Giga | August 2020

Collaborating with Giga

Giga is a global initiative to connect every school to the Internet and every young person to information, opportunity, and choice.

We've already been collaborating to connect schools and empower young people with colleagues in **Colombia, Eastern Caribbean, El Salvador, Honduras, Kazakhstan, Kenya, Kyrgyzstan, Niger, Rwanda, Sierra Leone, Togo, Uzbekistan**, and **Zimbabwe** — without their efforts, Giga would not have been able to go full speed and gather support from ED Fore and UN Secretary-General Antonio Guterres, and secure several partners providing funding and technical support.

We are eager to collaborate with more colleagues across the world to bring the power of meaningful connectivity to fast track young people's access to educational resources and opportunities. Working closely with Generation Unlimited, UNICEF's Education Strategy and related teams at country level, we support needs assessments and the deployment of digital solutions that give young people the skills to fully and meaningful participate in the digital economy.

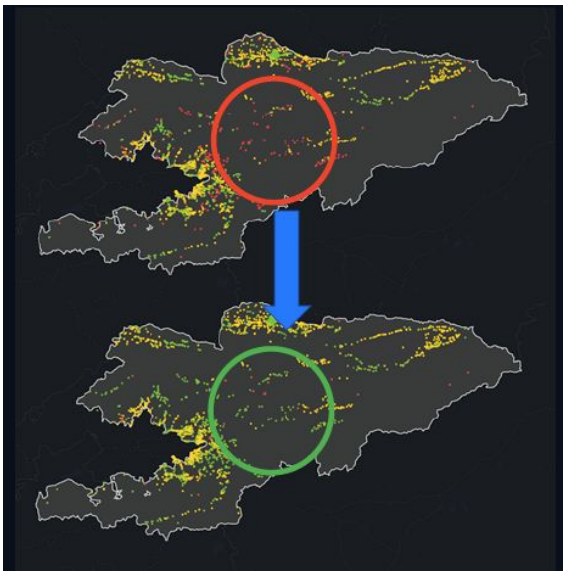
Why should your Country Office join Giga, and how can we help you get started? How can we support your ongoing education and connectivity initiatives, or those you are collaborating on with your respective governments and ministries? What have various Country Offices been doing and achieving working with Giga?

In addition to those, we've gathered your questions and feedback and are excited to share with you a collection of information and resources here.

If you would like to chat with us, we also share the team's contact information in this document.

What is Giga?

- Some 3.6 billion people in the world do not have access to the Internet. This lack of connectivity means exclusion, marked by the lack of access to the wealth of information available online, fewer resources to learn and grow, and limited opportunities for the most vulnerable children and youth to fulfill their potential. Closing the digital divide requires global cooperation, leadership and innovation in finance and technology.
- Giga will bring the power of **meaningful connectivity** to fast track young people's access to educational resources and opportunities. Giga will ensure every child is equipped with the **digital public goods** they need, and empowered to shape the future they want.
- Giga is anchored in the Secretary-General's High-level Panel of Digital Cooperation's recommendations 1A and 1B which state, respectively, that by "2030 every adult should have affordable access to digital networks" and that "a broad, multi-stakeholder alliance, involving the UN, create a platform for sharing digital public goods."



Having mapped data and communicated this with network operators, Kyrgyzstan has saved the government 40% ($200k/year) of its education connectivity budget.

What has Giga currently been working on with COs, and what are the results?

- With **Kazakhstan,** who signed on as the Regional Lead for Central Asia, we are developing the first financial model. A Giga Regional Centre, and a regional team in Nur-Sultan, has been established to implement the initiative. To date, we have mapped **10,200 schools** and integrated this into Giga's global mapping platform.

- Giga and the Government of **Kyrgyzstan** have connected the remaining **690** unconnected public schools. Giga has helped generate **$200k savings per year** — by seeing all the schools on a map and their corresponding connectivity, the Government was able to renegotiate contracts and subsequently secured a lower rate per Gigabyte (lowered by 50%) for schools, lowering the total cost.
- In the **Eastern Caribbean,** Giga is establishing a Regional Centre and team to implement the initiative. By working with the OECS, GIga will enhance the connectivity of schools and develop digital public goods to support the new digital education vision for the Eastern Caribbean.

How do we initiate the process at country level?

- Giga for any starts with country engagement and data collection. Therefore, it is helpful if you are able to gather information that can help us initiate discussions with the government and lay the groundwork for a formal agreement on the Giga work plan. Similarly, it is helpful if you are able to assess the availability of data and initiate the process to share that with our Mapping team. These initial pieces of work are needed in order to proceed with conversations about financing connectivity.
- If a country is not on the priority list but already has interest and potential partners, we encourage you to reach out to the Giga team - we work with ALL countries and adapt to their current stage and context in these efforts.
- We have developed an 11-step approach, which the Giga team will collaborate on with each CO to walk through the steps — which can all be done even if the country is not in the initial list of "quickstart" countries. To get started with us on these steps, you can reach out to anyone on the Giga team.
    a. Structure a Giga-specific partnership with country leadership
    b. Form a multi-stakeholder partnership coalition around country workplan
    c. Develop a foundation of data to identify need and size of the investment opportunity
    d. Build on existing country plans and policies by gathering data on economic, political, and regulatory landscape
    e. Evaluate regulatory barriers and identify potential levers
    f. Survey the market conditions for implementation (ISPs, MNOs, NRENs)
    g. Secure public financing to de-risk private investment
    h. Form a block of private funders and implementation companies
    i. Advise government on procurement structure
    j. Support government(s) to roll out procurement procedures
    k. Create sustainable business model - continuous monitoring and expansion of tech

- **Giga Team Contacts** for more information and guidance on getting involved: Aditi Poddar (apoddar@unicef.org), Jaime Archundia (jarchundia@unicef.org), Naroa Zurutuza (nzurutuza@unicef.org) and Sophia Farrar (sfarrar@unicef.org)

How do you match the weak purchasing power and investment opportunities/financing for very poor and undeveloped countries? There are some contexts which need a lot more of the public money/grant money than the institutional/investment side. The Giga team will collaborate with individual countries to fully incorporate contextual needs and collaborate on customized steps toward connectivity.

What can Giga add, if we already have some existing efforts across Education, Youth Skills, and/or Connectivity?

- Through strategic partnerships with government(s) and private sector, Giga can provide:
    - Country plans with and for every government
    - Support to COVID-19 response, with connectivity and remote learning solutions
    - Research to develop financial models that fund connectivity
- Giga has the ability to layer public and private money (i.e. GAVI) through convening partners and creating:
    - National budgets (Education, Health)
    - Creation or expansion of USFs
    - A pool of donors and investors
    - Collaborations with the Broadband Commission Working Group on School Connectivity
- Giga can offer regulatory and network & digital infrastructure expertise, including:
    - Regulatory frameworks fostering a competitive ICT environment
    - Products, services, and expertise on Telecommunication/ICT network and digital infrastructure
    - Holistic and scalable digital strategies and services to empower digital societies
- And any additional support to the following, ensuring we focus on the child (digital skills & education):
    - Government programs to connect schools
    - Infrastructure programs
    - Education solutions: remote learning, teacher's training, etc.
    - Entrepreneurship and Digital Finance

Once we have the government on board and a plan, does the CO fundraise or would there be support for fundraising? The government has to be engaged to commit their budgetary resources to connectivity, which is key so we can bring additional players like development banks and private investors to also contribute with funding for connectivity.

Are we expecting the role of the government to focus on endorsement only, buy-in, financial commitments? The role of the government is key. We expect endorsement and buy-in, and also financial commitments. For example, most governments have Universal Service Funds, which we could explore how to use more efficiently and targeted to connect schools.

How can Giga help our CO/RO? Will Giga help us fund and staff the project?

- Working with the CO/RO, Giga provides services that support country governments to develop their case for investment through data transparency, regulatory reform, and public financing. On the other hand, Giga packages and develops investment opportunities in coordination with private funders and implementation companies to support a successful procurement process.
- Giga acts as a convener between funding opportunities and connectivity projects for schools in disconnected areas and, ultimately, their communities.
    - We help funders hold governments and providers to account through clear target-setting and timeline management
    - We provide grants and technical advisory services to help governments in project preparation
    - We enable relevant regulation, and establish and share best practices in mapping connectivity demand, identification of funding, project preparation, project delivery, and post-delivery service adoption and empowerment
- **Kazakhstan** signed on as Giga Lead in Central Asia, as the initiative aligns with the country's connectivity and digitalization priorities, and the CO leads coordination and programme implementation. The programme is estimated to cost USD 8.35M over 4 years; and Giga, along with contributions from the SDG Fund and the Government of Kazakhstan, has committed:
    - To cover dedicated Giga staff in Kazakhstan through 2020
    - Additional investments from UNICEF's USD 29M Venture Fund into open source solutions for connectivity and improving learning outcomes
    - Part of the USD 5M funding from the Government of Norway to scale and facilitate access to Digital Public Goods to be invested in Kazakhstan
    - Contributions of staff capacity for mapping and real-time monitoring, as well as identifying suitable technologies based on Kazakhstan's needs and context
- The Government of Kazakhstan has committed as well to host office space, workshops, and technical meetings, and will second staff to the project to support identifying national needs and developing financial models.

Will schools that are connected to the internet through the Giga Project be required to pay for their internet? Payment is usually through the Ministry of Education and existing channels, but we work on this country by country.

Is the UNICEF CO the project lead in each country?

- In each country, the initiative is led by the UNICEF Representative along with an ITU Representative; within the Office, we work closely with technical and programme teams, such as colleagues across ICTD and Education programmes.

What are the types of analysis and insights that mapping can provide?

- **Assess the levels of connectivity access across communities** by mapping areas without connectivity and estimating the number of children living in those areas and that are not able to continue with their learning or receive relevant information about the pandemic. This analysis will inform Country Office's remote learning response and direct the decision tree by answering the first question of "Does your target population have access to connectivity at home?"
- **Map school locations and their connectivity status**. This information will support the coordination and delivery of resources, services, and connectivity to schools and the communities around them. During emergencies, this information can also guide response efforts by informing how to deliver critical information and other supplies.
- **Map the levels of vulnerability of communities** by looking into different factors such as access to connectivity in schools and communities or access/distance to schools and health centers from population centers.
- **Identify out-of-school children** and their distribution by comparing enrollment numbers at school level against school aged population.
- **Monitoring the rollout of education programmes** such as digital literacy programmes, as well as their results.
- The Giga team has been quickly supporting COs by providing the data and analysis needed to help direct COVID-19 response. If you would like our support as well, here is a summary of how we can work together and what Giga will provide.

Map of schools in Sierra Leone colored based on their connectivity level

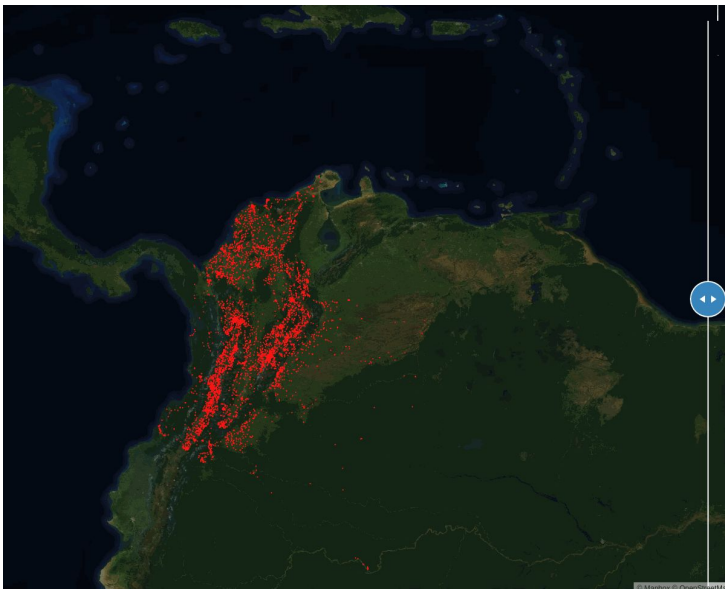
Why mapping?

- **Shows where resources are needed**. Many governments do not know where all of the schools in their countries are. Without that information, they – and other nongovernmental organizations – cannot effectively provide services or deliver resources to children and their communities.
- **Know where there is internet and if it is reliable**. Many governments and organizations are committed to connecting schools to the internet, but don't yet have the ability to monitor whether schools are actually connected and where.
- **Improves access to data for good**. It has been proven that availability and quality of data is considerably higher for wealthier regions. This data inequity leads to disparities in resource allocation, where vulnerable populations are left behind.
- **Highlights gaps in infrastructure**. Without knowing where connectivity needs to be extended, governments and investors don't know how much it will cost, making it more difficult and riskier to finance.
- **Captures market demand**. Because internet service providers aren't able to measure the size of potential new customers, they struggle to make a case for bringing infrastructure to remote areas. This results in limited investment and increased prices.

Why is my region not on the map? We started in 3 regions as prototypes in September 2019 to fine-tune our processes. We now welcome any country and region to join us.

What are some case studies of how countries have benefited from the mapping?

- **Kyrgyzstan:** the government used the mapping to identify schools without access and to negotiate fair market prices to connect the remaining 660, while also bringing down prices nationally. This year, the government of Kyrgyzstan has saved 40% of its annual education connectivity budget ($200k/yr) and school internet speeds have nearly doubled.
- **Sierra Leone:** we worked with the government to map distance from communities to schools and to connectivity and use this to map out-of-school children as well as to identify factors (availability of basic infrastructure at schools, learning materials, teacher training) that impact learning outcomes the most.
- **Colombia:** we applied artificial intelligence techniques to automatically map schools from satellite imagery and provide the government the location of 7,000 schools that were not part of their official datasets.
- **Kenya:** we overlaid the location of schools with other datasets to estimate the cost of extending connectivity to every public primary school in the country. This will help us unlock the necessary funding to bring connectivity to them.



In Colombia, we applied AI techniques into satellite imagery, allowing us to automatically map schools — Through this, we found and provided the government with the location of 7,000 additional schools that were not part of their official data sets.

Is the purpose to map schools in a region or to provide access to the Internet or both?

- The purpose of Project Connect is to map school connectivity globally. This will be the foundational data / analytics platform for Giga, a project that aims to provide access to connectivity to schools.
- Therefore, even if the purpose of Project Connect itself is not to connect schools, it aims to serve as a baseline to identify gaps, aggregate demand for connectivity as well as an accounting tool to monitor progress in the provisioning of connectivity.

If schools are connected but students are not, due to schools being closed, what is the main impact? Giga is about connecting learners (and teachers!). By connecting the school as a focal point, we branch out to secondary (community), tertiary (town, etc.) rings of benefit and value.

What are the data points that we are looking for?

- We are mostly interested in the indicators below - however, any information related to schools is useful.
    1. School name
    2. Geolocation of school (latitude, longitude)
    3. Availability of Internet connectivity (Yes/No)
    4. Availability of electricity (Yes/No)
    5. Speed of Internet connectivity (Mbps)
    6. Type of Internet connectivity (i.e. wireless, fiber, satellite)
    7. Periodical updates of que QoS of Internet connectivity (upload/download speed, latency)
    8. Any additional indicators (number of students, number of teachers)

Do you also have bandwidth per student representation? We can; we have data on the number of students from EMIS, among other data, and this can be derived.

What about data sharing and data privacy?

- Our school mapping work is guided by the core belief that data is a public good. In line with UNICEF's Strategic Framework for Data for Children, we believe that smart demand, supply and use of data drives better results for children. Data has the potential to improve access to critical services and resources for children and their communities. In many cases, these services are found in and provided by schools.
- Giga has developed a data sharing framework centered around three core principles:
    - **Public data gathered with public money creates public goods.** Digital cooperation is a key enabler of Giga's mission and is reflected in the priorities of many organizations, including the recommendations of the Secretary General's High-Level Panel on Digital Cooperation.
    - **School location data is a public good**. The ability to know where education and other foundational resources can be found is a public good, similar to any health center or government building. In most places where data exists, school locations are already shared publicly on sites like Google Maps, 2GIS, and OpenStreetMaps.
    - **Child protection should always be prioritized.** Giga adheres to UNICEF's Child Data Protection Policies and follows the Principles of Responsible Data

for Children. Our maps aim to provide information that can have a positive impact without putting children at risk.

Are you already thinking of a framework/modalities of how this data will be availed to UNICEF programmes and its partners? We have developed a data sharing framework to make sure that the broader community can benefit from it, giving priority to child protection and data privacy. We will also continuously explore synergies across programmes, such as Social Policy for example, on a case by case basis.

Is this school-based only, or can it be envisioned as community-based? Can the focus be on "school community connectivity"?

- We identified, and have been using, the school as a "point" for counting aggregate demand which in turn helps us pool and aggregate financing for public sector connectivity. The school is now the focal point and stepping stone toward connecting its entire surrounding community, including other facilities (health centers, youth centers, etc.), which is the end goal.
- In a sense, we are using the school as a concrete target, a single, countable unit, into which many efforts can direct laser focus.
- Giga is about using schools to identify demand for connectivity (a number of students in a school tells us about a number of people in a community, and that tells us about how much demand there might be). It is also about using schools as an analogy for learning and connecting – which, in their best instances, they have always been – where the community can come together and support its next generation.
- Giga aims to connect communities, starting with schools. We find that schools are a very effective proxy for household demand. They are also a great focus to begin with because of the various funding sources dedicated to education and children. But this does not mean that we do not also seek to connect households in the communities around those schools.

In most cases where there is a school, you find a health facility too, and these complement each other. Are we building synergies on the already existing network of health facilities' connectivity? We are building on existing networks! We are also training our satellite and machine learning systems, not only to recognize schools, but also health centres/facilities.

Is there a model pilot for low device and low electricity infrastructure contexts?

- Resource constraints (electricity, bandwidth, local technical capacity, etc.) are a major challenge in many deployments and we are drawing from a number of prior successful deployments of sustained school connectivity in those situations. As an example, in 60% of the deployments being done in the Philippines through UNDP, the schools are completely off the electrical grid, so that poses unique challenges particularly around designing appropriate service level agreements (SLAs) to ensure robust, high quality service provision.
- The ITU Team has a low infrastructure guidebook as a resource. We are also building procurement/bid models, including some centered around low/no electricity contexts.

Does Giga provide support for hardware, electricity, and service fees?

- Giga evaluates the primary barriers to connectivity in each unique context and works with the country government, private sector, and other stakeholders to bridge the gap. This includes ensuring that connected schools have the required electricity, as well as putting in place sustainable operating models that can manage service fees into the future.
- Giga is technology agnostic, but will support country governments and schools to evaluate hardware options and incorporate the cost of that technology into account when budgeting projects.

Will Giga deploy the digital solutions once there's connectivity?

- Through its engagement with countries, Giga can support needs assessments and support to deploy digital solutions.
- We can provide connections to partners, resources, capacity building, and financing to scale learning solutions. In partnership with the Digital Public Goods Alliance, we can help identify and scale digital solutions and the role of the local ecosystem in developing, scaling and maintaining open source solutions.
- Through a network of partners, we will facilitate the deployment of tele-work, tele-health, tele-education, and financial services at low cost, scale, and adapted to local languages.

Does Giga work with existing Internet Service Providers in-country to build out infrastructure and capacity? Yes, and particularly with local providers.

Are you combining this initiative with technology capacity development for teachers and students? Lack of ICT capacities is an important limitation at country level.

- Giga will support providing digital connectivity to schools and the initiative complements the initiative “Digital Learning For Every Child, Everywhere” from the PD Education team, which will be focusing on developing the right set of skills in teachers & students to leverage the use of connectivity in changing the learning experience.
- We work with PD Education for each situation.

How are you managing the concept of Change Management in connected schools so far, to change leadership, ownership and sustainability? Our colleagues in Education are working to build out teacher training and digital packages.

To what extent are you leveraging already-deployed solutions, e.g. EduTrac, to complement the work that you are doing?

- A lot of data from EduTrac, other EMIS, or EMIS add-ins are helping us 1) crowdsource school locations and 2) gather data around number of children in school, among others.

How will public investment impact private sector investment in connectivity?

- Private sector investment in connectivity is often discouraged due to the high upfront cost of infrastructure and the risk that revenue streams from newly connected regions will not justify the investment, among other reasons. Giga directs public funding in ways that reduce those inhibitors, thereby creating more interesting opportunities for private sector investment. A couple examples of this includes subsidizing capex, making advance market commitments, or subsidizing service fees for consumers.

Giga Regional Updates:

Central Asia (3 countries):

- Kazakhstan’s Vice-Minister of Digital Development signed a partnership to support the development of financing models and tools to connect schools and empower young people.
- Kazakhstan will lead the roll out of the initiative to support digital connectivity in Central Asia.
- Giga Digital Connectivity Center in Astana and regional team to implement the initiative.
- Kazakhstan, Uzbekistan and Kyrgyzstan will be among the first countries to roll-out Giga.
- Other possible countries include Mongolia and Tajikistan.

Africa (5 countries):

- Kenya, Niger, Sierra Leone, Rwanda and Zimbabwe will be implementing Giga to provide affordable digital connectivity to schools; and through Giga Accelerate the first 1,000 schools in each country will be connected by early 2021.
- Rwanda will lead digital cooperation efforts in Africa to connect all schools in the continent by 2030 through Giga.
- Sierra Leone will share their experience in school mapping and lead the Digital Public Goods work in the region.
- Niger received a USD$100 M (50% grant / 50% IDA loan) from WB and will work with Giga to expand connectivity in schools and 2,100 villages.

Eastern Caribbean (9 countries):

- The Organization of Eastern Caribbean States (OECS) will be leading the implementation of Giga in 9 Member States.
- 8 countries in the Eastern Caribbean states (OECS) have completed mapping of their school connectivity and the OECS Commission has agreed to serve as the Giga Lead Organization for the region.
- Launch of the Giga Eastern Caribbean Steering Committee (April) and the Investment and Partnerships Working Group (July).
- The Giga initiative has been presented to regional Ministries of Education to support the Digital Education model in the Caribbean

Latin America (3 countries):

- El Salvador will develop a real-time monitoring tool for connectivity and a new financial model to invest in a national telecom company based on a public-private collaboration.
- Honduras, with support from an IDB loan, will develop a digital connectivity bond using their Universal Service Fund as a guarantee
- Colombia will be developing a real-time monitoring tool to assess the quality of service that schools receive.
- In conversations with Guatemala, Ecuador and Argentina

Giga Team Contacts

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