



International
Trade
Centre



This project is funded by
the European Union

YOUTH EMPLOYMENT OPPORTUNITIES IN THE ICT SECTOR IN THE GAMBIA

January 2018

By

Stephane Boyera
Joseph Gomez

This report has been prepared by Stephane Boyera and Joseph Gomez at the International Trade Centre as part of “The Gambia: Youth Empowerment Project” (YEP), financed by the European Union.

For more information on YEP, contact:

Mr. Raimund Moser

YEP Project Manager

Email: moser@intracen.org

Tel. +220 3616993; +220 9662895

Ms. Fatou Jallow

YEP Project Coordinator and Senior Technical Adviser

Email: fjallow@intracen.org

Tel. +220 3616993; +220 9662895

International Trade Centre
Sait Matty Road, Bakau
The Gambia

F: www.facebook.com/groups/yepgambia/

I: www.yep.gm

T: twitter.com/yepgambia

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the Youth Empowerment Project and can in no way be taken to reflect the views of the European Union

The designations employed and the presentation of material in this document do not imply the expression of any opinion whatsoever on the part of the International Trade Centre concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Mention of firm names does not imply endorsement.

This document has not been formally edited by ITC.

Table of Contents

Table of Contents	1
Introduction.....	2
Acknowledgements	3
Methodology	4
The Gambia Context.....	8
Field Mission.....	14
Greater Banjul (Urban) Area	14
Rural Areas	14
Study Findings	18
ICT Context	18
The offer	23
The demand.....	24
Rural areas.....	27
Key outputs	28
Recommendations	29
Setup of a Tech Hub in Banjul area	30
Advocate for a national ICT development plan.....	33
Setup a microwork initiative	35
Conclusion	37
Annex A – List of interviews	39
Annex B – Interview Guide	43
Annex C – Mobile operators performance.....	51

Introduction

The study presented in this report was commissioned by the International Trade Center (ITC¹). The ITC is a joint agency of the United Nations and the World Trade Organization, focusing on developing the export capabilities of small and medium-sized businesses in developing and transition economies. ITC's mandate covers all developing countries and transition economies with special emphasis on the Least Developed Countries (LDCs), Landlocked Developing Countries (LLDCs), Small Island Developing States (SIDs) Fragile States and Sub-Saharan Africa.

ITC is the lead implementing agency for the “Gambia Youth Empowerment Project” (YEP) funded by the European Union (EU). The main project partners - along private sector enterprises and training institutions - are the Ministry of Trade, Industry and Employment (MOTIE), the Ministry of Youth and Sports (MOYS), the National Youth Council, the Gambia Investment and Export Promotion Agency (GIEPA) and the Gambia Chamber of Commerce and Industry (GCCI). The overall objective of this four-year project is to tackle the economic root causes of irregular migration through increased job opportunities and income prospects for youth. This project will directly support the development of the local economy by (i) enhancing employability and self-employment opportunities for youth, with a focus on vocational training and the creation of micro and small-sized enterprises, and (ii) creating and improving employment opportunities in selected sectors through value addition and internationalization. The project will offer possibilities for those youths that might be interested to move into the commercial agriculture, service business or tourism sectors.

During the inception phase, ITC has identified four key Youth employment opportunities and income-generating activities (that meet both market attractiveness criteria and relevance/suitability criteria for the Youth). These promising Youth employment opportunities include: (1) Processed Groundnut and Cashew (GN); (2) Backyard Poultry Farming (egg and meat); (3) Local Building Materials (Compressed and Stabilized Earth Blocks/CSEB); and (4) ICTs. This study focuses on the fourth dimension, ICT, and has the aim to identify potential impactful areas in the sector and provide an evaluation grid for ITC to select projects to fund.

This report has 5 main chapters. We will start by presenting the overall methodology used for the study, then present the context in the Gambia, from a general perspective and with a focus on the ICT sector. Then we will present the research conducted in the country (chapter 3), the findings of the study (chapter 4) and our recommendations about most promising opportunities that would provide short or mid-term impact on youth employment and ICT sector growth (chapter 5).

¹ <http://www.intracen.org>

Acknowledgements

This study was conducted by Joseph Gomez (local consultant from The Web Way) and Stephane Boyera (international consultant from SBC4D²). The authors would like to thank Raimund Moser, ITC Youth Empowerment Project (YEP) manager in The Gambia and Philippe Helluy, ITC Adviser, Agri-food Value Chain Development (Geneva) who led the study and has been instrumental to its completion. We would like also to thank Baboucarr Sallah, Operations and Finance Officer for YEP for his invaluable support for the logistics during the field activities. Finally, we will also like to thank Fatou Mbenga Jallow Project coordinator and Senior Technical Adviser for YEP, for her support in helping us to fix appointments with some of the Interviewees we find difficult to reach. We are also thanking Amadou Nyang Deputy Director ICT for Ministry of Information & Communication Infrastructure (MoICI) for his support in helping us to reach some of the Interviewees.

The authors would also like to thank all the people who participated in the interviews. Most of them are listed in the annex A of this report. Without their contributions, this study will not exist.

² <http://www.sbc4d.com>

Methodology

The methodology used to develop this study was articulated around the exploration of 3 main dimensions:

- **The offer:** The aim of YEP is to identify opportunities for the youth, and it is therefore essential to characterize this targeted group, their profile and their employability.
- **The demand:** The job opportunities for the youth in the ICT sector largely depend on the demand for such services. It is therefore essential to explore what are the needs and requirements of various stakeholders in terms of ICT services and how many jobs it could create.
- **The ICT Environment:** The development of the ICT service market largely depends on the overall ICT country environment that impacts the development of specific services in specific areas. It is therefore essential to check whether this context fits with the identified opportunities.

These three dimensions allowed us to build a clear overview of the country in terms of opportunities and gaps for the youth in the ICT sector. From this 3-dimensional evaluation, we then identified a series of recommendations and a matrix of opportunities. Then from these recommendations, we will be able to evaluate the proposals submitted to ITC to see whether they fit in the right areas (thematic, geography etc.), and how they will leverage the strengths identified and lead to the expected impact.

Youth and ICT in The Gambia

The first element the study explored was the offer side of the market. To identify opportunities and challenges, it is essential to identify the main characteristics of the youth in The Gambia, and in particular:

- The education level: ability to read and write English, and main country languages.
- The ICT equipment and capacities: what are the capacities and what type of equipment people have and are familiar with.
- The aspirations: what are the aspirations? What does people want to do? Are they interested in the ICT sector or related ones (mobile etc.) and for what type of job?
- The expected income: to identify possible services, it is essential to evaluate the expectations in terms of income.
- Payment instruments: how can people receive money? This is an important element for many ICT activities: whether people have a bank account, a mobile money account, or can only handle cash.
- Entrepreneurship context: as this study looks particularly at entrepreneurs creating their job, it is essential to look at the specific issues that may exist in the country to become entrepreneurs, from registering a business, to accessing capital, etc.

It is obvious that all these characteristics are not homogeneous across the board, and we believe that it is essential to segment the youth in category. To inform our research and select the right participants for interviews, we used 3 categories:

- **Highly educated youth with a university diploma:** usually in this category we find potential entrepreneurs excited to create startups and alike, or technical jobs such as software developers.
- **Mid-level people:** in this category we usually find people that aim at intermediary jobs that require basic IT skills (networking, installation of machines, etc.). The profile at this level is a person with a secondary-level education that may have gone through vocational training or have the level for such trainings.
- **Bottom of the pyramid:** people with a lower/basic level of education, that may not be able to aim at intermediary jobs, but can still be a perfect fit for jobs that require basic training such as mobile repair/recharge, or microworks.

This part of the study was developed through interviews with organizations working with youth, and with selected representatives (youth leaders, existing ICT entrepreneurs, ICT incubators or technology hubs etc.). The results are presented in the study findings chapter.

[Demand for ICT services in The Gambia](#)

The second part of the study looked at the demand side of the ICT market. The demand is usually segmented by the different type of actors. We identified the following segments:

- **ICT and Telecommunication sector:** The ICT private sector is usually the primary source of ICT jobs. It is therefore essential to understand their expectations, the skills they are looking for, the salary they are currently offering, and the challenges they are facing to develop their businesses (e.g. is electricity a problem for phone penetration and the increase of telco business?).
- **NGOs:** There is a growing demand from the non-profit sector to mainstream ICT tools in their operation, from basic office services to more advanced mobile tools such as mobile data collection. It will be important to identify the recurring needs.
- **Private Sector:** Like NGOs, the private sector is also in demand of ICT profiles. It will be important to explore the type of profiles/services they are looking for from internal IT to web presence, to potentially mobile applications.
- **Public Sector:** government agencies may have specific needs in terms of ICT profiles that needs to be explored.
- **Public:** it will be important to explore whether general services offered to the public at large that might offer opportunities. An example of such services to explore is mobile phone repair, airtime selling and mobile phone charging. The identification of these opportunities will be done through discussions with mobile operators and with some field visits to understand whether there is a need for them that is not yet fulfilled by any actor in the market.

- **International actors:** Finally, there might be some opportunities at the international level. We will explore in this study whether microwork could be a solution in the Gambia by exploring a few existing platforms (Amazon Mechanical Turk³, LiveOps⁴, crowdflower⁵, samasource⁶, Jana⁷, etc.). We will assess for these platforms the revenue model, the payment modalities, the skills required, and the equipment required.

For each of the segments, we explored:

- the type of jobs or profiles that are needed and the type of services that have some commercial potential.
- the skills required.
- the ICT requirements (equipment, connectivity, etc.).
- the geography (where the jobs are located).
- the level of wages.
- other requirements: e.g. business registration, payment account, etc.
- the current challenges they are facing in e.g. recruitment (profile, availability, costs, turnover, etc.), or for business expansions that would create more job (regulation, access to capital -working or investment-, etc.).

The demand for ICT services landscape emerged from the interviews and is presented in the study findings chapter.

ICT Environment in The Gambia

The last element we explored was the ICT environment of The Gambia. We covered 2 main areas:

- **The ICT situation:** It is essential to understand in detail the state of ICT in the country to map the possible type of opportunities and jobs with specific geographical areas. E.g. it would be hard to develop a mobile charging job if there is no phone coverage in each area, or at the opposite if there isn't any electricity problem. The following elements are critical:
 - The GSM coverage in the Country, globally and per operator.
 - The data connectivity coverage in the country, globally and per operator.
 - The phone penetration rate in the various regions.
 - The electricity map of the country.
 - The existence/availability of internet café.

³ <https://www.mturk.com/mturk/welcome>

⁴ <https://www.liveops.com/> ??

⁵ <https://www.crowdflower.com/>

⁶ <https://www.samasource.org/>

⁷ <http://www.jana.com/home>

- The affordability of airtime, data bundle or internet café to map the expected revenue for specific activities.
- **The capacity building opportunities:** It is also important to map existing organizations and curriculum in the ICT domain to understand if the current context can bridge the gaps between existing capacities and required ones.

This ICT sector context is presented in the next chapter. The ICT capacity building landscape is covered in the interviews and is presented in the study findings chapter. The interview guides we used for the different categories of the stakeholders is available in Annex B.

The Gambia Context

This section presents an overview of the Gambia context. It is organized in two parts, the first one giving a general overview of the country and the second is presenting the ICT sector details.

Overview⁸

The Gambia is the smallest country of Africa with a size of 11,300 sq. km. The country is in West-Africa on two banks of the Gambia river over 450 km. The country is surrounded by Senegal (749Km of frontiers), except for a 60 km Atlantic Ocean front. The country is divided in 5 administrative regions plus two municipalities (Banjul City Council BCC and Kanifing Municipal Council KMC). With a 2 million population (estimation July 2017), The Gambia has one of the highest population density on the continent (177 people/Sq. km). Due to high fertility rate (4 children/woman), 60% of the population is below 25.

In terms of economic activities, agriculture accounts for 21% of the GDP, industry 13.8% and services 65%. However, 75% of the population depends on and works in agriculture for its livelihood, while only 6% of the labor force works in services. About 48% of the population is below the poverty line.

On the political context, presidential elections on 1 December 2016 resulted in a political transition after the incumbent President Yahya A.J.J. Jammeh was defeated by Adama Barrow, who garnered 43.3% of the vote. Parliamentary elections were organized for April 2017 and Barrow's United Democratic Party won 31 seats (not including the 5 MPs to be appointed directly by the President) in the 53-seat National Assembly.

Gambia ICT Sector⁹

The ICT sector has gone to a deep transformation and evolution since the last decade, with a series of legislations¹⁰ to liberalize and develop the ICT sector led by the Ministry of Information & Communication Infrastructure (MoICI) and with the arrival, in 2012, of the European submarine cable ACE¹¹ in Banjul largely increasing the internet international bandwidth in the country. The ACE cable has a capacity of 5.12Tb/s and 10Gb/s are dedicated to The Gambia.

⁸ Source of data cited in this paragraph: <https://www.cia.gov/library/publications/the-world-factbook/geos/ga.html> <http://www.worldbank.org/en/country/gambia/overview>

⁹ All data cited in this section comes from the following sources: [https://www.itu.int/en/ITU-D/Statistics/Documents/events/ethiopia2015/5-Gambia ICT data collection.pdf](https://www.itu.int/en/ITU-D/Statistics/Documents/events/ethiopia2015/5-Gambia%20ICT%20data%20collection.pdf) <http://wdi.worldbank.org/table/5.12> http://data.un.org/Data.aspx?q=mobile&d=SDGs&f=series%3aIT_MOB_2GNTWK <https://www.gsma.com/mobileeconomy/sub-saharan-africa-2017/> <https://www.gsma.com/mobileeconomy/west-africa/> and <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2017.aspx>

¹⁰ See e.g. the Information and Communication Act, 2009 :

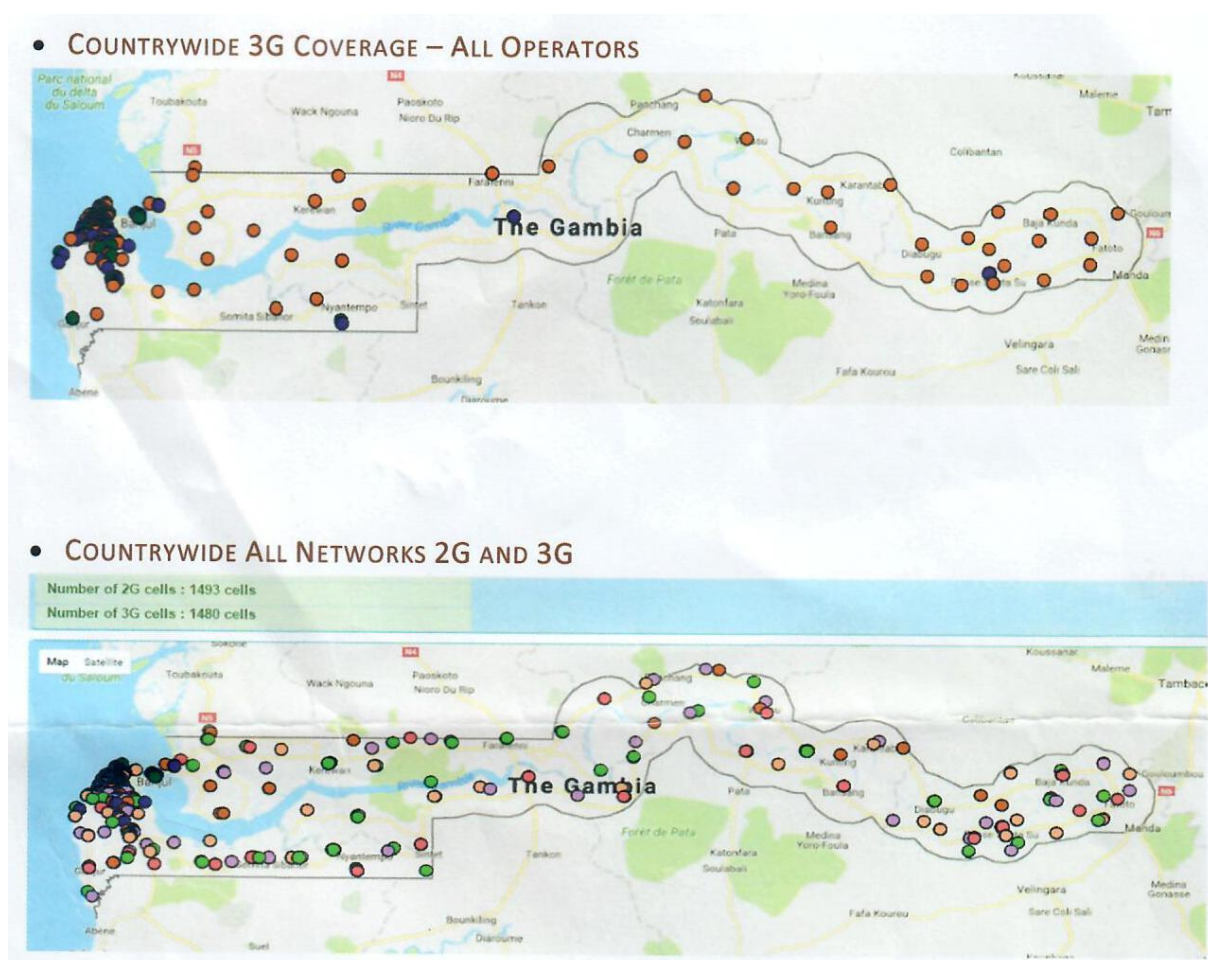
http://www.wipo.int/wipolex/en/text.jsp?file_id=238414 and The Gambian ICT4D-2012 Plan <http://unpan1.un.org/intradoc/groups/public/documents/UNPAN/UNPAN033480.pdf>

¹¹ [https://en.wikipedia.org/wiki/ACE_\(cable_system\)](https://en.wikipedia.org/wiki/ACE_(cable_system))

As of today, the country has 4 mobile operators and 5 ISPs (source PURA 2015¹²). In terms of network coverage, 96% of the population is covered by a GSM signal. The details by operator is provided in the table below (source PURA):

Operator	Population Coverage
Gamcel	78%
Comium	66%
Qcell	82%
Africell	91%

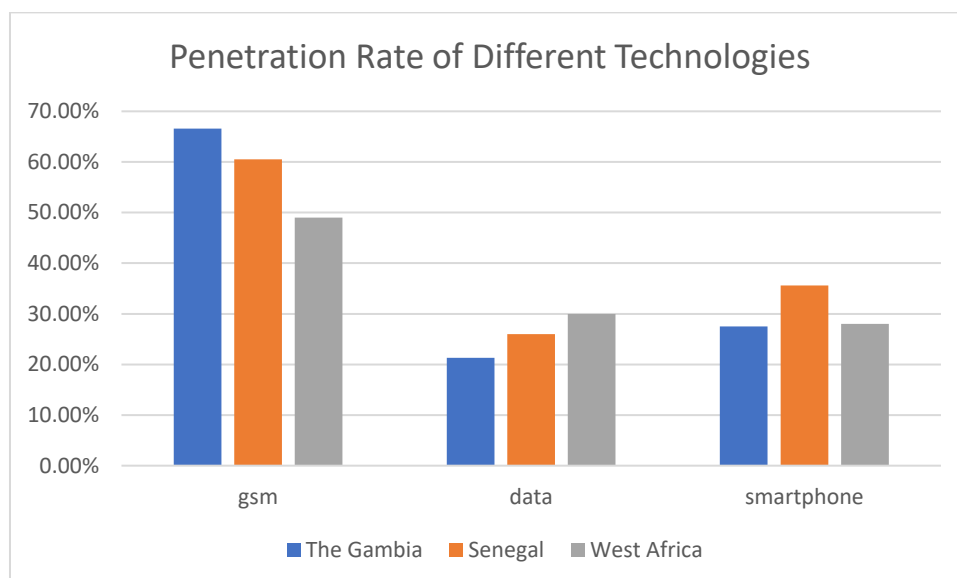
In terms of data network, 86% of the population is covered by a data network. The maps below detail the coverage by operator.



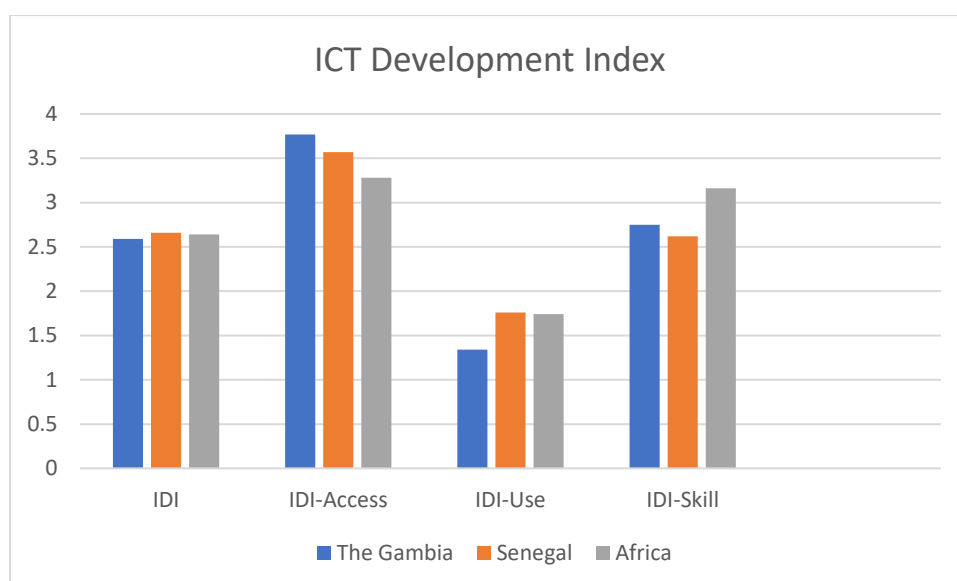
In comparison, only 92% of the Senegal population is covered by a GSM network, and only 50% by a data network. A similar difference exists concerning mobile subscription. The Gambia, with 1.4M unique GSM subscribers, has a penetration rate of 66.6% which is the second highest in West Africa after Ghana (66.7%) and far ahead of Senegal (60.5) and Nigeria (45.4%). The average penetration rate in West Africa is 53%. However, the situation is different when we look at the number of data subscribers where The Gambia with 21.3%

¹² https://www.itu.int/en/ITU-D/Statistics/Documents/events/ethiopia2015/5-Gambia_ICT_data_collection.pdf

penetration rate is behind Senegal (26%). In the same way, the penetration rate of smartphones is 27.5% compared to 35.6% in Senegal. The figure below shows this information.



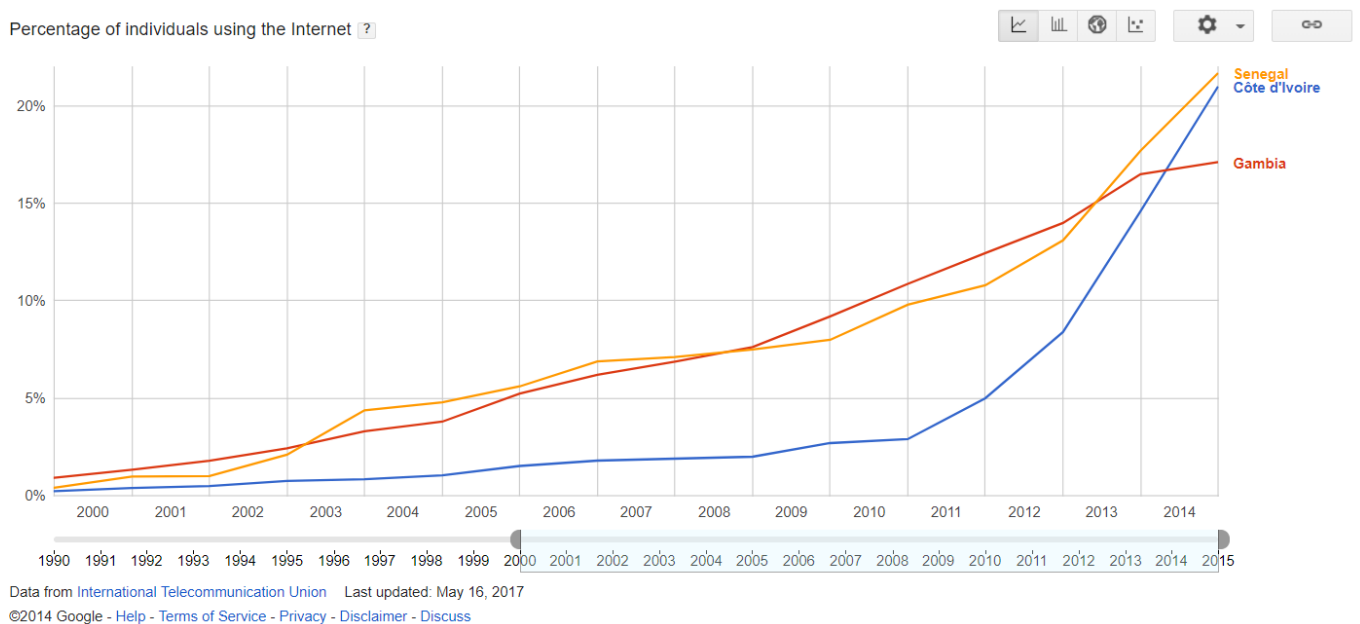
In order to consider other dimensions of the ICT sector such as the use or the skills, it is interesting to look at the ITU ICT Development Index (IDI¹³) and its three indexes, access, use and skills. The diagram below compares The Gambia, with Senegal and average results in Africa.



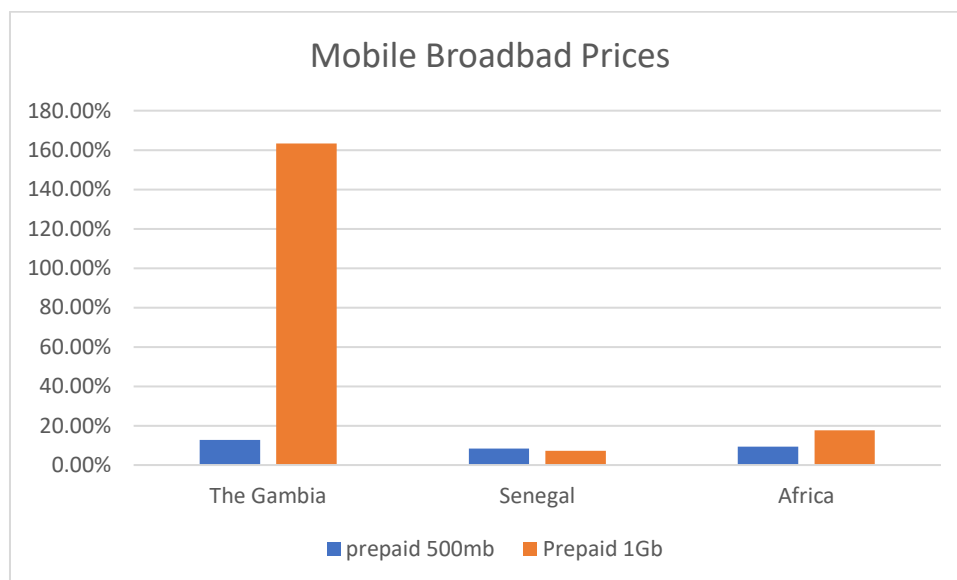
It is interesting to note that these values reflect previous numbers. In terms of IDI-Access and infrastructure, The Gambia scores better than Senegal and average Africa. But concerning IDI-Use, The Gambia scores significantly lower than average and lower than Senegal. For IDI-Skills, The Gambia scores significantly lower than average but better than Senegal.

¹³ <http://www.itu.int/net4/ITU-D/idi/2017/index.html#idi2017rank-tab>

While all the numbers provided above reflect the current situation, it is also meaningful to look the evolution. The diagram below shows the number of internet users in The Gambia, Senegal and Ivory Coast in the last few years.



This diagram above shows that till 2012 The Gambia, and Senegal had similar evolution, but since 2012 The Gambia is under-performing. Even late comers like Cote d'Ivoire, who had a far slower uptake, have a greater number of internet users. One possible explanation is the affordability of mobile broadband. The diagram below shows the prices in terms of percentage of GNI per capita¹⁴.



¹⁴ https://www.unicef.org/infobycountry/stats_popup7.html

While The Gambia offers 500Mb prepaid data plan at a price that is more expensive but in the same order of Senegal or the rest of Africa, the 1Gb plan is almost 10 times more expensive than the average.

To have a complete overview of the ICT sector, it would be useful to also look at its contribution to the GDP, to employment in service and the amount of investment in the sector. While these statistics are available for many countries, we were not able to find recent ones for The Gambia (i.e. 2015 or later) nor the MoICI provided them despite our request. For reference, in Senegal, the ICT sector contributes to 8.7% to the GDP (2016¹⁵).

Finally, in terms of policy, the last strategic plan for the MoICI was developed in May 2014 (“MOICI Strategic Plan 2014 – 2018”) but is not published online. Its vision (“A Gambia with the requisite infrastructure and enabling policy framework that ensures full connectivity of everyone to ICT services”) and its mission (“To provide an enabling environment that facilitates and promotes the development of a robust, scalable, reliable, available, affordable and accessible modern information and communication infrastructure that breeds an effective and efficient service delivery platform/system through institutionalized planning and systemic structures.”) focus mainly on infrastructure, but not on innovation, the term “innovation” not even being mentioned in the document. In the same way, it is interesting also to note that “mobile” is only mentioned twice in the strategy. By comparison, the Digital Senegal 2025 strategy¹⁶ published in October 2016 mentions 35 times “innovation” and 46 times “mobile”. Related to policy, it is also important to note that The Gambia scores very low on various international indexes measuring the easiness to launch startups¹⁷.

Finally, two other important elements should be noted:

- E-commerce is totally under-developed in the country. There is no reference site. See e.g. the July 2017 export.gov analysis¹⁸. The only example we found was Farm Fresh Gambia¹⁹, a web site with e-commerce, but targeting the diaspora to pay for goods for their relatives in the Gambia.
- Mobile money arrived only in 2016, making The Gambia the last market in Africa getting a mobile money service (see GSMA study on Mobile Money²⁰).

Given the very recent introduction of mobile money, and the very low financial inclusion level in The Gambia (75% of adult population in the country do not have bank accounts²¹), the development of e-commerce is very likely going to be hindered by the lack of digital payment instrument. It is important to note that this is not specific to The Gambia, but, continent-wide,

¹⁵ <https://www.socialnetlink.org/2016/03/rapport-secteur-des-tic-le-senegal-performe-moins-bien/>

¹⁶ https://www.sec.gouv.sn/IMG/pdf/sn2025_final_31102016.pdf

¹⁷ World Bank Doing Business The Gambia data <http://www.doingbusiness.org/data/exploreeconomies/gambia> – MCC The Gambia Scorecard <https://www.mcc.gov/who-we-fund/scorecard/fy-2018/GM>

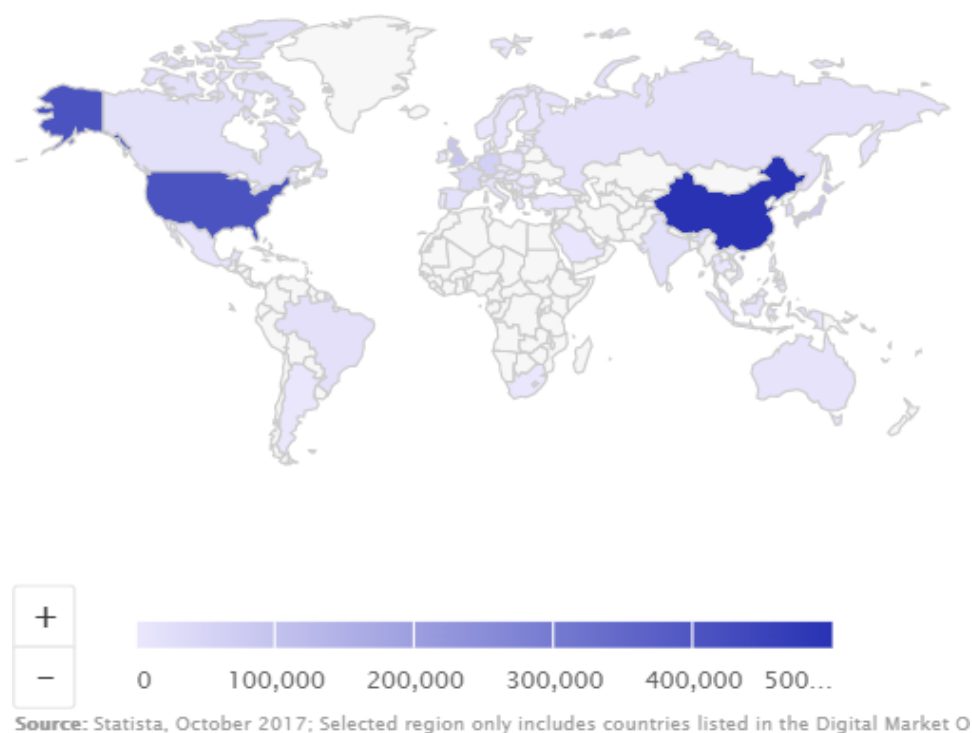
¹⁸ <https://www.export.gov/article?id=Gambia-eCommerce>

¹⁹ <http://farmfresh.gm/> <http://www.e-agriculture.org/news/farm-fresh-gambia-marketing-local-products-through-e-commerce-platform>

²⁰ https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/03/GSMA_State-of-the-Industry-Report-on-Mobile-Money_2016.pdf

²¹ <http://standard.gm/site/2016/04/13/financial-inclusion-key-policy-agenda-government-cbg-boss/>

the development of e-commerce (buying goods online) is very slow (see for example a recent analysis of the Nigeria e-commerce challenges²²). The map below shows the development of e-commerce in the World (revenue in \$ million).



²² <http://africanbusinessmagazine.com/region/west-africa/nigerias-e-commerce-infrastructure-challenge/>

Field Mission

The output of this study was largely driven by the interviews we ran in the field. This part of the assignment, conducted by Joseph Gomez, national consultant, was to spend about two weeks in the greater Banjul (Urban) area, and then one week in the rural areas. An itinerary was developed with list of potential interviewees. A backing letter from the YEP team was provided, and this letter was attached with an interview guide (see Annex for the guide), and delivered to organizations/Institutions prior visit. A follow-up phone call was made to those who received the letter requesting for an interview.

Greater Banjul (Urban) Area

We were able to interview almost all the organizations and Institutions we planned to interview. Most of the ICT companies and Tech Centers were easily reached, but it was a challenge to reach some of the Government agencies and some private companies. With some successes, the YEP team and MoICI did provide some support to reach some of those that were difficult to reach. Almost all the big Companies and ICT firms are located in the greater Banjul area, and this is reflected in the interviewees list. It was not difficult to get appointments with most of the Tech Centers and Youth organization. However, it was very challenging to get appointments with some of the companies, and few ended up filling the survey themselves and then send it back to us. We were able to interview only one of the mobile operators but no success with the other three. Two of them communicated that they were busy, and we failed to agree on a date for an interview, nor were they able to even fill the survey for us.

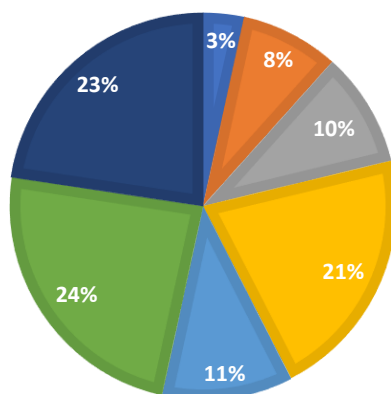
Rural Areas

Due to unstable internet connectivity in the rural areas, in most cases, the letter requesting an interview could not be delivered prior to our visit. However, the Mr. Gomez has contacts with organizations and individuals in the rural areas due to past experience working in these areas. Logistics was a challenge and we spent less than a week in the rural area, with limited visit to very remote areas. A few interviews were conducted by phone, on questions related to mobile charging and phone repair.

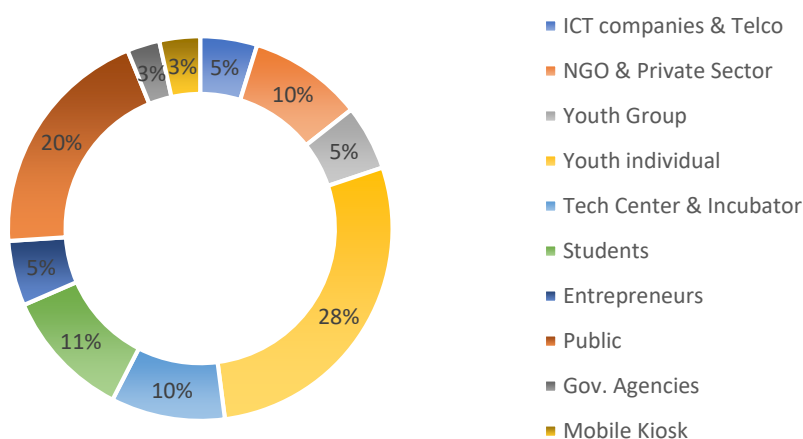
In total, 146 interviews were executed. The figures below show the repartition by region and by category of actors.

REPARTION OF INTERVIEWS BY REGION

■ BCC ■ LRR ■ URR ■ WCR ■ NBR ■ KMC ■ CRR



Repartition of Interviews by Categories of actors



In details, the agenda of the field visits is presented in the table below.

Date	Activity
6 November 2017	Beginning of the mission. Received the backing letter from the YEP team and sent it to some of those in the greater Banjul, requesting for an interview date.
7 November 2017	Follow-up on the letters. Visited and Interviewed sterling consortium Tech Center in greater Banjul.
8 November 2017	Visited and interviewed Mediamatic, KMF, Startup Gambia Incubator and GCCI in greater Banjul.
9 November 2017	Visited and interviewed YMCA training Center, R&A, Global Youth Innovation Network Gambia Chapter and MoICI, all in greater Banjul.
10 November 2017	Visited and interviewed Unique Solutions, National Youth Council, Catholic Development Office CaDO and AssuTech, all in greater Banjul
11 November 2017	Visited and interviewed Future Tech and Print Power in greater Banjul.
12 November 2017	BREAK

13 November 2017	Visited and interviewed Give1Project Tech for girls, Lend A hand Society and Ocean Bay Hotel
14 November 2017	Visited and interviewed Kombo Beach hotel, National Record Service and also interviewed two IT Technicians, all in greater Banjul.
15 November 2017	Visited and interviewed Gamtel, United Purpose, GIEPA and Instant GSM Solution, all in Greater Banjul.
16 November 2017	No Activity due to logistic issue
17 November 2017	Prepared CRR-South visits and interviews
18 November 2017	Visited and interviewed Musa Fatty Mobile Charging Kiosk in Brikamaba-CRR-South, and also interviewed some youths who wants to take ICT as a career. Public Interviews were also conducted in the Town and at a Village about 2 KM from the Town. Also made phone calls to those in Bansang prior the visit the following day.
19 November 2017	Traveled to Bansang-CRR-South, and visited and interviewed Bansang Youth Center and also interview Youths who wants to take ICT as a Career. Also conducted public interview in the Town. Journeyed back to Janjangbureh in CRR-South and interviewed the Regional Youth group and also the Regional Youth group for Global Youth Innovation Network Gambia Chapter. Also interviewed some youths who wants to take ICT as a career.
20 November 2017	Visited CRR-South Local Area Council and also the Regional Education office for the interview. Journeyed back to YEP office.
21 November 2017	Visited Bwiam-WCR and met a youth who wants to take ICT as Career. Conducted public interviews in the Town and at a Village about 2KM from the high way. Then moved to LRR and conducted public interview at a remote village about 3KM from the highway. In the evening at LRR, interviews of Balal Rural Empowerment Sustainable Development Initiative and also interview some youths who wants to take ICT as a career.
22 November 2017	From LRR, travelled to URR and interview two NGOs namely WASDA and Tostan. Visited and interviewed GTMI Training institute and Success Institute College. Interviewed youths who wants to take ICT as a Career, an entrepreneur and the regional youth group.
23 November 2017	Interviewed a youth who wants to take ICT as a career and then Journeyed back from URR to LRR and drop off from the YEP vehicle and then cross to NBR.
24 November 2017	In Farafenni-NBR, visited Ensa Touray Computer and Information Technology Training Center and then moved to Kerewan in NBR. Interviewed ADWAC, the Regional Youth group and two youths who wants to take ICT as career. Conducted public interview in Kerewan and then moved to Barra and then cross to greater Banjul and Back home.
25 November 2017	Visited Gunjur and Sifor and Interviewed some youths who wants to take ICT as a career and also did few public interviews. Interviewed Young People without borders/GAMRUPA in Sifoe. Moved to Brikama and interviewed African Information Technology Holding Limited

	(training center), Suna Institute of Science and Technology and Start Interviewed by phone training center in Brikama I.
26 November 2017	End of the field interviews

Study Findings

This section summarizes the findings of the study that have emerged from the interviews and the meetings. It is divided in the 3 chapters mentioned in the methodology section, but also complemented with a fourth one that gather the findings specific to rural areas. These areas present a peculiar context and set of challenges that deserved a separate section.

ICT Context

The chapter on ICT context earlier in the report presented the detailed country profile from an indicator perspective. This picture was completed during the interviews to investigate the innovation ecosystem, the offers in terms of technical training and capacity building initiatives.

Innovation ecosystem

The innovation ecosystem relates to the startup scene in the country, and how active and vibrant it is. We investigated three elements:

- **The startups in the ICT sector:** how many number of startups exist, how dynamic is the sector, etc.
- **The innovation incentives:** is there in the environment incentives for innovation (tax rebates, technology park, etc.) or initiatives to generate activities (competition, hackathon, etc.).
- **The supporting actors:** is there incubators, advocates, etc.?

Our interviews and investigations led us to realize that there is almost no activity in any of these three areas. On the startup front, not only no Gambian examples are identified/promoted in the various international studies/competitions about Africa startup scene (see e.g. 100 Innovations for sustainable development²³, Africa's Most Promising Young Entrepreneurs: Forbes Africa's 30 Under 30 For 2015²⁴ or a 2014 study on mobile gaming²⁵ - in all these studies entrepreneurs comes from all over the continent including from countries such as Senegal, Cameroon, Kenya, Rwanda, or South Africa, but also from Mali, Sierra Leone, or Malawi but none from The Gambia), but there is no Gambian-funded startup by any Africa-wide see funders like Venture Capital Africa²⁶, nor we were able to find real entrepreneurs developing startups on innovative products. There are entrepreneurs developing their companies for ICT consulting or ICT services in general, there are also individual consultants, but none have developed their company around new innovative products like mobile applications or alike. The only identified initiative is the very recent (29 November 2017) Innovate Gambia²⁷, launched by an entrepreneur, and that is for now just an informal

²³ <https://www.diplomatie.gouv.fr/en/french-foreign-policy/development-assistance/events/african-forum-100-innovations-for/latest-news/article/african-forum-100-innovations-for-18791>

²⁴ <https://www.forbes.com/sites/kerryadolan/2015/06/12/africas-most-promising-young-entrepreneurs-forbes-africas-30-under-30-for-2015/#5046b3531de6>

²⁵ http://public.sbc4d.com/2014/final_games_public.pdf

²⁶ <https://vc4a.com/>

²⁷ <http://innovategambia.com>

gathering, even if the web site announce plans for a co-working space, an initiative on women in tech and entrepreneurship and an investment fund. It will be important to see how this will develop, because not only the 29 November 2017 event organized by Innovate Gambia seemed poorly attended (about 20 people according to pictures from the event²⁸), but also because we identified other “initiatives” (see e.g. cinnovation²⁹) presented on a website for which we did not find any activity on the ground.

On the second point, we did not find any incentives for innovation, either provided by the government or the non-governmental sector. The last hackathon was few years back. There is no national competition or alike. We did not find any tax rebates on the ICT sector, except the import taxes on computer. There is no support for startup, nor there is anything like a technology park. Finally, all actors we met from individuals to organizations mentioned the lack of seed funding, even at the very low level that would help people to launch the first phase of their company.

Finally, there is no highly visible technology hub or incubators³⁰ that will help structuring the community, be a natural counter-part for the government when e.g. discussing ICT policies, and provide a series of integrated services for both the community at large and individual innovators. There is only one embryonic tech hub, Jokkolabs³¹ hosted by YMCA³², which is mainly driven by one person. Jokkolabs works at a very low scale, is not highly visible. Moreover, despite a computer center at YMCA, the organization is not operating a real space where the community meets like the traditional tech hub in other countries. Finally, they don’t have an advocacy role or any role in policy dialog.

It is interesting to compare with the situation in Senegal and the rest of Africa. The map below shows the tech hubs and their location on the continent. There are 10 active tech hubs with some of them well known at the international level like CTIC, Jokkolabs or Jjiguene and active in the policy dialog with the Senegalese Government.

²⁸

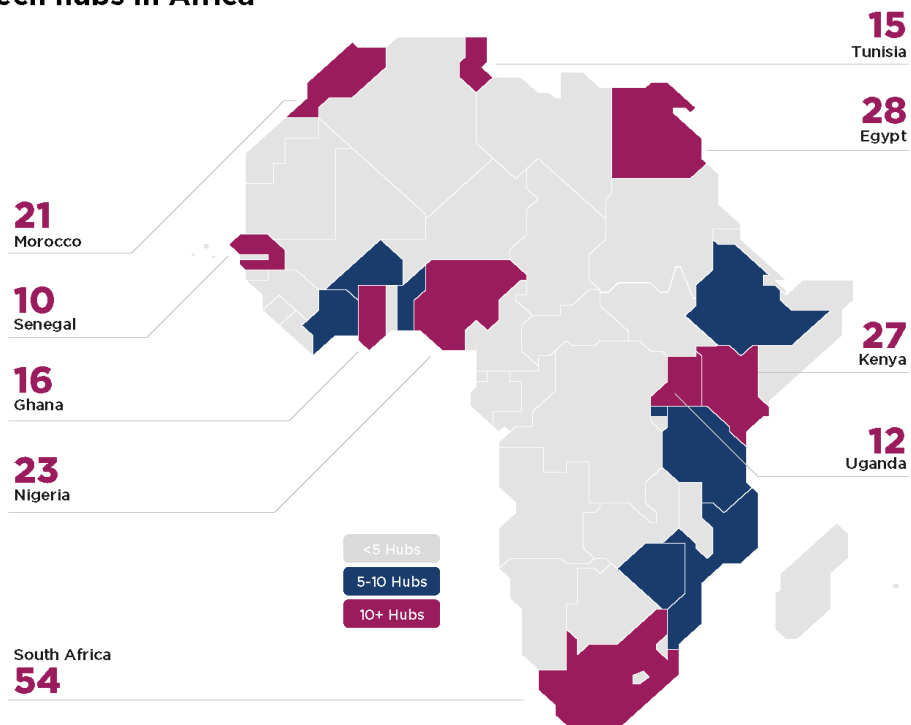
²⁹ <http://www.cinnovation.org>

³⁰ Note that there are a few generalist entrepreneurship-focused organizations like YMCA or Empretec, but while they mentor ICT companies, it is not tech startups focusing on developing new innovative project

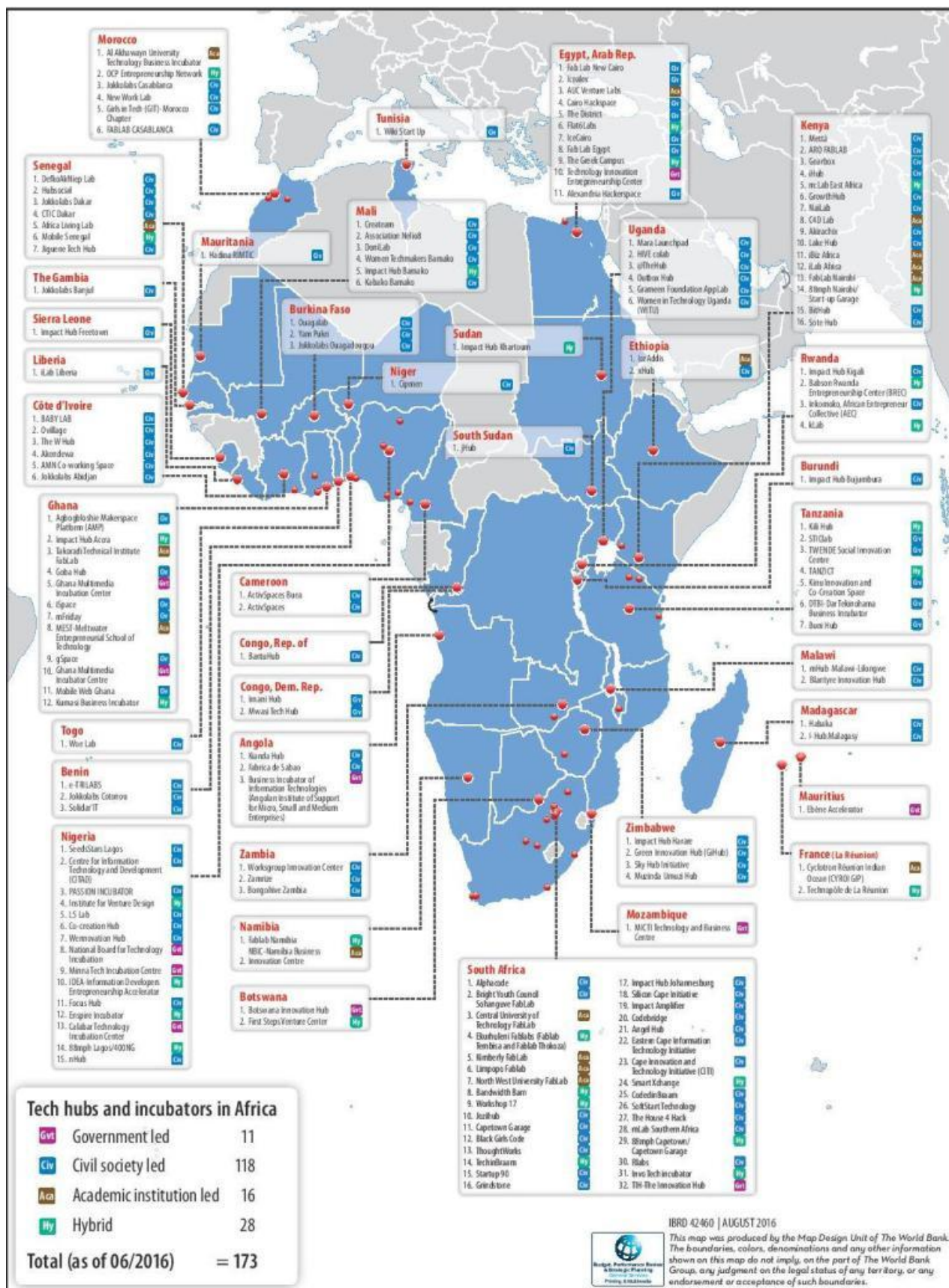
³¹ <http://jokkolabs.net/en/coworking/jokkolabs-banjul/>

³² <http://www.ymca.gm/>

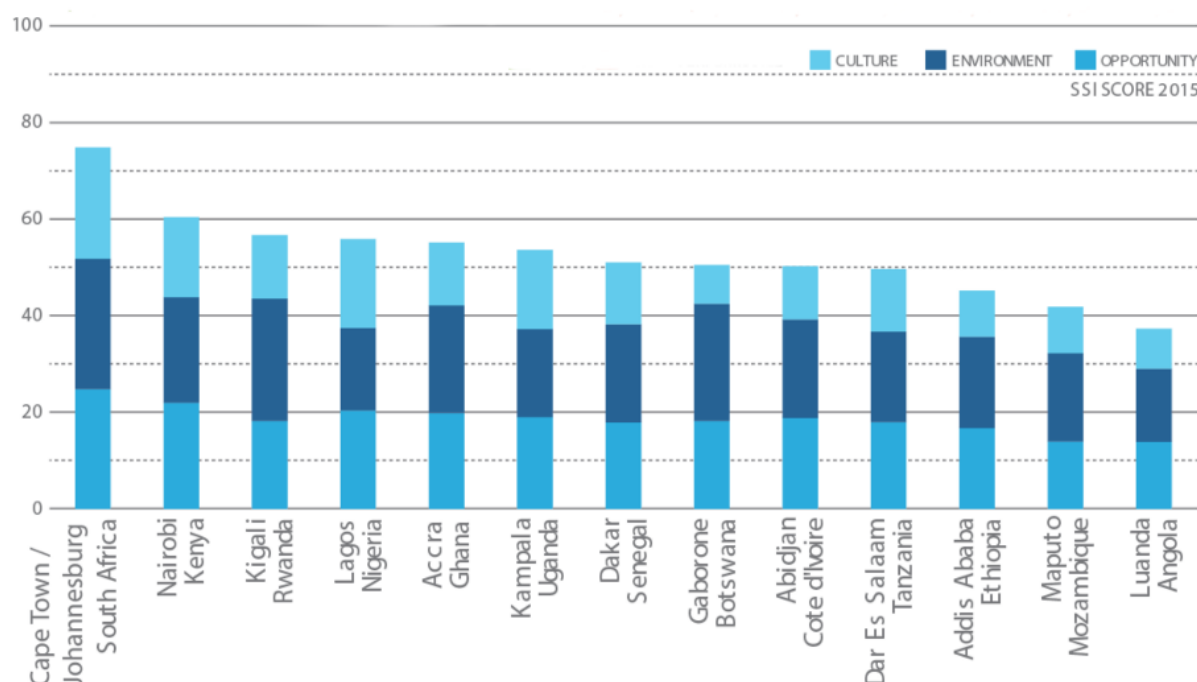
Tech hubs in Africa



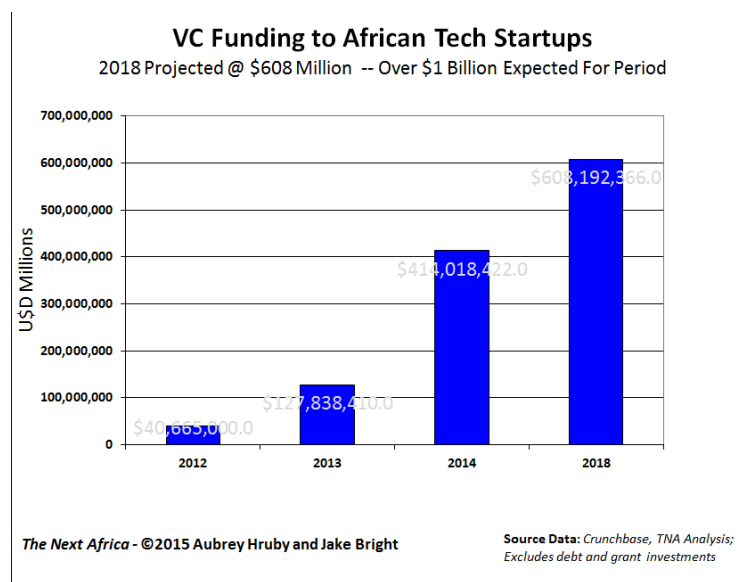
A more detailed map, with a slightly more open definition of tech hub, but completed in 2016 from the World Bank is below.



It terms of active cities/countries in terms of startups, the diagram below, from Seedstar World, a seed funder organizing competitions all over Africa (but not in the Gambia)³³, shows the most active geographical areas.



It is also interesting to explore VC investment. While we did not find any VC investment in startups in The Gambia, the market is literally exploding. The diagram evaluates the current level of VC investment.



³³ <https://www.seedstarsworld.com/>

Existing startups raised more than US\$129 million in 2016, representing an increase of 16.8% compared to the previous year (source Disrupt Africa³⁴). In Senegal, in June 2017, Orange announced³⁵ a new investment initiative of 50 million euros devoted to start-ups in Africa.

ICT Training

The ICT training scene is relatively homogeneous. Globally there are training at almost all levels, from basic training on how to use a computer, to basic office software up to some advanced training on specific topics. Different organizations (e.g. YMCA) also offer courses on Web development. However, specific topics like graphic design and multimedia production are in demand. In the same way, software development and web site development, while offered at a couple of places, are ranked as of poor quality. In these areas, ICT companies mention that they train the staff they recruit, and recruit abroad. Some individuals also mentioned that they had to go for self-learning in graphic design and multimedia production due to the absence of training opportunities. This is surely an area to leverage and develop.

The gender balance seems weak, but one organizations specifically focus on Girls in ICT (Give1Project³⁶) and organizes tech camp to build capacities in Web development, multimedia, graphic and related technologies. There are also a few organizations like Startup Incubator Gambia or Empretec are not specialized in ICT but more on entrepreneurship, and do deliver training to ICT entrepreneurs more focused on business skills.

Except the basic skills of ICT, most of the trainings target mid-level to postgraduate students.

The feedback from interviewees on existing ICT training highlights a few points:

- The quality of the sessions varies a lot depending on the trainers and their commitments.
- Most capacity building sessions are not integrated in a curriculum with different levels and a skill objective, but they are apparently more randomly organized.
- Most companies hiring people with ICT profile do not trust formal, vocational or professional training organizations, and train their own staff before employing them.
- There is almost no training in latest technologies from mobile technologies, to e.g. internet of things, open data or drones. Jokkolabs had a couple very limited training session on mobile but with a limited audience.

The offer

In this section, we summarize the key insights we collected about youth themselves and their interests, and profiles. Most of the information in this section related to the greater Banjul area. For specificities about the rural area, see the fourth section of the Study Findings section.

From the interviews of youth organizations and individuals, few key findings have emerged. The first one is the general interest in technologies, in mobile and ICT in particular. Almost all

³⁴ <http://disrupt-africa.com/funding-report/>

³⁵ <https://www.orange.com/en/Press-Room/press-releases/press-releases-2017/Orange-Digital-Investment-launches-a-new-investment-initiative-of-50-million-euros-devoted-to-start-ups-in-Africa>

³⁶ <http://www.give1projectgambia.org/>

young people are perfectly fluent with mobile phones, most of them with social media like Facebook (220.000 users in June 2017³⁷, equivalent to 50% of the total number of internet users in the country) and other social media (What'sApp as it was unblocked after Jammeh's departure). Most of them are also fluent with internet access and computer (email etc.)³⁸. They are also interested in other topics such as networking or software development.

In terms of entrepreneurship, the picture is balanced. At a first glance, based on the interviews, it seems that the youth is equally interested in entrepreneurship and in finding a job. Obviously, most people we interviewed in entrepreneurship courses, or in tech centers are more interested in creating their company, while people we interviewed in mid-level training are more interested in finding a job.

One of the potential reasons for interest in entrepreneurship is the level of salary provided by ICT jobs. Most ICT and telecommunication companies we interviewed are usually paying their staff in the 3000-5000GMD range (60-100USD) per month. These very low salaries lead to a high turnover that is highlighted as a challenge by companies. The main complaint is that the company trains young people without useful skills, and then, when they have the skills, they leave for a better salary. On the other hand, the salary expectation that emerged from interviews seems very reasonable, in the range of 15000-25000GMS monthly (300-500USD). This is far lower than in Senegal, where a software developer can easily get 1000USD per month.

Finally, it emerges that the ICT sector, particularly trainings and participants in ICT entrepreneurship classes, are largely male-dominated. One organization, Give1Project Gambia focuses on Girl in ICT, but this is surely an area to develop, as other countries have demonstrated the potential of girl in technologies.

The demand

In this section, we summarize the key insights we collected from various actors from NGO, private sector, ICT companies and some public agencies about the demand for ICT services and profiles.

In terms of skills in demand, five competencies clearly emerged:

- Web Design/development/Webmaster
- Graphic & multimedia
- Internal IT (networking, setup, maintenance)
- Software specific (e.g. accounting software)
- Software Development

These skills were mentioned by the ICT companies (around at least 30 jobs next year are planned by the 6 ICT companies we interviewed), by the NGOs, private sector and government

³⁷ <http://www.internetworldstats.com/africa.htm#gm>

³⁸ Note than all interviews are based on a limited country coverage, and in particular no coverage of very rural areas

departments as areas where they will recruit or outsource, and by individuals as a driver for their selection of trainings.

Most companies hire only internal IT staff, and recruit staff, particularly in the accounting department, that can manage existing software. Most of other profiles are in demand from IT companies, as most of these services are outsourced by NGO or private sector companies.

In terms of ICT services, lots of organizations and companies are investing in Web sites, in graphic design and in multimedia production, but the focus is almost only on communication and marketing. Except internal IT and software, other services are not considered as operational tools or company-internal tools. There is a very limited number of organizations using mobile tools in their operation (e.g. for field data collection, for outreaching to their targets etc.) even if some are more advanced (e.g. United Purpose have multiple mobile services) and could serve as use-cases/examples in the future. More generally, there is a very limited awareness and understanding of the potential of ICT tools to support and improve operations and impact. Consequently, people interviewed do not see the value proposition and therefore do not consider the investment in ICT as a priority.

In terms of mobile operators, based on the limited number of interviews (only 1 of the 4 operators) we can't really draw a meaningful conclusion, but given the current population coverage of networks, it is unlikely that they will massively recruit in the next few years.

In terms of public agencies, the Government of The Gambia is clearly less developed than its neighbors in terms of use of ICT or in terms of e-government and online services. However, during the interviews, we captured that there are plans being developed to develop an e-government framework in the next few years. Such initiatives will create opportunities for ICT profiles (on the high-end range, e.g. for advanced profile in software development, database administration, Web services and alike) in the near future.

Another key element is related to digitization. Given the low use of ICT, the Government is still heavily relying on paper and paper records. The National Record Service (NRS) has therefore a huge task of digitizing the records. They have literally thousands of boxes of documents to manage. They are lacking both budget and manpower to manage this task. This is an interesting opportunity that is developed in the recommendations section. This is also a potential opportunity to explore with a micro-work options. This model has been successful in other countries³⁹ as a way to train youth in ICT, support the government and initiate business process outsourcing (BPO) activities locally with the aim to expand outside the country later. One key element to note is the type of micro-works that is applicable in the country. There are two main models for these platforms:

³⁹ See examples in Ghana: <http://blogs.worldbank.org/ic4d/big-steps-toward-ghana-s-digital-future>
<https://www.rockefellerfoundation.org/about-us/news-media/rockefeller-foundations-3-8-million-grant-helps-position-ghana-to-accelerate-future-ict-job-growth/>

- **Individual-led approach:** each individual subscribes to tasks online or on their mobile phone, and receives payments (mobile money, visa card payment, wire transfer). That's the model of micro-work platforms like Jana or Amazon mechanical Turk.
- **Entrepreneur-led approach:** An entrepreneur sets up a tech center and contracts tasks that he or she splits among people in the center (BPO model). People usually receives a training before getting to the tasks. That's the model of platforms like Samasource.

At the time of this report, given the very low financial inclusion, and the very limited penetration rate of mobile money⁴⁰, the individual-led approach does not seem to be a viable option. The only model that would be interesting to explore is the entrepreneur-led model, either through a partnership with an international micro-work platform, or as an independent organization targeting the local market. At the moment, to the best of our knowledge and investigations for this study, there is no microwork business establish in The Gambia. The only initiative that is about to start (January 2018) is Ligaye Mbolo⁴¹, which has a partnership with Crowdfunder⁴².

In terms of more basic services, we explored mobile charging and mobile repairing opportunities⁴³ by interviewing individuals from local communities and existing mobile charging kiosk. The output gives a clear picture of the landscape. At the moment, while there are clear electricity problems all over the country, an ecosystem is already in place for those two services.

Concerning electricity, either the community is self-organized to charge phones (e.g. someone, as a rotating duty, collects all phones and go to a place where there is electricity and charge them all), or there are already a few charging kiosk businesses. The only factor that is considered by people is the price. As soon as there is competition locally (multiple charging kiosk) the prices drop to 5 GMD, making the business and the opportunity to make a decent income very difficult. It is very unlikely that the support of the development of these businesses would lead to increased opportunities for the operators, instead would likely make the opportunities less favorable for currently established actors. The investment in more advanced kiosks like the ones proposed by Ared⁴⁴ or Solar Kiosk⁴⁵ as developed in a few countries in Africa does not seem to be relevant as an ecosystem is already in place. Charging as well as airtime cards and alike are already available. Most of kiosk solutions were deployed in early days (2008-2012) as a way to expand the mobile phone penetration. But now, in most countries, and in particular in The Gambia, given the penetration rate, the overall ecosystem cannot be significantly developed with the hope to create a sizeable number of jobs.

⁴⁰ We were not able to get any official statistics of the penetration rate of mobile money, but this evaluation is based on the feedback from interviewees.

⁴¹ <http://www.ligayembolo.com/> site under construction

⁴² <https://www.crowdfunder.com/>

⁴³ Note again that we did not covered, for logistics reasons, very rural areas that might present a different context

⁴⁴ <http://www.a-r-e-d.com/>

⁴⁵ <http://solarkiosk.eu/product/>

The case of phone repairing is similar but also slightly different. The need exists, as there are only few people able to repair phone locally. But an ecosystem also exists, where people are able to send their phones to bigger towns to get them repaired. The second main issue is that the market is limited. Most People have very basic phone in rural areas, and such phones are very cheap. They don't have smartphone. The basic phones not only are more robust, but the type of repair is limited and occurs relatively rarely. The opportunities to create a job that can deliver a decent salary is low and the main reason for its underdevelopment at the local level. Finally, a few people mentioned that once they used to have someone repairing phones in their village, but when these persons were knowledgeable, they usually migrated to the greater Banjul area to access more opportunities (larger market, smartphone market). For all these reasons, it is unlikely that this sector presents a strong business opportunity and a potential for job creation.

Finally, as highlighted in the ICT context section in the country overview, E-commerce is not mentioned by any organizations we interviewed, nor it is considered as an opportunity by any of the ICT companies covered in this study. The current payment instruments situation does not seem to offer a fertile ground for the development of e-commerce in a near future. Perhaps, if the mobile money develops and reaches the same level as Kenya, online mobile payment may become an area to explore, but this would unlikely happen in the next 2 years if we look at markets in other countries such as Senegal.

Rural areas

During the interviews, and the visits in the regions, it became clear that the ICT landscape in rural areas is slightly different than in the greater Banjul area and should be reported separately. There commonalities but also major differences. In terms of commonalities, the interest and excitement of young people on mobile technologies and ICT is as developed as in the capital. However, the awareness on the opportunities - the type of jobs that are available, the topics such as networking, graphic design, etc. – is far lower. For most of them, they have heard about these topics but have no real clue about the content and the opportunities. This is also largely due to the very limited infrastructure such as internet café, ICT center, ICT training activities available in the regions. The main issue is related to electricity (absence and instability) that makes the operating of ICT center almost impossible. One of the biggest regions, CRR, and its main part CRR-North, does not have even a single ICT center. The absence of such infrastructure impacts largely the awareness, as well as the development of skills.

At the same time, the use of IT and ICT is also far lower than in the capital. Very few businesses have computers and even less internet connection. The demand of ICT services and ICT skills is very low if not inexistent. At a first glance, and on a short term, the ground does not seem to be very fertile for the development of the ICT market. As a first step, an awareness campaign about ICT opportunities could be a way to create agent of changes. An alternate complementary way to engage a new revolution could be the deployment of mobile ICT services to support main activities (i.e. agriculture) that could at the same time demonstrate the potential of ICT tools, support the agriculture domain, and raise awareness among youth about ICT and innovation.

Key outputs

In summary, the study gives a relatively homogeneous picture of the ICT landscape in The Gambia. The overall infrastructure and penetration of mobile technologies is impressive and better than most of the countries in the region. However, now, The Gambia has missed the mobile value-added services revolution. Most companies and organizations are still at the Web age or even before (office software), and not at the mobile application age yet. The startup scene is almost inexistent, and the innovation ecosystem has not been developed. There are no government incentives, no strategy in place and no leaders in the civil society. At the same time, like for in other countries, mobile and ICT is an appealing sector for the youth. This area is therefore a big opportunity for the future of the country and could be also used to bring innovative solutions in e.g. the agriculture sector or the tourism sector who are the most developed in the country.

For less-educated youth, given that the mobile ecosystem is already in place, basic services like mobile kiosk, mobile charging, airtime selling, or phone repairing don't look as a promising opportunity. Alternate interesting options seems more on microworks for basic ICT tasks like digitization activities, in demand from the Government. Such approach could be a first step to a larger BPO strategy and expansion in the future.

Concerning rural areas, the conditions are difficult. The lack of electricity, the lack of awareness on ICT opportunities, the lack of demand, make the development of (even basic) ICT skills and application difficult. Some of the biggest areas like CRR-north, representing most of CRR region, don't even have a single ICT center. Now, opportunities in rural areas seem limited. One way to change the context might be to focus on developing more mobile value-added services in e.g. agriculture, to raise awareness and excitement on these topics.

Finally, while we haven't conducted a quantitative analysis among companies and organizations, a few short-term opportunities emerged during the interviews, with a series of companies having already hiring plans in the ICT sector. While those data points below are more anecdotal, they also highlight the current trend.

Sector	Minimum number of Jobs likely created in the next 12 months	Companies
Web Design/development/Webmaster	5	Unique Solutions
Graphic & multimedia	9	KMF Technologies Mediamatic R&A
Internal IT (networking, setup, maintenance)	6	KMF Technologies Unique Solutions Gamtel Insist
Software specific (e.g. accounting software)	1	KMF Technologies
Software Development	7	Unique Solutions Insist

Recommendations

Based on the key outputs of the study, this section proposes 3 key interventions to exploit the opportunities identified and address the existing challenges. These 3 key interventions are: the setup of a Tech hub in Banjul (chapter 1 of this section), advocacy for a national ICT development plan (chapter 2 of this section) and setup of a micro-work initiative (chapter 3 of this section). The table below gives an overview of the proposed recommendations.

Activities	Leading organization	Starting Date	Duration	Indicative Budget (in USD)	Comments
1. Tech Hub					
1.1 Setup of a tech hub	Open procurement See an example ⁴⁶	01/02/2018	3-5 years	700k-1M	Should be led by a non-profit or the university
2. National ICT Plan					
2.1 Development of an ICT National Plan	MolCI	01/02/2018	1 year	50-80k	Budget is for the support of an international expert
2.2 Advocacy activities	MolCI	01/01/2019	2-3 years	400-500k	The budget covers the organization of an annual competition, plus the organization of communication campaigns and sector specific fairs
2.3 Innovation support	MolCI	01/01/2019	4-5 years		The budget is hard to evaluate as the scope of interventions are very large from technology park setup to tax rebates
2.4 Open Data	MolCI	01/01/2019	2 years	300-400k	Budget based on costs incurred in other countries from designing the action plan till implementation
3. Micro-work Initiative					
3.1 Setup of a microwork initiative	MolCI	01/02/2018	2-3 years	200-250k	Budget is to bootstrap microwork via public contracts for e.g. the National Record Service

⁴⁶ <https://tinyurl.com/yczcgst>

Setup of a Tech Hub in Banjul area

Since almost a decade, and the emergence of iHub in Kenya, the development of tech hubs all over Africa has been exponential. There are now almost 200 spaces in across all countries. The role of these centers is essential for the innovation ecosystem because they perform critical tasks:

- **Community building:** the primary role of tech hubs is to offer a place where young techies meet and exchange ideas. This is instrumental to stimulate ideas, and collaborations. The setup of a community is also the first step towards other activities such as competition, hackathon etc.
- **Entrepreneurship:** the second role of an ICT center is to nurture entrepreneurs and young talent to support them till they reach a critical size. Different types of tech hub have different objectives (see later in this section for details) in this area, but they all have some mentoring functions.
- **Awareness raising and capacity building:** the third key role of tech hubs is to raise awareness and build capacities in the community about latest technologies so that innovation can leverage the latest opportunities such as Internet of Things (IoT⁴⁷), drones, or data science.
- **Linkages:** The fourth role of a tech hub is not only to convene young techies but also to help create linkages with other actors:
 - Organizations (NGOs, private sector, public sector) looking for solutions for their problem.
 - International organizations, projects and initiatives looking for expertise and consulting.
 - Foreign visitors to promote the local tech scene for e.g. investment.
- **Policy dialog:** the last main role of a hub is also to represent the community to engage with the government and advocate for specific policy interventions.

It is important to note that there are very different types of hubs all over the continent. Four main factors usually differentiate them:

- **The co-working space:** most of the hubs, but not all, are structured around a space, that is strategically placed in town, where young techies easily popup to find good internet connectivity and a nice friendly place. This is also where informal gatherings (e.g. mobile Monday type of events⁴⁸), awareness raising, or capacity building events are taking place.
- **Commercial functions:** Some of the hubs have a series of services they sell. The most common one is to play a broker role: they get work and projects and then select member

⁴⁷

⁴⁸ <http://www.mobilemonday.net/>

of the community to execute the tasks. This is the case of e.g. Jokkolabs⁴⁹ in Senegal. This function requires resources for business development, and for coordination and project management. Other functions include organizing a training business (e.g. Mobile Web Ghana⁵⁰ in Ghana, or dLab in Tanzania), or providing research & consulting functions as a team (not as a brokerage function (this is e.g. the case of iHub in Kenya or dLab in Tanzania⁵¹).

- **The focus in the innovation pipeline:** The journey from an idea to a successful startup is long and go over multiple phases. There are usually three key stages:
 - **Seed funding stage:** in this stage, an entrepreneur or a team has an idea but needs to transform this idea in a prototype to demonstrate the potential. Usually a small amount of money is required (in the order of 5k), and that's the role of competition to provide such amounts. At this stage, entrepreneurs typically need technical support (mentor with technical skills), technical resources (a place to work, shared resources for e.g. hosting their prototype, etc.) and contacts with partners that can help deploying the product (e.g. mobile operators). During this stage, the entrepreneur usually works part time on the project, and the completion takes from 6 to 12 months.
 - **Pre-incubation stage:** During this stage the project moves from a prototype to the setup of a company. At this stage entrepreneurs need support for developing a business model, for setting up a company, and for contacting and engaging with business angels and venture capitalists. Entrepreneurs need also guidance and mentors to support them during the phase. The profile of the required mentors at this phase is more on business rather than on technical skills. At this stage a couple of staff are working full time on the projects to move from a prototype to a product. The amount of money required to complete this phase is usually in the order of 25 to 50k depending on the type of project and if it requires investment (e.g. IoT projects, drones, etc.).
 - **Incubation Stage:** At this stage the company is launched and starts to develop its activities. Entrepreneur needs usually a series of services such as:
 - A dedicate office, access to facilities such as meeting room.
 - Use of shared resources such as administration and accounting.
 - Support in business development and access to investors.
 - Mentors, specialists in the domain of the company products.

No tech hubs provide services at these three level, but usually focus on one. E.g. in Kenya, iHub focus more on the seed-funding stage, while mLab East Africa⁵² focuses on the pre-

⁴⁹ <http://jokkolabs.net/en/>

⁵⁰ <https://mobilewebghana.org/>

⁵¹ <http://www.dlab.or.tz>

⁵² <http://www.mlab.co.ke/>

incubation phase and CTIC⁵³ in Dakar on the incubation phase. Some spaces do not really provide such services, but just help with the seed-funding stages by organizing competitions. For example, in Senegal, it is the case of Jokkolabs or Buni hub⁵⁴ in Tanzania. In most cases, tech hubs with a co-working space provides support at the seed-funding stages. Hubs who are more at the pre-incubation/incubation stage or more business oriented, and provide company hosting but not a co-working space.

- **Theme focus:** At the origin of the tech hub movement, tech hubs were all focused on technologies (e.g. mobile and web) but were generalist in their targeted communities and their sectoral focus. Overtime, more focused hubs have emerged: some are dedicated to women in ICT (e.g. Jjiguene⁵⁵ in Senegal), some are focused on data science & open data (e.g. dLab Tanzania, Jakarta open data lab⁵⁶).

Based on the study findings, and given the absence of any space, the most pressing need is to structure the community. Our recommendation is therefore to focus on the following elements:

- **A co-working space** that is strategically placed in Banjul to attract young techies in modern conditions (good internet connectivity, nicely designed space) and is also set for hosting events. Based on the interviews, the co-working space should also offer computer access to support those who can't afford equipment. In the same way, to efficiently and effectively support the emergence of innovative value-added services in the mobile area, the space should develop relationships with mobile operators, and offer technical innovation platforms (e.g. Emerginov⁵⁷) that enable innovators to design, develop and deploy their services easily in all technologies including SMS/IVR/USSD.
- **A series of events to assemble the community regularly.** These events should focus informal internal discussions, but should also include thematic ones on some specific sectors (tourism, agriculture) that are priorities for the country. The aim here would be to engage and connect young techies with organizations with specific problems or ideas from targeted sectors.
- **An annual competition for seed-funding** with potential some specific themes or tracks on the model of Pivot East⁵⁸. This competition should be a starting point that engage with winners in a **12-month mentorship program** to enable them to make their path to success. As part of this item, the future space should investigate opportunities of corporate venture

⁵³ <http://www.cticdakar.com/>

⁵⁴ <http://buni.or.tz/>

⁵⁵ <http://jjiguenetech.com/>

⁵⁶ <http://labs.webfoundation.org/>

⁵⁷ <https://emerginov.ow2.org/bin/view/Main/>

⁵⁸ <https://www.facebook.com/pivoteast/>

capital (see the opportunity highlighted by GSMA⁵⁹) particularly with local mobile operators

- **A deep training program:** based on the study the following topics should be prioritized:
 - Graphical design
 - Multimedia production
 - Web development
 - Mobile technologies

Other topics such as specific software development or IoT courses will emerge as the community will develop.

Given the success of women program in other countries, the hub should consider also to run a women-specific program to develop opportunities for girls in ICT. This program should leverage existing initiatives, particularly the Give1Project one. The space will also have to expand its visibility on the regional and international scene to benefit from potential international investments.

Finally, it is important to highlight risks to the setup of such spaces. The main central one is related to sustainability. When it is established and visible, the space should consider adding a commercial arm. Naturally, the training activities should generate revenue after the image and reputation of the space is made. As the demand and the market, the space should consider adding consulting and research activities.

However, based on experience of other tech hubs, the timeline to reach sustainability is relatively long (3 to 5 years) and a minimum funding should be available to launch the space and support it till it reach this sustainability plan. This corresponds usually to a budget of at least 750k to 1M USD.

Advocate for a national ICT development plan

The setup of a tech hub is only one part of the equation to develop the innovation ecosystem in The Gambia. Without a clear investment from the Government, the chance of success of the tech hub is limited. The Government should consider putting innovation and the development of digital society at the heart of its vision and ICT strategy. As mentioned in the study findings, the last strategy, from 2014, does not focus not even mention innovation. It is essential to resolve this challenge.

Some countries in Africa such as Rwanda, or, for country with relatively small population, Mauritius have demonstrated how a strategic vision and a dedicated policy and action plan can have a tremendous impact on the development of the innovation ecosystem. The Gambia should follow this path. Four main points are identified in the study:

- **Promotion of ICT as a tool for social and economic development:** One of the main challenges that was highlighted in the study is the lack of awareness and understanding of

⁵⁹ https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/10/Corporate-venture-capital_An-opportunity-for-mobile-operators-and-startups-in-emerging-markets.pdf

the potential of ICT to support activities of various organizations from private sector to NGOs. In the same way, lots of young techies, specifically in rural areas, are not aware of the type of jobs and opportunities the sector can offer. One possible way to address this challenge is to engage in massive communication campaigns that will address both target. Such campaigns may take different forms but at the least following points could have positive effects:

- A clear visible public position of the president of the government about the role of ICT in the society and the potential of innovation to support the country development. The engagement of the country to develop this sector will attract attention is loudly announced.
- Regular fairs to highlight shining examples and demonstrate how in practice specific solutions can support specific sectors (agriculture, tourism, health, etc.)
- An annual national competition or prize for innovation: as a communication campaign but also as an instrument to develop the innovation ecosystem, national competitions are very effective (see a report highlighting their impact⁶⁰).

Such campaigns will create interest and attract attention, but alone will not be strong factor of change.

- **Innovation support:** The second key element is to support the change through incentives for early movers. The incentives should focus on three targets:
 - **Organizations investing in ICT:** NGOs, private sectors deciding to mainstream ICT in their work should have incentives to do so
 - **Startups & innovation actors:** people investing and taking risk to work on innovative solutions should be supported
 - **Individuals:** the development of the sector will require development of skills as well as the development of number of professionals in the sector. Despite existing interests among youth, it is important to support them in acquiring important skills to develop the sector.

In terms of the incentives themselves, usual elements include:

- Tax rebate for investment in ICT for organizations interested in developing ICT in their operation.
- Tax rebate for startup at the beginning of their life (e.g. first 3 to 5 years). Other incentives for startup launch include e.g. reduced constraints for registration. Some countries, e.g. Tunisia⁶¹, have defined a Startup Act that provide a global context to nurture startups and give them favorable conditions. As part of this startup act, a public development fund should also be considered to finance

⁶⁰ <https://www.innocentive.com/files/node/casestudy/whitepaper-challenges-prize-programs-and-opportunity-government.pdf>

⁶¹ <https://www.diafrikinvest.com/en/project-law-tunisia>

startups and demonstrate their potential during a few years, till business angels and private venture capital takes the relay and invest in the sector.

- Technology park to provide a physical area where all actors set and got specific financial support.
- Specific incentives for international investors in ICT.
- Individual grants for ICT training.
- **Policy intervention for affordability of ICT goods:** As the analysis of the ICT context demonstrated, some prices, particularly mobile broadband prices, are higher than in most countries on the continent. There is no explanation for this situation, particularly as the tariff of other GSM services (voice & SMS) is on par with or lower than neighbors' countries and the average on the continent. PURA should investigate this situation and implement policy change to lower those prices that hamper the development of data usage.
- **Open Data:** Finally, as a longer-term plan, The Gambia should consider engaging in the Open Data movement. A massive number of countries in the region (Ivory Coast, Senegal, Sierra Leone, Ghana, Nigeria, Burkina Faso, Mauritania, ...) and all over the continent have started to setup their national open data initiative. The potential social and economic impact of such initiatives is huge, and they serve as a catalyst for the innovation ecosystem and the development of digital society. Open Data has not the only objective to develop tech innovation, but has also a major role to implement open government and transparency and accountability. The change of regime is an opportunity to implement a set of new open governance principles that include open data. Tunisia and Burkina Faso are the best example of such a change in governance after the change of regime. Many donors are usually interested in funding such initiatives, and the World Bank has a full process and a set of methodologies and tools in place to support countries in this journey. Such initiative will not only serve the ICT and innovation sector, but the country at large.

Finally, the future development of online e-government services as announced by MoICI during our discussions, will largely benefit from the development of the sector, and the availability of more skilled companies and individuals to support the Government instead of calling for international expertise. In the same way, the development of ICT within the government will also be an opportunity for entrepreneurs and individuals in the future.

Setup of a microwork initiative

Finally, the last recommendation is to test and develop microwork in The Gambia. There is no initiative yet in this sector in the country and, based on the analysis in other countries, it seems to present a series of opportunities:

- Microwork is a very efficient way to train youth on ICT from basic tasks to more complex ones as they develop their skills. These approaches not only give jobs to youth, but they enable them to access new more qualified opportunities. The objective is not to get a stable job, but instead to use the approach to grow the number of professionals in the ICT sector.

- There is a specific need identified within the government (digitization of records) that fit particularly the microwork concept. The NRS has already identified 6000 days of work to digitize the documents they have internally, without even counting all documents in all other government agencies.
- Such approaches will allow the country to test at low cost and low scale the potential of BPO and, depending on the result, expand it later. The Gambia has specific strengths that fit very well with the BPO sector:
 - Low to very low salaries compared to other neighboring countries.
 - Good international internet connectivity thanks to the ACE cable.

These strengths should be exploited to develop the sector.

Based on the study, the most appropriate strategy to develop this sector and measure impact is not necessarily to subsidize specific microwork companies but instead support the development of their businesses by funding public agencies like NRS to digitize their documents. Such approach will support the country by making data available in electronic format and ease their exploitation, and at the same time will create market opportunities for microwork platforms to develop. This will not only create a demand in the sector, but will also serve as a shining example for other departments and agencies in the Government. For microwork companies, this will enable them to start businesses with a robust customer, before expanding to other opportunities with online microwork platform. Microwork companies should also be eligible for incentives like startups mentioned in the previous recommendation to support their setup and development.

Finally, it may be interesting to consider integrating a microwork initiative within the tech hub mentioned in the first recommendation. This will help the sustainability of the tech hub and support the community building, allowing people entering the microwork center to be in contact with the innovation sector that offer opportunities, and benefit later from other tech hub services.

Given the current situation, our recommendation is to promote and support the development of microwork in Banjul area, but consider expanding it later to main towns and regions to offer opportunities at the subnational level.

Conclusion

This study and the analysis of the Gambia ICT sector and the opportunities for youth employment give a homogeneous picture of the landscape, the challenges and the opportunity. The comparison with neighboring countries and other African countries on the continent shows that The Gambia is well positioned in terms of infrastructure, mobile network coverage, and mobile penetration. All the conditions for a vibrant ICT ecosystem is therefore present.

However, due to a lack of appropriate vision, policy, and strategy to develop the sector, The Gambia have missed the mobile value-added service innovation revolution that have started as early as 2010/2011 in some countries like Kenya but have since reached most countries on the continent from Morocco to Mauritius or from Dar es Salaam to Abidjan or Dakar. Despite the good infrastructure, there is no startup scene in the country and no active tech hub. In the same way, because of the lack of focus on ICT as a driver of development, the understanding of the potential of ICT solutions is weak among actors across the board (NGOs, private sector, etc.) and therefore not prioritized.

This situation offers a massive opportunity to develop and exploit. We believe that the landscape may massively change in a couple of years if two actions are implemented:

- **The government put ICT as a priority sector**, and engage in an ambitious strategy to develop the sector and develop innovation.
- **The ICT sector is developed and enhanced with a series of initiatives** that will serve as sparkle and will leverage the opportunities create by the new policies. These initiatives should at least include:
 - **The setup of a tech hub** to assemble and stimulate the community.
 - **The setup of specific training programs** to develop skills and offer local option for ICT companies. Training programs should include graphic design, multimedia production, web development and mobile technologies.
 - **The development of microwork and BPO:** The Gambia, with low salaries and good infrastructure offer a fertile ground for the development of this sector. Moreover, the study identified a specific opportunity in the digitization of government records that can serve as a starting point to develop companies in the sector.

Given the current state of the ICT sector in the Gambia and in other countries, the implementation of these interventions has the potential to create opportunities for hundreds or thousands of youth in a sector that appeals to them. At the same time, this would also create opportunities and development in the key sector of the country (agriculture and tourism).

Apart from these opportunities, the study has also identified a series of areas that does not look promising in terms of job creation and opportunities. This include services such as phone charging and airtime selling, and phone repairing. In these cases, an ecosystem is already in place and people are already finding the services they need. If these areas are developed,

there will be tougher market competition on prices, making people less able to earn a decent salary. While these areas used to be an important opportunity at the early days of mobile in the first 10 years of the 21st century, this is no more the case.

For different reasons, e-commerce does not seem to also be a promising opportunity soon. While this area is clearly underdeveloped, it presents specific challenges that all countries in sub-Saharan African have related to the low rate of financial inclusion of African population, and therefore the absence of online payment instrument. The only opportunity is for foreigner buyers which is very limited. Indeed, the tourism sector is already largely present on international online platforms (e.g. TripAdvisor, booking.com, expedia, hotels.com, etc.) sector and do not need any further development. The rest of international e-commerce seems very limited.

Organizations and individuals interviewed

No	NAME	TYPE	REGION
1	KMF Technologies	ICT Companies	KMC
2	Mediamatic	ICT Companies	KMC
3	R&A	ICT Companies	KMC
4	Unique Solutions	ICT Companies	KMC
5	Gambia Telecoms Company Ltd	ICT Companies	KMC
6	InSIST Global Ltd	ICT Companies	KMC
7	Catholic Development Office CaDO/Caritas	NGO, Private & Public	KMC
8	United Purpose, formerly Concern Universal	NGO, Private & Public	KMC
9	Gambia Chamber of Commerce and Industry -GCCCI	NGO, Private & Public	WCR
10	Kombo Beach Hotel	NGO, Private & Public	KMC
11	Ocean Bay Hotel	NGO, Private & Public	KMC
12	Ecobank	NGO, Private & Public	KMC
13	Regional Education Directorate 5	NGO, Private & Public	CRR
14	Janjangbureh Area Council	NGO, Private & Public	CRR-South
15	Foni Dinding Federation	NGO, Private & Public	WCR
16	FFHC	NGO, Private & Public	LRR
17	Tostan	NGO, Private & Public	URR
18	Wuli and Sandu Development Association WASDA	NGO, Private & Public	URR
19	Agency Development for Women and Children	NGO, Private & Public	NBR
20	Guaranty Trust Bank (Gambia) Ltd	NGO, Private & Public	KMC
21	Global Youth Innovation Network Gambia Chapter	Youth Group	KMC
22	Lend A Hand Society	Youth Group	KMC
23	National Youth Council (NYC)	Youth Group	KMC
24	CRR-Regional Youth Committee	Youth Group	CRR
25	URR-Regional Youth Committee	Youth Group	URR
26	NBR-Regional Youth	Youth Group	NBR
27	Young People without borders/GAMRUPA	Youth Group	WCR
28	Young Entrepreneur Association YEA	Youth Group	KMC
29	Amadou Bah	Individual Youth	WCR
30	Gibou Ndoeye	Individual Youth	KMC
31	Famara Kujabi	Individual Youth	KMC
32	Ebrima Ceesay	Individual Youth	KMC
33	Modou Lamin Fatty	Individual Youth	WCR
34	Alfu M Sarr	Individual Youth	NBR
35	Ousainou O Jallow	Individual Youth	WCR
36	Alagie B Ceesay	Individual Youth	CRR-South
37	Sulayman Ceesay	Individual Youth	CRR-South
38	Sainey Ceesay	Individual Youth	CRR-South
39	Hamammady Jallow	Individual Youth	CRR-South

40	Malang Njie	Individual Youth	CRR-South
41	Alagie Sey	Individual Youth	CRR-South
42	Sunkarr Krubally	Individual Youth	CRR-South
43	Mamadou B Barry	Individual Youth	CRR-South
44	Momodou Lamin Badjie	Individual Youth	CRR-South
45	Wonto Tamba	Individual Youth	CRR-South
46	Musa Bah	Individual Youth	WCR
47	Aja Isatou Fofana	Individual Youth	LRR
48	Fatoumatta I Sanyang	Individual Youth	LRR
49	Maimuna Barry	Individual Youth	LRR
50	Antou Joof	Individual Youth	LRR
51	Mamadou Jang Jallow	Individual Youth	LRR
52	Famara Jabbie	Individual Youth	URR
53	Fatou Baldeh	Individual Youth	URR
54	Essa Drammeh	Individual Youth	URR
55	Mariama Camara	Individual Youth	URR
56	Kajatou Jallow	Individual Youth	URR
57	Seriffo Mboge	Individual Youth	NBR
58	Muhammed Suwareh	Individual Youth	NBR
59	Boba Sanyang	Individual Youth	WCR
60	Muhammed Lamin Jabang	Individual Youth	WCR
61	Lamin K Camara	Individual Youth	WCR
62	Fatou Nyang	Individual Youth	WCR
63	Ousman Darboe	Individual Youth	WCR
64	Lamin Demba	Individual Youth	WCR
65	Hawa L Badjie	Individual Youth	WCR
66	Momadou Camara	Individual Youth	WCR
67	Foday Jawla	Individual Youth	WCR
68	Modou Fofana	Individual Youth	CRR-North
69	Omar Sey	Individual Youth	CRR-North
70	Young Men Christian Association YMCA - Computer Center	Tech Center	KMC
71	Sterling Consortium	Tech Center	KMC
72	Give1Project	Tech Center	KMC
73	Jokkolabs Banjul	Tech Center	KMC
74	Bansang Youth Center	Tech Center	CRR-South
75	Balal Rural Empowerment Sustainable Development Initiative	Tech Center	LRR
76	Gambia Telecommunication and Multimedia Institute	Tech Center	URR
77	Success Institute College	Tech Center	URR
78	Rural Community information center	Tech Center	LRR
79	Ensa Touray Computer and Information Technology Training Center	Tech Center	NBR
80	African Information Technology Holding Limited	Tech Center	WCR
81	Suna Institute of Science and Technology	Tech Center	WCR

82	Start Now	Tech Center	WCR
83	MARIAMA CONTEH	Student	WCR
84	Ada M Bojang	Student	WCR
85	Ajijatou Bah	Student	WCR
86	Mariatou Hydara	Student	KMC
87	Alpha Omar Barry	Student	KMC
88	Emmanuel Agunpop	Student	WCR
89	Hadija Touray	Student	KMC
90	Suwaibou Darboe	Student	WCR
91	Alieu Kebbeh	Student	WCR
92	Foday Jawla	Student	WCR
93	Abdoulie Jassey	Student	URR
94	Mai Keita	Student	NBR
95	Fatou L Cham	Student	NBR
96	Hamadi Sabally	Student	NBR
97	Elina Njie	Student	NBR
98	Sakujie Jawo	Student	NBR
99	Hassan Y Jallow founder of Assutech	Entrepreneur	WCR
100	Alagie Busso Founder and CEO of FutureTech	Entrepreneur	KMC
101	Abdou Rahman Jallow Founder of Print Power	Entrepreneur	KMC
102	Baboucarr Faal Founder of Instant GSM Solution	Entrepreneur	KMC
103	Ebrima Jarra	Entrepreneur	CRR
104	Ebrahima Nyassi	Entrepreneur	CRR
105	Rafew Jallow	Entrepreneur	URR
106	Mam S Danso	Entrepreneur	CRR-North
107	Alie Sagurah	Random People	CRR-South
108	Lamin Jabbie	Random People	CRR-South
109	Modou Njie	Random People	CRR-South
110	Sait Boye	Random People	CRR South
111	Alagie Camara	Random People	CRR-South
112	Sunkarr Krubally	Random People	CRR-South
113	Yaya Jallow	Random People	CRR-South
114	Muhammed Kebbeh	Random People	CRR-South
115	Wonto Tamba	Random People	CRR-South
116	Musa Nyassi	Random People	WCR
117	Musa Bah	Random People	WCR
118	Sainey Colley	Random People	WCR
119	Lamin K Jarjou	Random People	WCR
120	Baba Fadera	Random People	LRR
121	Aja Dembajang	Random People	LRR
122	Mamadou	Random People	LRR
123	Alasan Bah	Random People	LRR
124	Kebba Sillah	Random People	URR
125	Ebrima Touray	Random People	URR

126	Ebrima Mballow	Random People	URR
127	Jariatou Konteh	Random People	URR
128	Musa Job	Random People	NBR
129	Muhammed Suwareh	Random People	NBR
130	Fatou Nyang	Random People	WCR
131	Buba Sanyang	Random People	WCR
132	Mamadou Camara	Random People	WCR
133	Lamin Jaiteh	Random People	WCR
134	Modou Lamin	Random People	WCR
135	Mariama Jatta	Random People	CRR-North
136	Gambia Investment and Export Promotion Agency GIEPA	Funder	KMC
	Department:		
	Enterprise Support Unit (EMPRETECH)		KMC
	Business and Export Development.		KMC
137	Gamcel	Telco	BCC
138	Ministry of Information Communication and Infrastructure (MOICI)	Government	KMC
139	National Record Service-NRS	Government	BCC
140	Public Utility and Regulatory Authority (PURA)	Government	KMC
141	Startup Incubator Gambia	Incubator	KMC
142	Musa Fatty multi-purpose shop	Mobile charging Kiosk	CRR-South
143	Women Initiative Gambia WIG	Mobile charging Kiosk	CRR-North
144	Abdala shop	Mobile charging Kiosk	NBR
145	Tijan shop	Mobile charging Kiosk	NBR
146	Manneh shop	Mobile charging Kiosk	NBR

Annex B – Interview Guide

This annex is the guide used to conduct the interviews with various organizations. It was not designed to be a formal questionnaire but instead a supporting document for the national consultant to capture all information during interviews and meetings.

Telecom Companies

- What are the different type of profiles (e.g. software developers, network technicians, web site designer, etc.) you hire in the ICT sector?
 - Education level: University-graduate-Secondary-primary
 - Expertise: skills and past experience required
 - Age group: 18-25/25-30/30-35/35+
 - Average salary per profile: <3000, 3000-5000, 6000-10000, 11000-14000, 15,000-20,000, 21000-25,000, >25,000
- How many people you usually hire per year and per profile?
- Where geographically are located your staff per profile and per region?
- Do you have recruitment challenges?
 - Number of people available/applying
 - Education level
 - Language
 - Expertise
 - Other: too high salary expectation, high turnover, etc.
- Do you outsource some ICT services (web sites, etc.)?
- What are key challenges for people in rural areas / in urban areas (and does it vary per region/district) to use your services
 - Access to network
 - Access to airtime
 - Access to energy
 - Access to devices
 - Repair of devices
- Are there specific services you planning to develop in the future that will create job opportunities?
 - Mobile money
 - Other services
- What are market opportunities for mobile applications?
 - Content: data collection, games, specific app for e.g. donors such as health, agri, etc.
 - Technologies: SMS, ussd, IVR, smartphone
- Coverage: what is the coverage of your network
 - Gsm
 - Data:

- 2G
 - 3G
 - 4G
- Devices: what is the repartition of basic phone/feature phone/smartphone in your network? Do you have that information by region?
- How does the development of Value-added-services (VAS) work?
 - Do you offer VAS for your customers?
 - Which technologies?
 - SMS
 - USSD
 - IVR
 - Smartphone
 - How do you develop your VAS?
 - Internally
 - Outsourced
 - Competitions
 - Proposed by third parties like startups
 - What is the status of the ICT innovation ecosystem in the Gambia?
 - Do you get lots of request for hosting VAS from entrepreneurs?
 - Do you organize competition or event like hackathon to get more innovative services?
 - Do you have specific program to support startups?
 - Are there good ICT incubators in the country you work with or you support?
 - What are the main barriers to see more young techies developing innovative applications?
 - Number of young techies
 - Expertise in mobile technologies
 - Expertise in mobile businesses
 - Market opportunities (no demand)
 - Lack of support of innovation (lack of seed funding, incubator, etc.)

ICT Sector companies

- What are the different type of profiles (e.g. software developers, network technicians, web site designer, etc.) you hire in the ICT sector?
 - Education level: University-graduate-Secondary-primary
 - Expertise: skills and past experience required
 - Age group: 18-25/25-30/30-35/35+
 - Average salary per profile: <3000, 3000-5000, 6000-10000, 11000-14000, 15,000-20,000, 21000-25,000, >25,000

- How many people you usually hire per year per profile?
- Where geographically are located your staff (per profile)?
- Do you have recruitment challenges?
 - Number of people available/applying
 - Education level
 - Language
 - Expertise
 - Other: too high salary expectation, high turnover, etc.
- What are market opportunities (service in demand)?
 - IT (computer & network installation/maintenance)
 - Networking (internet connection, firewall, etc.)
 - Software development
 - Web site development
 - Web Application
 - Multimedia development (video, photo)
 - Graphic design
 - Mobile application (public app, company apps like data collection, etc.)
- Capacities in demand in the country
 - Office type software management
 - Accounting software management
 - Webmaster
 - Software development
 - Mobile application development
 - Social media communication
- Where is geographically the demand in the country per region?
- What is the main challenge in your business?
 - Organizations do not understand/are not aware of the value of ICT products
 - Organizations do not have budget for ICT
 - There is no need for ICT products
 - Most organizations develop their capacities internally
 - Other

NGO/Private Sector/Public Sector

- Do you see value in ICT for your operations and where/why/why not?
- Do you have staff with ICT profiles and what are those profiles?
 - Education level: University-graduate-Secondary-primary
 - Expertise: skills and past experience
 - Age group: 18-25/25-30/30-35/35+
 - Average salary per profile: <3000, 3000-5000, 6000-10000, 11000-14000, 15,000-20,000, 21000-25,000, >25,000
- Do you plan to expand your staff with ICT profiles? How many people and when?

- In which functions/department do you already use ICT?
 - Accounting & finance management
 - Communication & marketing
 - Customer management
 - Operation
 - Other
- In which functions/department do you see value/opportunities for ICT products
 - Accounting & finance management
 - Communication & marketing
 - Customer management
 - Operation
 - other
- What is your ICT infrastructure?
 - Computers
 - Network
 - Internet connection
- What are the ICT products you use?
 - Desktop Software
 - Office-like suite
 - Accountancy
 - Specific off-shelf products
 - Company-internal product
 - Developed in house
 - developed by a third party
 - Mobile application: sms, smartphone, etc.
 - Web site
 - Web Application
 - Internet applications (email, etc.)
 - Multimedia development (video etc.)
 - Social media presence (FB, twitter, WhatsApp, etc.)
- What are ICT services you outsource?
 - Web site
 - Multimedia production
 - SM communication
 - other
- What are main challenges for integrating further ICT in your operation?
 - You are not aware of the various type of ICT products and how they can help your organization
 - You are aware of the various type of ICT products, but you don't see any value for your organization
 - You don't trust ICT products: security, need for electricity, backup, etc.

- You don't have the budget
- You don't have qualified staff and can't expand
- You don't have qualified staff and can't find the right profile
- Other
- What are your ICT development plan in the next 3 years?
 - Staff
 - Equipment/infrastructure
 - Product
- Do you have recruitment challenges for ICT profile?
 - Number of people available/applying
 - Education level
 - Language
 - Expertise
 - Other: too high salary expectation, high turnover, etc.
-

Government specific

- Are there specific programs like e-government that are planned in the future and will require major investment in ICT?
 - Staff
 - Equipment/infrastructure
 - Product
- Would these investment in the form of outsourced services or will also lead to recruitment of ICT profiles?
 - Which profiles?
 - How many?
 - Salary level?
- Are there specific job opportunities in specific areas like digitization of paper records?
 - How many jobs in the future?
 - Salary level?
- Do you have recruitment challenges for ICT profile?
 - Number of people available/applying
 - Education level
 - Language
 - Expertise
 - Other: too high salary expectation, high turnover, etc.
-

Public at large

- How do you access airtime? Is it a challenge? (buying top-up and/or sim)

- How do you recharge the battery of your phone? How much does it cost you? How often do you do it?
- Would you pay for charging and how much? Requirements?
 - home service delivery?
- How do you repair your phone?
- Would you pay for such a service?
- How often do you need repair/support on your phone?
- Is getting a mobile signal a challenge?
 - For voice call/SMS?
 - For data connectivity?
- Is there specific application on your phone like FB or other that you use/can't use due to e.g. internet connectivity?
- Do you have access to places where you can execute some internet tasks?
 - Are there internet cafés around? Do you use them? How much do they cost and how much do you spend in them per month?
 - Are there places that you can use to work in and get access to either smartphone or computer and internet connectivity?

People to interview

- People in rural areas
- People in town
- People from regions with a good connection to the electricity grid
- People from regions without a good electricity grid

International Actors

In this section we will investigate microworks platform

- What is the microwork model?
 - Individual subscription
 - Local entrepreneurs in charge of microworkers
- What is the average revenue?
 - Per task
 - Per hour
 - Per month
- Payment options: How does the platform pay the microworkers?
- Capacity requirements: what are the capacities required?
- Equipment requirements: What are equipment required? (phone, smartphone, computer, etc.)
- Company requirements:
 - Are there requirements to have e.g. a registered company in the Gambia?
 - are there office requirements?
- Connectivity requirements: what are connectivity requirements?

- What type of tasks are proposed?
-

Youth Organizations/Young People

We will not only interview youth organizations but also young people in the field during the travel across the country that Joe will organize.

- What are the different categories (highly educated, mid-level, bottom, etc.) of youth and their profile that is worth considering for employment? What are their profile:
 - The education level: ability to read and write English, and main country languages
 - The ICT equipment and capacities: what are the capacities and what type of equipment people have and are familiar with?
 - The aspiration: what are the aspiration? What does people want to do? Are they interested in the ICT sector or related ones (mobile etc.) and for what type of job?
 - The expected monthly income: <3000, 3000-5000, 6000-10000, 11000-14000, 15,000-20,000, 21000-25,000, >25,000
 - Payment instruments: how can people receive money? This is an important element for many ICT activities: whether people have a bank account, a mobile money account, or can only handle cash
 - Cash only
 - Bank account
 - Visa Card
 - Other (e.g. mobile money)
- Where does the different categories are located in the country (how many people per region)?
- What are the entrepreneurship mindset in the different categories? Are people looking for job or more looking to create their own job? Why?
- What are ICT capacities of the different categories
 - Ability to use phones: voice, SMS
 - Ability to use smartphones
- How does different categories manage money-perhaps list each category with options below?
 - Cash only
 - Bank account
 - Visa Card
 - Other (e.g. mobile money)
- What are the main job challenges for each category?
 - Jobs are not available
 - Jobs are underqualified
 - Jobs are underpaid

- Jobs require to migrate to other regions and/or to town
- Sectors offering jobs are not interesting (e.g. agriculture, etc.)
- Lack of Skills required
 - Language
 - ICT
 - Other
- Other

•

Innovation Ecosystem: Incubators, tech centers, funders/Grant-making organizations, young entrepreneurs/techies' innovation

- What are the area of interests for work?
 - Mobile application
 - Desktop application
 - Web site design
 - Web Application
 - Graphic design
 - Social media
 - Multimedia
 - IT Support
 - Networking
 - Telecommunication
 - ...
- What are aspirations?
 - Creating their company?
 - Finding a job?
- What are the main barriers:
 - Capacities and availability of training in specific areas (mobile technologies, software development, etc.)
 - Lack of tech hub for the community
 - Lack of support to startup
 - Incubator
 - Seed funding
 - Lack of markets
 - Lack of jobs
 - Low salary
 - Internet connectivity
 - other
- ICT Competition in The Gambia
 - Is there competition like hackathon to support innovation?

Annex C – Mobile operators' performance

The information below was provided by Public Utilities Regulatory Authority (PURA)⁶². It gives an overview of the performance of the mobile operators in the country.

⁶² <http://www.pura.gm/>

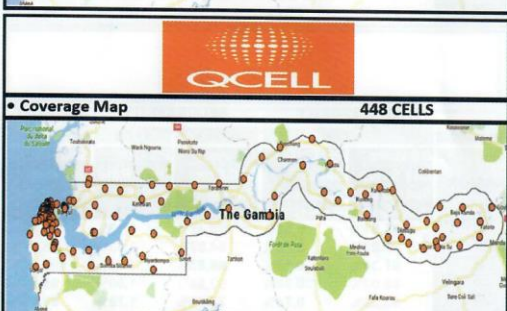
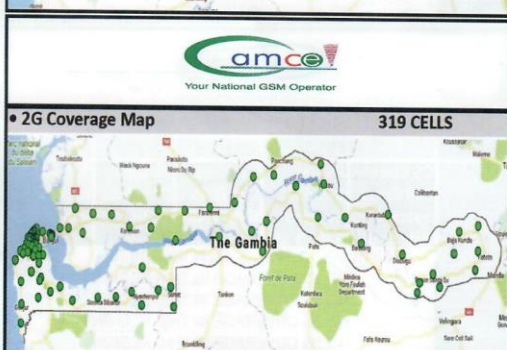
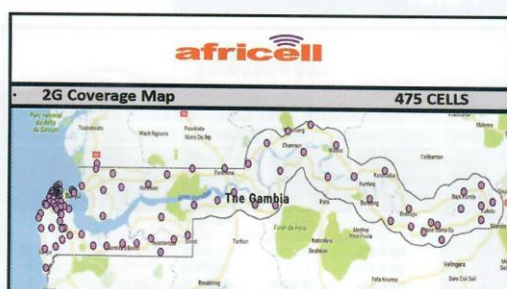
September 2G Performance

africell				
	ACCESSIBILITY	RETAINABILITY		MOBILITY
Threshold	>=95%	>=95%	<=2%	>=95%
REGION	Call Setup Success Rate @ BH	Call Success Rate @ BH	Call Drop Rate @ BH	HO Success @ BH
GBA	96.63%	96.02%	0.62%	99.20%
CRR	93.95%	92.75%	1.27%	98.06%
LRR	92.68%	91.75%	1.00%	97.37%
NBR	94.03%	92.92%	1.17%	97.51%
URR	94.65%	93.00%	1.77%	98.46%
WCR	94.29%	93.34%	1.01%	98.04%

comium				
	ACCESSIBILITY	RETAINABILITY		MOBILITY
Threshold	>=95%	>=95%	<=2%	>=95%
REGION	Call Setup Success Rate @ BH	Call Success Rate @ BH	Call Drop Rate @ BH	HO Success @ BH
GBA	93.41%	91.55%	1.98%	94.98%
CRR	94.95%	92.60%	2.47%	97.94%
LRR	96.45%	93.48%	3.08%	98.05%
NBR	93.33%	90.44%	3.10%	95.50%
URR	95.44%	92.93%	2.63%	98.59%
WCR	89.60%	86.60%	3.32%	93.47%

amco				
	ACCESSIBILITY	RETAINABILITY		MOBILITY
Threshold	>=95%	>=95%	<=2%	>=95%
REGION	Call Setup Success Rate @ BH	Call Success Rate @ BH	Call Drop Rate @ BH	HO Success @ BH
GBA	97.01%	96.49%	0.52%	98.50%
CRR	97.71%	94.01%	3.78%	87.35%
LRR	97.25%	92.55%	4.82%	94.76%
NBR	90.17%	86.55%	4.09%	63.33%
URR	79.69%	74.67%	5.94%	77.02%
WCR	84.93%	80.61%	5.01%	70.18%

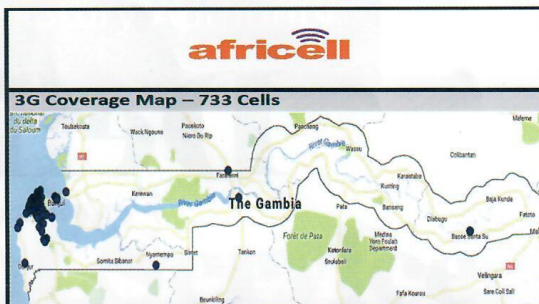
QCELL				
	ACCESSIBILITY	RETAINABILITY		MOBILITY
Threshold	>=95%	>=95%	<=2%	>=95%
REGION	Call Setup Success Rate @ BH	Call Success Rate @ BH	Call Drop Rate @ BH	HO Success @ BH
GBA	95.48%	94.57%	0.96%	94.33%
CRR	94.81%	93.70%	1.16%	96.44%
LRR	93.08%	91.37%	1.86%	94.23%
NBR	91.58%	90.60%	1.06%	94.70%
URR	87.70%	86.72%	1.12%	92.65%
WCR	93.17%	91.90%	1.36%	94.33%



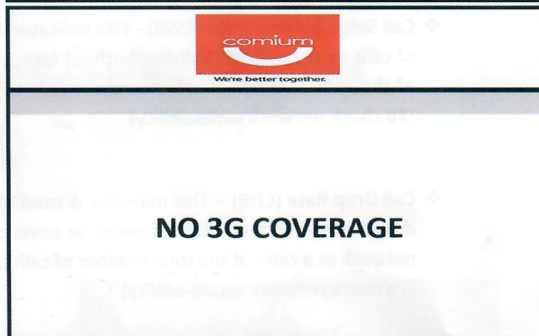
***The Figures Marked in Red are below the QoS requirement ***The Figures marked in Green are above or equal to the QoS requirement

September 3G Performance

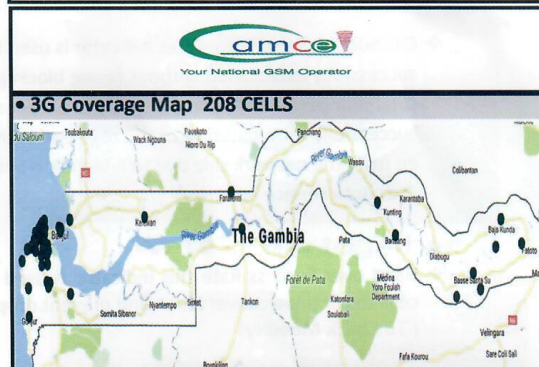
afriCell					
	ACCESSIBILITY		RETAINABILITY		MOBILITY
Threshold	>=95%		>=95%		>=95%
REGION	CS voice Call Setup Success Rate @ BH	PS Call Setup Success Rate @ BH	CS voice Call Drop Rate @ BH	PS Call Drop Rate @ BH	Soft HO Success Rate @ BH
GBA	98.69%	0.20%	0.20%	0.20%	0.20%
CRR	NO 3G COVERAGE IN THIS REGION				
LRR	98.50%	0.25%	98.29%	6.97%	99.91%
NBR	98.93%	0.45%	98.86%	1.62%	99.90%
URR	98.55%	0.48%	98.77%	3.90%	99.88%
WCR	98.70%	0.41%	98.47%	5.33%	99.87%



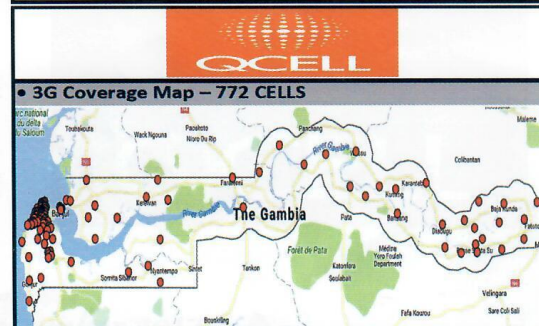
comium					
	ACCESSIBILITY		RETAINABILITY		MOBILITY
Threshold	>=95%		>=95%		>=95%
REGION	CS voice Call Setup Success Rate @ BH	PS Call Setup Success Rate @ BH	CS voice Call Drop Rate @ BH	PS Call Drop Rate @ BH	Soft HO Success Rate @ BH
GBA	NO 3G COVERAGE IN THIS REGION				
CRR	NO 3G COVERAGE IN THIS REGION				
LRR	NO 3G COVERAGE IN THIS REGION				
NBR	NO 3G COVERAGE IN THIS REGION				
URR	NO 3G COVERAGE IN THIS REGION				
WCR	NO 3G COVERAGE IN THIS REGION				



amce					
	ACCESSIBILITY		RETAINABILITY		MOBILITY
Threshold	>=95%		>=95%		>=95%
REGION	CS voice Call Setup Success Rate @ BH	PS Call Setup Success Rate @ BH	CS voice Call Drop Rate @ BH	PS Call Drop Rate @ BH	Soft HO Success Rate @ BH
GBA	96.88%	0.93%	94.45%	0.58%	99.89%
CRR	NO 3G COVERAGE IN THIS REGION				
LRR	NO 3G COVERAGE IN THIS REGION				
NBR	NO 3G COVERAGE IN THIS REGION				
URR	NO 3G COVERAGE IN THIS REGION				
WCR	79.76%	0.90%	82.60%	0.76%	99.85%



QCELL					
	ACCESSIBILITY		RETAINABILITY		MOBILITY
Threshold	>=95%		>=95%		>=95%
REGION	CS voice Call Setup Success Rate @ BH	PS Call Setup Success Rate @ BH	CS voice Call Drop Rate @ BH	PS Call Drop Rate @ BH	Soft HO Success Rate @ BH
GBA	96.36%	0.55%	99.07%	0.96%	99.85%
CRR	94.94%	0.53%	64.49%	2.17%	99.98%
LRR	94.57%	0.61%	85.94%	1.35%	100.00%
NBR	94.04%	0.77%	92.04%	1.86%	99.83%
URR	90.56%	0.90%	67.35%	1.85%	99.76%
WCR	91.45%	1.17%	92.83%	1.80%	99.86%



***The Figures Marked in Red are below the QoS requirement ***The Figures marked in Green are above or equal to the QoS requirement