

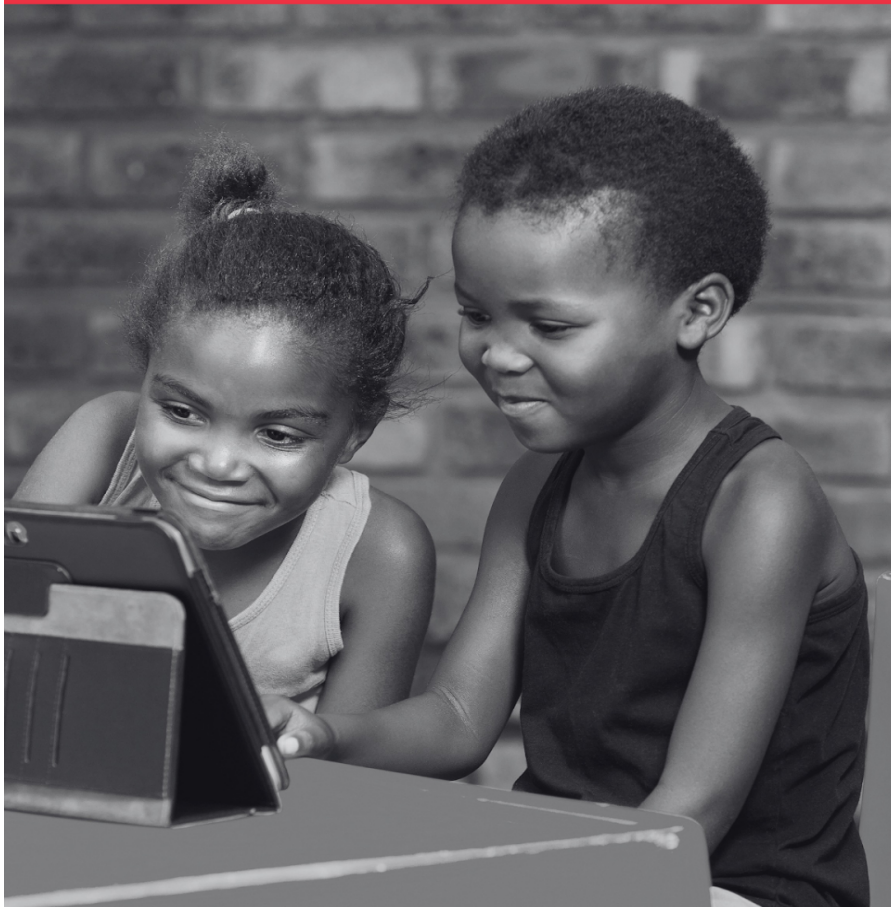


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**MAX BELL SCHOOL  
of PUBLIC POLICY**

# ADDRESSING EDUCATIONAL GENDER INEQUALITY THROUGH ED-TECH SOLUTIONS IN SIERRA LEONE



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## Table of Contents

<b>1. Executive Summary</b>	3
<b>2. Acknowledgements</b>	5
<b>3. Introduction and Background</b>	6
<b>3.1. Introduction</b>	6
<b><i>3.1.1. Methodology</i></b>	6
<b>3.2. Background</b>	7
<b><i>3.2.1. The Problem</i></b>	7
<b><i>3.2.2. Why Girls?</i></b>	8
<b><i>3.2.3. Current Framework of Education</i></b>	8
<b><i>3.2.4. International Players</i></b>	9
<b><i>3.2.5. Sustainable Development Goals</i></b>	9
<b>4. Framework for Policy Proposal</b>	10
<b>5. Capabilities of the MLL</b>	12
<b>5.1. What is a Mobile Learning Lab (MLL)?</b>	12
<b>5.2. MLL Type of Technology and Delivery Model</b>	12
<b><i>5.2.1. Type of technology</i></b>	12
<b><i>5.2.2. Delivery model</i></b>	12
<b>5.3. Value Proposition of Mobile Learning Lab (MLL)</b>	13
<b><i>5.3.1. Addresses gender disparities</i></b>	13
<b><i>5.3.2. Provides practical features and holistic approach</i></b>	13
<b><i>5.3.3. Provides self-directed learning environment</i></b>	13
<b><i>5.3.4. Engages business community and provides technological literacy</i></b>	14
<b><i>5.3.5. Helps educational authorities signal a positive message</i></b>	14
<b>5.4. Digitization of Education During COVID-19</b>	14
<b>6. Best Practices for MLL</b>	16
<b>6.1. Design targeted interventions for specific age groups</b>	16
<b>6.2. Clear learning objectives aligned with culturally appropriate content</b>	16
<b>6.3. Collaborate with local implementation partners</b>	17
<b>6.4. Set time-limited MLL interventions</b>	18
<b>6.5. Cultivate community ownership</b>	18
<b>7. Data/Case Studies</b>	19

<b>7.1. MLL Case Studies</b>	19
<b>7.1.1. Sierra Leone</b>	19
<b>7.1.2. Guatemala</b>	20
<b>7.1.3. Uganda</b>	20
<b>7.2. Similar Education Models</b>	21
<b>7.2.1. Sugata Mitra and Self-Organized Learning Environments (SOLE)</b>	21
<b>8. Stakeholder Engagement</b>	22
<b>8.1. Who should be MLL partners?</b>	22
<b>8.2. Community Engagement</b>	25
<b>9. Awareness and Knowledge Gaps</b>	27
<b>9.1. Validity of concern</b>	27
<b>9.2. Reducing the gaps through education technology</b>	28
<b>9.2.1. Government-specific Value Proposition</b>	28
<b>9.2.2. Teacher's Training</b>	29
<b>10. Measuring Learning Outcomes</b>	30
<b>10.1. The case of Learning Metrics Task Force (LMTF)</b>	30
<b>11. Current and Potential Funding</b>	33
<b>11.1. Government funding and the scope of Public-Private Partnerships</b>	33
<b>11.2. Public Private Partnership designs for education</b>	34
<b>11.3. The Role of Private Sector in a PPP</b>	35
<b>11.4. Possible Risk of PPP</b>	36
<b>11.5. Multi-source Funding</b>	36
<b>12. Outlook</b>	38
<b>12.1. Possibilities for improving the MLL model</b>	38
<b>12.1.1. Expanding its Use and Application</b>	38
<b>12.1.2. Options for Scalability: From a Local Implementing Partner Perspective</b>	39
<b>12.1.3. Designing a Scalable Model: Global Perspective, Local Approach</b>	40
<b>13. Policy Proposal and Recommendations</b>	42
<b>14. Theory of Change</b>	47
<b>15. Solutions Roadmap</b>	47
<b>16. References</b>	52

## 1. Executive Summary

### **Policy Lab Statement:**

How can stakeholders in developing countries, such as Sierra Leone, leverage **innovative technologies** to ensure equal access to **quality education** for children, especially **girls**, in **remote communities** by 2030?

Many countries, including Sierra Leone, face a **crisis in providing quality education to girls**. There are several challenges around this issue, including high dropout rates, overage girls in classrooms, low literacy levels, etc. One possible way to address these disparities is through **Mobile Learning Lab (MLL)** technology.

The MLL is a particular application of another technology called Remote Area Community Hotspot for Education (RACHEL)—essentially a portable server that can be accessed without the Internet. RACHELs are **simple, inexpensive, and do not require the Internet**, a crucial feature in remote villages where online connectivity is not always readily available. They are pre-loaded with **customizable educational content**. What distinguishes MLL from other RACHEL applications is its **portability**. MLLs do not replace local curricula or compete with local teachers but supplement their efforts. MLLs' focus on **self-directed learning** allows students to pursue learning objectives independently, building confidence and technological literacy.

The MLL is not itself specifically designed to address gender disparities in education. But it has many elements integral to its design and application that make it well suited to serve this purpose. By providing learning materials that are self-paced, students, including girls, can use MLLs to **expand their knowledge** in topics of interest, to **bring them up to speed** in subjects where they are falling behind, and **enhance the quality of their education** which varies widely in rural settings. The MLL can also be preloaded with important content that is not often addressed in school or home settings, such as sexual and reproductive health. The mobility of an MLL means it can be targeted directly at girls in localities that are at-risk of dropping out or failing school.

We mainly used a **Human Rights-Based Approach to Education (HRBA-E)** as a framework to guide our research and recommendations.

Our research indicates a **preliminary set of best practices** for the MLL, based on previous interventions. These include designing targeted and time-limited interventions for specific age groups; setting clear learning objectives aligned with the national curriculum; collaborating with local implementation partners; and cultivating community ownership.

MLLs have already been deployed in Sierra Leone, Guatemala, and Uganda, among other **twenty jurisdictions from Central America, Africa, and Asia**. The experiences from these jurisdictions shows that the MLL builds numeracy and literacy skills as well as human skills such as self-confidence. These experiences can be used to inform the implementation plan for a scalable model in Sierra Leone and other places with similar characteristics.

**Stakeholder engagement** is an essential, however challenging, element of MLL deployment. Aside from local communities, other key stakeholders include the girls themselves, the government, businesses, not-for-profits, local schools, and parents/caregivers.

MLL projects should identify stakeholders, establish just information-sharing practices, and uphold participatory decision-making and implementation. The voices of the most vulnerable groups must be included, which can be encouraged by incorporating, for example, a **Grievance Redress Mechanism**.

There are **several pathways to funding MLL projects**. The government is currently interested in digital learning projects. Private sector infrastructure in Sierra Leone is modest, but there are larger mining and telecommunications companies that may have an interest in MLL from a Corporate Social Responsibility perspective. Public-Private Partnerships may be a promising model. Another pathway may be private foundations focused on Africa, education, and technology. Micro, small, and medium enterprises can also be a valuable source of working capital finance for the project through a minimum-fees-based approach.

MLL projects should **respect and adapt to the socio-cultural context** in which they are deployed. Projects should be validated with all stakeholders, not only sponsors or funding organizations, but also local executing partners and beneficiaries. To make MLL interventions financially sustainable, they need to be conceived of as a social investment rather than as a short-term intervention. In the interest of financial sustainability and feasibility, MLLs may be best thought of as a **social business model with a gender approach**: an opportunity for empowering women through a capacity building program supported by initial funds from the private or public sector.

## **2. Acknowledgements**

The document is prepared as a Policy Lab capstone project of the Max Bell School of Public Policy. The project is a student consultative assignment, which is part of the degree requirement of the Master of Public Policy. The research and recommendations provided in the document are purely the authors' responsibility. It does not reflect views of McGill University, the Max Bell School of Public Policy, or the stakeholders consulted in the process. All the insights are gathered through stakeholder interviews, review of reports, and secondary research.

The authors would like to thank Wanda Bedard and her team at 60 Million Girls for their excellent support, and responses to our endless requests for information. They have also been generous in sharing evaluation reports of projects deployed in different developing countries as case studies.

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## 3. Introduction and Background

### 3.1. Introduction

This proposal was commissioned by 60 Million Girls (60MG), a Montreal-based public foundation dedicated to girls' education in developing countries. Established in 2006 when more than half of primary-aged girls around the world were not in school, 60MG believes in the need to support education for all children, regardless of gender, wealth, or place of birth, to create a more just and balanced world.

60MG requested the Max Bell team to research the potential of Mobile Learning Labs (MLLs) to deliver innovative educational solutions in remote areas, especially those without Internet access.

Given the experience already accrued by MLL projects funded by 60MG in Sierra Leone, the team chose to limit the scope of our research to this context. However, Sierra Leone should be viewed less as a unique example and more as a broad typology that those interested in MLLs may draw from in designing future programs and projects. Many of the insights here are applicable to a broad range of rural, underdeveloped contexts. Of course, every jurisdiction is different, and comes with its unique set of circumstances. We do not suggest blanket application of every insight and approach in this document. Rather, we hope our findings prompt further research in other jurisdictions, and that some of them may be useful in designing future MLL projects. We wish to particularly highlight how the ideas contained in this proposal are not solely suitable in underdeveloped contexts. We believe, for example, that MLLs could be suitable for indigenous populations in more developed countries such as Canada or Guatemala.

#### 3.1.1. Methodology

In researching our proposal, we conducted over 20 interviews with NGOs on the ground in Sierra Leone, NGOs with relevant experience with MLLs or RACHEL, as well as other relevant sources in organizations. We note in particular an MLL Project Evaluation report from 2018 that was conducted in Sierra Leone. These first-hand accounts and source material are supplemented by a review of relevant literature, including studies, policy proposals, and reports from the Sierra Leone government and international institutions such as the World Bank. All the above informed the conclusions at which our team arrived.

We have organized our recommendations at the end of our proposal but scattered throughout we have also identified a number of "Quick Wins". These represent short-term actions that, while not neatly fitting with our more long-term strategic recommendations, could quickly yield positive outcomes for 60MG and MLL projects. Moreover, we also offer for the consideration and adoption of 60MG a theory of change and solutions road map. The former provides an overarching look at how our research and recommendations contribute to improving the educational outcomes for girls in Sierra Leone, while the latter illustrates in detail how these recommendations can be operationalized through a three-phased approach.

## 3.2. Background

Sierra Leone is governed by the 1995 Constitution which declares it as a multiparty democracy. The layers of governance include the President, parliament, and judiciary. They coordinate to institute public policies. The most pertinent agency to education is, naturally, the Ministry of Basic and Senior Secondary Education.

57.5% of Sierra Leone's population is rural, according to 2019 data from the World Bank ([World Bank](#)). The main cities in each district are Freetown, Bo, Kenema, and Makeni. While English is the official language and the language of the education system but it is not necessarily widely spoken among the population—Krio is the de-facto lingua franca (Joko 1987).

### 3.2.1. The Problem

The educational system in Sierra Leone is not currently able to provide quality education for all. While almost all primary-school aged boys and girls enroll in primary school, the gross enrollment ratio for secondary school is just 43% ([Global Partnership](#)). According to UNICEF, only 64% of children in Sierra Leone had completed primary school, 44% completed junior secondary, and only 22% completed senior secondary education in 2018 ([Government of Sierra Leone](#)). Achieving widespread literacy also remains a challenge. All this, combined with a chronic lack of qualified teachers, has made it very difficult to meet the demand for more and better schooling ([Global Partnership](#)), and as a result many children have been denied their right to education.

Young people living in remote and rural regions, which constitute the majority of the country's population, are at especially high risk for dropping out of school. While 71% of children living in urban areas enter grade one, only 57.9% of rural children do ([Sierra Leone Multiple Indicator Cluster Survey 2017](#)). Rural areas of the country are operating with extremely limited financial and trained human resources. Textbooks are often shared between six children in rural areas, and this problem is exacerbated by the phenomenon of teachers and schools storing sent materials for fear of their future scarcity. Students in these areas are often beyond the jurisdiction of local councils that would normally oversee education. And, for many girls, the closest schools must be walked to from several miles.

In addition to these barriers posed by rural life, girls face a number of unique and severe setbacks that hamper their educational attainment. Almost 3 in 10 girls marry before the age of 18. The prevalence of early childbearing (having a child before the age of 18) is also high, at almost 3 in 10 girls ([Brookings](#)). Girls, as a result of traditional gender roles, often take on extra chore burdens, child-rearing responsibilities, and face general economic marginalization ([Government of Sierra Leone](#)). Girls have often poorer educational outcomes in Sierra Leone. In a recent study, for example, 82% of out-of-school adolescent girls could not read from an oral reading passage, and 42% couldn't correctly identify any letters. ([Government of Sierra Leone](#))

According to Sierra Leone government officials, the COVID-19 pandemic has further exacerbated these poorer outcomes. The inequality gap in educational attainment between boys and girls widened further, and access to education became even more limited as essential services within



the country were disrupted. The increased time at home further increased girls' risk of child marriage and exposure to sexual violence.

### **3.2.2. Why Girls?**

The choice to focus on girls' education is not arbitrary. Apart from the relevant Sustainable Development Goals, which will be discussed below, a growing body of research shows that advancing education is key to achieving broader goals related to gender equality. While some of these connections may seem intuitive or obvious, their importance makes them worth stating. A recent study from the Brookings Institution, for example, confirmed that if child marriages in Sierra Leone were to end, teenage pregnancies would also decrease substantially. Brookings also confirmed the link between child marriage, early childbearing, and poor educational attainment. Keeping girls in school is projected to lead to major reductions in child marriage and early childbearing ([Brookings](#)).

A recent study also showed that an increase in schooling had an impact on women's attitudes in Sierra Leone towards matters that impact women's health and on attitudes regarding violence against women. Increased education was shown to decrease the number of desired children by women and increase their use of modern contraception, as well as their propensity to be tested for AIDS. Increased education also increases the intolerance of women toward practices that conflict with their well-being ([Mocan and Cannonier](#)). These outcomes are apart from the positive effects that women's education can have on families as a whole, although the rhetoric of one Sierra Leone official reflected these when he stated that educating girls is the best investment that a family, a community, and a nation could make.

### **3.2.3. Current Framework of Education**

Indeed, although the current disparities are significant, the Sierra Leone government has made some significant efforts through policy to improve educational outcomes both for girls and the population generally.

In 2004, the government passed the Education Act which stipulated universal education for citizens, and decentralized primary education to local councils. This education amounted to six years of primary school, and three years of junior secondary school. Since 2000, enrollments in primary school more than doubled, with the gross enrollment rate hitting 115.7% in 2011 ([World Bank](#)). According to the World Bank, most students (just under two thirds) are enrolled in public school, while just under a third attend religious school. Only six percent of students attend private school, and this figure is composed of children from the two richest quintiles. The completion rate of primary school in 2011 was 69%, which is 11 points below the average for sub-Saharan Africa.

More recently, in 2018, President Bio launched the Free Quality School Education (FQSE), which doubled the government's education budget from 11 to 22% of the national budget. This policy is meant to broaden the previous emphasis on enrollments. The policy comprises the value propositions of "Quality, Affordability, and Access". While these proactive policies are heartening, other aspects of their approach to education raise questions. Only in 2020, for instance, did the

government overturn a policy that illegalized school attendance for pregnant girls ([Government of Sierra Leone](#)). The government has recognized the role that other organizations can play in pursuing its educational priorities. In a recent study, it recommended that NGOs provide targeted interventions to rural regions ([Government of Sierra Leone](#)).

#### **3.2.4. International Players**

Aside from the government of Sierra Leone, there are a number of other international intergovernmental institutions, such as the UN and Global Partnerships, that must be taken into account in considering Sierra Leone's approach to education. Given the complex relationships between government and these various institutions, it can sometimes be difficult to determine where one ends and the other begins. Moreover, our research suggests that there is not necessarily a coherent through line between all these organizations and all the arms of government. As the government continues to develop its functioning, large parts of the budget are contributed by these organizations, and, as a result, some part of the agenda is set as well. This is not to suggest by any means a lack of autonomy, but rather that there is a close collaboration between the government and these institutions that requires would-be policymakers or analysts to consider all key players.

#### **3.2.5. Sustainable Development Goals**

Any efforts to educate girls in Sierra Leone must be appreciated in light of the sustainable development goals (SDGs) to which all UN member states have committed. Of course, in this example, SDGs 4 and 5 are the most relevant, the former of which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all", while the latter aims to eliminate all forms of discrimination and violence against women. As mentioned above, in Sierra Leone the achievement of either of these goals is interwoven with the achievement of the other.

Like many other African countries, the announcement of these goals in Sierra Leone was met with great zeal by the government and the organizations working with it. With respect to SDG 4, while, as mentioned, enrollments have broadly improved, there hasn't necessarily been the corresponding infrastructure in place to support quality: this includes teachers, facilities, and materials. Some have observed that as enrollment went up, quality went down and classrooms that were already crowded became overcrowded. Learning outcomes are now the priority of those pursuing SDG 4 rather than enrollment, and the principal way to measure this is through literacy, which still remains broadly elusive among the adult population in Sierra Leone.

As those concerned with the education of girls in Sierra Leone try to meet both goals by 2030, the strengths and limitations of all key players should be soberly evaluated. The government is working to implement bold education policy reforms with relatively low resources, working in tandem with a number of intergovernmental and nongovernmental organizations. Fresh approaches must be considered, from different sectors. It is in this context that we can begin to consider the potential of the MLL.

## 4. Framework for Policy Proposal

**Quick wins:** 60MG has long been working towards overcoming critical obstacles related to children getting into the classroom. The work carried out by 60MG has been grounded in the Millennium Development Goals (2000-2015), particularly goal 2 and 3, universal primary education and gender equality, respectively. Yet, since 2010, enrollment for children worldwide has stalled and the number of out-of-school children has increased ([60 Million Girls](#)). 60MG acknowledges that simply focusing on getting children into schools is not enough, but rather the provision of quality education is needed to lift children out of poverty and protect their right to quality education. Given this shift in understanding, 60MG should align their mandate to an HRBA-E framework and elucidate how their work is contributing to the realization of SDGs 4 and 5. The alignment with HRBA-E and SDGs should be communicated with any and all stakeholders, which can easily be done through indicating the change on the website.

We use a human-rights based approach to education (HRBA-E) to frame our analysis and reporting of MLL in Sierra Leone, in alignment with the Sustainable Development Goals (SDGs). An HRBA-E promotes education programming that is coherent with the legal obligations to respect, protect, and fulfill the principles of participation, accountability, empowerment, and non-discrimination ([Moriarty](#)). Since the adoption of the Universal Declaration of Human Rights (UDHR), the right to education (Article 26) has been incorporated into various international instruments, including the UNESCO Convention against Discrimination in Education, Convention of the Rights of the Child, and the Convention on the Elimination of All Forms of Discrimination against Women. These international instruments make it clear that any form of education must aim to contribute to “the development of the child’s personality, talents, and mental and physical abilities to their fullest potential” ([International Instruments: Right to Education](#)). In incorporating MLL into educational programming, children will be provided a vast amount of content to explore. Given time, children will be able to hone their abilities and realize their fullest potential.

We have outlined our proposal along the lines of five principles underlying the HRBA-E framework and have made specific reference to how these principles are incorporated into each section. As a brief overview, these are:

- **Participation:** Everyone has the right to participate in decisions which affect them. Participation must be active and accessible in order to be meaningful.
- **Accountability:** There should be monitoring of how people’s rights are being affected, as well as remedies when things go wrong.
- **Non-discrimination:** All forms of discrimination must be prohibited, prevented, and eliminated. People who face the biggest barriers to realizing their rights should be prioritized.
- **Empowerment:** Everyone should understand their rights and be fully supported to take part in developing policy and practices which affect their lives.
- **Legality:** Interventions should align with the legal rights set out in domestic and international laws.

Additionally, our team has based its objectives for the MLL proposal on SDGs 4 (Quality Education) and 5 (Gender Equality and Women's Empowerment). These SDGs provide an outline of appropriate targets and indicators that uphold international commitments to children's education while at the same time align with the HRBA-E values. Target 4.1 of SDG 4 aims to ensure that all children complete "free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes" ([UN Department of Economic and Social Affairs](#), SDG 4). Target 4.5 works towards eliminating gender disparities in education and ensuring equal access to all levels of education for the vulnerable, including children in vulnerable situations ([UN Department of Economic and Social Affairs](#), SDG 4). Given that girls in rural communities are by far the most vulnerable and much more likely to drop out of secondary school than boys, primarily because of gender role expectations, target 4.5 is essential in Sierra Leone ([Kiendrebeogo & Wodon](#)). Similarly, target 5.b of SDG 5 emphasizes the use of enabling technology, "in particular information and communications technology, to promote the empowerment of women" ([UN Department of Economic and Social Affairs](#), SDG 5). As the MLL is an educational technology and will be employed in schools targeted towards quality education for girls, this proposal is directly in line with the SDG framework and contributes to realizing SDG goals 4 and 5 by 2030.

Furthermore, the Policy Lab Team adopted a gender mainstreaming approach to create this proposal with the goal of eliminating the marginalization of girls in rural Sierra Leone. Gender mainstreaming is "the consistent use of a gender perspective in all stages of development and implementation of policies and programs" ([Leo-Rhynie](#)). As such, this proposal elaborates on the use of gender mainstreaming at all levels and building capacity in understanding "gender." It particularly expands on promoting more female role models, school facilities responding to both girls' needs, and appropriate monitoring frameworks ([UNESCO, Experience-Sharing Workshop Enhancing Institutional Capacity for Gender Mainstreaming in Education](#)).

## 5. Capabilities of the MLL

### 5.1. What is a Mobile Learning Lab (MLL)?

MLL, or Mobile Learning Lab, is an education technology solution. At the heart of an MLL is a Remote Area Community Hotspot for Education and Learning (RACHEL), a portable and battery-powered server that can be pre-loaded with all kinds of educational content and is accessible without Internet. The RACHEL was developed by an NGO called World Possible, as a means of bringing educational content to areas without Internet access. In the MLL model, the RACHEL is paired with a set of tablets or smartphones, along with a way of charging the battery (i.e., solar power). These elements together make up an MLL. In 2017, 60MG funded a pilot project to test the efficacy of MLL in helping girls cross educational milestones. The pilot project, based in Sierra Leone's Koinadugu district, had an annual operating cost, including a solar charging system, of less than \$0.08/student hour and offered students in grades 4, 5, and 6, in five different communities, significant hours of learning (Guyatt).

### 5.2. MLL Type of Technology and Delivery Model

#### 5.2.1. Type of technology

As mentioned, MLL technology uses RACHEL, which is a small hand-held device that can fit into the palm of one's hand, has storage capacity up to a maximum of 500 GB of content and acts as a Wi-Fi server with ability to connect up to 50 tablets simultaneously. These features enable children to use the MLL for accessing pre-downloaded educational content. This content can include math and science tutorials on KA Lite (the offline version of Khan Academy), interactive literacy software such as Fantastic Phonics, and storybooks, among other resources (Guyatt). The RACHEL costs under USD 500.

#### 5.2.2. Delivery model

The key distinction between the use of the RACHEL and the use of the MLL is that the RACHEL can be deployed in many different delivery models. There are currently 4000 RACHELs deployed worldwide. For example, in World Possible's project in Guatemala, the RACHEL is used as an educational learning resource in rural school settings, where it has been permanently installed in the school, i.e., it is not mobile and cannot be transported to different places. World Possible ships out RACHELs, and most projects place them in a permanently fixed place. The unique use of RACHEL in the 60MG MLL delivery model entails that it is mobile, it can travel from place to place, and it can be deployed as an educational resource in after school hours, at different locations.

The content on the MLL can also be updated by bringing it to a location with Internet connectivity, and it is therefore customizable based on local needs. Since all components of the RACHEL are open-source software and it is a plug-and-play device, it does not require IT specialists to operate (Guyatt). However, it still requires a degree of technological literacy that may be beyond the grasp of some people. Hence, the MLL is best used as a supplementary resource to in-class teaching, provided after school, with an adult present who, if need be, can help navigate the technology.

This is in line with the approach currently deployed by 60MG whose MLL projects have stressed that they do not intend technology to replace the local curriculum or compete with local teachers, but to supplement their efforts ([Guyatt](#)).

### **5.3. Value Proposition of Mobile Learning Lab (MLL)**

#### ***5.3.1. Addresses gender disparities***

Of course, the MLL is not itself specifically designed to address gender disparities in education. But it has many elements integral to its design and application that make it well suited to serve this purpose. By providing supplementary learning materials that are self-paced, girls can use MLLs to expand their knowledge in topics of interest, to bring them up to speed in subjects where they are falling behind and enhance the quality of their education which varies widely in rural settings. As we will discuss below, MLLs have been shown to improve literacy and numeracy, as well as improving confidence generally for girls in their education. MLLs can also be loaded with content modules pertaining to sexual and reproductive health—information which is sorely lacking in many communities. The mobility of an MLL means it can be targeted directly at girls in localities that are at-risk of dropping out or failing school. In line with our HRBA, therefore, MLL has the potential to precisely target and overcome certain expressions of gender discrimination. MLL interventions typically involve cultivating a strong sense of community ownership over the technology, which can also be directed particularly at mothers and other caregivers to encourage their girls to attend MLL sessions.

#### ***5.3.2. Provides practical features and holistic approach***

MLL technology has a few key features. It is simple, inexpensive, easily transportable, and does not require the Internet— which is crucial in remote villages where online connectivity is not always readily available ([Guyatt](#)). The content is also customizable, meaning it can be adapted based on the local curriculum. It has also been used to store past exams, so students can get more practice for their O levels or other major national, international, or state-level exams. MLL is best viewed as a supplementary tool to the education system than as a replacement or substitute. One of our interviewees noted that, when designing digital learning for post-secondary and tertiary education, it is important to know how to provide high quality interactive learning that provides a similar level of social outcomes. The digital learning model of the MLL takes a holistic approach to education, incorporating content that addresses mental health, physical well-being, social interaction and learning. An MLL might house content aligned with school curricula, as well as information pertaining to public health, local agriculture, and reproduction. Thus, it is a supplementary learning resource in the broadest sense: providing rich learning content that might otherwise be inaccessible for students in low-resource settings.

#### ***5.3.3. Provides self-directed learning environment***

Many deployments of the MLL focus on self-directed learning. Students are given the tablets with minimal interventions and select whatever content modules they wish to learn about. Students

come in after school and use the MLL by choosing from a wide array of content modules themselves, under adult supervision, without imposing on the teachers' schedules. This self-directed element of the MLL allows students to explore their own passion or interests. Leapfrogging the education system, MLL tries to address its shortcomings with a pathway to rapid nonlinear progress. From an HRBA perspective, this self-directed environment can help cultivate a stronger sense of empowerment than traditional classrooms, as the student herself takes charge of her learning. While this self-directed model is a major strength, it also requires a lot of discipline. Great care must therefore be taken to curate content and leverage the resources MLL can offer. The visual and dynamic nature of tablet-based learning materials also helps in this regard. Content can be curated based upon learning materials that are engaging, or even gamified. For example, some deployments have included math or trivia games that spark a precocious interest in subjects that are often challenging.

#### ***5.3.4. Engages business community and provides technological literacy***

The MLL is also enticing and engaging to the business community, because of the informal technological training it offers. Businesses know that the youth need to be trained on computers, and regular classrooms are unable to provide this knowledge. Currently, most schools in Sierra Leone only have a chalkboard, and are sometimes lacking in chalk. The MLL provides a regular, informal, and immersive environment for students to learn computer literacy skills. The business community may see the MLL as an opportunity to ensure that the future workforce of Sierra Leone is computer literate. We therefore expect that many businesses would be willing to fund MLL projects to ensure that the youth of Sierra Leone acquire these skills since they know that to bring Sierra Leone economically forward, the workforce cannot afford to be left behind in the digital age.

#### ***5.3.5. Helps educational authorities signal a positive message***

If local educational authorities in Sierra Leone implement the MLL, it allows them to signal a message that they are adopting an innovative approach to education and preparing their students to succeed in the digitized workforce. Such a positive step towards addressing gender disparity in educational outcomes also aligns with the MBSSE's vision to have appropriately educated entrepreneurial and innovative citizenry who are tolerant, productive, and internationally competitive by 2030. It would also help MBSSE show that it is making practical progress towards achieving its goals and strategic objectives of improving access, equity, and completion of education, improving the quality and relevance of education, and strengthening education service delivery. Organizations working on MLL implementation may therefore find that educational authorities are valuable partners.

### **5.4. Digitization of Education During COVID-19**

In light of COVID-19 and future pandemics, the MLL can also be leveraged as a very useful policy tool to mitigate the overall setbacks the educational system has faced because of school closures. MLL is essentially a decentralized that, weather permitting, can be conducted outdoors at safe distances. This can enable children to continue learning and uphold their right to education, even

while schools are closed. Across the world, governments and school systems have rapidly developed and rolled out online educational programming with at-home printed materials.

During the pandemic, distance learning educational resources play a crucial role in supporting children's mental health and overall wellbeing, engaging families and children with public health and WASH messaging and creating awareness about how to protect themselves, their families and communities ([Save the Children](#)). However, with unequal access to technological resources and delivery channels, distance learning has greatly deprived poorer and marginalized children from realizing their right to education, access to lifesaving messages and exacerbated the unequal impact of learning losses from school closures ([Save the Children](#)). In sub-Saharan Africa, 28 million learners live in locations not served by mobile networks, 89 per cent of learners do not have access to household computers and 82 percent lack internet access ([Save the Children](#)). For children from marginalized groups, internet access is even more particularly limited. This makes the need for MLL all the more relevant and urgent.

In Sierra Leone, the COVID-19 pandemic prompted the government to implement radio-based education, which was also used previously during the Ebola epidemic. The government has also experimented with providing an SMS and USSD accessible dictionary to students. What this demonstrates is that the government has an openness to digital solutions to education gaps. Hence, the introduction of the MLL in Sierra Leone, with potential expansion across all sub-Saharan Africa in the long term, could mitigate all of the above stated issues and result in substantial improvement of educational learning outcomes. The MLL will likely have the most impact as a way for children to catch up on lost days of instruction in class through access to self-directed learning after school hours which would enable children to focus on those areas they need the most help in. It will serve as a form of remedial learning.



## 6. Best Practices for MLL

**Quick wins:** 60MG could share MLL best practices with all implementing partners and adopt a continuous learning process to efficiently integrate new best practices that emerge from experience.

In reviewing the application of MLLs in different countries over the last several years, our observations cohered tentatively into a set of best practices. We offer these to help guide future deployments of MLLs, as well as to create a basis of knowledge to be further refined as more experience is gained with MLLs.

We have identified five broad best practices. Future uses of MLLs would do well to 1) design targeted interventions; 2) set clear learning objectives aligned with national curriculum; 3) collaborate with a local implementation partner(s); 4) set time-limited MLL interventions; and 5) cultivate community ownership. The aim of employing these best practices is to strengthen accountability and create an enabling environment where all stakeholders are able to protect children's right to education. Each of the best practices are discussed below.

### 6.1. Design targeted interventions for specific age groups

If the MLL is to effectively address gender disparities, it should consist of targeted interventions, based on specific age groups, which will create the greatest impact on learning outcomes. For example, in Tanzania, older girls, who are better at English, tend to do better with the MLL because they understand the content modules and are more interested in learning from them. The girls seemed more interested in motivational content like TED talks, and not as much as the program directors would like in the reading or writing content. MLL would have the most success if interventions and content were ultra-targeted to age groups. Targeted interventions for girls while they are young, for example, would help keep them up to pace, catching them with interventions at the right age. Targeted interventions are helpful also because they allow for better monitoring and evaluation. Having the learning lab be "mobile" makes it difficult to see the true impact on various communities because the intervention is dissipated among different communities of girls. At the same time, having it mobile enables it to reach a broader group of marginalized children. Targeting by age group thus gives a better evaluative foothold. Targeted content is also important. One of our interviewees characterized educational content through a windows and mirrors analogy. You want windows—material that can open up a new world to users—but you also want mirrors—material in which the user can see him or herself. Having both is critical to developing habits of reading and writing (and perhaps learning). The younger the child, the more mirrors you probably want. Appropriate, high-quality reading materials are key to developing targeted interventions and a reading population from an early onset.

### 6.2. Clear learning objectives aligned with culturally appropriate content

Set clear learning objectives through MLL use, ensuring that the MLL content is culturally relevant. The creation of localized content is paramount for community buy-in, and one of the best ways to

ensure local relevance is to align content with school curriculum. When content can be related to national exams, it helps the parents and community feel that the MLL is important. Self-directed study through MLL may also be an issue if it is not paired with a clear curriculum focusing on what the children are supposed to learn. A recent UNHRC webinar on learning equality noted the importance of matching online learning content to a national curriculum since digital resources are most effective this way, particularly when locally contextualized. The webinar highlighted that this is largely due to the fact that sorting through thousands of resources online can be an exhausting task for even the most well-informed and talented teachers and students.

Moreover, cultural issues can arise in applying technology from the Global North into Global South contexts. Khan Academy's pedagogy, for instance, makes use of culturally-specific examples in trying to explain certain concepts or ideas, which may not be translatable in the Lite version<sup>1</sup> that is often loaded on the MLL. This specificity implies that at least some material from Khan Academy may not be optimal for children in Sierra Leone. Learning materials should be relevant to the learner's daily life, in their local context. If not, then the material will be hard to grasp and understand. That is why, apart from the usual repertoire of Khan Academy modules and other typical sources, the content of an MLL should be updated to include materials from the local educational system, as well as other culturally appropriate learning material. The efficacy of MLL also depends of course on the students' ability to literally understand the content—language barriers are a real problem, especially if content is only in English, which, as aforementioned, despite being the official language of Sierra Leone, is not necessarily widely spoken. The MLL may be most effective in improving the learning outcomes of children in Sierra Leone if loaded with more appropriate language options.

### **6.3. Collaborate with local implementation partners**

Following from the point above, a successful MLL project will identify an organization or group of people on the ground that can coordinate localized content generation as a social entrepreneurship project. This would be a partner who can treat uploading local content as a business. Collaboration of course expands beyond content generation to a broad range of tasks. Project managers can benchmark collaboration against successful RACHEL implementations in Guatemala and Nicaragua by Change for Children. These projects were managed through an implementing partner, a civil society institution working closely with communities. Change for Children provided the funding, and the implementing partner had a Stakeholder Advisory Committee that selected relevant stakeholders responsible for the task. The entire project worked in collaboration with Change for Children and the implementing partner, with the government playing its middle role for approvals, legal procedures, and teachers and school staff provision. Using a similar approach, MLL projects in places like Sierra Leone can build effective collaboration schemes with partner organizations to develop content modules in the local language.

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<sup>1</sup> An offline, installable version of Khan Academy.

#### **6.4. Set time-limited MLL interventions**

To ensure long-term sustainability, set time-limited MLL interventions, with efforts to cultivate community ownership from the start of the intervention. Such time limitations frame interventions as initial introductions of the MLL to communities, instead of an endless program that an NGO must oversee throughout. They also help make interventions discrete and intelligible, thereby making it easier to track and monitor learning outcomes after each.

#### **6.5. Cultivate community ownership**

Effective MLL deployments also develop community ownership around the MLL. One way to do this is by providing MLL access to community members who are not necessarily in school, as that would develop a sense of civic responsibility towards guarding the devices and allowing the children to learn on them. For example, a strategy similar to One Billion could be adopted, which focused on the provision of solar-powered tablets to parents. The MLL is meant to address immediate concerns around quality education, supplementing instruction by teachers and educational infrastructure to give immediate access to quality education to generations that would otherwise slip through the cracks of a nascent educational system. Apart from engaging with stakeholders such as community leaders, district education officials and the business community, parents', and caregivers' opinions on the MLL should be given a greater weight in the feedback loop mechanism as they are very important to ensuring that children remain engaged with the process. Engaging parents is a key step to cultivate community ownership over the MLL technology.

## 7. Data/Case Studies

**Quick wins:** We recommend 60MG organize a meeting with their local implementing partners, in which the latter can share their current challenges and potential solutions for deploying the MLL under the special circumstances of the pandemic. Likewise, to better understand the information gathered in project reports, it would be worthwhile to add another layer of analysis and run a "user journey mapping", a tool that allows one to visualize the experience of an MLL user throughout its implementation and understand the user's needs and perceptions.

When working with and supporting children, great caution should be taken to mitigate any impacts that could harm their emotional or physical wellbeing and educational achievement. As such, we felt it important to highlight the impacts MLL has had on children in previous case studies. Learning from MLL projects in the past can help inform accountability measures for future MLL projects. Specifically, knowledge has been gathered from previous MLL project experiences on how children's right to education has been affected by the MLL deployment. Below, we have captured some of the chief insights which can strengthen accountability in future projects.

### 7.1. MLL Case Studies

#### 7.1.1. Sierra Leone

In Sierra Leone, the local implementing partners, Cause Canada, used the MLL as an after-school program. Paralleling the current COVID-19 pandemic, they started their MLL project during the Ebola outbreak; with it, they were able to keep children educated while schools were shut down. They found that the use of tablets acted as a "wow factor" to bring children into the program. Because the technology is novel, the children treasure the opportunity to use it.

One MLL program continued during COVID-19 but with a different adaptation. The partner identified particularly vulnerable girls who were out of school, uploaded Khan Academy Lite content, and some other educational programs onto each tablet, lent tablets to each girl in the program, and asked their parents to sign an agreement that they would use it a couple of hours a day for educational purposes. Now, many of the girls are going back to university and they have so much confidence—they are actually thriving better than ever in their classes. This shows that well-targeted interventions and flexibility help to overcome challenges like pandemic-related constraints.

The following outcomes are taken from 2013-2017 pilot tests and a 2017-2018 evaluation project in rural Sierra Leone (Koinadugu district). The purpose of the MLL evaluation framework used in these examples is to examine how well instructional materials are delivered and to determine the impact of this initiative on math and literacy skills, as well as on noncognitive skills (intrinsic motivation, self-confidence, and level of aspiration). The framework assesses the delivery of educational materials "in a way that is interesting for students, harnesses their intrinsic motivation to learn, increases their self-confidence and results in superior learning outcomes, as measured

by learning assessments at the start and at the end of the project compared to a control group” ([60 Million Girls, MLL Evaluation Report-Sierra Leone](#)). The evaluation found that the MLL:

- Produced great interest and engagement over the long term, with attendance rates of 90% and up to 8 months of weekly use during the evaluation.
- Required low investment and was cost-effective, with an operating cost per student of \$0.08/student hour.
- Motivated curiosity for new subjects, such as STEM and business.
- Promoted digital immersion and literacy, as students showed interest in using the devices (tablets, laptops) and navigating digital resources.
- Improved math and literacy scores. Both test scores increased, especially, literacy (31% increase vs baseline in contrast to 19% for the control group).
- Retained Intrinsic motivation to engage with it. Students would line up outside the MLL even though attending demanded an extra effort (more walking, extreme weather).

### **7.1.2. Guatemala**

In Guatemala, MLL is being delivered in 10 schools through three different system setups. They have regional delegates in charge of education in the region who deliver capacity-building workshops for the teachers. They work in a region accessible by road which is 7 miles uphill from the capital city. The Guatemala regional office has enough resources to provide hard copies of learning materials to teachers in the nearby schools in the region and there are resources available online in Indigenous Mayan languages, which played an important role in their training. A Massive Open Online Course (MOOC) was designed to improve teacher pedagogy, which was available in English and Spanish, but not in Indigenous languages.

According to World Possible Guatemala, RACHEL devices have been deployed in about 350 schools nationwide. Most of them are not MLL implementations as aforementioned. And their main funding stream comes from the Rotary Club. World Possible believes that Guatemala’s case is unusual: expatriates have proved to be a great funding source from expat dollars that is directed to strengthen sustainability in development projects. Also, there are many fiscal sponsors willing to commit in the long term to some of these projects. However, not all RACHEL deployments have the same support in the long run. One possible explanation for this is that benefactors tend to think that there is nothing more to be done besides installing the devices.

### **7.1.3. Uganda**

Embrace International is the implementing partner in this country, and their project received approval from Global Affairs Canada through the Fund for Innovation and Transformation in Sierra Leone. The purpose of the project was to try to find educational apps specifically targeted towards children with visual and hearing impairment, slow learners, physical disabilities, and global developmental delay, and evaluate whether cognitive or non-cognitive skills increased through the use of an MLL offered at school for two hours, twice a week.

The socioeconomic background of the villages in Uganda is quite similar to Sierra Leone with no electricity or Internet and primarily rural communities so the methodology of the project mainly focused on loading various content materials onto the RACHEL. The project is ongoing and in its preliminary stages because as soon as the baseline assessment was completed, all schools were closed due to COVID-19 in March 2020, with the project restarting in March 2021. The baseline was conducted in 10 primary schools, focused on grades 5 and 6 with 100 children in each of the 10 schools, 3 of which were control schools, and 7 intervention schools. The MLLs were set up in 7 schools with the RACHEL server, 30 tablets, and one iPad. The purpose of the iPad was to adapt the Sierra Leone MLL model specifically for children with disabilities.

## **7.2. Similar Education Models**

### ***7.2.1. Sugata Mitra and Self-Organized Learning Environments (SOLE)***

In their pedagogical approach, MLLs have a lot in common with Sugata Mitra's Self-Organized Learning Environments (SOLE). In his initial experiments, Mitra installed what he called a 'Hole in the Wall', a computer sunk into the opening of a wall with its screen facing the playground. In this case study, children began surfing the Web and started teaching other children how to do so as well within eight hours, without any instructions or adult supervision. Some of the key learning outcomes were that children learned how to play MS Paint, other games, and look up information on the Web, in addition to learning some crude but workable English to enable them to do all this (Mitra, 2020). Similar subsequent experiments over several years made it clear that if children are exposed and given access to the Internet in safe public spaces, they can learn how to navigate computers and the Internet, without any instructions from adults (Mitra, 2020).

Mitra's case study is helpful to benchmark against because it implies similar outcomes for tablets preloaded with educational content from the MLL. That is, if given access to an MLL in safe public spaces with minimal or no instructions, children in Sierra Leone also have the potential to achieve similar learning outcomes. This was also confirmed by the previous Sierra Leone case study, in which children were exposed to the MLL without prior instruction, and quickly discovered how to access the content and learn from it.

## 8. Stakeholder Engagement

**Quick wins:** Given the complex social structures in many rural communities in Sierra Leone, any successful program implementation requires mapping out the community and ensuring partnerships are created among stakeholders from beginning to end. It is important to look at each community independently and map out relevant actors. Once the stakeholders are identified, a demonstration of what the MLL is and how it enhances the quality of the educational experience may help build confidence in its utility. It is important to note that stakeholder mapping will allow for high impact with only minimal effort.

The effective implementation of the MLL requires a holistic approach in which partnerships are created amongst various stakeholders. There needs to be a recognition of the value-added and expertise brought by each stakeholder ([UNESCO, Experience-Sharing Workshop](#)). However, stakeholders may have pre-existing biases, concerns, and awareness and knowledge gaps that need to be overcome before they are able to participate in the MLL project. The following section provides detail on stakeholder engagement, and pays particular attention to the participation, empowerment, and accountability of an array of stakeholders.

### 8.1. Who should be MLL partners?

The appropriate stakeholders for the MLL are those who play a powerful role in identifying and targeting mechanisms to improve access to education for girls ([UNESCO, Experience-Sharing Workshop](#)). Furthermore, to ensure there is no duplication of work, strengths and weaknesses of each stakeholder need to be identified by feedback loops and leveraged appropriately to implement the MLL project. The key to success amongst stakeholder collaboration is the collective effort of all stakeholders to ensure the mission and vision focuses on the desired outcome of access to quality education for girls. As such, the following stakeholders have been identified:

➤ **The Children:** Children living in poverty or in violent contexts have very little control over what happens around them. HRBA seeks to identify all the potential barriers and problems the rights-bearer will face in a given situation. For the context of quality education for children, especially girls, in Sierra Leone, the rights-bearers are the children. Thus, if we are to ensure the rights of children are being protected, it is their voices we need to listen to. From past MLL case studies, we have come to understand that the MLL enabled children to indulge in their intrinsic curiosity and explore topics that match their individual needs. Children had positive reactions towards self-directed learning, with some children saying that the free play on tablets enabled them to “learn without violence”. Given the aim of the MLL is to put learning directly in the hands of children, special efforts need to be made to ensure children are the primary stakeholders. All other MLL partners need to make efforts and align their actions with the best interests of children.

➤ **The Government:** Sierra Leone's Constitution recognizes education as a fundamental principle of State policy and directs policies towards ensuring equal rights and adequate educational opportunities (Article 9), protection of freedom of conscience (Article 24), and non-discrimination (Article 27) ([Right to Education Initiative](#)). The commitment to equal rights, adequate opportunities, and protection of freedom of conscience is reflected in numerous national legislations including the Education Act (2004) and The Child Rights Act (2007). For example, the Education Act (2004) aims to "provide facilities for all citizens to be literate and numerate and help them to cultivate the knowledge, skills and attitudes that will enable them to earn a good living" ([Right to Education Initiative](#)). MLL and its capability of providing digital educational content to students in rural villages directly aligns with the government's objectives to help students cultivate knowledge and skills required to be competitive in the international workforce. Additionally, Section 4 of the Act also calls for a decentralisation of education management by establishing a "Non-Formal Education Council to be responsible for developing and implementing programmes" ([Right to Education Initiative](#)). The government's acceptance of decentralising education management is promising and opens up an opportunity for adoption of contemporary educational tools such as the MLL.

Furthermore, Ministries of Education are central to all interventions related to education. They are the coordinating bodies for girls' education activities ([UNESCO, Experience-Sharing Workshop](#)). In Sierra Leone, the relevant agency is the Ministry of Basic and Secondary Education (MBSSE), which sets the national curriculum framework and guidelines for basic education and provides access to complementary funding schemes.

It is important to note that ministries of education have a plethora of priorities and often require tangible proof of concept before investing further resources. Adding to this, government bodies are inherently bureaucratic machines that rely heavily on rules to govern their personnel and policies. While government partnerships hold great potential, there has not yet been a successful example of a RACHEL project being implemented solely in collaboration with a local government, though it has been attempted several times in numerous jurisdictions across the world. Relying solely on the government to support implementation would no doubt prolong the roll out of an MLL project.

➤ **Businesses:** The involvement of businesses in an MLL project is multifaceted and as such there are many possible forms of private-public partnerships. Internet service providers, for example, are often obliged to provide universal coverage when they win wireless spectrum contracts or invest in communities in other ways when not possible owing to the lack of 4G infrastructure. RACHEL projects have been discussed as fulfilling this obligation. As such, MLL projects may find information communications technology companies such as Orange, Africell, Vodafone, Vodacom, and Safaricom to be interested stakeholders. Furthermore, Sierra Leone is well known for its mining industry, which can negatively affect local communities through its activities, including exposure to toxins, accidents, and intrusion on community land ([Stewart](#)). Many mining corporations recognize the negative externalities their activities bring and have established corporate social responsibility programs which MLL projects could leverage funding



from. But such partnerships would have to be considered carefully through an HRBA lens, as well as from the perspective of children as the primary stakeholders, to ensure that such partnerships would do more good than harm.

➤ **The Not-for-Profits:** The normative priorities of various international and domestic not-for-profit organizations, such as gender equality and access to education, make them yet another stakeholder in MLL projects. Various UN bodies, including UNICEF, UN Women, UNESCO, and UNFPA have established projects in Sierra Leone. Their practical experience on the ground in engaging with stakeholders, combined with international experience has equipped them with logistical and contextual insights that could be leveraged for an MLL project. On the other hand, domestic organizations such as Street Child, Mother's Club, Girls Access to Education (GATE), and Teach for All, play a critical role in improving access to education in Sierra Leone by providing financial support, recruiting teachers from under-resourced schools, and supporting communities to create their own solutions, among other initiatives ([Thelwell](#)). Domestic organizations have their own benefits, namely their comprehensive understanding of the cultural complexity regarding access to quality education for girls in Sierra Leone.

➤ **The Local Schools:** Teacher buy-in is crucial for an MLL project as they are the boots on the ground of the existing educational infrastructure. Teachers, however, often feel threatened by MLL projects, in part because of a lack of confidence in their technical skills and also their perception that educational technology will make their work obsolete. Given that teaching and learning strategies have a strong influence on student outcomes ([Echazarra et al](#)), MLL projects may wish to create and strengthen a shared "teaching culture" around the same vision and teaching approaches. For example, Team4Tech, an international non-profit organization, works with other local non-profit organizations to build teacher capacity by providing resources and teacher training with the goal of improving student learning outcomes ([Team4Tech](#)). Team4Tech has applied its model in Kenya and Tanzania and has trained over 1,000 teachers and 55,000 students ([Team4Tech](#)). Although Team4Tech currently does not have any projects in Sierra Leone, partnerships with organizations similar to Team4Tech would be beneficial for building teachers' capacity and confidence with the MLL. The broader school community, particularly school heads, also play a crucial role in supporting development and maintenance of effective educational programs.

➤ **The Community and Caregivers:** The cultural complexity of access to quality education for girls is best understood by the village, local leaders, families, and girls themselves. The influx of foreigners and development organizations into Sierra Leone has contributed to this complexity, and interventions have not always succeeded. This has led to much skepticism among local communities about the role foreigners play in the upbringing of their children, with local leaders exerting tight political control over their communities. Traditionally, the majority of rural leadership positions and decision-making processes are controlled by male elders, and especially so in rural communities where there is an absence of jurisdictional leaders ([Manning](#)). The successful implementation of MLL would require immediate engagement with local councils and traditional

community leaders to help them understand how the MLL and its self-directed pedagogy can add value to children's education.

Furthermore, girls in Sierra Leone are disproportionately burdened with household chores, and, because of this, parents are wary of augmenting their education beyond the basic level they receive at school. The opportunity cost of sending their daughters to school is thought to be higher in cases where the parents feel that their daughter is not getting a quality education ([Brownell](#)). Additionally, a randomized controlled trial by Van Voorhis et al. revealed that positive family interaction fosters greater academic achievement and achievement-orientated attitudes, further emphasizing the need for parental support of the MLL if it is to benefit the most vulnerable girls ([Van Voorhis et al.](#)).

## 8.2. Community Engagement

Community engagement is critical to ensure that those who are directly affected by the MLL project understand it. HRBA-E further necessitates that affected individuals participate in an active, accessible, and meaningful way. At the same time, many rural communities deprioritize girls' education and do not fully appreciate the potential of technologies like the MLL to assist in educating girls.

In 2018, the Government of Sierra Leone launched the Sierra Leone Free Education Project aimed at "improving the management education system, teaching practices, and learning conditions" ([World Bank, Development Projects: Sierra Leone Free Education Project](#)). The project's objectives are in direct alignment with the capabilities of the MLL and as such can prove to be an effective guideline for stakeholder engagement in an MLL project. The detailed Stakeholder Engagement Plan focuses on:

- I. Who will be directly or indirectly affected by the projects;
- II. How does the project reach out to stakeholders, and;
- III. How does the project share information and get stakeholders involved in the decision-making and implementation of the project ([OECD, Sierra Leone Free Education Project Stakeholder Engagement Plan](#)).

Children's education requires a significant amount of resources and time spent by the parents. In rural towns, this often means choosing which child is given the gift of education and which is not. Transforming the belief that girls are less worthy of education requires the community to participate, gain experience with educational technology, and ultimately gain confidence in the MLL as a valuable tool for quality education ([Roper & Roper](#)). A demonstration of the MLL, its benefits and shortcomings, and its role in education is required to convince parents that their time and resources are an investment for their children's future. Local NGOs have been trying to propel the shift in the community mindset for girls' education and have been fighting this battle at a general level for years. Local NGOs can leverage their long relationship with the community to organize community engagement. In collaboration with the local NGOs, MLL project managers could organize demonstrations of the MLL in village/chieftom meetings, town halls, or a simple

informational stand in the community ([OECD, Sierra Leone Free Education Project Stakeholder Engagement Plan](#)). Still, they must have prior approval from community leaders.

Rural communities in Sierra Leone are home to vulnerable groups with specific characteristics and needs that differ from those of the urban population. These differences include “limited voice, low representation, and lack of access to information,” which combined create a complex environment for an MLL project’s stakeholder engagement ([OECD, Sierra Leone Free Education Project Stakeholder Engagement Plan](#)). Mothers are especially disempowered by the prevailing gender norms, yet they are often the primary educator of children. This makes targeted stakeholder engagement for them paramount. Communication measures such as reaching out to women’s associations and female groups at the chiefdom/village level may help bring women’s voices to the fore in contributing to an MLL project. Furthermore, separate consultation sessions (e.g., meetings and focus group discussions) for men and women, gendered focus group discussions, and gender issue workshops will also provide a safe space for women and girls to share their thoughts, questions, and concerns regarding the MLL.

Moreover, the organizational structure within rural communities in Sierra Leone is such that the local educational authorities manage the implementation and delivery of the curriculum. As mentioned in the “Best Practices” section, if the MLL is to be effective in providing quality education, it must align with the local curriculum. Consultations between the project managers and local educational authorities can assist in transferring the appropriate knowledge between the MLL project managers and the local educational authorities. This can look like regular information-sharing initiatives (including demonstrations of the MLL and a summary of the requirements for local curriculum), followed by brainstorming sessions to explore how the MLL can be compatible with and complementary to the requirements of the MBSSE.

MLL projects should include a Grievance Redress Mechanism (GRM). A GRM provides a channel for stakeholders to provide feedback on a project and its activities and strengthen accountability ([OECD](#)). Its ability to identify problems, including complaints and misuse of funds, would allow project managers to search for resolutions and mitigate any harmful impact the MLL may have on the community ([OECD](#)). Establishing a GRM as part of the stakeholder engagement process would serve as an important feedback and learning mechanism that would help improve the implementation of the MLL to be best suited for the community.

## 9. Awareness and Knowledge Gaps

**Quick wins:** Programs depend upon buy-in from the community and participants. But in deploying programs, there are always knowledge gaps among stakeholders. Making concerted efforts to reduce these knowledge gaps among community members and program participants, including teachers and school administrative staff, could result in MLLs having greater traction in communities. This traction could include increased teachers' confidence in using technology, as well as parents' readiness to keep their girls engaged in the MLL and in school. One way to reduce these knowledge gaps would be to increase the human resources around MLL deployment in the form of volunteers and interns from the local communities.

### 9.1. Validity of concern

Access to education is a basic human right. From a public policy perspective, we might ask, despite the established mechanisms and institutions in place to provide and manage access to education, why are children in marginalized communities still out of school? According to recent estimates of the UNESCO Institute for Statistics ([Out-of-School Children and Youth | UNESCO UIS](#)), approximately 258 million children were out of school at the end of 2018. It includes 59 million children (23%) of primary school age, 62 million children (24%) of lower secondary school age and mostly 138 million (53%) of the upper secondary school age.

These estimates suggest that even when children enroll in primary school, they may not finish their secondary education, posing a risk of education continuity among communities. Hosts of reasons can be found for this truncation of education. Abhijit Banerjee and Esther Duflo in their book *'Poor Economics'* (2011) have categorized these reasons into demand and supply dynamics. The demand-side dynamics are market driven therefore, it is discussed comprehensively in this section and supply-side is mostly government led and is therefore touched upon in the funding section.

In Sierra Leone, the demand-side of education is influenced by the high prevalence of diseases such as the HIV and Ebola outbreak, because many children, especially girls, stay home to take care of their sick parents, or orphaned siblings (Ngegba, P. M., and Mansaray, A. D). Marginalized families are often struggling with despair and the sense that their children may not have a better life, even with education. Even under government-subsidized public education, parents are sometimes reluctant to continue education of their children, owing to many factors. Instead, parents in these low-resource communities prefer their children to contribute to the household through various kinds of work.

Education technology adoption in rural and remote communities is trying to overcome these market-driven gaps. An expert from our interviews has highlighted an important question: what do we know about these communities' willingness and capacity to adopt technology-based solutions? The one-laptop-per-child (OLPC) model is not effective in the long run. The OLPC program was initiated with the assumption that only technology can bring creative change in learning. However, it quickly became clear that simply distributing laptops would not meet learning

objectives. Understanding cultural contexts of learning and creating community awareness around technologies helps take educational interventions beyond the mere provision of technology; however, this understanding was arguably lacking in the OLPC implementation.

Creating community awareness about education technology will require a comprehensive and collaborative approach. According to our interviewee, there is a negative perception of online learning and digital learning which is quite common across African countries such as Mozambique, Angola, and Sierra Leone. These negative perceptions are mainly rooted in social and generational hesitation to accept technology as an education medium. Applying education technology such as the MLL in such markets will require overcoming the hesitancy by these communities through collective ownership. There are also concerns in different countries, including Sierra Leone, around the teachers' lack of technical skills to operate MLL devices and make the best use of it for children.

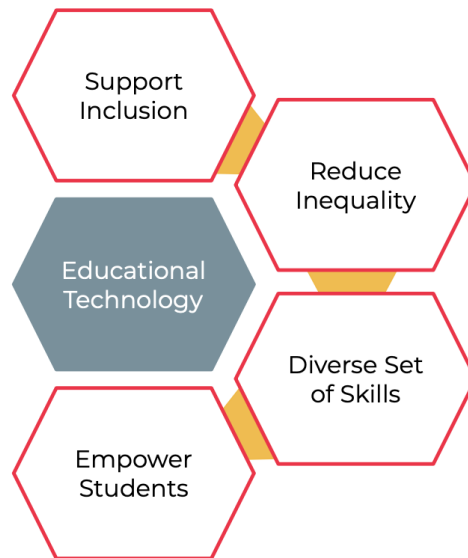
Despite all the concerns about education technology and the associated knowledge gaps, many of these can be circumvented by the self-paced learning that the MLL provides. For example, Pratham's Digital Initiatives experimented with an open-sourced learning mechanism whereby children were engaging in group learning on tablets. They had no limitation of time and could learn at their own pace. In an internal assessment through randomized control trials in Dausa, Rajasthan, India, the Pratham team found that there was an increase of 12% in the learning outcome in the treatment group compared to the control groups. The study concluded that the better outcomes in learning were achieved through self-paced group learning, where the children were empowered to make their own learning decisions and navigate digital platforms independently ([Digital Initiatives – Pratham](#)).

## **9.2. Reducing the gaps through education technology**

### ***9.2.1. Government-specific Value Proposition***

Education technology is trying to bridge the gap between demand for education and accessibility, while also making learning more interactive and empowering for children. It is in the interest of the government to support these efforts. The government of Sierra Leone strategically gives importance to the education of rural communities, and especially for girls so that they can secure a better future for themselves. The government's education policy commitments include "hav[ing] appropriately educated entrepreneurial and innovative citizenry, tolerant, productive, and internationally competitive by 2030." The characteristic features of education technology are summarized in Figure 1 below.

Figure 1: Closing the Gaps through Education Technology



Some governments have already begun taking significant strides toward ed-tech solutions for rural communities. To increase access to learning and support education equality, Nicaragua's Ministry of Education has developed a digital library for rural communities that targets girls' education, though it is not as sophisticated as the MLL. It is quite basic, but this example shows that governments are increasingly sensitive to the importance of digital learning, and as this sensitivity increases, it may facilitate the adoption of technologies like the MLL.

### **9.2.2. Teacher's Training**

Availability of teachers is a predictor of a successful quality education program. Granted, MLL is a self-directed education model. Nevertheless, the support of teachers enhances its execution and delivery. Many children in the rural communities are not confident using technology on their own. There are cases in which the model can be entirely self-directed, but even then, teachers are valuable in supporting the project and can even be enlisted for help for Monitoring and Evaluation purposes.

By and large, however, the MLL has seen great success when integrated with the classroom, and as such, training for the teachers in its use and utility is important to successful delivery. In Sierra Leone there is a lack of teachers for upper primary and secondary schools. The availability of female teachers and secondary teachers in rural areas is sparse owing to a lower level of tertiary education among young women in these communities. This lack of female teachers models an absence of women from education generally that contributes to girls dropping out of school. Therefore, to reduce the gap the government of Sierra Leone is taking initiative to increase the female workforce and introduce teacher's training programs as a strategic objective that will be first implemented in cities and will further cascade to rural communities. Training on education technology remains *prima facie* to this program. In this regard, the MLL can be promoted both as

a technology to train teachers and as a technology that trained teachers can use in their classrooms.

## **10. Measuring Learning Outcomes**

The assessment of MLL deployment in Guatemala has identified some important ideas around measuring learning outcomes for an MLL project. Recording changes in standardized test scores is not sufficient. Often outcome assessment is conducted by third parties or external evaluators which may undermine the stakeholders' involvement in the process of continuous development. Assessing learning outcomes should be a coordinated effort with a visible involvement of relevant stakeholders such as school staff (teachers, admin staff and management), implementing partners, funders, and government representatives (if applicable).

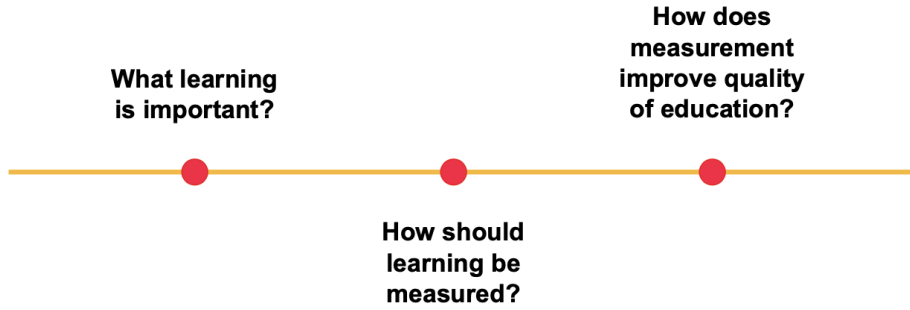
Moreover, the impact assessment of this program should comprise more than simply increasing or retaining enrollment in schools. It is more about providing quality education that helps students in their personal and professional development. Among other imperatives, therefore, learning outcome assessment needs to be designed to ensure that MLL projects are preparing students for challenging and ever-changing market conditions along with the possibilities of accelerated learning and improving the education delivery system.

One such approach is the Learning Metrics Task Force (LMTF) adopted by the Brookings Institution. It is a holistic measure of child development from social, psychological, and educational development to education system strengthening. The process is derived from a consultative approach involving multiple stakeholders participating in a consultation to determine what kind of education is required? How can this education be delivered and measured? What are the impacts of such measures on child development? and How can it be improved? The Learning Metrics Task Force (LMTF) has contributed to improve the M&E of education program through their four projects such as Changing the World; Measuring Early Learning Quality and Outcomes; Measuring Global Citizenship Education; and Breadth of Learning Opportunities.

### **10.1. The case of Learning Metrics Task Force (LMTF)**

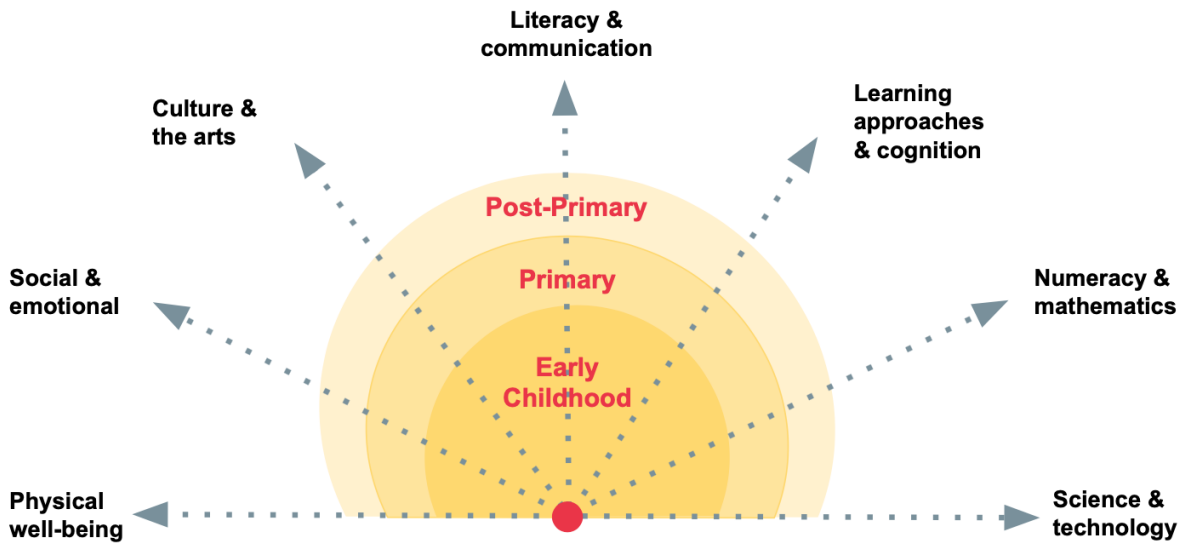
The Learning Metrics Task force (LMTF) between 2012 and 2016 initiated a comprehensive 'Learning Champions' plan for the international community to know how they define and measure learning that is also aligned with the Sustainable Development Goals (SDGs). The plan was executed in two phases: "LMTF 1.0" in 2012-2013 and "LMTF 2.0" in 2014-2015. The process was undertaken by 15 countries and research questions revolved around three scopes illustrated in figure below (Anderson, K., and Muskin, J. 2018):

Figure 2: Three Scopes of Learning Champions



The process is collaborative and consultative. The learning objectives are defined under seven learning domains and to ensure the quality of education of these 15 countries and provinces, the measurement tools are also aligned to these seven domains. Figure 3. The LMTF learning domains pictured below is a direct extraction from the report to show the breadth of these domains.

Figure 3: Learning Domains for Quality Education



Source: "LMTF Learning Domains", Center of Universal Education at Brookings.



The Learning Champions plan re-engineered the evaluation process and brought together stakeholders in soliciting learning objectives, tools, and outcomes. Some of the outcomes of the collective approach are:

- Feedback at regular intervals, sustained attention on children's performance and ensure more inclusion.
- Student supportive learning with focus on development of soft skills such as creativity, level of communication, interpersonal abilities and reasoning and responses.
- Students' performance profile is monitored also in consideration with family background, exposed challenges, and past experience that aid in holistic development.
- Facilitate in developing referral mechanisms for higher (secondary and tertiary) education.

An MLL project should strive for a comprehensive and robust monitoring and evaluation framework, and LMTF represents an example and inspiration in this regard.

## 11. Current and Potential Funding

In thinking through the funding framework for a project like the MLL, numerous questions arise. A number of stakeholders are implicated in the deployment, and therefore may also be implicated in funding relationships. For example, often MLL projects are deployed in government schools, so public infrastructure is an important component of the MLL and may prompt further questions about to what extent the government should be further involved in aspects like funding. Clearly, the government can play an important role in filling funding and/or infrastructure gaps (Winthrop, R. 2019) in the deployment of MLL in rural communities.

However, there are an array of actors who can be identified as funders other than the government. These sources of funding mostly come from the private sector, which can take the form of a civil society institution, an NGO, or a commercial business enterprise. All the groups have a duty to promote access to quality education. Accountability to this duty can take many forms. One of them is funding promising new approaches to education that solve chronic problems currently facing education systems. In this regard, educational technology and the MLL becomes relevant. This section explores current and potential funding options for the MLL.

### 11.1. Government funding and the scope of Public-Private Partnerships

As quality education is a human rights concern, the Government of Sierra Leone (GoSL) has emphasized in education policy the need for equitable access to basic education, improved education infrastructure at primary and secondary levels, and increased Technical Vocational Education Training (TVET). These are framed as means to reduce the gap between skills required by the market and skills possessed by the labour force. It is also relevant as a means for communities to escape the vicious cycle of poverty. When there are more girls in the classroom, they are able to acquire necessary skills and knowledge for the job market. They are able to raise a healthy family and promote healthy living for themselves, which reduces the risk and vulnerabilities in society. In cases where it is challenging for the government to provide equitable education and fulfill its human rights commitments, it tries to find alternative means to fill the gap. Public-Private Partnerships (PPPs) is one such way where the government partners with the private sector in ensuring equitable education delivery with sound system strengthening.

The government of Sierra Leone is engaged with the governments of Ireland and Scandinavian countries to strengthen funding ties to support education in rural and remote communities. These countries have currently invested in primary and secondary education projects, and the government is hoping to sustain more projects such as digital learning. There is also an opportunity for PPPs, especially with the mining and the telecommunications sectors, under the auspices of corporate social responsibility. However, PPPs may not be ultimately effective unless the country is able to institute a robust and well-structured accountability mechanism, whereby each participating party is cognizant of its organizations' working conditions and funds are allocated with complete transparency and justice. Such partnerships, in other words, must not be misconstrued as indulgences for corporations to act with impunity.

The most prevalent PPPs in Sierra Leone are government subsidies to private and faith-based schools. The three main providers of education in Sierra Leone are private schools, government

schools, and government-supported faith-based schools. Faith-based schools constitute the largest share of schools in Sierra Leone. They are an important part of the education sector in countries that have undergone war, and places where it is difficult for the government to reach the most marginalized populations. These schools are present in the most remote areas of the country, where even government schools are hard to find. Students enrolled in these schools are very poor and mostly female. Hence, these schools can play an important role in ensuring equitable learning opportunities in marginalized communities (Aslam, M., Rawal, S. and Saeed, S., Ark Education Partnerships Group).

Evidence from the Ark Foundation's research on the subsidies model of PPP in Sierra Leone suggests government subsidies to faith-based schools show positive results with improved student performance in numeracy compared to those in public schools. An example was drawn from students who were transferred to faith-based school from a non-faith-based school, resulting in an improvement in computational skills by 17%. English reading had shown a marginal improvement from 20% to 24%. The study also suggests that these faith-based schools should be supported with sustainable funding as they serve the most disadvantaged population having the potential to increase student enrolment and learning outcomes (Aslam, M., Rawal, S. and Saeed, S., Ark Education Partnerships Group).

## **11.2. Public Private Partnership designs for education**

The global benchmark of PPPs for education is enshrined in the World Bank's Education Strategy 2020. The document provides international guidance for enhancing the role of the private sector in achieving national educational goals, especially for developing countries where government challenges are more intense and complex. The strategy describes the influential role the private sector can play in education, particularly in increasing its efficiency, increasing choices for delivery, and most importantly, providing access to marginalized low-income families living in rural communities. The mechanism through which PPPs work is contract-based, where the government contracts with the private sector for the provision of specific activity. These contracts are normally time-bound, and their length depends on the need and funding availability. Some of the common types of contracts are vouchers, subsidies, private management and operations, and private finance. These contracts vary in terms of the complexity of their application (Patrinos, A.H., Osorio, F., and Guaqueta, J 2009). The structure of these PPPs in education normally takes one of the following forms (Aslam, M., and Rawal, S., 2018):

1. Private Schools - Public Funding
  - a. State-run voucher system for private tuition fees
  - b. State scholarships for private schools
  - c. Subsidized community-based schools
  - d. Subsidized NGO-led schools
  - e. Subsidized faith-based schools
2. Public Schools - Private Funding
  - a. State schools run on private philanthropic funds
  - b. State schools run on private scholarships

Figure 4: Level of Public-Sector Participation



### 11.3. The Role of Private Sector in a PPP

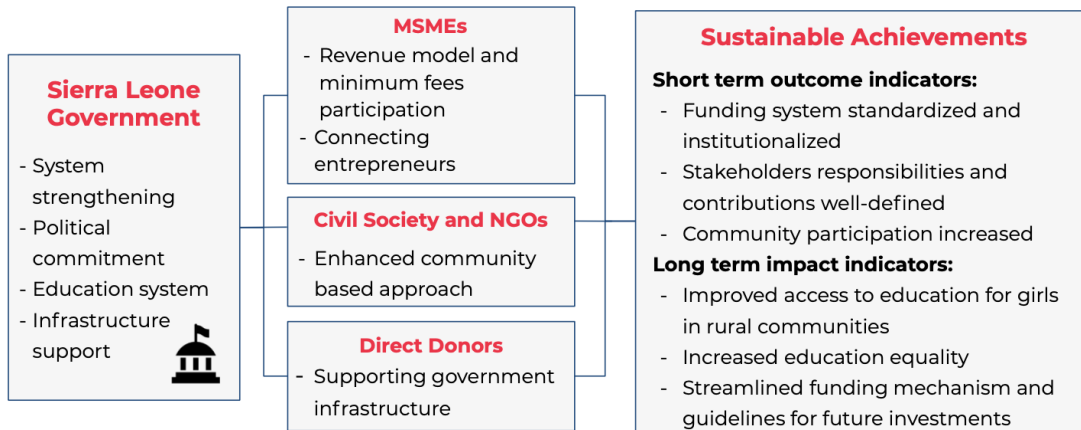
The private sector plays a versatile role in Public-Private Partnerships. For commercial enterprises, such as the mining sector of Sierra Leone, their contribution could take the form of Corporate Social Responsibility, mobilizing funds in the government schools. One of the emerging means of participation for the private sector comes through micro, small, and medium enterprises (MSMEs) that have introduced the concept of a self-financed funding model. According to this model, the deployment of MLL is outsourced to these micro enterprises which then operate on a minimum-fee-based system. Learning from the experience of MSMEs scaling up ‘mobile money’ business in the digital banking transformation of Africa, their role has become increasingly important in the African market. (Volkova, I. L., 2020).

Civil society institutions and NGOs also play an important role in projects funded by the private sector. They contribute funds, physical resources, such as manpower, and technical skills, such as training and capacity building. In developing countries, civil society institutions and NGOs have also played an effective role in providing TVET to teachers and school staff on education outreach and edu-technology adoption.

Civil society institutions and NGOs can also help fill specialized roles in pre-existing systems. For example, they often train teachers and educators in modifying delivery mechanisms and curriculum design to cater to marginalized groups that are not represented by the existing modes of education, such as children with disabilities. Hence, the role of the private sector can be versatile, critical, and integral in strengthening the learning process using technology.

Given the modest infrastructure in Sierra Leone for the business enterprises, it may be advisable to pursue MLL funding through NGOs focused on Africa, education, and technology specifically. It is a challenge for the country to get financing for education projects. The country is not under a peace mission, but it has strong ties with United Nations programs for infrastructure and development. Further, before identifying prospective funding, it is important to have a thorough budget outlined for a prospective intervention, including line-item expenditures. There must be a robust plan for deployment, and a strong sense of which organizations would be best suited for funding relationships.

Figure 5: Funding Partnership Framework



#### 11.4. Possible Risk of PPP

Oxfam's briefing paper in 2019 provides a counterargument to the World Bank's proposed PPP model for developing countries for access to quality and equitable education. Their research raises concern about the market-oriented PPP model, which supports a low-fees structure through private schools for access to education in rural areas. Oxfam identified evidence in Pakistan of increased out-of-pocket expenditure for education in low-income communities that constitute half of their monthly income. Such a model has widened the gap in learning inequality. Oxfam believes that the World Bank should advocate a model whereby rural communities have access to quality education through public schools. However, strengthening public schools will require the government to increase its education budget by 20%. Oxfam argues that the government's support for education through public institutions will ensure access, quality, and affordability among rural communities (Oxfam, 2019).

#### 11.5. Multi-source Funding

The Brookings Institution has designed models for effective education through their experience in a number of developing countries. From its experience with the Learning Metrics Task Force, Brookings has developed a form of multi-source funding. Their projects have been funded by governments, donor agencies, user fees, and the private sector. The classification of these sources is:

- Government funded 581 innovations.
- User fees funded 562 innovations.
- Foundations funded 532 innovations.
- The private sector funded 453 innovations.
- Donations funded 435 innovations.
- Aid funded 151 innovations.

These sources are contextualized and vary, depending on the nature and demography of the host country where the innovation is being implemented. It sheds light on funding opportunities for projects that involve multiple stakeholders with diverse interests. At the government level, the Ministry of Education, Science, and Technology (MEST) for Sierra Leone is an important stakeholder that often works with international funding partners such as the European Union in formalizing education projects. The Brookings Institute program's funding structure demonstrates possible ways to introduce multi-source funding mechanisms for the deployment of projects like the MLL in Sierra Leone.

## 12. Outlook

**Quick wins:** Given the ongoing pandemic and the switch in official development assistance (aid flows) towards economic recovery projects, we recommend that 60MG define and promote the MLL as a self-employment and social entrepreneurship tool in communities from most affected regions. In line with this, the 60MG webpage could include a section for COVID-19 related news, so the general public would know how projects are being adapted and how they are helping less well-off children to thrive—through playful solutions as the MLL—amidst the pandemic.

### 12.1. Possibilities for improving the MLL model

#### 12.1.1. Expanding its Use and Application

The MLL was originally developed for school students. However, our research indicates that there is a great variety of uses and applications.

Despite its relatively cheap cost, for example, upkeep may prove to be too expensive for unassisted rural communities. Therefore, another possibility would be to institute it in teacher training programs and use the device to upload content modules with teachers' training material, as in the case of World Possible Guatemala, which has developed a MOOC for preparing their teachers to manage MLLs. Teachers trained may tend to use it more during their lectures. Also, it is important to consider an edutainment<sup>2</sup> component for running a self-paced training program.

Another possibility is to work with prioritized beneficiaries according to local contexts. For instance, serving farmers or any other small business from the area, while devices are not being used by students. Adult literacy is another application of MLL—local NGOs have experimented with this beneficiary group in Tanzania. According to MWEDO, the Masai community has been a successful example of this approach, since their adults are willing to get connected to the wider society, and some of them are interested in learning to read and write. Also, World Possible has implemented RACHEL devices in over 350 correctional facilities across the United States, mainly sponsored by the Rotary Club.

One promising thing about RACHEL-based interventions like MLL is that smartphones are becoming more and more available, which may mitigate tablet expenses. In the short term, universal smartphone ownership may not be imminent, but for teachers, rather than poor students in rural areas, it may be. When the time comes and people would be able to bring their own devices, the MLL use would take a great leap forward to expand its implementation. Already, mobile phone penetration is advancing quickly in the country. A 2016 report from BBC Media Action noted that 78% of rural people in Sierra Leone have access to a mobile phone, and women

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<sup>2</sup> This portmanteau means exactly what you might think: it refers to entertainment with educational purposes.

in rural areas are more likely to have access to a mobile phone than to TV, the Internet, or newspapers. That said, 52% of phone owners in the country have a basic mobile phone without 2G or 3G capability ([BBC Media Action](#), 2016). So, while the future seems promising, smartphones are not by any means ubiquitous.

The MLL is a solution also for communities where the use of the Internet is extant but limited. Even though they have access to bandwidth, some jurisdictions, like Vanuatu, prefer students to connect to RACHEL devices rather than having them connect to the Internet to download the same content several times.

New versions of RACHEL devices have the capability to report data back to the content administrator and implementing partners can leverage new proofs of performance (beyond the traditional learning outcomes). MLLs' KPIs dashboard is already measuring learning outcomes; however, it could be enriched with other indicators such as satisfaction measurements.

### **12.1.2. Options for Scalability: From a Local Implementing Partner Perspective**

The following options are outlined from the standpoint of one MLL local implementing partner, which is helpful to review to understand the matter from another perspective. These insights have been considered in the integrated proposal.

*Work with the non-state sector:* For private schools, the curriculum is currently set by each individual school and, as such, does not require a mandate from the education ministry. As long as you can find a sustainable model, the school itself decides whether it is economical. Whether a program is economical is based on the program leading either to an increase in enrollment or an increase in tuition. To gather support, 60MG is currently working with their partner CAMFED in Ghana to prove a financially sustainable model with an investor (school) who is willing to invest in the MLL. This requires mostly working with the school and connecting with banks who will continue to support the project in the event schools need it.

*Work with the ministry of education or district education offices to get a mandate to roll out in state schools:* Given that the ministry of education works with  $\frac{3}{4}$  of the market, this option will allow for large-scale implementation. However, it is also harder to implement because of pushback from teachers' unions and the inaccessibility of government money or budgets. Any extra capital costs for the government will be met with skepticism.

*Household-level or community-level implementation:* This option requires the community to take ownership of the MLL. In pursuing this option, the MLL should be available to even those outside of the school to use and access it. It would also require community members to guard the devices and teach the "students." In this sense, the MLL takes on a function comparable to an interactive community library.



### ***12.1.3. Designing a Scalable Model: Global Perspective, Local Approach***

For the MLL to be sensitive to local needs and have the potential to scale, it could be reframed as a social business model with a global perspective and a local approach. This is particularly in line with our HRBA framework, as it expands participation in the MLL for the affected communities beyond that of a beneficiary. The following ideas summarize the key insights from this perspective; the Sierra Leone case is a proof of concept that is considered as the base of this scalable model.

What's the (social) business model? It is challenging to think about sustainability and the public sector—a sustainable model can rely on the government at the beginning of an intervention, but rarely at the end of each. As we have emphasized in this report, community engagement is key to making an initiative like the MLL sustainable. As such, a financially sustainable model for the MLL requires a different approach than many development interventions: it needs to be defined as a social investment rather than as a form of 'assistencialism' (i.e., a short-term intervention characterized by top-down assistance).

The MLL could be recast as an opportunity for the education market; as a way to prepare the next generation of labour market participants, as a long-term investment, and it could be 'sold' that way to the business sector. Multiple beneficiary profiles of the MLL could be considered (e.g., women entrepreneurs, prisoners, etc.) and also how one could strategically build trust between the government and the private sector.

To design a model, it must be validated with all stakeholders, not only sponsors or funding organizations, but also with local executing partners and beneficiaries. Each of them has a different and unique perspective of how things should be done. If their opinions are not solicited frequently, it may have critical consequences for the project, especially in the operational aspect. What may work with a specific group of people may not be the case for all groups. It's critical to understand the differences when designing an international project.

It is also important for international projects to identify which aspects need to be universal and which need to be adjusted to the cultural context. For instance, management tools (spreadsheets, formats, templates) may be universal, however, learning materials are culturally-sensitive. They need to be adjusted to the local context (e.g., educational examples, local brands, common names, currency, etc.). In all, it is necessary to develop a model with a standardized management framework with context-driven adaptations.

Another important practice to implement in this model is to be data-driven. Data is what convinces donors to continue supporting any initiative. For M&E purposes, it would be important to integrate a more interactive device like the new RACHEL that sends data back to coordinators from the device in the field. A great practice that 60MG could develop is a more robust webpage with public data on the MLL's performance (geographic, organizations, topics), as World Possible is planning to do in the coming months with the RACHEL generally.

As highlighted before, teachers are a key component of every educational program, and they should be considered in the design and validation of the MLL model. Empowering teachers would boost this initiative. Outsourcing the support and training of teachers through an organization like Team4Tech<sup>3</sup> that develops capacity-building programs for teachers and educational staff would add value and no cost to the current model.

In other programs like One Billion, caregivers act as custodians of the technological devices, “ensuring their children share the tablet each day and charging it at the Community Hub, where they can catch up with other parents on their children’s progress.” The MLL model could integrate them in the operation; this would be more sustainable in terms of who gets to continue with the custody and charging of devices, something that has been highlighted as a concern for those operating in the field.

Networking with like-minded programs and organizations is also key. If a country has not developed yet a great network of CSOs, then integrating a project into a regional network could be an initial effort. A great example is the case of “La Red”, a network of 37 member organizations in 11 countries that support MSMEs to drive sustainable economic growth and prosperity in Latin America and the Caribbean.

Naturally, there are challenges to consider in scaling a model like the MLL. The first challenge comes with the idea of partnering with governments. For most governments, the cost of one device would be more than they spend on a child over a whole year; these costs may be seen as sunk costs for incoming elected government officials and put at risk the sustainability of the operation, since, after implementation, costs are mainly for maintenance which may not be of interest to the regular government. Also, if the MLL is deemed complementary to the education system, and not integral, it may be a challenge for governments to stay engaged, as they do not typically involve themselves in what would to them be essentially an expensive after-school program. A second challenge is how to operate the MLL model within the school system and its educational curriculum, which also involves teachers and their support to the initiative; without their commitment, the project is very likely to fail.

A promising way to circumvent these issues is to reframe MLL implementation from a business perspective. What if, for example, instead of an expensive afterschool program, it was a women-owned social enterprise? Such an implementation would be more sustainable in terms of impact to beneficiaries and operations continuity. This idea is developed in the next section as part of our policy recommendations.

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<sup>3</sup> Their projects aim to build digital literacy for teachers and staff and complement it with the use of technology solutions to help underserved learners.

### 13. Policy Proposal and Recommendations

- A. By way of background, these recommendations stem from evidence-based research our team conducted on behalf of 60MG to understand how to implement MLLs more widely and with greater effectiveness in Sierra Leone, but they may also be more widely applicable to other jurisdictions.
- B. **The Human Rights Based Approach (HRBA)** is a conceptual framework, based on international and human rights standards, and is paramount for the process of human development. Using HRBA, we seek to provide recommendations that redress discriminatory practices and unjust distributions of power and impede educational and gender equity progress for girls. The recommendations following are grounded in this framework.
- C. **Capabilities of the MLL:** Engage with local partners to design an effective teacher-training program and give parents a more hands-on role in MLL deployment. We also recommend prioritizing the replacement of old devices to get newer RACHEL devices that have the ability to track, monitor, and evaluate student's performance outcomes through the use of the MLL.
- D. **Best Practices for MLL:** Adopt a set of best practices throughout the MLL deployment and implementation process, including:
  - 1. **Design targeted interventions:** Design targeted interventions for girls at a young age to create the highest impact on learning outcomes.
  - 2. **Set clear learning objectives:** Set clear learning objectives through MLL use and ensure that MLL content complements the national educational curriculum. Deploy MLLs with locally relevant content to ensure community buy-in.
  - 3. **Coordinate with local partner:** Develop effective schemes of collaboration between MLL projects and local partners, drawing experiences from MLL and RACHEL interventions that have already concluded. One example of this would be through content creation, i.e., identify an organization or group of people on the ground that can coordinate localized content generation as a social entrepreneurship project.
  - 4. **Set time-limited MLL interventions:** To ensure long-term sustainability, ensure that any MLL intervention has clear time limits established, which will avoid dynamics of 'assistencialism' and promote community ownership.
  - 5. **Cultivate community ownership:** To further develop community ownership, provide MLL access for community members that are not necessarily in school. This will develop a sense of civic responsibility towards guarding the devices and allowing the children to learn from them. Apart from engaging with stakeholders such as community leaders, district education officials and the business community, parents', and caregivers' opinions on the MLL should be given a greater weight in the feedback loop mechanism as they

are very important to ensuring that children remain engaged with the process. Engaging parents is a key step to cultivate community ownership over the MLL technology.

6. **Socialization of best practices:** We also recommend the socialization of best practices with local implementing partners, followed by an assessment using a phased approach. As part of a continuous learning process, there should be additional identification and review of the new best practices learned.
- E. **Awareness and Knowledge Gaps:** We recommend adopting a ‘Participatory approach’ as a strategy to reduce knowledge gaps and create education technology awareness among rural communities. We recommend the following be incorporated into MLL interventions:
1. **Teachers’ capacity building** should include the development of training materials on changing technology and new learning methods that will assist students with engaging in self-directed learning through the MLL. The objective of teachers’ capacity building should be developing their facility with educational technology. Teachers’ capacity building could focus on strengthening technical aptitude, interpersonal skills, creativity, and astuteness in negotiating the importance of girls’ education to households.
  2. **Educational advocates** such as in-field implementing partners and volunteers should be trained to share information about the MLL and work towards closing the awareness and knowledge gaps amongst the community. 60MGs should commission training materials for in-field implementing partners and volunteers for their enhanced participatory role with the community. For example, in addition to administrative details of the project roll-out, field staff should leverage their knowledge about the MLL’s value proposition and actively relay this information to caregivers and parents. Similarly, volunteers should focus on encouraging the youth to aspire for a better quality of life through education and skills development that the MLL provides. For volunteers to be effective role models, they should be from the local community and aware of the language, culture, and challenges that girls are embedded in.
  3. **Develop a continuous learning mechanism** to identify and address ongoing awareness and knowledge gaps. This would require a collaborative-deliberation approach and could take inspiration from the Learning Metrics Task Force. It would entail a collaboration between school staff, parents, community members, IP officials and funding partners to measure performance in alignment with the seven learning domains including soft skills such as creativity, communication, and interpersonal skills. Performance measurements should be shared with the beneficiaries to provide evidence on the effectiveness of the MLL. Measurements should be conducted at regular intervals.

## F. Stakeholder Engagement

1. **Stakeholder mapping:** Review structure, roles and responsibilities of central and district level government and local NGOs relevant to the MLL project cycle.

**Identify all stakeholders** who are either potential contributors to this project or those who are affected by the project. This includes institutions that have the duty to uphold the right to education (i.e., the state), the right bearer themselves (i.e., the children), and other organizations that have normative priorities aligned with 60MG. Next, the implementation partner should analyze the influence and interests of each stakeholder to determine where they may have the most impact and how they can be involved in the MLL project using the influence-interest matrix. This matrix allows the implementation partner to map the stakeholders' influence and interest and map the appropriate engagement levels for each stakeholder. This includes engagement such as monitoring the stakeholders, keeping them informed, managing them closely, or keeping them satisfied.

2. **Community engagement:** Engage tribal leaders, community action groups, individual families, vulnerable groups, and any or all interested parties to participate in the overall development and execution of the MLL project.

During the implementation of the MLL project, we recommend the following:

**Public meetings** organized by implementation partners to provide community members with an opportunity to set or influence the implementation plan, close any knowledge and awareness gaps present, give information, and gather feedback. This would require a demonstration of the MLL where the attendees can understand how the MLL can be used as a tool to promote quality education.

**Workshops and focus groups** are also recommended, especially in communities where cultural norms may prevent women and girls from confidently sharing their thoughts and opinions on girls' education. This could look like small women and girls only focus groups where participants can openly discuss some of the cultural barriers, such as gender roles and expectations, that would hinder the implementation of the MLL. By providing a safe space, such meetings can empower women and girls and encourage them to speak up about decisions that affect their lives.

We recommend the following on an ongoing basis:

**Roundtable discussions** which provide space for multi-stakeholder dialogue to produce feedback on what the implications of the MLL project has been and what the community feels is missing for the project to be sustainable. The underlying premise should be that all participants, ranging from MBSSE, businesses, and local community members are equal. When beneficiaries are given a seat at the decision-making table, they are able to

participate in matters that affect their children and hold the implementation partners accountable for their actions.

**Grievance redress mechanisms (GRM)** offer a continuous channel for affected stakeholders to raise grievances and seek redress for any negative impact of an MLL project. Grievances should be recorded and incorporated into the monitoring and evaluation of the project. However, many beneficiaries may be unaware of the existence of GRM, and as such implementation partners should provide beneficiaries with information about its existence and use.

3. **Survey communications landscape** in the country and identify relevant channels through which aspects of the MLL project can be conveyed. Identify various relevant audiences and break down messaging accordingly.

- G. **Data/Case studies:** Ground the MLL implementation strategies based on the success stories and lessons learned from Guatemala, Uganda, and the pilot study conducted in Sierra Leone.

Complement performance metrics in consideration of the HRBA and the new normal posed by COVID-19 and make more information about MLL performance publicly available. There is a need for implementing a Monitoring and Evaluation system that permits 60MG to compare individual projects amongst them; the current reporting mechanism could be integrated into a data management system that generates automatic reports and would help to improve the decision-making process. Aggregating data and, ideally, automatizing its collection and analysis processes would ease just-in-time improvements, which in the context of the new normal are highly valued and needed. The information obtained from monitoring and evaluation would serve as inputs for an accountability framework for HRBA, offering a close look at how people's rights are being affected, as well as mechanisms for addressing potential negative impacts.

- H. **Funding:** We recommend a co-financing strategy for the MLL to build strong connections among the state, donors, implementing partners, MSMEs, and civil society institutions. A co-financing strategy, which could take the form of public-private partnership, will help solicit funds from multiple actors creating a hybrid scheme of financing. Such a strategy helps establish a system of accountability and transparency to ensure project sustainability. Co-financing is also a further means to track performance and hold relevant stakeholders accountable through agreement and documentation of commitments with defined roles and responsibilities of each actor involved. Co-financing will accomplish the following objectives:
- Establish a mechanism to track performance and contribution of relevant stakeholders through transparent agreements and documentation.
  - Align funding partners to ensure strategic objectives of education outreach for girls are met.
  - Set a funding framework as a guideline for future investment opportunities.
  - Institute a collaborative approach to establish strong inter-institutional capacity for better resource mobilization and balanced market-participation.

The recommended four major funding partners are:

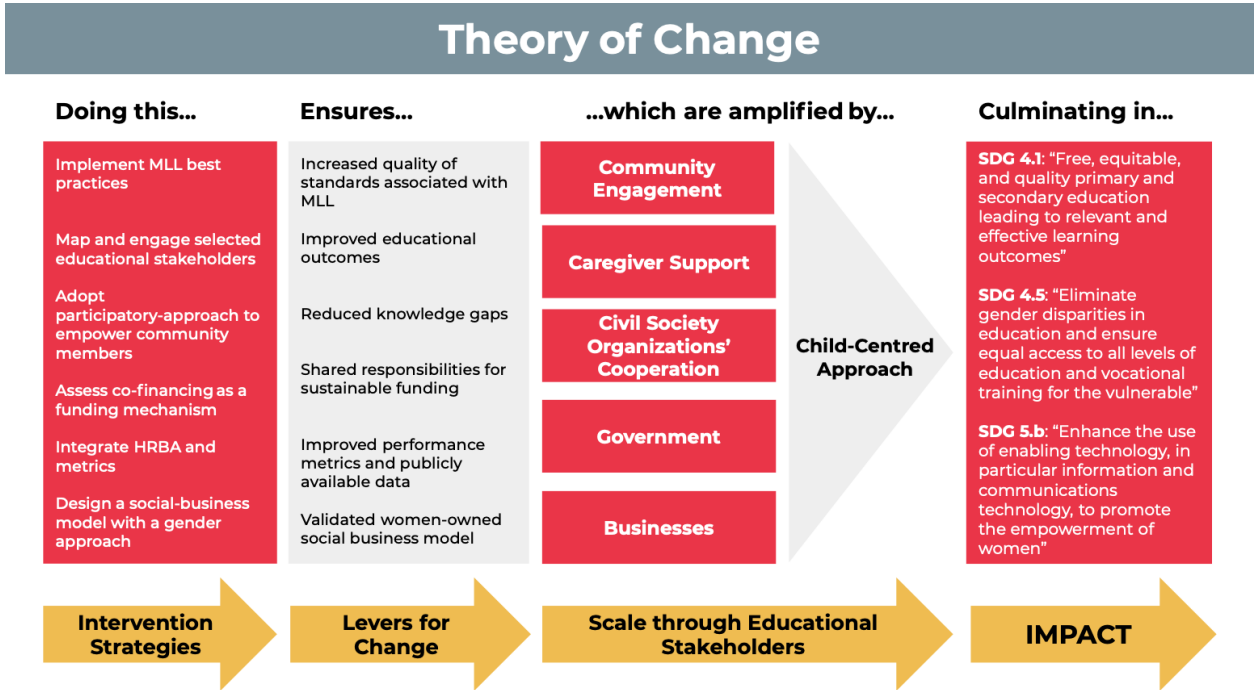
1. MSMEs that see MLL as a revenue generating stream and would invest based on minimum fees generated from the participants contribution.
2. Civil society institutions, non-government organizations (local and international) that deem to align its objectives of education outreach with government supported schools and infrastructure in the rural areas.
3. Direct donor funds for MLL setup and liaise with prominent businesses in Sierra Leone to develop a model of funding for operational upkeep of MLL.
4. Joint effort of MSMEs and civil society institutions / NGOs in supporting the setup of MLL for entrepreneurial development and youth employment and skills development.

- I. **Social business modeling:** Build up a social business model based on the MLL as a market opportunity that would promote women entrepreneurship.

Our recommendation is to redesign the MLL as a women-owned social business model based on the market opportunity that the MLL represents within rural communities. In light of the already-installed social capital (women, mainly mothers) and the increasing interest that education in rural areas is gaining worldwide—due to the pandemic's new public agenda—we consider this model more sustainable than short-term interventions/projects. In this case, the projects funded by 60MG should be directed to train women in business skills so they could carry on with this initiative and attract financial streams from the government, international development agencies and corporations, keen to invest in education. Women entrepreneurs would be the contractors in charge of running these labs in places they know and with people who trust them.

## 14. Theory of Change

To supplement our recommendations, we also offer 60MG a theory of change for them to consider and adopt. The theory of change represents an overarching view of our recommendations, and how they contribute to the ultimate goal of fulfilling SDGs 4 and 5, and generally improving the educational outcomes of girls in Sierra Leone and similar jurisdictions.



## 15. Solutions Roadmap

Based on our team’s research, we have also drafted a Solutions Roadmap to be used and referred to by any parties interested in implementing an MLL project. While some of these recommendations are specific to Sierra Leone and our findings in that context, the roadmap has broader utility for other jurisdictions. It details the various considerations pertaining to MLL implementation and offers a phased approach to completing the project.



Issues	Phase 1	Phase 2	Phase 3
<b>MLL Capabilities and Offerings</b>	<ul style="list-style-type: none"> <li>• Socialize best practices with local implementing partners.</li> <li>• Contact organizations like <a href="#">OneBillion</a> to understand their model and potentially use solar-powered tablets that are given to caregivers.</li> <li>• Liaise with <a href="#">World Possible</a> (tech developer) to replace old devices to get newer RACHEL devices that could track student's performance outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess the implementation of best practices.</li> <li>• Engage <a href="#">Team4Tech</a> (capacity building NGO) to try and sign an agreement for a teacher training program.</li> <li>• Leverage educational training platforms such as <a href="#">E-Kitaboo</a> for teacher and student training.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and review new best practices learned in collaboration with local implementing partners.</li> <li>• Partner with OneBillion to establish a community hub similar to OneBillion's model to develop a sustainable strategy for MLL deployment in the long run, removing the need to hire a local coordinator.</li> </ul>

### Assumptions

- Identified potential allies are interested in working with 60MG.
- Local implementing partners have the interest, resources, and capacity to integrate best practices in their operational frameworks.

### Risks

- Funding/donor organizations may not be willing to pay the additional cost of acquiring the updated version of the RACHEL technology.
- Caregivers in rural communities may be too preoccupied with their other day jobs to be able to devote time for a more hands-on role in MLL deployment.
- Teachers may not be willing to undertake the training program due to fear of eventually being replaced by this new technology.

<b>Stakeholder Management</b>	<ul style="list-style-type: none"> <li>• Conduct MLL stakeholder mapping for regional actors that are specific to education.</li> <li>• Categorize them using <a href="#">stakeholder interest influence matrix</a>.</li> <li>• Identify local NGOs and civil society organizations as MLL "ambassadors".</li> </ul>	<ul style="list-style-type: none"> <li>• Establish strategic alliances with relevant and interested organizations.</li> <li>• Ensure the inclusion of vulnerable groups including in remote communities specifically, women/girls.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a <a href="#">feedback loop</a> that will both allow the stakeholders to be informed on efforts to promote quality access to education and be able to provide their own feedback.</li> <li>• Share newsletters and reports with cooperating organizations and local stakeholders to keep them involved and engaged.</li> </ul>
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### Assumptions

- Local NGOs are respectable, and communities look towards them for validation of new projects.
- Key stakeholders do not have significant competing interests that will prevent their collaboration.
- Stakeholders will use a feedback loop to provide and access feedback.
- Vulnerable groups have needs that differ from broader communities.

### Risks

- Local NGOs may not have the authority needed to convince communities to adopt the MLL.
- Local NGOs may have a bad history with communities which could be counterproductive to gathering support from the community.
- Key stakeholders have competing interests, and those stakeholders who have more power will have their interests met at the expense of less powerful stakeholders who may be more centric beneficiaries to the MLL model who may be more centric beneficiaries to the MLL model.
- Stakeholders may drop out due to receiving feedback they do not welcome.

Issues	Phase 1	Phase 2	Phase 3
<b>Community Engagement</b>	<ul style="list-style-type: none"> <li>• Contact teachers, caregivers, community leaders, businesses (mobile operators and mining industry), Ministry of Basic and Senior Secondary Education.</li> <li>• Arrange consultation sessions (meetings and focus group discussions), one general and one exclusively for mothers, female caregivers, and women entrepreneurs.</li> </ul>	<ul style="list-style-type: none"> <li>• Work with MLL ambassadors to organize a demonstration of the MLL that will assist in providing an understanding and sharing information of how the MLL will enhance quality education.</li> <li>• Share information about the MLL demonstration through the local radio and town criers/posters, village/chiefdom meetings.</li> </ul>	<ul style="list-style-type: none"> <li>• Design and implement a Grievance Redress Mechanism (GRM) which allows for the identification and resolution of issues affecting the project.</li> </ul>

### Assumptions

- Having an exclusive focus group session for women will provide a safe space for them to share their concerns relating to education technology/MLL.
- A demonstration will provide the community with the relevant information that will address their questions and concerns.
- Users will use the grievance redress mechanism to voice their feedback and concerns.
- Key stakeholders do not have significant competing interests that will prevent their collaboration.
- Stakeholders will use a feedback loop to provide and access feedback.
- Vulnerable groups have needs that differ from broader communities as opposed to simply boycotting the MLL.

### Risks

- Women may be siloed from conversations in the broader community regarding the MLL, dialogues between women and other community members are needed to move the conversation about girls' education forward.
- Women may not want to come to women-only focus groups due to fear of being judged by community members.
- The demonstration may reinforce negative stereotypes or perceptions of the MLL.
- Feedback may include suggestions/comments that deviate from the goal of MLL, and respondents will attempt to hold MLL implementers accountable for things they realistically cannot control.

<b>Awareness and Knowledge Gaps</b>	<ul style="list-style-type: none"> <li>• Reduce the communication gap between service providers (teachers, non-academic staff, and school admin) with community members.</li> <li>• Conduct focus group discussions, brainstorming sessions, individual touchpoints with community members to educate them in best practices.</li> </ul>	<ul style="list-style-type: none"> <li>• Create an assessment framework focused on reducing the communications gap between the service providers and community members.</li> <li>• Integrate data gathered from community members to inform Monitoring and Evaluation practices.</li> </ul>	<ul style="list-style-type: none"> <li>• Adopt a participatory approach to share data and insights at stakeholder meetings to help reduce the knowledge gaps.</li> <li>• Develop a continuous learning mechanism to identify and address ongoing awareness and knowledge gaps.</li> </ul>
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### Assumptions

- Educational stakeholders (service providers) are willing to get involved in 60MG projects and they are convinced of the MLL benefits.

### Risks

- There could be a high rotation in service providers and new knowledge gaps between old and incoming educational facilitators.
- Data gathered may not reflect real perceptions due to lack of trust in the local implementing partners.

Issues	Phase 1	Phase 2	Phase 3
<b>Financing Alternatives</b>	<ul style="list-style-type: none"> <li>● Explore and leverage existing funding opportunities offered by development partners such as Ireland, UK, Canada, and NGOs.</li> <li>● Identify potential possibilities of partnerships with Micro, Small, and Medium Enterprises, mining industry, and mobile operators as CSR.</li> <li>● Evaluate and prioritize the identified funding opportunities and potential partnerships.</li> </ul>	<ul style="list-style-type: none"> <li>● Meet with potential funders to present MLL as a solution to educational disparities and as a business case for private ventures.</li> </ul>	<ul style="list-style-type: none"> <li>● Develop an action plan for carrying out the feasible options of financing with both the public and private sector including the mining sector and MSMEs.</li> </ul>

### Assumptions

- Funding partners will see the value addition of MLL in the educational landscape of Sierra Leone and would be willing to invest in its projects.
- MLL aligns with the normative priorities of funding governments, INGOs, and other CSOs.

### Risks

- Potential funders may be more interested in funding alternative opportunities or projects targeted towards addressing educational gender disparity, apart from the MLL.
- An actionable financing plan in collaboration with potential funding partners may take a longer period of time resulting in a more long-term financing alternative.
- Potential funding withdrawal from partner.

<b>Social Business</b>	<ul style="list-style-type: none"> <li>● Design a social business model with the participation of potential women entrepreneurs.</li> <li>● Map out potential CSOs (Opportunity International) interested in training women.</li> </ul>	<ul style="list-style-type: none"> <li>● Execute a management skills training pilot with communities.</li> <li>● Run a practical and efficient Monitoring and Evaluation system to collect data online and in the field.</li> </ul>	<ul style="list-style-type: none"> <li>● Validate and scale up the business model to a larger number of communities.</li> <li>● Integrate women-owned businesses into national and regional entrepreneurship networks to continue the support through them.</li> </ul>
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### Assumptions

- Women are interested and willing to start a business. They also have the time to invest in a new venture.
- There are experienced CSOs interested in working with women entrepreneurs in rural communities.
- COVID-19 physical restrictions next year would be eased, and governments would allow in-person activities.
- The COVID-19 pandemic restricts the collection of data in the field.
- There are many potential communities where the business model can be scaled up.
- Women entrepreneurs have the time and interest to stay connected with supporting organizations.

### Risks

- Women's burden of unpaid household chores has increased due to the pandemic and may deter them from starting a business due to lack of time.
- Due to current COVID-19 restrictions, a training program with in-person activities would be limited. Additionally, digital gaps due to lack of skills and resources might not allow many women to study online.
- Means of verification may not be reliable; digital surveys can be filled by anyone without guidance, and for the same reason, there could be a higher level of underreporting.
- The model is not profitable for women and it is hard to scale it up without considerable assistance (technical and financial) from local partners and 60MG.
- Due to the lack of provision of technical support, women might feel discouraged from continuing their businesses after completion of training.

Issues	Phase 1	Phase 2	Phase 3
<b>Communication Strategies</b>	<ul style="list-style-type: none"> <li>Identify audiences to whom MLL projects should communicate (internal stakeholders external, communities).</li> <li>Map out relevant communications channels (radio, newsletters, etc.).</li> <li>Plan strategy, combining communications products and roll-out timing.</li> </ul>	<ul style="list-style-type: none"> <li>Begin executing strategy across multiple channels.</li> <li>Implement communications strategy putting special attention to build recognition of the MLL as a brand (design an institutional logo).</li> </ul>	<ul style="list-style-type: none"> <li>Create a communications toolkit to be socialized with organizations interested in funding or participating in the MLL model.</li> <li>Improve communications strategy based on learnings.</li> </ul>

### Assumptions

- There are available resources for deploying a communication plan at a central level (60MG) and a local level (implementing partners).
- Partners understand the difference between the MLL and other 60MG projects.

### Risks

- Strengthening a brand around a project may create confusions around the general scope of 60MG and its other interventions.

<b>Success Metrics</b>	<ul style="list-style-type: none"> <li>Review the current Monitoring and Evaluation system and adapt the means of verification to the “new normality” constraints.</li> <li>Integrate KPIs on the women-owned social business initiative.</li> </ul>	<ul style="list-style-type: none"> <li>Construct a public data observatory (visually friendly and easy-to-read KPIs dashboard).</li> </ul>	<ul style="list-style-type: none"> <li>Launch the public data observatory through 60MG’s webpage.</li> <li>Recruit UN volunteers to update data and upload news and information.</li> </ul>
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### Assumptions

- The COVID-19 pandemic restricts the collection of data in the field.
- A public data observatory is a resource of interest for key stakeholders.
- 60MG’s website sustains sufficient Internet traffic to gain the interest of key stakeholders.
- There are enough people who are interested in volunteering for 60MG. And there is a partnership with a volunteer organization that can handle the recruiting and monitoring of volunteers.

### Risks

- Means of verification may not be reliable; digital surveys can be filled by anyone without guidance, and for the same reason, there could be a higher level of underreporting.
- Some Key Performance Indicators (KPIs) results may be used against the existing project and compared to other similar organizations KPIs.
- Volunteers’ work may need supervision; uploading the wrong information could be counterproductive.

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