mastercard foundation

THE CENTRE FOR INNOVATIVE TEACHING AND LEARNING (CITL)

STRATEGIC ROADMAP BRIEFING NOTE (SRBN)

Centre for Innovative Teaching and Learning in ICT

OVERVIEW

This Strategic Roadmap Briefing Note (SRBN) for Mastercard Foundation's Centre for Innovative Teaching and Learning (CITL) in ICT, covers a three-year period, 2022 – 2025. This roadmap is part of a reimagining exercise that focuses on education and skills landscape in Sub Saharan Africa (SSA). It addresses the challenges, barriers, drivers and effects of the Covid-19 pandemic. The roadmap identifies potential areas of technology driven interventions that strengthens and improves both sectors (education and technology), as it prepares young Africans for the world of work.
The CITL believes that the power of technology can be harnessed to significantly improve education outcomes and skills development among young Africans.

According to the Foresight Africa 2022 report, the African continent represents 20 percent of the earth's surface and is home to 1.3 billion people—likely reaching 2.53 billion people by 2050. It boasts 60 percent of the world's arable lands, large swathes of forests, 30 percent of the world's reserve of minerals, and the youngest population of any continent. (see: https://www.brookings.edu/research/foresight-africa-2022/).
Sadly, UNESCO's Institute of Statistics determined that Sub Saharan African (SSA) has the highest rate of education exclusion in the world. The lack of access to quality and relevant education and skills development across Africa is a major challenge in sustainably addressing young people's rising unemployment and underemployment on the continent.

With such staggering statistics, CITL's strategy can spur positive change among young people in Africa by providing them with opportunities to secure dignified and fulfilling work through the use of ICT for learning and teaching.

To achieve this, CITL's approach will be to:

- Operate at the intersection of governments and entrepreneurs, and support entrepreneurs design, test, and scale EdTech solutions
- Partner with EdTech companies and media organizations to engage the education stakeholders on the use of technology in education
- Partner with Tech Hubs to scale the support to EdTech entrepreneurs in a sustainable way. With the support of the Foundation, these Tech Hubs will become collectives of excellence that will incubate and empower EdTech entrepreneurs.
- Partner with a Pan-African organization and a network of country institutions to collect, analyse and publish education and skills data.
- Support the governments in Mastercard Foundation's focus countries to mainstream a resilient hybrid model of teaching and learning.

The youth will therefore benefit from the quality and relevant education and training powered by technology, catapulting dignified and fulfilling work/ self-employment which has a ripple effect.

CONTEXT

The CITL's roadmap positions the young population with education and technology approaches that improves the quality of their lives and livelihoods, strategically positioning them for the future.

The CITL was launched in late 2019 to spark innovation and promote promising practices in the use of ICT for learning and teaching. This is to catalyse significant improvements in secondary education across Africa, with three key outcomes:

1. Demand-driven EdTech innovations that close the gap in access, quality, and relevant learning for the most underserved secondary education students;
2. Better evidence of what works in ICT for school and system leaders in Africa; and,
3. An active network of ICT leaders in secondary education and beyond, advancing the integration of technology in education and practices across Africa.

As an honest broker, the CITL works at the intersection of EdTech entrepreneurs and governments, tosuport entrepreneurs with growth-stage EdTech models that scale up demand driven technology innovation to

improve learning and teaching.

Broadly, the roadmap addresses:

Education and Skills

The lack of access to quality and relevant education and skills development across Africa is a major challenge in sustainably addressing young people's rising unemployment and underemployment on the continent. UNESCO's Institute of Statistics determined that Sub Saharan African (SSA) has the highest rate of education exclusion in the world. The Institute shows that specifically, a significant number of young people are out of school, revealing that a third of children barely between the ages of 6 and 11 and 60% of youth between the ages of 15 and 17. Girls are impacted even more. At the primary school level, 23% are out of school, compared to the 19% of boys. This gap has stubbornly remained, with female students finding it 1.5 times more difficult to transition to employment. The education systems are plagued by the lack of adequate numbers and quality of teachers. By 2030, 17.1 million additional teachers will be needed in SSA; 6.3 million in primary and 10.8 million in secondary (UNESCO, 2020| see : http://uis.unesco.org/en/news/uis-releases-more-timely-country-level-data-sdg-4-education**).**

This is an opportunity to apply the dynamism of technology to resolve challenges mentioned, to fully benefit African leaners. This should mainly be digital infrastructure that serves everybody and is not concentrated in rich urban areas where it enables: access to connectivity and devices; an up to date and readily available education and skills information; a local vibrant robust EdTech ecosystem that is supported by enabling EdTech policies and strategies environment; and prepared learners and teachers.

Over the past few years, there has been increased recognition of the disconnect between work-seekers' skills and companies seeking talent. While this is due to a range of systemic issues, there is an opportunity to align available skills more effectively in the economy, with the demand for those skills.

Digital infrastructure and EdTech Ecosystem

Digital transformation has gained momentum in several African countries, presenting an opportunity for accelerating education technology. Most have developed digital transformation strategies to underpin social and economic growth that impacts all sectors, including education and training. At a pan-African level, the Continental Education Strategy for Africa CESA (2016-2025) and the Digital Transformation Strategy for Africa (2020-30) by the African Union, lay frameworks for an inclusive digital society and economy. While not all countries have set digital transformation agendas, this is an opportunity to accelerate implementation for impact.

The opportunity that is described is not without infrastructure and affordability challenges. Despite progress made, SSA still accounts for 67% of the world's population with no access to mobile broadband. While concerning, the access gap is outpaced by the usage gap, which is growing; there was a 13% increase in the usage gap between 2014 and 2019 in Sub Saharan Africa (GMS, 2020 | See : https://www.gsma.com/r/wp-content/uploads/2020/09/Mobile-Internet-Connectivity-SSA-Fact-Sheet.pdf).

These challenges are likely to hinder realization of education technology's full potential. Indeed, EdTech has the potential to increase access through alternate and flexible learning pathways such as bridging programs, ongoing learning for certification, learning platforms for out-of-school children and for adults who need retraining, and complementary materials. It can also reduce inequity, especially in cases of marginalized communities who may not attend typical classrooms.

As we observe a wider proliferation of EdTech ventures across the continent, we recognize that the use of EdTech is yet to reach a critical mass of learners and educators. As of May 2020, there were 19 million EdTech users – a notable increase from previous years, which represents less than 8% of all primary and secondary students on the continent. One of the primary reasons for this is that most SSA countries have

still not adopted adequate EdTech (ICT in Education) policies and strategies, significantly impeding the EdTech's growth in those countries. Similarly, there has been a significant increase in overall funding with late growth stage EdTech companies, but the funding remains geographically unequal with 85% going to 4 countries (Nigeria, Kenya, South Africa and Egypt), leaving other markets such as francophone West Africa struggling (GSMA, 2020 |See : https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/09/EdTech-Final-WEB.pdf). Furthermore, the lack of funding in the earlier stage growth of EdTech start-ups doesn't encourage or support innovation.

Barriers and Root Causes impeding the growth of EdTech

There are multiple systemic barriers that limit the uptake of EdTech, which leads to missed opportunities to improve learning and training outcomes. Most glaring are enabling environment; and, the readiness and the purchase power of the users/buyers. Identified barriers and root causes include: Lack of readily available and reliable education and skills data; Opaque and confusing government policies and strategies around EdTech/ICT in Education and training; Limited availability of public funding for the government to procure EdTech solutions and products for the public schools; Processes and procedures, combined with limited expertise and capacity. Examples include human and financial resources across relevant ministries and government agencies; Lack of access to affordable data and basic technology infrastructure; and, Limited evidence of efficacy of EdTech solutions.

The challenges cited are interlinked and interact with each other. Public financing, for example, has limitations due to lack of government policy and lack of high-quality evidence on the efficacy of EdTech.

Effects of COVID-19 Pandemic on Education and the EdTech Sector

COVID-19 has had significant global impact on education and training. In Africa, it has contributed adversely to the existing learning crisis. The pandemic interrupted in-class learning for over 250 million primary and secondary students. Only a fraction was able to access remote learning. Millions also lost their jobs and will need re-training and reskilling to be employed.

The loss of learning that resulted from the impact of the pandemic will be felt for many years, especially for underserved students who did not have access to remote learning during the pandemic. These students are more likely to take up income generating activities opportunities to support their families, rendering them at higher risk of permanently dropping out of school. Girls and young women are particularly vulnerable to drop out which widens the gender inequality gap. Also, the loss of jobs will need to a massive retraining and upskilling of people. Innovative and straightforward ways of providing the training and upskilling is needed. This is to support those who lost their jobs find new ones, while also increasing the productivity of those who are still employed.

On a positive note, the potential of EdTech to support learning and training has been widely recognized. Many countries included EdTech solutions in their COVID-19 response plans; they launched platforms and initiatives to avail access to digitized content, as well as contracting private EdTech providers to support governments in managing continuity in learning. Some governments such as Ethiopia, initiated regulatory changes to support digital financial service providers to create a supportive enabling environment for EdTech use.

Comparative Advantage of the Centre for Innovative Teaching and Learning

For the last two years the Mastercard Foundation, through CITL, has supported the EdTech ecosystem. It has enhanced collaboration between governments and private EdTech companies, working together to strengthen EdTech in Africa. The CITL convened education stakeholders to identify the most pressing challenges facing education systems in Africa. It then supported a cohort of 12 EdTech companies from seven countries to address those challenges. By operating at the intersection of governments and EdTech entrepreneurs, the CITL was able to facilitate the interaction between two of them, getting them to work together to the benefit

of learners. This strengthened the private EdTech companies, ensuring that solutions reached learners both in private and public schools. This is a significant element in catalyzing the EdTech ecosystem in Africa.

Furthermore, it is critically important to democratize EdTech. Educating and engaging the public on the challenges of tapping fully into the power of EdTech in improving education and access to training, ensures that this subject is full addressed. The Foundation is driving this through the EdTech Mondays discussions in 5 countries and at the Africa level. These are Kenya, Rwanda, Uganda, Nigeria and Senegal. Plans to launch in Ethiopia are at an advanced stage. These challenges are interlinked and interact with each other for example, public financing is partly limited due to lack of government policy and due to the lack of high-quality evidence on the efficacy of EdTech.

THE CITL's VISION

The CITL's vision is to achieve *'A growing and impactful African EdTech ecosystem catalyzing innovation and promoting promising practices in the use of ICT for learning and teaching for the benefit of African learners, educators and policy makers'*. The goal is to achieve blended learning for all learners at all levels across the continent and a network of local EdTech companies to support it. By 2025, at least 5 of the Mastercard Foundation countries will have mainstreamed blended learning in education systems.

TARGET POPULATION

The CITL targets learners and instructors at all levels both formal and non-formal, who will benefit from quality and relevant education and training powered by technology. It also focuses on local Tech Hubs and EdTech entrepreneurs, with the objective of producing quality and relevant EdTech solutions that improve access, quality and relevant learning especially for the underserved learners.

THE APPROACH

The approach to be adapted is ensuring operations are seamless and add value to the roadmap. This includes ensuring operations at the intersection of governments and entrepreneurs, and supporting entrepreneurs design, test, and scale EdTech solutions. Additionally, the CITL will partner with EdTech companies and media organizations to engage the education stakeholders on the use of technology in education.

Tech Hubs are key stakeholders. Therefore, CITL will partner with them to scale up the support to EdTech entrepreneurs in a sustainable way. With support from the Foundation, the Tech Hubs will become collective points of excellence that will incubate and empower EdTech entrepreneurs.

The CITL's operations transcend the continent of Africa. It will partner with a Pan-African organization and a network of country institutions to build the capacity of governments in 30 countries to collect, analyze and publish education and skills data.

The approach also focuses on fostering collaboration with governments and strategic partners to support eLearning programs, and review of policies.

STRATEGIC DIRECTION

The proposed roadmap moves the CITL beyond the EdTech for secondary education focus and individual EdTech companies support model to an expanded focus to include all learners and instructors at all levels and to work with Tech Hubs in order to scale the number for EdTech entrepreneurs and companies that are supported. This creates communities of EdTech entrepreneurs around the tech hubs that serve as collectives of excellence. Tech Hubs will incubate and support EdTech entrepreneurs during their growth stages, to scale up their solutions to improve learning outcomes across the continent.

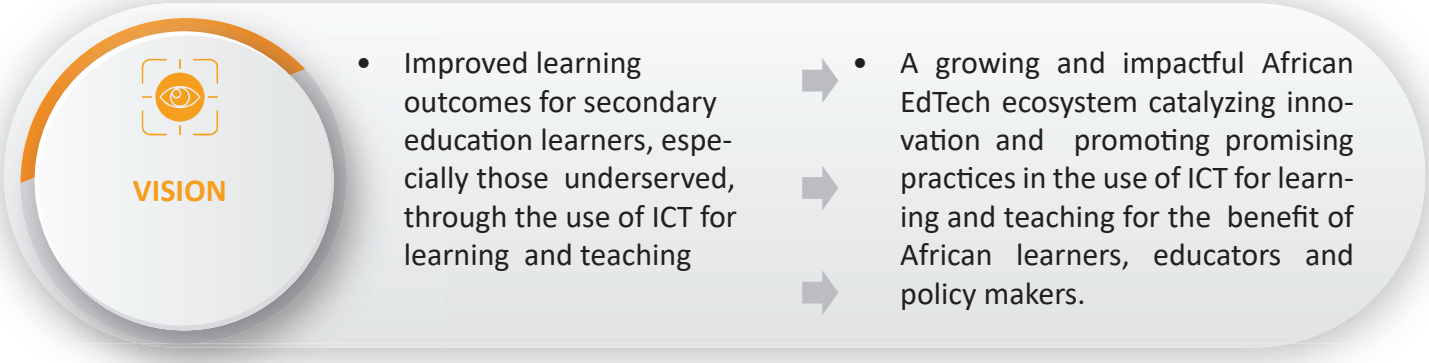
The CITL recognizes the importance of collaboration with strategic partners. The Centre will convene EdTech stakeholders to exchange, collaborate, and learn from each other. These convenings will also serve to define challenges to be addressed using technology.

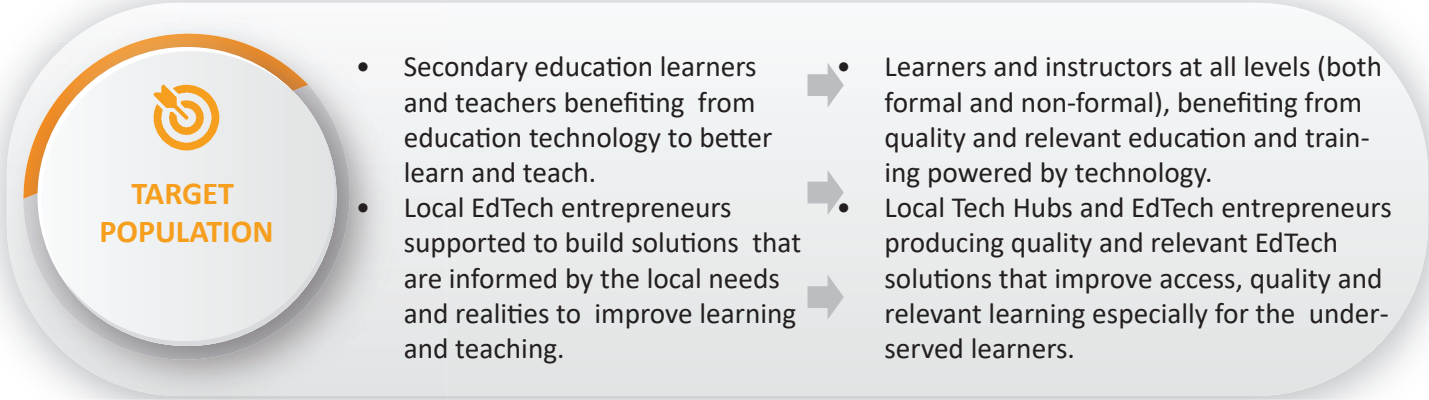
CITL in partnership with other strategic partners will build the capacity of at least 5 Mastercard Foundation's focus countries to mainstream a resilient hybrid model of teaching and learning. It will also build the institutional capacity of 30 countries in Africa to collect, analyse and disseminate education and skills data for informed decision making and demand-driven policy decisions.

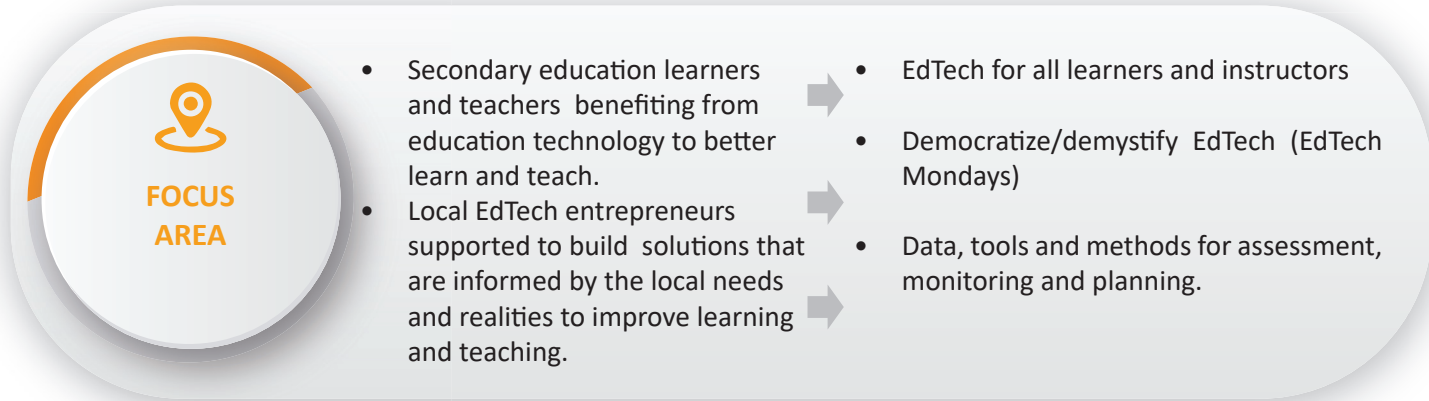
For the effective implementation of CITL's programs it will support learners and instructors in the use of EdTech solutions through effective digital literacy and eLearning programs across African countries.

CITL will draw from the data collected and published and from the **EdTech Ecosystem**, and its solutions to fix systemic barriers through an Innovation Sandbox. We will extend our Innovation Sandbox to incubate and grow innovations that uses technology to address challenges that face other sectors where the Foundation plays role.

Evolution of CITL through Reimagine Work







Approach

- Operate at the intersection of governments and entrepreneurs, and support entrepreneur
- design, test, and scale EdTech solutions.
- Partner with EdTech companies and media
- organizations to engage the education stakeholders

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- Partner with EdTech companies and media organizations to engage the education stakeholders on the use of technology in education
- Partner with Tech Hubs to scale the support to EdTech entrepreneurs in a sustainable way. With the support of the Foundation, these Tech Hubs will become collectives of excellence that will incubate and empower EdTech entrepreneurs.
- Partner with a Pan-African organization and a network of country institutions to collect, analyze and publish education and skills data.
- Partnerships within the Foundation with country and regional teams in engaging policy makers and to support eLearning programs.

KEY RESULTS

The CITL had by July 2021 reached 540,000 learners. This targeted 12 EdTech Fellows, with 3 partners. However, not all EdTech Fellows reported the gender breakdown of the served population, due to complexity in tracking. It is worth noting that this was also not a requirement at the onset of the partnership.

The CITL roadmap has set a target of the number of youth to be reached by 2025 at 1.8 million, when the lifespan of this roadmap expires. However, it is projected that 4.8 million youth will have been reached by 2030.

CITL Strategique and intermediate outcomes

Strategic Objective

A growing and impactful African EdTech ecosystem catalyzing innovation and promoting promising practices in the use of ICT for learning and teaching for the benefit of African learners, educators and policy makers.

Approach to implementation

Strategic Objective:

A growing and impactful African EdTech ecosystem catalyzing innovation and promoting promising practices in the use of ICT for learning and teaching for the benefit of African learners, educators and policy makers.

	CAPACITY AND EXPERTISE	TOOLS AND PROCESSES	REGULATORY	FUNDING AND TRAINING	DIGITAL AND INFRASTRUCTURE
Root Cause Analysis	• Limited capacity and expertise at relevant ministries and government agencies to draft and implement actionable policies and practices.	• Lack of tools, processes, and coordination to collect, analyze and publish education and skills information.	• Inadequate government EdTech budgets and complex procurement processes make it difficult for EdTech companies to scale and reach the most underserved learners	• Limited funding and training of local EdTech companies and uncertain demand and complex operating environments lead to short term and restricted business plans.	• Lack of capacity and digital skills in teachers and learners, leave them unprepared to take full advantage of EdTech. • Limited connectivity and access to devices.
Intermediate Outcomes	**IO.1:** A local vibrant EdTech ecosystem that enables innovative learning and teaching.	**IO.2:** Reliable data for planning, monitoring and assessment.	**IO.3:** African institutions with quality and meaningful eLearning programs supported by local EdTech entrepreneurs.	**IO.4:** Effective support systems for learners and instructors, that enable them to harness the power of technology for learning.	**IO.5:** A responsive mechanism that scans and addresses systemic challenges in education and skills development
System Conditions Addressed	Policies, practices, relationships & connections.	Policies, practices, resource flows, and mental models.	Policies, practices, resource flows, relationships & connections and mindsets.	Practices, resource flows, relationships & connections, and mental models.	Practices, resource flows, relationships & connections, mental models.

Partnership Archetypes and Prioritization

Partner Archetypes

To implement the proposed roadmap, CITL will partner with a variety of partners such as:

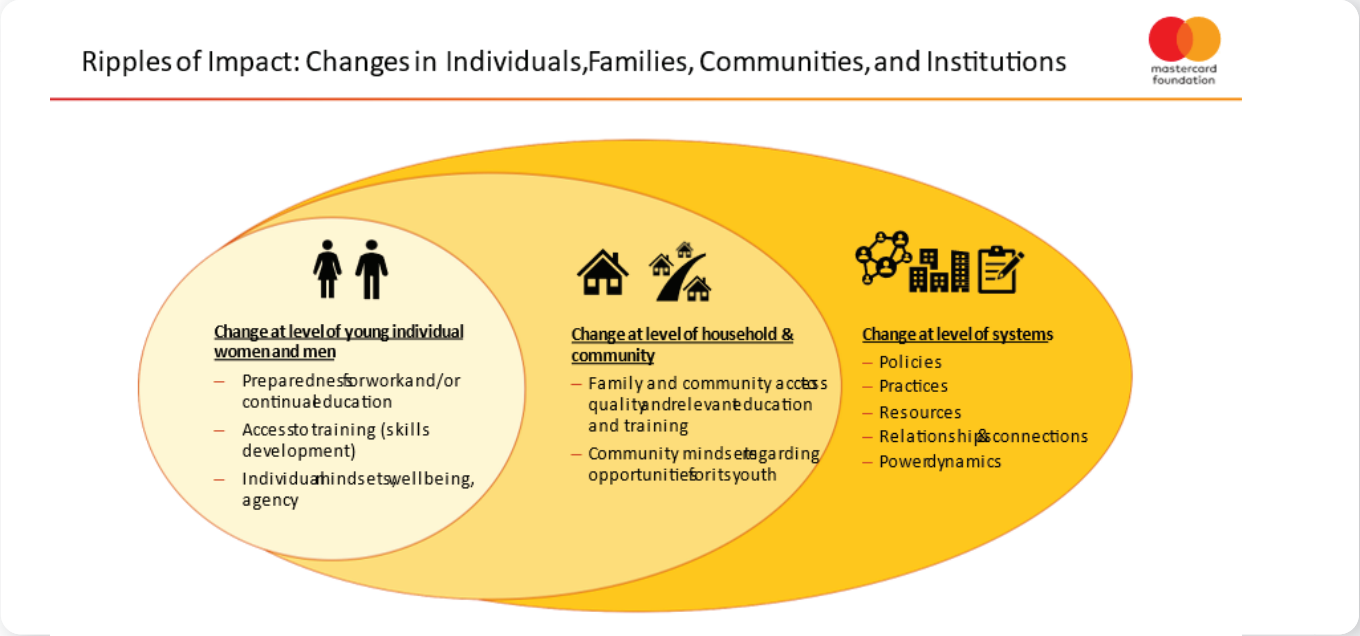
- Tech Hubs which incubate EdTech entrepreneurs
- Higher Education institutions that train EdTech entrepreneurs in the science of learning and provide interns to support Tech hubs
- Research and education institutions that collect, analyze and publish education and skills data
- NGOs and consultants that analyze policies and practices, and identify gaps to be fixed to create an enabling policy environment

Prioritization

- In selecting partners, the CITL will prioritize local organizations, in order to build capacity for the sake of sustainability.
- Priority will also be given to the Foundation countries, in order to build on the work already being done in these countries by the Foundation country teams.

Move towards aggregation

- CITL is moving to work with aggregators such as the Tech Hubs in order to increase its reach and create a local community of EdTech entrepreneurs that will better engage their other stakeholders such as the government institutions, telecoms and consumers of their products.



INCLUSIVITY AND EQUITY

The diagnostic part of the roadmap study revealed significant gender and disability gaps in education and skills development. In Africa, 52 million girls are not in school, and 4 million may never attend formal education –compared to 2 million boys. This gender imbalance is, by in large, a product of cultural practice. Poor families, mostly in rural areas, opt to send boys to school while keeping the girls at home to help with chores. Girls between 5 and 14 spend 40% more time, or 160 million more hours, on unpaid household chores, collecting water and firewood compared to boys their age.

Even when girls do access education, societal norms discourage girls from studying STEM, considering it a domain for boys and males; perceptions are reinforced by the limited number of successful women in those domains who can mentor and advocate for girls' education in STEM. All these factors contribute to female students finding it 1.5 times more difficult to transition to employment.

These conditions were worsened under the Covid-19 pandemic, which reversed many gains in girls' education. Experts believe that young women are particularly vulnerable to drop out of school which can further widen the gender inequality gaps. UNESCO estimates that 4% of girls in upper secondary education are at risk of dropping out, vs. 3.7% of boys. Moreover, the school closures in 2020 increased the existing burden of household chores and childcare for girls.

Gender disparities also exist in access to and the use of EdTech solutions. There are several challenges faced particularly by girls which make access and use of EdTech solutions more challenging. These are usually more prevalent in lower income households. Girls usually have lower device ownership rates compared to boys (e.g., across SSA women are 15% less likely to own a mobile phone compared to men). Although gradually decreasing, there is still a pro-male bias in household educational spend. Therefore, parents are less likely to spend on internet costs for girls' education compared to boys, especially in low-income households. In Ghana, there is a significant pro-male bias in both the enrollment decision and the conditional expenditure decision in secondary education.

Female EdTech entrepreneurs face a range of heightened as well as unique challenges that need to be addressed. Women often face societal pressures that discourage them from pursuing entrepreneurship as a career path, especially in technology, and from prioritizing their careers. Female entrepreneurs face higher challenges in raising capital, in line with global trends.

There are over 100 million children under the age of 14 living with disabilities , according to the 2011 World Report on Disability. In Africa, an estimated 6.4% of children in this age range have moderate or severe disabilities; and less than 10% of all children with disabilities under the age of 14 are attending school. Exclusion of children with disabilities from education has an adverse economic impact at the family, community, and country level. The schooling deficit experienced by children living with disabilities can become the most challenging impediment to earning an income and long-term financial health as adults. Recent studies show a positive wage return on education for children living with disabilities, while the costs of exclusion of persons living with disabilities from the labor market range from 3% to 7% of a country's GDP. (World Bank)

Our plan to be inclusive in our strategies

Being mindful of the conditions and barriers outlined above for gender and disabilities, the CITL will be intentional in ensuring that our programs are inclusive, and we will set specific targets related to gender and disability. The CITL will:

- collaborate with gender empowerment and disability advocacy partners to better understand ways to increase inclusivity
- ensure that EdTech is used to mitigate the access to learning challenges to migrant and refuges learners across the continent
- mandate increased gender participation as one of the requirements to qualify; and onboard innovative solutions that address learners with disabilities.
- insist that its content developer partners create gender sensitive content ensure participation by female EdTech entrepreneurs as it did in its 1st Cohort of EdTech Fellows
- Within its Innovation Sandbox, investigate how to support new innovations that address access to affordable education technology solutions for learners with disabilities