

# Country Investigation Report



## MAXIM NYANSA IN SIERRA LEONE: DESIRABLE AND FEASIBLE?

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## EXECUTIVE SUMMARY

The main purpose of this Country Investigation Report is to deliver information about the desirability and feasibility of a Maxim Nyansa branch in Sierra Leone. At the moment they are a successful NGO in Ghana and they want to expand to other countries in West-Africa. They want to expand with their two programs: a learning transformation program which is an integrated program to improve the quality of education in basic schools, including the provision of second hand hardware, and a trainee program for ICT students to prepare them better for the ICT job market. I have been in Freetown for 3 months and conducted 11 interviews and done observations in the public, educational and business sector. With the information gathered I can conclude it is very much desirable and also feasible for Maxim Nyansa to come to Sierra Leone, though there are challenges in the feasibility.

My findings for the public, educational and ICT sector are favourable: Maxim Nysana is very much desirable and feasible in Sierra Leone. First of all, Maxim Nyansa is desirable for the public sector as they are showing their will to improve education by their 'free quality education' campaign. In addition they show their will to improve ICT by launching the DSTI and by adding ICT to the educational curriculum. However, implementation of the political will is mostly lacking. At the same time, the government is becoming more and more stable and therefore it is also more and more feasible for Maxim Nyansa to come. Secondly, both programs are very much desirable for the educational sector. The learning transformation is desirable as ICT is often lacking in the ICT resources and skills are often lacking. Moreover, because of the misfit of ICT studies with ICT jobs, the trainee program is very much desirable as well. This also shows the importance of Maxim Nyansa for the last sector, the ICT sector. The ICT sector is fragile, but developing. Maxim Nyansa is desirable to help developing the ICT sector. Currently, there is a major focus on hardware in ICT businesses, yet there are many opportunities in software to explore. Therefore, Maxim Nyansa can fit in there with their trainee program.

Current challenges faced in all sectors are the weak ICT infrastructure, the corruption and the lack of enforcement. Therefore, I advise Maxim Nyansa to search for reliable contacts. I also advise Maxim Nyansa to start the learning transformation in the urban areas as the ICT infrastructure is more developed here compared to rural areas. Next to that, I advise Maxim Nyansa to start in the provinces instead of Freetown, as decentralization would release pressure from Freetown. Furthermore, the lack of enforcement requires strict rules. When they want to start in Sierra Leone, they have two options: collaborate with an existing NGO in Sierra Leone or start a branch in Sierra Leone themselves. To start a branch themselves, Maxim Nyansa needs to be registered at the MoPED and be a member of SLANGO. When they have started in Sierra Leone, Maxim Nyansa can make use of mobiles and radios to promote their programs as these are the most popular media. Further research should be conducted to find suitable ways to promote the programs.

The exact fit of the programs in Sierra Leone should also be researched further as this has only been a small research. A first step for the trainee program will be taken in February 2020, when 2 students from Sierra Leone are participating in the trainee program in Ghana for four months. In the future, Maxim Nyansa can also come with their international certification, as this is highly desirable. My findings are that this is lacking in Sierra Leone, further research is needed to make proper conclusions as I have not prioritized to research this.

## INTRODUCTION

At the moment, youth unemployment is a striking problem in West-Africa. Although education has been improved since the last decades, the majority of the youth is still unemployed. An important cause is the lack of practical skills. Maxim Nyansa aims to **improve the career perspectives of young Africans through the use of information technology**. Though information technology is promising as it can professionalize the educational and business environment in Africa in the near future, it shall be handled with care. Therefore, Maxim Nyansa has a well-integrated approach.

To reach their goal, Maxim Nyansa has two types of programs: a learning transformation program and a trainee program. Firstly, **the learning transformation program** is mainly set up for secondary schools. Together with local stakeholders, Maxim Nyansa enters into multiannual partnerships to improve the educational system. In order to ensure sustainability of the learning transformation in the long term, there are strict requirements concerning electricity. For example the room needs to be burglar-proof and monitoring should be done by the school. Maxim Nyansa can support the schools by providing an ICT lab, trainings in ICT literacy, courses for teachers in didactics and multimedia, free digital content, and software. With this integrated approach they aim to have impact and not only provide a quick fit solution. Secondly, **the trainee program is set up for young ICT graduates** and equip them with additional practical experience as this is often lacking in the current educational system. Next to that, they are guided by Maxim Nyansa to find a job or set up their own ICT business. Previous engineer graduates of the trainee program can teach in the next trainee programs. They can support the learning transformation as well as they could work in the deployed ICT labs and they can teach during trainings and courses.

Since the start of Maxim Nyansa in 2016 the founders, Stanley Dankyira and Diana van der Stelt, have been dreaming of growing. After two pilots in 2016 which proved the designed concepts of the two programs, 2017 has been a year of growth and consolidation. In October 2017 the first container with second-hand hardware was shipped from the Netherlands to Ghana. The shipment enables the learning transformation as schools lack the resources to invest in expensive equipment. In the autumn of 2018, three specialization programmes were developed for the trainee program: software development, data science and networking. Since 2019, a fourth specialization track in cyber security has been added to the curriculum, because it was requested by trainees. Up to 20 ICT graduates from an underprivileged or average background can participate in each program. Currently all the exams are internationally certified by EXIN and Maxim Nyansa is an accredited EXIN exam agency for West-Africa.

Now it is 2020. Their aim to upscale their foundation has remained. This means they do not only want to upscale in Ghana but also want to expand to other countries in West-Africa, including Sierra Leone. Sierra Leone is an Anglophone West-African country like Ghana. What distinguishes the country from other West-African countries is the extreme extent of poverty (Bangura, 2019). In Sierra Leone, 64.8% of the people is multidimensional poor, the poverty rate is 57%, and 10.8% lives in extreme poverty (SL-MTNDP, 2019). In addition, they are placed 183 out of 189 countries on the Human Development Index (UNDP, 2018). A major challenge is the youth unemployment of 70% (Bangura, 2019), caused by many factors such as the civil war, a mismatch between demand and supply of labour, weak entrepreneurship services and rural to urban migration (Alemu, 2016).

Since February 2019, I have been volunteering for Maxim Nyansa as I am part of the PR-team of Climbing the Right Tree, the sister foundation of Maxim Nyansa in the Netherlands. For the minor International Entrepreneurship and Development, I have been in Sierra Leone from November 2019 to the end of January 2020. During my internship there, I have conducted a feasibility study for Maxim Nyansa in Sierra Leone. In this country investigation report I show the findings of the feasibility study and discuss whether Maxim Nyansa is desirable and also whether it is feasible in Sierra Leone. During my research, I have conducted interviews and observations in the public, educational and business sector. In the three chapters of this report, I show the findings of desirability and feasibility of Maxim Nyansa for the public, educational and ICT sector, respectively. After providing the data in each subpart of each chapter, I discuss the findings and give my advice for Maxim Nyansa.

In 1.1 I discuss the political stability, after which I discuss the political will to improve education and ICT, and its implementation in 1.2. In 1.3 I will explain the political framework, including how to start a branch in Sierra Leone and how to import humanitarian goods. I close each chapter with a subconclusion. In 2.1 I show my findings of ICT in education and based on that I discuss the desirability and feasibility of the learning transformation. In 2.2 I do the same for the trainee program by showing my findings for ICT education in universities. In 3.1 I show my findings of ICT usage in general after which in 3.2 I show my findings for the ICT labour market to determine how the ICT education fits the ICT job market and what is required of ICT graduates. I end this report with a conclusion, abbreviations used and appendixes. In the Appendix A give information I have found to register as NGO in Sierra Leone. This could be useful for Maxim Nyansa, although it can change over time. In Appendix B I show the studies in ICT in Sierra Leone.

## CHAPTER 1: PUBLIC SECTOR

For Maxim Nyansa, the feasibility to expand to Sierra Leone partly depends on the public sector as the government can make or break the success of organizations. A stable government, a strong political will for education and ICT, and the implementation of that will, in combination with a strong legal framework, will increase the success rate. However, an unstable government, a lack of focus on the educational and ICT sector, weak implementation and a weak legal framework will have the opposite effect.

In this chapter, I answer the question whether the public sector is ready for a Maxim Nyansa branch. Firstly, I share my findings political stability, after which I discuss whether the government is stable enough for a Maxim Nyansa branch. Secondly, I provide information about the political will and its implementation, and discuss whether this is suitable for Maxim Nyansa. Lastly, I discuss practical feasibility of Maxim Nyansa in the public sector in Sierra Leone by showing how Maxim Nyansa can start an NGO in Sierra Leone and ship their goods to Sierra Leone.

### 1.1 Political stability

From the 80's, Sierra Leone had been dependent on donors giving money. The IMF had given money under strict conditions to support growth and reduce poverty. At that time, the overpowered and inefficient central government interventions in delivery of public services resulted in disempowered groups. Together with poor governance and corruption, this resulted in an area of political instability (IMF, 2005). Corruption has been suppressing the country from growing. In 2017, the Transparency International Corruption Perceptions Index ranked Sierra Leone 130 out of 175 countries. Legislative instruments, thus far, have not been able to decrease corruption effectively as monitoring and evaluation have been lacking here (SL-MTNDP, 2019). The current government is also taking more measures to decrease the corruption, such as firing corrupt government officials.

Since 1991, the role of the Government of Sierra Leone (GoSL) is defined in the constitution. It is mandated that the political party has to perform the political will of the people. However, intolerance and intimidation has taken place ever since. Unfortunately, the political parties' internal governance is weak, women are excluded, information is manipulated, and there is a breach of party constitutions. This has resulted in tribal and regional division, violence and instability (SL-MTNDP, 2019). The constitution also captures the power of the president by recording a maximum ruling period of 10 years. Now, the president can rule for a maximum of two terms of five years each (Constitution, 1991). From 1998 to 2007, Ahmed Tejan Kabbah from the Sierra Leone People's Party (SLPP) ruled the country, after which Ernest Bai Koroma from the opposite party All People's Congress (APC) ruled from 2007 to 2018 (Wikipedia, n.d.). Since last year, Julius Maada Bio from the SLPP is the president. New elections will take place in 2023. After the elections, the Government Transition Team recommended Commissions of Inquiry (COIs) to research the governance activities under Koroma. On 29 January 2019, three judge-led COIs were launched (Bangura, 2019).

Currently, post-election tension is taking place because of the opposition that is ruling now. Though the SLPP took over power in 2018, APC won 68 of the total 146 Parliament seats, while SLPP won only 49 seats in Parliament. There has been wrangling in parliament as well as violent police attacks in May 2019 on protesters of the APC party. Unlike the signs of violence, there have been positive signs of acceptance as well. The Peace Conference, also known as Bitumani III, was boycotted by the APC party, but people expressed their feelings. The GoSL is taking these feelings serious by taking into account all



recommendations given. Moreover, the partial payment of pensions and gratuities to all officials of the former administrations is approved. Next to that, negotiation between the APC and the SLPP in the parliament is taking place (Bangura, 2019).

Although there has been violence in previous times, and currently minor tensions because of the change of power, there has been no big violence in public anymore recently. Therefore, it is not likely that this will happen in the near future. Good steps have been taken by the government which will be discussed below. However, the government also faces challenges, mainly in the implementation. This will be discussed later in this chapter as well. This government seems very much stable, especially compared to previous governments and will rule most likely at least until 2023. In the coming years, I expect the government to develop more positively. All in all I think the government is stable enough for Maxim Nyansa.

## 1.2 Political will

Next to the political stability, for Maxim Nyansa, it is important that the government support their aim of improving career perspectives of young Africans through the use of information technology. Therefore, the more the government supports the education and ICT, the more feasible Maxim Nyansa is in Sierra Leone.

### Will to improve education

The current government provided specific strategies in order to reduce the poverty in Sierra Leone. In 2005 and 2011, the first two Poverty Reduction Strategy Papers were written, with very broad strategies for good governance, sustainability and human development. In the third Poverty Reduction Strategy of 2019, 4 goals with specific measures were released:

- *Goal 1:* A diversified, resilient green economy
- *Goal 2:* A nation with educated, empowered, and healthy citizens capable of realizing their fullest potential
- *Goal 3:* A society that is peaceful, cohesive, secure, and just
- *Goal 4:* A competitive economy with a well-developed infrastructure

These goals are in tune with the 4 goals for 2019 that Sierra Leone's president, Julius Maada Bio, mentioned in his last speech for the UN (Bio, 2019): poverty eradication, quality education, climate action and inclusion. In goal 2 combined with the focus on quality education, the political will to develop the educational sector is shown.

At the 20<sup>th</sup> of August 2018, Maada Bio launched the free and quality education programme, known as the 'free quality education' campaign. Part of this is the 21% of GDP spent on education. Steps taken by the government include the provision of 50 free school busses (Bangura, 2019).

Moreover, ICT is increasingly added to the national education curriculum as the government is willing to include the teaching of ICT skills already in primary schools. In case ICT is taught at the moment, it is on the initiative of the schools themselves. Although the West African Examination Council (WAEC) has already inserted ICT in the educational curriculum in West Africa, it has not been inserted yet due to a lack of prioritizing it. It has only been one year since the government has been focussing on science, technology and innovation, and therefore they decided to include ICT in the educational curriculum.

Currently, there is only a small amount of schools which have ICT in their curriculum as it is based on their own initiative. It is particularly the private schools that have computers available. Although the

governmental will to improve education is there, steps to implement the addition of ICT to the educational curriculum still have to be taken. Implementation of the political will be discussed later in this chapter. Whether the educational sector in itself is ready for Maxim Nyansa will be discussed in the next chapter. Below I will discuss the political will to improve ICT.

### Will to improve ICT

So, there is a political will to add ICT to the educational curriculum. The will to develop ICT in general is present too. Maada Bio states in the Sierra Leone's Medium-Term National Development Plan (SL-MTNDP, 2019):

*'The Government of Sierra Leone [...] recognizes ICT as an enabler to address the bottlenecks of outdated practices that have hindered sustainable development for far too long. [...] Key challenges in the ICT sector include **an inadequate legal framework, an inadequate regulatory and institutional environment, high costs and the lack of a national electronic governance system** to improve capacity and the delivery of public services, among others.'*

Since 2018, has taken specific steps which show their will for ICT. In 2018, the government has created the Directorate for Science, Technology, and Innovation (DSTI). The goal of the DSTI is to harness power of technology for good. In November 2019, DSTI has launched the National Innovation and Digital Strategy (NIDS). This is the national vision to digitize the government resource management and citizens services and includes three parts: Digital Identity, Digital Economy and Digital Governance (DSTI, 2019). Although these steps are taken by the government, the government is not fully automatized themselves yet. These and other challenges will be discussed in the implementation part of this chapter.

In order to improve ICT, a proper ICT infrastructure is required. At the moment there is no national system, which means a backbone is missing. Organizations have to create this themselves. Currently, internet services are weak and the costs of internet services are very high. The power is also challenging. In their MTNDP, the government has specified 5 goals for electricity to be reached in 2023:

1. *By 2023, RESTORE ELECTRICITY IN ALL DISTRICT HEADQUARTERS AND CITIES.*
2. *By 2023, INCREASE ELECTRICITY GENERATION FROM 25 TO 60 PERCENT.*
3. *By 2023, INCREASE INSTALLED ELECTRIC CAPACITY FROM THE CURRENT 100 MEGAWATTS TO 350 MEGAWATTS.*
4. *By 2023, INCREASE THE COUNTRY'S CAPACITY FOR RENEWABLE ENERGY (SOLAR AND HYDRO) CONTRIBUTION TO 65 PERCENT.*
5. *By 2023, 20 VILLAGES AND 8 TOWNS IN EACH DISTRICT CONNECTED TO THE NATIONAL GRID OR OFF-GRID STANDALONE SCHEMES.*

To reach the goals, the GoSL has made the Electricity Generation and Transmission Company (EGTC) and independent power producers responsible for the electricity generation and transmission (SL-MTNDP, 2019).

### Implementation of political will

Although the political will to develop the educational sector as well as the ICT, major challenges arise when we examine the implementation. Good policies are created, but in the end the desired effect is lacking or poor.

A first major challenge which is face is the adequate framework that is missing as well as an adequate regulatory and institutional environment. A national electronic governance system is also lacking (SL-MTNDP, 2019). Monitoring and evaluation is not always conducted well, because of weak institutions, the legacy of the civil war of 1991-2002 and the Ebola outbreak of 2014-2016 (Bangura, 2019).

Additionally, there is no culture of enforcement. In order to do something, you need to push many times. This resulted in good policy documents which are collecting dust. Another challenge that contributes to this as well, is the government ruling for 5 years only. During that period everything has to be done, as afterwards another government will rule that can go to another direction.

As the governmental will to improve education and ICT has changed recently, I cannot conclude about the success of the implementation yet. Previous policy documents have been collecting dust and this could happen with these policies as well. However, I think that this government is really making changes, such as the way they deal with challenges in ICT and corruption.

### 1.3 Political framework for NGO's

Next to the governmental stability and will to develop ICT and education, the political framework for NGO's is important to expand. There are two options for Maxim Nyansa when they want to expand. The first one is to collaborate with one or more existing NGO's in Sierra Leone. In this way they can carry out a pilot and see whether it is successful. After doing the pilot they can start a branch in Sierra Leone themselves. Maxim Nyansa can also choose to start the branch directly themselves instead of collaborating with local NGO's at first.

#### Start a branch in Sierra Leone

As an NGO in Sierra Leone, it is useful to be recognized by the government as they have a clear overview of performed activities. The government is monitoring more and more. As NGO, you can register at the Ministry of Finance and Economic Development (MoFED). MoFED is divided in the Ministry of Finance (MoF) and the Ministry of Planning and Economic Development (MoPED). Maxim Nyansa can register at MoPED which coordinates national and international NGO's and ensures that the goals of the NGO corresponds to the government's agenda.

For registration at MoPED there are certain requirements. The registration procedure including those requirements can be found in Appendix A. Having your documents ready saves you much time and costs. Part of the requirements is having an office space and being a member of the Sierra Leone Association of Non-Governmental Organizations (SLANGO). SLANGO has a have a clear overview of the existing NGO's and aims at collaboration and mutual support of NGO's.

Instead of registering with MoFED, Maxim Nyansa can consider to register at the Ministry of Social Welfare, Gender and Children's Affairs which focus on empowering marginalized groups. In addition to registration at SLANGO and MoPED, a memorandum of understanding with a supporting ministry can be helpful, though this is not compulsory. In the case of Maxim Nyansa this can be the Ministry of Education, Science and Technology or the Ministry of Information and Communication.

#### Import of humanitarian goods

In order to ship duty-free as NGO to Sierra Leone, you need to be registered in the country. Maxim Nyansa can also collaborate with an existing NGO to ship duty-free. You have to make sure the shipment is contributing to your development project and how to import humanitarian goods mainly depend on your local networks in Sierra Leone. There have been different organizations who are willing to collaborate with Maxim Nyansa.

As the political framework can change over time, further research needs to be conducted when Maxim Nyansa wants to expand. I have explained in theory how to start a branch and how to import, but the practice is dynamic.

#### 1.4 Subconclusion

In recent years the government has shown to be fragile, but they seem to become more and more stable since the last elections. Next to the relative stability, the political will to develop the educational system is proved through the free quality education program and adding ICT to the educational curriculum. In addition, the political will to develop the ICT sector in itself is proved by launching the DSTI. In the implementation of the will, challenges arise. The ICT infrastructure is poor and the lack of enforcement is resulting in policy documents collecting dust. For the new policies to improve education and ICT, it is too early to draw conclusions.

Is the government ready for a Maxim Nyansa brand? Thus far the political context of Sierra Leone is feasible, although it is challenging. When Maxim Nyansa wants to expand to Sierra Leone, they can open a branch themselves or decide to first start a pilot with another NGO in Sierra Leone. When they want to open a branch, being a member of SLANGO and registration at the MoPED can be useful. In Appendix A, an overview of the registration procedure can be found, though this can change over time. Next to that, a memorandum of understanding with the Ministry of Education or Information Communication can be helpful, but is not necessary.

## CHAPTER 2: EDUCATIONAL SECTOR

With the free quality education programme of the government, the educational sector is developing. In this chapter I answer the question whether the educational sector in itself is ready for a Maxim Nyansa branch. In 2.1 I present and discuss my findings of ICT in education. To set the foundation for the rest of the chapter, first of all I explain the design of the educational system. Moreover, I present my findings of ICT usage in education and ICT literacy among scholars, and based on this I discuss whether the educational sector is ready for the learning transformation of Maxim Nyansa. In 2.2 I explain the ICT education in universities and discuss whether the educational sector is ready for the trainee program of Maxim Nyansa.

### 2.1 ICT in education

#### Educational system

After an optional pre-school, children go to a six years primary education program starting from the age of 4 or 5. After 3 years additional Junior Secondary School (JSS), they can continue based on their profile and their Basic Education Certificate Examination (BECE) results. After the JSS, they follow a 3 years Secondary School, which leads them to a Secondary School Certificate Examination (SSCE) in their final year. This is recognized in Anglophone West-Africa as it is part of the WAEC (West African Education Council). If graduates meet the requirements, they can continue on the University of Sierra Leone or somewhere else in West-Africa.

In the whole system English is the instruction language and French is compulsory in primary school and JSS as well and can be chosen afterwards. Next to that, all the four national languages, Krio, Mende, Temne and Limba, are allowed in the school system (Education State University, n.d.). Below, I will explain the usage of ICT in the educational system.

#### ICT usage in education

During their school period, most pupils do not have proper access to ICT. A major challenge here is the lack of resources. Equipment is often lacking which makes it hard for pupils and students to access ICT and exercise with computers. They rarely have a laptop or desktop themselves, but often can make use of devices in internet cafés or in ICT labs in schools and universities. Unfortunately, resources are often also lacking at schools and universities. This results in overcrowded labs with too less equipment for too much students. Moreover, due to the lack of resources, reparation of equipment is often too costly. In general, private schools and universities have more resources compared to public schools and in urban areas there are more resources compared to rural areas.

Other challenges that limit ICT usage in the educational sector are the poor ICT infrastructure and the difficulty of enforcement. The poor ICT infrastructure results in a poor electricity supply as there is no backbone. In rural areas, this is in some cases solved by using solar panels. Though those are often expensive and only rarely used for schools. Concerning the difficulty in enforcement, it is important for Maxim Nyansa to put in place strict rules taking care of maintenance of ICT. Rules include putting bags in the corner of the lab as it is usual for students to steal equipment, and not eating if you are using the ICT for the maintenance.

### ICT literacy among scholars

As mentioned in the previous chapter, the government is increasingly including ICT in the educational curriculum to improve the ICT usage and ICT literacy. This is very welcome, as from primary school up to university, most pupils and students are lacking basic knowledge and skills. As it has not been part of the curriculum, it has only been on own initiative of schools to teach it. Therefore, skills of teachers are also often lacking. Pupils and students as well as teachers often do not know how to use simple programs such as Excel and Word. They can go to an internet café to get a page typed, which is costly. There are programs offered for a few months to learn basic fundamentals. These are for example offered by universities and incubators. These basic fundamentals are required to get an office job and therefore very important. In the next chapter I will elaborate on this.

It can be questioned how successful the addition of ICT to the curriculum is, when teaching skills and resources are still lacking. When teachers do have the skills, but there is no equipment, pupils and students still miss the practical skills. In the end, when ICT usage will increase, the ICT literacy will most likely also increase. Therefore, it would be desirable for Maxim Nyansa to come with their learning transformation program to provide resources and train the teachers. In order to guarantee maintenance and make the learning transformation feasible, however, challenges need to be overcome. My advice is twofold. First of all, existing requirements of a burglar proof room and electricity should be strictly controlled as there is no culture of enforcement. Secondly, I would advise to start the learning transformation in the urban areas as the chance of meeting the requirements is higher compared to rural areas. Next to that, I advise Maxim Nyansa to start in the provinces of Sierra Leone. There are relatively much resources in Freetown and decentralization would help to release pressure from Freetown as it is overcrowded. Next I will explain the ICT education in universities and discuss the feasibility of the trainee program.

### 2.2 ICT education in universities

Studying ICT is expensive for students compared to other study directions. Next to the school fees, you often have more additional costs for ICT. This is why they sometimes prefer to study other courses, and lack motivation for ICT. Thus far I have encountered 6 universities in Sierra Leone that offer specialized ICT degrees, diplomas and certificates.

Njala University has been the first one to start with IT studies in Industrial Technology and Computer Science. After Njala, IPAM entered providing courses in Information Technology and Information Systems. Later, IAMTECH, the Canadian College of Technology and Limkokwing entered too. In general, they provide broad ICT courses for everyone who is interested. It has only been recently that BlueCrest has entered with more specialized courses such as software engineering, and web design and management. An overview of the offered programs per university can be found in Appendix B.

In general, diplomas take 2 years, while degrees take 4 years. Moreover, students can get certificates to develop their skills, which takes them 1 year. The curriculum for ICT studies differs, but generally they got theory in the first part of the program and more practicums in the latter part of the program. Still, students experience a lack of practical skills. This is challenging them later as they are not always prepared well to get a feasible ICT job.

The lack of quality ICT education which prepares students properly for the job market, is mainly a result of the way of teaching and testing. Classes are often overcrowded and an interactive way of teaching is often lacking as well. A challenge universities face is the lack of a platform to train the trainers. The

trainers are often selected based on their experience and currently are often trained internally in the ICT department. The way of testing also faces challenges. At the moment, universities often face the challenge that presentations and assignments can cover up to 30% of the testing, while written exams cover the majority. This is challenging the need for practical experience and an engaging interactive teaching method. Moreover, internationally recognized exams are currently conducted in Ghana as those are not available in Sierra Leone yet.

I highly recommend Maxim Nyansa to start their trainee program in Sierra Leone. The main reason is that there is a lack of practical experience to prepare the students for a decent ICT job. I will elaborate on this in the next chapter. Maxim Nyansa can add value by providing a trainee program in an interactive way with specializations. In February 2020, 2 students from Sierra Leone can participate in the existing program in Ghana to see whether the trainee program matches the Sierra Leonean way of education. I also advise Maxim Nyansa to come with their EXIN certification as internationally recognized exams are lacking at the moment and highly demanded by businesses. This can be further researched.

### 2.3 Subconclusion

Is the educational system ready for a branch of Maxim Nyansa? Yes it is, but there are barriers to take into account. The learning transformation of Maxim Nyansa is very much welcome as resources and skills are lacking to upscale the ICT usage and ICT literacy. A major challenge here is the poor ICT infrastructure. Therefore, schools should be selected based on the availability of electricity. In rural areas, the ICT infrastructure is less good compared to urban areas. Therefore, I would advise Maxim Nyansa to start urban. In addition, to ensure proper usage and maintenance, strict rules for ICT usage should be put in place. As there are relatively much resources in Freetown compared to other areas, I would advise Maxim Nyansa to start a branch in the provinces. This could be Bo or Makeni, where the electricity supply is good, but resources are lacking. This would release pressure from Freetown which is overcrowded.

For the trainee program, I can conclude that it is desirable as well as there is a lack of practical experience for ICT students. In February 2020 until May 2020, 2 Sierra Leonean students will participate in the training program. Afterwards, more conclusions can be drawn about the fit of the trainee program to the educational system in Sierra Leone. In the next chapter I will elaborate on the ICT sector, including the available ICT jobs for graduates.

## CHAPTER 3: ICT SECTOR

In the previous chapter I discussed whether the public and educational sector are ready for Maxim Nyansa. In this chapter I will discuss whether the ICT sector is ready for Maxim Nyansa. In order for the ICT sector to be ready, certain requirements should be met. There needs to be proper electricity and a good internet connection is favourable. Next to that, the trainee program would be more successful if ICT businesses demand graduates from the trainee program. In 3.1 I show my findings of ICT utilisation, including ICT access, internet penetration and usage of media. This lays the foundation for 3.2 in which I show my findings of the ICT labour market, including how students face the market and which types of jobs are available. This functions to conclude about the trainee program.

### 3.1 ICT utilisation

#### ICT access

Although ICT usage is increasing, it remains a small amount of the Sierra Leoneans who can access ICT. In 2009, Sierra Leone was ranked 170<sup>th</sup> out of 178 economies on the Digital Access Index which measures the overall ability of residents to access and use ICT (Ministry of Information and Communication, 2009). Until 2009, there has not been a nation-wide policy on ICT (Mangesi, 2007) and Sierra Leone had been dependent on donors initiatives for the successes in the ICT-sector (Education State University, n.d.). Since 2002, the media and communication sector has start diversifying and decentralising. Since 2009, ICT has been improved, though generally ICT is still poorly used.

It was expected that by mid-2018, a 600 km national fibre backbone had been commissioned. After the country has been destroyed after the civil war of 1991-2002, massive transformative programmes for the ICT sector were implemented. Until 2012 the situation stayed striking, but then the Africa Coast to Europe (ACE) submarine cable landed. The mobile penetration level and broadband and fixed line penetrations were fairly higher. This resulted in the country being connected to the global ICT network.

Concerning ICT access different issues arise. Although the EGTC and the Electricity Distribution and Supply Authority (EDSA) are doing a good job, there is not enough electricity generation and transformers are overloaded. Cables need to be replaced as they are old. Especially having no generator makes it very challenging to use ICT. The more rural, the worse the access to the electricity grid. In the more rural areas, they often make use of solar energy which provide people opportunities, though this is expensive.

#### Internet penetration

Due to falling prices, internet penetration has been improved from 2 percent to about 5 percent.

Below, an overview of phone, internet and computer usage is shown:

Fixed telephone subscriptions per 100 inhabitants	0.2
Mobile cellular subscriptions per 100 inhabitants	84.6
Mobile broadband subscriptions per 100 inhabitants	20.4
Households with a computer (%)	4.2
Households with Internet access at home (%)	10.7
Individuals using the Internet (%)	11.8



A major challenge for the internet penetration is the weak availability and high costs involved. Even in the main cities, internet bandwidth is limited, expensive and often unavailable. Because of the Ebola outbreak, the country was shut down for a while (Ministry of Information and Communications, 2009). In the meantime, the internet has not been improved much. At the moment, the costs are high because of the suppliers. There are fibre optics available, but it is only accessible via companies who add lots of value.

At the moment, there are 4 main GSM Mobile companies: SierraTel, Orange, Africell and Qcell. SierraTel is a semi-autonomous government company and also provides internet services through its fixed telephone line (ADSL), though mainly in the Central Business District of Freetown (Mangesi, 2007). After Orange and Africell entered the mobile telephony and mobile data market and started dominating, they did have difficulty with modernising and they did have to expand their outdated equipment. Therefore, SierraTel had planned to provide fibre optic connectivity within Freetown municipality junction network (Education State University, n.d.). Although Africell and Orange have dominated the market for a couple of years, since 2018 Qcell has entered and started a battle to reduce internet prices. Since then prices has been reduced much, not only the Qcell prices, but also the prices of Africell and Orange.

#### Usage of different media

Communication platforms, such as internet and mobile phones, radio and TV stations have emerged simultaneously. In 2015, radio still was the most often used broadcast platform, with 81% of the Sierra Leoneans having access and 49% who listen it daily. However, no single radio station of the existing 50 stations is reaching more than one-third of the adults in Sierra Leone. Next to the radio, 45% can access TV or DVD and 13% newspapers (Wittels & Maybanks, 2016). At the moment, mobile phones are emerging with 83% of the Sierra Leoneans having access, whereof half of them do not have internet or app capability. Phones are therefore often only used for basic tasks. Only 13% use social messaging services, mainly those aged between 15 and 24 and in the Western Area. Conversely, this target group listen less often to radio. Especially older people, women and people from rural areas needs help to make calls or send texts.

Thus far I have given an overview of ICT utilisation. Overall, the ICT sector is fragile, yet there is room for development. Below I look into the ICT labour market which is interrelated to the ICT utilisation.

### 3.2 ICT labour market

Unfortunately there have been much setbacks in the ICT sector, but there are much opportunities as well. In the last decades, the ICT sector has been growing because of donor initiatives. The explosion of banks and the installations of the local and wide area networks contributed to the growth of the ICT sector as well. Moreover, because of the rise of internet cafés, the amount of internet users has been increasing. However, a limiting factor for ICT continues to be the ICT literacy, which was 35% in 2009 (Education State University, n.d.). Below I will analyse the currently developed labour market for ICT students by looking into how ICT students face the labour market and types of businesses they could work for.

#### How ICT students face the labour market

For youth in general, it is very hard to find a job as the youth unemployment is very high. For ICT students, it is hard to find a suitable job as well. The higher your qualifications are and the better your

connections, the higher the chance to get a good job. When you are good and motivated in your job, including the field of ICT, it is easier to find a job. Currently, there are a few initiatives next to ICT education that help youth to develop ICT skills. In Freetown, there are two big incubators who provide courses next to supporting ICT start-ups: Sensi Tech Hub and Innovation Axis. Sensi Tech Hub also has hubs spread over the country. Next to courses in basic ICT skills, they provide courses in advanced ICT skills. Innovation Axis is a general incubator, while the Sensi Tech Hub is focused on ICT start-ups. Next to the incubators, SABI, Orange and Africell provide coding bootcamps to develop advanced ICT skills. These are examples, as there could be more initiatives.

Next to qualifications, connections are very much important to find a job in Sierra Leone. Without relations it is very hard to find a job, but without qualifications you can still find a job when you have good connections. As a result of the challenge to find a proper job in ICT, lots of ICT students start their own ICT business. In Freetown, it is hard to find a space, which encourage students there to set up their online ICT business. This is not easy as there ICT platforms are lacking as well as a proper ICT infrastructure. In general, the ICT market is more for people who know about technology, network and system engineering than software engineers and developers as this is a green field. Jobs for ICT experts can be mainly found in the public and private sector, which will be discussed next.

#### Types of ICT jobs

As mentioned before, it is very hard to find a job in ICT. Earning a decent income with ICT is even harder. The most important employers are the ICT businesses and the government. To find an ICT job, relations are crucial. In the private sector, businesses often find their employees via universities in their network. To find a job in the public sector, relations are crucial as well. The DSTI and NRA both have lots of ICT experts, while other parts of the government has less ICT experts.

In the private sector, there are two typical ICT jobs. The first is in internet cafés and include writing emails, printing, typing, making graphs and writing curriculum vitae. This one is not that interesting for Maxim Nyansa. The second typical ICT job is in ICT companies and include the use of laptops, assist with ICT challenges, build websites and install machines. Within this second type of job, there are two types of shops: small-medium sized enterprises (SME's) and medium sized enterprises. SME's could be very small, as some only have one laptop and one printer and are locally based. The medium sized are often internationally based from China and sell second-hand hardware. The main challenge for all those shops is the maintenance. Lots of ICT machines come from China and Dubai, without learning how to maintain or guaranteeing maintenance. The ICT technicians in Sierra Leone are not specialized in one product and therefore lack skills to maintain.

Subsequently, IT businesses often train their employees internal to empower them more. A selection of good students is required, as quality staff is lacking. A collaboration with an university can help to select the better students. Often fundamentals of ICT are lacking. Even when they master the theoretical fundamentals, they lack practical experience. Next to the challenge of training the employees themselves, businesses have financial constraints. This is mainly caused by the bad exchange rate in combination with the high amount of imported products.

Next to the amount of ICT businesses that has risen, the amount of ICT technologies in businesses in general has been increased. Next to the private sector, there is an increasing amount of jobs in different sectors, such as the bank sector, health sector, educational sector. In Table 1, the challenges per sector are showed.

Private sector and business activity	Capacity building and human resources	Infrastructure and Service Delivery	Health	Education
Imported terminals and CPE devices do are not always conform engineering standards.	Weak circumstances for the trained ICT workforce.	Lack of stakeholder participation in the management of .sl domain name.	Lack of ICT tools for supporting health care delivery services.	Weak training of teachers and low motivation to use ICT as tool for: planning, teaching and administration.
High investment costs.	Limited ICT human resources.	Unreliable power supply.	Absence of a national disaster response centre.	High national illiteracy.
No access to and control of market information (prices, quality).		Inadequate International bandwidth.	Limited use of ICT tools in medical emergencies.	Limited availability of ICT tools in educational institutions.
Lack of awareness of ICTs.		No structure in Internet Exchange Points.	Limited availability of health research information.	
		Legacy systems.		

Table 1: Overview of ICT-challenges per sector (Education State University, n.d.).

In Table 1, the challenge per sector are shown. Next to the sectors shown in table 1, ICT is also helpful in dealing with natural resources and environment, agriculture and food security, good governance, inclusive growth, media and tourism. In general, the ICT sector encounters a big challenge in the limited extent of the electricity grid, as already mentioned. Internet, if available, is expensive.

### 3.3 Subconclusion

Is the ICT sector ready for a Maxim Nyansa branch? In the last decade it has been rising though it had been dependent on donors. Because the ICT sector is fragile, there is room for development. ICT access continues to be poor, as is internet penetration. Challenges here are the weak availability and high costs of internet. Maxim Nyansa should consider they want to expand to Sierra Leone. Regarding the usage of media, mobile phones are rising, yet radio is still popular. This can be taken in consideration when approaching people to promote Maxim Nyansa, though further research should be conducted for the promotion.

A learning transformation and trainee program would in my view be a very welcome and good next step to improve the ICT sector, as they can bring more ICT tools and better trainings. At the moment, finding an ICT-job is challenging, especially when you do not have the connections and when you are not well skilled. Maxim Nyansa can fill the gap between ICT education and ICT businesses by providing a trainee program with practical skills. For Maxim Nyansa to have good connections can also be important in the future to guarantee a better chance for getting a job for the graduates of the trainee program. Moreover, for Maxim Nyansa it could be valuable to look at the different sectors and their challenges in order to adapt a program that fits the Sierra Leonean context.

## CONCLUSION

Maxim Nyansa has been very successful in Ghana for the previous years and now wants to expand to Sierra Leone with their trainee program and learning transformation. In general, it can be concluded that the trainee program and learning transformation both are very much desirable and feasible in Sierra Leone, though there are challenges to take into consideration. The extent of feasibility also differs per sector. I have conducted literature research in combination with interviews and observations in the public, educational and ICT sector. Results of the three sectors are discussed below.

Firstly, when we look at the public sector, a Maxim Nyansa branch is desirable as the political will is present to develop the educational system and ICT in the country. The current government is focussing on quality education and launched the DSTI. So, supporting governmental initiatives are arising and developing. Moreover, the government has become more and more stable since the last elections in 2018. However, challenges that are still present are the corruption, the weak ICT infrastructure and the lack of enforcement because of limited monitoring and evaluation. When Maxim Nyansa wants to expand to Sierra Leone, they can choose to start a pilot in collaboration with another NGO or directly start a branch themselves. To start a branch they can register at MoFED and be a member of SLANGO which have an overview of the different NGO's in Sierra Leone. Good reliable contacts can be useful as well as a memorandum of understanding.

Secondly, considering the educational system, a Maxim Nyansa branch is very desirable, but there are challenges in the feasibility. Because of the lack of resources, and weak access to ICT and ICT literacy, providing a learning transformation is desirable. A big challenge faced to develop the ICT skills, is the poor ICT infrastructure. The more urban a school, the better the electricity supply. Therefore, I advise Maxim Nyansa to start urban with the learning transformation. Next to that, I advise Maxim Nyansa to start in the provinces, as this releases pressure from Freetown. Moreover, strict rules for ICT usage should be established to ensure good usage and maintenance. This is because of the lack of enforcement which is also present in the educational sector. The trainee program is desirable as well, as teaching skills and practical exercises in ICT are lacking. Feasibility of the trainee program can be researched further. A first step is already taken by sending two Sierra Leonean students to Ghana for the trainee program which started in February 2020.

Lastly, for the ICT sector it is also desirable for a Maxim Nyansa branch to come to Sierra Leone. In the last decades the ICT sector has been rising due to donors. Though, it is still fragile with poor access to ICT and internet penetration. Causes are the weak availability and high costs of internet. Maxim Nyansa should take this into account when entering the Sierra Leonean market. Regarding the usage of media, mobile phones and radio are popular. When promoting Maxim Nyansa in the country, this can be taken into consideration. The learning transformation and trainee program of Maxim Nyansa are desirable for the ICT sector as it can help developing the ICT sector. Moreover, finding an ICT job is challenging. Maxim Nyansa can support ICT students by developing ICT skills. In order to get a proper job, having the right connections is very much important. Maxim Nyansa should take this into account when expanding to Sierra Leone. I would advise Maxim Nyansa to gain a deeper understanding of ICT in the different sectors to adapt the trainee program to the Sierra Leonean context.

Further research can also be conducted to the opportunity to enter with their EXIN certification. I already found out that international certificates are lacking in Sierra Leone and that currently certification takes place in Ghana. I think there are big opportunities for this, but it definitely needs to be further explored.

## ABBREVIATIONS

APC	All People's Congress
BECE	Basic Education Certificate Examination
DSTI	Directorate of Science, Technology and Innovation
EDSA	Electricity Distribution and Supply Authority
EGTC	Electricity Generation and Transmission Company
ICT	Information and Communication Technology
JSS	Junior Secondary School
GoSL	Government of Sierra Leone
MCCU	Millennium Challenge Coordinating Unit
MoFED	Ministry of Finance and Economic Development
MoPED	Ministry of Planning and Economic Development
NRA	National Revenue Authority
SLANGO	Sierra Leone Association of Non-Governmental Organizations
SL-MTNDP	Sierra Leone Medium Term National Development Plan
SLNBCC	Sierra Leone Netherlands Business and Culture Council
SLPP	Sierra Leone People's Party
TMM	Tiwai Memory Masters

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## APPENDIX A: REGISTRATION PROCEDURE FOR NGOS

### STEP 1. Register with a Sector Ministry

The first step is to register with the sector Ministry which align with the activity. It is NGO's choice to select the Ministry.

### STEP 2. Register with Ministry of Finance and Economic Development (MoFED).

After the registration with the sector Ministry, the NGO has to register with Ministry of Finance and Economic Development.

#### STEP 2-1. Purchasing of Registration Form

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The NGO needs to purchase a registration form at NGO Unit within MoFED (Le.10,000= About US\$3.50). At the same time, following letters and documents are necessary to submit.

1. A letter including following items:
  - a) Background of Organization
  - b) Types of activities to be implemented
  - c) Areas (location) of operation in Sierra Leone
2. Attached following documents with the letter if it is an international NGO:
  - a) A copy of NGO's registration certificate from Headquarters (home Country)
  - b) A letter from Headquarters authorizing (name person) to register NGO in Sierra Leone

#### STEP2-2. Submission of Registration Form

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1. Copy of Constitution/Bye-Laws/Memorandum and Articles of Association
2. Mission Statement (If not in Constitution)
3. Sample or Description of Logo (If any)
4. Copy of Organogram-Stating any vacant positions
5. List of Personnel – Local and Expatriate
6. Details of work/residential permits of expatriate personnel, if any
7. Latest Tax Clearance Certificate
8. Proof of membership of NGO umbrella Organization (if any)
9. Application Fee (US\$500.00)

#### Note

1. CRITERIA for Registration
  1. Office Space with signpost
  2. Constitution/Memorandum and Articles of Association
  3. Mission Statement
  4. At least 3 Staff (voluntary or on salary)
  5. A Bank Account in the name of the Organisation
  6. Membership of SLANGO (Sierra Leone Association of NGO)
  7. List of Board of Trustees
  8. Tax Clearance Certificate from NRA
  9. Copies of Project Proposals to be implemented
  10. Letters of Attestation from Sector Ministries, where applicable.

#### 2. Fees<sup>1</sup>

1. Application Form-Le.10,000 (About US\$3.50.)
2. Registration Fees-US\$500
3. SLANGO-Le.660,000.

#### 3. Remarks<sup>2</sup>

- Those NGOs registered to MOFED will be granted by some privileges such as tax exemption.
- NGOs which wish to have activities more than a year needs to make renewal of the registration every year.

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<sup>1</sup> Fees can change over time

<sup>2</sup> This information can be found on <https://www.jica.go.jp/ghana/english/office/sierra/ngo.html>

## APPENDIX B: OVERVIEW ICT STUDIES

<b>ICT studies</b>			
<b>University/ Institute</b>	<b>Degrees (4 years)</b>	<b>Diplomas (2 years)</b>	<b>Certificates (1 year)</b>
Institute of Public Administration and Management (IPAM)	1. Information Systems 2. Information Technology	-	-
Njala University	1. Industrial Technology	1. Industrial Technology	
	Department of Computer Science <sup>3</sup>		
Bluecrest College	1. Information Technology	1. Software Engineering 2. Network Engineering 3. Web Design and Management 4. Application Development 5. Hardware - Network Technician 6. Fashion Design	1. Application Development 2. Web Design and Management 3. IT & Project Management 4. Desktop Applications 5. Hardware – Network Technician 6. Information System Security 7. Database Administration 8. System Administration 9. Network Engineering 10. ERP Training (Financial accounting) 11. Fashion Design
Canadian College of Technology	Department of Computer Science <sup>3</sup> Department of Business Information Technology <sup>3</sup>		
Limkokwing	1. Business Information Technology 2. Information and Communication Technology 3. Information Technology 4. Software Engineering with multimedia		
Institute of Advanced Management and Technology (IAMTECH)	1. Computer Science 2. Electronic and telecommunications 3. Information systems	1. Computer Science 2. Computer Hardware 3. Management Information Systems	1. Computer Studies

<sup>3</sup> Here there has not been more information available about the degrees, diplomas and/ or certificates.