



OBS Media Fact File



OBS

The mission of Olympic Broadcasting Services (OBS) as the Host Broadcaster organisation for all the Olympic Games, Olympic Winter Games and Youth Olympic Games is to produce the unbiased images and sounds of all competition events and Ceremonies which capture the imagination of billions of viewers worldwide and to ensure overall broadcasting efficiencies and consistency are achieved between Games.

Such developments translate directly into a far improved service for all Rights Holding Broadcasters (RHBs) and help to inspire future innovation. Specifically, OBS is responsible for the following:

- Produce the International Television and Radio (ITVR) signals of the Games
- Design, build, install, operate and then dismantle the International Broadcast Centre (IBC)
- Design, build, install, operate and then remove the necessary facilities and equipment at the competition venues and select non-competition venues
- Assist the Organising Committee in the design and building of infrastructure required at the venues to accommodate the needs of OBS and the RHBs
- Represent the needs of the RHBs to the Organising Committee regarding a variety of facilities and services
- Produce various features and maintain an Olympic archival service during Games-time
- Continually adapt to meet the requirements of new technology





The International Olympic Committee (IOC) established OBS as its Host Broadcaster in 2001 to ensure a more consistent and continuous service to those broadcast organisations that have purchased the rights to air the Games in their home territories (Rights Holding Broadcasters or RHBs)

OBS is headquartered in Madrid, Spain and employs 161 full-time staff, representing 32 different nationalities.

Members of the OBS Management Team have an average of more than six Olympic Games experience each, having contributed to nearly 100 Games collectively. Overall the OBS permanent staff has worked across more than 500 Games altogether.

Yiannis Exarchos is the current Chief Executive Officer (CEO) of OBS. He was appointed CEO following the London 2012 Olympic Games. Specialising in the management of global sports events, he has served as a top executive for all Olympic Host Broadcasters since Athens 2004. His background in print media, radio, television, music and film brings a comprehensive perspective to the planning and management of major events. His in-depth media experience and leadership have earned him numerous recognitions, including various Emmy Awards, and award from the Greek NOC for long term contribution to the Olympic Movement and the Great Wall Friendship Award, in acknowledgment of his contribution to Beijing's progress and development.

RHB Solutions

OVP

Olympic Video Player

The Olympic Video Player (OVP) is an advanced multi-platform video player designed to enhance and complement the enjoyment of the Olympic viewing experience.

- Available for the first time for a summer edition of an Olympic Games (launched in Sochi 2014)
- White-label solution. RHBs may choose to be as active or as passive as they wish, either opting for a full end-to-end solution provided by OBS, or adding their own videos, live commentaries, channels and other content.
- 14 RHB organisations with a tailored OVP platform
- Broadcasting the Games to 56 territories including highly populous areas such as India, Latin America and Thailand
- Live and on-demand HD video of all competition sessions as well as short form highlights
- Real-time statistics with enhanced interactivity





MDS

Multi-channel Distribution Service

The Multi-channel Distribution Service (MDS) offers a turnkey, cost-effective solution to enable RHBs to bring the Olympic Games to their viewers through fully programmed, ready-to-air channels. This service has changed the way RHBs are operating – sending fewer resources and personnel to the Games and often working without a facility within the host city.

- 52 RHB organisations subscribed to the service (23 subscribers for London 2012)
- Broadcasting the Games to 198 territories; The MDS subscribers received the signals at more than 3,000 reception points via four satellites
- 13 channels (12 sports channels + Olympic News Channel) with English commentary

New Technologies

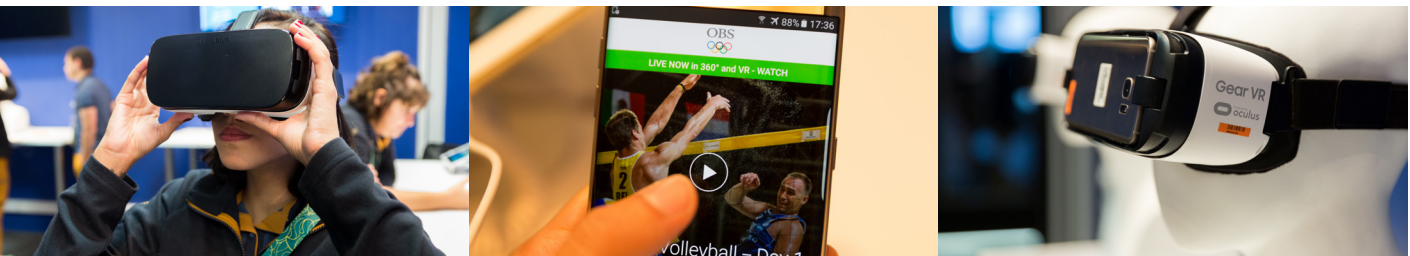
HDR

WCG

High Dynamic Range/Wide Colour Gamut

HDR (High Dynamic Range) / WCG (Wide Colour Gamut) displays a wider and richer range of colours, with much brighter whites, and much deeper, darker blacks, colours are more natural and true-to-life. The overall look is more dynamic and thus the term.

- OBS-NHK used one 8K camera featuring HDR/WCG function for the coverage of the Opening Ceremony
- US Broadcaster NBC also tested out this technology during the Opening Ceremony with a selection of 4K HDR cameras

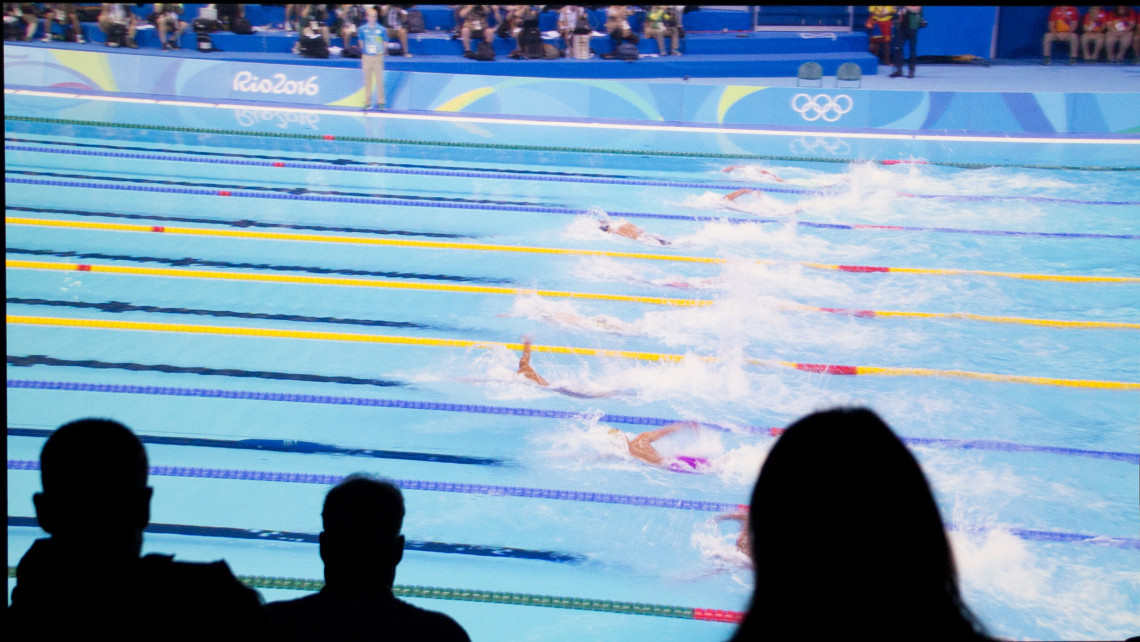


VR

Virtual Reality

The immersive, high-definition Virtual Reality (VR) broadcast brings the viewers closer to the action as never before.

- 14 RHB organisations subscribed to the service, representing 31 territories
- 85+ hours live VR/360-degree video + Video On Demand + Highlights package. The VR production plan included both Ceremonies, Beach Volleyball, Boxing, Fencing, Athletics, Basketball, Diving and Artistic Gymnastics.
- Three fixed camera positions at each venue plus an additional RF unit. The cameras were custom developed, not standard cameras. All were 360-degree camera systems.
- Total views of more than 1.3 million



SHV

Super High Vision

8K

4K

Super High Vision (SHV), also known as Ultra High Definition television (UHDTV) offers 8K resolution with picture quality 16 times higher than High Definition (HD).

- Collaborative project since London 2012 between OBS and Japanese Broadcaster NHK
- OBS-NHK distributed 8K and down-converted 4K (distributed with one-hour delay).
- Eight RHB organisations took the 8K/4K feeds, representing 10 territories
- Approximately 100 hours of coverage were produced including both Ceremonies + Daily live sports coverage: Athletics Track and Field, Basketball (Men's Quarter-finals, Women's/ Men's Semi-finals and Finals), Football (Medal matches), Judo and Swimming + Daily highlights
- 8K viewing was available at the SHV Theatre located within the IBC, at the Museu do Amanhã at Praça Mauá in Rio, and in various locations in Japan
- Number of cameras:
 - Opening Ceremony (Maracanã): 7 (6+1 WCG/HDR camera)
 - Football (Maracanã): 5
 - Swimming (Olympic Aquatics Stadium): 5
 - Basketball (Carioca Arena 1): 4
 - Judo (Carioca Arena 2): 5
 - Athletics (Olympic Stadium): 5
 - Closing Ceremony (Maracanã): 6

Cameras

1,000+ cameras deployed for the coverage of the Games

OBS utilised more than 160 Super Slow Motion (SSM) and High Super Slow Motion (HSSM) camera systems

Four-point cable cameras used for the first time at Athletics, Swimming, Synchronised Swimming, Volleyball, Hockey and Cycling Track

Two-point cable cameras at Beach Volleyball, Golf, Basketball, Cycling BMX and the Olympic Park

Lightweight mini tracking cameras at Beach Volleyball, Taekwondo and Weightlifting

Mini HSSM cameras used for the first time at Athletic Field events, Table Tennis, Badminton, Cycling BMX, Equestrian, Volleyball, Artistic and Rhythmic Gymnastics

Drones being used for the first time for live coverage at Rowing and Canoe Sprint together with pre-recorded content from other sports venues including Golf, Cycling BMX and Canoe Slalom, and scenic shots of Rio de Janeiro

12 Beauty Cameras provided RHBs with unique panoramic views, whilst also capturing the general atmosphere and essence of the Olympic Games



Broadcast Facilities

Distribution

OBS established a more extensive international distribution network connecting the IBC with five points-of-presences (PoPs) in Rio de Janeiro, New York, Los Angeles, Frankfurt and London, allowing RHBs to send their own produced signals to their own particular territories in the world.

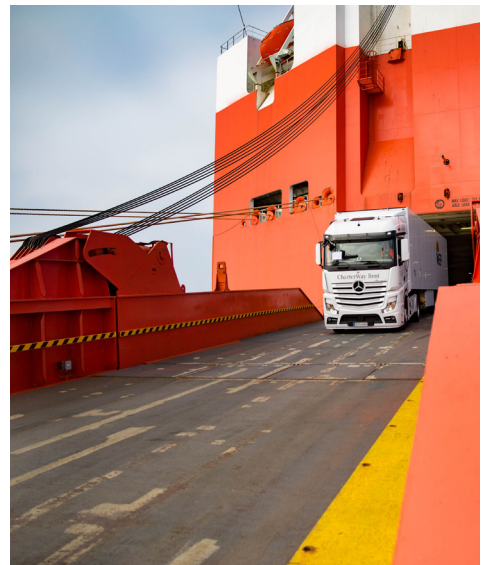
OBS also established a worldwide satellite system for the Multi-channel Distribution Service (MDS), providing international distribution via satellites to RHBs who have subscribed to the service. OBS reserved additional capacity to support limited unilateral requirements for transmission over the same satellite system.

OBS implemented an extensive fibre optic contribution network to connect the venues and the IBC (a combination of dark fibre for venues in the metropolitan area of Rio and Synchronous Digital Hierarchy (SDH) for distant venues). This network carried all produced signals (multilateral, unilateral, commentary, communications, etc.) from the venues to the IBC providing the maximum level of quality and resilience.

25,000km of fibre in the Rio de Janeiro contribution network

Fleet

OBS secured 52 mobile units for the broadcast coverage of the Games, including four units from Brazilian suppliers and 48 units from 14 different suppliers located in the USA (1), Canada (1) and Europe (12). In addition to the 52 OB vans, 12 flyaway systems and seven independent audio production units have also been secured. Another 31 support vans made a total fleet of 83 vehicles and 19 production kits.





IBC

International Broadcast Centre

- Primary base of operations for OBS and RHBs (24/7 facility from 5 July to 24 August)
- Total area (gross): 85,400 sqm (roughly the same size as three Football fields side by side)
- Total broadcast space: 76,000 sqm (89% of the IBC)
- 7,875 sqm dedicated to OBS Tech
- Located within Barra Olympic Park near nine Olympic venues
- 105 RHBs had a presence within the IBC
- Approximately 8,000-10,000 broadcast personnel on the busiest day
- 190 multilateral feeds, produced by OBS, received at the IBC and provided to all RHBs
- Up to 38 concurrent feeds on the busiest day
- 386 unilateral feeds, produced by RHBs, received at the IBC
- 57km of Multicore Optical Fibre used at the IBC (representing a total of 684km of fibre strands)
- Total data bandwidth received from venues is 230Gbps (100Gbps for RHBs and 130Gbps for OBS services). With this bandwidth, all 60 episodes of the six seasons of Game of Thrones can be transferred in the highest Blu Ray quality in 30 seconds!

New Services for RHBs

New technologies and digital solutions: Virtual Reality, Super High Vision, OVP

More data connectivity and increase of metadata (Broadcast Data Feed)

Cloud services (it was the first time for a summer edition of an Olympic Games that the host broadcast operation was a 100% tapeless environment)

File transfer delivery solutions to facilitate RHB remote production

Remote access to the IBC Video Server (30 takers)

Five international points-of-presences (PoPs) for distribution

Increase of the number of bookable commentary positions to offer greater flexibility to RHBs

Raw long-format mixed zone interviews made available to RHBs for the first time

After its successful launch in Sochi, the Multi Clip Feeds (MCFs) were expanded for Rio with up to 10 concurrent feeds from 18 different disciplines and venues, offering unseen competition clips and angles, primarily from SSM, HSSM and POV cameras, as well as athlete warm-up and venue atmosphere

Enhanced graphics and course animations



For the benefit of new media operations, OBS made available to RHBS a Video and Audio (VandA) package comprised of compressed signals following IP protocols. The IP VandA package provided all 45 International TV Signals in two different resolutions (18 Mbps and 2.4 Mbps). The IP VandA package was specifically designed for RHBS who planned to carry the Games' competitions on digital platforms.

For the first time in a summer edition of an Olympic Games, OBS produced 60 creative 30-second Olympic Trailers, plus a 'Welcome to Rio' trailer, of approximately 1'30" in duration for RHBS. Each trailer was an imaginatively produced promotional tool for Broadcasters to use pre-competition, finishing with a customisable end frame. These were delivered three months before the Games. Additionally, OBS made available new Olympic Trailers during the Games. The pre-Games trailers were based around original, historical storytelling, while the in-Games trailers featured the athletes participating in the Rio Games and the stories surrounding the Games themselves, as well as other themes. 54 Sports Guides were also produced by OBS and distributed to the RHBS.

For the first time, OBS offered comprehensive coverage for Athletics, showing all qualifying groups in relevant Field events (including Decathlon and Heptathlon) and providing raw warm-up footage for the Field events.

New Practices

For the first time, OBS offered RHBs six different modular structures for use in the fit-out of the IBC (offices, radio studios, TV studios, etc.) These structures which contain pre-fabricated panels and are planned to be used for at least two Games, eliminated 50,000 cubic metres of waste, almost 3,000 truckloads.

OBS considerably reduced printing and developed various online operating systems and databases since London for better efficiency and flow of communications with the RHBs

OBS upgraded most of its core technical equipment, facilities and infrastructure, including:

- the Contribution, Distribution and Unilateral Centre (CDU) Master Control,
- the Technical Operations Centres (TOCs),
- the telecommunication infrastructure for all contribution networks,
- the encoding platform of several services.

Approximately 80 percent of OBS broadcast equipment was replaced prior to the Games in order to be compliant with the leading edge of technology and to provide a core system of the highest standards to best service the RHBs.

For the first time, OBS provided RHBs with a 24/7 technical remote access to the venues to facilitate their unilateral operations.

Also, OBS anticipated the recovery of some cabling installed in the venues for re-use for future Games.

Doing more with less: Despite the addition of two new sports (Golf and Rugby Sevens) and the Ceremonies being located in a venue apart from Athletics, OBS was able to reduce certain broadcast requirements for the Games' venues. OBS gave back space in the compounds and mixed zones in select venues, while overall, keeping the number of cabins required across the venues on par with the London Games (taking into consideration the additions of the new sports and Ceremonies). Additionally, although OBS launched new services and technologies to their clients, OBS and RHBs' footprints at the venues and IBC were very much in line with the London Games.



Broadcast Figures



Total hours of content produced by OBS: **7,100+** (increased by 27 percent compared to London 2012)

All feeds from OBS were produced in High Definition (HD) at the aspect ratio of 16:9 with discrete 5.1 surround sound as well as in stereo sound.

Total hours of sports competitions: **2,800+**

Total hours of the Olympic News Channel (ONC): **456** (distributed free of charge to all RHBs)

Total of ONC Mized Zone Interviews: **3,200+** including 946 medallists (97%)

Games-time Personnel



7,100+ OBS personnel from 69 nationalities including 1,200 BTP students were part of the Host Broadcast operation for the Rio 2016 Olympic Games.

Forming an integral part of OBS's legacy strategy, the Broadcast Training Programme (BTP) aims to train the next generation of media and television professionals. In collaboration with select universities in the host city, the training programme gives students practical experience in how the largest broadcasting operation in the world will be assembled and function. Following the training and a recruitment and selection process, approximately 1,200 successful students were offered paid roles during the Rio 2016 Games – such as audio assistant, camera assistant, commentary system operator and liaison officer.

Audience Highlights

Global

- More coverage than any other Olympic Games before, including record-breaking numbers for both TV and digital broadcast hours compared to London 2012. **Nearly 350,000 total of hours broadcast globally** (versus 200,000 hours for London 2012). Additionally, the Games were aired across more platforms than ever before, with **more than 500 television channels and 250 digital platforms** conveying the magic of the Olympic Games around the world.
- **The amount of content on digital platforms was nearly the double of that aired on television and represented more than two and half times of what was achieved by London 2012 (218,000 hours versus 81,500 hours)**. More people than ever before experienced the Olympic Games on digital channels.
- An estimated global audience of **five billion** - the largest ever audience for an Olympic Games
- 79 RHB organisations + sublicensees
- The Rio Games were broadcast in **more than 200 countries and territories** around the world





RHB Audience Figures

In Brazil, Globo's live coverage of the Opening Ceremony achieved an average audience of 32.5 million viewers, the highest rated sports broadcast in Brazil in 2016.

BBC1 was the most watched channel in the UK all day on Saturday 6 August. The highest audiences came in prime time, when 5.29 million (33.9% share) tuned in to see the climax of the Men's Cycling Road Race.

ARD was the top channel in Germany on Saturday 6 August, with more than double the share of any of its rivals. The most popular sport was Rowing, which delivered both the highest audience (4.17 million) and share (25.4%) of the day.

Chinese broadcaster CCTV5 delivered the highest rated sports broadcast of the year for its coverage of the Women's 10m Air Rifle. An audience of 36.78 million saw Chinese competitors take the silver and bronze medals. CCTV5 was rewarded with a share of 9.9%, more than eight times the typical prime time share for the channel (1.2%).

TV Asahi in Japan delivered an impressive audience of more than 17 million (22.6% share) for its live coverage of the women's Volleyball match between Japan and Korea. This is more than double the highest audience for the channel during London 2012.