could be provided as overlay in part.

Graph 1 represents a typical multi-use venue with a 12,000 seat capacity (c. 29,000m² GFA including the seating area of c.5,000 to 6,000m²), illustrates the proportion of functional venue space (termed Sports Operations) versus the other functions (the collective Games requirements). 41% of the venue is allocated as Sports Operations — split as follows: 31% is integral to the building itself and incorporates the event FOP, athletes' changing facilities, competition

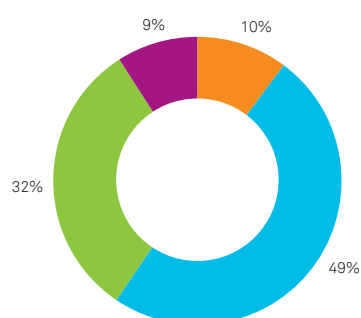
management, equipment storage, athletes' amenities and the seating bowl. The other 10% is provided as 'overlay' and incorporates warm-up FOP.

59% of the venue is allocated to other functions – split as follows: 9% is integral and the larger part, 50%, is overlay. The precise apportionment will vary from venue to venue, but the allocation of space to Games requirements will be fairly consistent. The 59% (c.16,800m² GFA) allocated to 'other functions' can be sub-divided into approximately 26 designated zones (as summarised in Table 2) — 5,000m² being the largest portion, which is allocated to broadcasting in an overlay state.

What is also evident from Graph 1 and Table 2 is that the majority of the space demands stem from the Games requirements, or other functions, not the primary building function, with a mere 9% of this being integral to the building. In legacy mode (if this were a permanent building), this would represent around 22% of the building's GFA. While this suits the legacy aspects of the venue, there is still a significant amount of accommodation required that will need infrastructure support during the Games. A key challenge in this instance will be to size the infrastructure appropriately, to meet the demands during the Games, but to avoid being oversized in legacy.

	Other functions	Overall	Integral
1	Accreditation	180	-
2	Broadcast	5,000	325
3	Catering	960	-
4	Ceremonies	-	135
5	Cleaning and waste	400	-
6	Doping control	-	110
7	Finance	30	-
8	International federation	-	385
9	Language services	25	20
10	Logistics	1,315	-
11	Look of the games	80	-
12	Medical services	30	320
13	Merchandise	70	-
14	Olympic family services	-	560
15	Press operations	800	280
16	Security	1,195	-
17	Site management	2,050	-
18	Spectator facilities	110	40
19	Sponsor services	-	20
20	Sport presentation	-	140
21	Technology	165	80
22	Ticketing	110	-
23	Timing, scoring, results and operations	-	200
24	Transport	295	-
25	Venue management	400	-
26	Work force	980	-
	Sub-totals (m²)	14,195	2,615

Table 2. Designated accommodation zones for a typical Games venue



Graph 1: Proportion of integral versus overlay space required in a typical Games venue

- [A] SPORT OPERATIONS (Functional venue): Overlay
- [C] OTHER FUNCTIONS (Games requirements): Overlay
- [B] SPORT OPERATIONS (Functional venue): Integral
- [D] OTHER FUNCTIONS (Games requirements): Integral

Capital expenditure and finance options — A holistic view of the cost of a temporary venue

Finance is obviously a major issue for cities to consider when bidding to host a major event. Although venues typically account for a relatively small portion of the overall budget, the actual quantum is still significant. Below are the relative proportions of spend on the London 2012 and Rio de Janeiro 2016 Olympics.

Numerous financing arrangements and options do exist, but leading on from our earlier questions — if there is no business case for a venue and minimal return from ticket revenue, venues become extremely difficult to finance. It is not surprising that organising bodies like the IOC require applicant cities to provide Federal/National Government guarantees to finance any shortfall. With such pressure on host cities, surely temporary solutions would be the key favourite? Or is the cost of a temporary venue so high, that it makes no difference? This leads us into the micro portion of our review.

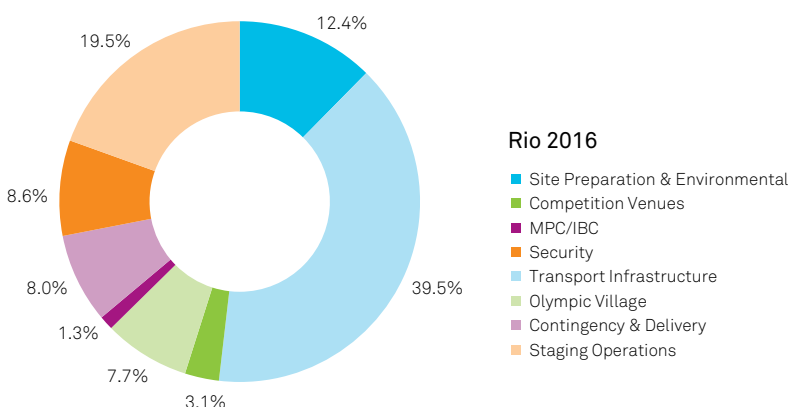
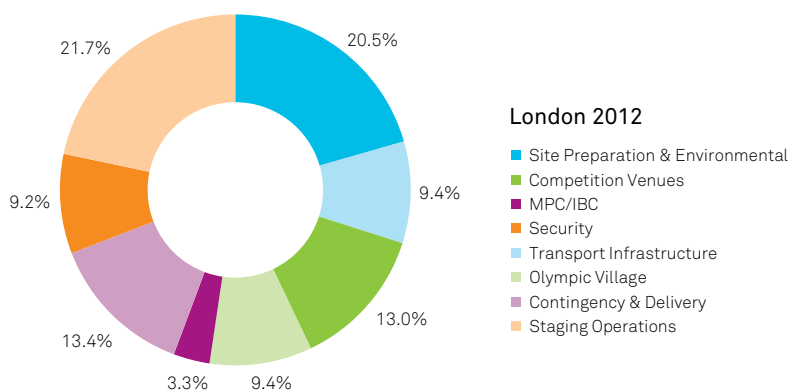
Until now we have considered some of the high-level issues facing host cities such as size and scale, games versus legacy demands, technical factors, infrastructure and transport issues, environmental issues and stakeholder accommodation requirements towards the detailed micro end. Finally, we will consider the holistic cost of a temporary venue.

The cost model on page 12 will highlight the hidden complexity and the underlying cost drivers — thus taking cognisance of the infrastructure as well as the operational aspects, the planning, design, construction, acquisition, operations, maintenance, renewal and rehabilitation, depreciation and cost of finance and replacement or disposal. Below are some of the

key characteristics of a world-class temporary venue that will influence the cost and design:

- Versatility: It must be capable of hosting multiple events.
- Adaptability of the structure: It must be capable of changing its functionality in under 24 hours and in extreme cases, less than 12 hours.
- Adaptability of the FOP: It must be capable of converting the playing area to cater for sports with different dimensions.
- Capacity: The venue should be able to house a minimum of 10,000 spectators to ensure alignment with typical ticket sales forecasts and demand for particular sports/disciplines.
- Material selection: Two thirds of the materials used in the construction are recyclable or reusable. Whatever is not absorbed back into the local market, must be capable of being recycled.

If there is no business case for a venue and minimal return from ticket revenue, venues become extremely difficult to finance



Temporary venue cost model

ANALYSIS OF RELEVANT AREAS:			Area in m ²	
[A] SPORT OPERATIONS (Functional venue) - overlay	2,940	10%	} 17,135	Overlay
[C] OTHER FUNCTIONS (Games requirements) - overlay	14,195	49%		
[B] SPORT OPERATIONS (Functional venue) - integral	9,050	31%	} 11,665	Core building GIA
[D] OTHER FUNCTIONS (Games requirements) - integral	2,615	9%		
Total site area (GFA)			28,800	
Number of seats for primary use	12,000			

Note: The Core building in this example is built as a temporary structure, but could also have been permanent
Note: It is assumed that this building is based in the UK at central london pricing levels

	Quantity	Unit	Cost/m ² GIA	Amount (£)	Sub-total (£)
LAND AND SITE					rounded
Land and infrastructure					
-					
Site acquisition costs	Depends on location / event structure / stakeholders / other				
Infrastructure costs	Based on pro rate share of total for that zone				
Transport costs	Based on pro rate share of total or part of overlay				
External works					175,000
External services and drainage connections	11,665	m ²	15.00	175,000	
Site security (fencing; access control; lighting)	Part of overlay, unless site integrated in existing/legacy park				
CORE BUILDING - INTEGRAL PORTION					
Enabling works and demolitions					576,000
Make up levels and retaining wall (site specific)	28,800	m ²	20.00	576,000	
Foundations, substructure and underslab drainage	11,665	m ²	100.00	1,167,000	
Superstructure					3,151,000
Frame and external envelope	11,665	m ²	120.00	1,400,000	
Upper floors	11,665	m ²	73.00	852,000	
Roof access, safety balustrades, roof drainage and gantries	11,665	m ²	13.00	152,000	
External doors	11,665	m ²	11.00	128,000	
Internal walls and partitions	11,665	m ²	37.00	432,000	
Internal doors and shutters	11,665	m ²	16.00	187,000	
Internal finishes					479,000
Wall finishes; tiling to shower areas; paint to remaining areas	11,665	m ²	16.00	187,000	
Vinyl sheet flooring	11,665	m ²	3.00	35,000	
Painted floors	11,665	m ²	2.00	23,000	
Field of Play	11,665	m ²	15.00	175,000	
Plasterboard or tiled ceilings	11,665	m ²	4.00	47,000	
Concrete sealer to ceiling	11,665	m ²	1.00	12,000	
Fittings and furnishings					2,130,000
Temporary seating, handrails, vomitories, aisles	12,000	No	160.00	1,920,000	
WC cubicles	11,665	m ²	11.00	128,000	
Sundry fittings	11,665	m ²	7.00	82,000	

	Quantity	Unit	Cost/m ² GIA	Amount (£)	Sub-total (£)
Services					4,297,000
Sanitary appliances	11,665	m ²	15.00	175,000	
Disposal installations	11,665	m ²	9.00	105,000	
Hot and cold water installations	11,665	m ²	16.00	187,000	
Heat source	11,665	m ²	6.00	70,000	
Space heating, air treatment, fresh air supply, heating /extract to Arena	11,665	m ²	50.00	583,000	
Space heating and air treatment to other area	11,665	m ²	20.00	233,000	
Ventilating system	11,665	m ²	26.00	303,000	
Electrical installations - power and containment	11,665	m ²	51.00	595,000	
Electrical installations - lighting	11,665	m ²	79.00	922,000	
Protective installations - - fire alarms, smoke detectors	11,665	m ²	16.00	187,000	
Communication installations	11,665	m ²	52.00	607,000	
Miscellaneous items	0.30	%		12,000	
BMS controls; basic monitoring	3.50	%		139,000	
Builders work in connection (excl. BMS, controls and miscellaneous)	4.50	%		179,000	
MANAGEMENT - (will vary depending on location)	Quantity	Unit	Cost/m² GIA	Amount (£)	Sub-total (£)
Add-on costs / other fees					4,932,000
Preliminaries	15.00	%		1,796,000	
Overheads and profit	6.00	%		826,000	
Contractor's risk	2.50	%		365,000	
Professional fees	12.00	%		1,795,000	
Statutory fees (excl. professional fees)	1.00	%		150,000	
Inflation allowance	-	%		Depends on location / timeframe	
BASELINE COST OF VENUE (£) – CORE BUILDING [B+D]					16,907,000
BASELINE COST OF VENUE (£)/seat					1,409
BASELINE COST OF VENUE (£)/m ² of GIA					1,449
OVERLAY COSTS					
Siteworks and Accommodation					9,629,000
Hardstanding (incl. preparation, compaction, drainage)	17,135	m ²	120.00	2,056,000	
Hired/bought accommodation (includes 26 zones)	17,135	m ²	400.00	6,854,000	
Dismantling costs after event (incl. making good)	17,135	m ²	25.00	428,000	
Perimeter site security (fencing; access control; lighting)	17,135	m ²	17.00	291,000	
LEGACY - TRANSFORMATION					
Reversion of site / removal of venue					-1,286,000
Dismantle venue (i.e. core facility)	11,665	m ²	15.00	175,000	
Remove (as applicable) foundations; make good	11,665	m ²	7.00	82,000	
Disposal of temporary seating (sell back to market) - credit 50%	12,000	No	-80.00	-960,000	
Disposal of materials with re-use value in market - credit	11,665	m ²	-130.00	-1,516,000	
Disposal (recycle) of materials with no market value	11,665	m ²	80.00	933,000	
Renewal and rehabilitation of site				Depends on impact of venue on site/surrounds during event	

	Quantity	Unit	Cost/m ² GIA	Amount (£)	Sub-total (£)
Utilisation of venue for a predetermined period post event					
Note: The following will depend on timeframes / intended legacy / wider development					1,850,000
Professional fees: use in transition or legacy	3.00	%		757,500	
Planning and approvals	1.00	%		252,500	
Modifications to comply with regulations / code (c.5% of baseline)	11,665	m ²	72.00	840,000	
Operational and Maintenance costs		monthly		excluded	
MANAGEMENT - (will vary depending on location)					
Add-on costs / other fees					4,198,000
Preliminaries	15.00	%		1,529,000	
Overheads and profit	6.00	%		703,000	
Contractor's risk	2.50	%		311,000	
Professional fees	12.00	%		1,528,000	
Statutory fees (excl. professional fees)	1.00	%		127,000	
Inflation allowance	-	%		Depends on location/ timeframe	
BASELINE COST OF VENUE (£) - OVERLAY AND LEGACY [A+C]					14,391,000
BASELINE COST OF VENUE (£) [A+B+C+D]					31,298,000
BASELINE COST OF VENUE (£) / seat					2,608
BASELINE COST OF VENUE (£) / m2 of GFA					1,087
MANAGEMENT Continued					
Other fees and charges - (will vary depending on location/country)					c.21.5 - 29.8million
Local organising body fee	15 - 20	%		c. 4.7 to 6.3million	
Developer's fee	5 - 10	%		c.1.6 to 3.1million	
Other agent fees	1 - 3	%		c.0.3 to 0.9million	
Levies and contribution charges	1 - 2	%		c.0.3 to 0.6million	
Assurance fees	0.3 - 0.5	%		c. 94,000 to 156,000	
Taxes (VAT, duties, other, on all the above)	20.00	%		c.7.7 to 8.5million	
Project contingency (incl. VAT) - depends on event	15 - 20	%		c. 6.9 to 10.2million	
DEVELOPMENT COST OF VENUE (£)					c.53,000,000 to 61,000,000

References:

[http://www.fifa.com/mm/document/affederation/administration/01/39/20/45/web_fifa_fr2010_eng\[1\].pdf](http://www.fifa.com/mm/document/affederation/administration/01/39/20/45/web_fifa_fr2010_eng[1].pdf)
 IOC : <http://olympic-museum.de/statistics/statistics2004.htm>



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