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Increasing SheCanCODE Rwanda Graduates' Employability

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SheCan**CODE**

Increasing SheCanCODE Rwanda Graduates' Employability

Done by Jean Jacques Iradukunda

Contents

I. Personal Statement	3
II. Executive Summary.....	4
i. Abstract.....	4
III. Literature Review	6
A. TECHNOLOGY ADAPTABILITY	6
B. BEST PRACTICES FOR ACCELERATED TECHNOLOGY FOR INDIVIDUALS WITH NO PREVIOUS EXPOSURE.....	8
C. SUCCESSFUL STRATEGIES – SUPPORTING WOMEN IN TECHNOLOGY.....	21
D. How have other institutions or organizations effectively immersed new technology users in technology-dominated environments?	22
D. SUCCESSFUL TECHNOLOGY INTRODUCTION TO STUDENTS WITH NO PRIOR KNOWLEDGE	24
E. Challenges of Using Technology.....	26
F. Learnings	34
IV. Introduction to Community and Context.....	35
V. Needs Assessment.....	40
A. Stakeholders Analysis	41
B. SWOT Analysis	45
VI. Theory of Change	47
VII. Program Description	49
i. 2 Weeks Preparatory Bootcamp.....	53
ii. Typing Sessions & Weekly Tests	54
iii. Professional Development Courses.....	54

iv.	Coding Classes	55
v.	Career Guidance.....	55
VIII.	Implementation	58
a.	Timeline.....	58
C.	Weekly Schedule	59
IX.	Reference List	64

I. Personal Statement

My names are Jean Jacques Iradukunda, a young Rwandan born and raised in Rwanda. I am passionate about community development, youth entrepreneurship and youth employability. I was born and raised in Rusizi, a rural community in the South West of Rwanda where having gone to school almost does not make sense anymore. Most of graduates (High School or University) are not employable and / or unable to start their own businesses. I was lucky to attend Kepler University, which equipped me with the skills and competencies I needed not only to be employable but also to start Igire Rwanda, which runs SheCanCODE and the Academy for Women Entrepreneurs programs in Rwanda. It feels sad when I meet my primary school classmates, who were not able to further their studies, living like any other uneducated community members. Looking at the situation, I decided to Co-Found Igire Rwanda Organization with an intention to equip young Rwandans with the skills and competencies they need to become self-reliant. We have been working with the US Embassy in Kigali to implement the Academy for Women Entrepreneurs, to equip women with the skills and competencies they need to become successful entrepreneurs. We also implement **SheCanCODE**, which will be the focus of this project for this paper, to equip girls and women with the competencies they need to have access to increasing opportunities in the technology industry.



The main purpose of this program is to give our hand in reducing the unemployment rate by providing graduates with skills and competencies they need to become more employable. I believe in self-confidence and mastery of what one does, which would in

the end lead to employability. I also believe that we can increase young people's employability by considering employers recommendations in terms of skillsets recommended. This capstone intends to improve the **SheCanCODE** program in order to produce more competent and quality female software developers in Rwanda. I am certain that through this project, **SheCanCODE** graduates will be able to secure internship and job opportunities in different technology companies, both in and out of Rwanda.

II. Executive Summary

There has been a gender gap in different fields, including the technology industry. The government of Rwanda, the African Development Bank and other international organizations demonstrated a need to reduce the gap in the sector. Ipire Rwanda has been working to reduce the gap through the **SheCanCODE** Program. Through the feedback received from Ipire Rwanda's **SheCanCODE** employment partners, the organization is proposing improvements for the program to turn graduates into more employable personnel in Rwanda. IRO will continue to offer computer programming courses and will partner with other institutions to deliver other important skills to produce quality computer programmers, as recommended by employment partners. A preparatory bootcamp will ensure that every participant has the basic knowledge required to start coding classes. IRO will use learner centered teaching methodologies and avail learning resources to allow participants to practice whenever they want, in order to make the learning self-paced, contextualized and provide individualized support.

i. Abstract

SheCanCODE is a coding bootcamp for girls and women in Rwanda, to acquire the required competencies and skills to access employment and business opportunities in the technology industry. The program was initiated in 2018 with the vision to reduce the

gender gap in the technology industry by producing quality female programmers. Igire Rwanda Organization does not only train programmers but also offers employment support to the SheCanCODE graduates. However, the employment status of the SheCanCODE graduates has not been meeting Igire Rwanda's goals and objectives. After hearing from SheCanCODE employment partners, Igire Rwanda Team, running the SheCanCODE, decided to conduct research to understand the reasons behind unemployability, based on employers' feedback, and take the necessary actions. The research questions were the following:

1. What strategies do successful colleges in Rwanda (Kepler, Davis College, and African Leadership University) use to help students quickly adapt to technology-dominated environments?
2. What are the best practices for accelerated technology classes for a student audience without previous tech knowledge/exposure?
3. What strategies have been statistically successful in supporting new technology users in adapting to and learning new technology skills?
4. How have other institutions or organizations effectively immersed new technology users in technology-dominated environments?
5. How were students with no prior technology user experience, but who demonstrated quick adaption and user capabilities, first introduced to technology?

Based on employers' feedback and Igire Rwanda's employment data, this research was conducted with an intent to learn from successful educational institutions in Rwanda through literature review, interviews with program participants and focus groups with employment partners as well as SheCanCODE Facilitation (teaching) team. The research found a need for the following:

- Preparatory programs
- Availing learning resources for practice
- Using learner centered teaching methods

- Self-paced learning
- Contextualized learning
- Individualized support

III. Literature Review

A. TECHNOLOGY ADAPTABILITY

The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.’ – Alvin Toffler. Due to technology, hundreds of people did lose jobs in different parts of the world “alarmist views on technology-induced job losses have been revised to a more optimistic outlook predicting a net increase in jobs”. On the other side, the emerging jobs require employees’ ability to learn, unlearn and relearn. (Sungsup Ra et al, 2019). Through the use of technology, there is not only going to be the rise in automation but also a super increase in new job opportunities. (Sungsup Ra et al, 2019).

The use of technology has made almost everything easier and faster. When it comes to education, technology plays a huge role in content delivery and mastery. However, it may sometimes be difficult for new students to adapt to the new technologies. To help new students adapt to technology-dominated environments, some strategies have to be put in place. According to the resilient educator, a virtual space that understands the needs of teachers and the importance of *resilient educators* (2018), one of the strategies that have to be used to help students adapt to technology is making digital citizenship a priority. This is how students are supported and always encouraged to use technology in all means of communication. It is also something that helps students to understand digital literacy. In this process, students are provided with lessons and materials that give them basic skills in technology usage. The curriculum is

designed in a way that materials, tutorials are in line with the basic skills that students should get about technology. Another thing is that students have to be taught mini-lessons before they can start using devices like computers and tablets. Once students have already received Mini-lessons, it becomes very easy to understand the directions and expectations concerning the use of technology in class ("8 strategies for using technology in the 21st-century classroom | Resilient educator," 2018).

Educational institutions like Davis college incorporate basic ICT skills for the new students to adapt quickly to the use of technology in class. For instance, students are equipped with IT essential skills like introducing them to PC hardware, fundamentals of personal computer technology, and cybersecurity. They are later on introduced to advanced PC and technology concepts. Students at Akilah Institute Rwanda / Davis College are also equipped with CISCO IT essentials like components of the personal computer, performing a step-by-step assembly of a desktop computer, navigating and installing an operating system. All these are the basic IT skills that students are equipped with to make sure that they adapt to technology-dominated environments (Daviscollege, n.d).

Kepler University Program has been among the successful colleges in Rwanda, using technology. Kepler introduces new students to new technologies that allow them to be successful in the program. Kepler, a university program in Kigali that collaborates with southern New Hampshire University has also been successful in adapting new students to technology-dominated environments. Students at Kepler undergo a six months foundational program that consists of four courses including technology. Firstly, students are given laptops and are taught the basic features of the PC. Making sure that students have access to devices that will help them in their learning journey helps them improve their skills and adapt quickly. Basic MS word, power points excel, google tools, and cybersecurity essentials. Students attend in-person classes to learn technology skills and those who are struggling receive extra

support in-office hours to have a deep understanding of what was taught in class. Classes are equipped with projectors that are used to show the learning materials and make classes are visual, leaving no one behind. A Reliable internet connection is also important to facilitate the learning process. Having access to adequate equipment, devices, and support services helps new students adapt quickly to technology-dominated environments (Kepler, n.d).

African Leadership University has been doing well in introducing new students to technology in different ways. ALU prioritizes the development of 21st century skills including self-leading and leading others, entrepreneurial thinking, quantitative reasoning, critical thinking and many other important skills. ALU also provides coaching and feedback and offers an opportunity for students to practice what they learn on a daily basis (Alueducation, 2021). Students acquire important skills like systems thinking, creativity and innovation, data contextualization, data-based decision making, quantitative problem solving, among others. Martha Chumo, an ALU graduate from Kenya built on skills acquired from ALU and taught herself to code, and she is now teaching children in rural Kenya how to code and break the myth of technology being too difficult for young people to develop skills (Alueducation, 2021). Her story is a great model on how students can apply their learning in their communities.

B. BEST PRACTICES FOR ACCELERATED TECHNOLOGY FOR INDIVIDUALS WITH NO PREVIOUS EXPOSURE

It might sometimes be hard to get familiar with technology skills especially if you haven't had prior knowledge. Fortunately, some practices are being used to support students learn new skills about technology and become familiar with it. According to Educause (2017), one of those best practices that are used to support students without prior technical knowledge is adaptive learning.

Through adaptive learning, a student is given a personalized learning and effective paths to engage them in their learning journey. For instance, students are given a variety of learning experiences, academic support, institutional and educational programs all intended to assess the individual learning needs of the student and support them accordingly. There have to be ways in which struggling students can be reached out to one by one or can even be given further assistance to bridge the gap between the skills that they have and the skills they need to master. Students can also be assigned materials to help them acquire the skills they lack. Individual learning needs also have to be addressed based on everyone's interests, aspirations, and cultural backgrounds. Therefore, adaptive learning is one of the best practices that help students without prior knowledge easily get familiar with technology (Educause, 2017). In addition to this, students are always encouraged to ask questions whenever there is something that is not understandable or that needs clarification. This research has helped us to add new features to our program, as described in the Learnings Section.

The NMC Horizon Report: 2015 Higher Education Edition was produced by the NMC and EDUCAUSE Learning Initiative after conducting deep research in the education sector, emerging technologies, challenges and recommendations. The key challenges, trends and technological developments were described in form of policy, leadership and practices which affect universities and colleges intending to help them further evolution of teaching, learning and creative inquiry (Johnson, L. et al). The group of experts looked at the key trends accelerating technology adoption in higher education and categorized them into three main categories; namely long-term trends, which have been impacting decision making and remaining to be important in more than 5 years to come; mid-term trends, that will likely continue to be a factor in 3 – 5 years as well as short-term trends driving EdTech adoption by the time the report was done and remaining important in a year or two (Johnson, L. et al). The NMC (2020) report mentioned cost and

embryonic state of the learning and computer science underlying the technology. There is a need to redesign courses in a way that is not trivial. Designing incurs costs, instructional designing staff members, content preparations and ensuring an effective assessment to base on for future redesigns (Johnson, L. et al, 2020).

Formal laws, regulations, rules and guidelines governing universities and colleges (POLICIES), the product of experts' visions on the future of learning based on research and deep consideration (LEADERSHIP) and where ideas and new teaching ways take actions in universities and related settings (PRACTICE) as the three meta-di-mensions used to discuss trends as well as challenges (Johnson, L. et al). Policies need to be more supportive to agility. The European Commission agenda sensitizes higher education institutions to enable faculty and students to be more active participants in the global marketplace of research and innovation. They also recommend stimulating a more open research environment, fostering stronger partnerships with businesses and rethinking how qualifications are recognized. There is also a need for visionary leaders to build higher education environments that are equipped to quickly change processes and strategies as starting companies do. Through learning from new businesses models, universities can experience more efficient implementation of new practices and pedagogies. For instance, the University of Florida launched the Innovation Academy where students are mentored in entrepreneurship and creativity and are encouraged to start their own small businesses. Additionally, the Singapore Management University's Institute of Innovation and Entrepreneurship helps students grow their own businesses through competitions and initiatives (Johnson, L. et al). Similar initiatives could help institutions in Rwanda encourage students to apply what they learn not only in technology but also in other subjects they learn. The research recommends Advancing cultures of change and innovation, increasing cross-Institution Collaboration, Growing Focus on Measuring Learning,

Proliferation on Open Educational Resources, Increasing Use of Blended Learning and redesigning Learning Spaces among other recommendations (Johnson, L. et al). The team of researchers also looked at some challenges Impeding the adoption of technology in higher education, categorized under solvable challenges, difficult challenges as well as wicked challenges (Johnson, L. et al). Solvable challenges, those we understand and know how to solve, include blending formal and informal learning and improving digital literacy. Difficult Challenges, those are understandable challenges but whose solutions are elusive include personalizing learning and teaching complex thinking. Wicked Challenges, those that are complex to even define, much less to address, include competing models of education and rewarding teaching. The research offers great recommendations including:

- **Bring Your Own Device (BYOD)** – A strategy where students bring their own devices (laptops, phones / tablets which can be used in the learning environment. This solves an issue of access to devices.
- **Flipped Classroom** – A model of learning where learning is owned by students instead of teachers. Valuable class time is devoted to cognitive and project-based learning where students solve real life challenges in small groups.
- **Makerspaces:** - A Community oriented workshops where technology enthusiasts meet regularly to share and explore electronic hardware, manufacturing tools, and programming techniques and tricks. These bring learners together to share knowledge and apply their learning in their local communities.
- **Wearable Technology:** - Computer based devices that can be worn by users in any form like a jewelry, eyewear or a jacket that are portable, light and easy to be taken to any place. These help people wearing them to be comfortably engage in daily activities such as checking emails, performing Maths and other tasks that would help learners on the go (Johnson, L. et al).

- **Adaptive Learning Technologies** – Software and online platforms that adjust to individual learning needs in the learning process.
- **The Internet of Things** – A network of connected objects that link the physical world with the world of information through the web. For instance, there are speed cameras all over Kigali and other places in Rwanda, which shows how the Internet of Things is applicable in people's daily lives. Rwandan students have been learning how to create robots, and looking at how students can create objects that serve community problems would be a nice thing to look at.

In the process to technology integration in Higher Education institutions in Rwanda, the IT-Institutional Alignment Model (ITIAM) with practices for improving institutional performance was suggested (Byungura et al, 2009). Individual from Stockholm University, Department of Computer and Systems Sciences conducted a study to assess the effectiveness of the model as well as its outcomes. Different higher education institutions in Rwanda invest in the required IT systems and institutional context are aligned to the systems, which ensures institutional performance through the adoption and use of information technologies. Organizations in Rwanda established IT governance practices to facilitate the alignment of IT with institutional activities. To guide the implementation of IT in educational services and processes, different models and frameworks have been proposed. These include an outline of practices that enable the alignment of IT with the university teaching and learning, research, management as well as administration (Byungura et al, 2009). The Association of African Universities recommended the assessment of institutional capacity to use ICT in educational services (AAU, 2000). Through the 2020 vision, the Government of Rwanda emphasized the use of IT integration in

education through initiatives supporting E-learning systems implementation, research support and encourages the management of universities' internal processes through the use of ICT (Byungura et al, 2009). On the other side, there is a need to put in place models and frameworks for aligning IT with higher education services and the assessment of their relevance within institutions in order to ascertain their positive contribution to the institutional performance. Moodle, an online learning management system was used to facilitate teaching and learning while SCiPro IT support system was used for thesis process and research through facilitating communication between supervisors and students, among other technologies (Byungura et al, 2009). The review identified and recommended alignment practices within higher education context in six categories. The categories are communication, structure / governance, competence / value measurement, technology scope, skills as well as partnership ((Byungura et al, 2009). This study participants also made suggestions for ITIAM improvement under clarity, understandability, ease of use, completeness and capability to be implemented (Byungura et al, 2009). It is very important to put practices, for technology adoption, in educational institutions. On the other hand, it is very important to assess the outcomes and be open for improvement to ensure their efficiency.

For the development of skilled human resources in areas of specialization, a significant number of universities and higher educational institutions adopted and implemented technology. The ICT has grown despite the slower progress in the developing world including African Nations. This study was conducted with an intent to understand the challenges that hinder African Universities from becoming efficient and effective in use of ICT as compared to developed nations (Murgor, 2015). There has been a tremendous use of ICT in European universities, which turned into amazing results. For instance, the University Commission in New

Delhi took steps to establish an autonomous institution to undertake comprehensive assessment of various universities in the region and to rank them. They also developed a framework for higher education based on the promotion and sustenance of quality of teaching and learning, research and training programs, among others (Murgor, 2015). Similarly, some African nations have reached the level of having their own home pages, with details on the university's admission, faculties as well as departments. Some others provide information on ICT strategic planning as well as implementation. Uganda, South Africa, Mozambique, Nigeria, Ghana, Kenya and Rwanda are provided as exemplary countries (Murgor, 2015). On the other side, there are challenges of ICT in African Universities that should be discussed and addressed. Some universities are confronted with internal as well as external problems coming from their own structure and culture. These may include ICT policies and plans of a certain country. Bandwidth is also a major challenge given its high cost and unreliability. Political instabilities, lack of willingness to change curricula and pedagogical approaches so as to align with technology, poor infrastructure is among other major challenges (Murgor, 2015). The study recommends adequate funding which would help to improve the infrastructure and other needs requiring financial means. Universities are recommended to organize orientation programs for staff to enhance their literacy level and mandatory computer programs for students to expose them to computer literacy (Murgor, 2015). Finding ways to acquire quality and affordable bandwidth is the last recommendation for universities to overcome the aforementioned challenges (Murgor, 2015). Learning from challenges is an important aspect of moving forward. Universities, Governments, Educators and other stakeholders need to collectively understand the challenges and find relevant solutions.

Adams Becker along with a great team of 78 experts, from NMC, conducted research with an intent to find and understand the 5-year horizon for higher education institutions, trends and technology developments driving educational changes, critical challenges as well as strategic solutions to those challenges. The report provides a reference and technology guide for educators, higher education leaders, administrators, policymakers as well as technologists (Adams, 2017). The report provides the following themes of educational changes that are needed to further benefit from technological learning, as follows:

- Advancing progressive learning approaches requiring cultural transformation
- A need for real world skills to bolster employability and workplace development
- Collaboration as the key to effective solutions
- Allowing access to technology resources given the proliferation of technology and online learning materials
- Need to put assessment processes in place for nuanced skills at a personal level
- Fluency in the digital realm is more than just understanding how to use technology
- Online, mobile, and blended learning are foregone conclusions
- Ensuring agility of learning ecosystems to support practices of the future
- Higher education as an incubator for developing more intuitive computers
- Lifelong is the lifeblood of higher education (Adams, 2017).

The report categorizes the key trends accelerating higher education technology adoption as short-term, mid-term as well as long-term trends. The short-term trends, driving technology adoption in higher education for one or two years included blended

learning designs and collaborative learning. Mid-term trends, driving technology adoption in Higher Education for 3 – 5 years including growing focus on measuring learning and redesigning learning spaces. The long-term trends, driving technology adoption in higher education for 5 or more years include advancing cultures of innovation and deep learning approaches (Adams, 2017). This makes it clear that higher education institutions should have a long-term plan to ensure a great design and implementation of blended learning designs as well as collaborative learning. Bringing up new designs of learning spaces and tracking the learning are helpful as well. Over time, there is a need to advance cultures of innovation and deep learning approaches in order to have technology in the cells of learning (Adams, 2017). The report also looked at important developments in technology for higher education in a one year or less, two to three years and four to five years. Adaptive learning technologies and mobile learning would facilitate the adoption of technology in a year or less. The Internet of things and next generation of LMS (Learning Management Systems) would help in adopting technology in a 2 – 3 years frame. Lastly, artificial intelligence and natural user interface would facilitate the adoption of technology in a 4 – 5 years frame (Adams, 2017). *“This change was grounded in the reality that technology alone cannot cultivate education transformation; better pedagogies and more inclusive educational models are vital solutions, while digital tools and platforms are enablers and accelerators* (Adams, 2017).” The report offers six meta-categories that reflect movements in higher education, namely; expanding access and convenience, spurring innovation, fostering authentic learning, tracking and evaluating evidence, improving the teaching profession and spreading digital fluency (Adams, 2017). With other important inputs, these categories would make the adoption of technology more feasible. It is very important that higher learning institutions and technology

programs in Rwanda learn from what this report recommends to improve their success, help students master technology and become more employable.

Sara Hennessy and her team (2010) developed a literature review on developing the use of information and communication technology to enhance teaching and learning in East African Schools. Their work focuses on different elements of ICT Integration including policies for using ICT to support teaching and learning in primary and secondary schools in East Africa, Government investments in ICT initiatives in primary and secondary schools in East Africa. They also looked at the past and current initiative supporting the use of ICT in schools in African Common Wealth Countries, Physical and other related external factors affecting the use of ICT in primary and secondary schools in sub-Saharan Africa, Curriculum and school-related factors influencing integration of ICT in primary and secondary classrooms (Uganda, Kenya and Tanzania), teachers factors influencing classroom ICT as well as implications for developing educational uses of ICT in East Africa (Hennessy et al, 2010). ICT policies provide a rationale, a set of goals, and a vision of how education systems work as ICT gets introduced to teaching and learning. These can be helpful to students, teachers, parents and the community at large. ICT policies provide a guidance to ensuring a sustainable use of technology in Education (Hennessy et al, 2010). Intending to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services, Kenya put up the National ICT Policy in 2006. Educational institutions were expected to improve the quality of teaching and learning. Kenya wanted to promote and develop specific e-learning resources that would address the educational needs at all levels of education. The National Information & Communications Technology Strategy for Education and Training include promoting the development of e-learning resources, facilitation of public-private partnerships to

mobilize resources in order to support e-learning initiatives, promoting the development of integrated e-learning curriculum to support ICT in education among others. Tanzania intended to enhance national economic growth and social progress through ICT in all sectors, reflected in the National ICT Policy (Hennessy et al, 2010). The Tanzanian Ministry of Education created more specific policy to guide the integration of ICT in basic Education. The policy intended to achieving the aims of Tanzania's education policies and educational development programs emphasizing the acquisition and appropriate use of literary, social, scientific, vocational, technological, professional and other forms of knowledge, skills and understanding of development and improvement of the society (Hennessy et al, 2010). The vision of the policy was to have "a well-educated and learning knowledge society" which has to be achieved by integration of ICT to enhance access, equity, quality as well as relevance of basic education, while stimulating and improving teaching and lifelong learning. Uganda developed an ICT Policy to encourage the use of technology to support teaching and learning. The policy seeks secondary schools to focus on provision of computer application skills at an ordinary level through Computer studies (course) taught and assessed at O' level. The policy also calls teacher training colleges to raise computer awareness, basic skills and experience to make use of ICT in lesson planning. Rwanda released the first National Information and Communication Infrastructure plan which aimed at developing ICT education as one of its pillars among other sub-pillars (Government of Rwanda, 2005). The strategy states training of teachers on ICT in education, training of criteria of computer literate teachers to oversee the implementation of ICT. The policy suggested the establishment of a national library network and a computer curriculum for primary and secondary schools and coordination of its implementation. Electricity and roads have been a major threat to growth of ICT in Burundi, despite bilateral and multilateral rehabilitation of the country's infrastructure underway. It is also

important to note that there was no specific policy for ICT use within education even though ICT was recognized as an enabler in increasing access and quality of education (Hennessy et al, 2010). There is a need to construct the infrastructure, train teachers, avail technology resources in order to adopt the use of technology in Burundi (Hennessy et al, 2010). The review also looked at national investments in ICT initiatives to support teaching and learning in primary and secondary schools in the five East African countries. All in all, a need to put computer curriculum in place, construction of infrastructure as well as capacity building is very important so as to build resilient technology-based education systems.

Different countries have been doing a lot to promote the use of technology, which is an interesting step towards the promotion of its use. SheCanCODE has been operating in Rwanda, and we will have a specific look at the Rwandan situation. Rwanda adopted a national ICT policy in 2000 implemented in planned phases including National Information and Communications Infrastructure (NICI). The policy intends to transform Rwanda into an ICT literate nation, transform the educational system using ICT with the aim of improving accessibility, quality and relevance to the development needs of Rwanda and improve the human resource development capacity of Rwanda to meet the changing demands of the economy (Hennessy et al, 2010). This is implemented through different activities like training of primary and secondary school teachers on teaching with or use of ICT, scholarship management program, Rwanda national library network, development of new e-learning content, implementation of the Education Management Information System (EMIS), carrying out a survey of educational software for potential use in formal and informal ICT training programs as well as conversion of existing computer-based training and e-learning content to Kinyarwanda (Hennessy et al, 2010). Rwanda also put in place initiatives supporting the adoption of technology in schools including ICT training in basic skills for 3,000 secondary school

teachers, in-depth ICT training for 1,000 secondary school teachers whose objective was to train two teachers per school with higher level skills such as troubleshooting and fault finding, with an expectation to train their colleagues (Hennessy et al, 2010). The review also looked at physical and other external factors affecting the use of ICT in primary and secondary schools in Sub-Saharan Africa. These include infrastructure, affordability of technology, community facilities, school policy on ICT use, sociocultural and linguistic factors and economic and political factors (Hennessy et al, 2010). There should be a close look at each of the factors to ensure their facilitation of a smooth adoption of technology in teaching and learning processes. Hence, Rwanda does not only need to have infrastructure in place but also a clear system to train teachers (all over the country) and ensure the equitable access to technology knowledge and information.

The first item of the An Integrated ICT-led Socio-Economic Development Policy and Plan for Rwanda 2001 – 2005 states that the government of Rwanda states: “The Government of Rwanda (GOR) recognized the role that information and communication technologies (ICTs) can play in accelerating the socio-economic development of Rwanda towards an information and knowledge economy. The GOR believes that Rwanda is equally placed to take advantage of these technologies to facilitate her socio-economic development process.” (Government of Rwanda, 2005). Through SheCanCODE program, Ipire Rwanda promotes the use of technology, by girls and women, and ensures their employability. This is great evidence that the program supports the national policy and vice versa. Working in Rwanda, the SheCanCODE program intends to create solutions that help in the acceleration of the socio-economic impact. These include projects that help farmers access information on best farming practices as well as information on access to markets.

C. SUCCESSFUL STRATEGIES – SUPPORTING WOMEN IN TECHNOLOGY

Technology plays a very important role in shaping the level of children's education. While introducing new technologies to the new users, there are lots of challenges that are faced. To make sure that the new users adapt to the new technology system, those challenges have to be addressed. Some of them include access constraints which is the lack of adequate equipment to run technological devices. For instance, a lack of computers, tablets, and an active internet can also be a barrier. A successful college like Kepler was able to combat this constraint by making sure that every new student has access to his or her own laptop with active internet. There are also projectors in each class to facilitate learning. There are also Tablets that are available to lend to students who need them (Kepler, n.d). Ensuring access to devices as well as resources, training on how resources are used and providing support, when necessary, has proven to be an amazing strategy to help new technology users adapt. Lack of training for the teachers can also be a great barrier for the new students to immerse in technology. Statistics show that Another barrier that may hinder the implementation of a technology learning system is lack of support or what is specifically called" support constraint". A survey from National Center for Education Statistics shows that there was an improvement in internet accessibility where 97% of the teachers had access to a computer compared to 92% of teachers who possessed a computer in 2003. There has to be technical and administrative support to both the teachers and everyone in charge of supporting the students to get the required technological skills. It's very hard that new users of technology can quickly adapt themselves without enough devices or equipment. The teachers or course facilitators have to be trained enough to make sure that they can support new users to adapt to the technology learning environment. Connectivity

is important as well because it allows them to access other different components of digital literacy (Johnson, Jacovina, Russell, & Soto, 2016, p. 7).

Gamified learning, digital field trips, integration of social media, gathering students' feedback and creating students' feedback (among others) are important strategies to facilitate the use of technology in classroom (goguardian.com, 2019). Students best learn when the learning is enjoyable, through games. For instance, there are typing games which allow students to learn how to type through fun typing activities. Students spend time on social media and using Facebook, Twitter and other platforms would be an interesting way to facilitate students' learning in a way they enjoy. Conducting discussions through Facebook and other social media platforms would be an interesting way to help students share ideas as if they are spending their time on social media (Nina, 2019). The creation of digital content, based on students' personal strengths and learning / communication styles. This can be done through creating blogs, videos, podcasts, eBooks, flyers and other digital arts and other resources that students may feel comfortable with. This has to be done considering each individual needs for creative expression to help them grow as learners (Nina, 2019).

D. How have other institutions or organizations effectively immersed new technology users in technology-dominated environments?

Students' ability to apply their learning in their daily lives, at school and at work is an important aspect of learning. SheCanCODE ensures students' ability to master what their learning and be able to apply them at work. Computer technology has been experiencing a rapid development which caused a change in human life style (Martono, K. T., & Nurhayati, O. D. (2014). It is interesting that in research conducted, 95% of university students enjoy using mobile applications for learning while 5% do not, which can lead to a

conclusion that: the use of mobile learning applications can make the learning process more flexible (Martono, K. T., & Nurhayati, O. D. (2014). As institutions seek to improve the quality of education in different ways, this research found out that the implementation of ICT in education is an important item in improving the quality of education itself (Martono, K. T., & Nurhayati, O. D. (2014). Institutions seeking to use technology in their daily teaching and learning activities should understand the required Computer Based training (CBT, Learning Management Systems (LMS) or Application or Web-based Learning as important tools to make the implementation possible. E-learning, one of the means of applying technology in education, is a new way in the teaching and learning process where internet serves as a means of learning using computers or other devices, in one's place rather than attending classes physically. It is also important to consider the mobility of learning, inter place or environment using portable technology regardless of space and time, which would enhance efficiency and effectiveness of learning processes for humans (Martono, K. T., & Nurhayati, O. D. (2014).

Technology has become an important tool in our daily lives and we should all ensure to stay updated. New technological changes affect employees who may not be willing to welcome the changes. Implementing technology trainings and explaining its use are among the key aspects of facilitating the changes. Organizations should develop long term technology strategies which guide employees on software they should have on their computers and the timeline for the installation of other technologies necessary for the purpose of the work. It is also recommended to share design languages and shortcut keys in order to shorten the numbers of steps required to in the learning processes. There should also be a clear way of communicating the technological needs for employees to ask questions or give their comments accordingly. An important strategy, making employees new technology experts, helps them to

own its use and motivates them to find answers for their colleagues' questions. It is also important to promote two-way communication and encouraging questions in order to build trust and reduce resistance since everyone is part of the process. It also allows users to design procedures and best practices which will help them learn the technology better for themselves (Jones, 2021). Explaining the benefits of the technology as well as training and learning are other important considerations for effective adaptation (Jones, 2021).

D. SUCCESSFUL TECHNOLOGY INTRODUCTION TO STUDENTS WITH NO PRIOR KNOWLEDGE

In an experiment conducted, students with no prior technology user experience demonstrated quick adaption and user capabilities because they were provided with adequate equipment like a computer, tablet, or any other electronic equipment that could be needed in their learning journey. Another thing is that they had to make sure that those devices were connected to the internet to enable them access to other digital applications which require an active internet to act properly. The students who demonstrated quick adaptation to new technology were also given assignments and projects that enabled them to learn through experience. While integrating technology for new users, the use of digital platforms also plays a very crucial role. These platforms like Canvas help to organize class materials where students can easily access and navigate. This improved collaboration between the teacher and students (EdTech, 2020).

Technology materials or lesson plans also included engagement activities to stimulate their attention and focus and therefore promoting meaningful learning experiences. Therefore, increasing student engagement activities is one of the things that helped them

to adapt quickly to technology-dominated environments. Teaching students 21st-century skills also proved to be of paramount importance in helping new students adapt to technology-dominated environments. These skills include navigating the web, composing an email, collaborating on google documents, or even creating PowerPoint presentations. Skills like curiosity, critical thinking, adaptability, and research were also useful. These are the basic skills that helped them adapt quickly and move to more advanced skills (EdTech, 2020).

There are also office hours that allow students to ask further questions that weren't answered in class. Office hours' time also helped those to quickly adapt to technology-dominated environments. Students with little or knowledge about technology are assigned peers who are advanced in technology to support them. This allows them to learn a lot from their peers this also known as collaborative learning helps students without prior knowledge of technology easily adapt to technology-dominated environments (Maadawi, 2019).

Jean Claude Byungura with his team conducted a study to understand the: Familiarity with Technology among First-Year Students in Rwandan Tertiary Education. The more students get experienced with technologies, the more they need to use it for their tertiary education. The conceptual framework of this study used accessibility, ownership, usage and previous computer-based training as factors determining the degree of familiarity with technology (Byangura et al, 2018). The majority of participants did not demonstrate familiarity with technology and never had any previous exposure on eLearning systems. The lack of familiarity was also due to lack of exposure to computers and other devices, types of schools frequented before admission, students' attitudes towards computers, students' degrees of computer anxiety and the levels of teachers' ICT competencies in previous schools (Byangura et al,

2018). It was realized that participants do not have enough confidence to interact with web-based research tools (64.2%) and eLearning systems (53.3%), while only 26.1% are confident with eLearning systems and 19.8% are confident with web-based research tools (Byangura et al, 2018). It is also concerning that 57.6% of the first-year students never got any training on computer applications and that there is a lack of exposure to eLearning systems for educational purposes. The study recommends teachers and educational planners in Rwandan tertiary education to revisit the curriculum in order to accommodate students' needs for a better digital learning. Course designs should consider students' lack of familiarity with technology in order to accommodate their differences. Curriculum reforms need to change in order to consider the diversities of the Net Generation students at the university of Rwanda and similar contexts in the region. For coping within the University of Rwanda's digital learning environment, there is a need to increase access to computer labs and internet. There is a need to introduce new university students to technologies through computer supported collaborated learning activities at the early stages. This may be done by introducing them to a range of available educational technologies such as forums, blogs, e-libraries and other online learning management systems (Byangura et al, 2018).

E. Challenges of Using Technology

Technology has proven to be a strong factor shaping educational landscape today. Teachers generally appreciate the benefits of educational technologies but find integration of new technologies challenging. Another challenge is associated with acquisition of new technology, adapting to curriculum and teaching techniques as well as incorporating new technology tools among other challenges (Johnson, A.M et al, 2016). The Arizona State University conducted research to present common challenges faced by

educators when trying to integrate technology in the classroom and potential answers to them. Access, training and support are said to be the key external challenges to classroom technology (Johnson, A.M et al, 2016).

Access focuses on increasing the availability of computers in schools for both teachers and students. Inconsistent computer access makes it extremely difficult for instructors to integrate technology into existing lesson plans (Johnson, A.M et al, 2016). Access to hardware devices, software like reading and writing software and internet browsers, and internet connection are a fundamental requirement (Johnson, A.M et al, 2016). To ensure quality delivery, frequent students instructional time on computers and computer access is a desirable pedagogical approach. Schools can find it helpful to fundraise through crowdfunding sites or other means to ensure the availability of sufficient computers. Educators can apply for grants to support technology infrastructure through relevant sites (Edutopia, Fund for Teachers, US Embassy Grants Kigali grants portal for instance). Schools and teachers can create partnerships with businesses and universities that can help. It is interesting how some schools (in Peru) require students to bring their own devices which cuts the cost of devices but requires schools' readiness with a strong internet. (Johnson, A.M et al, 2016). It is certain that Rwandan educational institutions can learn from those in Peru so as to improve access to technology devices in schools.

Technological support is another challenging aspect of technology integration in classroom. With additional technology support, teachers can worry less about technological barriers and instead focus on the teaching processes. If a certain technology is adopted in a school, teachers should be given extended support from trained professionals instead of short meetings before school day begins. With high quality support from both creators and educational technologies and school employees, teachers will have access to the resources they deserve. Knowing that there is technology support available may increase acceptance of classroom technology.

Other than access, training and support as external challenges, there are internal challenges that focus on teacher's nature, personal beliefs and other individual factors affecting their use of technology. Teachers Attitudes and Beliefs are crucial in determining the role and effectiveness of technology in classrooms. Attitudes and beliefs about both educational technology and pedagogy in general will influence how teachers implement technology (Johnson, A.M et al, 2016). Promoting positive attitudes that can optimize the use of technology remain an important factor to look at. Confidence in skills and knowledge was found to be another internal challenge given the availability of educational technology, teachers' comfortability and confidence about their ability to use it. Having grown up without access to technologies like personal devices and internet can intimidate teachers with little or no technological experience. Feeling incompetent in using technology may make teachers feel less in control of the class, use less technology and be unwilling to explore new ways to use technology while designing their classes. By sticking to traditional teaching methods, teachers with less technology fluency maintain a feeling of control in digital environment. Hence, it is very important to build teachers' knowledge to a sufficient level, boosting confidence in the process and providing training and support from administrators (Johnson, A.M et al, 2016).

About technology and learning is another internal challenge to technology integration in classroom. "Teachers were able to enact technology integration practices that closely aligned with their beliefs" (Johnson, A.M et al, 2016), and these beliefs rely on teachers' philosophy on how students learn. Teachers regarding students learning as primarily dependent on explicit teacher teaching, activities will be driven by traditional chalk-and-talk approach. Again, more traditional educational beliefs have been related to less

integration of computer-based technology in classroom. Teachers need to experience a paradigm shift from teacher centered classroom to student centered teaching, which would promote the use of technology with the teacher as a facilitator of learning. With the increasing acceptance of constructivist learning philosophies offers new possibilities to address individual differences of the student emphasizing on modern educational pedagogy (Johnson, A.M et al, 2016). On the other side, new technologies should incorporate student performance visualization tools that permit teachers to easily understand student progress on their educational objectives. Technologies can be great means to improve learning and it is important to highlight the important of the teacher in student success. Teachers should also be informed of students' progress in order to intervene directly when necessary (Johnson, A.M et al, 2016).

Teachers' resistance to technology in the classroom is another internal challenge to technology integration. Teachers have been satisfied with their lesson plans, that do not use technology hence lacking motivation to use it. Again, revising lesson plans take more time, which is another demotivation factor. Fortunately, investing time to revise lessons, including technology, makes it easier in the future, and change in paradigm is very necessary. Teachers are also recommended to learn and master the technologies and use them in classroom before they can be integrated into the classroom objectives and curriculum (Johnson, A.M et al, 2016). Moving forward, it is very important to allow teachers to have a say in what technology they will use in their classroom instructions. Since no technologies can be perfect to teachers, they should be given an opportunity to select technologies they feel most comfortable and free to use, hence retaining their important sense of classroom control. Another solution is a call for better organization of available

technologies. Teachers should have access to rigorously tested technologies within a specific learning domain since it saves valuable time and places less burden on the teacher (Johnson, A.M et al, 2016).

In research conducted by the Malaysian Online Journal of Educational Technology, limited accessibility and network connection, limited technical support, lack of effective training, limited time and lack of teachers' competency were found the key challenges (Ghavifekr, et al). Various research studies indicated several reasons for the lack of access to technology. In Sicilia's study (2005), teachers complained about how difficult it was to always have access to computers. The author gave reasons like "computers had to be booked in advance and the teachers would forget to do so, or they could not book them for several periods in a row when they wanted to work on several projects with the students" (p. 50). In other words, a teacher would have no access to ICT materials because most of these were shared with other teachers. According to Gomes (2005), the inaccessibility of ICT resources is not always merely due to the non-availability of the hardware and software or other ICT materials within the school. It may be the result of one of a number of factors such as poor resource organization, poor quality hardware, inappropriate software, or lack of personal access for teachers (Gomes, 200s). Limited technical support was also found to be another challenge since teachers are not able to overcome the obstacles, preventing them from using ICT (Lewis, 2003). In the study conducted by Sicilia (2005), technical problems were found among main barriers for teachers which including for websites to open, inability to connect to the internet, unresponsive printers, malfunctioning computers, and using old computers. It is important to note that technical barriers impeded the smooth lesson delivery of the classroom activity (Sicila, 2005, p.43). ICT support or maintenance in schools helps teachers to use technology in their teaching work without spending time fixing software or hardware problems. "If there is a lack of technical support

available in a school, then it is likely that technical maintenance respondents to Gomes' survey indicated that technical mistakes can discourage teachers from using ICT in their teaching because of fearing the breakdown of equipment during a lesson (Gomes, 2005). According to Gomes (2005), ICT integration in teaching needs a technician and if one is unavailable the lack of technical support can be an obstacle. Lack of effective training was also found to be a challenge to technology integration in classroom technology. Beggs (2000) found that one of the top three barriers to teachers' use of ICT in teaching was the lack of training. Recent research in Turkey found that the main problem with implementing new ICT in education was the insufficient amount of in-service training for teachers (Özden, 2007), and Toprakci (2006) concluded that limited teacher training in ICT use in Turkish schools is an obstacle. According to Gomes (2005), the issue of training is certainly complex because it is important to consider several components to ensure training effectiveness. These were time for training, pedagogical training, skills training, and an ICT use in initial teacher training. Correspondingly, recent research by Gomes (2005) relating to various subjects concluded that lack of training in digital literacy, lack of pedagogic and didactic training in how to use ICT in the classroom and lack of training concerning technology use in specific subject areas were obstacles to using new technologies in classroom practice. If teachers are to be convinced of the value of using ICT in their teaching, their training should focus on the pedagogical issues (Cox et al, 1999). Teachers who attended professional development trainings in ICT did not know how to use ICT in their classrooms, they knew how to run a computer and set up a printer. Hence, the appropriate teacher training would help teachers learn how to use ICT in preparing lessons and its practice in their pedagogical activities. When there are new tools and approaches to teaching, teachers should be trained so as to integrate the changes into their teachings (Osborne & Hennessy, 2003). On the other side, inadequate trainings lead to teachers' unpreparedness and lack of

confidence in integrating ICT in the classroom. “Teachers do not only need to be computer literate but also to develop skills in integrating computer use into their teaching and learning programs (Newhouse, 2002).

The use of technology in learning has become essential in different universities around the continent. On the other hand, people do not understand the implications and challenges of using technology in learning. Ibtihal Hassan Mussa (2020) wrote an article investigating the adoption of mobile learning, success factors, challenges and limitations of mobile learning as well as features of mobile devices, pedagogical advantage and user’s experience. The article also provides suggestions for academia and practitioners (Mussa, I. H. ,2020). Developed countries have been using technologies in their education as required for the 21st century instructions. There are different stimulations within the rise of mobile learning in the Middle East, which include: buyer request for mobile learning applications, widespread publication of tablets within the instructive segments, endeavors for digitalization at the country level through schools’ education within the local language as well as quick selection of mobile learning within the segments of the higher education (Mussa, I. H. (2020). Given the rising need, there are associated success factors, challenges as well as limitations. Some critical success factors for the improvement of mobile learning programs include perception of traits, distinctive feature and qualifications of the diverse cellular devices and technologies for using mobile learning knowledge of learners’ necessities and needs. Using mobile learning facilitates exams usability, capability, performance, maintainability, reliability and portability. It’s also reliable, easy to use. (Mussa, I. H. (2020)). Challenges include restrictions on cellular devices along with software, hardware and network restrictions. Other challenges include adapting the mastery, educational strategies and content that are not aligned with

learners' characteristics and individual wishes as well as the confined text (Mussa, I. H. (2020). Features of mobile devices include their usability; they are light and versatile and are comfortable. The flexibility makes the way of information adaptable and can be implemented anytime anywhere; and their functionalities allow students to acquire certain data quickly. This makes it easy to get responses to questions like definitions, equations and conditions (Mussa, I. H. (2020). It is also important to note the pedagogical advantages of using mobile learning technology, which include collaborative learning, blended learning, interactive learning, experimental learning as well as problem-based learning (Mussa, I. H. (2020).

As a result of covid-19 pandemic which led to the closure of schools, teachers in Kicukiro and Nyarugenge (Kigali – Rwanda) decided to use WhatsApp as a means of instructions and they found it effective for teaching chemistry and supporting students acquire the learning (Nsabayezu et al, 2020). Teachers created WhatsApp working groups which promotes students' engagement, motivation, engagement and collaboration. In the data collected, 83% of participants agreed that WhatsApp would be considered as a tool facilitating their collaboration. Teachers found it useful to react on students' work through whataspp, students followed instructions and reacted on teachers' tasks timely as well as increased interaction between teachers and students through WhatsApp (Nsabayezu et al, 2020). Despite the utility of WhatsApp, internet connectivity, cost and availability, lack of smartphone and computers for some teachers, students and teachers / guardians limited some students' participation. (Nsabayezu et al, 2020). In addition, limited students' management and distraction in their home settings hindered their participation. Provision of devices (smartphones and computers) as well as strong internet connection was suggested as key solutions. Parents, guardians or elders are also recommended to prevent students from house chores or any other distraction (Nsabayezu et al, 2020).

The adoption of technology, from traditional teaching systems, is a big change that needs a lot of mental, emotional, physical and other kinds of preparations. Fortunately, as seen above, adopting new technologies is something possible and feasible. We have interesting testimonies from successful colleges like Kepler, Akilah and African Leadership University (among other successful colleges). These colleges used different strategies to adopt technology to their teaching practices, and learning from them is something to consider for new tech users. The journey maybe challenging since there are problems with mindsets, infrastructure, access to devices and well as lack of funding, among others. Fortunately, the world is moving towards a technology dominated life where technology takes lead of everything. It is hence recommended to do research, learning and a lot of experiments in the process of moving from traditional teaching to modernly technological ways of teaching.

F. Learnings

- ❖ **Preparatory Program**: Looking at SheCanCODE admitted students' background, a required foundation and putting them at the center, it is very important that we set up a preparatory program to help them acquire skills they need to succeed in the program. We understand that there are gaps and centering on them requires us to structure the learning around their learning needs.
- ❖ **Availing learning resources for practice**: We have been strict on access to our training center, internet as well as other resources. On the other side, students need to interact with different devices, use internet and have fun as they learn. I learned that we should avail internet and space for our students to explore and play with technology, as they learn, master and practice.

- ❖ **Using Learner Centered Methods:** Our curriculum has been designed based on the designer's experience. It is very important that we adapt the curriculum and other learning activities to students' background and learning needs.
- ❖ **Self-paced Learning:** Some SheCanCODE students had struggles because they wanted to move at the same pace. We will be making sure to go step by step on an individual basis. This will help us graduate students who are competent and ready to apply the learning in their daily lives.
- ❖ **Contextualized Learning:** Learning that considers students' environment and daily lives would motivate them to learn. From our previous experience, we have started to use a chatbot and Learning Management System developed by SheCanCODE students. Since computer programming looks at the end results, we communicate that they will create technologies that will be used. It then pushes them to think about technologies they can work on as they learn.
- ❖ **Individualized Support:** We will be providing support to each individual student based on their needs.

IV. Introduction to Community and Context

The Government of Rwanda has made strong political commitment to accelerating the promotion of gender equality, which the country considers as a factor for sustainable development in the lead up to a knowledge-based economy and a middle-income country by 2020. Gender equality has been integrated in all national development frameworks and is now a crosscutting issue in all development sectors including ICT - a central engine for economic transformation, knowledge transfer, and capacity building (Gender Monitoring Office, 2017). The gender Monitoring Office identified 7 key indicators of gender and ICT that provide a perspective on gender gap in the Rwandan technology industry. The first indicator is the ownership of ICT assets and access to

information. This considers access to Radios, computers, DVD Players, Mobile phones as well as TV set. Through the government sensitization, there has been an increase of ICT devices ownership in Rwanda. For instance, 1.5% men owned computers in 2010/2011 which increased to 2.8% in 2013/2014. Similarly, 0.7% women owned computers in 2013/2014 which grew to 2.8% in 2013/2014 (Gender Monitoring Office, 2017). Access to Internet is a second indicator which has proven to increase as the government provided infrastructure and promoted the use of ICT in schools.

The third indicator is the use of E-Learning Systems whose annual growth rate is 26% for men and 37% for women (Gender Monitoring Office, 2017). The fourth indicator is digital literacy which looks at women and men attendance in ICT related courses in Higher Education, which has grown from 62.5% in 2014/2015 to 67.7% for men (2015/2016) while the number of women declined from 37.5% in 2014/2015 to 32.3% in 2015/2016 (Gender Monitoring Office, 2017). The decline in the number of women attending ICT related classes proves that there are more challenges to sort out. The decline is due to different reasons; breastfeeding, pregnant and women having other reasons preventing them from attending. The government is planning to avail e-learning resources so as to accommodate those who cannot attend in person. The indicator also looks at both genders graduating in ICT related courses, teachers trained in ICT as well as computer literacy rate of population Aged 15 years and above. Other indicators include professional and technical staff in telecommunication companies, the use of ICT in financial services as well as access to ATM debit cards. There has been a number of initiatives intending to promote ICT. They include RapidSMS24, Girls in ICT, Ms. Geek Competition, TechKobwa Bootcamp, ICT Awareness campaign and Ni Nyampinga (Gender Monitoring Office, 2017) among other initiatives. The Rwandan Gender Monitoring Office provided the following recommendations:

1. Ensure that the next ICT sector strategy is gender responsive with clear targets and strategic interventions that aim to narrow gender digital divide as enshrined in the HeForShe Rwanda commitments.
2. Institutionalize the collection of sex-disaggregated data and equip public ICT-related institutions with capacities, tools and skills for effective implementation of designed policies and strategies.
3. Support women and girls to access and use services from existing tele centers especially those in rural areas.
4. Increase women's participation in STEM as well as in leadership positions in ICT sector including in tele-communication companies.
5. Enhance digital skills for women and girls through ICT-mentor-ship programs, engineering scholarships for women, and women's associations for girl's education advancements and awareness on the benefits of ICT for both boys and girls.

The tech industry has become one of the largest contributors to GDP and the sector is attracting more investment from foreign countries. However, women were reported to be missing out on the tech boom and those working in technology field claim that the government should do more to help bolster their ranks (Rwirahira, 2018). The gap starts in high school and college where only 34% of women opt to study sciences in university while men are 66%, while 23% of women opt to engineering courses compared to 77% men (Rwirahira, 2018). Women leaving university or training face prejudices and obstacles that their male counterparts never have to face (Rwirahira, 2018). Customers still believe coding is for men and prefer buying men made technology products, which turns technology women down despite their power and the zeal to make amazing technologies (Rwirahira, 2018). Different stakeholders,

Girls in ICT and Smart Africa partnered to fight such a mindset which ends up excluding women technologists on the technology market.

Given the Gender Monitoring Office's identification of ICT gender-gaps, Girls in ICT Rwanda, a group of women professionals and students passionate about STEM decided to inspire more girls to join the technology field. The organization focuses on school outreach sensitizing girls to join ICT as a career in order to increase the percentage of women in STEM field (Girls In ICT, 2018). The organization has a mission to improve the current statistics regarding the numbers of women in the ICT sector as well as to alter the stereotype held by many young girls that ICT is a man's field. The organization runs several initiatives that intend to encourage girls and women to overcome technophobia and use technology in their daily lives. They celebrate the Girls in ICT Day, internationally organized by the International Telecommunication Union. They also organize Miss Geek Competition, designed to inspire female university/TVET students to think critically and design solutions (using technology) to issues faced by Rwandans today (GirlsInICT, 2018). As the intended purpose, Miss Geek Competition has demonstrated that girls and young women can also excel in the technologies and build their confidence in competing in the open market (GirlsInICT, 2018). The organization also runs the Girls in ICT Mentorship Program which provides a space where mentees (in high school, university and newly working young women) can tap into the knowledge, skills and experience Rwanda's women in STEM and acquire these skills to advance pursuit of STEM careers. The organization also runs ICT Awareness campaigns to conduct awareness campaigns throughout the countries mostly in high school.

Rwanda is renowned as a pioneer for gender equality and it was the only country ranked among the 10 World Economic Forum's Global Gender Gap Report, for a higher number of women lawmakers and ministers (AFDB, 2020). The African Development Bank found Rwanda to be a best fit for its Coding for Employment initiative implemented in Nigeria, Kenya, Ivory Coast, Senegal as well as Rwanda. The initiative intends to establish 130 ICT centers for excellence in Africa, training 234,000 youths for their employability and entrepreneurship to create over 9 million jobs (AFDB, 2020). The government of Rwanda has done a lot of work to enable women to pursue careers in technology and STEM courses in general through the establishment of the Carnegie Mellon University – Africa campus funded by the Bank and hosting students from 17 countries pursuing specialized ICT skills at the Africa campus in Kigali. Rwanda also hosts the African Institute of Mathematics (AIMS) and produced many women leaders in the Rwandan and Global ICT sector through the University of Rwanda, College of Science and Technology (AFDB, 2020). The bank supported the Government of Rwanda to establish the Rwanda Coding Academy to keep availing computer programming knowledge and skills to Rwandan community members. It is also important to note that leaders in ICT and innovation are women, a proof that they really can be technologists. They include the minister of ICT and innovation, Irembo Platform CEO and many others who keep proving Rwanda's willingness to empower women entrepreneurs (AFDB, 2020).

Igire Rwanda's SheCanCODE targets young girls (18 – 35 years of age), living in Kigali city and who have passion for technology. Their marital status doesn't matter, as long as they have enough time to attend the program. These are Rwandan women who grew up in Rwandan families that mostly encourage them to spend time working on household chores, which exclude

technology. Some of them are empowered to understand that they can do what boys do, but others still need to have a change of mindset. The program requires the possession of computers, which is a major challenge to the program participants from the economically marginalized families that can't afford computers or those who have weak computers from their colleges. These are mostly graduates, who can attend fulltime, are less economically privileged because they are mostly fresh graduates or unemployed graduates. The program would cost 350,000 Rwf (around \$ 350) and their economic conditions do not allow them to afford the cost. They mostly lack financial means to attend daily (transportation, lunch) and many other needs they have that maybe unmet.

V. Needs Assessment

To understand the needs for the SheCanCODE Program, Igire Rwanda Organization decided to engage its' stakeholders including employment partners, public institutions, staff members as well as graduates. The methodologies used were interviews, focus group and conversations. In an exchange session (focus group) with IRO's employment partners, it was mentioned that some of SheCanCODE graduates are great computer programmers, good news to hear. On the other hand, some of them lack general computer maintenance knowledge, professional competencies (communication, time management, taking initiative for instance) and they have a low working speed. In an interview with the Ministry of Gender and Family Promotion (MIGEPROF), they mentioned that it is an important aspect to construct systems that would solve community problems. SheCanCODE graduates have been working on practical projects (Blogs and Websites), but there is a need to upgrade to solid systems that address community problems as a way to easily communicate the impact of the program and create a need for SheCanCODE graduates in the Rwandan community.

SheCanCODE graduates, through interviews, mentioned that there is a need to not only master coding but also other skills that would help one have a holistic performance at work. The ability to code should be combined with time management, communication, giving and receiving feedback and many other skills that would help one to work well with their colleagues at work. This requires the review of the curriculum and adding additional courses to address the mentioned areas of need.

A. Stakeholders Analysis

Stakeholder	Knowledge about the Issue	Level of Support of issues	Potential Benefits / Risks to stakeholder posed by project	Possible strategies for engaging stakeholder	Additional Stakeholder Identified by this source
Employment Partners (Software Development & Mobile and Web Development)	Expert	Actively Supportive	With the lack of female computer programmers on the market, web development companies are interested in developing female talents. Female programmers haven't been so productive, and employers would be interested in assessing their competencies, if they are empowered by SheCanCODE.	<ul style="list-style-type: none"> • Taking part in educating their human resources • Having access to a pool of competent programmers 	<ul style="list-style-type: none"> • DMM Hehe • 250 Startups • Mbanza Tech
US Embassy Kigali	Expert	Actively Supportive	The US Embassy prioritizes programs supporting women, youth and people with disabilities. The Embassy believes that women can do many things, if they are empowered. SheCanCODE	<ul style="list-style-type: none"> • Success stories in the yearly program impact report • Evaluating the program outcomes 	<ul style="list-style-type: none"> • United States Africa Development Foundation

			has proven their assumption right for the last five years.		
MIGEPROF	Expert	Somewhat Supportive	The ministry of Gender and Family Promotion has a vision to: “Creating a conducive environment for the family stability, gender equality and child protection towards sustainable development.” (MIGEPROF, 2021). Programs like SheCanCODE and others that fight for girls and women inclusion are appreciated and supported by the ministry.	<ul style="list-style-type: none"> • Yearly impact report • Conducting technology awareness campaigns for girls in villages and schools 	<ul style="list-style-type: none"> • National Women Council • Gender Monitoring Office
Andela Rwanda (https://andela.com/for-companies/)	Expert	Actively Supportive	We've been working with Andela on their learning community problem where their aim is to recruit up to 50% of program participants. The SheCanCODE graduates attend Andela's programs and it's been helpful to them. One may wrongly think about Andela as a competitor but they are a great stakeholder. Open for cooperation with other individuals in the sector.	<ul style="list-style-type: none"> • Quarterly meetings • Frequent visits 	<ul style="list-style-type: none"> • Progate Inc

Hview Tech group	Expert	Actively Supportive	Hview Tech Group has been among the leading SheCanCODE graduates' employment partners. Willing to intern more graduates and collaborating with IRO on producing more qualified graduates.	<ul style="list-style-type: none"> • Quarterly Exchange sessions • Attendance of SheCanCODE Graduates • Invitations to talk to current students 	
Parents	Uninformed	Somewhat Supportive	Parents do provide transportation, laptops and other things they need to attend the program. They are the key stakeholders who help us encourage students to attend and do practice while at home. Working with them would help us understand how the program charges could be proposed, from their perspective.	<ul style="list-style-type: none"> • Monthly phone Calls • Parents Engagement Meeting • Attendance of SheCanCODE Graduation Ceremonies 	Other parents

SheCanCODE Graduates	Expert	Actively Supportive	Graduates inspire their colleagues through Wednesday social events. They share their experience in the program and how they transitioned to the workplace environment. They also share any tips to help their colleagues make it in the program and get ready for work.	<ul style="list-style-type: none"> • A Graduates WhatsApp group • Wednesday conversations with current students • Invitation to SheCanCODE Graduations 	Other colleagues interested in the program.
GIZ Rwanda	Expert	Somewhat Supportive	GIZ Rwanda sponsors the WeCODE program, a sister program to SheCanCODE. They have interesting programs intending to promote technology knowledge acquisition. They are a potential partner for the SheCanCODE program.	<ul style="list-style-type: none"> • Invitations to SheCanCODE Classes • Invitation to SheCanCODE Graduation • Attending GIZ seminars 	SheCodes Foundation

B. SWOT Analysis

Strengths Experience in program management Experienced coding facilitators Own training center One Funding Partner	Opportunities Program Brand “SheCanCODE” Great success stories Women Empowerment Policies in Rwanda Need for female computer programmers
Weaknesses Poor marketing strategies Poor partnership creation Weak fundraising strategies Poor operations management	Threats Our target’s low purchasing power Expensive program materials

Looking at the information above, it is clear that the SheCanCODE is very important to Rwandan future leaders who need to be equipped with skills they need to design technology solutions to local problems. As technology is a growing industry, not only in Rwanda but also globally, a need to equip young people with the technology skills they need to access global opportunities remains an important aspect. The organization is equipped with a training center, access to funding and experienced team members, which will definitely make the program a success. SheCanCODE has built a name in Rwanda which is a great opportunity for IRO. The

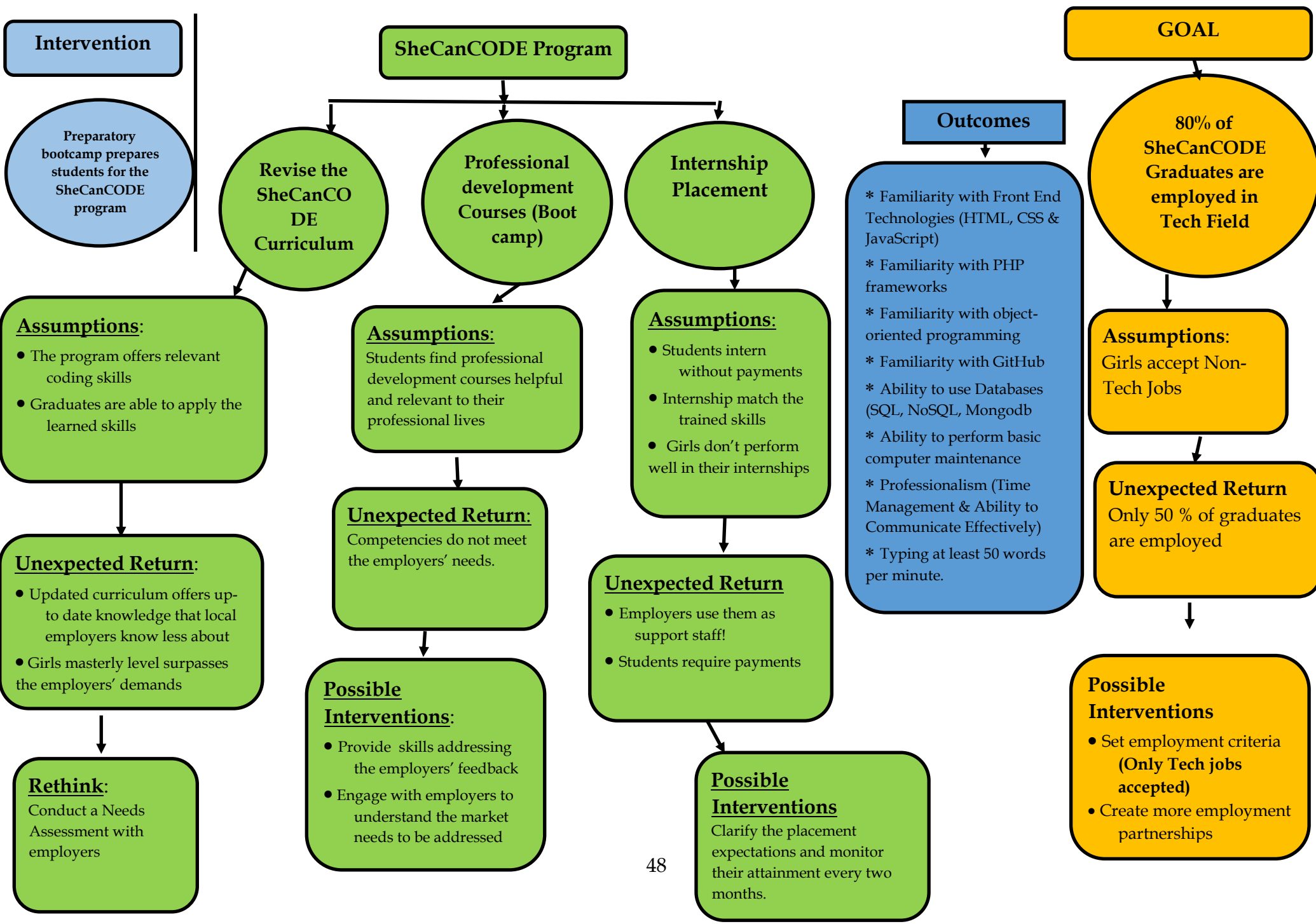
environment, in Rwanda, puts women empowerment at the top, which puts IRO in a good position to make partnerships with public and private institutions. On the other side, IRO should reinvent its marketing strategies in order to get the program know more and more. There is also a big need to create partnerships with both local and international organizations. There is a big need to raise more money or create a sustainable business model that would help the organization to have sustainable finances. There is also a need for effective operations management, and I am sure the organization will continue to address these needs.

VI. Theory of Change

As a way to improve the quality of the SheCanCODE program and the graduates' employability, IRO decided to make changes to way the program happens. There will be a preparatory bootcamp for girls to learn the computer basics and acquire other general skills before starting coding courses. Igire Rwanda Organization has decided to take the following actions as a way to improve the program.

- Revise the SheCanCODE Curriculum: The curriculum will be updated to accommodate the current needs on the technology industry job market. This is to ensure graduates master the competencies they need to be employed as computer programmers.
- Professional development courses – during the preparatory bootcamp: From employers' feedback, graduates were lacking professional competencies; communication, time management, teamwork, giving and receiving feedback, among others. Mastering those skills, along with coding, would make employable SheCanCODE graduates. In the revised program model, these courses will be offered so as to graduate professional female coders.
- Place graduates in internships, 3 months, before they graduate: Having a workplace experience, in a workplace environment is another item in the new SheCanCODE model. This will help students apply the learning, in a workplace environment, and receive feedback on their performance from employers. Performance, professionalism and working speed will be evaluated and ongoing feedback will be provided.

There are assumptions on curriculum revision, professional courses delivery as well as internship placement as IRO works to make changes to the SheCanCODE Program. It is certain that they may occur as assumed or others may come in place. IRO will be looking closely to each of the assumptions to take actions when necessary. If new assumptions come up, IRO will have to take time to analyze and identify the efficient interventions forward. Please check the Theory of Change Diagram below here:



VII. Program Description

SheCanCODE project was launched in 2018 by Igire Rwanda Organization in close partnership with US Embassy-Kigali. SheCanCODE is committed to promoting women's empowerment by providing young women in Rwanda with digital skills and professional skills training. Through experienced facilitators, mentors, blended learning model and market outcome driven curriculum, IRO's mission is to support women and youth with provision of skills and opportunities to lead them to social and economic self-reliance. The IRO has placed approximately 70% of SheCanCODE graduates into leading tech companies in Rwanda, and our goal is to reach 80% of employment placement (in the technology industry); within 6 months of graduation. SheCanCODE was named as first tech Innovative project works for women by DOT Rwanda and Ministry of ICT in Rwanda.

SheCanCODE is a Full stack coding accelerator, a fulltime computer programming bootcamp that helps participants build their technical skills necessary to work in software or web development, which last for a period of 12 weeks. Participants (women) learn mobile and web application development, design thinking, mentorship and be introduced to entrepreneurship and Tech startups. Following, students engage in a 6-week apprenticeship with Actualize and build a portfolio. Again, SheCanCODE graduates will be supported in finding digital job opportunities to avoid any limitations. They are also encouraged to teach other women to use technology, based on their levels, to make technology applicable in everyday lives. For instance, they can teach others how to use their mobile phone to pay the Healthcare Insurance, request a legal document or any other need that require the use of technology. IRO is not only committed to educating women, but ensuring they have pathways to employment after the program.

Since the start of the program, in 2018, Igire Rwanda Organization received more than 1688 applications. With limited funding, IRO is only able to train 30 women per cohort. The Organization is looking at starting an online coding bootcamp as well as continuing in person classes in order to increase the numbers of female programmers, in Rwanda. Despite the efforts IRO has invested in quality of training, only 35% of graduates are able to secure internship contracts after 3 probationary months. The rest do not get their contracts renewed because employers would like them to improve on their abilities to perform their internship responsibilities beyond coding. Employers expect them to be able to fix software as well as hardware issues that computers may face. Employers need employees / interns who can fix basic computer issues to avoid anything that can delay their performance as a result of waiting for technicians to fix computers. Employers also expect interns / employees who can communicate, take initiative, deliver and respect time in general. Because of clients' expectations, employers expect employees who can provide quality deliverables at a speedy rate, the ability to type at least 50 words per minute. IRO has not been focusing on the ability to fix basic computer problems, professional competencies as well as typing practice, which would definitely contribute to a software developer's holistic performance at work. IRO runs SheCanCODE to respond to the workplace needs, to provide interns and employees who best fit in the available solutions and who deliver as much as expected. To respond to the employers and market needs, the SheCanCODE Program will be offering a preparatory bootcamp to help all the attendees attain a basic level of computer they need to get started. They will also practice typing in order to help them improve their typing speed, and productivity over time. Graduates need to communicate professionally, be on time, work well with others, receive and provide feedback, among other qualities, at work. IRO will partner with a partner to offer the professional trainings so as to graduate professional SheCanCODE graduates.

We understand and hope that a preparatory bootcamp to get everyone at the starting point, coding sessions in combination with professional competencies will help IRO produce quality and professional computer programmers through the SheCanCODE program. The Rwandan technology market looks forward to welcoming the female technologist, from SheCanCODE, in the already available opportunities.

a. Goal(s) and Objectives.

IRO's SheCanCODE 2021 – 2023 goals are:

1. Building the largest pipeline of female software engineers in Rwanda by graduating 200 female software developer by December 2023. In the same market, WeCODE graduates 30 women in their 6 months long programs. WeCODE is currently not operational, and they may re-open in January 2021. This gives IRO a competitive advantage to produce many more graduates.
2. Increasing job placement to 80% by December 2023 assessed by students turning their internships into fulltime employment opportunities within 6 months after graduation. We intend to place 100% of our graduates in technology jobs, but we would like to keep it realistic. We are certain that we may go beyond 80% of placement.
3. To continue to creating strong partnership with local/international tech companies. Partnerships have been helpful to IRO in different ways; funding, supporting students among others. Our goal is to increase the number of partners so as to avail more opportunities and extend IRO's reach.

4. **Launching Apprenticeship** program for women: Path way for women into software engineering career. The program will help women to choose their technology path and allow IRO to find the right employment placement for them.
5. Opening online program by August 2021 – Covid-19 has been a challenge to IRO’s SheCanCODE. In June 2021, IRO opened a first online SheCanCODE cohort and it was didactic.
6. Collaborating with Ministry of ICT and Innovation, WDA, MIGEPROF to support the programs Advanced Technology skills and capacity development, Digital literacy, innovation and knowledge expert.
7. To engage with local and international organization in the same field to share experience and knowledge.

b. Activities.

i. 2 Weeks Preparatory Bootcamp

Igire Rwanda is an established organization that runs the SheCanCODE for the last couple of years. The program has not only been successful but also faced some challenges. This capstone project intends to propose new activities that will help the program improve the quality of the program. This was an idea from a team discussion that brainstormed different actions that could be done to improve the quality of the program, focusing on students’ employability. Typing sessions, career guidance, professional development courses and 2 weeks preparatory bootcamp are being introduced to be added on to coding classes, whose curriculum will not change. We hope the proposed activities will help the organization to produce quality graduates who can perform holistically in their daily work responsibilities.

This is a bootcamp that intends to introduce the prospective SheCanCODE students to professional competencies, typing practice and computer maintenance. The professional development will focus on effective communication, time management, teamwork and taking initiative, among other important professional qualities. Prospective SheCanCODE students will be introduced to different typing software (Typing Master) and other online typing practice sites to help them start using home row, as they type, in order to increase a number of words they can type per minute. Our goal is to graduate female computer programmers who are able to type at least 50 words per minute after 3 months of the program. Based on employers' feedback, prospective SheCanCODE students will be introduced to the basics of computer maintenance. They will learn how to fix basic computer features (restarting, software update, operating system updates and other basic software maintenance). They will also learn how to fix some basic hardware like removing batteries, protecting a computer with padding, organizing cords, unplugging to avoid overcharging, running regular antivirus scans, cleaning keyboards and updating passwords among other skills. Employers need employees who can holistically perform their job, and we are committed to developing SheCanCODE graduates meeting their needs. IRO is committed to researching the 21st century skills and to update its curriculum accordingly. There are also extracurricular activities, games for instance, that allow participants to improve their collaboration and teamwork abilities mostly required at work.

ii. Typing Sessions & Weekly Tests

During the preparatory boot camp, SheCanCODE participants will have a 30 minutes long typing practice sessions. Each participant will be required to attend and use Typing Master or any other online typing sites. They will be required to use home row / Touch Typing in order to improve their typing progress over time. After the introductory bootcamp, students will be encouraged to keep

practicing typing, on their own, and will be required to attend typing tests scheduled every two weeks. Our goal is to graduate female programmers who can type at least 50 words per minute, as they graduate the SheCanCODE. The Touch Typing courses have proven to increase learners' typing speed and productivity by implementing the touch typing strategies learned. Participants increase their typing speed, learn different sorts of shortcuts to improve their productivity and efficiency. The sessions will also grow their confidence by typing without looking at the screen (Ûdemy, 2021). This has proven to increase learners typing practice, up to 120 words in 30 days (Ûdemy, 2021), and IRO believes SheCanCODE participants can reach at least 50 words per minute before they graduate Program.

iii. Professional Development Courses

During the preparatory boot camp, IRO will offer professional development courses, that will not only help SheCanCODE graduates to become great programmers but also professional employees. Professional competence sessions will focus on professional attitudes, how to behave at work and other professional attitudes. During these sessions, we will host employers, employment partners and successful graduates to talk to our students about tips and other professional attitudes that would help them meet employers' expectations.

iv. Coding Classes

Our coding classes take place daily from Monday to Friday, 9 am – 3 pm for 3 months. Coding classes take place at the SheCanCODE training center in Kacyiru (KG 549 St 36). Students are introduced to daily concepts and they are grouped to work on project that helps them to apply their daily learning. Every Wednesday, our participants are given an opportunity to present their

learning, projects they are working on, challenges they are facing and other important elements of the program. during the presentations, they receive peer feedback on their work as well as recommendations for each of their success.

Here is a list of the coding key courses to cover:

- ❖ Tech Stack
- ❖ Coding Skills (Back-end and front-end)
- ❖ Software design principles
- ❖ Project based curriculum
- ❖ Weekly coding challenges
- ❖ Code review
- ❖ Peer programming
- ❖ Git
- ❖ Scrum (morning stand ups)

[v.](#) **Career Guidance**

IRO is looking at partnering with Hview Tech Group, a coding company based in Kigali, to offer career guidance to the SheCanCODE participants. Hview Tech Group has been interested in running a similar program, and they can focus on the tech career guidance to the SheCanCODE participants at the moment. The employment partners will be coming in to visit participants andView Tech Group will prepare relevant classroom activities to help participants understand how to navigate the technology

vi. Partners

- **US Embassy Kigali:** SheCanCODE has been initiated in partnership between Igire Rwanda Organization and the US Embassy in Kigali, which is still the main funding partner of the program. The US Embassy in Kigali has women empowerment, among their priorities, and their funding is part of their public affairs programs in Rwanda.
- **MIGEPROF:** The government of Rwanda has invested a lot of efforts in women empowerment, in different sectors. Technology has not been left behind. We work with the Ministry of Gender and Family Promotion to empower women in technology who are our shared target group.

i. Sustainability

The sustainability of SheCanCODE has been one of IRO's themes of discussions for the last couple of months. There are many women empowerment organizations in Rwanda and they invest a lot of money in doing so. IRO is looking at becoming a women in technology service provider in order to secure funding to keep the SheCanCODE ongoing. IRO has also fixed a reasonable payment fee (20,000 Rwf for students and 50,000 Rwf for employed participants). The amount of money is not enough to cover the cost of the program but it assists the organization in covering some program costs. The prices were fixed after conducting a focus group with SheCanCODE' previous cohort, and it was suggested that 20,000 Rwf would be reasonable for a participating student. We have WeCODE program, which is fully sponsored by the Germany Development Corporation (GIZ), and does not require any payments. The employed participants cannot attend our day program, and they are recommended to attend an online program happening on Monday, Wednesday and Friday (8 – 10 pm). We do not have any other program that facilitates those who are

employed and those who attend other educational programs. Students in other programs still pay 20,000 Rwf and the employed pay 50,000 Rwf which is a reasonable payment for 3 months based on interviews conducted with the employed individuals interested in the program. Igire Rwanda Organization has built a platform which currently facilitates interactions between facilitators and students (materials, feedback and academic work exchange). Our future goal is to avail resources that would facilitate online learning without a fulltime human interaction. This will allow IRO to have a consistent source of income requiring less or no maintenance, hence, allowing the organization to run its programs sustainably. Igire Rwanda introduced online learning as a result of covid-19 lockdown imposed in June 2021. The organization has been building a platform which allows access to resources from anywhere in the world. The platform is being used to give students access to our learning materials. Given the interest from other individuals, we have an idea to avail the program for East Africans and other people in different parts of Africa to access resources from the platform and attend classes using video conferencing technologies (Google Meet). We hope the system would help us secure funds to keep running the program, and avail it to many other women from other places.

c. Evaluation and Learning

Igire Rwanda measures the success of SheCanCODE by looking at the numbers of girls trained and those who are able to secure employment opportunities six months after graduation. Our goal is to graduate 200 female software developers by 2023 and have 80% of them turn their internships into fulltime employment opportunities. We are working to train at least 30 women every 3 months, and we are sure we can even train more than 200 women. We also focus on our graduates' employability as an important aspect of our program success. 80% of our graduates' employability remains an important aspect, and we look forward to engaging

with different employment partners to reach our targets. We collect feedback from students, staff members as well as other stakeholders in order to understand the gaps in the program and find ways to address them.

IRO is looking forward to continuously learning from the SheCanCODE program, its activities and ensuring its graduation of competent and professional female computer programmers. IRO will continuously learn from graduates, students, parents, employment partners and its staff members. Our guiding Monitoring and Evaluation will help us assess the attainment of our goal. We will also be monitoring our expected assumptions and check if there may be new assumptions to deal with. We will also send yearly surveys to collect feedback on the program, performance at work (for graduates) in order to continuously improve the program to meet the market needs. We will also use interviews and focus groups with employment partners, graduates and students to keep hearing their voices and addressing any gaps that may be identified in those processes.

VIII. Implementation

a. Timeline.

SheCanCODE is 3 months intensive coding bootcamp for girls and women in Rwanda. Since IRO has had an independent training center, the SheCanCODE hosts a cohort every 3 months. Due to covid-19, SheCanCODE graduated an in-person cohort on June 18, 2021 and launched an online program in July, graduating in September. The application form for the November, in-person, cohort is also open, and the organization hopes to run it in-person since the vaccination program has reached the majority of Rwandans. Here is Cohort 5 timeline:

Item	Timeline	Comments
Application Process	September 15 – October 10, 2021	Applications are received through: shecancodeschool.org
Applications Screening	October 10 – 20, 2021	Selecting the program attendees from a pool of applications.
Communicating Program Attendees	September 10 – 13, 2021	Sending congratulation emails to selected participants.
Program Kick-Off (Orientation Day)	September 23	Hosting participants to provide program information, rules and regulation and introduction to the program technologies

SheCanCODE Program	September 24, 2021	Starting the SheCanCODE Bootcamp.
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C. Weekly Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday / Sunday
7:00	Typing Practice & Tests	Typing Practice & Tests	Typing Practice & Tests	Typing Practice & Tests	Typing Practice & Tests	Space open for Personal use
7:15						
7:30						
7:45						
8:00	Coding Class	Coding Class	Coding Class	Coding Class	Coding Class	
8:15						
8:30						
8:45						
9:00						
9:15						

9:30										
9:45										
10:00	Break									
10:15										
10:30	Coding Class	Coding Class	Coding Class	Coding Class	Coding Class					
10:45										
11:00										
11:15										
11:30										
11:45										
12:00										
12:15										
12:30	Lunch Break									
12:45										
1:00										
1:15										

1:30						
1:45						
2:00	Professional Competencies	Career Guidance	Meet the Employers	Typing Tests (Supervised)	Personal work time	
2:15						
2:30						
2:45						
3:00	Coding Class	Coding Class	Coding Class	Coding Class	Coding Class	
3:00 - 7:00	Space Open for Personal Use					

b. Capacity.

Igire Rwanda Organization (IRO) has a training center for SheCanCODE in Kacyiru (KG 549 St, 36) and the rent is paid yearly. The center is equipped with Canal Box Fiber internet that allows staff and SheCanCODE participants to use unlimited internet they need for their daily activities. IRO has experienced staff members who have been running the SheCanCODE program since 2016

and they are all ready to improve the program for its betterment. IRO recently acquired a car that will be used to facilitate SheCanCODE trainers for work related travels.

c. Money.

Igire Rwanda Organization has been running the SheCanCODE since 2018 with funding from the United States Embassy in Kigali. Participants have not been asked to pay anything because the program targets fresh graduates (high school and university graduates), whose financial capabilities are limited. The organization has 6 permanent staff members who get their monthly payments. The organization rents a training space, needs a strong internet, buys electricity and many other necessary supplies. Our partnership with the US Embassy continues and we expect more funding from them. Fortunately, the organization availed the program for students in other colleges and those who are employed, unable to attend on a fulltime basis. The program has been taking place on Mondays, Wednesdays and Fridays from 8 – 10 pm. Students pay 20,000 Rwf (around \$ 20) and the employed pay 50,000 Rwf (around \$ 50), and this income helped the organization to cover the cost of the basic necessities. The organization is partnering with other women empowerment organizations in Rwanda to have access to more funding. To implement the new SheCanCODE Program, IRO will need \$ 5,000 per cohort. The money will be coming from our existing funding partner (US Embassy) and a prospective funding partner, Israel Embassy in Rwanda, which made a commitment to provide funding support to the SheCanCODE program in 2022.

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