

Giga Benchmarking Challenge Overview:

Title: Optimise School internet price-performance ratio

Short Summary: Optimise School internet access price performance ratio by benchmarking internet access measures (from Giga) with public internet access measures (Ookla) to show the education minister if improvement could be achieved with a new service provider contract.

Fact: Schools even when they have internet access, the quality may be lower, and the bandwidth not enough compared to what is really available in the country / area (Fiber or 4/5G versus DSL / 3G) and what they pay for.

Idea: Benchmark actual school service performance with what is available for the public / enterprise / Government entities.

Objective: Raise awareness! Trigger a tender to select new providers for given regions / countries – Get a new internet access contract with better price / performance ratio.

How: Compare school internet access quality with in country internet access quality (average public or en available) to compare the Gap between Schools, Hospital and Public Administrations and Enterprise!

Metrics: Network download speed, Upload speed and latency

GigaBench Challenge Methodology:

Dataset used:

- Giga School Mapping Data
- Giga School Connectivity
- Ookla Speedtest > DB2



Step 1: Using 1 and 2, based on School ID, we can map School connectivity and GeoLocalisation -> DB1



Step 2: Using DB1 and DB2, we focus on countries available in DB1 (approx. 22 countries)



Step 3b. Reduce DB size with a focus per country

- -> Split DB1a into DB1a_CountryX (based on country name)
- -> Split DB2 into DB2_CountryX (based on GEO loc information per country)



Step 3a: Ookla DB2 gives only a quarterly value for downstream, upstream and latency, while Giga DB1 gives measures twice a day in average. On the other hand we downloaded DB2 for Q4'2024. -> For each school / location in DB1 compute the Q4'24 average value for the 3 metrics, Up, Down, Latency ->



Step 3: Based on Geoloc information in DB1 and DB2, we compare the school measures in each location, with the average measure values available at proximity (Based on available data in the area, let's consider measures within 5 km initially)



Step 3c. Per country, find the measures in DB2_CountryX within 5 km from the location defined in DB1a_CountryX (based on Geoloc) and compute the average Up, Down and latency for the location found in DB2, and associate the value to the locations defined in DB1a_CountryX. -> DB2b_CountryX



Step 4: Calculate the difference in values between DB1a_CountryX and DB2b_CountryX for upstream, downstream and latency -> DB3_CountryX

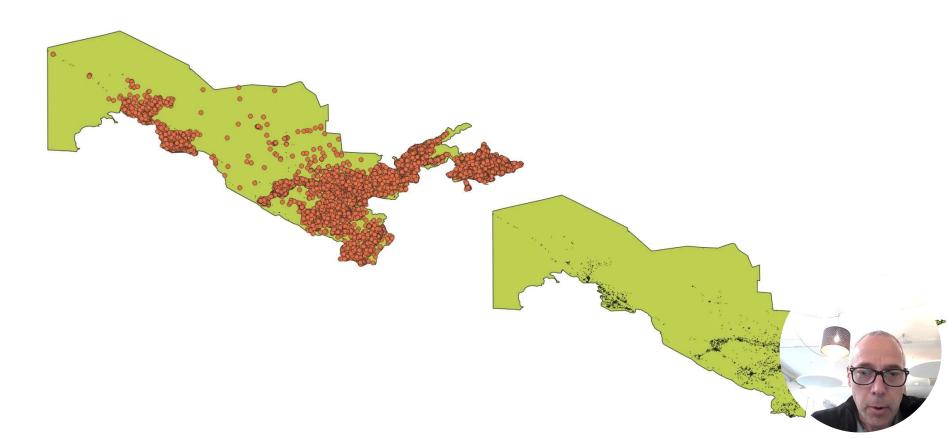


Step 5 displays on the country n color code the difference betwee School measures and public in measures showing Red – big Gap Orange Lower Gap (20 – 50%), Greek or better).

Dataset Used

- 1.1 Giga School Mapping Data
 - Description: School geolocation and connectivity data, using sources like OpenStreetMap and government datasets.
 - **Use**: Analyze connectivity gaps and prioritize infrastructure investments in education.
 - Source: Giga
 - Documentation Link: Giga School Mapping
 - Data Access Link: Data Access
- *1.2 Giga School Connectivity Data
 - Description: School connectivity data from Giga's Daily Check App, installed in schools across 21+ countries.
 Measure
 - Use: Analyze connectivity patterns in end-user devices.
 - Source: Giga
 - Documentation Link: Giga School Connectivity Data
 - Data Access Link: Data Access
- 3. Ookla Speedtest
 - Description: Global dataset of download and upload speeds, and latency for broadband and networks.
 - Source: Ookla
 - Link: Ookla Speedtest Data

Example Uzbekistan Internet quality measure



Countries with Measurement data in Giga DB

- Anguilla
- Barbados
- Belize
- Benin
- Bosnia and Herzegovina
- Botswana
- Brazil (added on the 26.01)
- Fiji
- Grenada
- Honduras
- Kazakhstan
- Kenya
- Mongolia
- Namibia
- Rwanda
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Sao Tome and Principe
- Sri Lanka
- Trinidad and Tobago
- Uzbekistan

