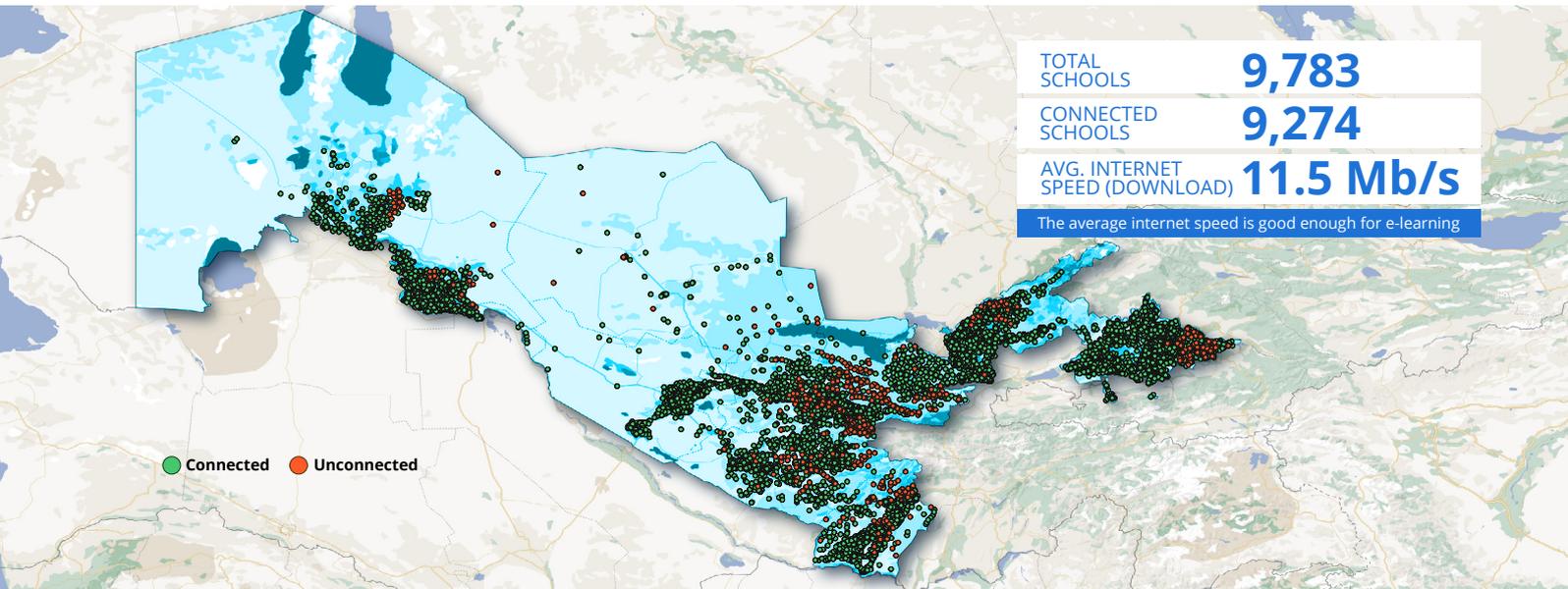


September 2022

Sustainable School Connectivity in Uzbekistan

TRANSFORMING SCHOOLS INTO COMMUNITY INTERNET HUBS



Uzbekistan connectivity map, August 2022

Introduction

The cost to close the digital divide is significant and perpetual in nature. Beyond the initial capital expenditure required to connect a school, hospital or other public institution to the internet, internet access involves ongoing operating expenses, including monthly service fees, maintenance fees and electricity costs. These ongoing expenses represent a challenge to federal and municipal governments as they are often new budget line items.

To help governments defray the ongoing costs of connectivity, Giga is prototyping innovative, sustainable models which will serve as proofs of concept and can be scaled up at a regional or national scale. In Uzbekistan, Giga and the Ministry of Education pioneered a successful “schools as a hub” model that both extends connectivity to the community immediately surrounding schools and generates revenue to fully offset the cost of connecting local schools.

In 2020, Uzbekistan became part of Giga, the global UNICEF-ITU initiative to connect every school to the Internet, to enable every young person to access information, opportunity, and choice. Since joining the

initiative, Giga has worked alongside the government to improve internet access and affordability, focusing its effort to connect the hardest-to-reach schools in Uzbekistan.

Throughout the engagement, Giga has explored innovative technologies and financing constructs to ensure affordability and sustainability. In collaboration with the government, Giga launched a local competitive bidding process calling for commercial solutions to connect the most difficult to reach schools in the country and developed a model that also extends the benefits of connectivity to the surrounding community.

CASE STUDY

Uzbekistan Schools as Connectivity Hubs

Background

Uzbekistan has made school connectivity a national priority. In September 2018, President Mirziyoyev's Resolution #PD-3931 established new management principles for the public education system, among them the provision of broadband internet access with speeds of at least 10 Mbps to every school in the country. Since then, Uztelecom has invested in over 24,500km of backbone fiber to significantly increase coverage, and the government is working towards an ambitious target of 277,000km of backbone fiber. To date, Uztelecom has provided fiber-optic connections to more than 78% of educational institutions and most of them are connected to the internet. Despite this improvement in access rates, the country continues to face challenges. Uzbekistan currently ranks 85th out of 100 countries in terms of the affordability of an internet connection.

UTILIZING SCHOOLS AS CONNECTIVITY HUBS

To advance the government's school connectivity initiative, Giga canvassed the market for technology solutions, ultimately partnering with a local provider, to prototype a sustainable, "self-sufficient" commercial model for school connectivity. In August 2022, Giga, the government, and the local provider began implementing a scalable solution in which schools act as "connectivity hubs" and redistribute internet access to households, businesses and other institutions within a 5-kilometer radius.

Giga invested in the installation and set-up of equipment for schools, which were connected to existing fiber backbone. The equipment redistributes available bandwidth to the community using a point-to-multi-point ("PTMP") fixed wireless solution.

The local provider is responsible for implementing the PTMP solution at schools, developing a competitive pricing scheme for the surrounding community and committed to enrolling a minimum number of new households per school by the end of the first year of operation.

ESTABLISHING THE MODEL

The diagram overleaf illustrates the key steps to achieve the "school-as-a-hub" model.

■ Identify a Partner and Define Responsibilities

Select a functional technology and local partner. In Uzbekistan, the ISP will commercialize the solution by selling to subscribers (unconnected households, businesses, and public institutions), installing the equipment, providing servicing, and collecting payments.

■ Forecast Project Performance and Determine Revenue-Expense Sharing

Agree with the ISP on how expenses and revenue will be shared. In Uzbekistan, Giga funded upfront installation costs whereas the local partner is responsible for ongoing expenses. The school receives a 50-50 profit share up to a cap.

■ Establish a Process for Reinvestment

If revenue is expected to exceed a school's operating expenses, establish a channel and process for reinvestment. In Uzbekistan, under a separate contract, profit is directed to the Ministry of Education to connect more schools.

TRANSFORMING SCHOOLS INTO COMMUNITY INTERNET HUBS

1

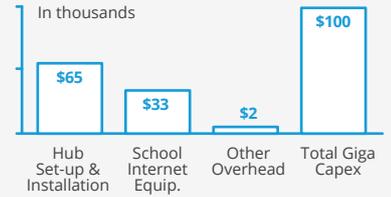
ESTABLISHED A JOINT VENTURE WITH A LOCAL TELCO PLAYER AND THE GOVERNMENT



50/50 Profit sharing



Giga only pays capex and no annual opex. Giga's profits are directed to MoE



2

PROFIT SHARING FOR SUBSCRIPTIONS AND NO ONGOING COSTS FOR GIGA



Connectivity for the school



School acts like a hub, the ISP sells bandwidth to subscribers using the school infrastructure to redistribute it

Profit sharing agreement for the first 500 paid subscribers



3

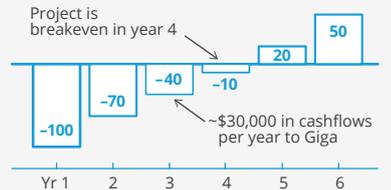
CASH FLOWS GENERATED ARE RECYCLED INTO OTHER SCHOOL-RELATED PROJECTS



Cash flows composed of:



Profit sharing starts from 500 households in surrounding community (year 1)



REINVESTMENT AND SCALING UP IMPACT

The primary objective of the school-as-a-hub model is to offset a school's ongoing operating expenses. However, in many instances, the model produces excess funds that can connect additional schools to the internet or be used in other impactful ways. In Uzbekistan, the government has been thoughtful and intentional in determining how excess funds will be used, identifying three areas for incremental investment:

- Connecting additional schools that can then redistribute connectivity to unconnected households;
- Subsidizing connectivity to disadvantaged households with children in need;

Improving connectivity in schools that require more access points for better coverage and additional bandwidth to support usage.

CONCLUSION

Schools are anchors for community interaction; they serve not only as a place where learners can connect with each other and with teachers, but also as a destination where people meet and engage in social activity. By design, schools are population hotspots. Giga is exploring how they can also become hubs for high-speed connectivity and provide valuable services that ultimately empower communities.

FROM SCHOOLS TO COMMUNITIES

Schools are often the centre of communities. Giga hopes to explore sustainable models to use the school as a hub to connect people in the local community. Any increases in community connectivity will support the Government's goal to connect all villages to high-speed internet.



1
School

3,833
Schools



694
Students & Teachers

2.7M
Students & Teachers



1,609
Local community members within 1km

6.2M
Local community members within 1km