Building Education Foundations through Innovation and Technology (BEFIT)

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IMAGINE
THE FUTURE OF LEARNING

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List of Acronyms

BCR	Benefit Cost Ratio
BEFIT	Building Education Foundations through Innovation and Technology
DICT	Department of Information and Communication Technology
DBE	Directorate of Basic Education
DEPP	Directorate of Education Policy and Planning
DODeL	Directorate of Open, Distance and e-Learning
DSTI	Directorate of Science Technology and Innovation
DTED	Directorate of Teacher Education and Development
DQAS	Directorate of Quality Assurance Services
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
EGRMA	Early Grade Reading and Mathematics Assessment
GOM	Government of Malawi
GER	Gross Enrollment Ratio
ICT	Information and Communications Technology
ISP	Implementation Service Provider
MIE	Malawi Institute of Education
MAREP	Malawi Rural Electrification Programme
MoE	Ministry of Education
MEL	Monitoring Evaluation and Learning
MLA	Monitoring of Learning Achievement
NARI	National Assessment on Reading Instruction
NRP	National Reading Programme

NRPIE	National Reading Programme Implementation and Expansion II
NER	Net Enrollment Rate
OLA	Open Learning Architecture (School administration and monitoring platform)
PCAR	Primary Curriculum and Assessment Reform
PEAs	Primary Education Advisers
PIMU	Project Implementation Management Unit
RTI	Research Triangle Institute
TAL	Technology Assisted Learning
TSP	Technical Service Provider
ToT	Training of Trainers
UT	Unlocking Talent
VSO	Voluntary Service Overseas

1. Introduction

While Malawi has made significant gains in increasing access to education, learning levels continue to remain low, including at the foundational level. For example, Malawi has not been spared from the global learning poverty estimated at 87% in Malawi, meaning that almost 9 out of 10 children who are 10 years old cannot read and comprehend a short paragraph.

The Building Education Foundations through Innovation and Technology (BEFIT) program is an initiative by the Government of Malawi through its Ministry of Education to dramatically improve foundational literacy and numeracy skills for approximately 3.8 million children each year in classes 1-4 across 6000 public primary schools over 6 years between 2023-2029. The overall program has been operational since 2023, and this program proposal is intended to finance phase 2 of the program which targets its expansion to a further 500 schools.

Prior to BEFIT, Malawi had already been piloting tablet-based learning programs under the project, Unlocking Talent Programme (UTP), which was led by VSO, and on which Imagine Worldwide conducted the research that informed the establishment of BEFIT. The BEFIT program is being developed and implemented by the Ministry in collaboration with development partners such as Imagine Worldwide, VSO, and onebillion. It has also been presented to the Local Education Group (LEG) on multiple occasions, and the LEG has been supportive of the program.

The program complements past, ongoing, and future initiatives such as the National Reading Programme (NRP), National Reading Programme Implementation and Expansion II (NRPIE), and the National Numeracy Programme (NRP), amongst others, whilst aligning with key government strategies including Malawi 2063, the National Education Sector Investment Plan 2020-2030, and the Malawi National Reading Strategy. It contributes to the policy reform priority of quality foundational learning for all girls and boys identified by the partnership compact. It also responds to an increasingly urgent need to incorporate environmentally sustainable approaches by supporting the setup of school-level infrastructure that harnesses solar power for rural electrification.

Building on existing interventions in primary schools, the program takes to scale an innovative, technology-based approach to supplement direct teacher instruction in public primary schools in Malawi. As part of this innovation, teachers provide facilitation as children learn independently, in a dedicated supplemental period, through learning software on tablets to be used at school with no need for the internet. The focus is on acquiring foundational literacy and numeracy skills, and children learn in the primary language of instruction in the Malawi lower grades, Chichewa, in accordance with the national curriculum.

The innovation incorporates adaptive learning which enables teaching and learning at the right level by allowing learners to move at their own pace; learners start a session by working through a diagnostic assessment. This ensures the software assesses the level of proficiency of the child. The program then utilizes this assessment to assign individual children literacy and numeracy content that meets the level of proficiency of the child and ensures that the child is learning at the right level. There are also analytics built into the software to continue to adjust the learning content throughout the learning session.

The expansion and scaling approaches adopted by the program build on extensive research in Malawi on the use of tablets to accelerate students' acquisition of foundation literacy and numeracy skills. Building on over 7 years of research, the software developer, onebillion, has continued to improve the quality of the learning software, onecourse, to enhance program impact.

While the ed-tech intervention was piloted in over 300 schools, impacting 225,000 children since 2014 via the Unlocking Talent Programme, the national-level expansion and scaling under BEFIT, is taking place in phases between 2023-29.

The first phase, which ran during school year 2023-24, has successfully rolled out the program to 500 schools in 18 districts in Malawi. The second phase targets an additional 500 schools in the remaining 16 districts, in addition to continued implementation support in the initial 500 schools; and this second phase is the main focus of this program proposal. This program will also support preparatory activities for 1,000 schools to be launched in phase 3. Phase 2 will allow consolidation from phase 1, and enable complete coverage of the remaining 16 districts, thus building a robust foundation for the next phase of expansion and scaling across all 34 districts by strengthening capacities at the district and block levels.

The overall program targets all public primary schools across each of the 34 education districts and 550 zones in Malawi, reaching an estimated 3.8million Standard 1 to 4 children annually at 6200 schools, by 2029.

Overall, the program adopts a Systems Strengthening Approach by utilizing existing education structures to ensure the long-term sustainability of the program beyond 2029. The focus on strengthening the capacities of teachers and other key education stakeholders at the school, zone, district, and national levels to facilitate student learning, as well as to monitor and support the overall implementation of the program, will further ensure the long-term sustainability of both the program and its impact.

1.1 Context and background

The Government of Malawi has made significant strides in improving access to primary education over the years.

Access

The number of children enrolled in primary education was 5,187,634 in 2018, a 47.1% increase from 3,600,771 in 2008. However, despite an increase in the Gross Enrollment Ratio by nearly five percentage points from 122 percent in 2009 to 127 percent in 2018, a proportion of official school-age children still do not access primary education, as evidenced by the low Net Enrollment Rate of 90 percent recorded in 2018. Moreover, the primary school completion rate in Malawi was only 52 percent in 2018 compared with the National Education Strategic Plan target of 60 percent, with fewer girls compared to boys completing primary schooling. Completion has also been decreasing with increasing primary education enrollment (Malawi Education Sector Analysis, 2019).

The EMIS (2023) reports the primary school completion rate at 48% (50% for girls and 46% for boys), while the transition rate to secondary school is 47.2% (47.0% for girls and 47.4% for boys), still below the NESIP target of 60%. Dropout rates in 2023 are at 4% for both girls and boys, primarily due to poverty, family

responsibilities, and truancy. Repetition rates have been on the rise since 2021, with the highest rates in Standard 1 (36.4%), gradually decreasing to 17.6% in Standard 8.

According to the EMIS (2023), the number of girls in schools is higher in every standard except in Standards 1 and 2, and the percentage of girls (47.0%) transitioning to secondary school is slightly less than boys (47.4%). However, only 20.6% of girls complete secondary education compared to 24% of boys. The Gender Parity Indices for Forms 1 to 4 show a decrease from Form 2 (1.01) to Form 3 (0.95) and then Form 4 (0.92).

The EMIS (2023) reported that there were 482,348 vulnerable learners mostly concentrated in the lower grades and 289,958 orphans in primary school. Around 3.1% of enrolled learners in 2023 were identified as special needs learners. This number has been growing at an average of 3% a year since 2019. The Malawi Census of 2018 reported the prevalence of disability in the population to be 9.7% for females and 10.4% for males.

Teacher availability

The EMIS data for 2023 gives 66% of primary schools having pupil to permanent classroom ratios (PpCR) above 90 in lower primary schools and 45% of schools having a pupil to qualified teacher ratios (PqTR) above 90 in lower primary. Teacher distribution is a key bottleneck, often causing acute shortages of teachers in some schools with an excess number of teachers in others.

Female teachers are crucial in enhancing girls' academic performance, supporting continued participation, and retention of girls in school. Although the percentage of female teachers is 45% of the workforce in primary education, the distribution of these teachers is clustered around trading centers resulting in other schools having ratios of one female teacher for every 97 girls (EMIS 2017/18 quoted in World Bank, 2021) and 12% of schools having no female teachers (World Bank, 2021).

Learning

In terms of learning, achievement levels in literacy and mathematics have been low. Though learners have been showing some improvement, the overall performance has been below standards (Malawi Education Sector Analysis, 2019). For example, general improvements in Primary School Leaving Certificate of Education were observed between 2012 and 2017. In 2017, 81.9% of male and 71.9% of female learners successfully passed the primary school leaving examinations. However, the PSLCE remains more of a completion exercise and not a valuable indicator of quality.

In 2015, the MoEST, with financial assistance from UNICEF, carried out a monitoring and learning achievement (MLA) survey in 4th and 7th grades. Overall, the MLA results showed very poor performance by students across all four tested subjects. Students' mean scores in all subjects except for Standard 4 Mathematics were below 50 percent. Furthermore, the results indicated a deteriorating average performance by students in all subject areas between Standard 4 and Standard 7 with the exception of Chichewa. On the other hand, analysis of performance by achievement levels revealed that the majority of students had not achieved the minimum basic competencies as specified by the National Primary

Curriculum (NPC) (i.e. they scored below the 40% mark - considered as not achieved minimum competencies in NPC performance specification).

Similarly, the MLA survey carried out in 2021 showed subpar results among students in both Standard 4 and 7. Specifically, Standard 4 outcomes indicate a significant deficit in foundational skills, with fewer than 25% of students demonstrating proficiency at the expected level across all subjects tested (Chichewa, English, Life Skills, Mathematics). Furthermore, Standard 7 results highlight the enduring impact of low achievement levels from Standard 4.

The MLA 2021 reported determinants of learning outcomes in Standard 4 and Standard 7. Factors which generally showed significant relationships to learning outcomes in Standard 4 and Standard 7 included the location of the school (rural/urban), education attainment of the head teacher, special leadership training of the head teacher, the head teacher having teaching responsibilities, presence of tap water, presence of electricity, and community involvement.

Despite the progress in enrolment, female learning outcomes are lower than that of boys. The draft Malawi Longitudinal School Survey Baseline Report 2024 showed that girls fall behind boys in learning by Grade 4.[1] This learning gap sets girls up for failure and contributes to the higher rates of dropout in upper primary, and lower rates of completion, for girls (although the gender gap in completion has improved in recent years).

Gender equity

As outlined above, gender equity in education remains a challenge in Malawi. Malawi ranks 173 out of 188 on the UN's Gender Inequality Index, with the eighth highest child marriage rates in the world, and it is crucial to keep girls in school to reduce child marriage to empower girls to participate more fully in society to contribute to the government's economic vision.

Primary completion rates and transition levels from primary to secondary are lower for girls as compared to boys. Despite progress in enrolment, female learning outcomes are lower than that of boys as early as at the grade 4 level. The distribution of female teachers is uneven, with female teachers being concentrated in trading centers. Female teachers act as role models and mentors, creating safe spaces for girls while promoting gender-responsive teaching practices.

Thus, all initiatives to strengthen education in Malawi need to adopt a gender-responsive approach and aims to broaden learning access while recognizing and addressing the distinct hurdles faced by girls. Targeted support and interventions are key to be able to overcome specific barriers that hinder girls from continuing their education. Research to date on the BEFIT learning software shows that girls gain at least as much as boys through the tablet program. Further, the BEFIT model (an in-school, whole-class model) helps to ensure that girls have equal access to the program.

[1] This report is cited in the draft partnership compact as World Bank Group (2024) Malawi Longitudinal School Survey. Draft.

Foundational literacy and numeracy

In terms of education reform initiatives, the primary education curriculum was revised through the Primary Curriculum and Assessment Reform (PCAR) from January 2007 to May 2008 emphasizing outcome-based education (OBE). OBE emphasizes literacy in English and Chichewa for academic work across the schooling experience and numeracy to facilitate eventual skill acquisition in science and technology.

A recent addition to PCAR, through ESIP II, is the National Reading Programme (as taught by the classroom teacher in the lower primary years, Standards 1 to 4). The NRP began in 2016 initially with the Malawi Early Grade Reading Improvement (MERIT) activity (2015-2020) with USAID support and implemented by Research Triangle International (RTI). The 2019 National Assessment on Reading Instruction (NARI) found that over 90 percent of Standard 1-4 teachers had been coached on National Reading Programme (NRP) pedagogy, but only 22 percent were found to apply the methodology to classroom practices.

While the NRP has achieved initial successes with regard to student learning, implementation fidelity is yet to be achieved. Furthermore, Malawi has not been spared from the global learning poverty estimated at 87% in Malawi, meaning that almost 9 out of 10 children who are 10 years old cannot read and comprehend a short paragraph. The Malawi MICS (2021) reported that only 18.9 per cent of children in Malawi aged 7–14 years have foundational literacy skills, and only 12.6 per cent have foundational numeracy skills.

Thus, continued efforts and investments are necessary to improve foundational literacy and numeracy at the primary level. This is further evidenced by the fact that the draft partnership compact for Malawi also identifies quality foundational teaching and learning for all girls and boys as a key reform priority.

The compact also identifies the need to institutionalize effective and impactful FLN programs/strategies including teaching and learning materials (both physical and digital) and teacher training on formative classroom assessment and inclusive pedagogy. In addition, the compact recognizes the need to support the learning of children with diverse needs.

The Education Sector Analysis also identifies the lack of system capacity across levels as an important bottleneck preventing various education initiatives from having maximum impact. Thus, any initiative to improve primary education needs to sufficiently incorporate capacity-strengthening approaches to ensure both high impact and sustainability.

1.2 Program rationale and approach

The BEFIT program is a direct response to a key challenge for primary education in Malawi, namely, low learning levels in foundational literacy and numeracy.

The program complements past, ongoing, and future initiatives such as the National Reading Programme (NRP), National Reading Programme Implementation and Expansion II (NRPIE), and the National Numeracy

Programme (NNP), amongst others, whilst aligning with key government strategies including Malawi 2063, the National Education Sector Investment Plan 2020-2030, and the Malawi National Reading Strategy.

The three programs, BEFIT, NNP, and NRP focus on foundational literacy and numeracy through three different yet complementary approaches. NNP and NRP use hard copies for students' learning following structured pedagogy, with teachers directly delivering the instruction. BEFIT leverages technology which effectively mediates variations in teacher quality found in standard instruction and pedagogy through use of a digital teacher. Both NNP and NRP have deployed technology components for Continuous Professional Development for teachers, while BEFIT places learning technology directly in the hands of children as a supplement to standard instruction. The collaboration across these programs is considering complementarity through shared resources at school level to support tablet charging, and tablet use for CPD, collaboration on streamlining teacher training, as well as research on learning outcomes. The expectation is that the three programs together have potential for a much larger impact on foundational literacy and numeracy.

Malawi is a signatory of the Commitment to Action on Foundational Learning, which recognizes that foundational learning provides the essential building blocks for all other learning, knowledge and higher-order skills.

The Ministry of Education has devised a five-strand strategy to meet the government's goal of reducing learning poverty from 87% to 21% and ensuring that over 80% of learners in standard 4 are able to read fluently and with meaning by 2030. Within these strands, the BEFIT program has been identified by the government as a spotlight program under pillar number 5 on digitalization of the curriculum to mitigate learning poverty in Malawi. This pillar will contribute to all 3 outcomes of (1) Improved Inclusive School Readiness, (2) Improved Inclusive Foundational Learning, and (3) Enhanced Education System Capacity, Governance and Accountability as outlined in the compact.

The BEFIT program contributes directly to the Government of Malawi's interest in promoting ICT in education and the nation at large, by setting up school infrastructure to implement additional technology-based innovations, by building teachers' knowledge and skills in ed-tech, and increasing the availability of electricity in schools.

The current approach to scaling and expansion has been informed by over seven years of rigorous research including nine randomized control trials (RCT) on onebillion's learning software in different countries, languages, and settings. Imagine Worldwide also carried out implementation research during phase 1 of expansion from 2023-2024, and the current proposal also takes these findings into account.

1.2.1 Efficacy research

Over four years from 2018 to 2022, Imagine, with local university partners such as University of Malawi and University of Dar es Salaam, conducted five RCTs comparing supplemental use of onebillion's software with standard instruction only, in different countries (Malawi, Tanzania), languages (Chichewa, Kiswahili, English), settings (government schools, refugee camps), and over different lengths of time (8 weeks to 2 years. Four additional studies were led by other research organizations (i.e., University of Nottingham and

RTI International). The University of Nottingham conducted their proof-of-concept RCT's prior to the founding of Imagine.

All of the efficacy trials were reviewed and approved by Imagine's founding Research Advisory Group of internationally recognized experts. Technical reports are available for the 8-month and 2-year RCTs, making the research process transparent.

The RCTs conducted so far have consistently shown that onebillion's software produces positive and significant learning impacts in literacy and numeracy,[2] as well as gender parity and reported increases in attendance and enrollments.

Imagine's Malawi RCTs built upon the early proof-of-concept RCTs conducted by the University of Nottingham over 8 weeks and 14 weeks to investigate whether the observed short-term impacts would be sustained over longer periods (i.e., over 8 months and 2 school years). The goal was not just to produce a statistically significant increase in learning that might translate into a few more letters, words, or numbers, but ultimately to help children become readers and to attain a similar skill level in mathematics (i.e., attaining the end of 4th-grade standards).

Imagine also sought to test whether the tablet program could produce positive learning impacts in refugee settings, which included some of the most marginalized children. Finally, Imagine also replicated studies conducted in Malawi, in government schools and a refugee camp, in Tanzania.

Imagine's RCTs studied three different versions of onebillion's software, with results indicating increasing impacts with successive software versions. Further, Imagine's studies showed that girls benefited at least as much as boys from the tablet program.

A report supported by the Copenhagen commission found that the educational return per kwacha spent on Technology Assisted Learning utilized by the BEFIT program is almost five times greater than the second-best intervention (teacher training) and more than 30 times that of reduced class sizes and school construction interventions.[3]

1.2.2 Implementation research

Implementation research helps translate results from efficacy trials to real-world settings by obtaining information that can guide scaling and sustainability. Since the implementation of the BEFIT program started in 2023, Imagine engaged the University of Malawi to lead the implementation research for BEFIT, with oversight and support from Imagine HQ.

[2] For example, an 8-month RCT conducted by Imagine with Grade 2 children showed statistically significant effect sizes of 0.15-0.29 in early math skills and 0.34 in literacy. A 2-year RCT with Grades 2-3 children showed a statistically significant effect size of 0.54 in overall math and 0.37 in literacy. More details on impact can be found at https://www.imagineworldwide.org/our-work/results-impact/

[3] https://npc.mw/wp-content/uploads/2022/12/Malawi-Priorities-book-FINAL-EDIT.pdf

During the BEFIT planning phase in January – July 2023, the research team conducted initial interviews with stakeholders representing the education hierarchy (from parents to teachers, heads of schools, and zone and district administrators) in four communities that had not yet implemented the tablet program.

During July – December 2023, the team conducted interviews and observations in the four BEFIT pilot schools (in July), shared findings from the planning phase with key stakeholder groups, and launched implementation research in Cohort 1 schools during Term 1 of the school year, beginning in September 2023.

Key findings from the implementation research carried out in 2023 include:

1. Site visits indicated initial variations in context and implementation that foreshadow the wide variation that may occur during the national rollout. Some examples include:
    a. Attendance: Attendance (a key contributor to time on task) can be more challenging in rural areas due to food scarcity and farming obligations for children during certain periods of the year. However, stakeholders reported that BEFIT generally increased attendance and enrollment over prior years.
    b. Stakeholders in rural and remote areas may have greater distrust of and concerns about the tablet program initially, including political, economic, health, and spiritual concerns
    c. School-level implementation practices varied, with
        i. some schools rotating the tablets among regular classrooms while others rotated children into a dedicated tablet classroom
        ii. some schools targeted 30-minute active tablet sessions and others targeted 40-minute active tablet sessions; and
        iii. some schools scheduled tablet sessions for all Standards on 5 days per week while others staggered sessions for different Standards (e.g., Standards 1 and 2 using the tablets 3 days per week and Standards 3 and 4 using the tablets on the other 2 days per week).[4]
    d. Some of these lessons were incorporated into practices for Cohort 1 and will continue to be incorporated iteratively over time. For example, the implementation research identified active stakeholder engagement as a critical enabler of quality implementation of the BEFIT program and a means to reduce barriers to adoption. Some examples of effective stakeholder engagement include:
        i. Community sensitizations involve hands-on use of the tablets by parents and community leaders in addition to teacher training. Early evidence indicates that community sensitization efforts can succeed in allaying fears about the tablet program and increase parental engagement.
        ii. While initial community sensitizations and teacher trainings demonstrate increased stakeholder support of the BEFIT program, Malawi schools experience a significant amount of mobility among student and teacher populations and new

[4] The variable approaches to scheduling and duration of the tablet sessions were implemented before the MoE sent out official guidance on the timetable to be followed across schools. Currently, the official timetable revision to the national timetable has incorporated the BEFIT program to guide implementation.

classes of children will enter the program annually. Refresher sensitizations and trainings are now planned at least once every term, with primary trainings planned annually.

The various strands of research and monitoring that are part of the BEFIT program actively investigate any differential experiences or impacts by gender. The implementation research investigates attitudes and perceptions that can have differential gendered impacts; however, interviews with parents and teachers conducted to date indicate they consider the tablet program, and literacy and numeracy, equally important for both boys and girls.

It will be important to continue to engage stakeholders to understand local challenges, including attendance and regular tablet session delivery, and to develop strategies to mitigate against underlying causes. Challenges may vary depending on context, including setting (urban, peri-urban, rural), school size, and other factors.

1.2.3 Implications for expansion and scaling

Based on the research, the key design characteristics contributing to the positive impact of the intervention include:

1. A common pedagogical approach through the use of tablets mitigates challenges arising from variations in teacher qualifications and performance across classrooms and schools. Strong, positive female characters in the software, along with the software being unaware of the child's gender, also avoid biases that girl learners may encounter in some standard classrooms.
2. The use of tablets helps illustrate lessons and stimulates interest and motivation amongst learners by making available a huge amount of teaching and learning materials in an interactive format.
3. The adaptive software allows each child to learn and progress at their own pace/level, even without prior exposure to technology or reading materials, thus promoting individualized learning.
4. The BEFIT model helps to mitigate against possible pressures to exclude girls from participating in the program. Specifically, the in-school, whole-class model helps to ensure that girls have equal access to the program. The tablet sessions are scheduled into the school's official time table and a sufficient number of tablets are allocated to each school to serve the largest class among Standards 1-4. Both of these provisions help to ensure that all children who are present at school participate in the tablet program.

In terms of expansion and scaling, some of the key characteristics of the implementation model adopted by the program include:

Countrywide expansion and scaling

The BEFIT program incorporates a countrywide approach to expansion and scaling. The overall program targets all public primary schools across each of the 34 education districts and 550 zones in Malawi, reaching an estimated 3.8 million Standard 1 to 4 children annually at 6200 schools, by 2029. The phase 2 of the overall program which will be supported by this program plays a critical role in strengthening capacity across all districts (expanding from 18 to all 34 districts) to enable countrywide expansion and scaling in due course.

This approach ensures that all children, including marginalized children in the target grades are provided for, and that no children are left out of the program. The focus on rural schools in phases 1 and 2 clearly addresses the needs of marginalized children who are mostly in rural areas. The support from GPE targets cohort 2 which has close to 80% rural schools. Further, phase 2 of the program plays a critical role in building capacity across districts and zones for the eventual expansion and scaling to all public primary schools in the country.

More details on school selection criteria for the roll-out of the program are provided in Section 3.2 Implementation set-up and roll-out.

Whole classroom approach

The BEFIT program adopts a school-based implementation model that is integrated within the regular teaching structure and timetables. It utilizes existing school structures and doesn't necessitate the construction of new learning spaces.

In this model, all learners in a given classroom use the tablets at the same time according to the time allocated for tablet lessons for their class. Tablet distribution to each school is such that the largest single stream in a standard will have enough tablets for all learners to learn simultaneously, ensuring that even underserved schools with fewer teachers and larger classes, are able to derive the maximum benefit from the program, and ensuring that all children in the class (including girls and boys) have access to the program during the dedicated time slots. This model is adopted to facilitate smooth integration of the tablet lessons within the regular school timetable and optimize individual children's time on task through effective timetabling. The use of regular class time and whole class access ensures significant time on task for learners using the tablets. The teacher (or other program facilitator) moves around the classroom and provides basic technical assistance to individual students as needed. Each learning session lasts a minimum of 30 minutes, covering both literacy and numeracy. When children complete the daily learning units, they proceed to the library where they can select from among a variety of activities. Revisions to the timetable have been facilitated by the MoE to include tablet lessons in the targeted grades.

With this approach, the typical case is that tablets, rather than the students, move from one classroom to the next according to the timetable throughout the school day. After each session, the tablets are collected and taken to another class for their turn (each tablet is used on average by 4-5 children per day). In schools with plentiful classrooms, the tablet sessions may be hosted in dedicated classrooms with students taking turns, moving in and out for tablet sessions. The entire tablet learning experience for the student, operates without the need for consistent internet connectivity or grid power, thereby supporting students in all contexts. Adhoc connectivity is however helpful for data metrics collection and remote monitoring.

Hardware, software, and logistics

The BEFIT program procures Android tablets and coordinates with tablet manufacturers to preload the learning software and a customized version of the Android operating system. This ensures that the children's tablets are 'locked down' and can only be used for the specified purposes of the program. Teacher tablets are also provided to provide ongoing continuous professional development and training. These tablets are open and can hold other content as directed by the Government of Malawi. onebillion, the learning software developer, has committed to providing a perpetual royalty-free liscene to all versions of their software to the GOM via Imagine Worldwide, which has been appointed by the software developer as the exclusive software distributor to all partners wishing to participate in the MoE's national-level scaling. This commitment ensures that there are no user fees for the software or its updated versions for as long as the MoE chooses to continue the use of the technology in its schools.

Imagine and onebillion work together on a continuous improvement process whereby data from the tablets is analyzed by the Imagine research team and learnings are passed back to onebillion for ongoing iterative improvements. Imagine is *not* restricted from using other software products if and when higher impact options are identified. There is a thematic task team under the Directorate of Quality Assurance and Supervision (DQAS) of the Ministry of Education to provide input to onebillion who integrate their feedback into future versions of the software.

At this stage the program does not collect identifiable data, except in specially selected schools where research on learning is conducted. Imagine's research team follows the strictest data privacy and security standards to protect research data, following U.S. educational privacy law and University of Malawi ethics standards. In future, in order to fully personalize learning journeys on the application and better support learners who are not making material progress, the identification of learners will be required across all BEFIT schools. This will be designed and implemented as part of the Open Learning Architecture platform. The platform will ultimately manage all learner as well as teacher profiles using robust industry-leading mechanisms to ensure privacy protections of the identifiable data. This will include secure encryption of all sensitive data when stored and in transit, de-identifying the data and storing the student identifier separately. Imagine is in the process of designing a data sharing framework and defining the necessary protocols to ensure ownership of the school data remains with the Government of Malawi and strictly limits the use of identifiable and non-identifiable data for appropriate and ethical use-cases.

The software combines pedagogy and curriculum, works fully offline, and does not require adult instruction as children are all learning autonomously at their own pace in a supplemental instructional period. The child wears headphones to listen to the guidance of their 'digital teacher', a teacher avatar called Alefa in the Chichewa version, who speaks to them in their mother tongue. Child-directed learning is particularly important given the large classes in some schools that would make one-on-one support impossible. The learning software supports versions for both Android and iOS devices and can work with a wide range of Android devices.

The software provides a comprehensive, research-based, foundational literacy and numeracy curriculum. An earlier version of the software was a co-winner of the Global Learning XPrize, and the software continues to evolve and demonstrate increasing learning gains.

The current version of the software in use is adaptive. Children take a short diagnostic assessment at the beginning of a session which then delivers literacy and numeracy curriculum at the right level for the child, which may be different in the two subjects. Children proceed at their own pace. When they have completed the daily units in both subjects, they then proceed to the library, where they can select from a number of different activities. During a typical 30-minute tablet session, children actively spend 20+ minutes using the learning software.

The teacher avatar guides the child through the course, demonstrating and clearly explaining new material and giving support and encouragement. The learning activities are highly engaging, while not being overwhelming. They are research based, providing an ordered set of learning units (from among a bank of thousands of units) that match the child's skill level in each subject. Headphones are used to maintain a quiet learning environment. Adults play a facilitative role, primarily addressing any technical issues that may arise.

The software has been significantly informed by considerations to gender, equity and inclusion. The software is gender responsive and effectively meets the learning needs of both girls and boys. Learning with the software means that girls do not experience biases and assumptions that may exist in standard classroom settings and beyond. The teacher training app also promotes principles of inclusive education. The software is also accessible and impactful to children with SEND learning needs – particularly children who may have 'hidden' disabilities or learning difficulties. More details are provided in Section 4 Gender, equity, and inclusion.

The MoE has further secured duty waivers and will reduce equipment costs and also provide logistical support to enable efficient delivery of tablets to schools. This is especially relevant for the delivery of internationally produced materials.

Power, storage, and security

In each school, a lockable, steel, metal cage is installed in a secure room for storing the tablets, and solar equipment such as batteries and inverters. Solar panels are installed on the roof and connected to the lithium-ion batteries. Tablet charging hubs are fitted into the cage with cables to connect to each tablet device. BEFIT will work with the Malawi Rural Electrification Programme (MAREP) to ensure alignment and coordination between our respective electrification efforts. Back-up solar power may be provided based on need. Teachers collect fully charged tablets each morning for use in the classrooms in the safe carrying boxes provided. At the end of all rotations, tablets are taken back to the storage cage where they are connected to charge overnight, ready for use the next day.

Capacity building, training, and sensitization

The BEFIT program places a significant emphasis on capacity building at different levels of the education system. This also includes community sensitization to allay fears about the program, deepen parental engagement, and increase overall support for the program at the community level. More details can be found in the subsequent sections of the document.

2. Program Overview

2.1 Goal and objectives

The overall goal of the BEFIT program is to improve pupil learning outcomes in reading and numeracy through supplemental use of individualized, self-paced instruction delivered through specialized software on Android tablets in standards 1-4 across all public primary schools in Malawi between 2023-2029.

This program proposal focuses on supporting phase 2 of the BEFIT program which consolidates phase 1, supporting continuity of implementation in 500 schools across 18 districts, and expands to 500 new schools in 16 districts. With phase 2, all the 34 districts of the education system will be covered, and capacity will be critically developed at district and zone levels to enable the scaling up of the BEFIT program to all the public primary schools of Malawi by 2029.

2.2 Components, sub-components, and activities

COMPONENT 1: EQUIPPING PUBLIC PRIMARY SCHOOLS FOR THE ROLLOUT OF PHASE 2 OF THE BEFIT PROGRAM

This component focuses on equipping 500 public primary schools across 16 districts with the infrastructure required to implement the BEFIT program as part of its national expansion and scaling. In addition to the required software, hardware, solar panels, and other infrastructure, it also ensures that a network of accessible technical support is put in place to support the program at the district, zone, and school levels.

This component will not only provide valuable infrastructure for the BEFIT program but also for future ICT initiatives in schools. It will seek to procure and install solar panel systems to ensure that all schools have reliable access to electricity. While some schools presently have access to the national grid, there are often issues with reliability of the power supply, which could disrupt program delivery; and reliable access to solar power will be a key outcome of this component. Schools will be more ready to embrace new technologies in support of education as an added benefit.

Sub-component 1.1 Provision of required software, hardware, solar panels, and other infrastructure in public primary schools.

Activity 1.1.1 District Activity Implementation, Coordination, Formation and Strengthening of Implementation Structures.

As part of the rollout of the BEFIT program, this activity will support the setting up and training of implementation teams in each of the 34 districts, with a maximum of up to 15 people in each team. These district-level thematic task teams (composed of government employees at district council level), will be oriented on their roles and responsibilities, which include supervising tablet learning in schools, supervising (Implementation Service Providers) ISP services to the government, supporting district implementation planning, developing, and rolling out a program disaster management plan, and incorporating tablet-based learning for education in emergencies.

Activity 1.1.2 Identify schools' needs for launch and develop district-wise rollout plans for each district to guide implementation.

The MoE which is responsible for overseeing and leading the implementation work through DODeL and DBE, along with the BEFIT program consortium partners will jointly plan key activities for the national rollout.

To achieve effective planning, DODeL and DBE will conduct a readiness assessment of 600 public primary schools to determine the available infrastructure that would support program rollout. They will coordinate with different directorates within the MoE to generate critical school-level data to inform this process. The MoE is encouraged to use the BEFIT program to drive more equitable access to quality education by ensuring the lowest-resourced schools are supported with the basic infrastructure required to install solar and other hardware.

Based on this assessment, 500 schools will be selected for phase 2 expansion. A team of assessors will be deployed to 16 districts to collect data on school conditions, enrollment, and infrastructure status to inform the planning of equipment as well as to develop security enhancement plans for each of the target schools.

Activity 1.1.3 Procurement, installation and testing of tablets and accessories.

The program procures Android tablets and co-ordinates with tablet manufacturers to preload the learning software and a customized version of the Android operating system. This ensures that the children's tablets are 'locked down' and can only be used for the specified purposes of the program. onebillion, the software developer, has committed to providing a royalty-free perpetual license to all versions of their software to the Government of Malawi via Imagine Malawi, which has been appointed the exclusive software distributor to all partners wishing to participate in the BEFIT program. This commitment ensures that there are no user fees for the software or its updated versions for as long as the Ministry chooses to continue the use of the technology in its schools across the country. Further, the software can work on any Android or iOS device and can work on a wide range of Android hardware.

Imagine has worked with multiple tablet manufacturers to produce a customized tablet that has a number of enhancements that make it optimal for the Malawian context:

- Addition of a much larger battery vs standard that allows for 12 hours of usage on one charge
- A number of durability features that reduce breakage (recessed screen, heavy-duty glass, insulation layer below screen, etc.)
- The use of screws instead of glue within the device to maximize the potential of device repair in the field as opposed to disposal

Essential accessories include headphones, headphone cables and charger cables. All components are commodities and thus have wide access to replacement parts and there is no dependence on any one vendor, now or in the future.

Through this activity, tablets and accessories will be installed in 500 schools across 16 districts for phase 2 expansion.

Activity 1.1.4 Procurement, installation and testing of solar panel systems.

Most schools in the country are not connected to the national grid, and where they are connected, the service is mostly inoperable. Through this activity, the program will seek to procure the required equipment to provide access to electricity in 500 schools for phase 2 expansion, by installing solar panel systems at the school level.

Activity 1.1.5 Procurement and installation of metal storage cages.

The metal cages for safe storage of tablets as well as large-scale charging stations, will be procured from local fabrication firms and installed in 500 schools for phase 2 expansion.

Following school assessments and scoping, such equipment will be procured and, with support from MoE, delivered to the schools where contractors will be engaged to fabricate the storage cages and install the cages and required power solutions.

Activity 1.1.6 Building renovations and maintenance of equipment; supplemental equipment for schools.

Through this activity, basic renovation and maintenance needs, focused on enhancing security of rooms where equipment is stored, identified either through the needs assessment activity or other monitoring processes will be addressed on an ongoing basis. This could include the procurement and installation of reinforced doors/windows, installation of alarms, lighting, and security alarms, amongst others.

Sub-component 1.2: Creating a network of trained officials at the school, zonal, and district levels to provide technical support.

Activity 1.2.1 Identification of education officers and IT technicians at school, district, and zonal levels to provide technical support during the implementation of the BEFIT program.

The provision of accessible technical support is a critical component in ensuring both the smooth functioning and the overall sustainability of the program. Currently, primary schools in Malawi do not have IT officers. These are available only at the District Council level as a common service. These highly skilled officers cannot adequately cover all the schools in the district requiring technical support. Thus, a network of technicians who can provide support at school and zone levels will be critical.

The PIMU will work with the Directorates of ICT and DSTI, schools, local communities, and private sector organizations to design a holistic and sustainable ecosystem to provide technical support for both software and hardware components at schools. The BEFIT program will seek to align with and augment technical skills development programs to develop an ecosystem where:

i. At a school level, recent graduates completing technical training specific to the BEFIT program will provide support to basic troubleshooting within close proximity to schools.

ii. At the zone level, an officer will be trained to support school-based technicians in resolving any significant challenges. The zone officer will also provide training to any new school-based technicians as the need arises. 550 technicians will be required, one for each zone.

iii. Both the school and zone technicians will be supported by the District IT officers. As highly skilled specialists, these officers at the district level, will provide training orientation to the other two levels, hold inventory of spare replacement parts and plan for the overall maintenance and replacement of equipment through their district education budgets. Hardware maintenance coordinators will also be recruited to support the education districts.

These individuals will be trained in troubleshooting the technology equipment and in accordance with hardware maintenance guidelines, after which they will be able to provide technical support to target schools.

Activity 1.2.2 Coordination of the entire network of education officers and IT technicians at school, district and zone levels to manage the smooth rollout of the BEFIT program.

Once the network of individuals who can provide technical support across levels is identified and trained, the entire network will work together to ensure timely technical support is accessible to prevent any disruptions to the delivery of the program. This activity will be coordinated by the PIMU.

More specifically, the Education Technology Specialist in the PIMU will monitor and supervise the 34 district hardware maintenance coordinators through structured meetings and logistics pick and delivery schedules. Maintenance materials will be supplied to the district coordinators to supply as required to the 550 zone technicians.

Different levels of support will be provided according to the complexity of the maintenance requirement in each particular case:

a. **Level 1 Support:** basic troubleshooting and support that can be resolved on-site, and does not require the use of spare parts (eg: removing stuck jack, cleaning);

b. **Level 2 Support:** troubleshooting and support that requires the use of spare parts but can still be resolved remotely at the school or zone level (eg: replacing screen protector)

c. **Level 3 Support:** advanced troubleshooting and support that requires highly skilled technicians and can only be resolved at a district center (eg: replacing battery or motherboard)

This tiered approach will support the monitoring of equipment status and functionality in 1,000 schools from phase 1 and phase 2 across 34 districts.

COMPONENT 2: STRENGTHENING CAPACITIES OF TEACHERS, SCHOOL LEADERS, AND COMMUNITY TO SUPPORT THE IMPLEMENTATION OF THE BEFIT PROGRAM

Successful delivery of the program requires capacity strengthening among school leaders and teachers to support the facilitation and monitoring of the program. It also requires support from communities to build local ownership and ensure security of the equipment installed in schools. This component focuses on

strengthening the capacities of these key stakeholders to support the implementation of the BEFIT program.

Sub-component 2.1: Training teachers and school leaders to support the facilitation and monitoring of the BEFIT program (in-service and pre-service).

Activity 2.1.1 Train in-service teachers and school leaders in facilitation and program management at the school level, in alignment with the district-wise rollout plans.

The Ministry of Education, with support from Imagine, will train all teachers and school leaders to support the facilitation and monitoring of the program at the school level. Teachers are the primary facilitators of the intervention at the classroom level, and in addition to training in effective facilitation of the sessions, teachers will also be trained on managing minor tablet issues without external help. Further, all teachers in a school will be trained in order to prevent an abrupt loss of expertise and disruption to the program due to periodic teacher transfers or changes.

The tablet software is designed to run autonomously as far as instruction in literacy and numeracy is concerned. This was done to ensure all children have access to the same high-quality instruction regardless of location as the instruction is delivered through an integrated teacher avatar combining both curriculum and pedagogy. The approach incorporates the issue of inequitable resourcing of schools, with teacher allocation being a key issue, as identified by the enabling factors analysis.

The program supports the role of the teacher in the classroom. The role of the teacher is to organize the environment and support children as they independently navigate the tablet content. The training sessions focus on how to best facilitate the tablet sessions, explanation of the benefits of adaptive learning, time for the teachers to gain experience using the tablets, and detail on the scope and sequence of the tablet curriculum so that they are familiar with the depth and breadth of the content on the tablet. There is also a teacher tablet that contains teacher training content and allows the teacher to further explore the content on the tablet.

This activity includes reviewing and updating the program training materials, recruiting, and training national-level master trainers, conducting district-level training of trainer workshops in 16 districts, and training teachers in 500 schools for phase 2 expansion.

Activity 2.1.2 Develop a module on the use of technology in education for use in pre-service teacher training programs with the Malawi Institute of Education and BEFIT implementing partners consortium.

The BEFIT program through DODeL, DBE, DTED, MIE, and DQAS will in future introduce a module in teacher training colleges on technology use in primary schools. The module will orient teachers to the role of edtech in teaching in general, while specifically focusing on the program's ed-tech approaches in primary schools. This module will be integrated into pre-service teacher training across 9 regular teacher training colleges in Malawi.

Sub-component 2.2: Community sensitization and mobilization to support rollout and monitoring of the BEFIT program.

Activity 2.2.1 Enlist community support to monitor the implementation of the BEFIT program to ensure accountability at the school level.

Encouraging community ownership of the program has the potential to drive local accountability in the way the program functions at the school level. Communities are encouraged to monitor implementation in their schools and raise any problems with the school leadership.

The PIMU, through the BEFIT program, conducts a series of engagements with local school communities including school-level organizations such as Parent Teacher Associations, School Management Committees, and Mother Groups, among others. These school-level committees are instrumental in mobilizing the wider school community to raise awareness of the program and the need for community support.

Activity 2.2.2 Mobilize community members to ensure the security of the equipment installed in schools.

Parents need to be involved in ensuring the safety of equipment within their local communities. To achieve community support, sensitization meetings with members of the schools' communities are held to explain the intervention and how communities might help reduce cases of vandalism, theft, and other unnecessary loss of equipment from schools.

COMPONENT 3: SUPPORTING IMPLEMENTATION OF MONITORING, EVALUATION, AND LEARNING SYSTEMS FOR INCREASED ACCOUNTABILITY AND STUDENT LEARNING

The BEFIT program supports the implementation of monitoring systems that enhance accountability for implementation along with student learning. It strengthens the monitoring capacity at all levels of the existing education systems. It also incorporates research activities that inform the national-level expansion and scaling of the proven ed-tech innovation, by including both outcome and implementation research right from Phase 1 of expansion. This component comprises supporting the implementation and institutionalization of monitoring, evaluation, and learning systems through the BEFIT program.

Sub-component 3.1: Designing and setting up a monitoring system for the BEFIT program from school to national levels.

Activity 3.1.1 Design a monitoring system with clear identification of roles and responsibilities across school, district, zonal, and national levels.

The PIMU through the DEPP, DQAS, DODeL, DBE, and DEM's offices are working collaboratively to put in place systems and structures to routinely collect data, summarize, and report on the program's performance to higher levels.

This activity supports convenings with government and program stakeholders to agree on the overall monitoring system, roles and responsibilities, key indicators for tracking progress, as well as the tools and platforms for monitoring program delivery.

Over time, the DEPP will integrate the monitoring of the program within regular school monitoring processes.

Activity 3.1.2 Refinement, orientation and training on the monitoring and assessment tools based on prior learnings.

The BEFIT program has developed a suite of tools to enable robust monitoring of key program and outcome indicators such as tablet usage, technology status, and required facilitator support.

The main monitoring tools include:

- Monitoring or observation surveys (currently through CommCare)
- Tablet data analysis (collected via Wifi routers or manually via USB drives, and displayed on AKUKO dashboard)

The onecourse software itself comes with an integrated e-assessment that teachers and others can use for regular assessment of children and to generate data on learner progress and achievement. This complements an external assessment of learning gains by Imagine's research team using annual baseline and endline assessments with EGRA and EGMA. The new digital EGRA and EGMA, commissioned by Imagine in collaboration with RTI International, makes assessment at scale much easier and less costly.

Through the monitoring activities, implementing partners responsible for monitoring, evaluation and training are oriented to utilize these tools to build and strengthen the monitoring capacity of the Ministry of Education at different levels during planned capacity-building training across 34 districts.

Activity 3.1.3 Fully remote data collection and monitoring, individual student tracking, A/B testing (Open Learning Architecture)

There are limitations with the current monitoring tools, in cases of poor connectivity. The Open Learning Architecture (OLA) represents the 'next generation' of school administration and monitoring tools aimed at increasing the frequency and quality of data collected from the tablets. This new platform will be tailored to work in contexts of poor or intermittent connectivity, while still being low-cost and scalable. OLA will ultimately be open-sourced and available to national governments for free.

More comprehensive and up-to-date information will provide richer reporting to different stakeholders in the education system and program teams as well as enhance the quality of implementation support to schools. The platform will use advanced networking to significantly increase the volume of data captured and transmitted.

Another key attribute of the platform will be the ability to securely track individual learners and further differentiate learning pathways to meet individual learner needs. OLA will facilitate automated, high-quality collection of individual analytic data and enable tracking of children's time-on-task and learning progress. This additional data will support continuous improvement of the program's software and enable the further development of personalized learning pathways to deliver more targeted, individualized instruction over time.

This activity will support the design, development and deployment of the platform. This effort is expected to require a team of approximately 10 software engineers for a duration of 18 months to develop. Imagine is managing the development directly, through a combination of an external software vendor and in-house

software engineers. While onebillion remains a key partner and will fully integrate with the OLA, onebillion is not the contractor for OLA and the platform is being developed independently of onebillion. A/B tests will be conducted by Imagine through changing various settings and configuration of onebillion's software, which onebillion will permit through an API integration with Imagine. OLA is being created in such a way that any learning application, or software products can in future be delivered to schools and managed through OLA. It is planned that the OLA will be made open-source and available to the government at no fee, in perpetuity.

Activity 3.1.4 Implementation Service Providers: institutionalize a monitoring, evaluation and learning system to ensure data from the program is fully utilized in monitoring pupil achievement and progress and drive accountability.

Through this activity, Implementation Service Providers (ISPs) generate program data, and analyze and disseminate the information to key stakeholders. ISPs lead the monitoring, evaluation, and learning function for the BEFIT program in the earlier years to supplement government capacity, and more details on their roles and responsibilities are provided in Annex 1.

Sub-component 3.2: Research on implementation fidelity and student learning to inform program adaptations and scaling efforts; creation of research basis for expansion in other countries and for other ecosystem participants.

Activity 3.2.1 Develop a robust research plan focusing on implementation fidelity and student learning outcomes in the early stages of rollout, to inform subsequent stages.

The BEFIT program incorporates a robust research agenda that focuses on both outcomes research as well as implementation research to support continuous improvement and to generate insights for scaling. The first 2 years of the scaling and expansion through the BEFIT program are viewed as critical learning years focused on refining implementation practices at scale. These efforts will help to refine the BEFIT model ahead of the independent effectiveness study expected to begin in September 2025.

This activity supports the hiring of local researchers, both independent and through the University of Malawi, to co-develop with Imagine a research plan focusing on implementation fidelity and student learning outcomes in the early stages of rollout, and all relevant travel and field activities.

Activity 3.2.2 Implement research plan, and utilize data and findings to refine national rollout processes on an ongoing basis as well and to develop alternative models of implementation to meet the specific needs of schools across contexts based on findings from the research; work with software provider to integrate research learnings into future software releases.

The program conducts research to understand better for whom the software is working, for whom it is not working, and why. This is especially relevant to understanding barriers to progress in reading and mathematics (including hidden difficulties such as working memory deficits) as well as gender and equity, in addition to other contextual factors such as rural/urban differences, amongst others.

Research findings are shared with the software and implementation partners and other stakeholders to help achieve the greatest learning impacts for all children, including the most marginalized.

The research also investigates alternative implementation models based on contextual situations of schools to ensure that children in different areas can derive maximum benefit from the program (in addition to a monitoring system that generates data on program performance). The PIMU and the BEFIT program will also use research findings to provide additional value to other literacy and numeracy initiatives in the schools such as the National Reading Programme (NRP).

This activity supports data collection, enumerator fees, and data analysis costs covering 120 study schools sampled across the 34 education districts during phase 2. An independent research trial is planned from year 3 and will consider the combined benefits of NRP and NNP programs.

2.3 Beneficiaries

The main focus of this program is the second phase of expansion of the program to 500 new schools in 16 districts, whilst also supporting the continued delivery of the program in 500 schools from the first phase. Phase 2 targets 634,899 students and 15,616 teachers in total. This includes 323,798 girls, and 23,491 children with identified disabilities.

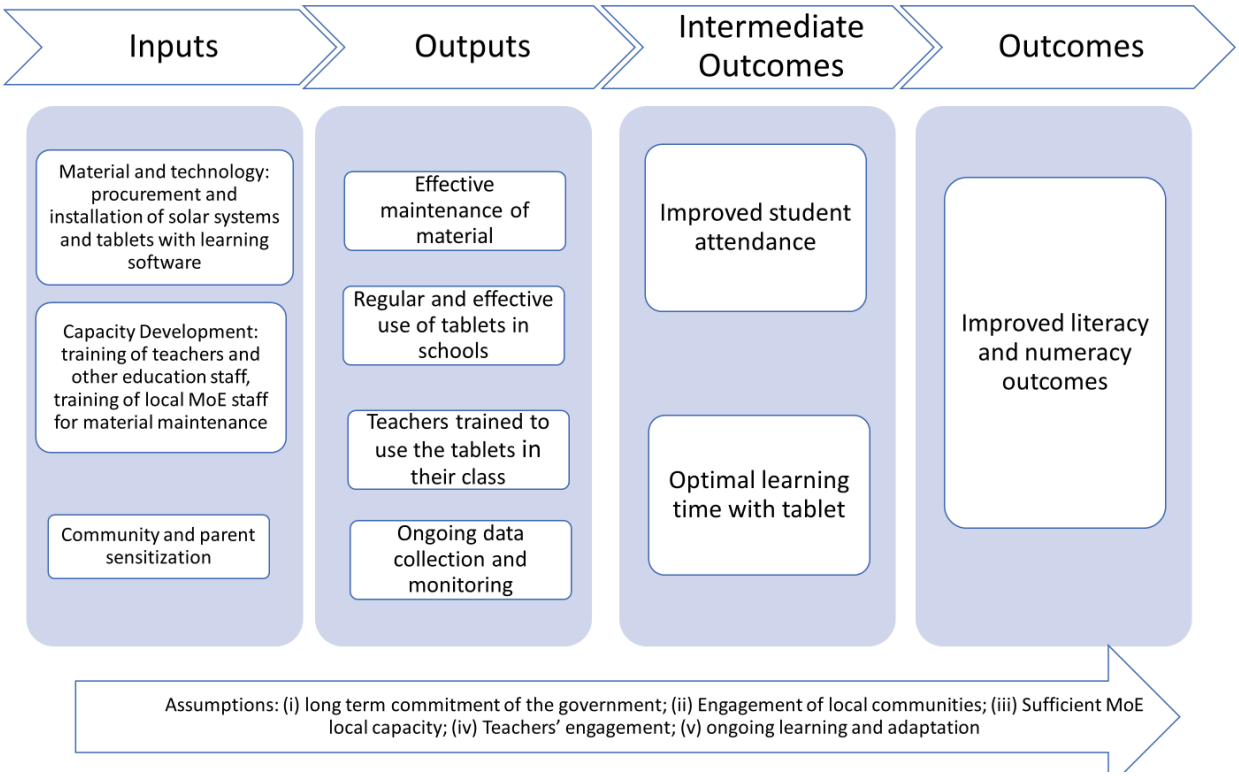
Overall, the BEFIT program targets all ~6000 public primary schools across 34 education districts in Malawi over six years between 2023-2029. Ultimately, this includes 3.8 million learners enrolled annually in Classes 1-4 with ~78,000 teachers teaching in public primary schools. It also targets District Education Managers, Primary Education Advisers, monitoring and technical support officers, national-level education leaders and local school communities through its capacity strengthening and community sensitization activities.

2.4 Theory of change

The Theory of Change for this program is informed by the Theory of Change for the overall BEFIT program (Annex 3). However, this theory of change below is focused specifically on phase 2 of the BEFIT program. This ToC is based on solid evidence building on research conducted in Malawi and elsewhere as discussed previously.

Although the visual is linear to illustrate the causal chain, it is important to factor in the interactions between the different components, and the iterative dimension inherent to such a change process. Implementation research is going to be done in parallel with the program implementation and monitoring to capture the key interactions and ensure real time learning and adaptations.

There are five assumptions that represent the underlying conditions required for the theory to work as expected: (i) Long term commitment of the government; (ii) Engagement of local communities; (iii) Sufficient MoE local capacity; (iv) Teachers' engagement; (v) Ongoing learning and adaptation.



2.5 Results framework

The results framework for the program is directly derived from the Theory of Change. For each level of the ToC, a set of indicators has been identified. The number of indicators is deliberately limited, and they are quantitative to facilitate the overall monitoring of the program. The results framework is conceived as the tip of the MEl approach for the program. It will show if the program implementation is going well and yielding the expected results in particular in terms of learning outcomes. As mentioned earlier, implementation research will also be conducted alongside the program implementation and will provide more granular data, in particular more nuanced information about the engagement of the different actors in the program. It will enable more specific learning and adaptations as required (see Section 5).

Indicators		Baseline	Target 2024					Target 2025					Target 2026				
Inputs			**Total**	**M**	**F**	**rural**	**urban**	**Total**	**M**	**F**	**rural**	**urban**	**Total**	**M**	**F**	**rural**	**urban**
I1	Number of District Implementation Team (DIT) training workshops	/	16	/	/	13	3	/	/	/	/	/	/	/	/	/	/
I2	Number of teachers' training workshops	/	750			708	42	1000			920	80	/	/	/	/	/
I3	Number of new community and parents sensitization sessions	/	250			212	38	250			212	38	/	/	/	/	/
I4	Number of new schools equipped with solar panel systems	/	250			212	38	250			212	38	/	/	/	/	/
I5	Number of new schools equipped with tablets	/	250			212	38	250			212	38	/	/	/	/	/
Outputs																	
O1	Total number of teachers trained to implement the BEFIT program	/	10,566	8,030	2,536	7,363	3,203	15,616	10,031	5,585	11,750	3,866	/	/	/	/	/
O2	Percentage of tablets with maintenance needs resolved within 3 months	/	/			/	/	70%			70%	70%	90%			90%	90%
O3	Percentage of tablets reporting usage data weekly	/	/			/	/	60%			60%	60%	80%			80%	80%
O4	Percentage of schools meeting optimal average tablet session time (at least 20 minutes/session)	/	/			/	/	75%			75%	75%	85%			85%	85%
Intermediate Outcomes																	

Indicators		Baseline	Target 2024					Target 2025					Target 2026				
IO1	Percentage of schools reporting increase in student attendance compared to baseline	SY 2022/23	/	/	/	/	/	60%			60%	60%	60%			60%	60%
IO2	Total # of tablet hours per child per year	/	/	/	/	/	/	27	27	27	27	27	27	27	27	27	27
Outcomes																	
OC1	Percentage increase in students reaching emergent or fluent benchmarks in reading and mathematics based on EGRA and EGMA	Oct. 2024 and Oct. 2025	/	/	/	/	/	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Note on disaggregating trainings data by sex

The proposed training indicators monitor the number of trainings as the unit of analysis, and not the individuals. However, it is not possible to set targets for this as the gender balance of teachers and district officials who are currently part of the system is not within the program's sphere of control. This data will be calculated by recording the attendance by gender for all relevant indicators, and will be reported at a program level as part of the annual reporting.

Note on disabilities and the results framework

Disabilities are vastly under-identified by the schools (only the most obvious and severe disabilities are identified). It is inappropriate to ask children to self-identify and schools cannot verify this status, except for the very few who are identified. Thus, reliable data are not currently available for Imagine to collect and report. However, Imagine plans to convene an advisory group on inclusion, including Malawi SEND (and gender) experts, to advise on (1) promising practices for serving children with specific disabilities, and (2) recommendations for how best to measure tablet use among children with disabilities, among other topics. They will also collaborate with the government on better data collection on disability status and will incorporate these data into the monitoring and results systems when they are available.

Results framework monitoring

The table below provides details on the monitoring methodology, frequency, data source, and roles and responsibilities for the results framework.

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Inputs					
Number of District Implementation Team (DIT) training workshops	Training for the District implementation teams	Annual	DIT workshop reports	Synthesis of workshop rapporteur notes, and attendance to generate workshop report	PIMU
Number of teachers' training workshops	Training and /or refresher training of teachers in a given school on program facilitation and support	Annual	Commcare	Completed workshops are logged into the COMCARE app as they are conducted to allow tracking of workshops conducted and summaries are generated from the COMCARE app.	IW
Number of new community and parents sensitization sessions	Sensitization sessions targeting community and parents for the 500 schools of BEFIT phase 2	Thrice a year	Quarterly reports	Completed sensitization meetings are logged into the COMCARE app to allow tracking of meetings completed and summaries are generated from the COMCARE app	IW/PIMU
Number of new schools equipped with solar panel systems	Includes solar panels, their installation	Annual	TSP activity tracker	Installation trackers are used to monitor schools installed; summaries are generated from the	IW

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
				trackers for reporting	
Number of new schools equipped with tablets	Schools that have received tablets that were assigned for use	Annual	tracker	Tablet distribution trackers are used to monitor schools receiving tablets and summaries are generated for reporting	IW
Outputs					
Total number of teachers trained to implement the BEFIT program	Combine "refresh" workshops for teachers of BEFIT phase 1 and initial workshops for teachers of phase 2	Annual	Commcare	COMCARE app is used to log numbers of teachers trained in each workshop and summaries generated for reporting	IW/PIMU
Percentage of tablets with maintenance needs resolved within 3 months	Tablets withdrawn from use because of software or hardware challenges rendering them unusable	Quarterly	tracker	Tablets requiring maintenance are logged into a maintenance tracker from entries in the COMCARE app used to monitor inventory. Once maintained the tablets are checked in the tracker. At the end of the quarter a summary is generated on logged tablets for	IW

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
				reporting	
Percentage of tablets reporting usage data weekly	Number of tablets that connect to the server and transmit usage data this week, divided by the total number of tablets that have been distributed to schools.	weekly	Akuko	Each school is fitted with a router that syncs usage data from the tablets in that school, and then transmits the usage data to Imagine's server. The data is then analyzed through the automated data management information systems and the reports on the Akiko dashboard are updated within 24 hours of updated data being received. In schools with severe connectivity issues, the routers may not successfully connect to the server each week, which is why the number of tablets reporting usage each week may not equal the total number of tablets distributed.	IW/PIMU

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Percentage of schools meeting optimal average tablet session time (at least 20 minutes/session)	Number of schools whose tablets usage data shows that the average tablet learning session is 20 minutes or more, divided by the total number of schools running the program	weekly	Akuko	Same as above	IW/PIMU
Intermediate Outcomes					
Percentage of schools reporting increase in student attendance compared to baseline	Survey respondents report whether the tablet program increased average daily attendance, "Not at all, A little, A lot, Don't know." An "increase" combines the "A little" and "A lot" responses, while the full distribution of responses will also be examined	Annual	Endline stakeholder survey	Our University of Malawi research team conducts the stakeholder survey during endline data collection. Head teachers at each of the schools sampled for EGRA/EGMA testing below will be asked to respond to a series of questions about potential impacts of the tablet program, including on average daily attendance	University of Malawi data collection team
Total # of tablet hours per child per year	Total minutes of tablet learning sessions recorded on the tablet usage data	Annual	Akuko	At the end of the academic year, tablet data is collected	IW/PIMU

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
	divided by the number of students enrolled in the targeted grades (Std 1-4) of the schools running the program			manually (by USB) to ensure that all tablet data is captured, and that there are no gaps in data collection caused by connectivity issues. Enrolment data is provided by schools through Malawi's Education Management Information System (EMIS) and updated termly through COMMCARE. Both the tablet usage data and enrollment data are uploaded to the database, analyzed through the automated data management information systems, and the report is updated on the Akuko dashboard.	
Outcomes					

Results Framework Monitoring					
Indicator Name	**Definition/Description**	**Frequency**	**Data source**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Percentage increase in students reaching emergent or fluent benchmarks in reading and mathematics based on EGRA and EGMA	Literacy: Emergent or fluent in reading is measured by a composite literacy variable defined in the digital EGRMA technical report (link at right) and corresponds to being able to read 20+ correct words per minute (cwpm) of connected text (fluent alone corresponds to 40+ cwpm) Numeracy: Emergent or fluent in math is measured using the "pattern completion" subtest of EGMA and is defined as scoring 30+ percent correct on that subtest (fluent alone corresponds to 60+ percent correct)	Annual at beginning and end of school year	Baseline and endline assessments using digital EGRA and EGMA in Chichewa; technical report found here	Additional details can be provided: (1) For each BEFIT cohort, a two-stage stratified cluster sampling design is used to produce a representative sample of learners (2) The same schools (but different students) are assessed at baseline and endline for the school year (3) Weighting based on the sample design is used to produce valid population estimates for the entire cohort (4) Gains represent the cross-sectional trend for the relevant population	University of Malawi data collection team

3. Program Implementation

The program follows the BEFIT Systems Strengthening Approach wherein the implementation is carried out through existing education directorates, departments, and structures in the government.

3.1 Implementation structures, roles, and responsibilities

3.1.1 Overall approach

Ministry of Education officers at national, district, zone and school levels lead the implementation, with support from select non-governmental organizations contracted as Implementation Service Providers and Technical Service Providers during the rollout phase.

- **National level:** The different directorates and departments are involved in the implementation of the program guided by the Directorate of Basic Education as a line directorate coordinating the support across the Ministry of Education.
- **District level:** The Education Office coordinates through the relevant departments at the district council such as Public Works, ICT and Monitoring to provide support for the program at the district level.
- **Zone level:** The office of the Primary Education Adviser has the supervisory role over the program, supporting schools with implementation.
- **School level:** The school leadership appoints BEFIT Coordinators who support the daily routines of managing all program equipment and supporting teachers with daily program facilitation.

Thus, the program is implemented through existing government structures, and strengthening these through capacity building will ensure that the program is sustainable in the long term and is fully owned by the government.

The role of the select non-governmental organizations includes providing training support to all district structures, supporting, and working together with the PEA's office in program monitoring and supervision, and working with schools to provide training of teachers and support implementation at the school level.

This temporary support is for two academic years for each school in Year 1 and 2, at which point the government structures will have developed sufficient capacity to manage on their own. In later years, the scope of implementation support is reduced.

3.1.2 Implementation coordination, management, and governance

As described above, the Ministry of Education is the lead implementer through the Directorate of Open, Distance and e-Learning (DODeL) and Directorate of Basic Education (DBE), supported by a consortium comprising Imagine Worldwide (IW), with onebillion (OB) as the software partner.

Imagine Worldwide acts as the consortium lead and ecosystem coordinator. The PIMU through the DODeL and DBE is the Lead Implementing Entity while IW leads on the technical, operational and coordination support.

A Program Implementation Management Unit (PIMU), incorporated within the MoE for this program, is responsible for overall program management, providing technical services, and coordination. The Ministry of Education as the lead implementer provides required personnel at different levels coordinated by the PIMU.

At the national level, the National Steering Committee is responsible for overall program governance. The Technical Committee is responsible for providing adequate technical oversight during implementation. The key roles and responsibilities for these are described below.

3.1.2.1 National Steering Committee

Function:

The National Steering Committee provides strategic oversight and overall policy guidance to the program. This includes strategic oversight, leadership, and guidance on program implementation, making decisions on programmatic issues to strengthen the quality and impact of implementation, improving external influencing, and ensuring program adaptations in response to changes in context and lessons learned.

The Committee receives progress reports, discusses any challenges to the program and explores solutions for keeping the program on track. It will also provide guidance and support to PIMU on all program management, coordination, and related issues.

Composition:

The Committee is Chaired by the Secretary for Education, and the PIMU is the Secretariat.

Membership to this committee is composed of Directors (or equivalent) from each of the key directorates and departments of the Ministry (including; Directorate of Open, Distance and e-Learning; Directorate of Quality Assurance and Advisory Services; Directorate of ICT; Directorate of Teacher Education and Development (DTED); Directorate of Science Technology and Innovation (DSTI); Directorate of Inclusive Education; The Malawi Institute of Education (MIE); and Directorate of Education Planning) as well as representation from the Ministry of Finance, the Ministry of Local Government, and the Ministry of Energy, Consortium Partners and other key stakeholder organizations, the private sector and funders.

The Committee convenes at agreed intervals coordinated by the Secretariat (PIMU), and detailed Terms of Reference have been developed, reviewed, and approved by the Ministry and Consortium Partners.

3.1.2.2 Technical Committee

Function:

The Technical Committee provides regular technical oversight to ensure the successful scaling of the program to all public primary schools in Malawi. Through its leadership, the Committee ensures the Ministry's institutional and policy support for the PIMU. It helps coordinate with the Ministry leadership

to ensure the support required for successful rollout, and also support the mobilization of key government stakeholders on relevant policy changes to ensure long-term sustainability of the program in the basic education sector.

Composition:

The Committee is Co-Chaired by the Director of Open, Distance and e-Learning (DODeL) and the Director of Basic Education (DBE), supported by the PIMU, which acts as the Secretariat. Membership is drawn from technical staff from all relevant Ministry Directorates, consortium partners, and key ed-tech and basic education stakeholders.

The Committee convenes at agreed intervals coordinated by the Secretariat (PIMU), and detailed Terms of Reference have been developed, reviewed, and approved by the Ministry and consortium partners.

3.1.2.3 Program Implementation Management Unit

Function:

The Program Implementation Management Unit is established at the national level to ensure robust program management and coordination. Overall, it is responsible for program management and provision of program technical and operational support through thematic task teams, committees and working groups that draw technical staff from all relevant Ministry Directorates and government stakeholders, as well as financial management, grants management, resource management and reporting.

It also coordinates the setting up of program technology in schools, training of implementation officers at different levels in managing program implementation, monitoring the program through regular school supervision, and data collection and reporting.

The PIMU collaborates and coordinates with the Ecosystem coordinator (IW) on program planning and jointly coordinates the rollout of the scale program. The PIMU also collaborates with Technical Service Providers (TSPs) and Implementation Service Providers (ISPs) to increase effectiveness in program delivery.

The PIMU also functions as a Secretariat to the National Steering Committee and the Technical Committee.

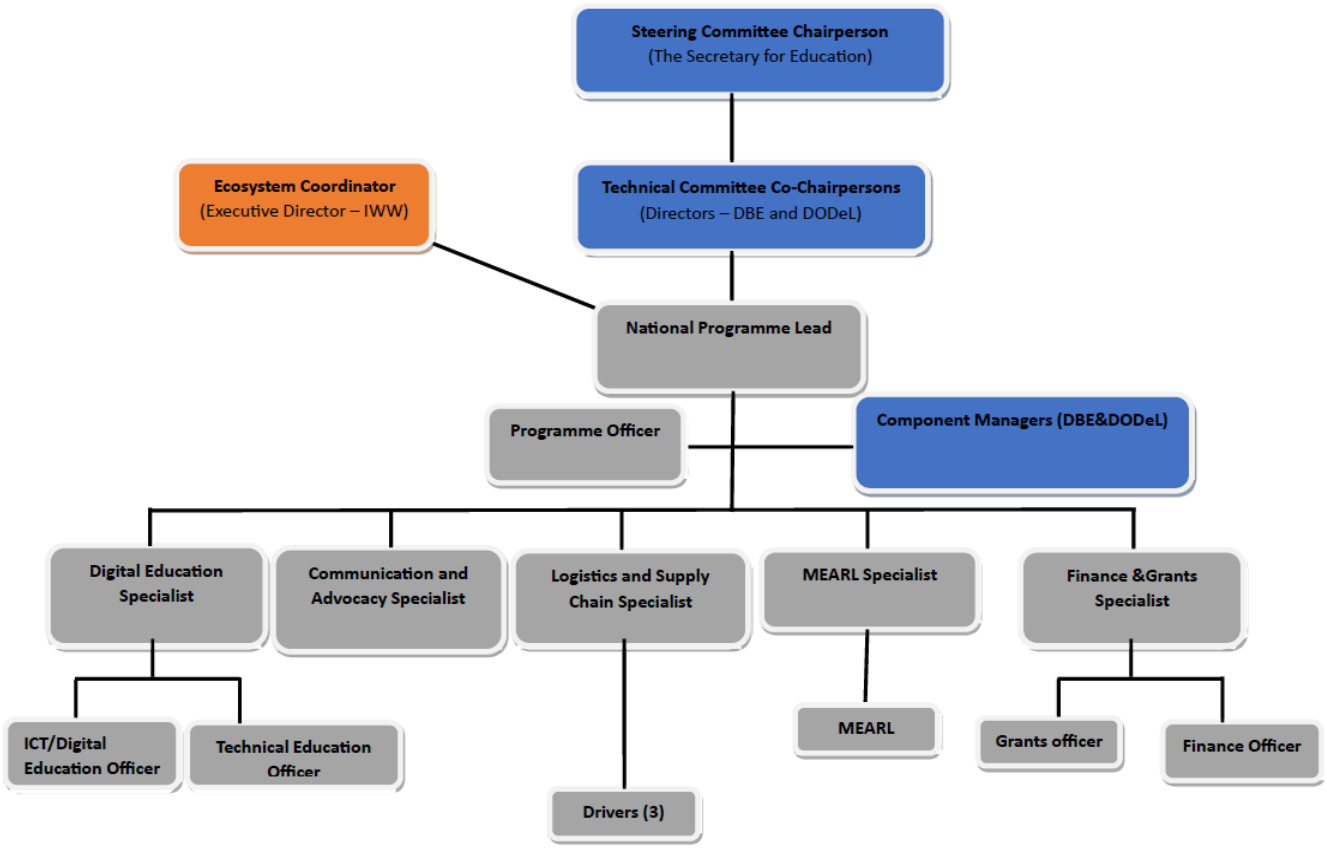
A comprehensive list of responsibilities is provided in Annex 1.

Structure:

The PIMU is headed by the BEFIT Program Lead (seconded from Imagine Worldwide) in close collaboration with Component Managers from the Ministry of Education's DODeL and DBE who will be working in the PIMU as BEFIT National Implementation Managers.

All other program staff for the PIMU are recruited through the Ministry of Education. These include ICT/Digital Education Specialist, Technical Education Officer, IT/Digital Officer, Monitoring, Evaluation, Accountability and Learning (MEAL) Specialist, MEAL Officer, Grants and Finance Specialist, Grants Management Officer, Finance Officer, Communications and Advocacy Specialist, Logistics and Supply Chain Specialist and Drivers.

BEFIT PROGRAMME IMPLEMENTATION MANAGEMENT UNIT (PIMU) STAFFING SRUCTURE



Operations:

The PIMU has its operational budget drawn from the resources for the BEFIT program. The lead directorates, the Directorate of Basic Education and Directorate of Open Distance and eLearning provide in-kind support to the PIMU and have oversight on PIMU expenditures and budget.

At the national level, Component Managers (two) are appointed from DoDeL and DBE as the National Implementation Managers and work as liaisons between the PIMU and the Ministry. The National Implementation Managers are responsible for overseeing program implementation and ensuring the success of the program both on a short- and long-term basis.

The PIMU implementation team is supported by the consortium partners who provide technical backstopping and quality assurance. At the district level, implementation is carried out by district, zone and school-level staff supported by Implementation Service Providers and Technical Service Providers.

3.1.3 Roles and responsibilities

3.1.3.1 Government of Malawi: Ministry of Education

The BEFIT program is an initiative of the Ministry of Education which has already committed significant time and resources to the operationalization of the program. Being an ed-tech intervention at the primary level, the DODeL and DBE have overall oversight of the program in terms of implementation and management with support from numerous directorates.

A complete list of the various directorates and their roles can be found in Annex 1.

The main responsibilities of the Ministry include providing overall strategic leadership, mobilizing political and managerial support, coordinating relevant Ministry departments, championing the institutionalization of the program within the basic education system, contributing financial and non-financial resources for program implementation, and engaging in sustainability planning to ensure that the program can continue without partner support beyond 2029.

More details are provided in Annex 1.

3.1.3.2 Consortium and ecosystem coordination

The BEFIT program implementation is supported by a consortium comprising Imagine Worldwide (IW) and other implementing partners such as Voluntary Service Overseas (VSO) and onebillion (OB). Imagine Worldwide acts as the consortium lead and ecosystem coordinator.

Imagine Worldwide (Consortium Lead and Ecosystem Coordinator)

Imagine Worldwide, based in San Francisco, California, with staff in Malawi, Kenya, Ghana, Senegal, Sierra Leone, Rwanda, and other locations, is a non-profit organization working to empower children around the globe to build the literacy and numeracy skills needed to achieve their full potential.

Imagine Worldwide LTD (Malawi) is a Malawi-based NGO that funds local expenditures such as ecosystem coordination, PIMU-related costs, ISP and TSP related costs and local suppliers. Imagine Worldwide provides sub-grants to Imagine Worldwide LTD (Malawi) and to date is the only funder of Imagine Worldwide LTD (Malawi). There are 3 board members from Imagine Worldwide on the Board of Imagine LTD (Malawi).

Imagine Worldwide supports the government in managing and coordinating program implementation. This includes stakeholder reporting, coordinating equipment procurement, and supporting resource mobilization. Some of its key responsibilities include working with the MoE to set up the PIMU, supporting the recruitment and coordination of all TSPs and ISPs, and leading implementation and outcomes research. Imagine Worldwide procures the vast majority of the capital equipment (i.e. solar and tablets) and donates it directly to the Malawi government at the time of installation in schools.

Imagine also functions as the overall ecosystem coordinator across the BEFIT program. In this role, it maintains the capacity to provide effective backstopping processes to program implementation and support systems. It manages all non-government support structures that are helping in building the capacity of the government structures, while the PIMU is focused on managing and coordinating the government implementation structures. It supports procurement of program equipment and ensures timely execution of program activities.

Research activities, including implementation research, EGRA and EGMA assessment, and targeted research to improve the software, are led by Imagine headquarters in collaboration with in-country university researchers.

A comprehensive list of roles and responsibilities is provided in Annex 1.

3.1.3.3 Implementation Service Providers (ISP)

Implementation Service Providers are contracted to augment the Ministry structures implementing the program at the district level. They are responsible for providing adequate technical and operational support to the Ministry's implementation structures, and to build capacity and transfer skills to ensure readiness for the program to be operated fully by the Ministry without any external support.

A comprehensive list of responsibilities is provided in Annex 1.

ISPs are identified from interested non-government organizations working in the education sector in Malawi.

3.1.3.4 Technical Service Providers (TSP)

Technical Service Providers are contracted to set up infrastructure technology and enable testing and launching of the program in schools. They also fabricate storage and charging cases on the basis of pre-approved designs and install solar power systems for charging tablets.

A comprehensive list of responsibilities is provided in Annex 1.

3.1.3.5 District-, zone- and school-level roles and responsibilities

District-level structures

The District Desk Officer Education leads a district implementation team with the following officers as members: District Education Management Information Systems Officer (DEMISO), Coordinating Primary Education Adviser (CPEA), and a Representative from Finance at the District Assembly.

The district implementation team's responsibilities include coordinating key stakeholder meetings, facilitating trainings, supporting district-level M&E to ensure timely data collection aggregation and transmission, budgeting of tech requirements, for timely maintenance and replacement of equipment in schools, monitoring and reporting implementation progress to the PIMU.

The District Education Management Information Systems Officer (DEMISO) provides IT support to schools, maintains inventory of all equipment at the district level, and supports program implementation, monitoring, and evaluation.

Zone-level structures

The zone-level implementation is led by the Zone Education Management Information System Officers (ZEMISO), with support from the Assistant Coordinating Officer.

The ZEMISO provides routine monitoring and supervision support to schools, provides IT support and reports to the district teams on any challenges and requirements, and supports data collection and implementation monitoring for the program. The Assistant Coordinating Officer plans and leads the training of teachers, carries out community sensitization and engagement meetings, and organizes monthly review meetings with stakeholders at the school level, amongst others.

School-level structures

School coordinators

The headteacher appoints a BEFIT Coordinator from amongst the teaching staff to oversee program coordination at the school level. The BEFIT Coordinator ensures tablets are in working condition, connected to charging cables and locked up at the end of the school day, helps teachers with implementation, maintains records on the status of equipment and communicates with zone supervisors, supports setting up of local attendance committees comprising members of parent-teacher associations, school management committees, mother's groups etc., and supports zone officers with monthly review meetings.

School management committees

Since schools are the primary sites for program implementation, every school is provided with the required technology and training to manage the program at the school level. The School Management Committees, with support from the surrounding community, plays an important role in monitoring the status of equipment, ensuring maintenance, ensuring storage rooms are safe and secure with safe rotations of tablets, participating in monthly review meetings with local school committee members and attendance support groups, communicating with school communities/parents, and supporting zone officers with regular data collection and reporting, amongst others.

3.1.3.6 Gender and inclusion

On inclusion, the Ministry of Education has a Department of Inclusive Education at the national level. This department has officers at education division and district levels who are responsible for monitoring issues on inclusion. At the school level, the Ministry of Education has Special Needs Specialist teachers who support children with disabilities. Similarly on gender, at the national level, there is a gender coordinator and at the district level, there are gender officers who are responsible for monitoring gender mainstreaming in education activities to ensure that programs align with gender requirements in their activities. Collaboration with these groups is ongoing, and the proposed gender audit will provide further opportunities to uncover enhanced ways to ensure that the overall program is optimized for gender and inclusion.

3.2 Implementation set-up and roll-out

The national rollout of the overall BEFIT program will be achieved by 2029.

3.2.1 Timeline

The GPE-funded phase runs for a period of 24 months over the course of 2024-2026. The program is expected to commence on July 1, 2024, and wrap up on June 30, 2026. A detailed work plan and timeline is attached.

Prior to schools opening in September 2024, a number of preparatory activities will be carried out. This includes finalizing school selection, generating school data for planning, planning school equipment requirements, setting up and orienting the district implementation teams, recruiting the implementation and technical support partners, procuring and installing equipment, preparing, configuring and delivering tablets and accessories to schools, and preparatory activities for training the trainers, amongst others. Most of these setup activities have been well underway since March 2024.

3.2.2 School selection

The first phase of the program targeted 500 schools in 18 out of 34 education districts in Malawi. Some highlights from Phase 1 are provided in Annex 2, and a similar approach will be followed in phase 2.

In Phase 2, 250 schools will launch in September-October 2024, and another 250 will launch in January 2025. Each school will be supported for 24 months by Implementation Service Providers. Procurement for Phase 2 has already commenced.

School selection is carried out by the Ministry of Education, and they proportionally allocate schools to targeted districts.

Phase 1

Phase 1 incorporated an equity focus while selecting schools, and targeted schools across the 18 districts that were served less by ongoing projects by different non-governmental organizations.

From the ministry's perspective, the predecessor program to BEFIT, Unlocking Talent (UT), had gone to 15 education districts already with a similar program covering a total of 338 schools. The Ministry decided that BEFIT phase 1 should focus on schools outside these initial 15 education districts, with a view to transitioning the UT schools to the BEFIT model as part of cohort 2. The UT program differed from BEFIT, by focusing on Grade 2 learners and pulling children out of regular classes to attend the tablet program.

The Ministry equally pointed out that remote districts tend to be avoided by many programs due to challenges with access and other such considerations. It was the Ministry's intention to ensure those districts that are marginalized by other programs are given priority to avoid the known fact of school performance differentials occasioned by projects in the preferred schools against the marginalized schools.

With this general guidance, the planning directorate was asked to proportionally allocate the cohort 1 schools to the targeted 18 districts in cohort 1. 90% of the chosen schools were in rural areas. This was the process used in selecting schools for Phase 1.

Phase 2

Phase 2 focuses on ensuring coverage to all 34 education districts by targeting schools in the remaining 16 districts, with a focus on the 338 former UT schools to have these transitioned to the BEFIT model. Additional schools were proportionally allocated in the same 16 districts to make up the 500-school target.

This expansion to all 34 districts through Phase 2 is a key step to build capacity across all districts and zones to enable the eventual scaling to all public primary schools in Malawi. All 34 education districts will keep adding schools until all their schools are covered by 2029 so achieving a balanced scale across the country.

The practicality of installation in some cases makes it difficult to cover some schools e.g. at least one building with a sound infrastructure to house the tablet storage cages and a strong roof to support mounting of solar panels is needed in any school for safe installation. This becomes a limiting factor if a school does not have the infrastructure. The program works closely with the Malawi Education Reform Program (MERP), which is building 10,000 new classrooms, which will make it possible to cover all such schools in the program roll out period.

The program recognizes the potential bottlenecks to implementation, especially in rural, remote areas. The disparities amongst and within districts and blocks have also surfaced in the enabling factors analysis. The tablet software does not require network connection to run. However, network connectivity is needed for transmitting tablet usage data that is used for monitoring instead of a tedious process of manual data extraction. Poor network connectivity in this case becomes a bottleneck in some rural areas, affecting program monitoring. Similarly, as explained above, solar installation on the roof of buildings requires sound infrastructure to avoid risking roof collapse. This sound infrastructure is lacking in some schools particularly rural junior primary schools, creating another challenge to program implementation.

In case of poor network connectivity, the program is exploring the use of hybrid antennas to boost network signal in areas where it is poor. The BEFIT program is able to deal with minor infrastructure challenges such as security enhancements on doors and windows, and other programs such as the MERP will help address the construction of additional classrooms as explained above. Furthermore, the BEFIT program will be able to cater for a portion without adequate roofs by ground mounting solar panels. This however increases the costs of installation and is less secure than installing panels on roofs.

A summary list of districts and schools selected for phase 1, as well as the tentative list for phase 2 (assessment is still ongoing) is attached to provide an overview of the rural/urban/semi-urban distribution of selected schools.

3.2.3 Financial management and controls

Budget Planning and Management

A budget is prepared annually and approved by the organization's Board of Directors prior to the start of the fiscal year. The fiscal year runs from the first day of January to the last day of December.

Roles and responsibilities

Roles	Responsibilities
Board of Directors	● Review and approve annual budget ● Approve financial policies, including delegation of authority ● Review financial reports and budget vs. actuals at every meeting ● Review annual audited financial statements ● Assess financial risks facing the organization
CEO(s)	● Report to the Board and manage budgeting process ● Appoint/hire financial staff and delegate tasks ● Review donor and other agreements/contracts ● Ensure financial records are accurate and up to date ● Ensure correct, timely preparation and submission of financial reports ● Ensure that program activities are in line with budget and deliverables ● Monitor resource use and manage income generation ● Monitor financial needs of the organization and business planning
Directors / Senior Managers	● Manage and monitor the budgets for their departments or projects ● Review organization financial reports and give input to a CEO ● Further delegate some financial responsibilities to their team ● Project future financial needs
Program Staff	● Set project budgets to ensure that all costs are included (deliverables, M&E, implementation) ● Control budgets to ensure money is spent as agreed and work with finance staff to ensure policies and procedures are followed, expenditures are coded and accurately reported ● Work with Director of Supply Chain to ensure that local procurements are best value for money
Finance Team - Imagine and Outsourced Accounting Team	● Administer the payment process to ensure bills are paid on time ● Complete the books of accounts and reconcile them every month ● Prepare internal and external financial reports

Timeline and process

Timeline	Process	Responsible
May-June	● Develop Strategic Focus areas for upcoming budget year	CEOs, Senior Managers, Directors, Board
	● Review program and operations plans for upcoming budget year	CEOs, Senior Managers, Directors

Timeline	Process	Responsible
July	• Continue programming planning, year-end projections	CEOs, Senior Managers, Directors, input from Program Managers as assigned
August	• Develop contributed revenue projections, update annual fundraising plan • Begin detailed expense budgets and personnel planning	CEOs, Senior Managers, Director of Development CEOs, Senior Managers
September	• Continue detailed expense and revenue projections • Finalize first draft of budget	CEOs, Senior Managers
October	• Send draft budget to Board Finance and Audit Committee for review • Review comments from Board Finance and Audit Committee, incorporate changes • Present budget to Board for approval	CEOs, Board Finance and Audit Committee for review CEOs CEOs, Board
November	• Final revision to budget incorporated (as applicable) • Circulate revised budget to Board (if applicable)	CEOs CEOs
December	• Approved budget sent to Outsourced Accounting Firm to be entered into Quickbooks	CEOs, Finance Team, BDO

Budget implementation and reporting

Monthly financial statements will include current budget vs. actuals, to allow for revised year-end projections that reflect expected changes from the original income and expense projections, both positive and negative. Reports sent to the Board will include brief narrative explanations.

Accounting System

Chart of Accounts and Cost Center / Dimension Codes

The accounting procedures used by Imagine conform to generally accepted accounting principles (GAAP), using accrual basis accounting. We utilize dimensions in our accounting system to track functional areas, restricted and unrestricted transactions, donors, and grants.

Changes to the Chart of Accounts must be approved by the organization's CEOs and primary Outsourced Accounting Firm.

Accrual accounting

The accrual basis of accounting is the method where revenue and expenses are recorded when they are incurred regardless of when the cash has changed hands. This means that Imagine records revenue when it is earned or pledged, not when the cash is collected. It also means recognizing expenses when the liability is incurred, not when Imagine pays for them.

Revenue

Revenue is recorded in the month in which it was earned or pledged if the accounting criteria for such recognition are met.

Unrestricted grants and other contributions are recorded as revenue when they are awarded or pledged, regardless of when the cash payment is received.

Grants with restrictions – either time or programmatic – are recorded as Revenue With Donor Restrictions. These restricted grants are released from restriction on a monthly basis as the programmatic or time restrictions are met.

Flow of funds

A separate and dedicated bank account will be created to hold the GPE and co-financing funds, and Imagine Worldwide will maintain separate records and ledger accounts for all GPE funds. Imagine will follow its financial management policy as it relates to requesting and approving spending from the dedicated account.

Accounts payable and expense reimbursement

Payments to new vendors are not made until the vendor has submitted appropriate taxpayer identification (e.g. Form W-9). Consultants will also have a signed contract on file prior to payment. Payments will only be made from invoices (no statements). All invoices must be approved by the person who is managing the contract/expense and coded by the Director of Administration prior to payment.

Expense reimbursement requests are to be submitted within 30 days of the date the expense is incurred, with receipts attached for amounts greater than $25. Expenses are reimbursed under specific guidelines detailed in Imagine's Employee Handbook.

Payments are processed through Bill.com unless international payments require processing by direct transfer from the bank.

Roles and responsibilities

Title	Role	Responsible
Manager of cost/vendor/ partner	Relevant staff	Receives invoice and reviews for accuracy and adequate supporting documentation, confirms the goods and services have been received and that invoice conforms to contractual obligations, sends to Clerk for processing
Clerk	Outsourced finance manager	Enters invoices for payment
Director of Administration	First approver	Reviews the cost, supporting documentation (e.g., receipts) and confirms coding allocation.
Head of Business Development	Payer (For payments sent via bill.com)	Conducts final review of cost and allocation, executes payment.
CEO	Second Approver (For payments over $10,000 via bill.com and for all payments sent via direct bank transfer)	Reviews payments for cost reasonableness. For direct bank transfers, the bank calls the CEO for verbal approval.

Invoices are processed and paid at least weekly unless there are intervening holidays.

Solar equipment, tablets and pre-fabricated security cages will be procured directly by Imagine Worldwide following the detailed steps as laid out in its procurement policy. Procured items by Imagine Worldwide are donated to the Government of Malawi upon installation in the schools. For local costs such as ISPs, PIMU and Imagine LTD related costs, and locally fabricated security cages, Imagine Worldwide will sub-grant funds to Imagine LTD who will in turn make the local payments. This is the exact methodology that was used in Phase 1 of BEFIT, which enabled timely delivery, which was under budget.

The GPE fund management process will include a review of all incoming funds, ensuring Imagine has supporting documentation such as a disbursement schedule and related budget tracking information. Monthly reports will be generated that reflect the ending fund balance, cash inflows and outflows, and budget to actuals. The Executive Director in Malawi, the CEOs and Imagine's outsourced accounting firm (FMA BDO) will review the monthly reports and address any variances or discrepancies.

Due to the timing of procurement necessary to ensure the September back-to-school timeline is met, the co-financing will be utilized to make the initial down payments in April and May. Once the GPE funds are received, we will prioritize distributing GPE funds until there is a catch-up with the total distributed from the co-financing. The funds will be distributed 50/50 thereafter.

Flow of Funds Summary	**Imagine Worldwide direct expenses**	**Imagine LTD (Malawi) via sub-grant from Imagine Worldwide**	**Government maintenance costs post-implementation phase**
Solar equipment	X		X
Tablets and accessories	X		X
ISPs		X	
Pre-fab security cages	X		X
Locally-fab security cages		X	X
PIMU-related expenses	X Head of PIMU	X Other staff of PIMU	
LTD-related expenses	X ED of LTD	X Other staff of LTD	
Research	X		
School improvements		X	X
Open Learning Architecture	X		
Vehicles- cars and moto	X		
Local office expenses		X	
Data costs		X	X

Procurement procedures

All procurement for the program including tablets, storage/charging cages, solar panel systems, etc. will be carried out in adherence with Imagine Worldwide's Procurement Policies and Procedures. The process includes 1) determining the method, based on value; 2) sourcing for suppliers if needed; and 3) steps for each process per value category (a) submitting a request, b) reviewing quotes/cost, c) comparing cost with budget, d) creating and validating the agreement or PO, e) confirming receipt and accepting the goods and/or services, f) issuing a goods receipt form, g) receiving invoice from supplier, h) submitting invoice for payment and i) filing all relevant documents). Acceptance Criteria for receiving goods is included in all POs and agreements.

At a minimum, criteria should include a) full quantity was delivered, b) goods should be in good condition with no damages or defects, c) when applicable, spot checking some items in the shipment by testing them should be conducted to ensure they work properly and as intended. The quantity for sample testing and criteria for doing so should be clearly outlined in the agreement. A comparison is performed between PO/Agreement and goods received: the nature and quantities of goods received are reviewed to ensure compliance. A Goods Receipt is signed to confirm the goods were received in good order. The staff requestor will perform - or have the receiver perform - a full review of goods received before signing the goods receipt form. In the event there are discrepancies between what is received and what is stated on the PO (e.g. discrepancy in quantities or damages), the staff requestor will raise a claim to the Director of Supply Chain before signing the Goods Receipt.

The Director of Supply Chain enforces compliance with this policy and trains staff to understand the relevant requirements and procedures. The Director of Supply Chain reviews this policy annually and will revise as necessary to maintain effectiveness and accuracy.

Information provided by vendors and suppliers is strictly confidential. All participants in the procurement process, on the supplier's side and Imagine's side, will sign an NDA and/or confidentiality agreement if proprietary information is discussed and/or shared. More details can be found in the detailed policy document (attached).

Audit

As outlined in the Imagine Worldwide Financial Management manual, annual fiscal year-end financial statements are audited by an independent Certified Public Accountant and will periodically be put out to bid (unless more frequent bids are mandated by funding contracts). Throughout the audit process, the finance team will make every effort to provide schedules, documents and information requested by the auditors in a timely manner. Annual audits have been conducted since Imagine's inception and all reports have stated that in all material respects, Imagine's financial position, results of operations and cash flows are in conformity with generally accepted accounting principles.

Imagine Worldwide is in the process of hiring a dedicated internal audit and compliance lead that will report to our Finance and Audit Committee on the Imagine Worldwide Board of Directors. This hire will be completed by June 1st, 2024. This individual will lead our internal audit function that will complement the annual financial audit which will be conducted for both Imagine Worldwide and Imagine LTD. Prior annual financial audits have been clean and without issues, since inception.

4. Gender, Equity, and Inclusion

The BEFIT program incorporates a focus on gender, equity, and inclusion in multiple ways. A gender audit will be carried out prior to the launch of the program in September to better understand potential gender barriers and impact, build in mitigation measures, and optimize the BEFIT approach to address these barriers. This will be taken forward in collaboration with the MoEST and other relevant country stakeholders.

The gender audit will also provide an opportunity to identify opportunities to reduce the gender gap in digital skills and leadership.

While the BEFIT program essentially utilizes existing personnel within government structures in the delivery of basic education to reduce the burden on the government for new recruitments to support the program, the program focuses on encouraging female participation in the different structures at district, zone and school levels. For example, the program is focused on standards 1-4 at primary school level. The majority of teachers in schools in these classes are female teachers. These are trained in program facilitation and management and assume such roles as BEFIT program coordinators at school level, thus creating role models for female students.

Further opportunities to intentionally mainstream gender equality to mitigate any potential bias related to digital skills and technology will be identified through the gender audit.

4.1 Learning software

Gender considerations

onebillion's software, onecourse, is gender responsive and effectively meets the learning needs of both girls and boys. The software delivers child-centred, multi-sensory and playful learning experiences that adapt to each child's level and cater to a diverse range of learning styles. This approach ensures that the learning needs of both girls and boys are met and that access to quality instruction and learning materials is equitable.

A specific example of how the software has responded to the needs of girls is evidence of its ability to prevent a gender discrepancy in mathematics from emerging during the acquisition of foundational skills (see Pitchford, Chigeda & Hubber, 2019).

While learning with onecourse, both girls and boys experience a supportive learning environment. They receive instructions from 'Alefa' the female, teacher avatar as well as continual feedback as they interact with content. Each child is able to learn at their own pace and level and children can repeat instructions as often as is necessary. Learning with onecourse means that girls do not experience biases and assumptions that may exist in standard classroom settings and beyond.

The content in onecourse has been designed to ensure that girls and women are represented positively in active and leading roles that avoid gender stereotypes. In the software, girls encounter women in roles such as leaders, doctors and inventors. The extensive library includes books that feature female protagonists and inspiring role models, such as Paralympian Zanele Situ, as well as books that show men and boys undertaking a variety of non-traditional roles, such as caregiving, cleaning, and cooking. Care has been taken to ensure that content also amplifies under-represented voices, for example Tami and Dulani is a series of comics that feature an autistic girl as the main character in order to address low levels of awareness of autism in girls, due to autism being typically more associated with boys. The library also enables girls to access a wide range of STEM-related content through the Encyclopaedia and Did you know? features. Women and girls have been active participants in the development of library content - a

large number of the books were authored by women or developed through co-creation sessions with children.

The teacher training tablet also promotes principles of inclusive education. It includes videos showing both girls and boys, in mixed groups, actively participating in learning as well as contributing equally to setting up tablet learning sessions.

Children with special needs

onecourse is accessible and impactful to children with Special Education Needs and Disabilities (SEND) learning needs – particularly children who may have 'hidden' disabilities or learning difficulties. In 2022, onecourse participated in the LEGO Foundation's Play for All (PfA) Accelerator, a programme designed to support organizations to improve their solutions for neurodivergent children. The learnings from this accelerator have led to amplification of neurodivergent voices in all aspects of the content design and creation going forward. Following the enhancements made to onecourse under PfA, onebillion has now partnered with The LEGO Foundation in a further 3-year grant to significantly enhance and expand the content offering for neurodivergent - and all - children. onebillion also intends to periodically publish learnings from this development period in order to support other organizations to design better for children with SEND.

The work to improve the software for neurodivergent children and children with SEND is supported through regular consultation with experts in SEND and neurodiversity and children and adults with lived experience of neurodiversity and SEND. For example, last year, a comprehensive review of the software was undertaken by 30 neurodivergent children and children with SEND in Malawi and the UK and a technical review of the software by 10 global academics with expertise in SEND. Based on the resulting recommendations, several changes have been integrated to make the onecourse software more accessible. Some examples of changes include:

- Upgrades to the digital teacher avatar – The previous teacher avatar, who was cartoon-like with fairly limited mouth movements, has been upgraded to look more realistic and to have accurate lip movements that sync with her speech. These changes were initially designed to support children with hearing impairments, a disability which is fairly prevalent in the Malawi context. However, during the technical review, it was found that the cartoon-like design of the teacher and the lack of correlation between her speech and lip movements may also cause confusion for autistic children. This improvement will support both autistic children and children with hearing impairments, as well as being beneficial to all children who use the software in large and often noisy classes.
- Improved screen design - Feedback was received that some visual elements of the software may be distracting for neurodivergent children, particularly those with ADHD. To make screen designs visually calmer and less distracting, several changes have been made, for example reducing the number of cards on screen, removing busy patterns from the back of cards, removing animations of the cards turning over. These learnings have been captured in a set of 'design principles' which inform the design of all new content.

- Improved drag and drop functions – Through observations of children using the software, it was noticed that if a child was not completely accurate when they touched items on the screen, they might drop items or mistakenly think they have selected an incorrect item - this particularly impacts children who experience challenges with motor-skills. To address this issue, there is now an increased size of 'hot areas' – the part of the screen you touch to select or pick up an item and 'drop areas' – the part of the screen you release an item once it is in position.

The library content has always been designed to be inclusive and include positive representations of children and people with disabilities. As part of the PfA Accelerator, a new range of books and comics was developed that feature neurodivergent characters and stories that explore their experiences. This content has been created through collaboration with neurodivergent content creators or through co-creation with neurodivergent children in Malawi and the UK.

There is also an increase in the social-emotional learning (SEL)-focused content to support neurodivergent children and children with SEND to feel valued, recognise their feelings and develop self-confidence and to encourage all children to be kind to each other and accepting of differences. All of the 200+ books in the library use a dyslexia-friendly font and offer children the option to listen to books being read. When this function is activated, the text on the page is highlighted in sync with the audio and children can also touch individual words to hear them being spoken. These features help support dyslexic children and children who experience challenges with their reading skills.

Several research studies have explored how neurodivergent children and children with SEND interact with *onecourse*. Some key findings from these studies include:

- Children with SEND can interact with *onecourse* (Pitchford, et al, 2018)
- An increase of 1-3 months in maths scores for 3 out of 4 cases of children with Downs Syndrome (Gulliford et al., 2021)
- *onecourse* empowered a sense of belonging and learning by children with SEND (Lurvink & Pitchford, 2023)

(Note: New versions of the software, with additional improvements to support SEND, have been released since these studies were undertaken).

The aim is to continually improve onecourse - for all children - and onebillion is currently in the process of integrating further improvements for children with SEND into the software and developing a new suite of content specifically to support children who are experiencing challenges in their learning - including with executive functions, working memory, and language skills. As part of this work, onebillion plans to integrate differentiated feedback and support, create greater adaptability within activities, reduce working memory load, develop mechanisms to identify and support children who may be considered 'developmentally young' and continue to develop content in collaboration and through co-creation with children and adults with lived experience of neurodiversity and SEND.

Inclusion and monitoring

Malawi schools currently vastly under-count children with disabilities. Imagine plans to collaborate with an expert advisory group and with the government to better identify children with various disabilities, and will incorporate reliable school administrative data on disability status into its data systems as soon as these data are available. In the meantime, teachers will, in later stages of the OLA, be able to obtain more regular data (real-time data is not an option given the focus on designing for offline, asynchronous environments) on all individual students through the onetest and through metrics that are in development to describe the progress of individual children through the tablet curriculum.

Further, the implementation research has revealed many instances of children with observed disabilities successfully using the tablets. Teachers facilitate the tablet sessions and help children who have difficulties inserting headphone jacks, turning on the tablets, and/or navigating the curriculum. With input from the advisory group on inclusion, Imagine will seek to measure more systematically the participation of children with disabilities through our research and monitoring activities.

To adequately address disabilities in schools requires more foundational work to be conducted, in terms of raising awareness and educating teachers and school leaders on the types of disabilities, and developing mechanisms to identify disabilities. Neither the BEFIT program, nor the OLA will not be able to solve for learning with disabilities independently, as any information provided to the OLA platform will be dependent on qualitative assessments/judgment of teachers.

4.2 Teacher training

Gender equality is addressed in both field officer and teacher training. Materials highlight the positive results that have been proven for both boys and girls and emphasis is given to ensuring equal opportunities for all genders. Both male and female trainers are involved in the teacher training to ensure gender balance. In the school, all teachers, whether male or female, are trained to support the program. In terms of roles and responsibilities, most BEFIT coordinators are females. The majority of teachers in grades 1-4 are females, and this ensures a lot of females are involved in program facilitation.

To support the nationwide scaling of onebillion's software in Malawi through the BEFIT program, onebillion also developed a teacher training app which includes short, actionable videos on inclusive classroom practice and suggestions teachers can employ to better support neurodivergent children and children with SEND. These modules will be enhanced in collaboration with other partners delivering government-led education programs in primary schools in Malawi, and in time, localizing the content for use in other countries.

4.3 Community sensitization

Partners conduct gender sensitization during community engagement with a focus on discussing student attendance with parents and community members. The sessions encourage parents to prioritize education over other activities with a specific emphasis on ensuring high levels of attendance for girls.

4.4 Research

Gender has been a critical focus of Imagine's research, monitoring, and implementation since its founding. We investigate any differential experiences of and impacts for girls and boys through assessments of learning gains, monitoring activities (including both research and implementation monitoring), and targeted research activities that seek to understand how to maximize benefits of the program for all children.

To date, Imagine's five RCTs of onebillion's software have shown that girls gain at least as much as boys in both literacy and numeracy, and the results suggest that girls have gained even more than boys in math. However, the latter results were not statistically significant, probably due to the smaller subgroup sample sizes. The table below shows results for the two long-term RCTs in Malawi government schools. The larger sample sizes in the annual BEFIT assessments should allow us to detect any statistically significant differences in learning gains for gender subgroups in future.

Table.-Exploratory gender impacts and initial achievement from Imagine's RCTs of onebillion's software in government schools in Malawi

	Initial achievement (%)		Treatment effect sizes (SD)(1)				Sample sizes (n)	
Study and subject	Boys	Girls	Boys	Girls	Difference - Girls v. Boys	p-value of difference	Boys	Girls
Malawi 1-year study (Chichewa, software v1)(2)								
Literacy - average % correct	11	12	0.30	0.39	0.09	0.61	204	183
Math - pattern completion % correct(3)	19	18	0.15	0.17	0.02	0.96	207	180
Malawi 2-year study (Chichewa, \software v2)(4)								
Literacy - average % correct	6	7	0.32	0.41	0.09	0.57	138	168
Math - average % correct	17	17	0.33	0.70	0.37	0.14	146	161

NOTES:

(1)Effect sizes are expressed in standard deviation (SD) units. Effect sizes equal to or greater than 0.25 are considered substantively important positive effects regardless of statistical significance.

(2)Version 1 (procedural software) contained less content, particularly in math. Consequently, for v1 we focused in math on the impact on "pattern completion," an early number sense skill, as the primary outcome measure. Pattern completion is used in national benchmarking in the early grades.

(3)Initial achievement is shown for the overall EGMA % correct, not the pattern completion subtest specifically.

(4)Version 2 (procedural software) included additional content in both literacy and math. We used average % correct as the outcome measure for both subjects.

As seen in the table, boys and girls showed similar initial achievement at the start of Standard 2 in the two RCTs in Malawi government schools (urban and peri-urban schools). At the end of the studies, girls exhibited effect sizes that were at least as large as those for boys. Further, stakeholders reported similar impacts for girls and boys in other areas, such as attendance, engagement, and confidence in learning.

Despite these promising impacts for girls (in our Malawi and other studies), Imagine carefully monitors girls' experiences in the BEFIT program (and elsewhere) through annual assessments of learning gains by gender (as well as by grade and rural/urban) and through observations and interviews that are part of their implementation research. Differences by gender may emerge as the tablet program expands from a primary focus on Standard 2 to all of Standards 1-4, and as the program expands to more remote locations. Additional monitoring of participation and experiences by gender (and SEND) are incorporated into the regular monitoring conducted by implementation service providers in conjunction with local government representatives.

The BEFIT implementation model helps to mitigate possible pressures to exclude girls from participating in the program. Specifically, the school-day, whole-class model helps to ensure that girls have equal access to the program. The tablet sessions are scheduled into the school's official timetable and a sufficient number of tablets are allocated to each school to serve the largest class among Standards 1-4. Both of these provisions help to ensure that all children who are present at school participate in the tablet program. Monitoring efforts that include observing the tablet sessions and interviewing teachers, administrators, and parents help to ensure that all present children are indeed participating. A possible risk to girls' participation could be local adaptations to program delivery that shift the tablet sessions outside of regular school hours, such as after school. The implementation and research monitoring specifically monitors for any such adaptations and their potential impacts on girls and SEND children.

Further, the implementation research investigates attitudes and perceptions that can have differential gender impacts. For example, it investigates whether there are any pressures to exclude children (particularly girls) from the tablet program by discouraging them from attending school or the tablet program. Interviews to date have indicated that parents and teachers consider the tablet program–and literacy and numeracy skills in general–to be equally important for both boys and girls. Further, any concerns expressed by some communities about the potentially harmful content and impact of tablet use (which concerns have not differed by gender so far) have been successfully addressed through ongoing sensitization activities that allow parents and community leaders to use the tablets to allay any concerns about their content and effect.

In summary, Imagine's multiple research and monitoring efforts actively investigate any differential experiences or impacts by gender. While experiences so far have been positive, we know that this could change as the program rolls out to more grades and locales. The research agenda for the program will continue to examine if girls are benefitting as much as boys from the program during its expansion and scaling phase; and what adaptations can be made on an ongoing basis to ensure that all children can derive maximum benefit from the program. The research will also focus on understanding barriers to progress in reading and mathematics (including hidden difficulties such as working memory deficits) with a special focus on gender and equity, in addition to other contextual factors such as rural/urban differences, amongst others. More details are provided in Section 5.4 Research and learning.

Further, findings from the gender audit carried out prior to launch in September will also inform the independent effectiveness RCT that we advocate begin in BEFIT Year 3 starting September 2025.

4.5 Results framework

The results framework captures data that will be disaggregated by gender, and rural/urban locales. Finally, in terms of targeting schools for expansion and scaling, the Ministry prioritized selecting schools equitably across 18 educational districts for phase 1, targeting specifically the most challenging districts and schools, to test program implementation despite any accessibility challenges. As a result, over 90% of the chosen schools are in rural areas. Phase 2 will continue to support schools from phase 1 while expanding to the remaining 16 districts, thus leading to country-wide coverage after phase 2.

Imagine is interested in mobilizing additional local partners such as civil societies to ensure the BEFIT program is best addressing gender-oriented issues and opportunities.

The program does not require persistent connectivity and can be solar-powered, and this further ensures that schools in all districts, including the most remote ones, can benefit from its impact.

5. Monitoring, Evaluation, and Learning

5.1 Overall approach to monitoring and research

The BEFIT program supports the implementation of monitoring systems that enhance accountability for implementation along with student learning. It strengthens the monitoring capacity at all levels of the existing education systems. While Malawi already has a well-functioning EMIS, it recognizes the need to strengthen its data system to allow frequent tracking of foundational learning at the school and district level.

Imagine has developed a comprehensive M&E approach that combines multiple methods and sources of data and other information that contribute to iterative learning that continuously improves the implementation and software.

The approach includes the following regular activities:

- Implementation monitoring
    - Weekly analysis of tablet usage data
    - Biweekly site visits by implementation service providers in conjunction with the Ministry's PEA and other government staff
    - Regular spot-check site visits by PIMU and Imagine staff
- Research monitoring
    - Ongoing implementation research site visits led by the University of Malawi

The above quantitative and qualitative data are discussed in weekly team meetings involving staff from across the different teams (PIMU; Imagine program, research, and technology; University of Malawi). These reviews lead, as appropriate, to immediate action steps to rectify any implementation issues as well as to revisions to training materials and other implementation practices to be used in future. Tablet data findings are also shared at least biweekly with onebillion to inform software improvements.

Imagine has developed a monitoring system including a suite of tools to enable robust monitoring of key program and outcome indicators such as learner attendance, technology status, and required facilitator support.

The main monitoring tools developed so far include:

- **Monitoring surveys:** these are used by ISP field officers and PEA's office for two main purposes:
    - when observing sessions in schools to capture implementation information. Data from the surveys is uploaded to a data management platform that calculates different metrics and displays these on an online monitoring dashboard.

- to manage inventory at school level and provide critical data on equipment status and provide actionable data for a school support system.

- **Tablet data:** Tablet usage data is collected by the tablet every time a child uses a tablet. Data from the tablet is also uploaded to a data management platform via Wifi routers. Where there is no connectivity, manual USB extractions are done.

- **AKUKO Dashboard:** an online dashboard that utilizes tablet usage data, to provide key information on the program operations and functioning towards the key program outcomes. It also presents data from field officers and government officials, generated from observations of sessions and interviews with key school staff on the program implementation.

Program activities monitoring is done through use of a) a monitoring dashboard that integrates tablet usage data from schools to indicate level of use of tablets; b) school support by ISP and PEA staff, through use of survey/observation protocols ISP's complete when they visit schools and upload to the dashboard' c) use of activity trackers that allow monitoring of cage installations, solar installations, teacher training, tablet distributions to schools among other things; d) The program team conducts sample field visits to monitor program implementation.

In the future the **Open Learning Architecture** will improve current levels of data collection and enable individual student tracking, to enhance the quality of implementation and support provided to schools.

The use of the dashboards ensures real-time data sharing by key stakeholders and facilitates communication and discussion on program progress.

The program also incorporates research activities aimed at informing the national-level expansion and scaling of the proven ed-tech innovation, by including both outcomes and implementation research right from Phase 1 of expansion. The research also focuses on improving software for more learners.

This includes annual research activities to inform software and other improvements:

- Annual evaluations of learning gains overall and by subgroup (i.e., grade, gender, rural/urban) through baseline and endline assessments in a representative sample of BEFIT schools
- Annual endline stakeholder surveys investigating a broad range of observed program impacts, including non-academic, gender, and community-defined impacts
- Targeted research to understand for whom the software is working and is not working and to maximize benefits to all children. Current activities include
    - Continuation of our research on factors contributing to non-progress in reading, examining a larger set of reading precursors
    - Ongoing gender research, including assessing learning gains, monitoring girls' participation, investigating any differences in program experiences for girls and boys, and identifying factors that may contribute to girls' greater gains in math

In addition to the weekly cross-functional staff meetings, the PIMU and Imagine teams also conduct termly and annual reviews to synthesize all of the above information, extract lessons learned, and make recommendations for future improvements. There are meetings with onebillion in biweekly technology-

focused meetings and monthly full-team meetings to share lessons learned and co-develop improvement strategies.

Imagine is currently building the technology capacity to inform real-time A/B testing of software improvements. This capacity will enhance our current improvement process by allowing the testing of individual improvements ahead of their deployment, rather than testing an update that contains multiple improvements, the impacts of which cannot easily be disentangled. More details are provided in Section 5.4 Research and learning.

5.2 Strengthening system capacity for monitoring

Implementing partners responsible for monitoring, evaluation, and training are oriented to utilize these tools to build and strengthen the monitoring capacity of the Ministry of Education at different levels during planned capacity-building training.

The following approaches are strengthening monitoring capacity at various levels of the education system:

- Existing MoE systems at the district level are augmented to provide effective monitoring. District monitoring officers will work with Primary Education Advisers collecting usage data from the tablets, as well as any monitoring data, and process the data for use by the Central Ministry to monitor program performance and progress.
- At the zone level, the PEAs work with schools to identify any challenges and propose ways of mitigating the challenges with the schools and the communities.
- At the school level, existing committees are utilized to support children's attendance in schools. The head teacher leads monitoring at the school level and the PEAs provide support to the schools.

The onecourse software itself comes with an integrated e-assessment that teachers and others can use for regular assessment of children and to generate data on learner progress and achievement. The District Education Manager's office staff responsible for monitoring will process and report on both the e-assessment data and the tablet usage data.

In addition to this inbuilt e-assessment, Imagine Worldwide engaged Research Triangle Institute (RTI), who are the original developers of the Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA), to develop an e-assessment for core EGRA and EGMA subtasks in an app form that is available on Android tablets for baseline and endline assessment. onebillion's e-assessment and RTI's e-assessment play complementary roles as well as serve different assessment needs in the overall process of understanding learners' progress and achievement on the curriculum. More details on assessment of learning outcomes are provided below.

5.3 Assessment of learning outcomes

Imagine conducts baseline and endline assessments at the beginning and end of each school year as the first two BEFIT cohorts roll out. These non-experimental data will clarify if the learning gains being obtained are consistent with the gains made by the treatment groups in prior RCTs. Beginning with Cohort

3, an independent firm will be engaged to conduct a large-scale, multi-year effectiveness RCT of the BEFIT program.

For BEFIT Cohort 1, a baseline assessment was conducted during 18-27 September 2023. An endline assessment is planned for 24 June-5 July 2024, after which the learning gains results will be analyzed by the end of August 2024. Some methodological information follows:

- The digital version of the EGRA/EGMA in Chichewa was used for the baseline, developed by RTI International under contract to Imagine for specific use in Malawi. The technical report can be found here.
- A two-stage stratified cluster sampling design was used for the assessment. The sampling frame included enrollment data for all of the Phase 1 schools (obtained from the government's EMIS). The first sampling stage involved randomly selecting 20 schools within each region (northern, central, southern) using a probability proportional to size (PPS) method. The second stage entailed randomly selecting 5 boys and 5 girls in each targeted grade 1-4 within each sampled school (a total of 40 learners per school). The same set of Cohort 1 schools will be assessed at baseline and endline.
- The sample was designed to be representative of the full Phase 1 population and to ensure sufficient sample size for analysis of important subgroups (i.e., region, grade, and gender). The total target baseline sample size was 2,400 learners (60 schools x 40 learners per school), which is consistent with a 95% confidence level and a 2% margin of error.
- To generate Phase 1 population estimates from the sample, we apply school and student weights to reflect the probability of selection at each sampling stage.
- The sample of 60 schools represented both sub-cohorts of Phase 1 schools (i.e., about half of the schools launched in September 2023 and about half in January 2024). At the endline, the September sub-cohort will have participated in the tablet program for three school terms, while the January sub-cohort will have participated for two school terms.
- Following endline assessment, planned analyses in July-August 2024 include:
    - T-tests of differences in learning gains between baseline and endline achievement and between the two Phase 1 implementation sub-cohorts (September vs. January), using Bonferroni corrections for multiple pairwise comparisons.
    - Regression analysis of the association of implementation sub-cohort (September vs. January) and four primary outcome measures (dependent variables), controlling for region, grade, and gender (independent variables). The primary outcome measures include:
        1. Average % correct scores on EGRA and EGMA (continuous variables); and
        2. Attainment of emergent or fluent status in literacy and numeracy (binary yes/no variables). This is the primary outcome goal for BEFIT.

3. Ordinary least squares regressions will be run on the continuous "average % correct" dependent variables, while logistic regressions will be run on the binary "attained emergent or fluent" variables.

- It is important to remember that the two sub-cohorts of Phase I, were not created through randomization and are known to be systematically different: the September cohort of schools was determined to be ready for program implementation at the beginning of the school year, while the January cohort required additional infrastructure work before the tablet program could be implemented. Thus, caution should be taken when comparing results for the two sub-cohorts. Effect sizes will not be calculated, because these are not comparable to the effect sizes from RCTs.

Imagine will conduct baseline and endline assessments for both Phases 1 and 2 during the school year 2024-25, after which there will be a comparison of learning gains between the two phases of schools implementing the tablet program for different lengths of time (i.e., two years vs. one year), as well as an examination of year-over-year learning gains for Phase 1. This will allow BEFIT to project multi-year outcomes, given that the BEFIT program is being offered to Standard 1-4 children.

5.4 Research and learning

The program incorporates a robust research agenda that focuses on both outcomes research as well as implementation research to support continuous improvement and to generate insights for scaling. The first 2 years of the scaling and expansion through the BEFIT program will be viewed as critical learning years focused on refining implementation practices at scale. The program will continue to conduct research to understand better for whom the software is working, for whom it is not working, and why. Research findings will be shared with the software and implementation partners and other stakeholders to help achieve the greatest learning impacts for the most children.

These efforts will help to refine the BEFIT model ahead of the independent effectiveness RCT expected to begin in September 2025.

While the efficacy trials focused on rigorous measurement of learning impacts, descriptive research was also conducted on additional perceived impacts, mainly through endline stakeholder interviews and surveys. These surveys asked adult stakeholders (administrators, teachers, parents) to describe the various impacts they observed of the tablet program on their children. The 8-month RCT technical report provides an example of the results on page 32 that are typically reported, including increased engagement, attendance, effort, and confidence, in addition to increased achievement.

Similar systematic stakeholder surveys will be conducted at the end of BEFIT Phases 1 & 2, with the full sample of research schools in each cohort, allowing us to describe the prevalence of observed impacts with greater reliability. Further, research on community-defined measures of importance is currently being explored to incorporate into the endline stakeholder survey.

The multi-year effectiveness RCT that is slated to take place beginning in BEFIT Year 3 will be able to examine these impacts along with additional longitudinal impacts (retention in school, grade promotion, multi-year learning gains) with experimental rigor.

The following lists the primary research objectives, methods, and questions for the first 2 years of the program:

1. Continuous improvement of implementation: Conduct research and incorporate findings into implementation practices
    a. Performance monitoring: Ensure learning outcomes are sustained as the program expands, by conducting annual baseline and endline assessments (using the new digital version of EGRA and EGMA in Chichewa developed by RTI for Imagine)
        i. Are we seeing learning gains consistent with the treatment group gains from our prior studies, accounting for time on task?
        ii. What implementation factors are associated with better learning gains?
        iii. What additional outcomes are evident as we scale?
    b. Implementation research: Ensure quality of implementation as we expand to obtain full impact potential
        i. What are the key barriers to and enablers of quality implementation as we expand?
        ii. What are the key components of monitoring systems that ensure quality implementation as we expand?
2. Continuous improvement of the software: Conduct research and incorporate findings into iterative (at least annual) software improvements
    a. Targeted research: To increase learning impacts for more children
        i. What role do executive functions (i.e., working memory, inhibitory control, and cognitive flexibility) play in children's tablet learning?
        ii. What additional factors help to explain some children's non-progress in reading?
        iii. How can we better understand the role of social-emotional learning (SEL) skills and mindsets (e.g., confidence, persistence, and self-efficacy) in supporting children's tablet learning?
        iv. What factors affect the accessibility of the tablet program for girls and special education learners?
    b. Extant analysis: Analyze the wealth of existing data to understand better for whom the tablet program is working and for whom it is not working
        i. What patterns of success and challenges emerge from our studies? Do boys and girls appear to benefit equally from the program?
        ii. How is time on task/attendance/dosage related to learning impacts?
        iii. How are children's learning trajectories through the tablet curriculum related to software functioning and learning impacts?
    c. A/B testing: Collaborate with onebillion to test software improvements
        i. What (research-informed) software changes improve learning outcomes?

The key research activities planned for 2024 include the following:

Performance monitoring

- Conduct an endline assessment in the same Phase 1 schools in June/July 2024
    - Calculate gains on primary outcome measures (average % correct, % meeting benchmarks) in both literacy and numeracy to monitor if the program is achieving the learning gains observed for the treatment groups in prior research studies, accounting for time on task, and applying weights appropriate to the sample design
    - Explore gains on subtest areas of the EGRA/EGMA and possible additional metrics
    - Compare gains for the September vs. January sub-cohorts of Phase 1
- Conduct a baseline assessment for Phases 1 & 2 in September/October 2024
    - Select a representative sample of Phase 2 schools and students exposed to the BEFIT program for the first time
    - Compare baselines for Phase 1 (after 1 year of the program) vs. Phase 2 (new to the program)
    - Lay the groundwork for comparing gains following the endline assessment in June/July 2025, including gains for
        - Phase 1 after 2 years vs. Phase 2 after 1 year
        - Phase1 year-over-year gains by grade level

Implementation research

- Continue conducting implementation research to identify barriers to and enablers of quality implementation (and thus impact) as the BEFIT program rolls out with Phases 1 and 2
- Monitor experiences of girls and SEND children
- Engage stakeholders in discussions of findings
- Inform modifications to training materials and implementation practices on a rolling basis

Targeted research

- Build on prior research to understand how SEL and other relevant skills contribute to children's learning through the software, particularly for children not progressing in reading
- Feb-July 2024: Pilot an expanded set of tools to examine how executive function skills, pre-literacy skills, and home literacy and language environment co-occur to support children's literacy
- Sept 2024-July 2025: Administer the validated tools at a larger scale to understand how these skills perform as predictors and as outcomes

Effectiveness research

Finally, as mentioned above, an independent effectiveness research study will be conducted by a third-party, beginning with Cohort 3 in September 2025, allowing for 2 years to stabilize implementation practices in all 34 education districts in Malawi ahead of this study. This RCT is proposed to be conducted over multiple years to investigate multi-year learning impacts as well as follow older children into the

upper primary grades to determine impacts on persistence in school and upper primary learning. A subsample could even be followed into and beyond high school to estimate longer-term educational and social impacts.

Research on gender, equity, and inclusion

All of the efficacy trials with onebillion's software have shown that girls gain at least as much as boys. In fact, girls appear to gain more than boys in math, but the differences to date have not been statistically significant, probably due to smaller subgroup sample sizes. There will be larger sample sizes as part of the BEFIT research and Imagine will continue to monitor learning gains by gender.

To understand why girls may possibly gain more than boys in math when using the tablets, Imagine conducted some exploratory research this school year as part of the BEFIT implementation research. However, none of the observations or stakeholder interviews could identify differing experiences for girls and boys when using the tablets. The current hypothesis is that the primary reason that girls gain at least as much as boys is that the tablet is agnostic to the child's gender. Unlike in the standard classroom, girls are given an equal chance at learning as boys using the software. Further, onebillion has made sure to represent girls and female role models equally in the software.

But why might girls gain more than boys in math–not just equally? The Tanzania research that conducted side-by-side RCTs with onebillion's and Enuma's (Kitkit School) software suggests that girls gained less than boys using Kitkit School (again, not statistically significant, but onebillion's software has never shown lower gains for girls). Unlike onebillion, Kitkit School uses a gamified approach that assumes that children will be motivated to proceed through the curriculum to obtain badges and other rewards. However, reports from the field indicated that some children, when faced with more difficult math activities, refused to proceed and repeated more comfortable material. It is the team's hypothesis that girls, who typically have slightly lower initial math achievement in these settings, and who may have lower confidence about math due to their experiences in the standard classroom, may have been more likely to retreat to familiar math material. In contrast, onebillion's software keeps children moving forward in a supportive software environment. Girls may have the opportunity to make up any prior deficits and to develop confidence in their math abilities.

The program will continue to monitor learning gains by learner subgroups (including gender), with a primary focus on improving the software to benefit all children.

6. Sustainability

Sustainability approaches have been built into the BEFIT program, from the initial phase of implementation.

6.1 Systems Strengthening Approach

The BEFIT program adopts a Systems Strengthening Approach wherein the implementation is carried out through existing basic education structures in the government. It utilizes existing government resources

for both day-to-day implementation as well as monitoring. Further, the intervention itself is embedded within the government's regular curriculum and school timetables.

The role of external partners is to mainly assist the government in capacity strengthening and implementation during the rollout period.

For example, Implementation Service Providers and Technical Service Providers support government structures at district, zone, and school levels for two academic years to build the required capacity, after which implementation can be fully supported by government structures. The program ensures it remains feasible to sustain in the long run, by incorporating existing government personnel and not requiring additional hiring.

Schools are grouped into zones, each headed by a Primary Education Advisor. Their responsibility is to supervise and support schools on program delivery. The government already makes provisions for PEA's mobility to schools as much as they are able. This system will be responsible for supervising and supporting program implementation in schools. As a program that is integrated into the school program it will be covered long term through the office of the PEA at the zone level. Strengthening support to the zone officers to enable them to provide adequate supervision and support of not just BEFIT, but all education programming, through for example, providing adequate transport, is an ongoing discussion with the Ministry. In terms of infrastructure and technical maintenance, with the decentralization of basic education, the District Council has oversight of schools. The District IT office will form the primary maintenance point at district level supporting zones and schools and this is part of the institutionalization discussions currently underway with the government.

Overall, equipment replacement and servicing, trained teachers, technical support to maintain equipment, and an engaged community are all important factors for long-term sustainability. The program is actively designing a repair and maintenance eco-system to this end.

Teachers are the primary facilitators in the BEFIT program. The program components include training in-service teachers on the BEFIT program and the development and incorporation of a module on the use of technology for instruction with a specific focus on the BEFIT program within pre-service training in all teacher training colleges in Malawi. This is being done through the Department of Open, Distance and e-Learning, the Directorate of Basic Education, the Directorate of Teacher Education and Development, the Malawi Institute of Education, and the Directorate of Quality Assurance Services. Teachers are also being trained in troubleshooting minor technical challenges without requiring additional help to ensure the smooth day-to-day functioning of the program.

The BEFIT program adds to teacher responsibilities such as being responsible for the equipment in a school. In the short term, rather than a single teacher taking charge, schools are encouraged to create rotations to distribute the responsibility among teachers. Long term the BEFIT program under its institutionalization goal is engaging the Ministry of Education on policy responses necessary to institutionalize the program including recognizing this responsibility in the teacher's workload at school

The provision of accessible technical support is another critical component in ensuring long-term sustainability. Through the BEFIT program, the Ministry of Education will work with schools to identify

from the school community individuals with basic IT knowledge who could be trained in basic troubleshooting of the technology. These may be teachers within the school or members of the school community willing to volunteer to support the program.

At the zone level, an officer will be trained to support school-based technicians in resolving any significant challenges. The zone officer will also provide training to any new school-based technicians as the need arises. Both the local and zone technicians will be supported by the district IT officers at the District Education Manager's offices. As specialists, these officers will provide orientation to the other two levels as well as plan at the district level for the overall maintenance and replacement of equipment through their district education budgets.

At the zone level, Primary Education Advisors will also be trained on effective leadership for learning principles and approaches to effectively support teachers within the zone and supervise the ed-tech intervention at the school level. PEAs will also be trained in data extraction, interpretation, and use for decision-making as well as for sharing with Monitoring and Evaluation officers at District Education Offices for processing and reporting learner progress and achievement in literacy and numeracy using available tools on the tablet.

At the community level, parents need to support children's attendance and be involved in ensuring the safety of equipment within their local communities. To achieve community support, sensitization meetings with members of the schools' communities will be held to explain the intervention and how communities might support the project. Through the sensitization activities, community champions will be identified and trained and will play a leading role in ensuring acceptance and accountability in the delivery of the program.

The Ministry of Education plans to ensure that requisite policies are put in place to ensure long-term support for the program through its integration within regular Ministry plans for delivering primary education. This planning will be led by the Ministry in collaboration with other development and implementation partners to ensure a smooth transition by the time external partners scale down their support in 2029.

6.2 Financial sustainability

The goal of the BEFIT program is to scale its innovation to all public primary schools in Malawi by 2029. To achieve this national rollout, the Ministry of Education will share financing with various partners during different phases of the program until all primary schools are reached. For example, this document focuses on Phase 2 of the BEFIT program. Phase 1 (2023-2024) was funded through $18 million of philanthropic funding, and Phase 2 will be funded through the GPE Multiplier and philanthropic funding.

The funding for BEFIT entails a creative combination of philanthropic and aid/multilateral funding, with philanthropy and Aid funding the upfront costs (solar, storage/security cabinets, tablets, etc) during the "implementation phase" and the government covering recurring costs starting in the 3rd year after a school is launched called the "maintenance phase."

This model has already been successfully implemented in over 750 schools across Malawi since 2014 and was recommended as the top educational Malawi Priority Project by the National Planning Commission with a highly attractive Benefit-Cost ratio of 106x.

In the early years of the program, philanthropic funding was used to demonstrate successful implementation and de-risk the intervention, in order to position it for aid/multilateral funding. This strategy has been successful as GPE is now positioned to fund Phase 2 and part of Phase 3.

As national coverage of the program is achieved, collaborating partners reduce their support to the program, and the Ministry of Education will continue to manage and run the program like any regular school program. This requires that specific policy positions be put in place to integrate the program within regular Ministry budgetary allocations to ensure the long-term sustainability of the program.

The Government of Malawi will, post-national rollout, be responsible for financial upkeep and where required, collaborate with partners to manage the program's recurrent costs. The Ministry of Education and the Ministry of Finance will lead policy dialogue on sustainable long-term financing for the program. The Ministry of Finance joined the BEFIT Steering Committee at the end of 2023 and has also been engaged since the early discussions that led to the conclusion of the MOU between Imagine Worldwide and the Ministry of Education (circa Dec 2022). Furthermore, the BEFIT program has been endorsed at the highest levels including by the President of Malawi, His Excellency Dr. Lazarus McCarthy Chakwera during the February 2024 State of the Nation Address.

Implementation Phase

It is important to note that there is a sizable initial investment to provide each school with solar power, charging/security cabinets and tablets. In terms of equipment, if costs are amortized over the useful life of the equipment, the annual cost/student is estimated to be ~$7 over a 10-year time period. This includes all equipment, implementation support, PIMU costs, monitoring, evaluation, research, and ecosystem coordination.

These costs have come down dramatically over the last 5 years and are expected to continue to decline due to the deflationary nature of technology, lessons learned from early phases, and better economies of scale.

Maintenance Phase

The government's estimated $3/child/year approximately of recurring costs, made up primarily of tablet repair/replacement and solar battery replacement, is included in that total cost estimate. This estimate will be lower if (A) we see deflation in both solar and tablet pricing like we have seen in the last decade or (B) a larger percentage of tablets are able to be repaired vs replaced over time. This cost estimate has also come down significantly in the last 5 years.

The following table outlines the cost per child at various time intervals of the program.

Cost per Child

Cost per Child per Year	Over 20 years	Over 10 years	Over 5 years (2025 – 2029)
Implementation and Maintenance Phase*	$5.02	$7.24	$10.56
Maintenance Phase**	$3.10	$2.56	$1.66

*Total costs are inclusive of the costs recurring to the government. Total/cost per child decreases over time as the upfront costs are amortized over more years.

**Recurring costs increase over time as equipment reaches its end of life (there is little breakage early)

The upfront costs are being and will be funded through aid and philanthropy, and the Ministry is committed to funding the recurring costs. The Ministry, through the BEFIT Steering Committee, is engaged in ensuring the long-term financial sustainability of the program right from its rollout phase.

To conclude, the program intends to build valuable infrastructure and human capacity that will put the Ministry of Education in a radically stronger position to execute future ICT initiatives, whilst simultaneously focusing on increasing student learning in the present. It will increase the technical knowledge and capacity of teachers and education leaders country-wide, strengthen the resilience of the educational system as a whole, and finally, present a thriving example of the power and promise of innovation in education.

7. Risk Assessment

The following risks and mitigation measures have been identified during the development of the program:

#	Risk	Likelihood	Impact	Mitigation
Operational and programmatic risks				
1	Delays in procurement/delivery of critical equipment owing to global shipping challenges delaying program set-up in schools	Low	High	Direct procurement from pre-cleared manufacturers or suppliers, and ensuring adequate lead time on procurement. Advance and bulk procurement to ensure critical equipment is in the country long before it is required in the various sites

2	Insufficient time on task on a weekly basis accumulating to insufficient time on task on an annual basis which would lower potential learning gains for students.	High	High	Working directly with the Department of Quality Assurance (DQAS) to implement timetable adjustments that allow schools to have sufficient time for tablet based learning. Ensuring that the timetables are adhered to by conducting monitoring at the school level, with support from Zone and District officials. Ensuring all officials from the Ministry to the school level understand the importance of time on task and the impact it had on learning gains.
3	Changes in partner relations and priorities affecting program delivery	Low	Medium	Use of multiple partners across the rollout period to ensure success is not dependent on any single partner, but rather distributed among partners
4	Safety concerns such as theft/damage of equipment such as tablets, accessories etc. leading to program disruption	Medium	High	Use of steel storage cages and alarms Community sensitization to ensure parents' support in ensuring the safety of equipment in their respective communities
5	Limited network coverage and internet access to program monitoring in some remote schools	High	Medium	The OLA platform is being built specifically to address poor connectivity environments in some remote schools
Funding risks				
6	Unfavorable macroeconomic situation limiting the Government's ability to fund recurring costs over time	Medium	High	A phased scale-up approach that allows upfront costs to be distributed over time, and enables the Government of Malawi to plan management of recurrent costs ahead of time
7	Changes in the donor environment/priorities leading to insufficient support for the country-wide rollout of the program	Medium	High	A phased approach that allows enough lead time in fundraising for the different phases

				Collaboration between the partners and the Government of Malawi to broaden the funding base for the different phases of the work
Governance and management risks				
8	Changes in key personnel in partner organizations affecting program delivery	Medium	Low	Timely recruitment systems to ensure quick turnaround in engaging experts in critical areas as required
Sexual Exploitation, Abuse and Harassment Risks				
9	Risk of children being exposed to harmful content online	Low	Medium	Tablets are operated by ROM which prevent usage other than that of the learning program.
10	Teachers may be at risk from ISP field staff during school visits (e.g. threats related to the rating submitted for the teacher's quality of supervision)	Low	High	Imagine has PSEAH policies which ISP staff will be made aware of, and teachers will be made aware of several reporting mechanisms
11	Students may be at risk from ISP or TSP field staff (e.g threats of being excluded as beneficiaries or false promises of being included as beneficiaries)	Low	High	Imagine has PSEAH policies which community members and teachers will be made aware of, so that any abuse of power by ISPs is observed by others and reported appropriately. Additionally, annual revisions of due diligence will be conducted on ISPs and TSPs regarding PSEAH conduct. Finally, ISPs and TSPs have no responsibilities that involve interacting with students so they have no reason to engage with them directly, and their activities on school property can be supervised by teachers and headteachers who will be aware of the PSEAH policy
12	Community members may be at risk of SEAH from ISPs or TSP (e.g. threats or false	Medium	Medium	A community-based complaint mechanism (CBCM) is an integral part of the program

	promises about access to tablets, solar power units or other assets)			implementation. Stakeholders including implementation partners oriented on PSEAH policies and procedures. Additionally, annual revisions of due diligence will be conducted on ISPs and TSPs regarding PSEAH conduct
13	ISP staff may be at risk from school leaders or other key stakeholders (e.g. in order to access the school to complete their monitoring responsibilities)	Medium	Medium	Imagine has strong PSEAH policies and ISP staff will be made aware of reporting channels available to them in case they need to report SEAH. If the perpetrators are government staff, Imagine will inform the government of the event while taking steps to remove the affected ISP staff member from danger and providing support that is needed to help them recover
14	Potential misuse of children's and teacher's data	Low	High	Currently, the program only collects a very limited amount of identifiable data, specifically at the research schools. In future through the Open Learning Architecture, more identifiable data will be collected. In order to fully personalize learning journeys on the application and better support learners who are not making material progress, the identification of learners will be required across all BEFIT schools. The platform will ultimately manage all learner and teacher profiles using robust industry-leading strategies to ensure privacy protection of the identifiable data. This will include secure encryption of all sensitive data when stored and in transit, de-identifying the data and storing the student identifier separately.

Note on Protection from Sexual Exploitation, Abuse and Harassment (PSEAH): Imagine Worldwide has a Protection from Sexual Exploitation, Abuse and Harassment Policy that applies to all Imagine employees, trustees, advisors, and visitors ("Imagine personnel") as well as Imagine grantees, contractors, sub-grantees, and sub-contractors ("contractual partners"). It applies during and outside working hours, every day of the year.

8. Summary Budget

All figures are in USD. $15.22 million from the GPE Multiplier application is being requested from the BEFIT program, and the remaining half of $15.22 million will be funded through co-financing. 50% of all components will be funded through GPE funds, and the remaining 50% through co-financing.

All Imagine funding is held in USD. To the extent payments are made in Kwacha, conversions are made at the time of payment to minimize currency exposure.

Component and sub-component	2024	2025	2026	Total
COMPONENT 1: EQUIPPING PUBLIC PRIMARY SCHOOLS IN MALAWI WITH THE INFRASTRUCTURE REQUIRED TO ROLLOUT THE BEFIT PROGRAM	9,352,849	1,817,477	906,238	12,076,564
Sub-component 1.1: Provision of required software, hardware, solar panels, and other infrastructure in public primary schools in Malawi	9,202,849	1,642,477	856,238	11,701,564
Sub-component 1.2: Creating a network of trained officials at the school, zonal, and district levels to provide technical support	150,000	175,000	50,000	375,000
COMPONENT 2: STRENGTHENING CAPACITIES OF TEACHERS, SCHOOL LEADERS, AND COMMUNITY TO SUPPORT THE IMPLEMENTATION OF THE BEFIT PROGRAM	3,672,022	4,035,380	1,395,462	9,102,864
Sub-component 2.1: Training teachers and school leaders to support the facilitation and monitoring of the BEFIT program (in-service and pre-service)	1,694,000	2,545,716	865,817	5,105,533
Sub-component 2.2: Community sensitization and mobilization to support	1,978,022	1,489,664	529,645	3,997,331

rollout and monitoring of the BEFIT program				
COMPONENT 3: SUPPORTING IMPLEMENTATION OF MONITORING, EVALUATION, AND LEARNING SYSTEMS FOR THE BEFIT PROGRAM FOR INCREASED ACCOUNTABILITY AND STUDENT LEARNING	1,566,000	2,588,800	1,177,000	5,331,800
Sub-component 3.1: Designing and setting up a monitoring system for the BEFIT program from school to national levels	1,116,000	1,788,800	827,000	3,731,800
Sub-component 3.2: Research on implementation fidelity and student learning to inform program adaptations and scaling efforts	450,000	800,000	350,000	1,600,000
PROGRAM MANAGEMENT COSTS	1,081,480	1,872,472	974,801	3,928,753
PIMU and Imagine Ltd associated costs	703,008	1,484,294	781,286	2,968,588
Capex and running cost of office and administration	378,472	388,178	193,515	960,165
Total	15,672,350	10,314,129	4,453,501	30,439,980

Annex 1: Roles and responsibilities

Implementation Service Provider

Implementation Service Providers (ISPs) are responsible for the provision of adequate technical and operational support to the Ministry's district-level implementation structures. Further, they augment the current capacity and ensure skills transfer to government employees, so that the program can be fully operated by the Ministry without any external support after 2029.

Their roles and responsibilities include:

1. Under the supervision of the PIMU, they are collaborating and supporting District implementation teams to develop district implementation plans from the national delivery model.
2. Supporting zone implementation officers in preparing schools for successful launch through development, organization, and provision of training at district, zone and school level to staff on key monitoring processes, data collections and uploading to dashboards – specifically their role include:
    a. Collaborating with zone officers to establish enrollment patterns in grades 1 through 4, focusing on a number of streams in each of standards 1-4, the number of learners per class in each grade, the number of teachers available for each stream, and class in each standard.
    b. Collaborating with school officers to review existing timetables for grades 1-4 and following guidance from the Ministry of Education on the ed-tech program rollout, work out with the school leadership timetable integration for the ed-tech program in each particular school.
    c. Assessing the suitability of selected spaces in the schools for the installation of secure metal storage and charging cages, solar units and accessories and any works necessary to support installation.
    d. Sharing details of installation needs and required works for successful installation with the relevant Technical Service Providers.
    e. Collaborating with zone officers and the local school authorities to plan and implement sensitization meetings with parents and local school stakeholders on the ed-tech program emphasizing local ownership and support of the local school program.
    f. Supporting schools to set up attendance committees composed of members from the PTA, SMC, and Mother Groups to support program implementation at the school level.
3. Coordinating with Technical Service Providers and the zone education officers in the setting up of technology in the schools including solar panels and accessories, secure metal storage and charging cages and completion of any necessary works in support of the installation in the school.
4. Working with Consulting Electrical Engineer, ICT Technical Leads and zone technical officers to test all installed equipment including tablets, solar chargers and batteries and ensure they are working well, that tablets are charging well, and that software installed is running efficiently on the tablets ahead of the launch.

5. Planning and providing capacity building to district and zone officers on the program facilitation, implementation, quality monitoring tools and processes, data collection and uploads to program dashboards in use, and ensuring technical support is available for schools in liaison with ZEMISO and DEMISO.
6. Planning and conducting MEAL and Technical Trainer of Trainers' training to district and zone implementation officers.
7. Supporting in program implementation monitoring, evaluation, accountability and learning (MEAL) processes.
8. Collaborating with zone officers to establish a routine for regular supervision and data collection in each school on a bi-weekly basis and monitoring the implementation of the set routines on school visitation.
9. Collaborating with the zone officers responsible for schools in a selected zone to develop and deliver a training program for local school technical support, ed-tech lesson facilitation processes and procedures, and program implementation quality monitoring and use of dashboards to track program implementation.
10. Overseeing school-level trainings and engagement meetings by Zone implementing officers and providing support as required.
11. Supporting zone-level capacity to ensure schools are visited bi-weekly to monitor implementation progress, identify existing challenges and provide solutions to problems identified.
12. Collaborating with zone officers and schools in organizing monthly review meetings with teachers and members of school committees to discuss and resolve any challenges encountered in the implementation.
13. Supporting Zone offices in data collection, regular transmission / uploading of data from all school monitoring visits on the project dashboards and sharing any key monitoring lessons with schools and local committees in the schools.
14. Ensuring required capacity is built among key stakeholders before disengaging from assigned sites at the end of two years of regular support and ensuring successful continuation of the program.
15. Providing regular reports to Imagine Worldwide Ltd on the status of implementation in the district and zones identifying any critical challenges and suggesting possible solutions.

Technical Service Provider

Technical Service Providers (TSPs) are responsible for setting up the infrastructure and technology and enabling testing and launching of the program in schools. They fabricate storage and charging cages based on pre-approved designs and installation of the solar power system (solar) for charging tablets.

Their roles and responsibilities include:

1. Reviewing the designs for the power system (solar) and secure battery & tablet storage/charging cage, material requirements and technical specifications, and information on each school's characteristics and requirements to determine system requirements and configurations for power system and secure storage and charging cages set up and prepare cost estimates (Quotations) in line with BOQ;

2. Submitting cost estimates (Quotations) for fabrications and installation of power system and secure battery storage cage.
3. In collaboration with the PIMU and implementing partners, using the designs and material specifications provided to procure, fabricate and install:
    a. Power (solar) system with batteries as backup for charging tablets and provision of light in selected rooms in the schools; and
    b. Secure metal battery & tablet storage/charging cages fitted with required tablet charging units and battery storage spaces.
4. Transporting all secure metal storage cages produced and solar equipment to the assigned schools for installation.
5. Procure by way of subcontracting any necessary auxiliary technical services such as welding/fabrication for metal works or carpentry works for all the required wood works and ensure their proper installation.
6. Be responsible for contracting skilled and unskilled labor, and third parties and responsible for their insurance cover and other liabilities.
7. Carrying out any required works to reinforce security and/or structures necessary for effective installation of equipment and its subsequent safety.
8. Under the supervision of a Consulting Electrical Engineer, ensuring that all fabrications and installations meet technical quality standards before certification with relevant authorities in line with industry standards.
9. Under the supervision of the Consulting Electrical Engineer and in collaboration with the zone officers and the implementing partners, conducting appropriate testing of all equipment including charging of tablets at each site before the program launch in the school.
10. Develop a system user-manual for operating the system with appropriate procedures and processes for handling equipment that is no longer usable and ensuring safe disposal of the equipment.
11. Supporting implementation partners with training zone officers and teachers on regular maintenance of equipment and troubleshooting and fixing level-one problems with the technology.
12. Handing over schools with all technology setups completely tested, certified and confirmed to be in good working order to the school through relevant Implementation Service Providers (ISP) and the Zone officers.
13. Providing required after-service support as may be needed and requested through the PIMU and/or Implementation Service Providers (ISP) working in the school for a period when the school remains under the support of the Implementation Service Provider.
14. Writing progress and final reports on the works and installation status as well as a full report on all installation work done and condition of the system at the time of handing over to the Implementation Service Providers.
15. Submitting to Imagine Worldwide invoices duly supported by proper documentation including a completion certificate for payment processing.

Program Implementation Management Unit

The roles and responsibilities of the Program Implementation Management Unit (PIMU) include:

1. Developing overall plans, schedules, and budgets to guide all government partners in the scale process.
2. Set up clear coordinating structures at district, zone, and school levels for the scale program.
3. Mobilize and coordinate support across relevant Ministries, departments and directorates of the Malawi government for sustained support of the program.
4. Coordinate plans from Ministries, departments, directorate, and support the execution of these plans.
5. Monitor, supervise and support MoE structures at district, zone, and school levels to successfully carry out their roles and responsibilities timely in support of scale process.
6. Provide supplemental support and resources to district and zone levels necessary to facilitate these levels carrying out their responsibilities under this program.
7. In collaboration with IW as an ecosystems coordinator, drive accountability across all funded partners to the program in ensuring high quality deliverables.
8. Develop plans and lobby with MoE structures for appropriate policy changes to ensure long term support and sustainability of the program.
9. Act as BEFIT secretariat in managing all communications, meetings and communicating to a wider audience the progress and impact of the BEFIT program.
10. Coordinate with implementing partners in preparing schools for successful launch through relevant stakeholders' engagements at district level as well as school community levels, training of teachers in program facilitation and technology support.
11. Coordinate with implementing partners at zone and school levels in regular program supervision, monitoring, and data collection, keeping track of equipment inventories and status, organizing timely maintenance of equipment as well as coordinating replacement of unserviceable equipment.
12. Drive stakeholder engagement at the local level and ensure integration of the BEFIT program in national platforms and mobilize support for the program.
13. Develop and manage a monitoring system for the government implementation system, capacity building and institutionalization processes.

Government of Malawi

The main roles and responsibilities of the Ministry of Education include:

1. Overall program strategic leadership, mobilizing both political and managerial support, policy guidance and direction, and implementation management.
2. Coordinate the participation of all relevant Ministry's departments and other relevant Ministries to support program management and implementation.
3. Undertake reviews and adaptation of relevant laws, policies, and procedures to ensure that the program is fully embedded in the basic education sector.

4. Undertake reviews of working arrangements and job descriptions for relevant offers to ensure that the program activities are embedded in the day-to-day duties of relevant officers at all levels.
5. Contribute resources for the implementation of the program and these include staff, office, financial and other non-financial resources.
6. Ensure adequate allocation of time on the governmental timetable for the BEFIT sessions
7. Ensure that once embedded in the basic education system, the program is allocated resources in the education national budget for continuity.
8. Commitment to continue with the program without partner support beyond the partner-supported phase.
9. Create a conducive operating environment for the project.
10. Cover all maintenance costs of the BEFIT program post the implementation phase

The Ministry is supported by the following directorates:

1. Directorate of Quality Assurance and Advisory Services: ensuring that the program is aligned with the national curriculum and is integrated within the main school inspection system in Malawi.
2. Directorate of ICT: working closely with IT/Digital Education Technology experts of the partner organizations to build capacity and pass on the technical expertise to staff and different levels of the system.
3. Directorate of Teacher Education and Development (DTED): ensuring that ed-tech is well integrated with the Teacher Training and Development Curriculum in Malawi.
4. Directorate of Inclusive Education: ensuring that ed-tech institutionalization in MoE is as inclusive as possible based on the Inclusive Education policy in Malawi.
5. Directorate of Quality Assurance and Supervision (DQAS): ensuring good alignment of the ed-tech content including new e-assessment to the local curriculum.
6. Directorate of Policy and Planning: supporting infrastructure-related interventions ensuring local standards are adhered to.
7. Directorate of Science Technology and Innovation (DSTI): alongside the ICT directorate the DSTI will provide critical guidance in the rollout of the ed-tech intervention across the nation and ensure the intervention has the relevant technology support in MoE plans.
8. Ministry of Local Government Unity and Culture: responsible for support to councils and support schools at the district level
9. Ministry of Natural Resources, Energy and Mining: responsible for rural electrification of solar power in rural communities including schools

Imagine Worldwide (Consortium Lead and Ecosystem Coordinator)

Imagine Worldwide acts as the consortium lead and ecosystem coordinator for the BEFIT program.
Its roles and responsibilities as the consortium lead include the following:

1. Provide consortium leadership and ecosystem coordination and ensure efficient and effective management and implementation of the program.

2. Work with MoE in setting up the PIMU and providing initial support for the PIMU functioning; in collaboration with the Ministry, support the PIMU to recruit and coordinate all eligible TSPs and ISPs.
3. Design and conduct implementation research to ensure continuous improvement in the scaling process and generate critical learning, record and disseminate to all stakeholders including software developers (Research is conducted by Imagine headquarters to maintain independence from Imagine Malawi and the software developer, who are both key stakeholders in the research).
4. Design and conduct scale program monitoring across all partners to support the PIMU drive the scale processes more effectively.
5. Provide technical leadership and advisory in areas of technology and power system design, installation and operations, Monitoring, Evaluation, Accountability and Learning, logistics and supply chain, grants, and financial management.
6. Drive accountability across partners to ensure the program generates value for the investment.
7. Support the Ministry and other partners in resource mobilization for a successful scale of the program.
8. Convene consortium partners' meetings designed to share progress on the implementation across sites and discuss any challenges.
9. Host the PIMU and provide management, operational, financial, and administrative program oversight, and support.
10. Coordinate with the PIMU in providing secretarial and administrative services to the National Steering Committee and Technical Committee.
11. Lead research to inform continuous improvement

As ecosystem coordinator, Imagine fulfills the following roles and responsibilities:

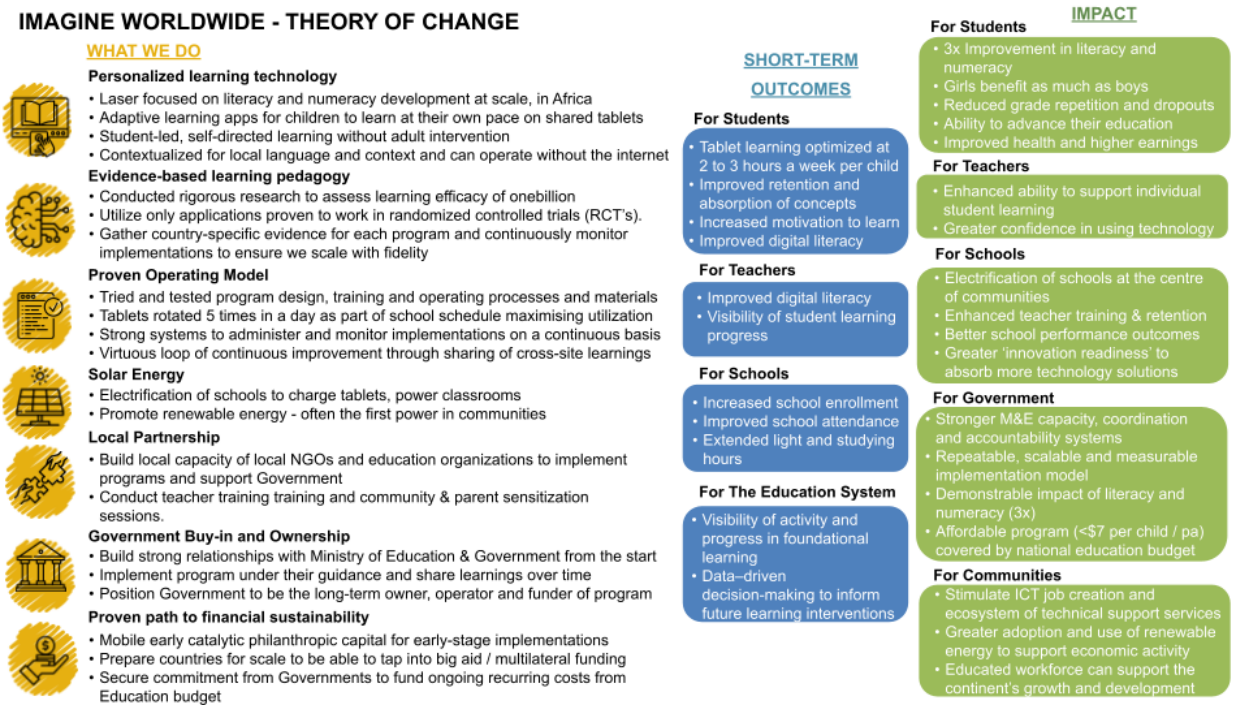
1. Host the government PIMU to ensure close collaboration between the support structures and the government implementation structures of the BEFIT program.
2. Recruit and manage Technical Service Providers in collaboration with the PIMU to set up the solar and storage cages in the schools.
3. Source and procure key equipment of the program to ensure timeliness and efficiency in the supply of key equipment for the rollout (tablets, solar, cages etc.)
4. Recruit and manage Implementation Service Providers in collaboration with the PIMU to support program implementation and capacity development in each school.
5. Design systems and tools for monitoring program setup and implementation of the program across ISPs and TSPs supporting the program.
6. Plan and support the development of an ecosystem for the maintenance of program equipment.
7. Train and orient the PIMU and all ISPs and TSPs on the effective use of the tools and systems for monitoring the implementation of the program.
8. Selection, management, and sub-granting to partners and provide grants management services.
9. Develop and manage a monitoring and evaluation system tracking implementation across ISPs and TSPs supporting the program as well as program implementation.

Annex 2: Phase 1 implementation updates

The timeline below provides an overview of how Phase 1 of the BEFIT program was rolled out:

Activity	2023												2024
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan
Subsidiary of Imagine Worldwide opened in Malawi to support MoE with scaling/expansion													
Suppliers for key equipment sourced and procurement begins for imported equipment													
PIMU set up													
600 preliminary schools shortlisted for phase 1													
Needs assessment carried out; 500 schools finalised for phase 1													
6 ISPs and 3 TSPs selected													
Solar panel installation commenced													
TSPs started fabrication/installation of storage cages in schools													
Implementation structures set up in 18 districts by PIMU													
ISPs started training education personnel at national, district, zone to school level													
Community sensitisation and engagement													
Tablets distributed to schools													
261 schools set up/launched; teachers trained													
239 school set up/launched; teachers trained													
Program monitoring and support by ISPs													

Annex 3: Theory of change for the overall BEFIT program



Annex 4: About EGRA/EGMA

The EGRA and EGMA are frameworks for assessing essential early reading and math skills. The frameworks were developed beginning in about 2009 to fill a gap identified by the World Bank and USAID in early skills assessment internationally. The frameworks were developed with input from a broad range of experts as well as government ministries globally, coordinated by RTI International with funding from USAID. The collaborative effort resulted in a commonly recognized progression of early skills in literacy and math and recommended methods for assessing them. The frameworks are publicly available.

Country teams have used the frameworks as a guide to develop country- and language-specific versions of EGRA and EGMA. In Malawi, the Malawi Teacher Professional Development Support (MTPDS) program, funded by USAID, and in collaboration with the Ministry of Education, Science and Technology (MoEST), developed Chichewa versions of EGRA and EGMA in 2010 to assess the teacher development intervention and a later reading intervention.

MTPDS developed the Malawi versions of the EGRA and EGMA using early grade textbooks; materials were reviewed and revised during workshops facilitated by RTI staff and involving MTPDS staff, ministry officials including MoEST, and language and math experts from multiple Malawi ministries and institutions; and then piloted the assessments in several government schools before using the instruments with national samples.

Imagine Worldwide used these MTPDS-developed EGRA and EGMA instruments during its Malawi efficacy trials. When the decision was made by the Malawi Ministry of Education to expand the tablet program nationally–and expansion was occurring on other countries as well – Imagine approached RTI international to develop digital versions of the EGRA and EGMA that could be more efficient and cost-effective at large scale, while still being valid and reliable.

After developing an English digital prototype in Ghana, the RTI development team held an adaptation workshop in Malawi involving Malawi experts in language, literacy, and curriculum, convened by the University of Malawi. The team used the MTPDS-developed instruments to evaluate the new digital versions. RTI in collaboration with Imagine and the University of Malawi then evaluated the validity and reliability of the digital versions with user, field, and pilot testing with about 2,000 children in Malawi government schools.

The digital versions of the EGRA and EGMA adequately serve Imagine's short-term purpose of monitoring performance as the BEFIT program expands. The Malawi government may also want to use them as cost-effective checks on system performance. They were based on original Malawi government materials. If the government wants small changes, these could be incorporated.

However, it may be that the Malawi government wants to employ a different type of assessment, particularly one that assesses grade-specific skills and standards at national scale. It is Imagine's understanding that USAID is developing such an assessment instrument for the NextGen National Reading Program. The government could also decide to use a combination of a more comprehensive assessment

with the lighter-touch digital EGRA and EGMA to obtain regular information on system and student performance.