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PROJECT MANAGEMENT STRATEGY FOR SUSTAINABLE INTEGRATION OF STADIUMS

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ABSTRACT: The impact of a new stadium on the urban context and regional development is significant. Especially where several new stadiums are built for single mega events like the Olympic Games, Commonwealth Games or the Soccer World Cup the impact is even higher. Objective of this paper is to identify and analyze the key drivers for sustainable integration of stadiums within the existing context. The level of sustainability is analyzed based on four different categories: urban, social, environmental and economics. Particular focus is on the project management strategy for implementation of the key drivers during pre-design, design and execution. In conclusion key elements of the project management strategy for sustainable integration of a stadium within the urban, environmental, social and economic context are summarized.

Keywords: Project Management; Stadium Development; Urban Context; Sustainability; Integration; Implementation

1. INTRODUCTION

The development of stadium projects has significantly increased over the past 20 years. The majority of stadium developments are initiated by mega events such as the Olympic Games, Asian Games, Commonwealth Games and the Soccer World Cup. Main reason for a nation to host such mega events is the unique opportunity to attract attention on a global level and to enhance the recognition as a business and tourist destination. The Olympic Games "[…] provide a great public relations opportunity for the Host City to the world […]"[1].

A stadium which is developed independent to such mega-events, could provide a competitive advantage for the city to attract major sport competitions and other types of events on a national and international level.

The complex technical requirements during pre-design, design and execution of a stadium demand a specialized project management team.

However, in consideration of the increased number of underutilized stadiums which were constructed for mega-events the existing project management strategies shall be modified in order to meet the enhanced requirements for sustainable integration and operation of stadiums.

2. DEFINITION OF SUSTAINABILITY

The Brundtland Report² issued by the World Commission of Environment and Development in 1987 defines a sustainable development as a "Development which meets needs of the present without compromising the ability of future generations to meet their own needs […]."[2]

With reference to this general definition sustainable integration of stadiums could be achieved "[…] through holistic consideration of present and future operational requirements of a stadium and selection of an adequate site within the existing context."[3]

Accordingly the sustainable integration of a stadium starts at pre-design stage with analysis of the existing urban, environmental, social and economic context. In addition provisions for a maximum of flexibility to adapt the stadium for future requirements should be considered.

The evaluation, assessment and correct interpretation of the feasibility study results have a long-term impact on the overall level of sustainability.

3. DRIVERS FOR SUSTAINABILITY

The key drivers for a sustainable integration of the stadium should become integral part of the advanced project management strategy and implementation process. The extended scope of the project management consultant is to initiate, coordinate and monitor the activities of the client and all other project participants in order to address specific issues relating to sustainability at the respective stage of the project. The following four categories are considered to have the biggest impact on the level of sustainability of a stadium project:

3.1 Urban sustainability

The urban sustainability is analyzed based on four parameters further split into four groups (the detailed description of the individual groups is not part of this paper).

Each parameter should be investigated in the feasibility studies at pre-design stage in order to identify the most appropriate site for the stadium development.

·3.1.1 Location Type

·3.1.2 Proximity

·3.1.3 Connectivity / Accessibility

·3.1.4 Usability / Adaptability

The site selection is the most important client decision with long lasting effects on the design, construction and operation of the stadium. Existing sites should be preferred since these sites are already integrated within the urban context combined with existing infrastructure. Alternatively brownfield sites could be considered allowing a redevelopment of underutilized areas of the city (i.e. Olympic Summer Games 2012 in London).

3.2 Environmental sustainability

In order to achieve a fully coordinated and integrated design the project management consultant should work in tandem with the lead architect. The complex requirements of a stadium involve approx. 25-30 different consultants contributing in their respective field during pre-design, design and execution. A typical organization chart for a standard stadium project is shown in Table 1.

At pre-design stage it is the responsibility of the project management consultant to pre- qualify and select experienced architects, structural, mechanical, electrical and plumbing engineers. Subsequently, the other specialized consultants should be pre- qualified and jointly selected with the existing core team.

The analysis of the level of environmental sustainability is based on five different parameters which are mainly relating to the pre-design and design stages:

·3.2.1 Architectural Design

·3.2.2 Structural Design

·3.2.3 Building Services Design

·3.2.4 Operation / Maintenance

·3.2.5 Building Materials

The successful coordination and interaction between the above mentioned disciplines with full integration of their respective designs have a significant impact on the level of environmental sustainability.

3.3 Social sustainability

The existing communities in the periphery of the stadium and social overall context should be analyzed in a detailed feasibility study for each potential site. The comparison of the results allows an objective evaluation of the differing site conditions and the selection of the most sustainable site for development of the new stadium.

The following five parameters are considered to have a significant impact on the level of social sustainability:

·3.3.1 Preferred type of local sports or entertainment of the existing communities to identify opportunities for day-to-day usage for citizens, institutions, etc.

·3.3.2 Diversity of events to address varying requirements of at least three different age groups: Children / teenagers below 18 years, adults 18-65 years and elderly citizens above 65 years.

·3.3.3 Amenities for the communities and spectators (i.e. VVIP and VIP areas, business lounges, etc.). In Europe the amenities for VIP spectators are the most important source of income during events. At soccer games generally "80% of the revenue is generated by 20% of the visitors"[4].

·3.3.4 Integration of other usages / functions (i.e. offices, retail, fan shops, restaurants, bars, entertainment, recreation, etc.) allowing a day-to-day use of the stadium structure. The integration of other functions has become the second most important source of revenue in the long-term operation. The STADE DE SUISSE[5] in Bern is one of the leading examples for combining the stadium with different usages and functions allowing its operation throughout the year.

·3.3.5 Integration of tourism is increasingly important. Guided sightseeing tours and museums attract visitors from the local community and tourists. In recent case studies for the Olympic Games and Soccer World Cup the revenue generated from tourist attractions have been discovered as an additional source of revenue.

The level of integration within the social context and existing communities correlates with the successful long-term operation of the stadium. Accordingly the assessment and correct interpretation of feasibility studies relating to the social context are of the utmost importance.

3.4 Economic sustainability

Referring to the previous definition of sustainability the sustainable operation of a stadium can be described as: "Economically viable provision of facilities to meet the varying needs of the existing social context and provisions to adapt the facilities for future generations to meet their own needs"[6].

The economic sustainability tends to be underestimated during pre-design and design stage. The project management strategy should therefore address this topic at the initial stage of the project with a particular focus on the analysis of the following four parameters:

·3.4.1 Capital investment: Project budget identifying land costs, infrastructure costs and construction costs.

·3.4.2 Operational concept for the stadium defining proposed event types and marketing strategy (i.e. USP).

·3.4.3 Operational costs: Forecast for operational and maintenance costs for different event types, operation of additional facilities and during non operation.

·3.4.4 Business plan for review and assessment of feasibility of the operator concept and overall project.

The results of the above mentioned parameters should provide the basis for the final project brief and operational requirements. Particular focus should be on the revenue generating facilities, estimated number of events and different event types, estimated number of spectators, utilization of specific features (i.e. retractable roof) and revenue generation without events.

4. PROJECT MANAGEMENT STRATEGY FOR IMPLEMENTATION OF KEY DRIVERS

Considering the extended project management scope for sustainable integration of the stadium the advanced project management strategy should implement the relevant key drivers during the pre-design, design and execution stage of the project.

In the pre-design stage the project management consultant functions as an independent advisor for the client during the site analysis, feasibility studies, and selection of the site and of the operator.

Based on the initial project brief and specific project requirements -jointly prepared in collaboration with the operator- the consultants are selected. For selection of the architect there are generally two options:

a) International design competition in order to indentify to best design approach addressing the specific site or

b) Selection of the architect based on qualifications, track record and design approach on other projects. For both options it is recommended to pre-qualify the architect and all other consultants based on their specific expertise in previous stadium projects.

At the end of pre-design stage the operator and consultants should be appointed and their respective scope of services including interfaces finalized with the project management consultant.

During the design stage the project management strategy focuses on review, evaluation and assessment of the design submissions from consultants in close collaboration with the architect. Simultaneously the objectives relating to time, costs and quality should be monitored at micro level.

The project management strategy for the execution stage mainly depends on the specific project requirements and procurement strategy. For most of the stadiums redeveloped for the Soccer World Cup 2006 in Germany it was mandatory to continue the operation during construction works. This requirement of the home teams which were using the stadiums frequently had multiple effects on the project management strategy to achieve the objectives for time, costs and quality.

5. ROLE OF THE OPERATOR

The stadium operator is usually appointed only after completion of the design and construction works. For the majority of stadiums developed for the Soccer World Cup 2010 in South Africa i.e. Cape Town, Durban, etc. and the Commonwealth Games 2010 in Delhi the operator was appointed only after completion of the project and the respective mega-event.

Since the input of the operator is essential during the pre-design and every stage of the design late involvement of the operator typically results in a number of issues which have a negative effect on the long-term operation and maintenance of the stadium. Therefore the input of the operator should be considered throughout the design process.

6. CASE STUDY OLYMPIC STADIUM BERLIN, GERMANY

The original Olympic Stadium Berlin[7] was built for the Olympic Summer Games 1936 on an existing site used since 1916. After Germany was selected to host the Soccer World Cup in 2004 an international design competition was held where gmp architects (von Gerkan, Marg and Partners) received the 1st price. Simultaneously a feasibility study was carried out to evaluate the options either to develop a new stadium -while maintaining the existing stadium or to redevelop and upgrade the existing stadium in consideration of the stringent restrictions and additional requirements for the listed historic stadium building. Conclusion was that in the long term it was cheaper to redevelop the existing stadium instead of constructing the new stadium and the maintaining the existing stadium.

7. CASE STUDY DUBAI SPORT CITY, UNITED ARAB EMIRATES

Dubai Sport City[8] is a major development of 4.6 million sqm in Dubai. The concept design for the stadiums of this greenfield project was selected based on an international design competition where gmp architects (von Gerkan, Marg and Partners) won the 1st price.

The concept design for the sports stadiums of Dubai Sport City integrates and combines four different stadiums one each for multi-purpose, cricket, indoor and hockey with a Retail Mall. Although by now out of the fours stadiums only one is completed and two stadiums are under construction this project has become a milestone in integrated stadium design.

8. CASE STUDY KARAISKAKIS STADIUM, ATHENS, GREECE

The Karaiskakis Stadium[9] was designed and constructed for the Olympic Summer Games 2004 in Athens within less than 14 months. The site is an existing site and has been used for sport venues since 1896. It was the first privately funded stadium development in Greece. Due to the early involvement of an operator most of the operational requirements have been fully integrated during the pre-design and design stages.

In comparison to other sport facilities constructed for the Olympic Summer Games in Athens the Karaiskakis stadium is a good example for sustainable integration within the existing context.

9. CONCLUSIONS

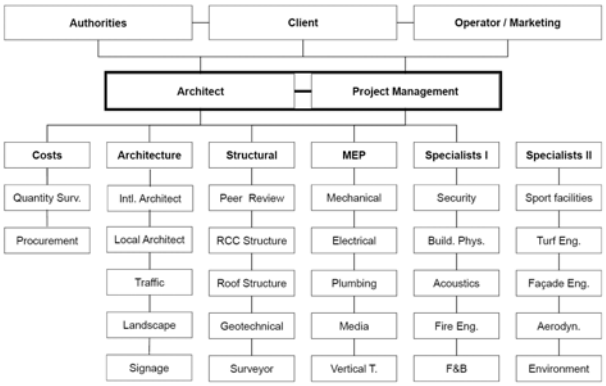
Key to successful integration of stadiums within the existing context is an advanced project management strategy to ensure the implementation of the key drivers for sustainability. With reference to the implementation process described in this paper the most important stage is pre-design.

During pre- design stage potential sites are analyzed, evaluated and selected. All decisions taken during this stage have long-term effects on the level of sustainability that can be achieved for the stadium project.

In addition to the existing project management scope the following key elements shall be considered in the advanced project management strategy in order to enhance the level of urban, social, environmental and economic sustainability:

- ·Operator to be appointed at the initial stage of the project before finalization of the project brief. The operator specifies the requirements for the long-term operation of the stadium and different types of events.
- ·Feasibility study for analysis of different sites and market conditions with evaluation of varying potentials.
- ·Provision of sufficient traffic infrastructure i.e. public transportation, road network with individual lanes for cars, motorcycles, bicycles and pedestrian for convenient access and egress to the stadium.
- ·Broad spectrum of activities suitable for the surrounding communities to provide basis for daily operation.
- ·Planning for independent day-to-day usage of the stadium or parts of the facility by a home team (i.e. local soccer club).
- ·Identification of revenue generating facilities during pre-design stage targeting a fulltime utilization of the stadium structure by adding facilities for retail, hospitality, recreation and entertainment.
- ·Independent usage of facilities to minimize operational costs (i.e. security). Parking, offices, shopping, leisure, restaurants, health clubs, museums, fan shops etc. should be independently accessible to allow an independent operation at all times.
- ·Flexible layout with provisions for multipurpose usage, adaptability, variation of spectator capacities, etc.
- ·Allocation of areas in the vicinity of the stadium for day to day use but also for pre- event and post event activities in order to maximize the duration spectators remain at the venue.
- ·Project team should be led by an experienced project management consultant with expertise in design and construction of stadiums. Consultants should be selected based on their experience in previous stadium projects in order to utilize their know-how.

Table 1. Typical organization chart for a stadium project



REFERENCES

[1] Zotti, E. (1983) Hosting the Olympics - Not All Fund & Games, Advertising Age 54 (Feb. 7): M-24 - M-27.

[2] Brundtland, Gro Harlem, "Our Common Future", Report of the World Commission on Environment and Development, published as Annex to General Assembly document A/42/427, Development and International Co-operation: Environment 02.08.1987.

[3] Schmedes, Sven, Thesis at the 10th Sharjah Urban Planning Symposium (SUPS), 23-25.11.2008 at the American University of Sharjah, United Arab Emirates.

[4] Markerink, Henk, Article "Quality or Quantity, A look at what will reign supreme in the future", InternationalNewsEurope

[5] STADE DE SUISSE, Wankdorf Nationalstadion AG Papiermühlestrasse 71, CH-3014 Bern, Switzerland, www.stadedesuisse.ch, Architects: Architektengemeinschaft Luscher / Schwaar & Rebmann, General Contractor: Marazzi Generalunternehmung AG, spectator capacity: 30,000 seats, completed July 2005

[6] Schmedes, Sven, Thesis at the International Summit for Stadium, Venue Design and Development, IQPC conference in Doha, 08-09.11.2010

[7] Olympic Stadium Berlin completed 1936, Architect Werner March, Architect Redevelopment: gmp architects, von Gerkan, Marg and Partner, Volkwin Marg und Hubert Nienhoff (address stated under reference 8 below), spectator capacity 74,500 seats.

[8] Dubai Sports City, Emirates Road (next to Dubai Autodrome), P.O. Box: 111123, Dubai, United Arab Emirates; spectator capacities: Cricket stadium 25,000 seats, multi-purpose stadium: 60,000 seats, indoor stadium: 10,000 seats; architects: gmp architects, von Gerkan, Marg and Partner, Volkwin Marg und Hubert Nienhoff, Hardenbergstraße 4-5, 10623 Berlin, Germany, www.gmp-architekten.de

[9] Karaiskakis Stadium, owner: Hellenic Olympic Committee; Operator: Olympiacos Club of Fans of Piraeus F.C., Poseidonos Avenue, Faliro, Piraeus, Athens, Greece, Architect: Stelios Aghiostratitis, aa Associates, www.aa-agiostratitis.gr, spectator capacity: 33,500 seats.