CASE STUDY

HEXAGON

Hexagon Brazil supports CBMERJ during the Olympic Games in Rio de Janeiro

> CBMERJ operations for the Olympic Games involved more than 2,500 employees and 76 advanced tactile units, and the Technologies provided by Hexagon Brazil were essential to optimise the planning of our resources on the ground. These solutions also helped to allocate tasks from the planning and to monitor the execution on this huge and complex project".
>
> Major Military Firefighter Marco Basques, operational command and control general director at CBMERJ

CBMERJ combines Hexagon's solutions for its operation during the Olympic Games

In August and September 2016, the city of Rio de Janeiro, Brazil, hosted the Games of XXXI Olympiad as well as the XV Paralympic Games, gathering more than 10.5 thousand athletes and 1.4 million tourists from all around the world, making these Olympic Games the biggest event ever hosted by a Brazilian city.

Different public agencies and civil society worked together to make this the best Olympic Games ever. As resources are always limited, investments need to be done accurately and keeping in mind the goal of leaving a legacy to the city of Rio. In this scenario, Hexagon Brazil invited CBMERJ (Military Fire Department of the State of Rio de Janeiro) to deploy additional solutions to help them face this challenge.

CBMERJ has been using I/CAD since 2014, relying on this platform for their daily operations. At the beginning of 2016, CBMERJ implemented Intergraph Planning & Response (IPR) for large-scale event management and a situational awareness and reporting tool called S|Portal, which is a GeoMedia WebMap and Geospatial Portal customization. These technologies were deployed in time for the preparation for their operation during the Olympic Games.

HEXAGON BRAZIL'S INITIATIVES

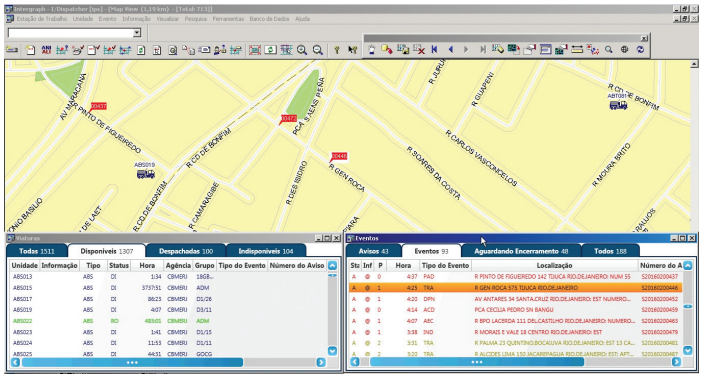
Hexagon took a step further and extended their already existing technology platform with some of its latest technologies in advanced incident analytics and 3D mapping that can be split in up to four fronts:

- Operational promptness with I/CAD (Intergraph Computer-Aided Dispatch) as basis for the whole operation;
- Operational planning creation and execution with IPR (Intergraph Planning & Response);
- Creation of realistic 3D models of the venues;
- Operation monitoring and surveillance with Incident Analyzer.

OPERATIONAL PROMPTNESS WITH I/CAD – INTERGRAPH COMPUTER-AIDED DISPATCH

The starting point for Hexagon to support CBMERJ is on the call and dispatch control and monitoring. CBMERJ's coverage take the entire State of Rio de Janeiro and a great amount of its crew is dedicated to the operations in the capital city, with more than 7,000 daily calls taken by 54 positions in its operation center.

All events registered using I/CAD and the calls history are stored and available for a prompt service using a few clicks, including activities to support decision making related to type of vehicle to certain incidents and which ones are closer to the event:

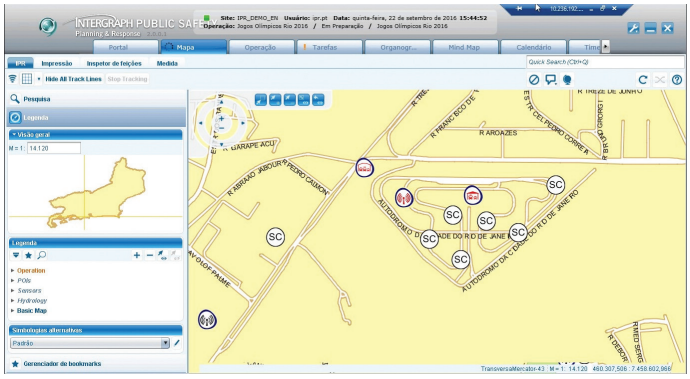


I/CAD brings agility to respond to events by allocating the available resources closer to the event and by remote monitoring of this call.

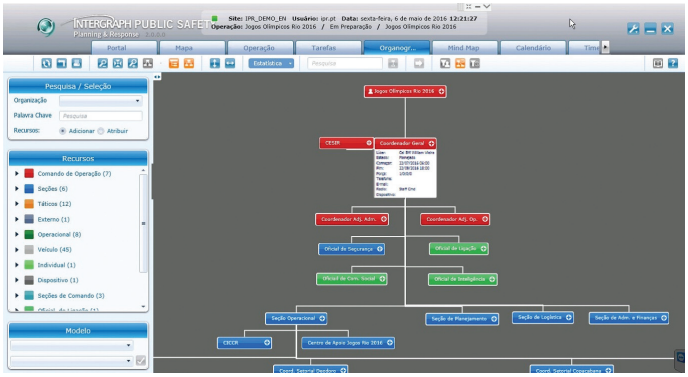
OPERATIONAL PLANNING CREATION AND EXECUTION WITH IPR - INTERGRAPH PLANNING & RESPONSE

Faced to the complexity of an event like the Olympic Games, planning is mandatory. It aims not only to assist ordinary operation, but also to plan the answer to urgent and unexpected events from many different types. IPR is responsible for that.

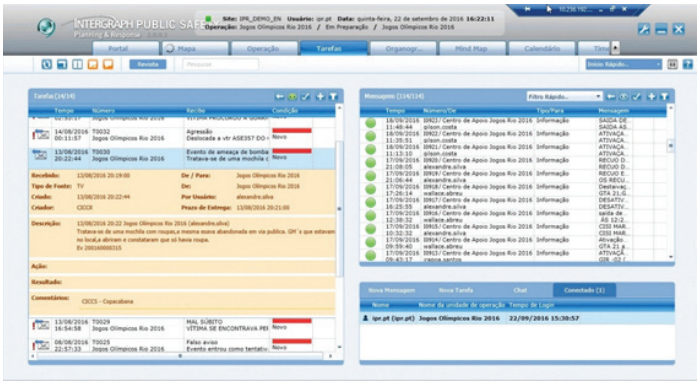
The entire event schedule was programmed using IPR, from the arrival of delegations in Rio to a specific organizational chart for the event, followed by a dedicated timeline for battalions that would be responsible for specific venues and type of vehicle to be used as well as how, where and when. Different types of vehicles and officials were specially allocated to perform strategic monitoring and surveillance tasks:



The possibility to have control of the entire organizational chart of operations in IPR enabled CBMERJ to have immediate access to information like name, phone number, radio alias about the people on the field, other centers, other fellow institutions, immediately, as needed:



The timeline functionality from IPR also helped to estimate the demand for work shifts accordingly to the several events and competitions during the Olympic Games. This way, CBMERJ knew in advance, where and when they would need work shifts and how to arrange it accordingly.



CREATION OF REALISTIC 3D MODEL OF THE VENUES

Another great benefit Hexagon provided to CBMERJ was a detailed 3D map of the Olympic Venues. Under the overall coordination of Hexagon Brazil, Leica Geosystems Brazil used its Pegasus:Two Mobile Sensor to survey selected streets surrounding the Maracanã Stadium, Sambadrome, cycling event courses and others. In the end of 2015, Leica's professionals also surveyed the interior of key buildings like the Arenas Cariocas using a P40 ScanStation.

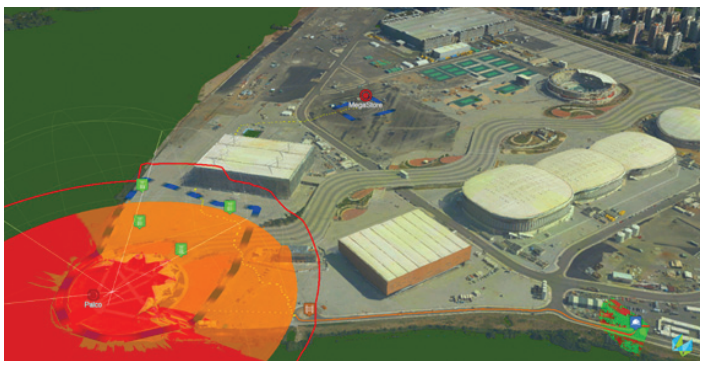
In the beginning of 2016, Leica Geosystems collaborated with a local surveying company called ESTEIO, which already uses Leica's technologies such as ALS50-II MPiA LiDAR systems and an ADS40/52 digital sensor, to help surveying the Olympic Village and Olympic Park with the new Leica's RCD30 Oblique Camera.

This huge amount of data, point clouds and oblique imagery were then processed by multiple teams from Hexagon companies, including Hexagon Geospatial, North West Group and myVR Software, and by long-term partner, called Skyline Software Systems, which is powering Hexagon Geospatial's GeoMedia 3D Add-On since 2012.

Besides helping to process this data, Skyline delivered a high detailed 3D mesh created after the RCD30 Oblique Camera data collection and published the 3DML file to the Web.

This model would help for monitoring, surveillance and response planning activities, and many 3D analysis tools were provided, with the possibility to run horizontal and vertical measurements, lines of sight and threat domes. This way, TerraExplorer and GeoMedia 3D would enable much more than just a 3D visualization. Using these technologies, CBMERJ would be ready to run analyses to check, for example, if a given vehicle would be able to reach a certain place based on the gate's height. In a similar way, while in the 2D map this truck is represented by a simple point icon, using this 3D model an actual model of this vehicle can be loaded and then scaled and rotated to ensure if it is in the best location possible given parking constrains like driving maneuvers.

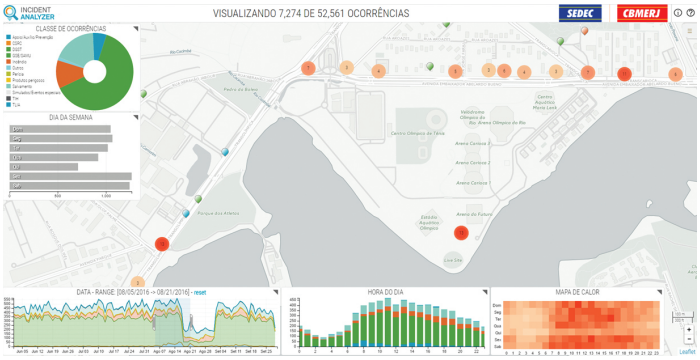
The image below shows how this 3D mapping capabilities helped to reconstruct an event responded during the Olympic Games, where a crew had to split and walk to a nearby simultaneous fire incident after dispatched to respond to a first incident involving an unroofed area hit by strong wind.



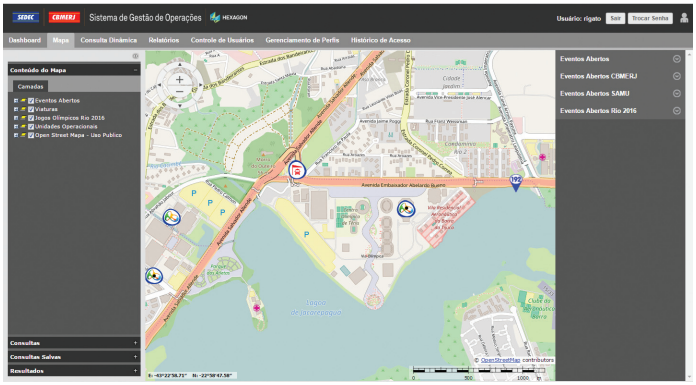
The blue icon at the lower right corner shows where the crew had to park according to the plan, and the brown line represents the original vehicle route to the first event at the lower left corner. The round red icon at the upper middles represents the second event. The immediate benefits the CBMERJ noticed could be the reduction on the response time to reach similar location scenes by choosing a better path, as well as the positioning of the crew in another location.

OPERATIONAL MONITORING AND SURVEILLANCE WITH INCIDENT ANALYSER

It is not enough just to collect operational data if it cannot be accessed quickly and get analyzed. A new analysis tool called Incident Analyzer specially was developed specifically to face this challenge, using the new Smart M.App platform from Hexagon Geospatial. Allowing real time data analysis on a web environment that synchronizes a map with live feed data from CAD with several dashboards.



As well as S|Portal, the Incident Analyzer allows supervisors to consult I/CAD's events history and monitor events in the surrounding areas in real time by using Business Intelligence panels. Complementary capabilities such as report template maps and dynamic reports (e.g.: dynamic tables) are available on S|Portal.



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