CASE STUDY: CONNECTING EVERY SCHOOL IN THE WORLD TO THE INTERNET

24

Simon Wells, UNICEF
Samantha O'Riordan, ITU

ABSTRACT

Connecting schools can benefit whole communities by aggregating demand, consolidating service delivery and controlling costs. But a huge gap exists between developed countries, where almost all schools are connected, and developing countries which have much lower school connection rates. This case study draws on the evidence generated through Giga, an initiative that works to map unconnected schools and connect them to the Internet. It highlights that sustainable connectivity for schools requires government commitment to enabling strategies, and innovative approaches to mobilise funding among governments and development co-operation actors.

Key messages

- Connecting schools to the internet benefits students and educators, and can spread connectivity locally in a cost-effective way, giving access to economic opportunities and digital public services.
- Development co-operation can support connecting the 2.8 million schools still without Internet access by mobilising initial financing to catalyse return-seeking investment as markets mature.

Internet connectivity drives access to information, opportunity, choice, economic development and community well-being. Equitable access to connectivity underlies the UN Sustainable Development Goals, particularly regarding gender and income equity, quality education, economic growth and jobs, and sustainable cities and communities. A recent report by the Economist Intelligence Unit (2021[1]) found that a 10% increase in school connectivity could contribute 1.1% to GDP per capita and 0.6% to effective years of schooling.

In schools, affordable digital infrastructure and access to devices enables new learning opportunities that complement and enrich in-person education. Hybrid, blended and online options can democratize access and make high-quality education accessible for all (Broadband Commission for Sustainable Development, 2020[2]). These new types of learning also give students greater flexibility regarding when, where and how to engage with learning, and provide valuable information to teachers and parents to better support face-to-face instruction.

But while over 97% of secondary schools have Internet access in North America and Western Europe, that figure is around 35% in least-developed countries (LDCs) (UNESCO, n.d.[3]). This creates a digital divide between those who are online and those who are not, a gap that widened during the COVID-19 pandemic.

Connecting schools and empowering whole communities

In 2019, the United Nations Children's Fund (UNICEF) and International Telecommunication Union (ITU) launched Giga, an initiative to connect every school in the world to the Internet. Giga leverages UNICEF's global reach and expertise in addressing issues that face children and young people, and ITU's experience and track record in developing telecommunication regulation, policy and best practices. Giga is also part of Reimagine Education, a broader global initiative which aims to connect every child and young person – some 3.5 billion – to world-class digital learning solutions by 2030. Focusing on school connectivity defines Giga's objectives, needs, and partners in ministries of information technology and education, among others.

Over 97% of secondary schools have Internet access in North America and Western Europe, that figure is around 35% in least-developed countries

Connectivity turns schools into anchor points for their surrounding communities. The equipment placed in schools provides a resource for teachers and students, and for surrounding communities outside of school hours. It facilitates access to digital public services, enables local entrepreneurship, provides access to online banking, improves information channels for emergencies or pandemics, and opens doors for employment through digital platforms and the gig economy. Meanwhile, the school-based approach offers a clear basis for calculating costs. Once a school receives connectivity, the relative cost to connect other facilities and homes nearby is nominal. This creates

opportunities for service providers to generate revenue from paying users, making connectivity more sustainable.

Giga maps school connectivity in 41 countries (and growing). It uses real-time, actual-use data, enables customised and innovative financing models, such as capitalising on bundled or off-hours capacity, and supports governments in procuring school connectivity. Because open data attracts both the private sector and government, the mapping (UNICEF, n.d.[4]) offers location and connectivity data licensed under Creative Commons (CC BY 4.0). Using Giga, governments can link payment of contracts to actual data use by schools, creating transparency and accounting accuracy not usually available in infrastructure work. This ensures competitive markets, reduces the advantages held by monopolies and existing players, and brings down prices for end users.

Several governments have overcome bottlenecks and made substantial cost-savings thanks to the initiative. Seeing all schools and their connectivity on a map allowed the Government of Kyrgyzstan renegotiate contracts to double speeds (from 2Mbps to 4Mbps) and reduce prices from USD 50 per month to USD 28.5 per month, saving 40% (USD 200 000 per year) of its education connectivity budget (Giga, 2020[5]). In Colombia, artificial intelligence techniques automatically mapped schools from satellite imagery to identify and locate 7 000 schools that were not part of official datasets (Giga, 2021[6]).

Criteria and creative financing for the road ahead

Giga has mapped 1 million schools and connected over 3 000 of them across four continents. The initiative also prototypes test solutions around the world, including in refugee camps and remote, mountainous regions.

But an estimated 2.8 million schools have yet to be connected. In order to join the initiative, national governments must meet certain criteria and commitments to join the initiative:

- Political support at the highest level and co-ordination across sectors between relevant agencies and ministries
- National broadband and digital education strategies, or policies that encourage the development of broadband infrastructure, school connectivity and digital skills for all
- Regulation conducive to the development of high-quality, technologically neutral networks through competition in ICT markets, market access for national and foreign players, and tax incentives
- Willingness to collect, make available and publicly share data on school location and classes (number of students, etc.), infrastructure, projects and network coverage
- Openness to varied investment and financial models and public-private partnerships to expand connectivity, in particular through Universal Service Funds or other dedicated funding mechanisms
- Commitment to equitable, universal connectivity, with emphasis on marginalised groups, including people in underserved places, women and girls, individuals with disabilities and others

An estimated USD 428 billion is needed to connect the still unconnected world to the internet. Much of that amount would offer returns for investors, but catalysing the initial investment is a challenge. To do so, Giga proposes to issue a bond for around 1% of the total amount (USD 5 billion), backed by highly-rated donor governments and private foundations with multi-year grant commitments of USD 300-500 million each, payable over five to ten years.

The bond would be one layer – the "glue" – of a blended finance approach for school connectivity. Other products and instruments include multilateral connectivity bonds, infrastructure securities and private institutional direct investment. Several of these instruments are currently being designed, prototyped and implemented in Giga partner countries.

REFERENCES

Broadband Commission for Sustainable Development (2020), *Connecting Learning Spaces: Possibilities for hybrid learning*, International Telecommunications Union, Geneva, https://broadbandcommission.org/publication/connecting-learning-spaces/? (accessed on 16 November 2021). [2]

Giga (2021), *Giga and Mapbox come together to map schools across the globe*, https://gigaconnect.org/giga-and-mapbox-map-schools/. [6]

Giga (2020), *Kyrgyzstan website*, https://gigaconnect.org/kyrgyzstan/ (accessed on 16 November 2021). [5]

Giga (2019), *Rwanda website*, https://gigaconnect.org/rwanda/ (accessed on 16 November 2021). [7]

The Economist Intelligence Unit (2021), *Connecting learners: Narrowing the educational divide*, The Economist Group, London, https://connectinglearners.economist.com/connecting-learners/ (accessed on 16 November 2021). [1]

UNESCO (n.d.), *UIS Statistics database*, http://data.uis.unesco.org/#. (accessed on 16 November 2021). [3]

UNICEF (n.d.), *Project Connect website*, https://projectconnect.unicef.org/map. [4]

From:

Development Co-operation Report 2021

Shaping a Just Digital Transformation

Access the complete publication at:
https://doi.org/10.1787/ce08832f-en

Please cite this chapter as:

Wells, Simon and Samantha O'Riordan (2021), "Case study: Connecting every school in the world to the Internet", in OECD, *Development Co-operation Report 2021: Shaping a Just Digital Transformation*, OECD Publishing, Paris.

DOI: https://doi.org/10.1787/8f4fc9ae-en

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. Extracts from publications may be subject to additional disclaimers, which are set out in the complete version of the publication, available at the link provided.

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at http://www.oecd.org/termsandconditions.