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BRIDGING THE DIGITAL DIVIDE

Expanding Giga's Global Reach: Country-Level Strategies for Scaling School Connectivity

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Geneva Research Lab for Digital Impact

The **Geneva Research Lab for Digital Impact (GRL),** a joint initiative of the University of Geneva's Competence Center for Innovation & Partnerships and UNICEF's Digital Impact Division, bridges evidence and action to accelerate connectivity and digital impact efforts through cutting-edge research, innovative learning, and global multi-stakeholder collaboration.

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Expanding Giga's Global Reach

The global digital divide continues to limit educational opportunity for millions of children worldwide. While Giga - a partnership between the United Nations Children Fund (UNICEF) and the International Telecommunication Union (ITU) - has made significant progress in mapping schools, catalyzing investment, and enabling connectivity across more than 140 countries, large regions remain underserved, requiring tailored strategies to accelerate inclusion. As Giga enters its next phase of growth, expanding its footprint into new countries is essential to achieving its mission of connecting every school to the internet.

Since its launch in 2019, Giga has combined satellite mapping, real-time connectivity diagnostics, innovative financing and procurement models, and public-private partnerships to create the foundations for national connectivity strategies. With over **2 million schools**[1] mapped and **11 million students**[1] connected through partner efforts, the initiative is demonstrating that affordable school connectivity can be achieved at scale. Giga's impact to date has been concentrated primarily in **Eastern Europe, Central Asia, Latin America and the Caribbean, and Sub-Saharan Africa** [2].

To close the global digital divide, the initiative is now set to expand to new countries where demographic pressures, decentralized governance environments, and uneven infrastructure require new models of engagement and adaptation.

This report contributes to that expansion. Developed as part of the Global Strategy course of the Master in Responsible Management programme at the University of Geneva, it examines how Giga can adopt context-sensitive approaches in a set of prospective countries across South Asia, Southeast Asia, North Africa, and Sub-Saharan Africa. Working in teams, students conducted country-level analyses to identify national priorities, institutional landscapes, regulatory constraints, and key ecosystem actors.

The resulting strategies, summarized in this report, propose actionable pathways for Giga to expand its operations, strengthen partnerships, adapt its value proposition, and build scalable models aligned with local development agendas.

[1] https://giga.global
[2] https://giga.global/what-we-do/where-we-work/

Much like the work presented in **"Geneva's Blueprint for Global Connectivity: The Case of Giga"**[3], this project underscores the importance of embedding Giga's mission within broader institutional ecosystems.

However, while the 2024 report examined how Giga can leverage Geneva as a global hub to manage growth, the present study looks outward - toward the countries where Giga must next deploy its tools, partnerships, and capabilities. The recommendations address not only technical solutions, but also governance realities, stakeholder perceptions, and socio-economic constraints that influence national implementation.

By integrating strategic insights from diverse national contexts, this report aims to support Giga's efforts to broaden its global presence, strengthen its country strategies, and advance toward the goal of universal school connectivity.

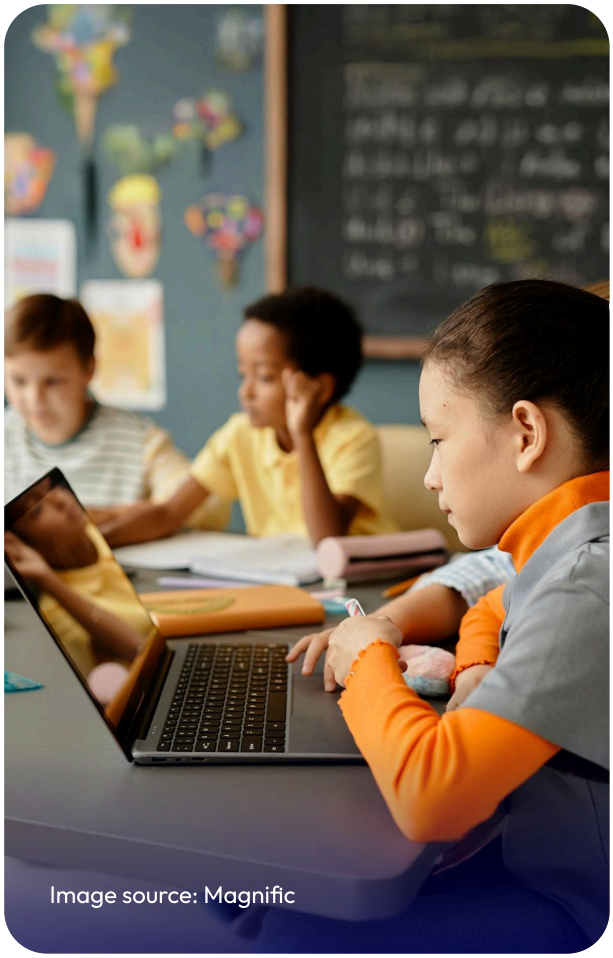
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Image source: Magnific

[3] Tina Ambos, Lisa Canova, Ane Casajús-Burutaran, and Nurevsan Kaygisiz Year: 2024
Link to the report: https://www.unige.ch/gsem/files/6317/2908/7704/GIGA_White_Paper_v4.pdf

Country-Level Strategies for Scaling Connectivity: Student Challenge

As part of the Global Strategy course taught by Prof. Dr. Tina Ambos at the University of Geneva, master's students collaborated with Giga to explore how to accelerate progress toward connecting every school in the world to the internet. Over the semester, student teams analyzed the implementation challenges and strategic opportunities facing Giga across a diverse set of prospective countries, specifically Egypt, Türkiye, Ethiopia, Ivory Coast, Pakistan, India, Indonesia, Thailand, and Bolivia. Each group developed an actionable proposal for how Giga could advance its mission at the country level by tailoring its strategy to national priorities, governance structures, market conditions, and stakeholder dynamics. Teams engaged directly with Giga staff, accessed real-world reports and datasets, and iteratively refined their recommendations.

In June 2025, the students presented their work on the margins of **"Bridging the Digital Divide"** co-organized by the Geneva Research Lab for Digital Impact (GRL), the Geneva Innovation Movement Association, and UNICEF's Digital Impact Division that brought together experts from across sectors to discuss the future of school connectivity. Their presentations contributed to broader discussions on how Giga might approach engagement in new contexts.

Beyond contributing to sector-wide dialogue, the project strengthened students' understanding of the conditions required for effective multi-stakeholder collaboration in digital development initiatives.

The following sections synthesize the key challenges, cross-cutting solutions, context-specific strategies, and broader lessons emerging from the collective work of the cohort.

> This project taught me how multi-stakeholder efforts rely on alignment, clarity, and strong implementation mechanisms to overcome systemic barriers. Seeing how these elements shape outcomes motivated me to further develop my skills in strategic analysis and digital development.
>
> **Iraj Nayebkhil,**
> **MSc Student**

Ivory Coast

Stakeholder Mapping Example

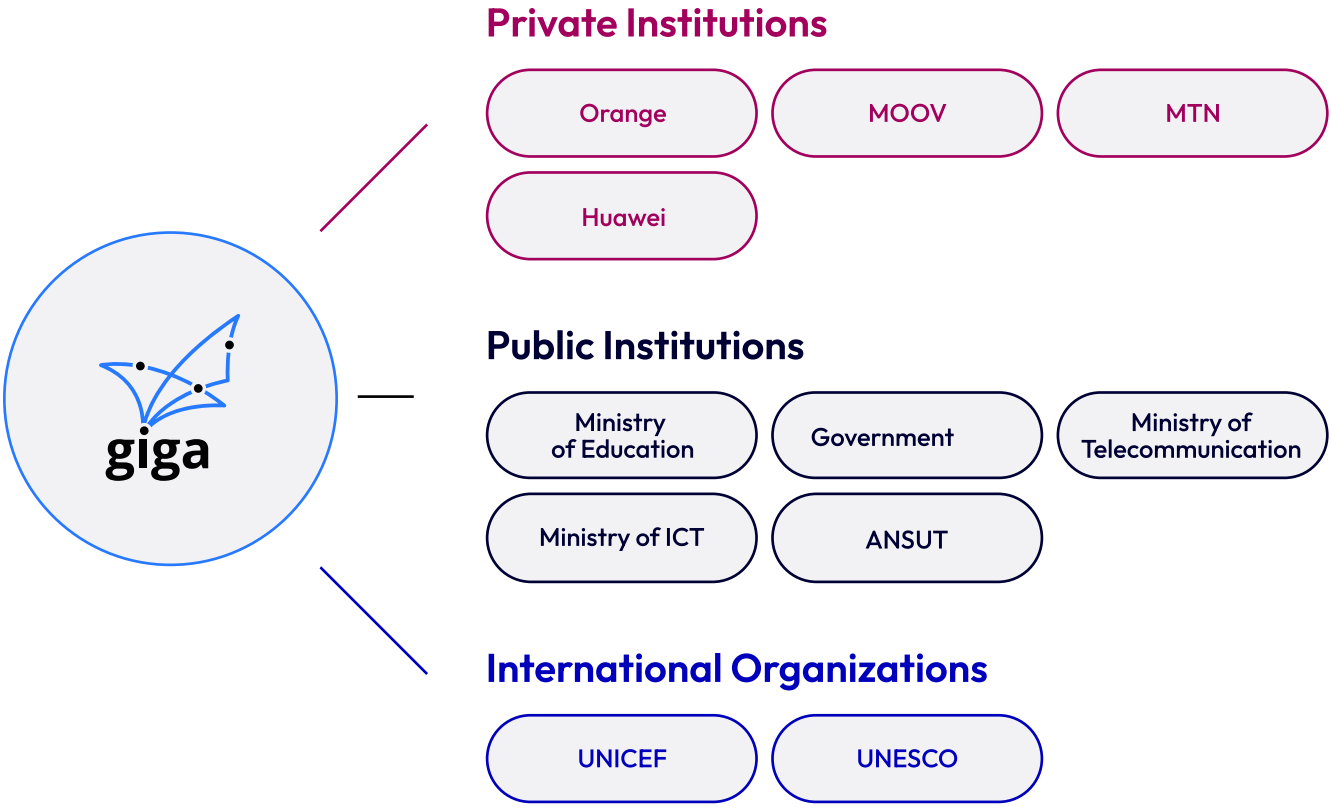


Figure 1. Stakeholder Mapping, Ivory Coast: Mapping of key stakeholders involved in the Giga initiative in Ivory Coast, illustrating the relationships and roles of public, private, and civil society actors across the connectivity ecosystem.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

Common Challenges Across Countries

Across all countries analyzed, students identified three broad categories of challenges that shape the implementation of school connectivity initiatives:

1. National development gaps and the digital divide
2. Structural and governance obstacles
3. Takeholder-related challenges

National Development Gaps & the Digital Divide

Rural–urban disparities remain a dominant barrier across contexts. Underserved rural schools typically face limited or unreliable electricity access, chronic underfunding of basic infrastructure, shortages of learning devices, gaps in teachers' digital literacy, and broader socio-economic inequalities such as youth unemployment and rural poverty.

In some contexts, gender disparities and cultural norms further constrain girls' access to technology and learning opportunities. These divides are inseparable from deeper structural inequities in national education systems.

Structural & Governance Obstacles

Governance systems significantly influence Giga's potential pathways:

- Decentralized systems complicate coordination across ministries and levels of government
- Frequent political turnovers disrupt continuity and long-term planning
- Regulatory barriers and rigid procurement systems slow infrastructure investments and hamper digital innovation
- Fragmented institutional landscapes make it unclear who "owns" the digital education agenda

Even with political will, these structural realities often limit the pace of implementation.

Stakeholder-Related Challenges

Perception, trust and collaboration have a critical role to play:

- In some contexts, skepticism toward international organizations complicates partnership-building with government actors
- Ministries often operate in silos, reducing the coherence of national digital strategies
- Engagement of local actors, such as schools, communities and local ISPs, remains too limited in many cases
- The absence of structured platforms for sustained engagement and partnership with private sector actors further constrains coordinated implementation

These patterns underscore the need for careful stakeholder analysis, co-creation, and relationship-building as a precondition for implementation.

> Standardized engagement frameworks are only effective when they are adapted to reflect a country's specific institutional, political, and cultural context. This experience not only deepened my understanding of systems-level change but also inspired me to continue my journey with Giga.
>
> **Efe Elmas,**
> **MSc Student**

Master students conclude their final presentations on Giga's country engagement strategies.
(Photo: Geneva Research Lab for Digital Impact)

Indonesia

Challenges in Connecting Schools

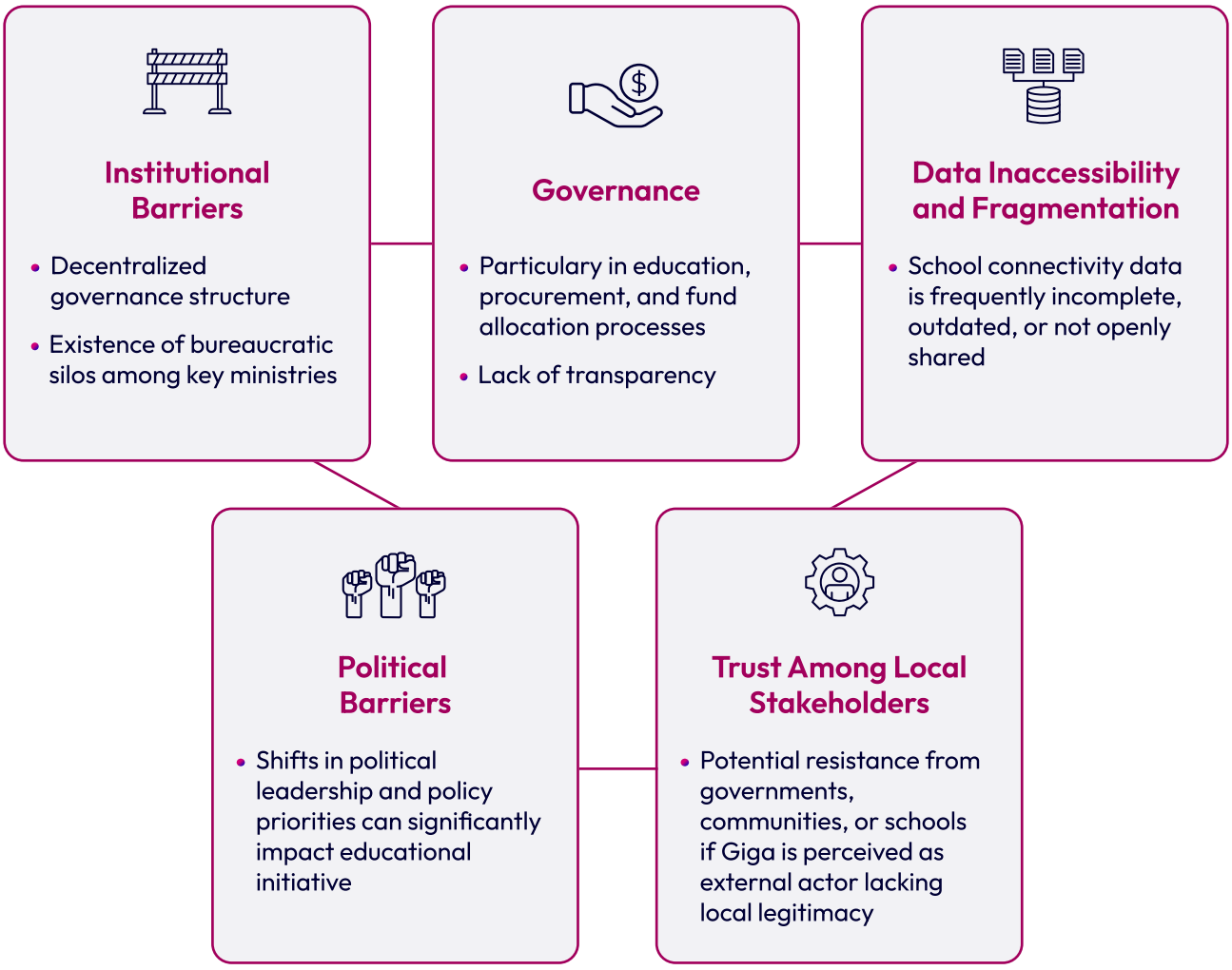
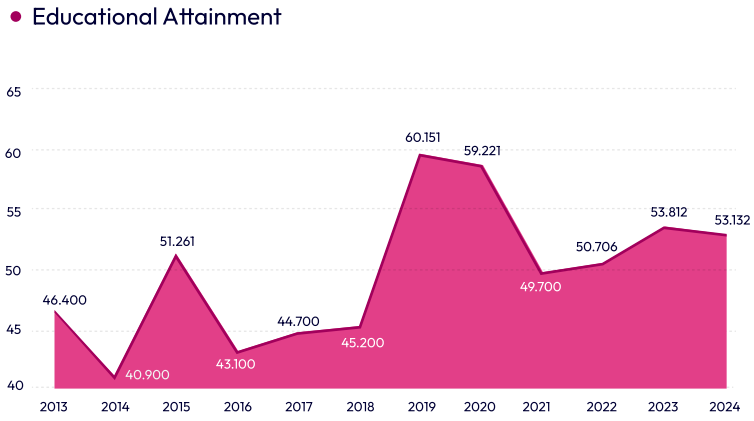


Figure 2. Challenges in Connecting Schools: Overview of the principal barriers encountered in extending internet connectivity to schools, spanning infrastructural, financial, regulatory, and geographic dimensions.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

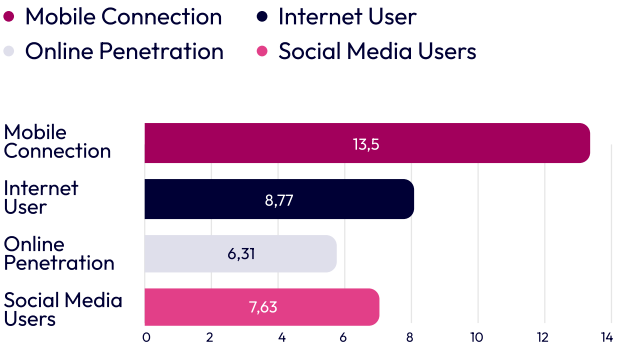
Bolivia

Country Landscape

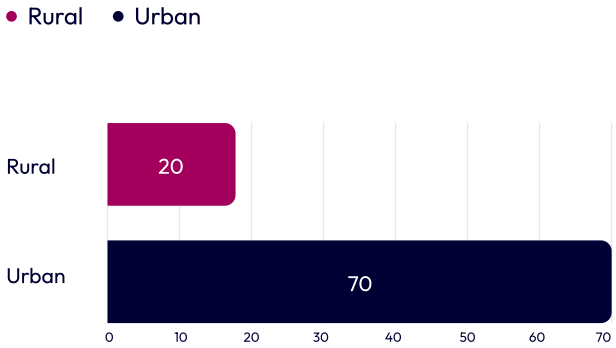
1. Bolivia occupies one of the last places in Latin America in terms of educational performance, according to an international ranking made by UNESCO in the region
2. Students from indigenous populations have disadvantages compared to rest of the student body
3. In 2020 - Direct fiber optic connection to the Pacific Ocean through an agreement with Peru



CEIC Data World Bank



Internet Access by Percentage



Internet Access by Percentage

Figure 3. Country Landscape Analysis, Bolivia: Situational analysis of Bolivia's national context as it relates to school connectivity, encompassing political, economic, social, and technological factors shaping the implementation of the Giga initiative.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

Proposed Solutions: Cross-Cutting Strategies

Student teams converged around a dual approach to solutions design: 1) cross-cutting, foundational strategies that apply across most countries and form the basis for national implementation, and 2) context-specific strategies tailored to each country's political, institutional, and infrastructural conditions. This approach enabled teams to design proposals that are both globally consistent and locally grounded, reflecting Giga's hybrid nature as a global initiative operating through national ecosystems.

Cross-Cutting Strategies

Five core strategic imperatives emerged across the country analyses.

Adopt an Ecosystem-Oriented Approach

Teams emphasized the need for a multi-actor ecosystem that includes:

- **Core partners:** Ministry of Education, Ministry of ICT, UNICEF Country Offices
- **Essential actors:** telecommunications regulators, finance ministries, digital agencies
- **Supporting actors:** private ISPs, development banks, local governments, and civil society organizations

Engaging these stakeholders early ensures alignment of priorities and lays the groundwork for long-term collaboration.

Tailor Giga's Value Proposition to National Priorities

Successful implementation requires showing how Giga advances local goals such as expanding broadband infrastructure, improving education outcomes, accelerating national digital transformation, enhancing public sector innovation, and reducing rural–urban inequalities. Teams highlighted the importance of positioning Giga not as an external intervention, but as a strategic enabler of national agendas.

Strengthen Cross-Ministerial Coordination

Given the multi-sector nature of school connectivity, coordination mechanisms such as national taskforces, joint roadmaps between ICT and education, integrated implementation committees, and shared monitoring systems are essential, particularly in decentralized or fragmented systems.

Foster Public–Private Partnerships (PPPs)

PPPs bringing together actors such as local ISPs and mobile operators, state-owned telecom enti-ties, development finance institutions, and infrastructure investment funds, emerged as critical for both financing and technical deployment. The emphasis lies in leveraging private sector capacity while ensuring equitable and inclusive access.

Build Pilots for Learning and Scaling

Teams emphasized the importance of building evidence-driven pilots before national rollout, using them to demonstrate impact, strengthen political will, test procurement or contracting models, and create replicable templates for scaling. Pilots serve as practical proof points to secure support from ministries and donors alike.

Spark an Idea Board
(Photo: Marc Bader)

Egypt

Giga Ecosystem Example

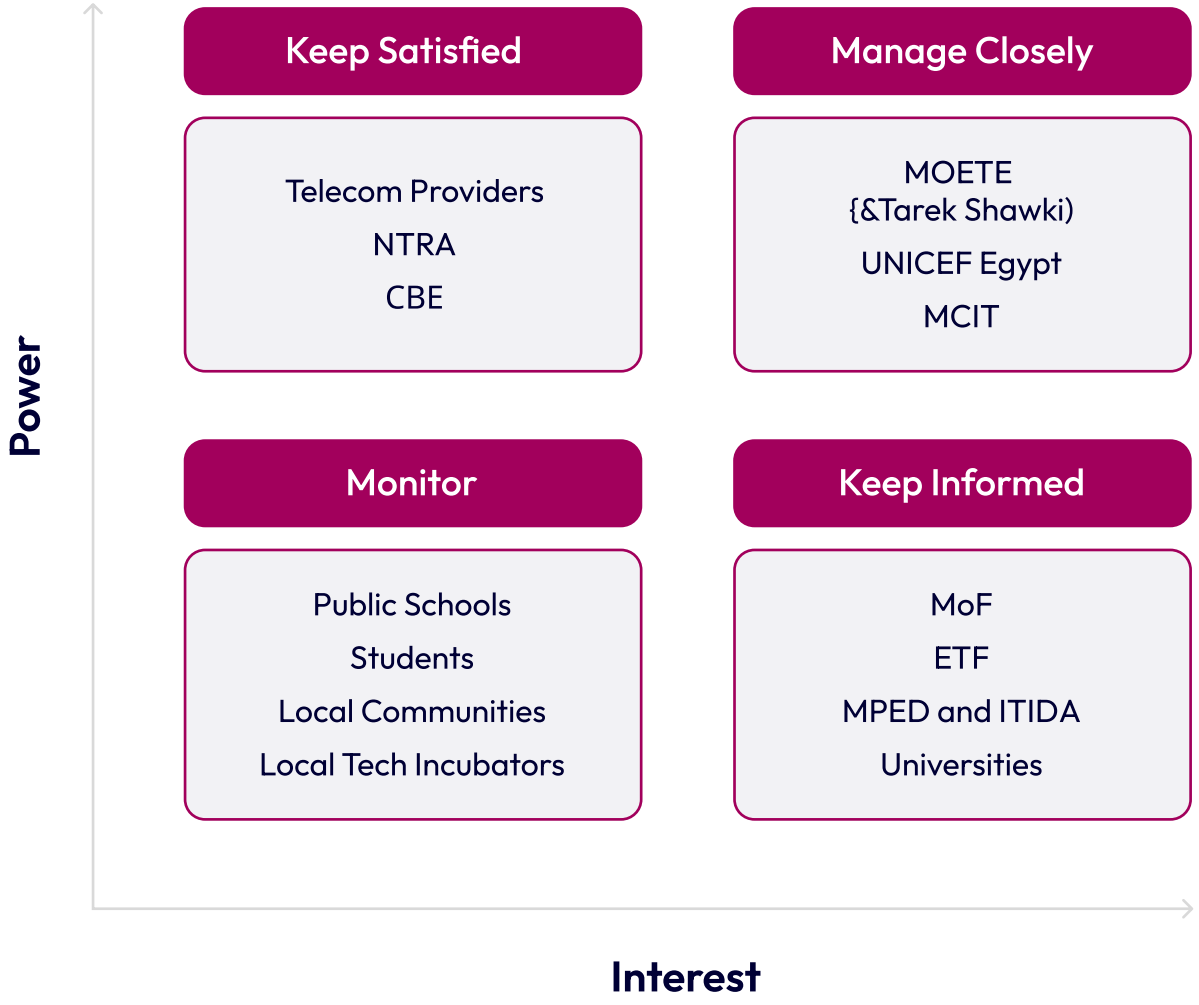


Figure 4. Giga Ecosystem, Egypt: Illustrative mapping of the Giga ecosystem in Egypt, depicting the network of partners, institutions, and tools mobilized to advance school connectivity at the national level.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

Ethiopia

Value Propositions

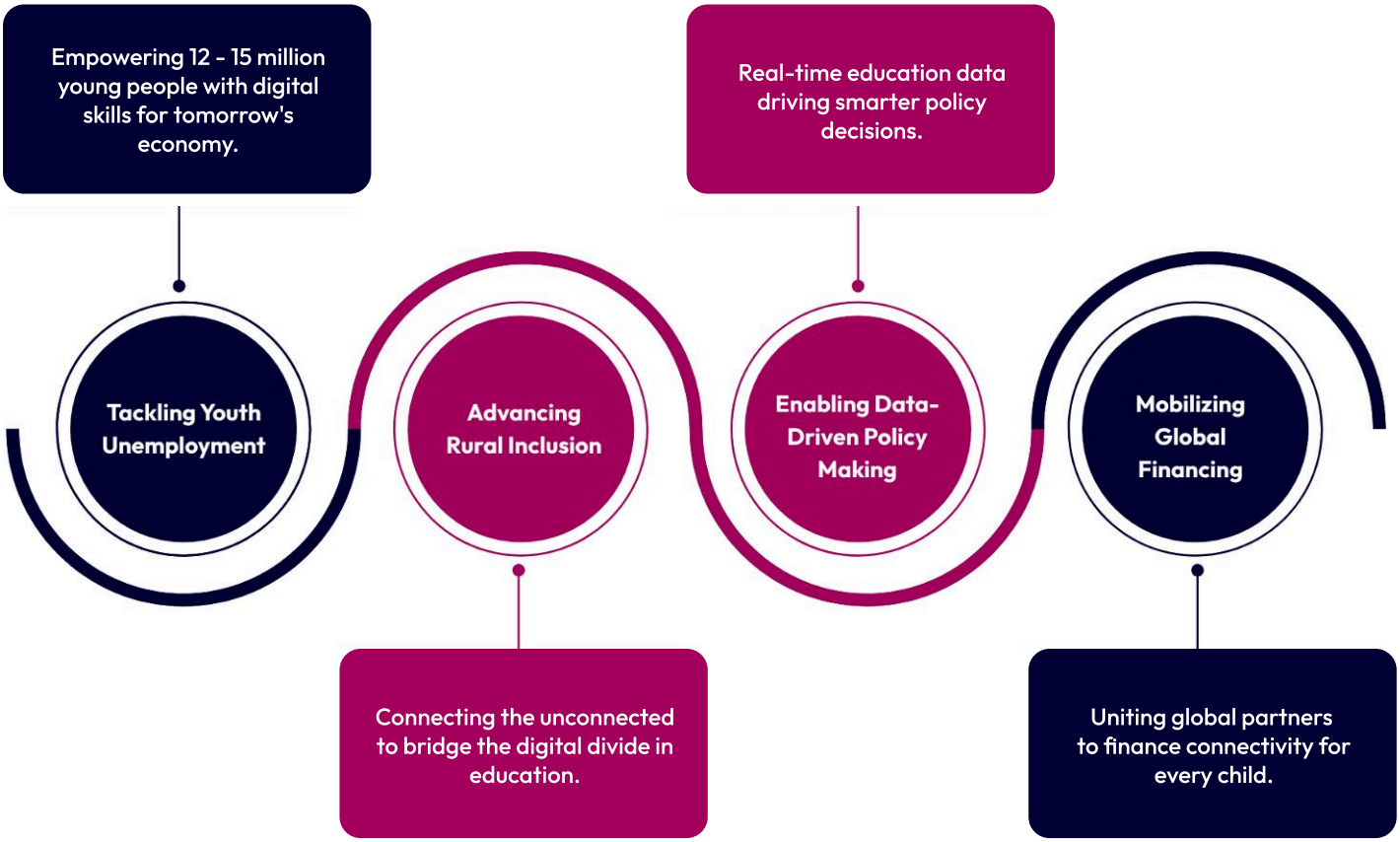


Figure 5. Value Propositions, Ethiopia: Summary of the value propositions developed for key stakeholders in Ethiopia, articulating the strategic benefits of school connectivity for government, communities, and the private sector.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

Proposed Solutions: Context-Specific Approaches

While cross-cutting strategies were applicable across all the countries explored, students also proposed recommendations tailored to specific institutional and infrastructural contexts.

Decentralized Countries: Localized Pilots and State-Level Engagement

In decentralized settings, teams recommended beginning implementation with high-capacity states or provinces to generate early successes. Strengthening partnerships at the subnational level, working through existing digital missions or education programs, and developing scalable models, allows Giga to adapt to local conditions and demonstrate feasibility.

Leveraging State-Owned Telecoms

Student teams highlighted the strategic importance of engaging strong state-owned telecommunications companies, leveraging their existing infrastructure and technical expertise. These actors can support connectivity in underserved or high-cost regions and ensure alignment between school connectivity and national telecommunication strategies.

Engaging Non-Education Ministeries

Students emphasized the value of engaging ministries beyond education, as school connectivity reinforces broader national development goals. Aligning Giga's efforts with ministries responsible for rural development, economic planning, or youth employment can unlock additional funding and embed connectivity within long-term policy agendas.

Ivory Coast

Beyond Educational Goals

Improve Access to Health Information

- Schools = information relays for public health campaigns
- Reaching rural areas without health centres
- Examples: vaccination, menstrual hygiene, HIV/Malaria prevention

UNICEF, Ministery of Education, Ministry of Health

Strengthen Social Cohesion and Digital Citizenship

- Inclusion of girls, children with disabilities, ethnic minorities
- Adapted content and awareness of specific needs
- Development of digital citizenship skills

Ministry of ICT, Orange, MOOV, ANSUT

Child Protection, Combating Violence and Territorial Inequalities

- Schools as emergency communication hubs in sensitive areas
- Platforms such as U-Report or Yoma for reporting violence
- Reducing isolation in underserved regions

UNICEF, Government, Ministry of Women, Family, and Children

Figure 6. Beyond Educational Goals, Ivory Coast: Exploration of the broader socioeconomic and developmental impacts of school connectivity in Ivory Coast, extending beyond educational outcomes to encompass community resilience, economic inclusion, and digital equity.
Source: Masters Course in Global Strategy (2025). University of Geneva, Geneva School of Economics and Management.

Implications for Giga's Expansion and the Road Ahead

The analyses conducted by the student teams reinforce a central insight: school con-nectivity is far more than a technological intervention; it is a catalyst for social and economic development. When schools gain access to reliable internet, countries unlock pathways to digital literacy, improved learn-ing outcomes, greater gender equity, in-creased youth employment and entrepre-neurship, strengthened community empow-erment, and enhanced national competitive-ness.

Realizing this potential requires strategies that extend beyond technology deployment. Effective and sustainable school connectivity depends on balancing technical feasibility with institutional alignment, building trust among national actors and designing delivery models capable of scaling over time. Alt-hough the countries examined in this report are prospective rather than active Giga part-ners, the students' analyses underscore that meaningful progress in such environments depends not only on infrastructure, but also on governance structures, political dynam-ics, and the maturity of local ecosystems. The recommendations developed through this exercise therefore illustrate both the oppor-tunities and the constraints Giga may en-counter as it considers expansion into new contexts. They offer an early, exploratory understanding of how Giga's global tools and frameworks could be adapted to diverse in-stitutional realities.

Ultimately, the insights converge around a shared belief: connecting schools is not only achievable, it is transformative. With the right partnerships, targeted strategies, and a commitment to context-driven engagement, Giga is well positioned to continue advancing toward a world in which **"every young person has access to information, opportunity, and choice."**

As Giga continues to grow, the next phase of its journey will require shifting from early pilots and regional engagements to a more systematic and scalable approach for entering new countries and regions. The findings of this report highlight two complementary priorities for the road ahead: first, developing robust country-engagement frameworks that enable Giga to assess national readiness, tailor its value proposition, and align with local development agendas; and second, building scalable delivery models by transforming existing pilots, procurement mechanisms, financing approaches, and technical tools into replicable frameworks that can be adapted to diverse institutional environments. With its expanding data infrastructure, global networks, and increasing interest from governments, Giga stands at a pivotal moment. By combining strategic focus with adaptive, context-sensitive engagement, the initiative can continue to catalyze meaningful change at a national scale and move the world closer to a future where every school - and every child - is connected.

Bridging the Digital Divide: Cross-Sector insights for scaling school connectivity

In June 2025, the Geneva Research Lab for Digital Impact (then known as the Giga Research Lab) - together with Giga and the Geneva Innovation Movement - hosted "Bridging the Digital Divide: Cross-Sector Insights for Scaling School Connectivity" at the Giga Connectivity Centre at Campus Biotech in Geneva. As the inaugural event of the newly established Geneva Research Lab for Digital Impact, it convened leaders from government, international organizations, academia, and the private sector to discuss how innovation and collaboration can accelerate global efforts to connect every school to the internet by 2030.

The programme opened with a brief presentation by master's students from the University of Geneva, who shared highlights from their analyses of prospective country engagement strategies. This was followed by a cross-sector panel moderated by Prof. Dr. Tina Ambos, featuring invited speakers including H.E. Julia Imene-Chanduru (Ambassador, Permanent) Mission of Namibia to the UN), Charles Otine (Senior Advisor, Programmes and Management, Giga), Diana Zamora (Global Public Policy Director, Mastercard), and Sara Saljic (Education Specialist, UNICEF Bosnia and Herzegovina). Together, they offered perspectives on the policy, technological, organizational, and implementation barriers shaping the landscape of school connectivity.

The evening concluded with a networking reception and a poster showcase, creating a dynamic platform for multisector exchange and advancing collective thinking on how to bridge the digital divide and support inclusive digital development worldwide.

Moments from Bridging the Digital Divide.
(Photo: Geneva Research Lab for Digital Impact)

Acknowledgements

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