

Mobility management and public transport for Mega Events

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1. Introduction

1.1 Abstract

Mega Events are world events with increasingly sophisticated worldwide competition. Mega events such as the Olympics reach an outstanding planning and management complexity. Last 10 years of experience show tremendous progresses made by Host Cities in advanced more sustainable mobility management. In particular the fantastic development of very robust public transport schemes is now a key of success of Mega Events organization.

1.2 Keywords

Mega Event, Strategy, Bidding, Transport, Planning

1.3 Scope

From the point of view of transport engineers and city planners, Mega Events are a very specific domain, which always force to think to problem on a different scale than every-day work.

This paper is conceived:

- to approach to Mega Event transport strategic and operational planning
- to provide a brief picture of the most important types of Mega Sport Events and outline their similarities and differences
- to provide synthetic transfer of knowledge on last ten years of improvements in Mega Event transport management
- to introduce to bidding process, from the preparation of a successful transport bid, to much complex technical evaluation

2. Mega Events: growing world events with worldwide competition

2.1 Definition of a Mega Event

By definition, Mega Events “**imply major changes in City logistics and transport organization of the Host City**”.¹

To be clear, transport and logistic-wise a league football match in Wembley 90'000 seats stadium in London is not a “mega”, but a “normal” event.

Wembley's stadium layout, multi-subway line station serving it are designed and operated to host such events every week or more without disrupting London general transport plan and conditions. But, to organize the departure of Tour de France, London traffic management system had to be almost cut in half, needing a specific temporary transport plan to be implemented for that occasion: this is a Mega Event.

Mega Events then:

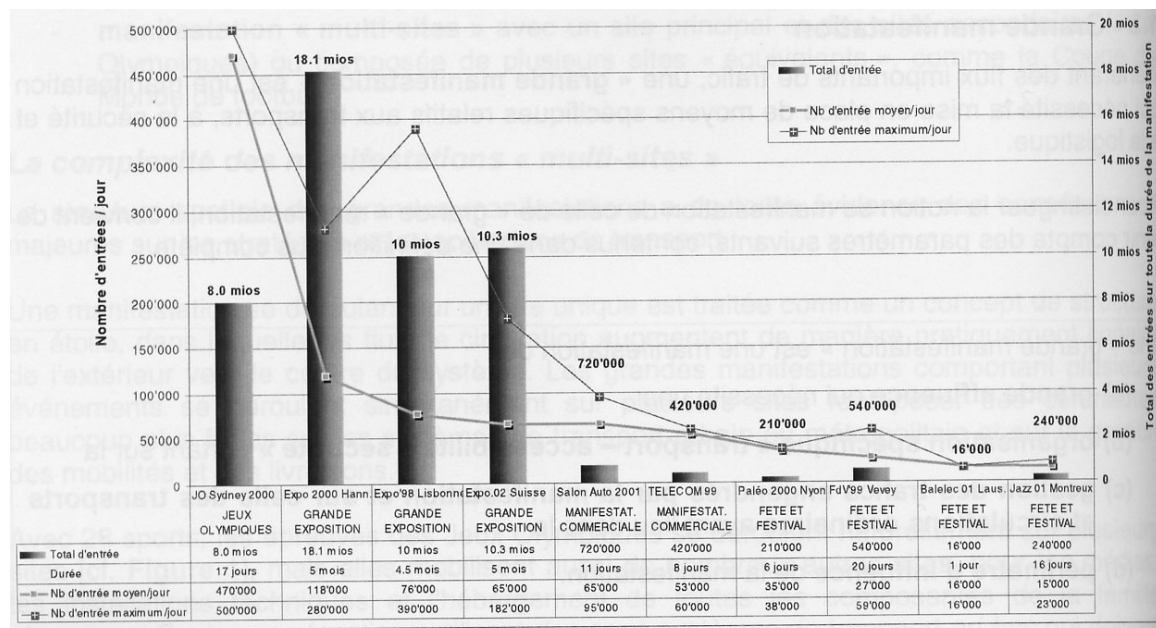
- Are **temporary events** of considerable size and amplitude lasting from 2-3 days to 2-3 weeks for Football Tournaments or Olympics, to 6 months for a World Exposition like Shanghai 2010
- Exerts **strong pressures on City logistics** such as transport, airports, power, accommodations, security, global hospitality, City image, etc...
- Are subject to intense **premium world media coverage**. Mega Event Cities become world Cities (Barcelona 1992 Olympics...)
- Have the outstanding advantage of **imperative deadline for on-time delivery** of all infrastructures, systems and Mega Event overlays (Opening Ceremony or Kick-off cannot be postponed by 15 seconds!)

¹ **Note:** Definition by Prof. Philippe Bovy

2.2 Key numbers of Olympic and Football Mega Events

Mega Events are in general not only attracting billions of TV spectators, but need also to establish and serve a series of so-called client groups such as athletes, team officials, technical officials, medias, guests, contractors, workforce and spectators.

Fig. 1: Number of tickets sold in case of different types of Mega Events



The Olympic Games, which are the largest temporary three-weeks traffic generator, impose to the Host City about 1,2 to 1,8 millions additional journeys per day (about 0,5 for Winter Olympics). These massive traffic overloads cannot be accommodated on most often heavily congested City transport networks.

On top of that, Mega Events are constantly “growing”. Event owner requirements, levels of services, security needs, all the expectations around a Mega Event are growing, becoming more restrictive, but venues are not necessarily growing.

Both Summer and Winter Games, for example, grew tremendously in the last 25 years in all key areas: participating countries, sport disciplines, athletes and team officials, technical officials, logistical requirements, medias, levels of services for ever more numerous client-groups.

UEFA Euro 2016 will be organized with 24 National Football Teams (+50%) instead of 16. The number of matches to be organized will

pass from 31 to 51 (+65%) with a consequent increase of tickets sold, but with more Host Cities to be equipped and to be able to absorb extremely intense non ticketed fans and spectators flows.

Fig. 2: Athens 1896 to Beijing 2008 Olympic Summer Games key numbers²

Athens 1896 to Beijing 2008 Olympic Summer Games key numbers

	1.Nb NOC.	2.Nb Events	3.Nb Comp.	4.% Female	5.Nb Medias	6.Nb Volunt	7.Nb Tickets	8.Nb TV.vw	9.Total TV rights
1896 ATHENS	14	43	250	0					
1984 LOS ANGELES	140	221	6800	23	9200	28500	5.7	2.5	285
1988 Seoul	159	237	8500	26	11300	27000	3.3	---	400
1992 Barcelona	169	257	9400	29	13100	34500	3.0	---	835
1996 Atlanta	197	271	10400	34	15100	47500	8.3	---	900
2000 SYDNEY	200	300	10600	38	16000	47000	6.7	3.7	1330
2004 Athens	202	301	10600	42	21500	45000	3.8	3.9	1495
2008 BEIJING	204	302	10950	43	24600	70000	6.5	4.5	1730
1984/2008 growth (%)*	46	37	61	87	167	146	14	80	507
2000/2008 growth (%)**	2	1	3	13	54	49	-3	22	30

1. NOC – nations 2. competition events 3. athletes (±50) 4. Percentage female athletes 5. Accredited medias, press and broadcasters (±100) 6. Volunteers (±500) 7. Spectator tickets sold (±0,1million) 8. World TV viewers (±0,1billion) 9.Total TV rights (±5 mio US\$)

* 1984 to 2008, 6 Games or 24 year growth in percent (%)
** 2000 to 2008, 2 Games or 8 year growth in percent (%)

By 04.02.2009

Growing size of Events has major impacts on transport, travel demand, logistical organization and **operational costs** of the Events. Increased travel and mobility demands resulting from Olympic growth are related to:

- Longer Olympic **travel distances** (larger perimeter), in particular to include all sport disciplines
- Larger **client numbers** and user groups (100 to 250 Countries and 27'000 to 70'000 volunteers!)
- More numerous venues of eventually **larger capacities**, with an increased number of competitions
- **Higher levels of services** in terms of quantity, quality and security
- Increased **Games complexity** and extended **travel demands** (24h/24h services) mostly due to international medias to cover demand all around the world

² Source : Prof Philippe Bovy, 2009

2.3 Different typologies of Mega Events and impacts on transport system: similarities and differences

Two main indicators are sufficient to classify Mega Events typologies. Other still relevant indicators are here neglected for matter of simplicity (calendar of event, weather conditions, daily average participants, security issues, etc.)

- **Demand structure:** number of participants could be pre-determined or not
- **Spatial distribution:** mono-venue or multi-venue, mono-city or multi-city

Transport planning for events having “predetermined demand” is based on one single scenario (ticket sold). On the other hand, for “open” events, transport planning is more complicate. Alternative demand scenarios must be tested. Still strong incertitude is possible for internal or external reasons (weather conditions...)

Olympic Games, with indoor sports and marathon or cyclist competitions are a combination of both types of events, since they are multi-venue events. The same could be told for Football tournaments, where the growing phenomenon of non-ticketed fans and fan zones multiplies number of participants on an extremely unpredictable way.

A multi-venue event is made of various events or sports which occurs in different locations. This is the case of the Olympics and the Football tournaments, but with a substantial difference:

- Olympics are **multi-venue events on one single city** or region
- Football tournaments are mostly **mono-venue events on a series of cities**: in a given Host City a football event can be defined as a mono-venue-multi-cities event

Multi-venue Mega Events are much more constraining for urban transport system and traffic management measures.

Fig. 3: Comparison of most important Mega Events types³

	Winter Olympics	Summer Olympics	Football Tournaments	Exhibitions
Event size	80 Countries 2'500 athletes 10'000 Medias 1-2 million spectators	200 Countries 10'000 athletes 20'000 medias 4-8 millions spectators	24 National Teams 10'000 medias 1-2 million spectators	Over thousands expositors 10-20 millions participants
Event structure	Multi-venue Multi-city	Multi-venue Mono-city	Mono-venue Multi-city	Mono-venue Mono-city
Venues	Indoor and outdoor Ceremonies	Indoor and outdoor Ceremonies	Football stadium x10 Fan zones	Exposition hall
Transport structure	Mountain road system with generally reasonably low capacities and few public transport	Metropolitan transport system with dense road and high capacity public transport network	Extremely considerable differences between Host Cities	Generally isolated, but near to a metropolitan area with dense public transport network
Ticketing structure	Pre-determined ticketing structure	Pre-determined ticketing structure	Pre-determined ticketing structure only for group matches	Short term pre-determined ticketing structure
Others	Winter climate and relevant distance between city and mountain venues	Favourable climate Cities usually less congested during summer period	Favourable climate Cities usually less congested during summer period	Could last for very long periods, with relative low daily demand

2.4 Mega events reach an outstanding planning and management complexity: similarities and differences between Football Tournaments and Olympics

Summer Olympics are like 28 world championships simultaneously in the same host City. For the Winter Games 7 championships in two sites: one base Host City and a mountain resort.

This is quite different than Football Tournaments having one sport only in a network of 8-10 Cities also very complex in terms of transport organization.

Consequently the most critical organisational parameters such as accommodation and transport, particularly air transport, have little operational resemblance.

The biggest logistical difference is in fact that even if the Summer Olympics have more than 300 competition events in 16 days, the program schedule is known well in advance.

For Football Mega Events, the schedule of the team playing in the different host cities is known only for the first round of group matches. The knock-out phase, on the other hand, unfolds in an unpredictable way. For the UEFA Euro 2004 final in Lisbon, for

³ Source : Eng. Stefano Manelli, 2008

example, nobody expected Greece to play Portugal. Consequently an air bridge for thousands of Greek spectators had to be organized at four days' notice to handle the situation.

- For **Summer Olympics**: solid multimodal mobility concept (temporary) with strong urban scale measures!
- For **Winter Olympics**: often smaller scale cities with strong need for public transport enhancement + strong temporary and fully public transport link to mountain areas, with important climate and road capacity constraints (and often poor public transport: rail?)
- For **Football events** such as UEFA Euro or FIFA World Cup: one- event-day (3 to 5 days in total in each City) special transport operations for match day with strong pressure on medium-long distance transport infrastructure (air, rail, motorways).

3. Mega Events transport, sustainable development and legacy planning

3.1 Structure of organization and relationships between owner, organizer, host city / country

Mega Events need a very complex and articulated organizational structure to be set-up, with public and private involvements. For any “product” (Olympics, Euro, etc.) the global organization and management includes:

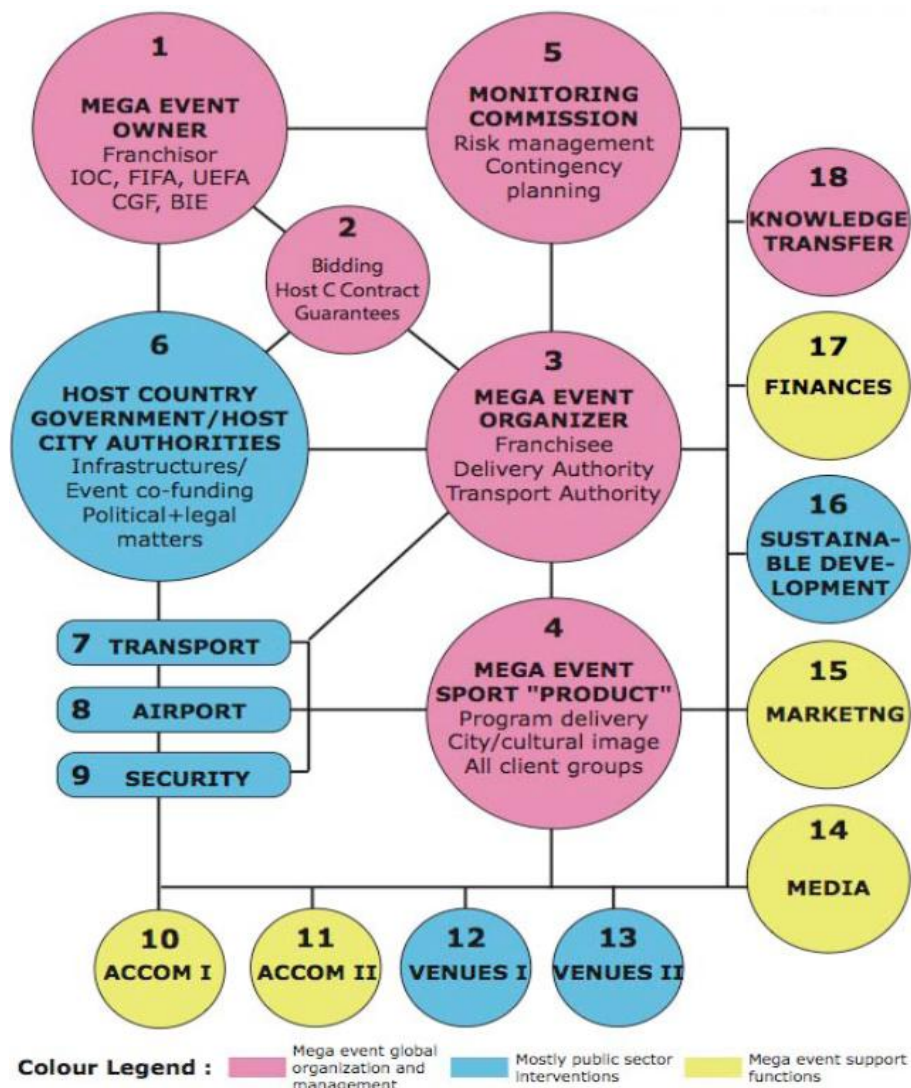
- **Mega Event owner** (IOC, FIFA, UEFA, etc.)
- **Mega Event organizer** (ATHOC, TOROC, EURO2008 SA...)
- More than **20 support functional areas**, such as marketing, medias relationships and logistics, communications, food and beverage, sport, etc.

Transport is a key functional area. In particular, transport is a domain where public involvement is crucial: in such a Mega Event organizational structure, **transport interacts with almost all other areas**, contributing to define and assure client's required levels of service.

Mega event organizers cannot deliver any Mega Event without a strong public support, investments in public transport infrastructures and strategic and operational public sector involvement in:

- Global city and regional transport development
- Airport development and operations
- Support to Venue construction
- Security, Health and Medical
- Mega Event governance

Fig. 4: Mega Event Structural Scheme⁴



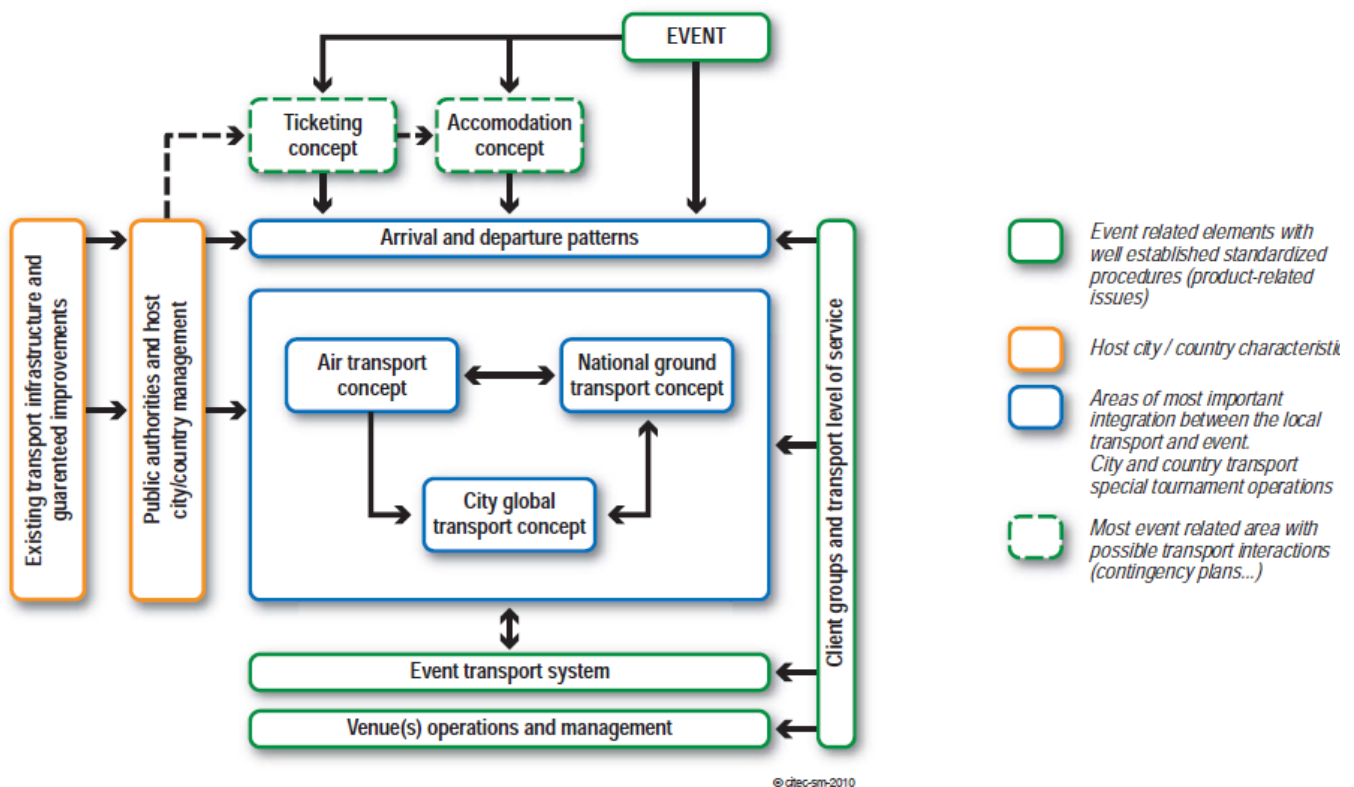
⁴ Source : Prof. Philippe Bovy, March 2009

Operationally-wise, as shown in the scheme in Fig.4, transport is very strong interrelated with **Security** and **Accreditation**, **Ticketing** and **Accommodation**.

The following graph (Fig.5) shows main interactions between public sectors and event-related functional areas, to illustrate the approach of Mega Event transport planning.

Ticketing and accommodation structures are clearly having a strong impact on spectators and client-groups behaviours. At the same time, ticketing and accommodation concepts (different from a “product” to another) could be influenced by transport infrastructure scenarios.

Fig. 5: Mega Events Transport Plan definition: interactions ⁵



This global scheme is applicable to all Mega Event products, although the relative “weight” of each areas and complexity of interaction can considerably vary from Football events, to Olympics and to Expositions, etc.

Ticketing for Football Events is a key element, with extremely relevant impact on transport schemes and requirements. A football match England-Germany in a remote Eastern Europe City can unfold in a strong international spectators air transport demand (50-60% of stadium capacity) on a very short period of time (1-2 days!).

⁵ Source : Citec Ingénieurs Conseils SA, August 2010

3.2 General transport planning concepts for a Mega Event

The Mega Event “product” (Olympics, Euro, etc.) is the result of a very complex organization, studied to maximize expectation and minimize risks (operational and security).

Main challenges and objectives:

- To manage **considerable additional traffic flows** with fully accessible, efficient, comfortable and convivial transport services for all client groups
- To **provide maximal transport priority** to athletes and shortest travel times possible
- To establish a **flexible transport scheme**, capable to react to event schedule changes or unpredictable accidents
- To assure an « **almost normal** » **city transport** operations during the event
- To assure a **global management**, with extremely high security requirements, both for event and background traffic
- To respect or improve environment quality and to promote a more sustainable mobility for future

In the life of a City or a Region, a Mega Event is an extremely important happening. Two mega event specific transport systems are temporary superimposed on the existing system:

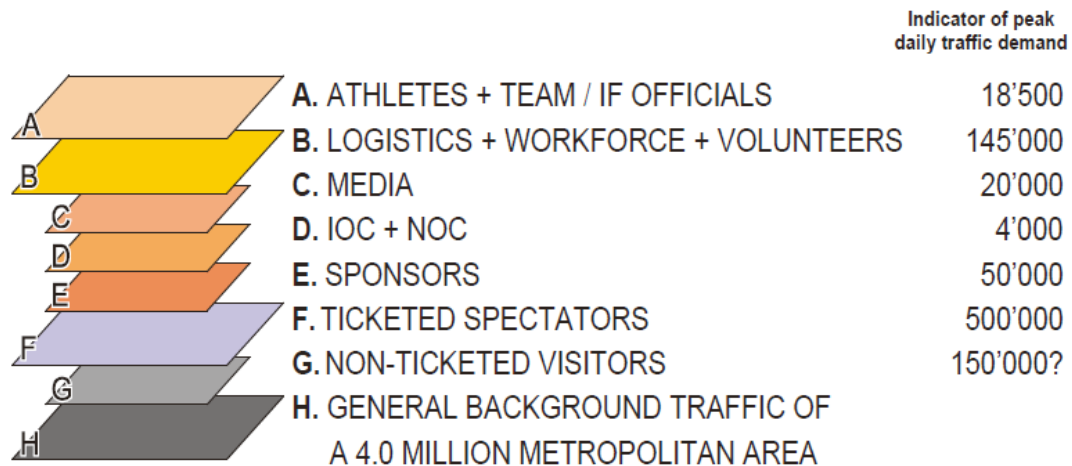
- Temporary **dedicated priority system** for Event clients, logistics and accredited traffic
- Temporary **re-enforced public transport system** with bold temporary capacity increases to cope with extraordinary strong added travel demands

Temporary dedicated transport system is also called “Event Transport” and includes all transport services provided to client-groups. This transport system is extremely developed for the Olympics. Client groups benefit of **individual totally segregated transport sub-networks** with very high levels of service and security requirements.

The scheme below shows the overlapping of individual client sub-networks for Summer Olympics. All sub-networks for most important client-groups are managed directly by the Event Organizer (A, C, D).

Spectators and Workforce (B, E, F) could also profit of a partially dedicated network, but in most cases rely on re-enforced public transport system, as other categories do (G, H).

Fig. 6: Superimposed transport systems ⁶



For Football events, in general, Event Transport is considerably less impacting in terms of numbers, organization and fleet needs. In general, only teams (athletes), event owner representatives and few other guests or vips are transported under the event organizer direct responsibility. All other categories, including most of medias and workforce, rely on global city transport services or individual cars. Event organizer needs to be sure that Host City is putting all necessary measures in place the way it is needed.

3.3 Top criteria in transport planning

Transport organization and management, security, sustainable development and legacy are becoming top criteria for selection of Mega Event Host Cities / Countries. In particular:

- More than 60% of driven kilometres are in average leisure-related in most European Countries. A third of that is related to sport events and 10% for events of other nature.
- Mega Event calendar is more and more dense and events themselves are constantly growing, with consequent higher level of complexity

⁶ Source : Prof.Philippe Bovy, 2003

- Road and public transport infrastructures are not designed to absorb extremely peaked traffic flows even in biggest metropolitan cities. Special organizational and traffic management measures are necessary.

The attention to transport planning and solid traffic management for Mega Event starts from the Bidding process. The scope of this attention is to try to minimize the risks of an operational failure.

A coherent Host City Mega Event global transport plan might provide positive transport and sport legacies:

- **Improved Host City venues quality** and security, with surrounding urban and transport rehabilitation.
- **Improved public transport facilities capacity** (airport, railway station, subway, tramway, etc.). For airport in particular, better public transport and road link to city
- **Substantially boosted public transport integrated system**
- **More integrated and sustainable** city and metropolitan traffic management
- **Improved project coordination** due to accelerated project delivery prior to Mega Event opening day

3.4 Infrastructure development

Host cities take advantage of the Mega Events to speed-up, rehabilitate their transport systems and build new key elements which often had been postponed for decades.

- All projects shall imperatively be delivered for a given date, 3 to 12 months prior to Opening Ceremony
- Challenge for planning, financing, building testing and delivery transport in time.
- Transport infrastructures (motorway, arterials, rail public transport systems, airports, etc.) take a long time to build and should start early after the Host City selection
- All projects must be 100% guaranteed already before the Mega Event is attributed to the Host City/Country and included in a realistic and credible investment plan.

- All infrastructure investments must represent a strong transport, environmental and economical legacy for the City or Country.

Mega Event transport policies oriented towards maximal use of public transport are illustrated by Athens 2004 and Beijing 2008 considerable metropolitan rail system developments.

3.5 Transport budget

Transport infrastructure investments can vary from a situation to another, but in general Mega Events are catalysts for speed-up of planned transport infrastructure developments and/or rehabilitation.

- 2 to 15 billion USD transport infrastructures
- 100 to 200 million USD transport operations (5% of total Games operating budget)

Olympic transport infrastructure developments must contribute to strong and sustainable urban mobility legacy otherwise their credibility will be questioned during bidding process already.

3.6 Track, test and transfer of knowledge

Tracking transport infrastructure developments and transport operations implementation is crucial to manage risks of failure. A full tracking system has to be put in place as soon as the Event is attributed to a Host City/Country and shall include all relevant event infrastructure developments and operational actions to be undertaken phase by phase.

Tests of new infrastructures and venues, well in ahead to event, are particularly crucial to test operations and staff. Each Mega Event is a unique event with almost no possibilities of failure.

Learning from previous editions of same events is crucial not to reinvent the wheel. Transfer of knowledge programs are growing of importance among events.

4. Key learning and last 10 years experiences

4.1 Public transport progresses

Key learning from the last 10 years of experience is the tremendous progress made by Olympic host Cities in advanced more sustainable mobility management in particular the fantastic development of very robust almost 100% public transport schemes.

Sydney 2000: first Olympic Games with almost 100% spectators by enhanced public transport. After the 1996 embarrassing transport logistical difficulties, Sydney 2000 marked a new “era” for Olympic transport.

- 100% spectators, workforce and volunteers by public transport (no parking within 1km of Olympic Venues)
- 24hours free public transport is a part of the event for ticketed spectators and all Olympic officials, staff, workforce, volunteers and other accredited
- Sydney Olympic Park accessed 77% by rail, 15% by express bus, 3% walking/biking and only 5% by car.
- New mega-event travel behaviours induced during Sydney Games.

Sydney 2000 could deliver excellent Olympic transport and traffic experience based essentially on innovative transport resource management

Athens 2004: first Olympic Games with special “Olympic lanes” to physically separate background traffic from Event transport and assure travel times and improve safety

- 160km network of Olympic priority lanes for all Olympic accredited vehicles and express bus lines
- Average Games bus speeds increased from usual 12 to 20km/h to 55km/h at everybody surprise!

Road congestion (one of the biggest worry in Athens) was replaced by the fastest road and bus traffic system ever during the Games.

Germany World Cup 2006: First time when non ticketed fans and visitors came to join the event without hopes of getting tickets. These fans can be 3 to 5 times higher than stadium capacity.

- Free public viewing areas / fan zones are integrated in the event at strategic attractive City locations
- Fan zones were planned to relieve traffic and crowd pressures from Stadium access areas

Switzerland-Austria Euro 2008: Combi-ticket was an extreme success, with 36h of free intercity and city public transport. More than 8'800 extra trains were organized.

- Free 36 hours rail and public transport in both Switzerland and Austria for ticket holders
- 8800 additional trains in total and 4,4 million more train passengers – a great public transport success
- Public transport 60% for long distance and more than 80% in Host Cities
- Much less pressure on airports than expected / low stadium parking usage

Beijing 2008:

Beijing 2008 invested over 20 billions USD to cleanup the metropolitan environment and major vehicle fleet environmental upgrade and even higher transport infrastructure investments.

- Tripling Beijing Capital airport capacity with a new vast terminal (largest in the world with 1 million sqm)
- Tripling public transport system capacity in seven years of Games preparation, mostly Beijing subway and airport rail link
- Considerable motorway and expressway extensions, fifth ring (108km) and part of sixth ring (208km) and new expressways to airport and around and below Olympic Green

4.2 Legacy of transport measures

Legacy of the Games is often represented by Barcelona 1992 Olympic Games. In Barcelona legacy is based in particular on the capacity of the City administration, during and especially after the Games, to give a brand new worldwide image of the City. This is partially true for some other Olympic Host Cities, Torino included, and it is one of biggest expectations.

Transport legacy is in general related to speeding up of investments for sustainable public transport infrastructures and services.

In Sydney, other than a little used Olympic rail connection to former Olympic Park, Sydney 2000 Olympic Games did not introduce much long term transport and mobility sustainability.

Athens 2004 many sport permanent infrastructures built for the Games are “sport white elephants” with little or no use, expensive maintenance and high dismantling costs. On the other hand, Athens considerable new metropolitan transport infrastructure projects are long term legacy for roadway, airway, and rail public transport systems. Athens 2004 much improved transport systems, particularly rail systems, are a contribution to better long term mobility sustainability in Attica Region.

Beijing investments on transport infrastructures have no equals and are included into a complete development of the whole City and Country, on all transport infrastructures (motorway, rail, airports...), related to China fast-growing economical power.

5. Mega Events bidding process and evaluation

5.1 Mega Events Bidding

If the size of Mega Events is growing and investments became incredibly important, bidding process are becoming increasingly sophisticated as well.

Mega Event owner expectations are growing in parallel to Event size and worldwide media coverage. Competition between most important countries in the world is tougher, with new economic powers of the world such as China, India, Brazil much involved and often successful. Budget to set an Olympic Bid can attend 50 millions USD!

Bidding process and evaluation include often more than 15 technical domains: transport is often one of most relevant. Evaluation is made on constantly more strict parameters, and procedures become year after year more accurate (learning from past experiences).

The main scope of a Mega Event bid is “to elect the best candidate possible between all participants, in order to guarantee that the Mega Event will be held in the best possible way, respecting all requirements and demanded levels of service, minimizing the risk of extremely inconvenient operational failure”.

For last 30 years, the International Olympic Committee (IOC) is constantly developing a very detailed and demanding bidding process. Football Mega Event owners such as UEFA or FIFA have different approach, but someone more and more resembling to IOC. Main reason of differences is due to the radically different structure of these two types of Mega Events:

- IOC has a contract with a Host City (Host City Contract)
- FIFA or UEFA have contracts with the National Football Associations

5.2 Transport infrastructure projects and guarantees. Legacy and temporary enhancements of public transport systems

The bidding evaluation process is in general an **operational risk assessment**. This means that the main scope for bid's evaluation commission would be to identify and quantify as clearly as possible the operational risks of failure of a bid or another.

Risks are not the same from a bid to another. In some cases traffic management is a key element, in some other cases lack of public transport infrastructure is the crucial point.

None of bidding processes (including IOC very long-tested procedures) is free from risks of operational failure. This is the reason why an evaluation commission is nominated in every situation.

Host Country political support at all levels is one of most important elements. Sochi 2014 Winter Olympics and Rio 2016 were examples in this way of how political support could influence the choice of a candidate. Reliability of the technical bid dossier is enhanced via political support, in particular when important infrastructures have to be developed.

Bidding is very sophisticated mainly to insure that:

- the best proposal, supported by a robust technical dossier compatible with Event owner expectations, is selected
- all political levels State/City are fully committed and integrated in Mega Event effective preparation and delivery. Guarantees from Responsible bodies are crucial to have a solid and credible bid dossier.
- a strong public opinion supports Mega Event itself and social development legacies directly deriving from it

5.3 Bidding transport key tasks and reliability

Learning from the past, a Mega Event bid has to present a compact concept, with shortest travel times between official venues, in an extremely secured area, with strong public transport accessibility and which is clearly destined to be a strong urban legacy for the Host City after the Event.

This exercise of concept-design is extremely crucial and difficult. Requirements from a sport perspective are often very difficult to integrate to existing situations in most of regions, especially for events such as Winter Olympics, with narrow mountain roads, and a given mountain shape.

Transport is supporting a concept and could also influence in most cases the concept itself. Key tasks for transport concept preparation are then:

- To provide reliable accessibility to and from Host City key activity centres: Venues, airport, rail and bus stations, city centre, main hotels areas, fan zones, etc...
- Temporarily or permanently increase transport capacities and quality of service on strategic mega event transport links
- Integrate short term transport improvements in the City long term development plan, with priority to public transport projects.

Quality and reliability of competing Cities to host a Mega Event are to be evaluated in three steps:

- Assessment of existing capabilities in all key infrastructure and logistical domains
- Reliability of improvement projects and assessment of guarantees solidity
- Gap identification domain per domain Existing capabilities with guaranteed improvements are not always sufficient: gaps shall be identified and solved.

As shown by all most recent Mega Events since Sidney 2000, event and global mobility cannot succeed other than being almost 100% by public transport, in particular for multi-venue events such as the Olympics. In other words, logistical transport requirements of world Mega Events on Cities are such that only Cities with very strong high performance public transport systems can succeed in hosting Mega Events.

6. Conclusions

Mega Events such as Olympics and Football International Tournaments achieved tremendous organizational complexity and world media resonance. Mega Event owners are constantly looking for minimization of operational risks. A serious and comprehensive bidding process with governmental and organizers joint guarantees is crucial to minimize risks and outline Host City transport legacy projects.

Event requirements are growing and increasingly strict, but still related to temporary exceptional measures. Transport-wise it is not the event itself, but the legacy or, even better, the “sustainable legacy” which counts. All very large investments in constructions and public transport services are not made simply for two weeks of event. They all need to be part of a long term guaranteed development program of the City/Country, with strong long term political support. Mega Events are in most cases a catalyser of these investment plans. About 15 years ago, IOC introduced environmental guidelines and requirements in the Games bidding process. Most recent Olympic events have strong sustainable development, rehabilitation and legacy policies. In transport sector, the major beneficiary of sustainability promotional policies is public transport, in particular urban rail public transport. In particular, Mega Event being extraordinary short lived events can impose new more adapted travel behaviours almost 100% by public transport.

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