KPMG

SPORT ADVISORY SERVICES

Planning for a Sustainable Future

The legacy of sporting venues following major events

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Cover photo: Péter Szalmás

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When properly planned and executed, a major sporting event provides a host country or city with the opportunity to promote themselves on a global stage, enhance their economic profile and transform their urban and sporting infrastructure.

It is undeniable that the complexities surrounding the hosting of a sport event have increased exponentially in recent years. The sheer volume and needs of the athletes, the demands of the media, the expectations of the spectators, and the technical guidelines and criteria set out by the international federations, governing bodies and rights holders have all contributed to placing a greater burden on the host, be that an individual city or country.

The increased size and scale of sporting events has also inevitably had a direct effect on the amount of preparation and the monetary investment required in order to stage an event that meets the requirements of all the parties involved.

With the level of investment that is needed to stage major sports events, questions regarding the return on investment and the cost-benefit of hosting the event are increasing. Whilst the impact can be seen during the event, the actual length of the event is relatively small, with the focus quickly shifting to the long term return.

All events will leave an impact on a host city or country, but all too often this has been negative with the event becoming a burden on the host due to a lack of foresight and planning. There is growing evidence that the learning points from previous major sporting events, both positive and negative, are being embraced by event bidders and organisers. To prove that hosting an event can have a positive lasting long-term net benefit, the term legacy is often used when referring to the rationale for hosting a sports event.

Legacy can take many forms and have numerous types of impact across many areas of society in a host city or country such as social, economic and cultural legacies. Whereas the topic of legacy is wide ranging and complex, the focus of this document is on the most tangible aspects of legacy – the long term impact that major events have on the venues used during the event.

Photo: Marcus Bredt

Due to their tangible nature, and the fact that a sports event cannot take place without them, the legacy from venues is one of the most heavily debated topics when discussing the pros and cons of hosting major sporting events.

In an era of intense scrutiny of the investments made by public bodies, challenging economic and fiscal environments, and unprecedented media visibility and connectivity, bidding for and hosting a major sporting event requiring the construction of a stadium, arena, velodrome, aquatic centre or race track can often be hard to justify. This is especially true when the possibility of attracting private sector investment is limited. In such a context, a clear legacy strategy for sporting venues, based on an understanding of post event market trends and thorough design and planning briefs, is of paramount importance to ensure the long term positive impact of hosting a major sporting event.

After having studied recent sporting events, both successful and less so, KPMG's Sports Advisory practice publishes this thought leadership which aims to offer insight into the venue legacy planning associated with major sporting events.

We hope you find this document informative and that our insights prove valuable to all stakeholders involved in the bidding, and hosting processes of major sports events.

We would like to thank all parties who contributed to this document by providing opinions and insights, based on their previous experience.

If you would like to discuss the findings of this study or better understand our competencies in the sports industry, please contact us.

Yours sincerely,

Andrea Sartori and James Stewart

1. Introduction

1.1 Placing legacy at the forefront of the sporting venue planning process

Whilst the development of any sports venue – be that a football stadium, multi-purpose arena or aquatic centre – is a complex process, key project phases, from initial vision to the grand opening of the facility and subsequent operation, can be identified. Progressing from one phase to another may only be possible if previous phases have concluded with positive results, and commitment on behalf of all stakeholders has been made to go forward.

Depending on the complexity of the project, its size, and the legal and administrative framework within which the project is taking place, the entire development process can span several years. Strict planning of the interlinked activities is required in order to make the development efficient and effective, and to ensure maximisation of the opportunities is achieved. This process depends on the efficiency of the planning phase, project management capabilities, continuous flow of financing and complexity of the construction.

Numerous parties are involved in the development of a project as intricate as newly-built or reconstructed sporting infrastructure. Due to the high complexity and the breadth of technical skills required, it is of paramount importance to engage specialist and experienced personnel and consultants during the various phases of a project. This will support the timely implementation of the process phases within budget and according to set standards and project objectives.

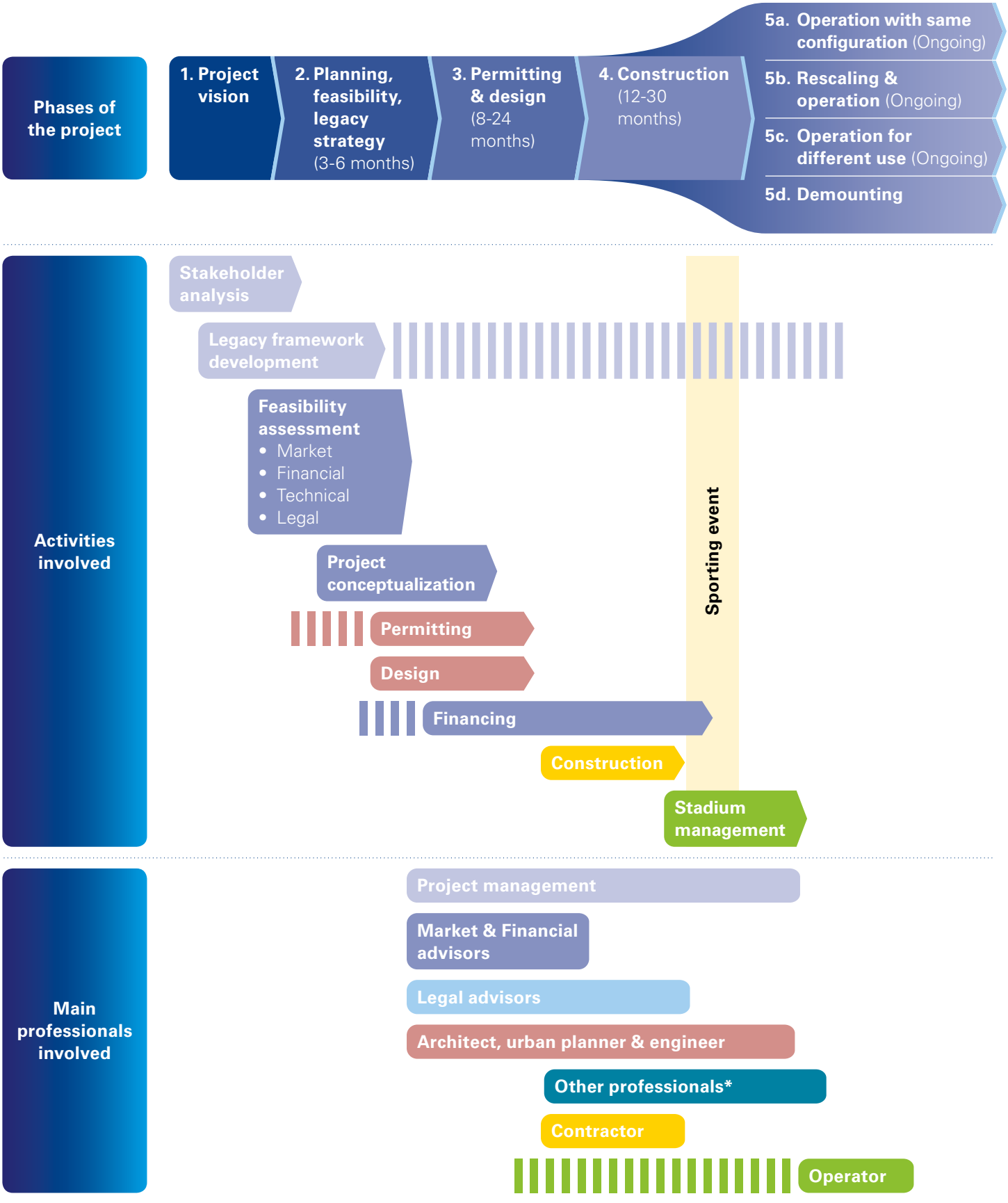
In the context of the development process of new venues for major sports events, the planning, feasibility and the legacy strategy phase is crucial to guarantee the long term sustainability and success of the proposed project.

Research to understand the market in which the venue will operate and the expected demand and supply trends, financial analysis and assessment of the legacy strategy of the proposed venue post-event, are crucial steps to understanding the long term economic sustainability of a project. Quality work done in the preliminary stage should maximise the chances of a concept being successfully developed and transferred into the design, construction and operation phases.

One interesting element that is unique to major event related sports infrastructure is the timing aspect. The start date for a major sports event is fixed and usually non-negotiable. This may impact on the speed at which the development process moves and the decisions that need to be made. It may also necessitate the shortening of the development process which highlights the importance of doing as much research and analysis up-front as possible to ensure risk is minimised in the subsequent phases.

Photo: Mike Schmuker

Understanding the process: Key phases, milestones, timings and the main professionals involved



Other professionals include: landscape consultants, security/fire safety consultants, access consultants, pitch consultants, computational fluid dynamics consultants, lighting and acoustic consultants, waste management consultants, marketing & PR specialists, etc.

Source: KPMG Sports Advisory analysis, 2015

2. Appraising recent events

2.1 Venue legacy and the introduction of temporary facilities into the venue mix

Although there are some historical examples of efforts to create and execute a venue legacy plan from major sports events – most notably reconfiguring the Olympic Stadium used in the 1996 Atlanta Olympic Games into the home venue for the city's baseball team – until around the turn of the new millennium the most appropriate options for venue legacy following major sports events consisted of three methods:

1. Keeping the venue as it is and expecting the demand to be sufficient to sustain the facility. The Beijing Olympic Stadium was kept intact after the event and will serve as the main stadium of the 2022 Winter Olympic Games too;
2. Scaling back the capacity of the venue to better meet the local demand. For example at the 2000 Sydney Olympic Games the organisers added 7,000 temporary seats to the existing capacity of 8,000 of the Sydney Olympic Park Hockey Centre. These were removed after the event to ensure the post-event capacity better suited the demand for the New South Wales Waratahs and New South Wales Arrows, the co-tenants of the facility;
3. Converting a sporting venue into another use that better suits the local market conditions. For example at the 2004 Athens Olympic Games, to better serve local demand, the Goudi Olympic Hall – which hosted the badminton competition and was built specially for the Games – was converted into a multi-use facility featuring an auditorium that can host medium-large scale events. To commemorate its original use, the facility was renamed The Badminton Theatre in January 2007.

Despite these efforts, the consensus view about Athens is that the event delivered limited results in terms of venue legacy. Images from redundant permanent venues post-Games in Athens are an epitome of the term 'white elephant' and are a reminder of the importance of legacy planning.

While the organisers of the Sydney and Athens Olympic Games made some efforts to try to utilise some of the venues after the event, assembling a robust, credible and viable legacy plan for the usage of all venues after a major sporting event is not always a straight forward task. Sometimes it is just not possible to identify a usage plan that will satisfy the key stakeholders involved. In such a context, one solution is the use of temporary facilities.

In terms of the Olympic Games, a more prominent use of temporary facilities was introduced into the venue mix by the organisers of the 2008 Beijing Summer Olympic Games. A total of seven sports utilised temporary facilities - beach volleyball, BMX cycling, archery, field hockey, baseball, triathlon and road cycling. Out of these, five venues were complete stadiums, while two temporary facilities were assembled on public land.

Amount of existing and completely temporary sporting venues used at recent Summer Olympic Games

Source: KPMG Sports Advisory analysis, 2015
**Projected figures from the bid dossier*

The two largest venues in this category were the field hockey and baseball venues. The former, the Olympic Green Hockey Field, had a capacity of 17,000 seats and was completely demounted after the Games. The Wukesong Sports Centre baseball venue had approximately 15,000 seats and a reported development cost of USD 29 million. After the event it was demounted to make way for a new shopping mall development that was deemed more suitable for the local demand.

The temporary facilities trend went further in London 2012 as the number of temporary venues increased to 13, including three completely demountable temporary stadiums/arenas.

London has been congratulated for its diverse range of venues and putting legacy at the top of its agenda. Whilst not totally without its challenges, particularly the elongated period to definitively decide on the post-Games usage of the Olympic Stadium, nevertheless the use of existing sporting, as well as non-sporting, venues and the incorporation of temporary and part-temporary facilities into their venue strategy has resulted in the organisers of the London event being lauded by the event industry. Our analysis of London 2012 resulted in the identification of eight different types of venue – for more details see the case study on page 16.

At Olympic Games level, the shift towards utilising temporary facilities is expected to continue. At least seven temporary venues will be utilised during the 2016 Summer Olympic Games in Rio de Janeiro – of which four will be complete stadiums/arenas. Tokyo is expected to build the same number of permanent venues as completely demountable facilities for the 2020 Summer Olympic Games.

As can be seen from the timeline presented below, the shift towards using temporary facilities did not happen overnight. With suppliers becoming more innovative and able to replicate permanent stadiums and arenas with comparable levels of safety and comfort, organisers have started considering the viability of using temporary/demountable structures for major events. We also believe that the lack of financial support from national and international public authorities for temporary venues also played a role in the slow acceptance process of these type of facilities. However, with technology advancement, having temporary venues as part of the mix is now viewed as a sound and well managed strategy for event legacy.

Compared to a permanent solution, a temporary venue, which can be easily disassembled once it has served its purpose, can offer a number of advantages – greater flexibility, reduced lifecycle costs, shorter construction timespan and recyclability.

2000 – **2001 Fukuoka World Aquatics Championship**
The competition swimming pool was set up on a temporary basis in an exhibition hall and was later disassembled.

2002 / 2004 – **2004 Athens Olympic Games**
No temporary venues were used. The event became a prime example of negative sport venue legacy.

2006 – **2008 Beijing Olympic Games**
The first completely demountable venues were utilised at the Olympics Games as nine facilities were demolished after the event.

2008 / 2010 – **Announcement of Qatar as the host of the 2022 FIFA** (Federation Internationale de Football Association) **World Cup**
The bidders commit in their bid dossier to utilise modular elements and to use those after the event to develop 22 new stadiums in developing countries.

2012 – **2012 London Olympic Games**
A wide variety of temporary and permanent solutions were used. The event is considered a prime example for well-managed sport venue legacy

2014 / 2016 – **2022 Winter Olympic Games bidding phase**
Several cities pulled out of competition after initially expressing their intention to bid, largely due to the increasing associated costs, including the unnecessary lifecycle costs of sporting venues

2018 / 2020 – **2020 Tokyo Olympic Games**
The first Olympic Games where, expectedly, the same amount of new permanent and completely demountable venues will be used

Source: KPMG Sports Advisory analysis, 2015

2.2 Why is venue legacy currently in focus?

Whilst temporary venues may help potential hosts avoid the pitfalls of the past, scrutiny of recent high profile events has highlighted the other challenges surrounding major sporting events.

Despite making use of temporary venues, there was intense media focus on the Olympic Games in Beijing (2008) and Sochi (2014) on the multiple billions each city spent in order to stage their event.

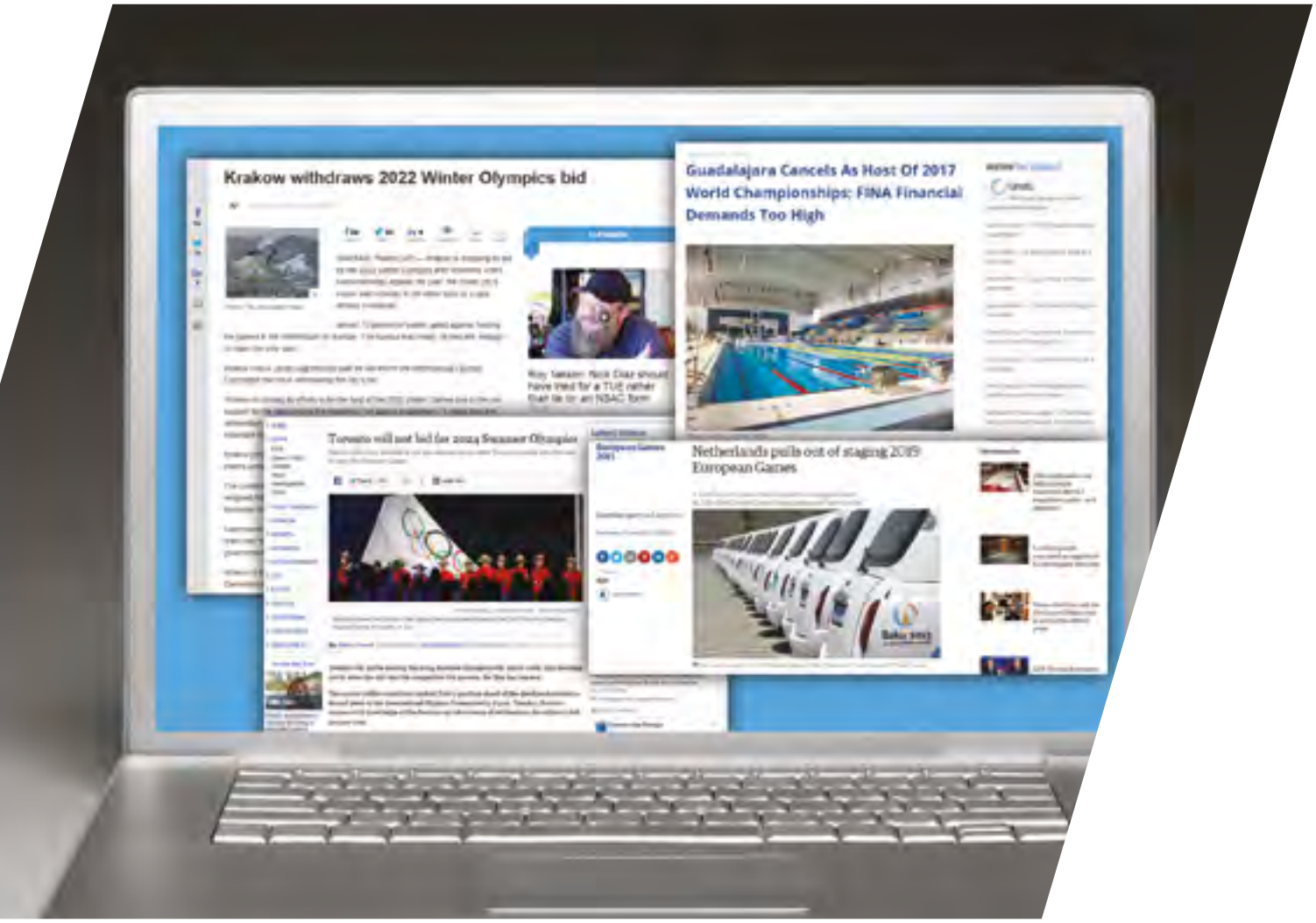
From a legacy perspective, the consequences of the two most recent FIFA World Cups have called into question the robustness of legacy planning. After developing large, state-of-the-art, permanent football stadiums, certain host cities in South Africa (2010) and Brazil (2014) are suffering from the limited local post-event demand. The newly-built stadiums in Port Elizabeth, South Africa (46,000) and Manaus, Brazil (41,000) are good examples of this.

As a result, in these challenging market conditions, various host cities are facing difficulties in achieving acceptable utilisation when operating these permanent venues and covering the associated operating costs, which are often a major burden on local public institutions.

The knock-on effect of these instances has seen a negative impact on the willingness of cities/countries to bid for major sporting events. Examples on this page illustrate this point.

These actions are claimed to be a reaction to the sizeable and, in some views, increasing cost of staging a major sports event, with bidders and organisers, and particularly governments, concerned that such large spending could create long term burdens on their cities and countries without a robust and viable long-term legacy.

Given the effect on bidding for the Summer and Winter Olympic Games, the International Olympic Committee has been the first major federation and rights holder to publicly and proactively seek a solution to the challenges facing cities and countries who are contemplating staging a major sporting event.



3. The growing importance of legacy for the International Olympic Committee

The International Olympic Committee (IOC) has been increasingly highlighting the importance of legacy since it organised a conference on the topic in 2002.

In 2003 the IOC amended its mission statement within the Olympic Charter to state that part of the IOC's role is *"to promote a positive legacy from the Olympic Games to the host cities and host countries."* That statement remains in place.

Although this statement covers legacy in all its guises, the importance of venue legacy was emphasised in the IOC's March 2013 publication entitled Olympic Legacy: *"Permanent venues, built or refurbished for the Games, can be used extensively for sport once the Games have finished, delivering a lasting sporting legacy. Organisers do, however, need to ensure that the venues are functional, sustainable and adequately scoped for legacy use."*

However, responding to more recent concerns, including the withdrawal of potential hosts for its showpiece events, the IOC has started taking measures to try to make bidding for major events attractive again. The key points of the campaign emphasise a decrease in the costs of such events which, together with a positive legacy plan, can demonstrate benefits for a city, without overburdening it when hosting an event that lasts for less than a month.

The most notable recent action by the IOC has been the preparation and release of the Olympic Agenda 2020, which was accepted at the 127th IOC Session in Monaco in December 2014. The 40 recommendations within Olympic Agenda 2020 were promoted as the strategic roadmap for the future of the Olympic Movement.

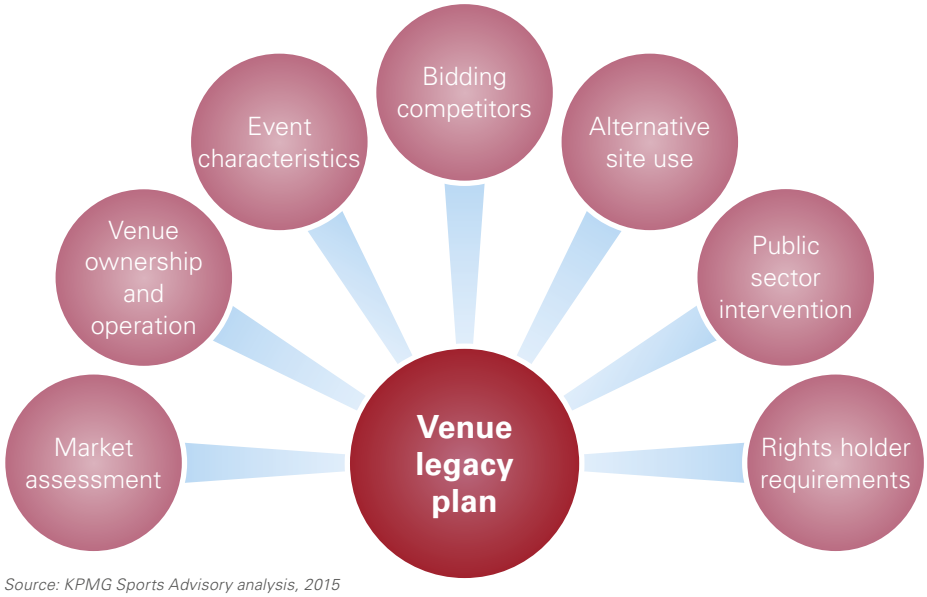
Legacy plays a key part in Agenda 2020 with one of the working groups specifically focused on 'Sustainability and Legacy' and the use of the term legacy appears in five of the recommendations, including:

- At the bidding stage the IOC will *'consider as positive aspects for a bid: the maximum use of existing facilities and the use of temporary and demountable venues where no long-term venue legacy need exists or can be justified.'*
- The IOC will assist in the *'post-Games monitoring of the Games legacy with the support of the National Olympic Committee and external organisations such as the World Union of Olympic Cities.'* The IOC plans to use the Host City Contract to obligate the organisers to inform the IOC of the organisations that will monitor post-Games legacy.
- The IOC recommend closer co-operation with other sports event organisers and highlight that '*hosting the Masters Games in an Olympic city could be a very positive legacy activity, with the reuse of Olympic venues and infrastructure.'*
- The IOC will *'encourage and support National Olympic Committees in their advocacy efforts to deliver a positive legacy of the Games.'*
- The IOC state that they will further strengthen the blending of sport and culture between Olympic Games and study how to engage and interact with *'global cultural players to build a dynamic legacy.'*

Xavier Becker, the Head of Venues, Infrastructure & Services at the IOC further emphasised the importance of temporary infrastructure at a conference in 2015: *"The IOC wants to actively promote the use of existing and temporary infrastructure to contribute to more sustainable and cost effective solutions. Furthermore the IOC wishes to develop the awareness regarding temporary infrastructure and to promote an earlier engagement with the suppliers market. I would also encourage the industry to develop innovative solutions, and to think about new reusable large facilities to provide more flexibility for organisers."*

4. Formulating the most appropriate venue legacy plan – factors and challenges at play

Formulating a venue legacy plan for a major sports event is rarely a completely straightforward task. There are several factors and challenges, many of which are not mutually exclusive, that need to be considered and will likely influence the ultimate outcome. We discuss a selection of the issues at play here.



Source: KPMG Sports Advisory analysis, 2015

4.1 Market assessment

The cornerstone of a well-thought through legacy plan is a detailed assessment of the potential market conditions which the venue might operate in after the event.

Whilst clearly satisfying the requirements for staging the particular event are important, in our opinion, from the outset, event bidders and organisers should give high priority to the post-event opportunities for the facility.

The results of this assessment should ultimately be the key driver of the configuration of the venue in event mode. Where the projected long-term market demand appears to be strong, then a permanent venue would appear to be the most appropriate consideration. A good example in this regard was the construction of the Football Arena Munich, better known as the Allianz Arena, for the FIFA World Cup 2006. The post-event demand from football fans in Munich has been such that the venue has been further expanded in terms of capacity.

However, if the market analysis indicates that the post-event demand may be weak, and does not justify the existence of the sporting venue's configuration, then a part-temporary venue could be the most legacy-friendly solution for the event bidders/organisers to adopt. A good example here is the Aquatics Centre for the 2012 London Summer Olympic Games which removed approx. 15,000 seats following the Games due to the infrequency of large swimming events requiring such a high spectator capacity. The level of demand for utilisation of the pools meant that these core facilities were retained.

A lack of evidence of any post-event demand and/or extremely challenging market conditions should call into question whether any of the venues should be permanent and should support the plan to utilise a completely demountable facility for the event itself.

By way of example, given their time again, it may be that organisers of the most recent FIFA World Cups in South Africa and Brazil may have incorporated a greater use of temporary facilities at some of the venues utilised in the competition, due to the lack of post-event local demand.

We recognise that the post-event market characteristics will not necessarily be the same as they were at the time of planning; consequently, assessment of the post-event market conditions needs to be regularly monitored.

Photo: Populous

4.2 Rights holder requirements

The awarding rights for sports events are held by a range of organisations broadly covering:

- National governing bodies for a single sport, e.g. UK Athletics, Hungarian Swimming Federation;
- International federations for a single sport, e.g. International Ice Hockey Federation (IIHF), FIFA;
- Continental federations for multi-sport events, e.g. Commonwealth Games Federation, Asian Games Federation; and
- Global federations for multi-sport events, e.g. International Olympic Committee.

For each major sports event rights holders have rigorous requirements concerning the technical standards the intended venues have to meet in order to stage sanctioned events, and to which the hosts commit.

These requirements will impact various design aspects of a venue including, amongst many others, telecommunication standards, venue roof solution, facilities for athletes, media and hospitality including VIPs.

Most importantly, rights holders require minimum spectator capacity.

It is a view generally held that, over the past few years, the requirements set out by rights holders have escalated and this has had a direct impact on the financial cost of staging an event.

Whilst the focus of the technical standards is predominantly on the event itself, when these requirements are significantly in conflict with post-event market demand, the issue of the long term economic sustainability of a sport venue often emerges. Hence, more attention has to be paid to the venue legacy strategy.

The venue legacy plan will also be influenced by whether, and how, the rights holder wishes the event to be remembered. Any preference that the rights holder expresses for the construction of a permanent venue – that either acts as a reminder of the event (as in the case of an iconic building) and/or as a potential catalyst to increase participation in that particular sport – should be assessed in the context of the development of the legacy plan.

Theoretically any legacy requirements of rights holders should be expressed at bidding stage so that all bidders are competing on an equal basis. However, it may be that rights holders downplay the legacy aspects of a bid, if their objective is to see a permanent venue developed. This may put pressure on bidders to commit to construct sports facilities for an event that may well be under-utilised after the event has finished.

The rights holders of the major football events have yet to formally make a statement about the use of temporary facilities for the main stadiums hosting the matches of their event. However, there are embryonic signs that these rights holders are introducing flexibility into their venue requirements. Indeed, the Union of European Football Associations' (UEFA) director of operations division, Martin Kallen, has stated that whilst demand for venue infrastructure such as media, security, logistics, hospitality and fan zones is increasing from event to event, temporary infrastructure is crucial for the operation of large events.

4.3 Venue ownership and operation

The increasing complexities of bidding for and, in particular, the organisation of major sports events has led to a corresponding increase in the establishment of specialist teams containing specific experts who can add knowledge and experience to the set up and delivery of the event itself.

However, the existence of these teams – often referred to by the term "organising committee" – is limited by the timeline surrounding the event itself, with dissolution of the organising committee common once the event is over.

If dissolution is the proposed final aspect of the organising committee's existence, then the post-event transfer of assets, in this instance the venues themselves or, in case of a demountable venue, the land on which the event took place, needs to be a consideration within the venue legacy plan.

Any on-going public sector involvement, be that a state government department, local municipality or quasi-governmental body, in the ownership and operation of the venue needs to factor in the market conditions assessment. The implications of an underutilised venue, in terms of a requirement for on-going support, might put pressure on the public sector organisation itself as well as the public taxpayer. This situation might add weight to the case for a part-temporary or fully demountable venue.

Involvement of the private sector in terms of ownership or operation of the venue may be challenging to achieve without favourable market conditions and without an opportunity to make an appropriate return on investment, relative to the risks involved.

Incentives, for instance through assisting with meeting operating costs or guaranteeing a certain volume of events, may be required to attract a private sector organisation. The implications of providing these incentives, and of identifying the provider, need to be factored into a venue legacy plan.

Conversely, a legacy plan should also outline how the successful post-event operation of a venue should meet the expectations of the venue's owner and/or the public.

4.4 Event characteristics

Whilst a single-sport event can be staged within one or two venues, for example the World Aquatics Championships and World Athletics Championships, the size of the event itself, particularly the number of teams/competitors involved or the wear and tear on the playing surfaces could necessitate a larger portfolio of venues. For example, 12 and 13 match venues were utilised for the 2014 FIFA World Cup in Brazil and 2015 Rugby World Cup in England, respectively.

Within a multi-sport event context, different sports can have similar requirements in relation to the venue that they are staged in, for example the indoor sports of basketball, handball, and volleyball. However, due to the scheduling conflicts within a time-constrained multi-sport event, it may be difficult to host these competitions individually without providing multiple venues with similar facilities.

In situations where the staging of sports events requires a number of venues with similar characteristics, this requires careful consideration in the venue legacy plan. In the case of a city-based multi-sport event the city itself may be left with several similar venues located close to each other and which are more than likely to just compete against each other without an overarching multi-venue strategy.

Without evidence that all venues would be highly utilised, the use of temporary solutions – such as the conversion of existing facilities or demountable structures – may be the most appropriate legacy-friendly plan for the event.

4.5 Public sector intervention

Whilst the findings from the market conditions assessment may support a certain venue legacy solution, it may be decided by the public sector – local, regional or national government – that an alternative solution might be more appropriate to achieve other objectives, for instance in satisfying social and/or community objectives. However, whilst these objectives are laudable, the financial consequences of such a choice may be that the local taxpayer will be asked to share the burden if the revenue generating ability of the venue is weak.

An example of this type of intervention is the swimming complex used for the first European Games in Baku in 2015. Whilst there had been no 50-metre swimming pool in Baku before the event, the local authorities decided to sanction the building of a permanent venue. Whilst the lack of supply may suggest that demand for this type of facility is limited, the local authorities wanted the swimming complex to be used by both the local community as well as to act as a training base for Azerbaijan's national teams in the years following the event.

Intangible and broader social benefits and considerations may also lead to bidders and organisers developing permanent venues despite the fact that there may appear to be unfavourable market conditions.

4.6 Bidding competitors

Another factor to consider when developing an appropriate venue legacy plan is the intensity of the bidding competition to win the right to host the event itself.

The natural reaction of bidders is to believe that promising the development of bigger, better and permanent sporting venues, compared to their counterparts, may give them an advantage with rights holders.

Although this may lead to the design of iconic and state-of-the-art sporting infrastructures, the decision makers involved in the bid should not lose sight of the fact that choosing this strategy needs to fit into the long term legacy plan in order to be justified.

Understandably, contemplating this type of strategy can lead to debates regarding the winning of the rights to host an event and finding the most appropriate legacy-friendly solution.

4.7 Alternative use of the selected sites

The detailed assessment of the market conditions may reveal that on the site where the sports venue is planned, there is potentially stronger post-event demand for another use or the development of a different type of real estate.

This may promote the use of a demountable structure for the sports event itself.

The venue legacy plan should reflect this and the findings may encourage different stakeholders to express an interest in the site. Bidders and organisers may seek assistance from these interested parties with the hosting of the event in order for them to gain development rights to the site after the event has been completed.

4.8 Timing

The venue legacy plan needs to be considered at the very beginning of a major sports event initiative and has to be taken into account at every significant phase leading up to the actual delivery of the event.

To derive a venue legacy plan during the project and to try to integrate that solution into the concept can exponentially increase costs and make design plans extremely difficult. As a consequence, retrofitting existing venues or altering developments under construction with legacy-friendly elements is less efficient compared to planning the facility in a way that it can operate in a sustainable manner from the outset.

For example, whilst London has many plaudits for the 2012 Summer Olympic Games, the Olympic Stadium is one venue where most critics still focus. The stadium is an example where the final solution was settled upon once the development was underway and the venue has had to be retrofitted. The original long-term legacy of the facility was not deemed viable and consequently authorities decided to convert the stadium into a multi-purpose venue with a primary sporting focus on football rather than one with just track and field capabilities. The stadium's anchor tenant will be West Ham United, a football club located in the same London borough as the stadium. Although, the final solution could be considered as a legacy-friendly use for the venue, the decision was time consuming and the additional cost to convert the stadium has become significant.

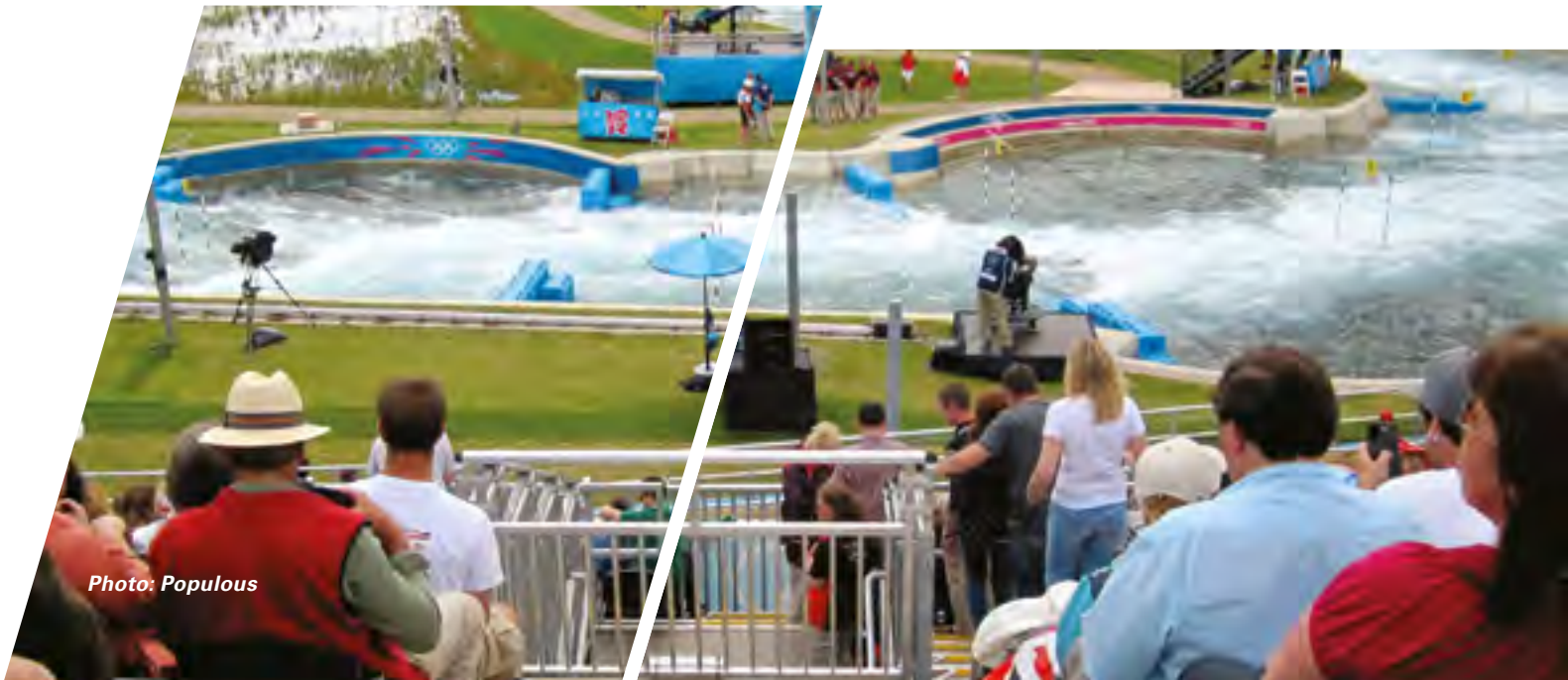


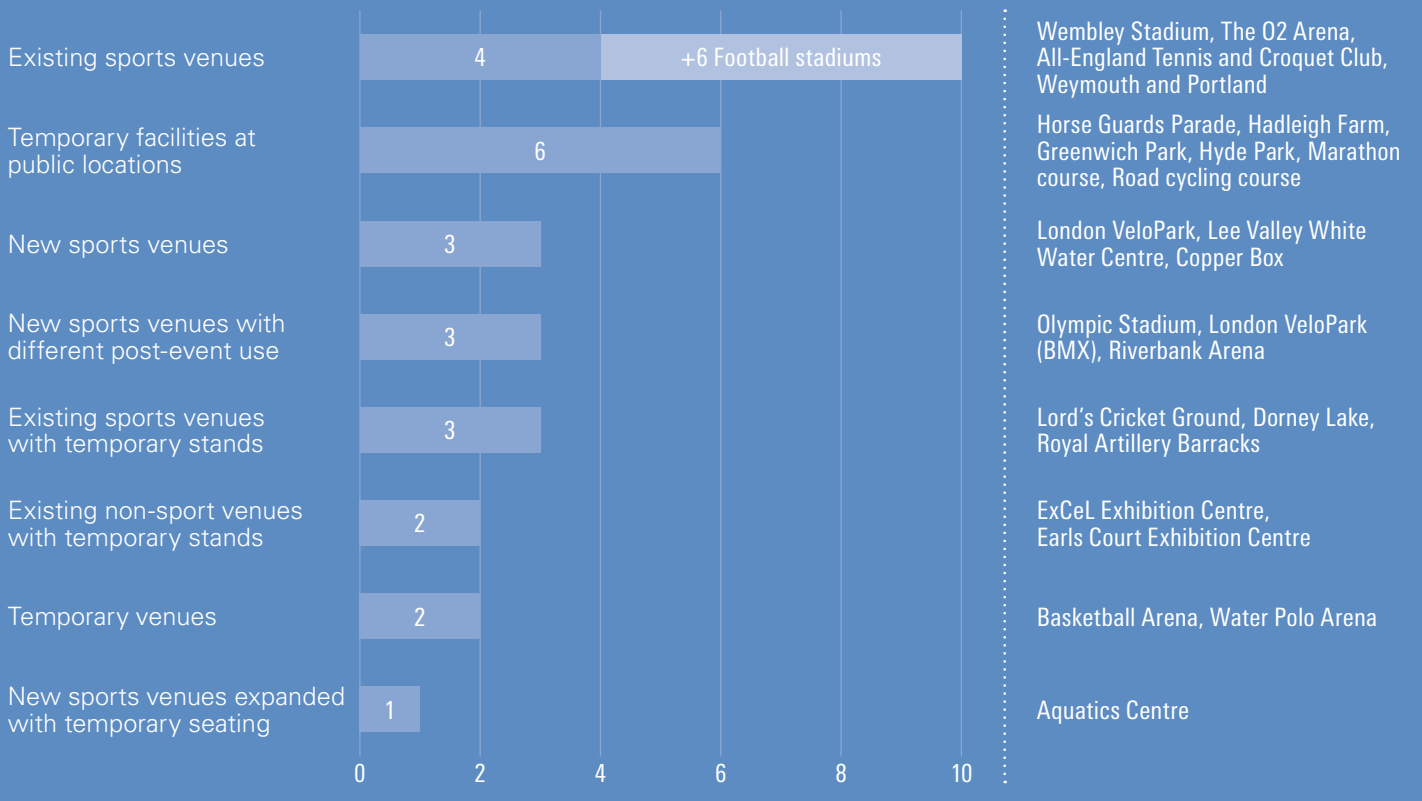
Photo: Populous

5. Creative solutions at London 2012

In order to decrease the number of new sporting venues to be built for the Games, the London organisers used various solutions. According to our analysis, eight different categories of venue were used at the 2012 Summer Games. As shown in the chart below, the London organising committee opted to use ten already existing sporting venues (for six different sports). Six of these ten venues were football stadiums in different parts of Great Britain which hosted the football tournament.

- The second largest category was temporary facilities located in various public spaces (many providing an iconic setting) throughout London, such as Hyde Park, Greenwich Park and Horse Guards Parade;
- Seven venues, including the Olympic Stadium, were built new for the Games, of which three have now been reconfigured;
- The organisers used three existing sporting venues that did not have sufficient capacity to host events and extended them with temporary stands;
- Two locations, including the ExCeL Conference and Exhibition centre, were non-sporting venues and were used to host events using temporary stands. Additionally, two temporary venues – for basketball and water polo – were built and entirely dismantled after the Games;
- Finally, the aquatics centre was a newly-built venue with additional temporary stands to host the Games; these stands were removed after the event. Overall, excluding football stadiums, 13 out of 24 London Olympic locations were temporary in nature.

London 2012 Olympic venues by type



Source: KPMG Sports Advisory analysis, 2015

6. The International Swimming Federation (FINA) is taking the initiative

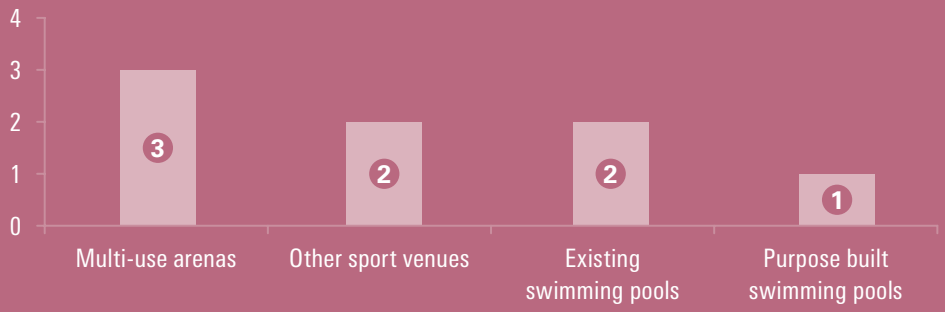
One sport that has clearly taken the initiative in terms of finding legacy-friendly solutions for its major events is swimming.

Our research found that several major swimming events have utilised temporary pools and facilities inside existing sporting and non-sporting venues. This not only demonstrates that strong emphasis was placed on the legacy aspects but that technological advancements had been made to such an extent that a temporary pool could be installed within an existing building and then dismantled and potentially reused elsewhere.

Temporary facilities were used in:

- 2001 – Fukuoka – Exhibition Hall – World Aquatics Championships
- 2003 – Barcelona – Indoor Arena – World Aquatics Championships
- 2007 – Melbourne – Indoor Arena – World Aquatics Championships
- 2008 – Manchester – Exhibition Hall – World Short-Course Swimming Championships
- 2013 - Barcelona – Indoor Arena – World Aquatics Championships
- 2014 – Berlin – Velodrome – European Swimming Championships
- 2015 – Kazan – Football Stadium – World Aquatics Championships

Type of venues used at eight FINA World Aquatics Championships (2001-2015)



Source: KPMG Sports Advisory analysis, 2015

The venue used for swimming and synchronised swimming at both the 2003 and 2013 World Aquatics Championships in Barcelona was the Palau Sant Jordi, which is a multi-sport arena. The venue was built for the 1992 Summer Olympic Games where it hosted the artistic gymnastics and the finals of the handball and volleyball competitions. The venue's overall capacity for sporting events is approximately 17,000.

At the 2007 World Aquatics Championships in Melbourne the organisers used the Rod Laver Arena as the main venue of the event. The arena has a capacity of 15,000 people and hosts the annual Australian Open tennis competition.

The 2015 World Aquatics Championships was held in the city of Kazan's main football stadium, which opened in 2012 and is due to host six matches of the 2018 FIFA World Cup. Two 50m pools (i.e. a competition pool and a training pool) were set up on the football pitch for the duration of the competition. Whilst the overall capacity of the football stadium is 45,000, the capacity for the event was set at 15,000. To meet the international federation's staging requirements, a temporary roof was also erected for the event.

Also the 2014 European Aquatics Championships was held in a temporary pool in Berlin, set within the city's velodrome. The capacity of the venue is approximately 12,000.

To further underline its intentions in this area, in 2014 FINA, the international federation, announced a four-year agreement with Nüssli, a leading supplier of temporary structures for events. The agreement made the company an exclusive Official FINA Supplier. FINA president Dr. Julio C. Maglione said the cooperation was due to Nüssli being *"well-known for its technical expertise and substantial experience in planning and building temporary sports structures worldwide."*

7. The case for temporary venues – technical and financial considerations

If the venue legacy plan indicates there is limited opportunity for a permanent venue to be sustainable after the event has finished, then the option of utilising a temporary solution, or a hybrid combination of temporary and permanent facilities, should receive serious consideration.

7.1 Technical considerations

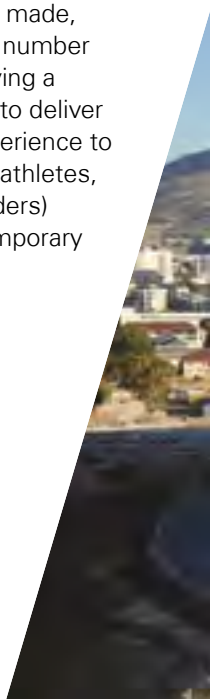
The use of temporary structures has been evident at major sports events for a few decades, as can be demonstrated by the installation of spectator stands for events such as golf tournaments, major cycling races, etc. This type of relatively simple structure, with capacities of a few thousand spectators, will continue to play a role at a range of international, national, regional and local sports events.

However, it has been the more recent progression towards providing temporary venues, for example the open air Chaoyang Park Beach Volleyball Ground (2008 Beijing Summer Olympic Games) and the fully enclosed Basketball Arena (2012 London Summer Olympic Games) which have been viewed by industry stakeholders as taking temporary venues to the next level in terms of quality, safety and the user experience they provide.

Industry stakeholders have identified a number of technical factors at play which are boosting the case for temporary venues to be an integral part of a sporting event's venue portfolio. These factors include:

- Greater investment in the form of time, research and development, made by the manufacturers of the component products from which a temporary venue is constructed;
- An increase in the range of solutions such that temporary venues can replicate permanent facilities in an increasing number of ways, for instance the improvements in roofing solutions allowing cantilevered roofs to become viable options for temporary venues;
- An improvement in the quality, reliability and flexibility of the components, fit-out and finishes of a temporary venue;
- The assembly and disassembly of the component parts, as well as the ability to subdivide elements of a temporary venue, has been made easier;
- Greater appreciation of sustainability and resulting increase in the ability to reuse or recycle more materials and component parts of a temporary venue;
- Creative design allowing a greater range of unique settings, including iconic landmarks, to be considered as locations for temporary venues;
- An increase in the maximum capacity that a temporary venue can safely accommodate;
- Advancement in construction techniques and building procedures positively impacting the amount of time required to construct temporary venues; and
- A growing knowledge base within the industry utilising the learning points and experiences from other events, as well as the expertise that industry professionals, for example architects, can bring to uncovering appropriate solutions.

Whilst there is a recognition that there remain numerous areas where further improvements can be made, there is clear evidence that a number of technical advances are having a positive impact on the ability to deliver the appropriate quality of experience to the various user groups (e.g. athletes, media, spectators, rights holders) through the provision of a temporary venue.



7.2 Financial considerations

When major event bidders and organisers examine the various development options surrounding the event's venue portfolio and legacy plan, then, the cost implications of choosing a specific scenario (e.g. fully demountable, permanent or hybrid solutions) should be carefully examined. Both capital expenditure and operating expenditure during a project's lifecycle should be considered.

Capital expenditure

An assumption many bidders/ organisers might make is that opting for a temporary solution should lead to development cost savings being made, but is that always the case?

It would be wrong to think of the cost implications of a sports venue just in terms of the actual construction cost of the core building itself, and assuming that a temporary venue regularly requires less capital expenditure than a traditional permanent one. As the chart illustrates there are four capital cost drivers that contribute to the consideration of the overall development cost of a particular venue solution.

In the following pages we give high level consideration to the impact that the choice of a temporary versus a permanent solution can have on each one of the four contributors to a sporting venue's capital costs.

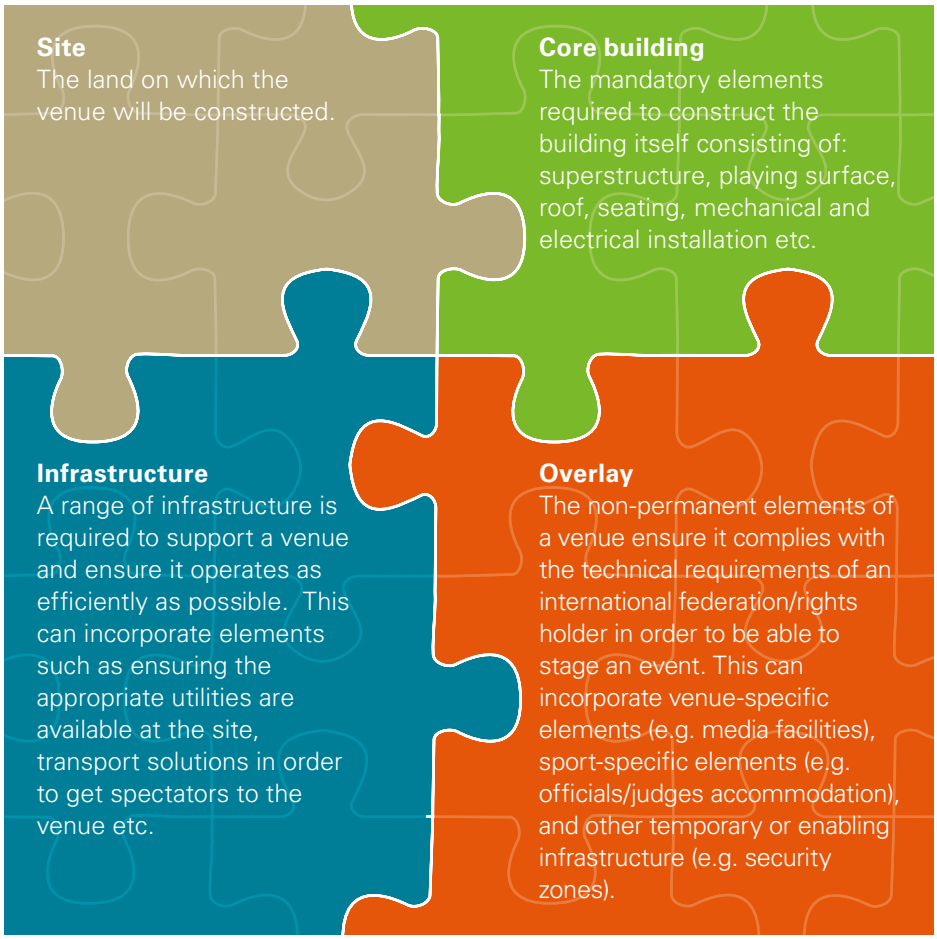
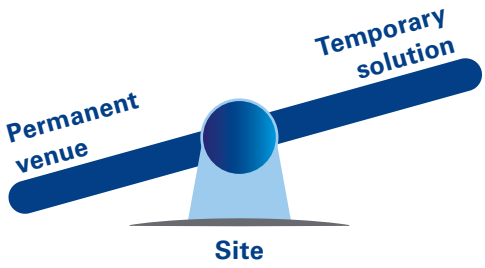


Photo: Bruce Southerland

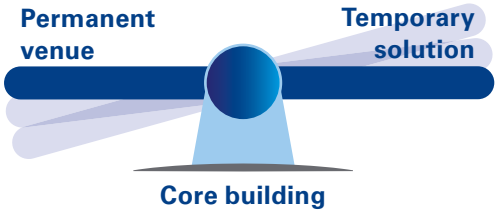
Site

Depending on the characteristics, location and condition of the site, securing the freehold may be expensive. Temporarily renting a site for the development of a temporary venue and for a fixed period of time could be a more cost effective solution.



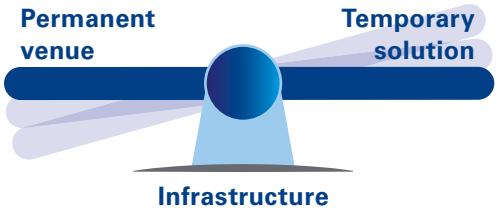
Core building

Whilst there are cost differences between the components of a temporary and permanent venue, the difference is less significant as the size of the core building increases and the more sophisticated the venue fit out is. Larger venues have increased structural needs, as well as the supporting infrastructure required to service higher spectator numbers, for example more vertical transport, bigger roof, back-of-house/service areas. In addition, the safety and security level of demountable sports facilities are also on the same level as permanent venues.



Infrastructure

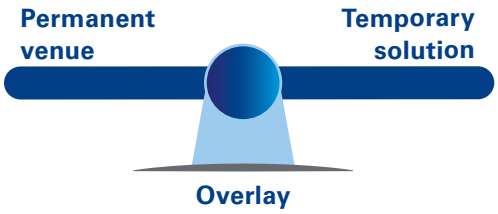
The amount of spending required on infrastructure should not be underestimated and can be significant, particularly for new, unencumbered sites without adequate access and egress from a transport perspective. The expenditure required to provide temporary infrastructure to support a temporary venue in this instance may reduce or totally negate any benefits from choosing this option. Consequently, arguably the same amount of infrastructure is required irrespective of what venue type is chosen if the venues' location is the same. However should a temporary venue be located within a dedicated precinct adjacent to other sports venues then some infrastructure costs (e.g. parking provision, public transport access) are likely to be shared on a pro rata basis.



Overlay

In the case of overlay, satisfying rights holders requirements does not diminish by virtue of choosing the temporary option. In fact, services, accommodation needs and space requirements, are still significant cost drivers no matter what option is chosen.

However, a permanent venue with identified post-event demand may install a proportion of overlay up-front as permanent facilities, the cost of which is likely to be in the fit-out cost within the core building category. If the legacy case for the venue is not proven then providing these elements through temporary overlay would appear to be the most appropriate solution.



Based on the above analysis, a temporary solution can offer potential cost savings, particularly with regards to site costs (mainly due to saving in the acquisition of a site) and the construction of the core building. However, the capital cost difference between a temporary and a permanent structure will be smaller the greater the capacity of the structure and the more sophisticated the venue fit-out is.

Operating expenditure during a project's life cycle

An often ignored aspect of the overall cost assessment when trying to choose between a permanent and temporary solution is the development of an understanding of the post-event operational costs – often referred to as lifecycle costs.

With a permanent venue, lifecycle costs, such as operation, repairs, building maintenance and replacement of capital investment can be sizeable and force a permanent venue, without strong post-event demand, into a loss-making situation.

By contrast, whilst there will be some costs incurred related to removal of a temporary venue after the event, the key advantage of a temporary solution is the fact that significant savings can be achieved from the lack of operating expenditure in completely demountable facilities.

Photo: Péter Szalmás

8. Emerging themes and conclusion

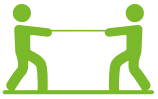
A number of key themes have emerged as a result of the research undertaken to produce this document.

Learning from experience

There is growing evidence that the learning points from previous major sporting events, both positive and negative, are being embraced by event bidders and organisers. With a growing number of experts, who have demonstrable major sporting event knowledge and experience, officials have access to a wide range of consultants who can help them to maximise the impact of their particular event.

Legacy will not go away

The result of the emergence of legacy is that it should be a constant and prominent, topic on the agendas of all major sporting event bidders and organisers. In terms of venues, it is incumbent on stakeholders to set out a clear strategy, based on an understanding of the market conditions in which the venue is likely to operate when the event ends and with a legacy solution put at the forefront of the planning phase of a sporting infrastructure.



Rights holders' requirements and post-event market conditions

The mandatory event requirements that rights holders place on hosts, particularly minimum seating capacity and the technical standards at the venues staging the event, may, in some instances, be unsuitable for the post-event market conditions. Too often in the past, the venue solution employed in these instances would have favoured the requirements of the event itself, to the detriment of the post-event needs. However, whilst there are now robust options to explore – through the use of fully demountable or hybrid structures – this does necessitate the need for detailed and on-going discussions which allows the objectives of all stakeholders to be met.

A shift in stance from rights holders?

Initiatives, such as the IOC's Olympic Agenda 2020, are undoubtedly encouraging and making clear the rising importance of legacy to influential sporting bodies. Other rights holders are also demonstrating an appreciation that post-event utilisation of venues is important for the long-term sustainability of sports infrastructure. However, it will be interesting to observe whether rights holders and international federations are willing to go further, perhaps showing greater flexibility with their technical requirements, becoming more involved in the decision making process regarding which type of venue is built, or potentially greater involvement in the post-event strategy of venues.

Temporary solutions are a sustainable alternative

Temporary solutions are increasingly being considered as a realistic alternative to building unwanted permanent venues. Advancements in technical aspects are at such a level that experiencing the event within a temporary structure can no longer be considered inferior to that of a permanent venue. Industry experts believe that modular and temporary building components will play an increasing role in the make-up of the venue portfolio at major sporting events, bringing a range of significant advantages including the ability for them to be reused and/or recycled after the event.

Capital costs vs lifecycle costs

Whilst it can be proven that there are up-front capital cost advantages from building a temporary venue, these benefits can start to erode as spectator capacity grows. In terms of complete venues, industry experts believe that a totally temporary solution would appear to start to lose its advantages at a spectator capacity in excess of 20,000. However, when undertaking a full financial appraisal of different venue options the lifecycle costs should not be ignored. Thus, when considering a permanent venue, its operational lifecycle costs should be compared against the temporary alternative, which may involve some removal and site rehabilitation costs. Whilst the revenue foregone from a temporary solution should also play a part, the operational cost calculation should be part of the decision making process.

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