FIFA 2018 World Cup transport planning challenges and strategy

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AISTS - Mastering Sports—Professor and Senior Lecturer
FIFA World Cup editions 1990-2018

- Russia 2018
- USA 1994
- Brasil 2014
- South Africa 2010
- Korea/Japan 2002
- Italy 1990
- France 1998
- Germany 2006

Air travel time:
- 12-20 h
- 8-15 h
- 20-30 h
- 14+20 h
Six point agenda

1. Biggest world sport mega-events outstanding transport challenges
2. World-to-Stadium four strategic transport levels
3. Focusing on Russia World Cup transport
4. World Cup in 11 Russian Host Cities
5. Transport methodology and responsibility matrix
6. Six key organizational issues and legacy
1. Biggest world sport mega-events

- FIFA Football World Cup
- IOC Summer Olympic Games

= Two largest, world most TV viewed and most complex sport mega-event transport and logistical challenges
contrasted logistics....

SUMMER OLYMPICS = ONE City
hosting 28 world sports

Winter Olympics = ONE City
hosting 7 world sports

FIFA 2018 World Cup = ONE Sport
hosted in 11 Host Cities
...contrasted logistics....

Two world sport events in Russia four years apart:

**SOCHI 2014 WINTER OLYMPIC GAMES**

**FIFA 2018 WORLD CUP**

Tremendous opportunities for mega-event transport know-how developments in Russia
World Cup and regular matches

Observation:
50’000 spectator matches take place every week in big Cities without major problems!

Question:
What is so different between a “regular” national league big match and a World Cup match?
Outstanding differences 1 to 3

1. International VIPs, spectators, fans hosting = need for multilingual information and communication / Airport-City and Stadium high level hospitality services and logistics

2. International / national / regional / local transport chain = extremely peaked flows at airports—needs for higher temporary capacities

3. Security = much re-enforced security for all client groups at all levels of the World-to-Stadium transport chain
Outstanding differences 4 to 6

4. Accommodation = extremely high pressure on hotel facilities and very large fan demands for standard accommodations in all Host Cities

5. Very difficult to predict travel magnitude = depending on team popularity, “what” knock-out matches, “where”, between “what” teams?

6. World media coverage = outstandingly strong and unique world coverage // highest quality technology requirements and systems reliability
2. World to Stadium 4-level transport

- World (204 nations) to 12 FIFA 2018 Host City World Cup Stadium transport chains
- Transport logistics to be stream-lined through International, National, Host City and Host Stadium last kilometre transport systems
- Requirements for advanced information, travel services, transport capacities and security for extremely peaked travel flows linked to the Tournament multi-City schedule
World Cup 4 levels of transport planning integration

I. INTERNATIONAL
- Travel mainly by air - close to 100%
- Air flight network developments required (including low cost)
- Visa facilitation

II. NATIONAL
- Selected inter Host City network developments
- Combination of Air-Railway-Motorway and Road facilities
- Massive improvements of Airports

III. REGIONAL + HOST CITY
- Airport + Rail/Bus Terminal capacity improvements
- Airport - Stadium - City Centre - Fan Zone transport links upgrades
- Accommodation supply extensions
- Ticketing policies

IV. LAST KILOMETER
- Stadium accessibility multimodal high capacity management
- Traffic control perimeter
- Security control perimeter
Geographical “4” level transport

Major transport challenges at four distinct levels:

I. **International/world** mostly air travel to access Host country and some Host Cities

II. **National** air and rail transport logistics between tournament Cities for international, national and regional clients

III. **Host City** internal transport for all client groups linked or not to accommodation demands

IV. **Last kilometre accessibility** to Stadium and fan zones and security management
Intercontinental and continental scales
<Transport level I>

• Russia 2018 first FIFA World Cup in Eastern Europe…
• After two distant Southern hemisphere South Africa 2010 (Africa) and Brazil 2014 (South America)
• Long intercontinental distances to Russia as for every World Cup (W Cup)
• In addition longest intra-Russia travel distances, longest ever in W Cup, comparable to Brazil 2014
National transport systems
<Transport level II>

• World Cup with 8-12 Host Cities in one country
• Geographical scales vary considerably from
  – “compact” /about 500km Intercity (Germany 2006)
  – “widespread” /about 1800km Intercity (Brazil 2014)
• Varied transport system structures:
  – “dense trimodal” /air-rail-motorway (Germany 2006)
  – “fully unimodal” / only air (Brazil 2014)
• Germany and Brazil are two interesting extremes
FIFA World Cup Countries comparison 2006 - 2018

FIFA 2006
GERMANY
- 12 Stadia - 12 Host Cities
- 32 teams - 64 matches
- Average intercity distance = 400 Km
- 3.4 million tickets on sale - 3.3 sold
- Average Stadium capacity = 52'000 seats

Very compact WCup concept
tri-modal transport scheme
(Air + Rail + Motorway)

FIFA 2010
SOUTH AFRICA
- 10 Stadia - 9 Host Cities
- 32 teams - 64 matches
- Average intercity distance = 700 Km
- 3.4 million tickets on sale - 3.2 sold
- Average Stadium capacity = 51'000 seats

Dispersed WCup concept
Bi-modal transport scheme
(Mainly air + rail)

FIFA 2014
BRAZIL
- 12 Stadia - 12 Host Cities
- 32 teams - 64 matches
- Average intercity distance = 1'500 Km
- About 3.5 million tickets on sale
- Average Stadium capacity = 55'000 seats

Widespread WCup concept
Air based transport scheme
(Fully air)

FIFA 2018
RUSSIA
- 12 Stadia - 11 Host Cities
- 32 teams - 64 matches
- Average intercity distance = 1'400 Km
- About 3.1 million tickets on sale
- Average Stadium capacity = 51'000 seats

Widespread WCup concept
Bi-modal transport scheme
(Mostly air + rail)
Germany 2006 versus Russia 2018

- Drastically different WCup structures
- Germany 2006 extremely compact with average Intercity distances of 400Km
- Russia 2018 widespread with average Intercity distances of 1400km
- Germany had good accommodation supply in all Host Cities / Russia 2018 has Cities with very weak accommodation for mega-event of WCup magnitude
<table>
<thead>
<tr>
<th>City</th>
<th>Stadium</th>
<th>Coordinates</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin</td>
<td>Olympiastadion</td>
<td>52°30'53.33&quot;N 13°14'22.33&quot;E</td>
<td>74,176</td>
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<tr>
<td>Dortmund</td>
<td>Signal Iduna Park</td>
<td>51°59'13.35&quot;N 7°27'8.63&quot;E</td>
<td>67,000</td>
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<td>Munich</td>
<td>Allianz Arena</td>
<td>48°13'7.59&quot;N 11°37'28.11&quot;E</td>
<td>66,016</td>
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<tr>
<td>Stuttgart</td>
<td>Gottlieb-Daimler-Stadion</td>
<td>48°47'32.17&quot;N 9°13'55.34&quot;E</td>
<td>54,267</td>
</tr>
<tr>
<td>Gelsenkirchen</td>
<td>Veltins-Arena</td>
<td>51°53'16.21&quot;N 7°43'33.28&quot;E</td>
<td>53,804</td>
</tr>
<tr>
<td>Hamburg</td>
<td>AOL Arena</td>
<td>53°53'13.72&quot;N 9°52'55.02&quot;E</td>
<td>51,065</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>Commerzbank Arena</td>
<td>50°7'30.86&quot;N 8°30'43.03&quot;E</td>
<td>48,132</td>
</tr>
<tr>
<td>Cologne</td>
<td>RheinEnergie Stadion</td>
<td>50°58'5.98&quot;N 6°52'20.90&quot;E</td>
<td>46,134</td>
</tr>
<tr>
<td>Hannover</td>
<td>AWD-Arena</td>
<td>52°21'30.34&quot;N 4°42'52.31&quot;E</td>
<td>44,652</td>
</tr>
<tr>
<td>Leipzig</td>
<td>Zentralstadion</td>
<td>51°30'44.66&quot;N 12°20'53.69&quot;E</td>
<td>44,199</td>
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<tr>
<td>Kaiserslautern</td>
<td>Fritz Walter Stadion</td>
<td>49°26'46.36&quot;N 7°46'56.21&quot;E</td>
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<tr>
<td>Nuremberg</td>
<td>EasyCredit-Stadion</td>
<td>49°52'24&quot;N 11°17'33&quot;E</td>
<td>41,926</td>
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</table>
Russia 2018 vs Germany 2006 FIFA World Cup: same scale comparison
Brazil Copa 2014 and Russia 2018

- Brazil, one of the biggest country in the world
- Very strong use of air travel / lack of sufficient airport capacities in many Host Cities
- Big difference with Russia - Brazil has no rail system!
- Confederation Cup 2013 very tense / popular riots
- Six months before WCup 2014 airport transport and Stadium situation still not solved in some HC
- Lack of integrated planning between FIFA/ LOC Brazil 2014 and three levels of Government
3. Focusing on transport in Russia

• Transport *exclusively by air* from world and closer Western-Central Europe to Russia

• Due to Russia largest country size, considerable growth of air transport system with polarization on *Moscow – Russia 2018 World Cup hub!*

• Russia has a strong railway transport system serving all 10 Host Cities from Moscow – *Except SP and NN very long rail travel times!*

• Roadway systems (few motorways) serving all regions connecting them to Host Cities
Russia 2018 FIFA World Cup - Air/rail travel times between Moscow and Host Cities

Legend

**xx - xx**  Air - Rail travel times from/to Moscow

Source: Russia 2018 Bid Book
Transport developments towards 2018

Source: “Transportation during 2018 FIFA World Cup in Russia” by Ministry of Transport of Russian Federation / 2018 FIFA World Cup Host City Seminar, Moscow; October 3rd 2013

- Ministry of Transport investment forecasts for 2018 are 337’000 million rb (10.4 billion USD): 75% for air, 13% rail and 12% road systems. Of the 75% for airports 58% are from private sector
- Only air airport developments can very rapidly increase 2018 Host City accessibilities // Most new transport investments concern Host City airports
4. World Cup in 11 Russian Host Cities

- FIFA World Cup attributed to ONE country RUSSIA
- Organized by 11 Host Cities, in 12 Stadium served by 13 airports / the 11-12-13 World Cup 2018
- Except Moscow, St Petersburg, Sochi and possibly Kazan, no Russian 2018 Host City has witnessed such a world mega-event
- For other 2018 host CITIES, the World Cup will put them put on the sport media world map ....it is unique!
11 Host Cities in 5 regions

- Northern region: St Petersburg & Kaliningrad
- Central region: Moscow
- Volga region: Nizhny Novgorod, Kazan, Samara, Saransk, Volgograd
- Ural region: Yekaterinburg
- Southern region: Rostov-on-Don & Sochi
11 very different transport logistics

- 2 metropolis Moscow 11.6 mio and St Petersburg 5.0 mio population
- 6 large Host Cities 1.0 to 1.4 mio
- 3 small Host Cities 0.3-0.5 mio
- 7 out of 11 Host Cities with insufficient airport capacities
- 8 out of 11 Host Cities with insufficient accommodation supply for such mega-event
# Russia 2018 World Cup - Key statistics

<table>
<thead>
<tr>
<th>Host City</th>
<th>Population (1)</th>
<th>Stadium capacity (2)</th>
<th>Stadium development status (3)</th>
<th>Number of matches (4)</th>
<th>Airport 2011 traffic (pax/year) (5)</th>
<th>Airport to City Centre (km) (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moscow</td>
<td>11'610'000</td>
<td>81'000</td>
<td>Existing - to be renovated</td>
<td>8</td>
<td>58 Mln</td>
<td>35*</td>
</tr>
<tr>
<td>St. Petersburg</td>
<td>4'950'000</td>
<td>66'000</td>
<td>Under construction (2016)</td>
<td>7</td>
<td>9,6 Mln</td>
<td>15</td>
</tr>
<tr>
<td>Yekaterinburg</td>
<td>1'380'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>5</td>
<td>3,4 Mln</td>
<td>19</td>
</tr>
<tr>
<td>Nizhny Novgorod</td>
<td>1'260'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>5</td>
<td>0,5 Mln</td>
<td>25</td>
</tr>
<tr>
<td>Samara</td>
<td>1'170'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>5</td>
<td>1,7 Mln</td>
<td>55</td>
</tr>
<tr>
<td>Kazan</td>
<td>1'160'000</td>
<td>45'000</td>
<td>New - already built</td>
<td>5</td>
<td>1,2 Mln</td>
<td>25</td>
</tr>
<tr>
<td>Rostov-on-Don</td>
<td>1'100'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>5</td>
<td>1,7 Mln</td>
<td>9</td>
</tr>
<tr>
<td>Volgograd</td>
<td>1'020'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>4</td>
<td>0,5 Mln</td>
<td>20</td>
</tr>
<tr>
<td>Kaliningrad</td>
<td>430'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>5</td>
<td>1,3 Mln</td>
<td>21</td>
</tr>
<tr>
<td>Sochi</td>
<td>360'000</td>
<td>45'000</td>
<td>Under construction (2013)</td>
<td>6</td>
<td>2,1 Mln</td>
<td>34</td>
</tr>
<tr>
<td>Saransk</td>
<td>300'000</td>
<td>45'000</td>
<td>New - to be built (2017)</td>
<td>4</td>
<td>0,1 Mln</td>
<td>7</td>
</tr>
</tbody>
</table>

* Average distance between Sheremetyevo/Domodedovo/Vnukovo Airports and City Centre

**Sources:**
1. Federal State Statistics Service of Russian Federation, 2013 - rounded to +/-10'000
2. 2018 FIFA World Cup Russia - Host City Seminar - Moscow October 3rd, 2013
3. 2018 FIFA World Cup Russia - Host City Seminar - Moscow October 3rd, 2013
4. NIIAT - FIFA Seminar presentation October 3rd
5. Russian Airport Association (www.airport.org.ru) - 2011 Statistics
6. Russia 2018 Bid Book
Host City key transport issues

Interconnexion under **high traffic demand pressure** of very **few high power traffic generators:**

- Main City transport gateways, mostly the Airport
- City Centre and Host Stadium
- Main Accommodation areas
- Fan zone(s)

Looks like an extremely “simple” transport system which shall operate only 3 - 7 days in the City’s life.
Host City Mobility concept

• One of the largest World Cup transport challenge is to “temporarily” manage very peaked traffic demands between Host City airports, City centres and Host Stadium

• Stadium, City Centre and Fan zones are crucial traffic generators to sustain intensive traffic peak loads of “out-of-town nationals” and “international” visitors

• The Host City Mobility Plan should meet all these demands
“Last Stadium km” is often the most crucial and enthusiastic part of the Word Cup journey.....

All transport, security, media, information, hospitality and sport support systems converge on the Stadium where the mega-event takes place.

Formal requirement: “Stadium and last km to Stadium traffic systems shall be extensively tested before the event” //such as Confederation Cup 2017

“Last kilometre and Stadium” are under the “national organizer-LOC 2018” responsibility as shown in MR....
Inside one of 12 World Cup 2018 Stadium
(Fisht Sochi Olympic Stadium)
Dutch fans heading to a fan zone
5. Transport methodology and responsibility matrix

FIFA approach to transport planning has been defined in a recent 2018 FIFA World Cup Host City Seminar held in Moscow; October 3rd 2013

Roles and responsibilities in transport have been assigned according to five entities:

- FIFA
- LOC 2018 Russia
- Russia –Federal Government
- Host Cities / Regions
- Specific transport and other operators
## Russia 2018 World Cup - Responsibility matrix

(This matrix typology does not include financing)

<table>
<thead>
<tr>
<th>Planning level</th>
<th>Responsibility</th>
<th>Federal Government</th>
<th>Host City</th>
<th>LOC Russia 2018</th>
<th>FIFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. International</td>
<td>L</td>
<td>I</td>
<td>M</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>II. National</td>
<td>L</td>
<td>I</td>
<td>M</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>III. Regional/Host City</td>
<td>S</td>
<td>L</td>
<td>M</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>IV. Stadium/last km</td>
<td>I</td>
<td>S</td>
<td>L</td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**
- L Process leader
- S Support function
- I Input/Information
- M Coordination/monitoring function
- R Requirements definition
Event Transport & General Transport

World Cup transport services at the four transport levels defined above are splitted in two different systems called “Event transport” and “General transport”

- **Event transport** covers all planning, organization, operations and financing of transport services for FIFA constituent groups. Event transport is under the responsibility of LOC Russia 2018.

- **LOC 2018 will prepare “Event transport plans”**
Transport Planning is organized at three levels:

- **FWC 2018 Transport concept** -- underway
- **FWC 2018 Transport Strategy**—to be developed by each City for July 2014 (FIFA January 2015)
- **Host City Transport Operational Master Plans**—to be developed by each City for January 2016 (and FIFA with deadline July 2016)
Strategic demand and A&D studies

Source: “2018 FIFA World Cup Transport Concept” by Ministry of Transport of Russian Federation - NIIAT / 2018 FIFA World Cup Host City Seminar, Moscow; October 3rd 2013

- Estimates of travel demands by constituent groups at all four transport levels are essential although tremendously complex due to multiple uncertainties until Tournament start

- Strategic demands added to estimated 2018 background traffic help define the “new transport capacities” to be developed before 2018
Strategic demand and A&D studies

- *Travel demand studies re-assessed in 2016 and 2017 based on updated market studies*
- “Low” and “High estimates” both for “group match” and for “knock-out match” phases
- Critical importance of “ticketing” policies and of “accommodation” supply developments and marketing
- Critical to boost Host City airport capacities which are too weak in about 7 out of 11 Host Cities
6. Key organizational issues & legacy

Eight key organizational issues as recommendations:

**Point 1:** Search for best stream-lined integration of the 4-level transport “World-to-Stadium” process

**Point 2:** Leading importance of World Cup 2018 transport matrix of responsibility
....key organizational issues....

- **Point 3**: Refinement of the travel demand studies particularly inside Russia in 2015 - 2017 in relation to “accommodation” and “ticketing” evolution
- **Point 4**: To keep in mind: Russia hosts the 2018 World Cup, but the mega-event takes place in 11 Russian Host Cities
- **Point 5**: Critical importance of the next 4-year Host City Airport development studies in interface with Host City Mobility Plans
Point 6: Priority for each Host City to produce a preliminary Mobility Plan prior to Copa 2014 observer program in Brazil

Point 7: 2018 Mobility plans are a “once in a life-time” opportunity to rethink the future of mobility and urban quality-of-life particularly in public spaces of the City Centre

Point 8: 2018 City transport system and traffic management interventions shall go beyond the temporary needs of 2018 World Cup by providing a sustainable legacy for the future
...do not try to “re-invent” the wheel

- Organizing the 2018 Football World Cup is a transport challenge of great complexity given the Russian very large Inter-Host City travel distances and generally weak airport and City accommodation systems

- Pragmatic experience of mega-event transport like Sochi 2014 // past football events like EURO 2012 in Poland and Ukraine // and “observing” next year WCup Brazil 2014 shall be used to the maximum....
Training seminar next 3 themes

Part 2: What preliminary “strategic travel demands” and what airport capacity?

Part 3: How to sketch a “Host City Mobility Plan” from Airport-to CC-to Stadium?

Part 4: The crucial “Stadium last kilometre“ approach
...references...

• «Russia adopts law for 2018 FIFA World Cup and FIFA Confederations Cup 2017»; Moscow, June 2012, in www.fifa.com/worldcup/russia2018

• «Russia launches major Infrastructure Programme for 2018»; Moscow June 2012, in www.fifa.com/worldcup/russia2018

• 2018 FIFA World Cup Russia «Host City Seminar» Moscow, October, 2013

______________________________________________________________
www.fifa.com/worldcup/russia2018
www.aists.org
www.mobility-bovy.ch
Спасибо - Spasiba !
Thank you very much! Grazias!
谢谢！Danke schön！
To obrigado! Grazie mille!
Merci pour votre attention!