

Digital Access in Nairobi

Implementing A Tech Mentorship Program In All-Girls Secondary Boarding Schools To Increase Digital Access And Teach 14-17 Year Olds Digital & Technical Skills



TKS

Executive Summary

Problem

Nairobi Girls Lack Digital Skills & Access To Devices Due To A Lack Of Funding & Cultural Barriers

Only 20% of women in Nairobi have access to the internet, which is almost 3x less than men. They are also 23% less likely to own a mobile device than men. According to the World Wide Web Foundation, Kenya only scores a **2/10** for digital skills & education. These statistics highlight the problems that Kenyan women face in obtaining digital skills and access to technology.

Solution

Mentorship Tech Program In Boarding schools That Provides Girls With Devices & Teach Digital Skills

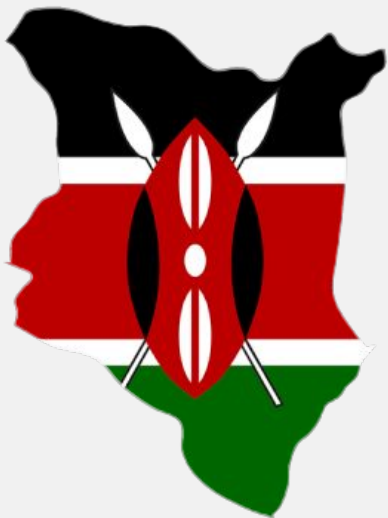
Our solution will implement a mentorship tech program into 124 private and public all-girls secondary boarding schools across Nairobi. Local technical **mentors**^[1] will teach **technology**^[2] & **business**^[3] skills through our curriculum, and digital devices will be provided via the **United Nations**^[4]. Girls will be empowered to overcome cultural norms through exposure to virtual tech conferences and **opportunities**^[5].

Results

24,360 Nairobi Girls With Access To Devices And Developed Digital & Business Skills

In 5 years, 24,360 Nairobi girls will gain digital skills through our mentorship program, which connects them to female role models in tech. It will result in exposure to opportunities in the digital economy as well as more girls pursuing an education in the tech sector. Every year after 2026, an additional **4,710** girls will be impacted.

Targeting Nairobi For Its Demographics, Infrastructure & Education



Demographics

Nairobi is Kenya's wealthiest and most populated city, with an average GDP per capita of over **\$6,300 USD** (over 3x the national average) and more than **4.4 million** residents.



Infrastructure

Nairobi has an electricity penetration rate of **72.4%** (as of 2009) and a mobile data penetration rate of **85.2%**. Also, it has an average internet speed of **15.4 Mbps**, one of the fastest speeds in the country.



Education

In Nairobi there are **309** secondary schools, **71.8%** of which are private and **99%** of which are urban. There is notably a low student to teacher ratio of **17:1**.

Girls In Kenya Don't Have Digital Skills Or Access To Devices Due To A Lack Of Funding To Purchase Them & A Digital Gender Divide Due To Cultural Barriers



Lack of Internet Access

In areas of Nairobi, only **20% of females** have access to the internet. They are also **39% less likely** to have access to *mobile* internet than males. A lack of internet access is a strong impediment to women gaining digital skills. It excludes them from many opportunities the digital economy offers.



Lack of Access to Devices

Females in Kenya are **23% less likely** to own personal devices than males. A lack of devices prevents females from developing digital skills and being a part of the digital economy.



Low Amount of Digital Skills

According to the World Wide Web Foundation, Kenya only scores a **2/10 in digital skills & education** for females. This extremely low score means that female Kenyans are not developing the digital skills they need to be able unlock the potential and opportunities devices and the internet bring.



Girls' Journey

Increasing The Impact Of Nairobi Technical Mentoring Hubs Among 14-17 Year Old Girls



Success Story of Mentorship Impact Hubs

Impact hubs such as KamiLimu teach digital skills and have yielded a **95%** program participation rate across 19 Kenyan universities. They supply **170** mentors that partner with over 18 organizations for teaching digital skills.



Success Story of Technical Communities & Programs That Increase Digital Skills And Access to Devices

Communities like Akirachix teach females to **build** personal and technical skills, **serve** technical solutions to transform communities, and **empower** women to express leadership in technical projects. Their program resulted in a **70%** employment rate and an income **54%** higher than the average Kenyan.



The Opportunity: Improving The Impact Of Technical Mentoring Hubs Among 14-17 Year Olds Via Logistics

Effective programs for increasing digital skills and access to digital devices require females to **commute** to Nairobi or one of the 19 universities in Kenya. A technical mentorship program, like ours, that **brings technical hubs to the girls** has never been created for all-girls secondary boarding schools.



Implement Mentorship Impact Hubs In All-Girls Secondary Boarding Schools



INTEGRATE INTO ALL-GIRLS SECONDARY BOARDING SCHOOLS

Meet 24,360 girls where they are.

There are 124 all-girls secondary boarding schools in Nairobi alone. These schools have hundreds of girls in them. Each week they have 26.7 hours of free time to spend on extracurricular activities.



PROVIDE DIGITAL DEVICES, INTERNET, AND DIGITAL SKILLS

Create an opportunity.

Integrate a [technology](#)^[1] and [business](#)^[2] curriculum into the program taught by local technical female mentors. [Provide](#)^[3] schools with a projector, and a computer for every four girls.



GUIDE THEM IN DEVELOPING A PASSION FOR TECHNOLOGY

Overcoming cultural norms for women in tech.

Provide girls with female technical [mentors](#)^[4] from Nairobi, expose girls to [opportunities](#)^[5] to learn **digital skills**, and engage them in online **women-in-tech conferences**.

Targeting Private All-Girls Secondary Boarding Schools Based On Specific Criteria

CRITERIA	PUBLIC PRIMARY SCHOOLS	PRIVATE PRIMARY SCHOOLS	PUBLIC SECONDARY SCHOOLS	PRIVATE SECONDARY SCHOOLS
Teacher Qualification	39%	18%	92%	89%
Electricity Connectivity	85.1%	70.2%	85.8%	93.8%
Science Labs	-	-	68.4%	80.1%
Average Class Sizes	38	20	41	24

Permanent classrooms, high rates of electricity connectivity, teachers that have degrees, science labs, & low class sizes show that private all-girls secondary boarding schools are optimal for a technical mentorship program like ours compared to other kinds of schools.

Main Components Of The Program Curriculum Designed To Increase Digital Skills & Access To Digital Devices

Technology Curriculum

[Assess](#)^[1] the digital skills in each school and, based on the results, start the technology [curriculum](#)^[2]. It includes: computer and internet fundamentals, web dev, and backend courses starting from the appropriate level of competency.

Mentorship

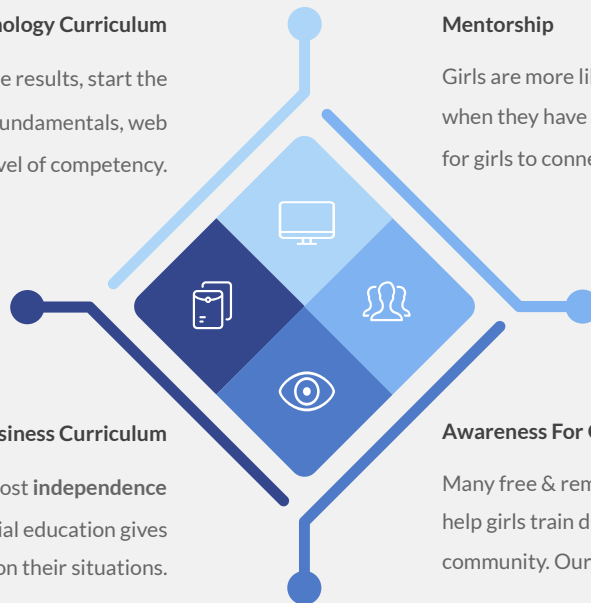
Girls are more likely to **succeed** in technology, computer science, and science fields when they have access to role models. Our program will offer [mentors](#)^[3] & [workshops](#) for girls to connect with **female tech leaders** in Africa and learn from them.

Business Curriculum

Learning about [entrepreneurship and financial literacy](#)^[4] will boost **independence** while increasing self-awareness and confidence in youth. Financial education gives students the ability to make important decisions based on their situations.

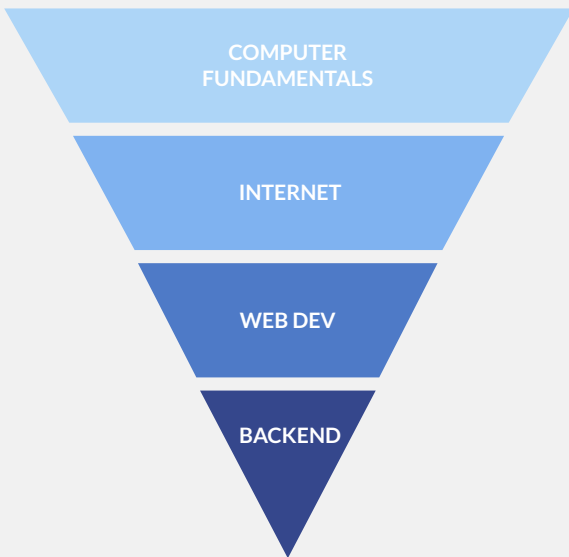
Awareness For Opportunities

Many free & remote women-in-tech conferences take place around the world. These help girls train digital skills, which can be used to **solve** problems in their local community. Our program will **expose** girls to these [opportunities](#)^[5].



What The Digital Skills Curriculum Will Look Like

Each school will have two surveys to **assess** its level of access to digital resources and students' digital skills. Our program will **provide** schools with computers and projectors based on what they need from this [survey](#)^[1]. Once the UN has delivered the required resources to the schools, the girls will complete this [survey](#)^[2] to understand which section they should start the program in.



Once the school has the technical resources needed, it will begin the curriculum. Each week a **mentor** will guide students through the curriculum, then **volunteers**^[3] at the school will supervise the students as they follow along with the [curriculum](#)^[4] outlined in [Google Drive](#)^[5].



A teacher from a school that knows how to use a computer will deliver this curriculum.



A technical mentor will deliver the curriculum with the basics of interacting with websites, digital tools, and online courses.



A technical mentor will deliver the curriculum in the fundamentals of web dev: HTML, CSS and Javascript.



A technical mentor will deliver the curriculum teaching the girls foundational logic in programming and Python.

How & Why Girls Are Learning Business

Kenyan female-owned businesses are smaller, less likely to grow, and earn 57% less than their male-counterparts. We want to **change** these numbers. Our [business curriculum](#)^[1] will cover:

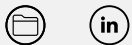
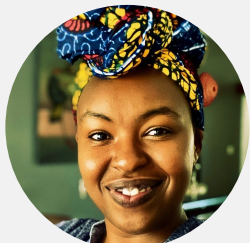
Entrepreneurship to help girls think outside of the box. We will cover market analysis, how to create a product-market fit, how to make a business profitable, key business frameworks and models, and tips from top entrepreneurs. Without being aware of and exposed to the business world there is scarce innovation, and hence it is difficult to drive change.

Financial literacy to teach girls the ability to make better financial decisions. This part will cover wants vs needs, budget management, debt and borrowing, and investments. Women in Kenya have a 20% less likelihood of owning a bank account in a formal financial institution. They are also 17% less likely to formally borrow money, partially credited to a deficiency in their financial literacy.

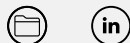


Inspiring Girls And Demonstrating That Success Is Within Reach

Who To Reach Out To



Veronica Thamaini
Senior Program Officer at Wikipedia
Foundation and Trainer at AkiraChix



Eve Kilel
Cyber Security Engineer at Safaricom PLC
and Co-Founder of SheHacks Kenya

“

Your solution aligns strongly with the mission of SheHacks Kenya. We have a network of women mentors and would be happy to support these girls from boarding schools. I personally believe this initiative can inspire many young women [...] we would be proud to contribute to your cause.

”

-Eve Kilel

We have reached out to Veronica and Eve who have networks of mentors able to teach the girls weekly. They have agreed to do this free of charge and are waiting to be contacted. At least one mentor will be assigned to each school for regular coaching and advice, and the mentors will set up messaging platforms with the girls so that they can stay in contact with each other.

In studies measuring the impact of female role models for girls pursuing careers in STEM, it was established that role models significantly increased enjoyment and importance in which girls viewed STEM, and preference for a STEM based career. Women exposed to mentors during the study report feeling more ambitious to aim at higher goals.

Providing Girls The Option To Maximize Their Technical & Practical Skills

OBJECTIVES & REQUIREMENTS

HIGHER COMPLETION RATE OF THE CURRICULUM

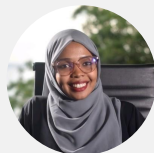
Where the foundational program has the objective of exposing girls to technology & business and get them excited about the fields, these opportunities will incentivise the girls, offering further development in their skills. It will require more commitment for those looking to get exclusive opportunities.

EXTRA OPPORTUNITIES

We have reached out to **Pwani Teknowgalz**, which offers workshops in business and technology directed towards girls in developing countries. We have already talked to Latifa, the director of communications, who you can contact [here](#)^[1].

REQUIREMENTS FOR THE PARTICIPANTS

Stay on pace with the curriculum given by the technical mentors every week. The curriculum can be found [here](#)^[2].

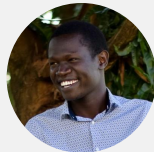


“

Any workshops these girls need, we can do them, from training in coding to cybersecurity. I am excited about this!

”

-Latifa Noor, Director of Communications at Pwani Teknowgalz



“

Kenya is an emerging market. There is demand for a software developer in Kenya in big companies such as Google, Microsoft and Intercom. Tech talent is a huge opportunity!

”

-Chris Otta, Lead Learning Facilitator at LakeHub Academy

Ensuring The Success Of The Solution Through Role Models & Digital Access



Role Models in Tech

When women have access to female role models, **87%** report feeling more empowered and develop a greater degree of confidence. Out of **all** the girls in Kenya we've spoken to, all have said that being able to work with a female mentor would **greatly increase their confidence.**

Our solution will place at least **one technical mentor** at each boarding school. Our mentorship program relies on volunteers from trainers at SheHacks Kenya and AkiraChix, who have agreed to connect us with **mentors and workshop hosts.**

Girls at boarding schools can work with these mentors to learn digital skills and seek guidance and reassurance throughout their journey in tech.



Digital Access

For girls to develop digital skills, there must be at least **one device** for **every 4 girls in the program.** The program will initially introduce basic skills such as understanding how to use a computer and how to use tools such as email and Google Drive.

To ensure digital access, schools will need an **Internet speed of 5 mbps**, which will allow for browsing the internet, using social media and messaging applications, and making one-on-one video calls.

We will also provide **enough devices** to the schools to ensure every girl in the program is developing digital skills efficiently.

Feasibility of Tech Mentorship Programs & Curriculum

“

This would be incredible! Speaking from experience, these kinds of initiatives can go well beyond just the girls and inspire their families and communities too. Our team looked at your curriculum, it's very well-designed. Having launched similar initiatives in the past, we're amazed by the depth of research and content you've prepared, and we're confident this can change lives.

”



Ine Aken

Executive Director of One Girl Can

“

We are deeply hopeful about how this can enrich our girls' education and teach valuable skills they may not find elsewhere. The curriculum is well thought-out. The girls would love an after-school program like this that challenges them to learn more and explore on their own. We'd love to pilot this program at Riara.

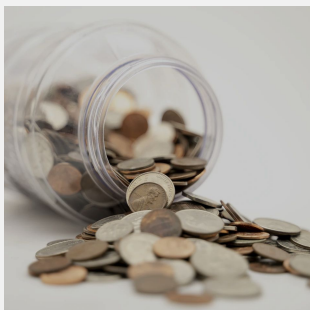
”



Mrs. Jane Mulinge

Principal of Riara Girls High School

What We Need From the UN: Cost & Who Is Involved



FINANCE: 4M DOLLARS

The UN will need to [purchase](#)^[1] 10,000 Netbooks and 124 projectors for the schools. These numbers may change slightly based on the results from this [survey](#)^[2].

COMMUNICATION: CONTACTING MENTORS AND SCHOOLS

Twenty UN staff will need to finalize details for the implementation of this plan with schools and the [mentors](#)^[4] that have agreed to help in accordance with this [document](#)^[5].

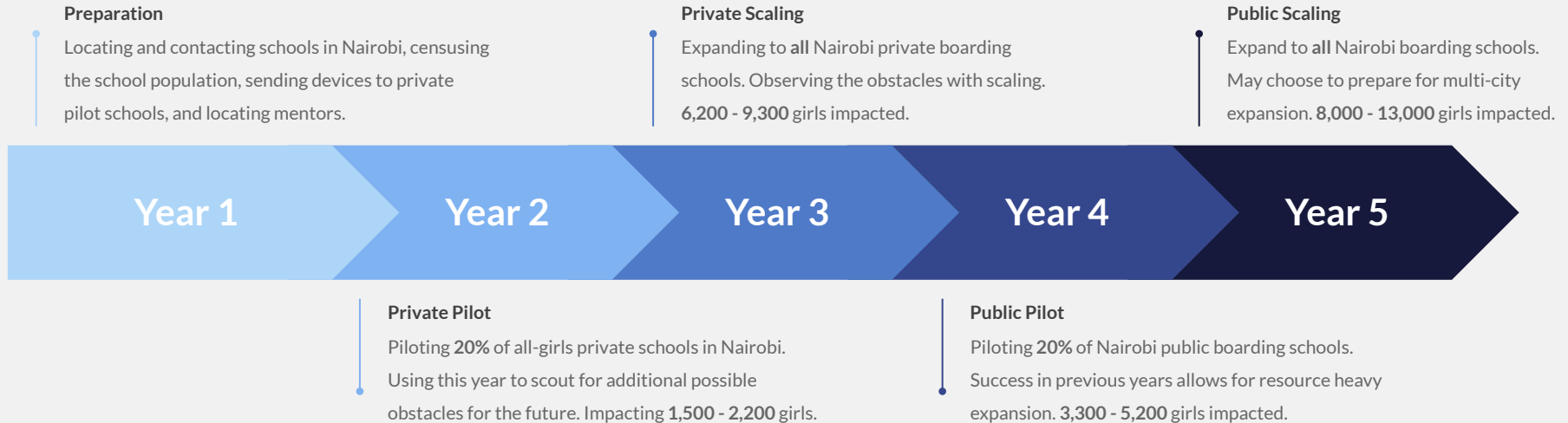
LOGISTICS: DELIVERING TECHNICAL RESOURCES

We will need the United Nations Department of Operational Support (DOS) Supply Chain Management (SCM)^[3] to transport the electronics to Nairobi schools.

KPI CHECK-INS: MEASURING PROGRAM EFFECTIVENESS

Five UN staff will need to send out [bi-monthly surveys](#)^[6] to schools to measure the effectivity of the program. Monthly check-ins will need to be conducted with mentors to track students' progress.

5 Year Plan To Scale & Impact More Girls



Using KPIs to Evaluate Progress



Bi-Monthly Surveys

Bi-monthly surveys^[1] will be sent to students to measure markers like: projects built, skills learned, satisfaction, and feedback.



Monthly Check-Ins With Mentors

Monthly check-ins will be conducted with each mentor through Zoom to see how the students are progressing.



25% Participation in Remote Tech Conferences

A 25% participation in remote tech conferences ensures that girls are continuously being exposed to new people and ideas.



75% Coded Projects During WebDev Sections

During coding sections of the curriculum, girls should be applying what they learn into projects to further develop and improve.



80% Student Retention Rate During Each Section

To make sure that the curriculum is engaging and teaching girls the necessary skills we will make sure there is at least an 80% student retention rate during sections of the curriculum.



75% Retention Rate Between Each Section

A minimum of a 75% student retention rate between sections of the curriculum tells us how interested girls are in the more advanced stages of the curriculum and learning additional skills.

Indicators That The Solution Can Scale In Kenya, Nigeria, and South Africa

Kenya

Nairobi has 124 private and public all girl secondary boarding schools

85.2% internet penetration rate



Nigeria

Abuja has 35+ private and public all girl secondary boarding schools

50.0% internet penetration rate



South Africa

Cape Town has 90+ private and public all girl secondary boarding schools

56.1% internet penetration rate



Additional Research & Playbooks

Technology Curriculum + Business Curriculum

Technology

Business

Reaching Out To Schools + How They'll Get Devices

Reaching Out

Getting Devices

Mentor Guide + Sub-Programs

Mentor Guide

Additional Opportunities

Implementation Strategy + 5 Year Plan

Implementation

5 Year Plan

Girls' Journey + Incentivizing The Teachers

Girls' Journey

Teacher Incentivization

Program Day-to-Day + Remote Conferences

Program Day-to-Day

Remote Conferences

Central Challenge Hub + References

Challenge Hub

References

Dickson Wu



Eason Wu



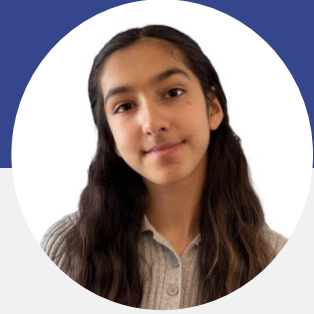
Jessica Song



Kristina Arezina



Naila Moloo



Thank You United Nations!

The United Nations' work is incredibly empowering for young innovators like ourselves. This challenge is more than we could've ever wished for and we wanted to thank you for giving us this real-world learning experience. This opportunity to help girls has been amazing and has enabled us all grow so much in the process! If you have any questions, feel free to reach out to any of us and we'd love to answer them!