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PERSPECTIVES ON

Locally Relevant Digital Content For Underserved Women & Youth

IN NAIROBI COUNTY OF KENYA

A Formative Study Report

Maudhui Digiti project is supported by the UK Government Prosperity Fund Digital Access Programme seeking to promote digital inclusion for underserved communities, in collaboration with key local stakeholders and partners in Kenya.

DECLARATION

PROJECT TITLE: MAUDHUI DIGITI PROJECT

FOCUS ON DIGITAL EMPLOYABILITY

Perspectives on Locally Relevant Digital Content for Underserved Farmer Community in Laikipia County of Kenya.

REPORTING PERIOD: DECEMBER 2019 – JUNE 2020

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PREPARED BY:

The African Centre for Women, Information and Communications Technology (ACWICT) and Online Professional Workers Association of Kenya (OPWAK) Consortium

Contract Number: 204963-108

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We appreciate the online workers who sacrificed their time and unreservedly provided their views and perspectives and the research team who supported the process to its finality.

Thanks are due for ACWICT staff who were part of the evaluation team and contributed their time and views in refining and completing the report.

PROJECT SUMMARY

FCDO Program & objectives:	Digital Access Program (DAP) that seeks to promote digital inclusion for underserved communities, in collaboration with key local stakeholders and partners in Kenya
DAP Implementing agency:	ACWICT and OPWAK Consortium
Project Title:	Improving access to opportunities presented by the locally relevant digital content for excluded underserved in Nairobi County, Kenya.
Accountable Grant:	204963-108
Project Location:	Kenya (Nairobi County)
Submitted to:	FCDO
Date of submission:	June 2020

PROJECT IMPACT

The underserved and excluded person more so women and girls of Nairobi City County to become digitally included and able to utilize available relevant local content & platforms for sustainable community development.

PROJECT OUTCOMES

1. Increased understanding on the barriers to access of locally relevant, gender-sensitive and development-oriented digital content.
2. Increased capacity to access and productive utilization of locally available digital content.
3. Improved guidance for curriculum development and selection criteria.
4. Increased evidence on community-based working models for replication.

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ACRONYMS & ABBREVIATIONS

ACRE	Agriculture and Climate Risk Enterprise Ltd. (ACRE)
ACWICT	African Centre for Women Information Communication and Technology
AU	African Union
CATI	Computer Assisted Telephone Interviewing
DAP	Digital Access Program
FCDO	Department for International Development
ICT	Information Communication Technology
KCA	Kenya Communication Authority
OECD	Organisation for Economic Co-operation and Development
OPWAK	Online Professional Workers Association of Kenya
SDGs	Sustainable Development Goals
UN	United Nations

EXECUTIVE SUMMARY

Improving access to locally relevant and development-oriented digital content and understanding the digital employability ecosystem in Nairobi City County, *'Maudhui Digiti'* project is implemented by ACWICT and OPWAK consortium with funding from FCDO Digital Access Program (DAP) fund. The project commissioned a survey to assess user needs, barriers, critical success factors common models and opportunities in the use and development of locally-relevant and development oriented digital content for excluded or underserved agricultural community and organizations in Naiorbi City County of Kenya.

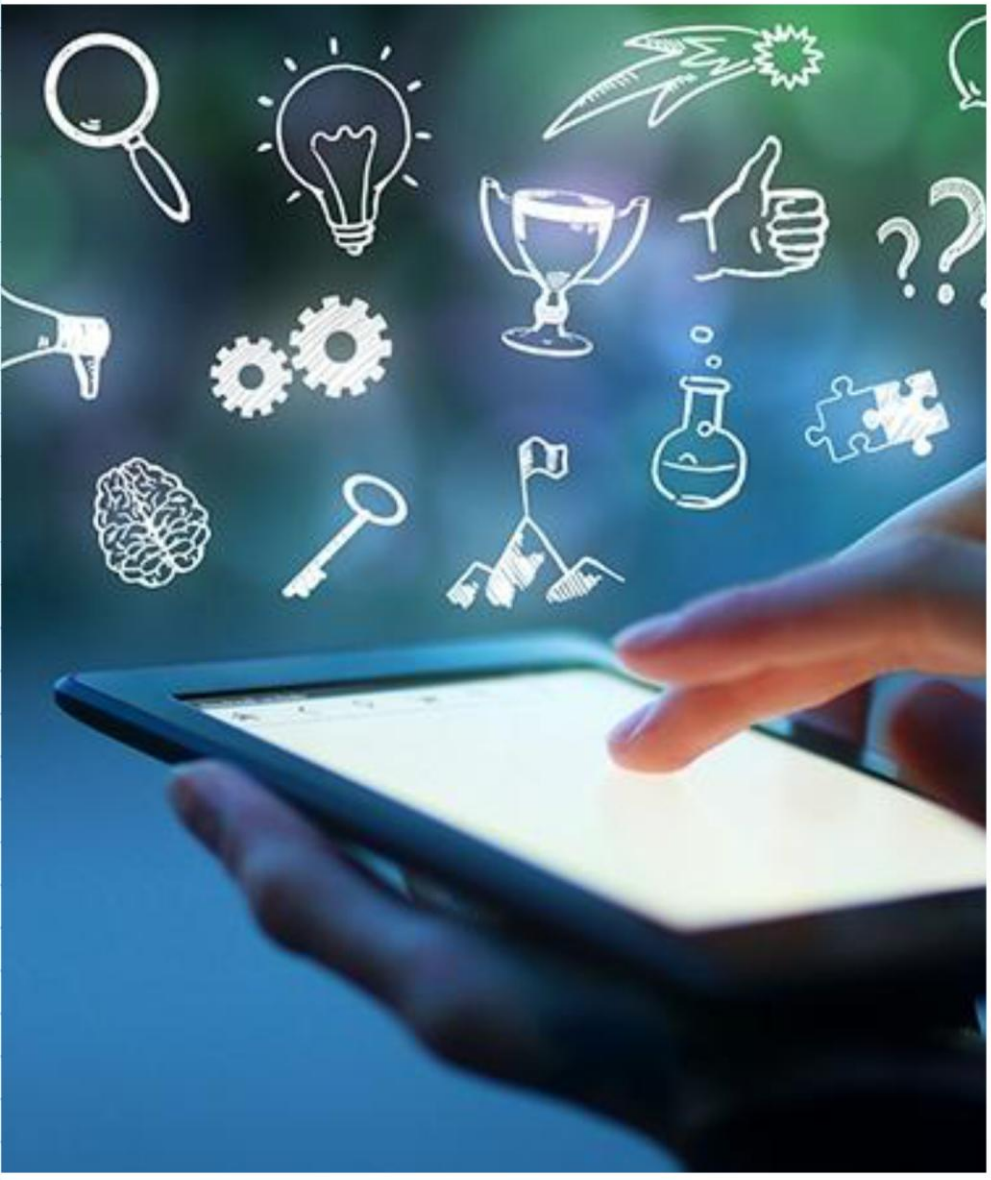
Primary data was collected using telephonic interviews calls. A semi-structured and pretested questionnaire was used to interview a sample of 331 online workers from Nairobi City County over the month of April 2020. Due to the infiniteness of the population, **Cochran formula** was used to estimate an ideal sample size for the survey.

The findings showed on average 61.163% of the respondents used the internet-based applications daily. Most of the respondents used social media platforms to check on emails from friends at 63.14% of total respondents. Sending messages or post (eg. Facebook, WhatsApp Yahoo! Messenger) was at 64.95%, checking, looking at or updating a social network site such as Facebook, Twitter YouTube, Instagram, LinkedIn) was at 56.79%. 39.3 % used the eCitizen platform to access government services. While a majority 60.7% preferred the Huduma Centres.

The top three government services accessed using the online platforms over the last twelve months were Filing tax returns (iTax) (49.16%), Application for Driving license (15.59%) and Passport Application (13095%)). The use of these online services was skewed toward the males in these three services except on birth and death registration service.

Lack of digital skills, high cost of Internet and poor Internet connectivity topped the list of barriers to Internet access by both female and male farmers. Specifically, the male were inclined to infrastructural-based barriers like Internet accessibility at 23.26% while the female were more concerned with non-infrastructural factors like digital skills at 16.92%. Other barriers like negative attitude towards the use of internet-based applications, cyber security among other seem to hinder the realization of opportunities presented by the digital technologies. To address some of these challenges; the study make the following recommendations:

- Mounting ICT training opportunities to re-skill and up-skill the excluded and underserved more so the women on Internet usage.
- Allocating slots for women within the community ICT hubs.
- Sensitizing the general public and influencers on the need for support structures for women at home and to create a positive attitude towards online working. Therefore, initiation or facilitation of communal crèches for female online workers will be important.
- Encourage soft-skills training on how to deal with cyber-bullying.



1 | Introduction

1.1 Background Information

This report covers the finding, conclusion, recommendations and lessons learnt for the digital employability survey. They survey was conducted in Nairobi County by ACWICT and OPWAK a consortium contracted by FCDO on xxx December 2019 under the Maudhui Digiti Project supported by the UK Government's Prosperity Fund[1] with the objective of promoting digital inclusion for underserved communities, in collaboration with key local stakeholders and partners in Kenya. The introduction covers the context of the programme and a description of the theory of change adopted in the study.

1.2 Context of the study

1.2.1 International Digital skills and Digital Employability Perspective

The adoption of digital content and digital platforms has developed rapidly since the adoption of the Tunis Agenda for the Information Society in 2005[2]. In 2018, the number of persons using the Internet and Internet based platforms exceeded half the global population for the first time. The capabilities of digital networks and devices are much greater today, and many new technologies and services are being developed[3]. Digital skills will be important to effectively enhance the opportunities presented by digitization. Moreover, digital-skills are critical to attainment of the development goals on the 21st century. The UN has underscored the central role played by Information and Communication Technology toward the achievement of the Sustainable Development Goals 4[4].

A study done by Mindtree in collaboration with UNDP emphasized the need to develop a digital employability marketplace based on the principle of platform economics[5]. The study was aimed at recommending ways to respond to the employability challenges in India due to a dearth in the requisite digital skills and lack of scalable platforms adopting a holistic approach towards solving the employment challenges. It has also been noted that in the modern knowledge-based society digital skills are central in helping individuals achieve personal fulfilment and development goals, participate effectively in the society, overcome social exclusion and ultimately employment. A survey conducted by OECD on skills for a digital world concluded 56% of the adult population have no ICT skills or have only the skills necessary to fulfil the simplest set of tasks in a technology-rich environment, however, young people, are much more ICT proficient than older generations[6]. This means the adults are likely to be left behind on many fronts where digital skills were needed.

The current fourth industrial revolution (4IR) taking place in the world has pushed the need for advanced digital skills by the future workforce. This is due to the emerging technologies in the digital space including autonomous robots, big data analytics, Block-chain, Distributed Computing, Artificial Intelligence, Internet of Things (IoT), system integration, simulation, additive manufacturing (3D-printing), cloud computing, augmented reality (AR) and cyber-security. The 4IR has also led to great job disruptions and has impacted on the skills required by employees in a remarkable way. Therefore, there is considerable concern about the skills-set and readiness of future employees to adapt to such changes in the workplace and the possible unemployment to those who cannot adapt. This is challenge that requires concerted effort between governments and development partners to develop up-skilling programmes to respond to the huge gaps that exist in the workplace.

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[1] The Prosperity Fund aims to reduce poverty through inclusive economic growth and development providing expertise and technical assistance in different sectors including trade, infrastructure, energy, finance, education and health care.

[2] The Tunis Agenda for the Information Society was a consensus statement of the World Summit on the Information Society, adopted on November 18, 2005 in Tunis, Tunisia. It called for the creation of the Internet Governance Forum and a novel, lightweight, multistakeholder governance structure for the Internet

[3] Trade and Development Board Sixty-sixth session Geneva, 24–28 June 2019 Item 2 (c) of the provisional agenda Digital development: Opportunities and challenges ,UNCTAD secretariat

[4] https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

[5] Vyas O., Bahadur K.R. (2017) A Digital Employability Marketplace. In: Bernhaupt R., Dalvi G., Joshi A., K. Balkrishan D., O'Neill J., Winckler M. (eds) Human-Computer Interaction – INTERACT 2017. INTERACT 2017. Lecture Notes in Computer Science, vol 10516. Springer, Cham

[6] https://www.oecd.org/els/emp/Skills-for-a-Digital-World.pdf

In Africa, the African Union (AU) affirmed the role of digital technologies and innovation in the achievement of the vision and goals of the African Union's Agenda 2063 and the UN Sustainable Development Goals[7]. In the context of the Sustainable Development Goals, there are huge opportunities for new job creation in the digital arena as well new product development. What is needed is the change of attitudes and development of entrepreneurship mentality.

1.2.2 National Digital skills and Digital Employability Perspective

Kenya has developed a development master plan commonly referred to as Vision 2030. In it ICT is identified as one of the key development enablers[8]. Further, the county has also released a Digital Economy Blueprint framework detailing core digital skills that will promote the creation of jobs for the youth & women and hence spurring economic development[9]. The framework has identified five pillars upon which the country will enhance economic growth. The pillars include; Digital Government; Digital Business; Infrastructure; Innovation-Driven Entrepreneurship and Digital Skills and Values. Central in all the five pillars is the requisite digital skills and competences among the citizenry.

The government of Kenya has embraced digital technologies in the provision of key government services through platforms like eCitizen. The financial sector in Kenya is one of the most robust and integrated sector in the region due to the level of adoption of digital technologies like e-commerce and Mobile money (M-Money). According to the Kenya National Economic Survey report of 2019, the digital sector expanded by over 12.9% in 2017, with mobile technology and services leading the pack. The county consider digital technologies as an enabler for enhanced productivity and value addition in the various process and business processes.

1.2.3 National Digital skills and Digital Employability Perspective

In line with DAP objectives, Maudhui Digiti project seeks to supplement to the country's endeavour by addressing critical barriers to digital inclusion, in terms of relevance, accessibility and utilization of relevant local digital content to underserved communities which is in line with our overall objective of narrowing the digital. The Maudhui Digiti Project consists of action research with focus to undertaking user needs assessment, review of the current community based digital ecosystem (both at content delivery and platforms utilizations), stakeholder engagement and level of influence on the content and platforms.

The project has adopted a user-centred approach with the individual users and local community playing a role in the identification of the needs, implementation and recommendations thereof. Consistent with the above, the Maudhui Digiti Project undertook this digital employability survey to understand user needs and barriers to access locally-relevant and development-oriented digital content as a catalyst to affordable, inclusive, safe and secure digital access ecosystem for excluded populations especially women and girls in Naiorbi County of Kenya.

The research is focused on availability of relevant digital content and current content models/platforms already developed to support the online workers and government in the provision of services. The project will therefore offer a boarder understanding of the digital ecosystem in Kenya for effective programming of current and future projects. Besides, donors will benefit from the study by getting to know the gaps that exist at the local-community level for amounting directed project interventions which will have greater impact.

1.2.4 Nairobi County

The study was conducted in Nairobi County, one of the 47 counties in Kenya. Nairobi County lies on latitudes Latitude: -1° 16' 59.99" South and Longitude: 36° 49' 0.01" East.

The county borders four counties namely; Kiambu to the north, Muranga to the North Eastern, Kajiado to the south and Machakos to the East. According to the 2019 census, in the administrative area of Nairobi, 4,397,073 inhabitants lived within 696 km^2 (269 sq mi)[10]. The County is home to thousands of Kenyan businesses and over 100 major international companies and organizations, including the United Nations Environment Programme (UN Environment) and the United Nations Office at Nairobi (UNON).

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[7] https://au.int/en/pressreleases/20191026/african-digital-transformation-strategy-and-african-union-communication-and

[8] http://vision2030.go.ke/inc/uploads/2018/05/Kenya-Vision-2030-Newsletter..pdf

[9] https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf

[10] *2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County". Kenya Central Bureau of Statistics. Retrieved 27 June 2020.*

The Nairobi City County is also the regional headquarters of several international companies. In 2007, General Electric, Young & Rubicam, Google, Coca-Cola, IBM Services, and Cisco Systems relocated their African headquarters to the city. The county is home to the country's capital city which is an established hub for business and culture. The Nairobi Securities Exchange (NSE) is one of the largest in Africa and the second-oldest exchange on the continent. It is Africa's fourth-largest exchange in terms of trading volume; capable of making 10 million trades a day[11].

Nairobi has not been left behind by the FinTech phenomenon that has taken over worldwide. It has produced a couple of tech firms like Craft Silicon, Kangai Technologies, and Jambo Pay, which have been in the forefront of technology, innovation and cloud based computing services. Their products are widely used and have considerable market share presence within Kenya and outside its borders12.

In view of the above, Maudhui Digiti project perceives Internet as an important means of not only communicating and finding information but also as a tool for accessing services and conducting business transaction; ultimately creating employment opportunities for the residents of Nairobi.

Figure 1: Map showing location of Nairobi City County in red[13]

1.3 Theory of Change

The Theory of Change considered in this survey was adopted during the project inception period. The Maudhui Digiti Project goal is to improving access to locally relevant and development-oriented digital content, including e-government services in Nairobi County in Kenya, through overcoming the barriers to digital inclusion.

The Maudhui Digiti Project is expected to make change along the following interrelated change pathways; digital content, accessibility and digital content platforms utilization relevant to underserved local communities. The Theory of change is build on the following assumptions:

1) **Stakeholder engagement change pathway:** If all stakeholders are involved will lead to more accessible, locally relevant and development oriented digital content for excluded or

[11] https://www.wikiwand.com/en/Nairobi#/citenote12
[12] https://www.wikiwand.com/en/Nairobi#/citenote12
[13] https://en.wikipedia.org/wiki/Nairobi_County

underserved communities and local organisations. It is expected with an established long term engagement local stakeholders and other development partners working in the county will lead to a more cohesive development of content and content delivery platforms that will be widely accepted. Whereas many partners may have particular focus area due to their expertise, a coordinated engagement will create synergies in different technical areas which will adequately respond to the dynamic needs of the local communities.

2) **Local-relevant content pathway:** If content is better tailored to the needs of typically excluded or underserved communities and local organisations and they are better able to access (and potentially also develop) this content, then they will be better able to leverage the developmental benefits of digital. The utility and ability of an application and its content is better achieved through user-centred analogy where the user plays pivotal role.

Table 1 shows the expected outcome based on the theory of change assumption adopted in this project.

Table 1: Theory of Change Assumptions

Outcome and Impact of assumptions 1. Local stakeholder engagement leads to more accessible, locally relevant and development oriented digital content for excluded or underserved communities and local organisations 2. If content is better tailored to the needs of typically excluded or underserved communities and local organisations and they are better able to access (and potentially also develop) this content, then they will be better able to leverage the developmental benefits of digital.	
Stakeholder engagement change pathway	**Local-relevant content and platforms pathway**
1. Better understanding of the user needs and functioning between donor and the community leading to better delivery and sustainable projects	1. Easily adoptable and acceptable content that responding to the needs of the excluded and underserved locals.
2. Better understanding of local needs, barriers and gaps in accessing relevant digital content	2. Easily scalable platforms that are accessible and accepted by the local communities
3. Key stakeholders better informed on best practice and models for user friendly local digital content delivery	3. Digital content providers including National and County Governments are aware of user needs
4. Stakeholders engaged, awareness created, content developed and user needs understood	4. User-informed content delivery has a positive impact on excluded or underserved communities and local Organizations
5. Sustainable models of content identified and documented for dissemination	5. More locally relevant and accessible content available to excluded or underserved communities and local Organizations

Study questions

The survey questions were reviewed and agreed with FCDO and the study consortium during the project inception period. They were drawn from the Theory of Change assumptions in table 1. They included:

1. What content is needed for excluded or underserved communities in relation to digital employability?
2. What content and content sharing platforms are currently available?
3. What are the gaps in content production and dissemination?
4. What are the barriers to accessing digital content?

2 | Purpose, Objectives, Scope and Methods

2.1 Purpose

The purpose of the Maudhui Digiti Project is to understand and address the barriers to providing more accessible locally relevant and development-oriented digital content to excluded or underserved communities and local organizations in Nairobi County. This will be achieved by assessing the user needs for locally relevant and development-oriented digital content for excluded or underserved communities and local organisations, demonstrating how to generate and avail locally relevant and development-oriented digital content to the excluded or underserved communities and local organisations in Nairobi county. The project will also help to identify models that can be used to deliver the content and to help the citizens to access the digital services, build their capacity to use them and ensure that content is truly relevant to their needs and priorities. Ultimately, this will create digital employability in Nairobi County.

2.2 Objectives

The aim of the project is to promote digital inclusion for enhanced employability by addressing the barriers to accessing locally relevant and development-oriented digital content and platforms to excluded or underserved communities & local organizations in Nairobi County.

Specific study objectives were;

1. Establish the user needs for locally-relevant and development-oriented digital content and platforms in Nairobi;
2. Determine the barriers of accessing locally relevant and development-oriented digital content and platforms by the excluded or underserved communities & local organisations in Nairobi;
3. Establish the critical success factors for generating and availing locally relevant and development-oriented digital content and platforms for excluded or underserved communities and local organisations in Nairobi counties;
4. Analyse opportunities of developing and accessing locally-relevant and development-oriented digital content & platforms by the excluded or underserved communities and local organisations in Nairobi;
5. Identify effective models and lessons for delivery of accessible and inclusive locally relevant and development oriented digital content & platforms for excluded or underserved communities and local organisations in Nairobi.

2.3 Scope

The project was designed to cover stakeholders engaged on online for services delivery, content access and platforms utilization. Specifically, the project focused on evaluating digital ecosystem in Nairobi County and its implication on digital employability. Further, a documentation of top three models for sustainable creation and dissemination of locally relevant and development-oriented digital content, based on the assessments and stakeholder engagement across the Nairobi County is recommended.

2.4 Methods

2.4.1 Methodology overview

The project adopted a mix of action research, hands-on delivery at community level, and stakeholder outreach and influencing. The consortium used an exploratory analysis to underpin the Theory of Change assumptions into the data set, and to understanding the probable initiatives that may contribute to the anticipated change in the individual and local community level.

2.4.1.1 Inception phase

- During the inception phase Desk-based review of available data on locally-relevant and development oriented digital content (availability and gaps) and research on effective models for developing locally-relevant and accessible content for excluded or underserved communities and local organisations was conducted. Further during this phase the context of the study was clarified between FCDO and the consortium. Moreover, the tools for the study were agreed upon.
- Regular consultations, updates and feedbacks with FCDO's DAP Manager & Adviser to agree on the study questions, theory of change, sampling, study process and work-plan were held.

2.4.1.2 Study phase

The study phased was conducted in a transparent and interactive manner with monthly written progress report and meetings with FCDO to discuss on the progress, challenges in data collection and the timeliness. Earlier at the study phase the scope of the project had to be varied to accommodate the emerging issues that called for a change on the data collection methodology.

2.4.2 Study process

The study used appropriate and acceptable methods to conduct an all-inclusive user needs assessment on accessing locally relevant and accessible content (including e-government services) in Nairobi County.

2.4.2.1 Study design

A quantitative-based cross sectional research design was used. This method was considered adequate to understand current perspectives of the online workers in Nairobi City County with regards to relevant digital content and digital platforms.

2.4.2.2 Target Population and Sampling

The target population consisted on all Nairobian who are involved on online working. Since the exact numbers of the online workers is not known and infinite, there was need to use a sampling technique that could form an ideal sample that could serve the purpose of the study[14]. Therefore the consortium used Cochran formula so as to make it representative enough using an ideal criteria.

The Cochran formula adopted in this study to form a sample is given by;

$$n = \frac{z^2 pq}{e^2}$$

where:
n is the desired sample size
e is the desired level of precision (i.e. the margin of error),
p is the (estimated) proportion of the population which has the attribute in question,
q is 1 – p
z is the selected critical value of desired confidence level

In the case of this study, the team used the following parameters: the margin of error 5%, Confidence Level 95%, Population size 20,000 – defined by finite large numbers, critical value of desired confidence level of 1.96, The margin of Error 0.05% and Response distribution set at 50%. Table 2 shows the samples formed:

Table 2: Sample Representative of Nairobi City County of Online workers

Gender		**Population**	**Sample Size based on Cochran Formula**
Male	Female		
2,192,452	2,204,376	4,396,828	331

[14] Purposeful sampling that was adaptable according to circumstances during the study process.

2.4.2.3 Data collection and analysis

Data collection was conducted in 17 sub-counties of Nairobi County by a telephonic interview with key informant interviews who were randomly sampled from a pool of online workers to avoid biasness.

Data collection procedures and appropriateness, taking into consideration of all the ethical, legal and data privacy concerns, data was collected after all participants gave a consent to proceed with the interview. All necessary precautions were undertaken to conceal the identity of the respondent after the interview, more so during the data-decoding phase. Data privacy concerns were addressed by ensuring any personal data was stored in a coded format.

Testing and data quality assurance the respondents whose biodata fitted into the study scope were allowed to continue with the interview. This ensured reliability of the data collected. Data quality was the responsibility of the lead consultant in the project guided by the study questions. The consultant conducted regular de-briefing of the interviewers at the end of each session to ensure all agreed procedures were adhered to.

Analysis of data was conducted after all the collected data using the CATI platform had been appropriately coded using a coding framework and then entered into SPSS.

2.5 Study Limitation

- **Change of data collection methods:** The last minutes change of the methods of data collection from face-to-face interview to telephonic interview due to COVID-19 restrictions on social distancing may have presented a challenge to the quality of responses obtained. However, every effort was made to ensure necessarily support was given to those who needed.
- **Achievement of near parity on gender:** It was a challenge obtaining a near parity on either gender due to the low numbers of female online workers. According to OPWAK, the current ratio of online workers stands at 70:30 in favour of male.
- **Unavailable respondents:** Whereas sampling method adopted ensured there is representative from all sub-counties of Nairobi County, there were cases where respondents from some sub-counties were unavailable for the interview.
- **Un-uniform platforms:** Due to the nature of the works the online workers are involved in, they had never used or known of other platforms. This effectively biased their preference and hence ranking of the available digital platforms.

3 | Study Findings

3.1 Demographic characteristics of the respondents

3.1.1 Gender

A total of 331 respondents participated in this survey. This consisted of 57.3% male and 42.3% female respondents. This percentage largely reflects the ratio of male vs. female online workers according to OPWAK online workers database. Figure 2 shows the distribution of respondents by gender.

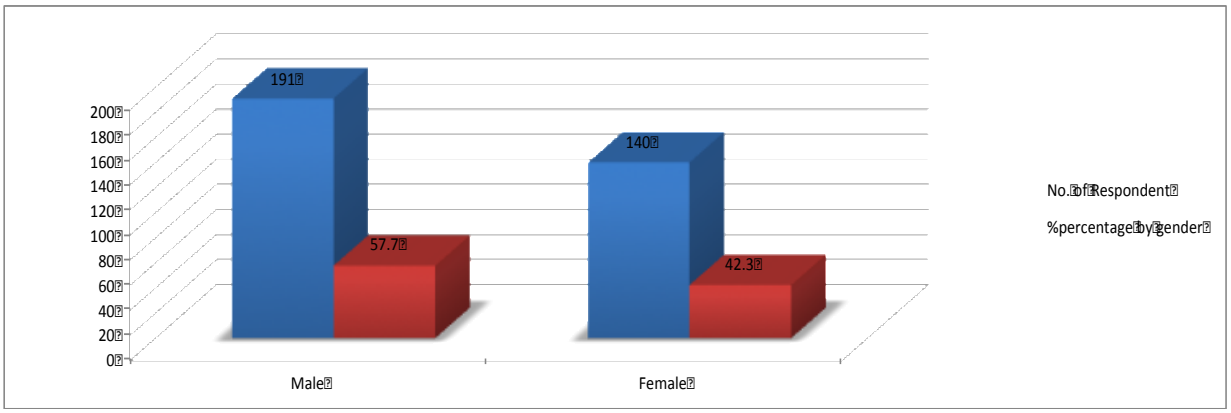

Figure 2: Respondents Distribution by Gender

3.1.2 Age bracket

In terms of age brackets, it was established a large number of the online workers were in the 18-34 years age bracket. This is consistent to the ability of the youth to adapt to new work environment and affinity to new and emerging technologies and the skills for the world study by OECD[15]. In terms of gender representation, the males were a majority at 18-34 age bracket at 168 compared to 121 female respondents. On the 35-54 age bracket the female were a more at 22 compared to males who were20. Figure 3 shows the spread of the respondents in terms of the age bracket.

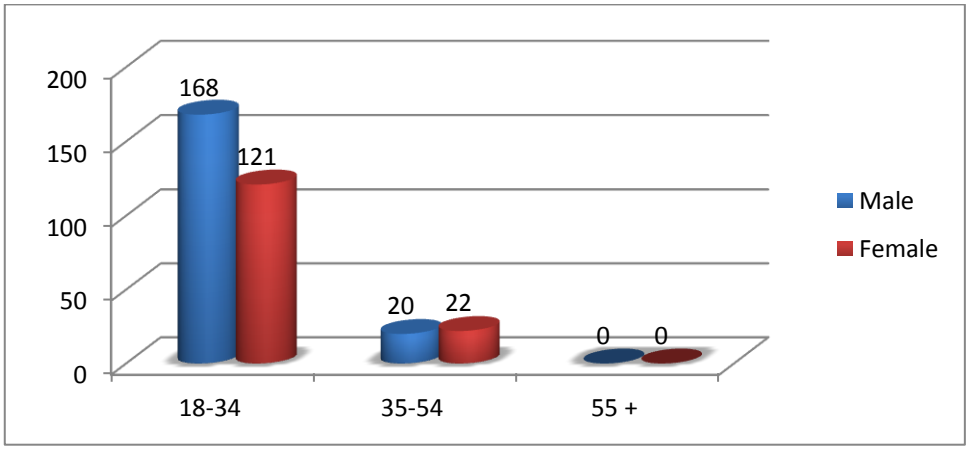

Figure 3: Respondent Age Bracket

3.1.3 Sub-county

A majority of the respondents came from Kamukunji sub-county. This is partly because OPWAK activities are largely centralized in this area and the area has a youthful population. The participants were distributed per sub-county as shown in figure 4.

[15] https://www.oecd.org/els/emp/Skills-for-a-Digital-World.pdf

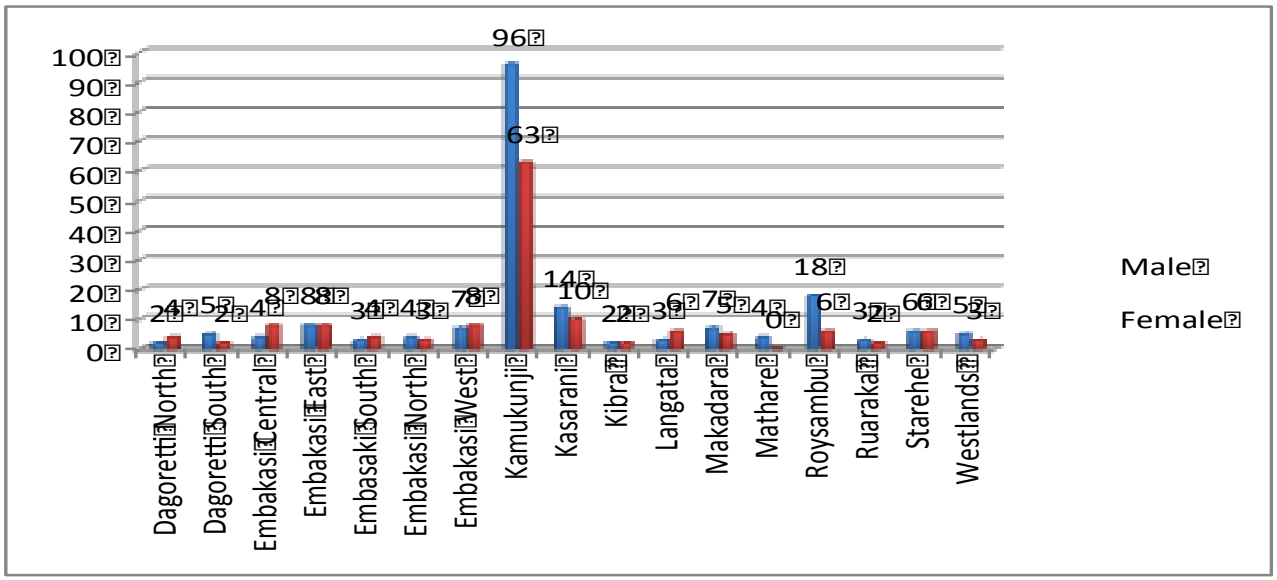

Figure 4: Location of Respondents

3.1.4 Technical skills

Due to the nature of work, the skill set required by the online workers is largely technical. From the survey, all respondents except one female respondent indicated they had the technical skills needed for the online job they were involved. However, the within differences on the skill set levels shows more men with excellent technical skills at 53.93% as compared to that of female at 42.14%. This therefore calls for re-skilling and up-skilling programmes for female online workers. Figure 5 shows the spread of the technical self-evaluation of the respondents.

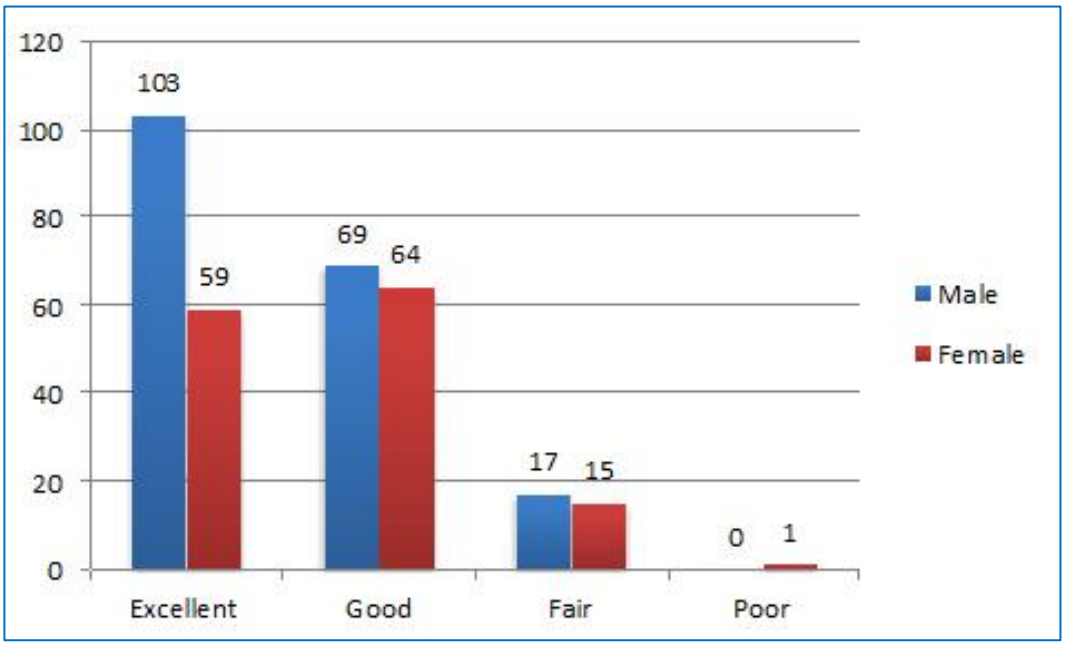

Figure 5: Self-Evaluation on the Technical Skills

3.1.5 Highest Education level

The effect of education qualification on job performance cannot be understated. Researchers argue that the higher the education level, the more the effect on job performance. It is assumed that with higher academic qualification one acquires more skills and competences that are transferable to work place. It is for this reason the survey sought to find out the level of academic qualification of the online workers in Nairobi City County. From the survey, a total of 198 (59.82%) respondents had a university level qualification, 72 (21.75%) had technical college qualification, 54 (16.31%) had secondary level certificate; 3(0.91%) had primary level certificate and 4 (1.21%) preferred not indicate their qualification. There were 32 more men with university qualifications compared to female, 16 more men with technical college qualification, 4 more men with secondary qualification and 1 more female with primary qualification. This clearly demonstrated an educational gap which is skewed more towards

male at higher levels of education. Figure 6 shows the highest qualification distribution of the respondents by gender.

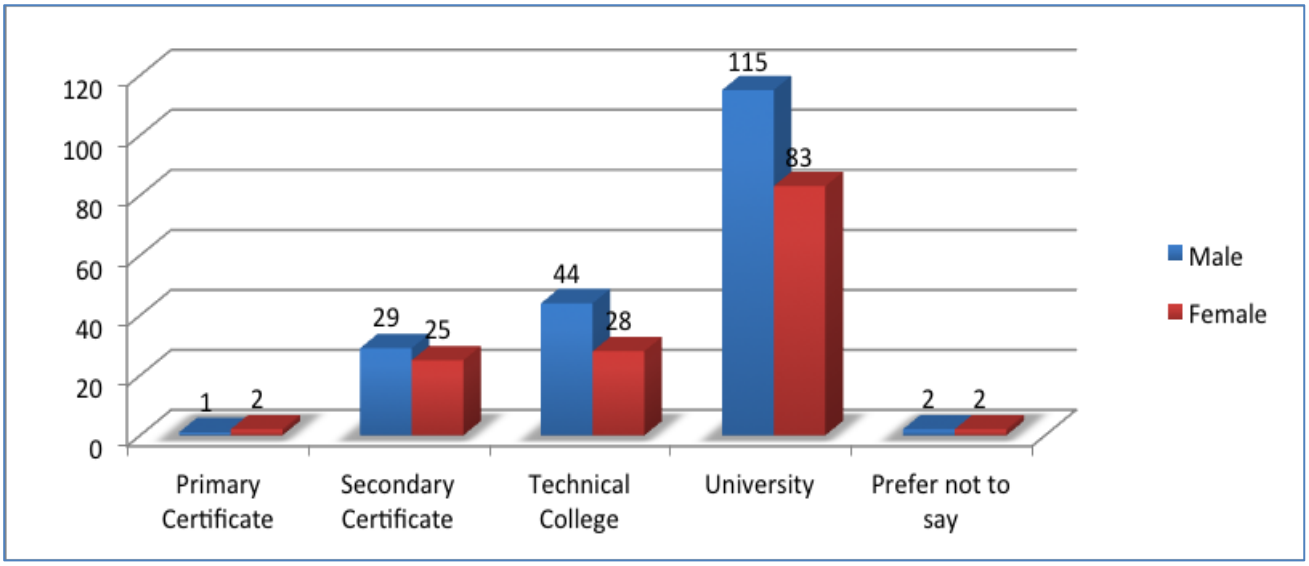

Figure 6: Highest Education Level

3.1.6 Marital status

Studies based on Social Role Theory, have documented the existence of discrimination based on the marital status of an employee. There is a general perception that married men are more likely to perform their work well as compared to married women[16]. From the survey it was found that 217 (79.15%) of the respondents were single, 83 (25.08%) were married, 6 (1.81% were either separated or divorced and 25 (7.55%) preferred not to indicate their marital status. Figure 7 shows the marital distribution by gender.

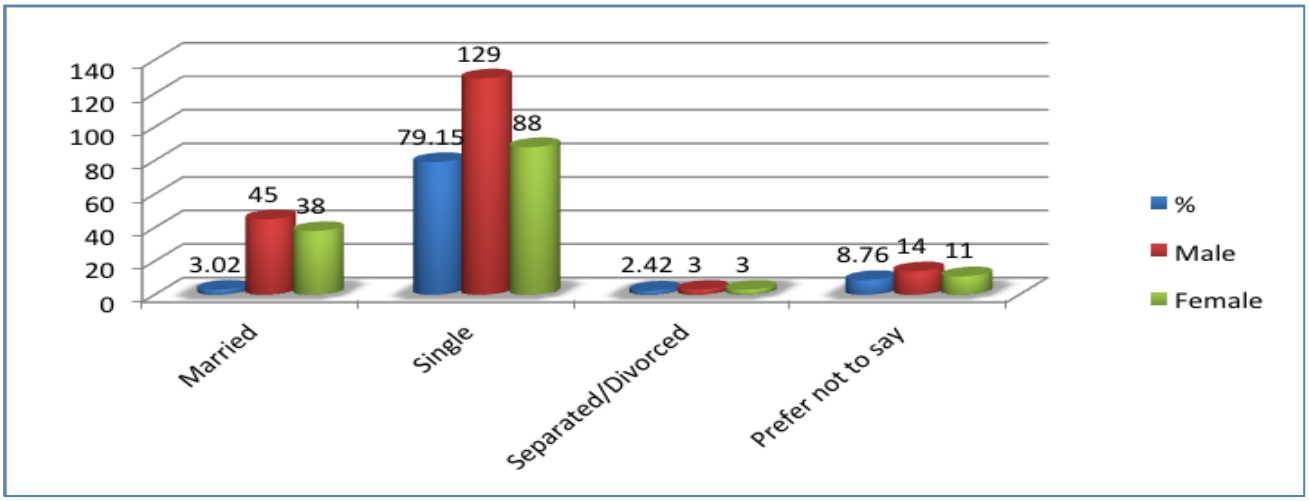

Figure 7: Marital Status of Respondents by Gender

3.1.7 Disability

Kenya, as a signatory to the United Nations Convention on the Rights of Persons with Disabilities (PWDs)[17], as adopted by the UN General Assembly on 13 Dec 2006, endeavours to institute policies and measures aimed at providing access to technology and information to persons with disabilities. From the survey, 8 (3.02%) of the respondents indicated they had disabilities. Whereas, this is a small percentage but is step towards the realization of the right of persons with disabilities. Figure 8 shows the distribution of online workers with disabilities.

[16] Jordan, A. H., College, D., & Zitek, E. M. (2012). Marital status bias in perceptions of employees. Basic and Applied Social Psychology, 34,474–481.
[17] https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf

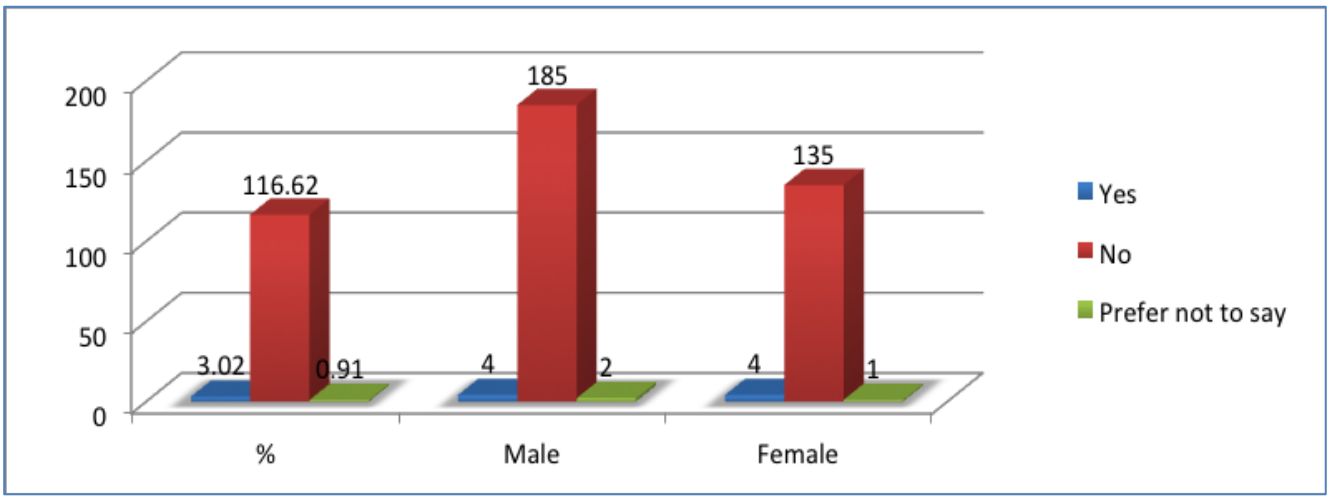

Figure 8: Online Workers with Disabilities

3.2 User Needs Assessment

The principles of understanding the ecosystem and building a sustainable platforms as identified by UNSCO 2018 report[18] on Digital Inclusion for Low-skilled and Low-literate People underscores the importance of context for digital solutions. To understand how excluded and underserved local communities can best benefits from the digital content and services the digital ecosystems has to offer; it is necessary to define the level of growth of the local's digital ecosystem, identify the platforms that can ensure effective delivery of the required content in a sustainable manner, define the relevant content for the local and the infrastructure that will promote the dissemination of the content. The aim here is to establish the drivers for the adoption of a technology, how the drivers can support the project in a sustainable manner and how effectively the users drive the expected utility from them. To establish these drivers, requires the involvement of the stakeholders in this case the user not as an afterthought but rather key participants. This will increase the uptake of the technology or content.

To determine the user needs for locally relevant and development-oriented digital content and platforms in the context of Nairobi City County, the following thematic areas were considered; the government content and services sought, preferred models/platforms for accessing the content and/or services and other services/purposes sourced from online platforms.

3.2.1 Government services offered online

From the survey, filing tax returns was key driver to the usage of online platforms on the government services category with 49.74% male and 48.57% female filing their returns using online means. This is largely the case due to the regulation requiring all tax-payees to file their returns online. The males seemed to seek government services using the online platforms more as compared to their female counterparts except on the birth/death registration services where the percentage of female seeking the service is higher compared to that of males.

[18] https://en.unesco.org/news/digital-skills-critical-jobs-and-social-inclusion

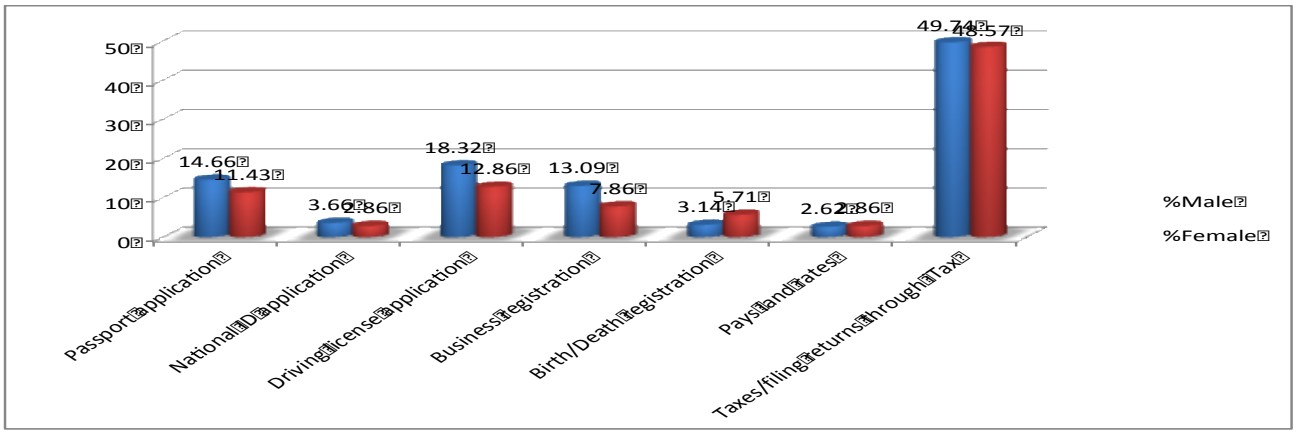

Figure 9: Government Services offered using Online Platforms

3.2.2 Preferred Mode of Accessing Government services

The survey also sought to find out the preferred way or mode through which the government services are accessed. From the survey outcome, the most common mode of accessing government services in Nairobi is through the Huduma Centres at and the eCitizen portal. It was observed that the Huduma Centres were popular among the participants at 62.83% for male against 58.57% females. This could be attributed to the barriers associated with the online service provision platform.

3.2.3 Other uses of online services and frequency of usage

Cognizant of the fact that purpose for which a user will need a given digital content or a given platform is key in meeting the excluded and underserved populous; the study sought to determine if there are any reasons other than the needed government services that may draw the Nairobians into the online platforms. Most of the respondents used social media platforms to check on emails from friends at 63.14% of total respondents. Sending messages or post (eg. Facebook, WhatsApp Yahoo! Messenger) was at 64.95%, checking, looking at or updating a social network site such as Facebook, Twitter YouTube, Instagram, LinkedIn) was at 56.79%. Figure 10 and 11 show the frequency and nature of use of the online platforms by gender.

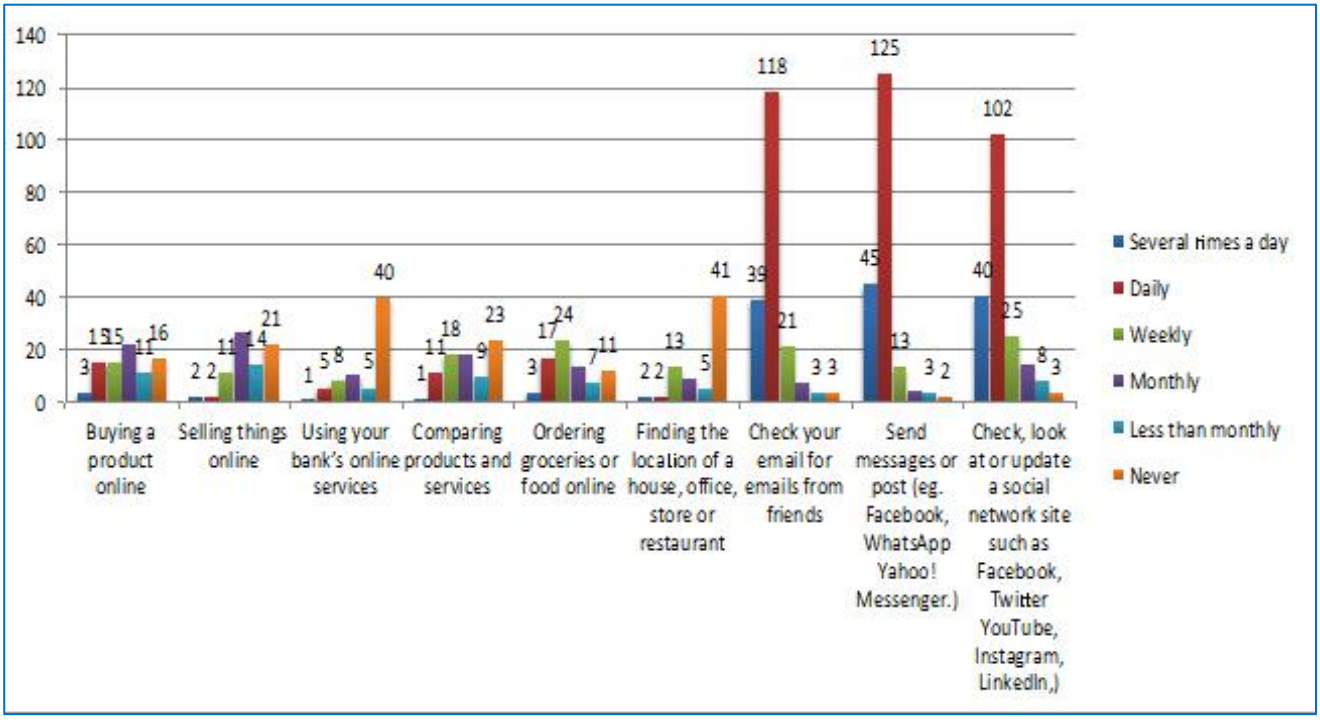

Figure 10: Male Respondents on Purpose for using Online Platforms

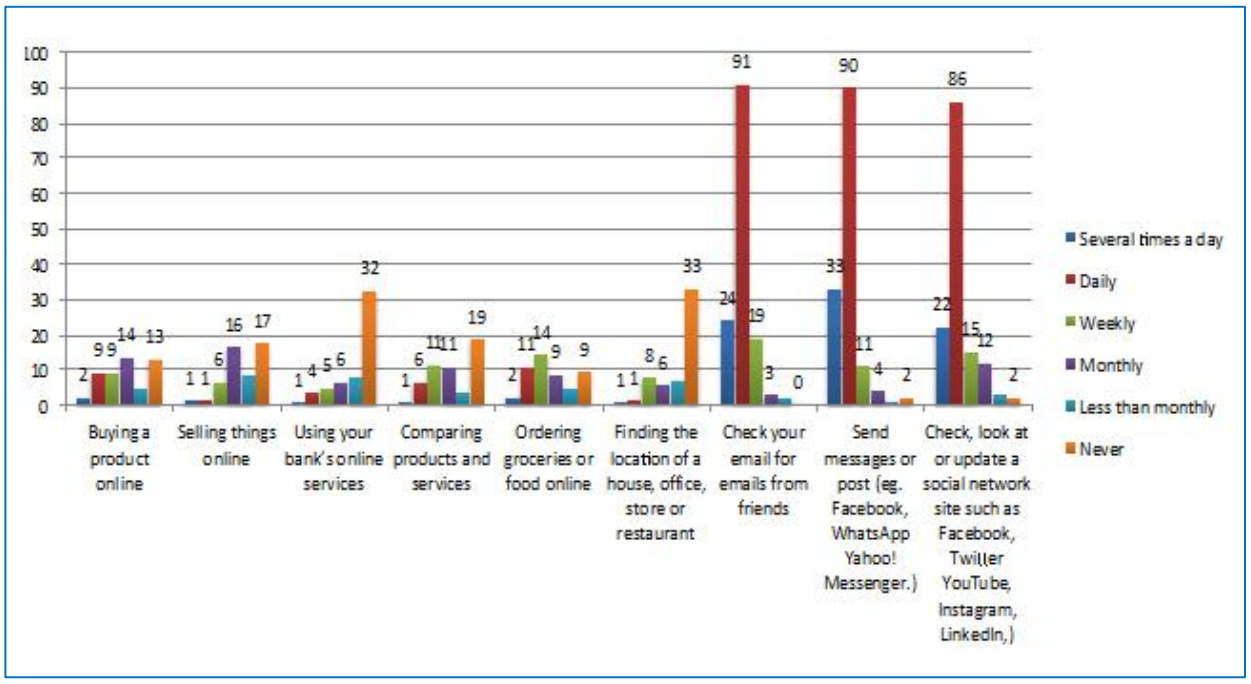

Figure 11: Female Respondents on Purpose for using Online platforms

3.3 Barriers to Accessing Online Content and Service

Even though there are well-documented social-economic benefits associated with digital inclusion, many people remain excluded and underserved. Some of the documented barriers to digital inclusion include lack of infrastructure; low incomes and affordability; user capabilities and cultural and social acceptance of the digital content/platforms[19]. In the Nairobi City County, these barriers were found to exist with lack of Internet accessibility and high Internet costs being the leading barriers as shown in figure 12 and 13.

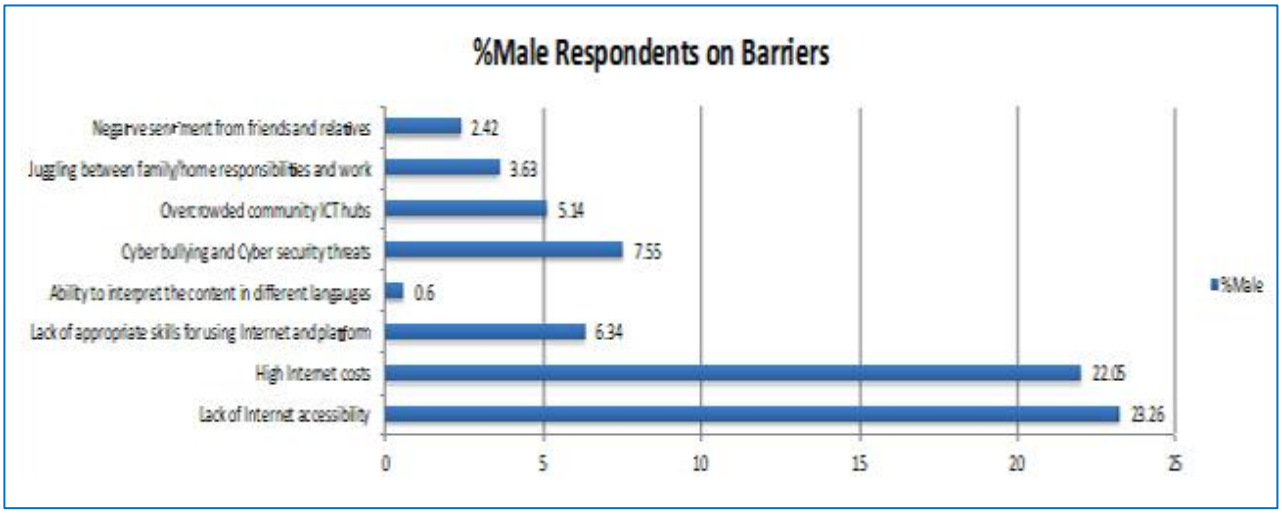

Figure 12: Barriers to Accessing Relevant Content and Digital Platforms (Male)

19 Schmida, S., Bernard, J., Zakaras, T., Lovegrove, C. and Swingle, C. 2017. Connecting the Next Four Billion: Strengthening the Global Response for Universal Internet Access. USAID, Dial Digital Impact Alliance and SSG Advisors.

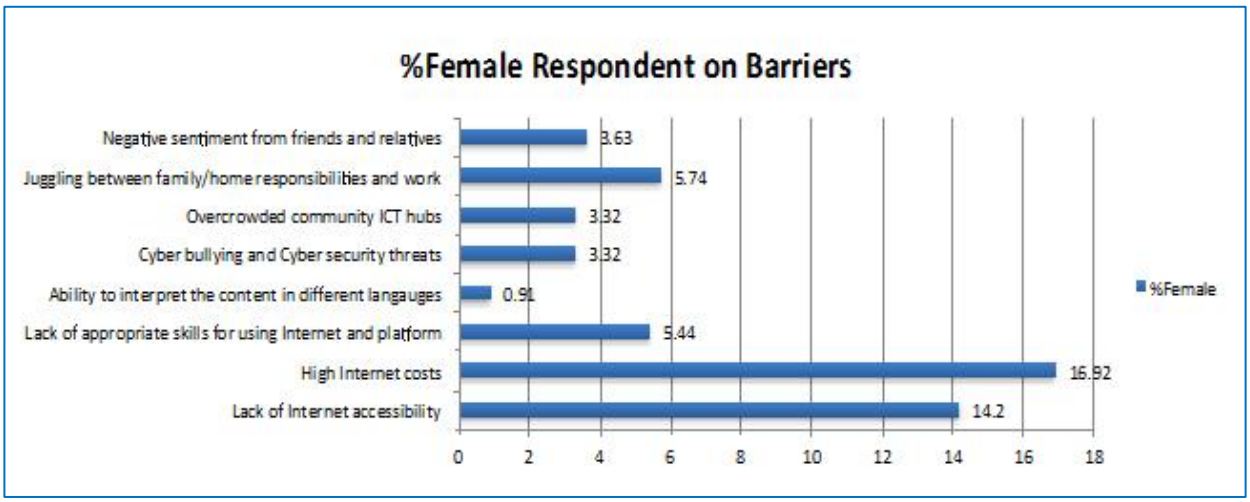

Figure 13: Barriers to Accessing Relevant Content and Digital Platforms (Female)

The findings were consistent with a study conducted by Chenai Chair (2017)[20] who established that digital skills, illiteracy, lack of local content, poverty, power outages as factors affecting internet access. Similar studies also established that high cost and low speed of Internet are common challenges in digital content access[21].

Gender issues of patriarchy and power relations between men and women has also impaired internet use as it is perceived that time spent online takes women away from looking after their partners and fulfilling family responsibilities. As evidenced from figure 11b, jiggling between family/home responsibilities and work is still a challenge among many female online workers as compared to their male counterparts. Digital skills and illiteracy are demand-side issues[22] that greatly affect non-users as well – even those who have smart devices, limiting their Internet use. Other barriers for Internet access include cyber security[23].

3.4 Critical Success Factors for Digital Inclusivity

In analysing the state of digital content and services provisioning through the digital platforms, major dependencies on supporting infrastructure, devices and language are critical[24]. A strong digital content and platform ecosystem can only be developed if there is a strong ICT infrastructure, support for local languages, understanding the nature of the content being consumed by the local communities among other factors. In Nairobi City County, the participant underscored the need to address these factors in order to over digital exclusivity. Although the factors are common, they differ in terms of magnitude on the gender line. From the study, Cyber hygiene, ICT training opportunities and use of local language were the major issues the respondents felts needs to be addressed to increase ability of the excluded and underserved to utilize the digital content and digital platforms.

For the male infrastructural-based factors were critical which included Internet connectivity at 91.1% and cyber hygiene at 81.68%. On the other hand for the female respondents non-infrastructural factors like change of attitude and building trust on online platforms at 93.06%; ICT training opportunities at 89.6%; cyber hygiene at 87.86% and use of local language at 86.71%, were critical. Figures 14 and 15 show the critical factors considered by the respondents to be critical.

[20] Chenai Chair, (2017) Internet use barriers and user strategies: perspectives from Kenya, Nigeria, South Africa and Rwanda
[21] Jerry Bambi, (2010) OBSTACLES TO INTERNET GROWTH IN NIGERIA. Retrieved from: http://jerrybambi.blogspot.com/2010/08/obstacles-to-internet-growth-in-nigeria_06.html
[22] Internet society (2013) Lifting barriers to Internet development in Africa: suggestions for Improving connectivity. Retrieved from: https://www.sbs.ox.ac.uk/cybersecuritycapacity/system/files/Barriers%20to%20Internet%20in%20Africa%20Internet%20Society_0.pdf
[23] United Nations. Economic Commission for Africa (2014). Tackling the challenges of cybersecurity inAfrica. Policy Brief. No. 002, 6 p.. Addis Ababa:. © UN. ECA,. Retrieved from: http://hdl.handle.net/10855/22544
[24] http://www3.weforum.org/docs/WEF_Global_IT_Report_2015.pdf

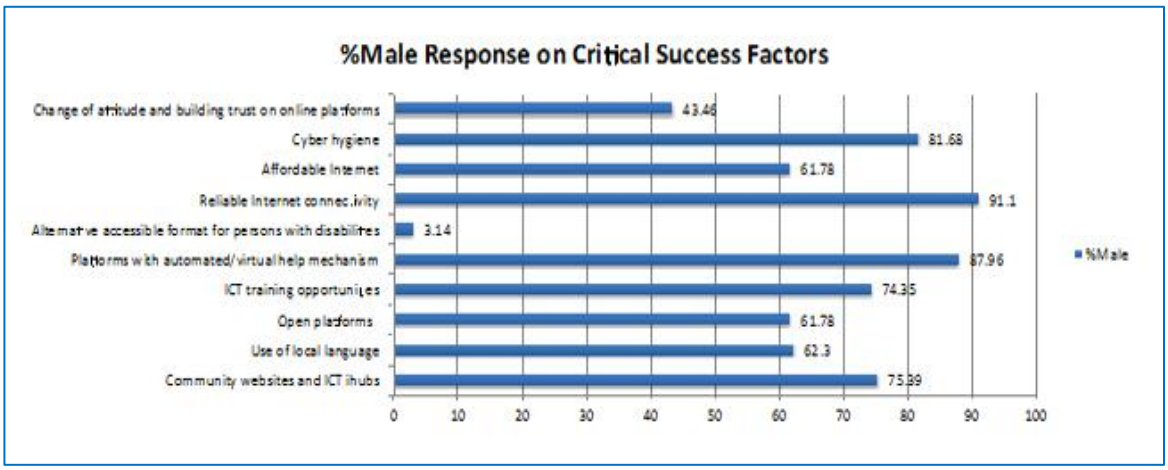

Figure 14: Critical Success Factors for Generating and Accessing Digital Content (Male)

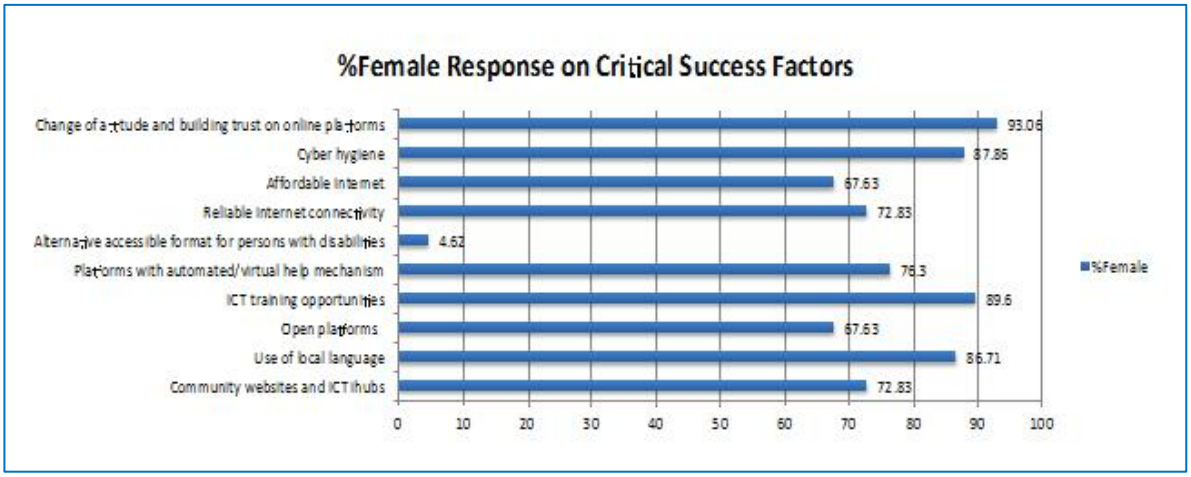

Figure 15: Critical Success Factors for Generating and Accessing Digital Content (Female)

3.5 Opportunities for presented by online platforms

The existing opportunities have been analysed from the demand-supply analogy. On the demand-side perspective, the use of digital solutions provides opportunities for developing and practising digital literacy skills. On the supply-side, access offered to services provides an opportunity to create more content and content dissemination platforms. With this interconnected benefits, there is need to develop content and solutions that meet the needs of both sides. To determine areas where they have found opportunities presented by the digital content and online digital platforms in the last 12 months. Figures 16 and 17, shows opportunities identified by the respondents. Academic writing was considered to give promising prospects by male at 24.08%, while transcription was preferred by the female respondents ta 17.86%.

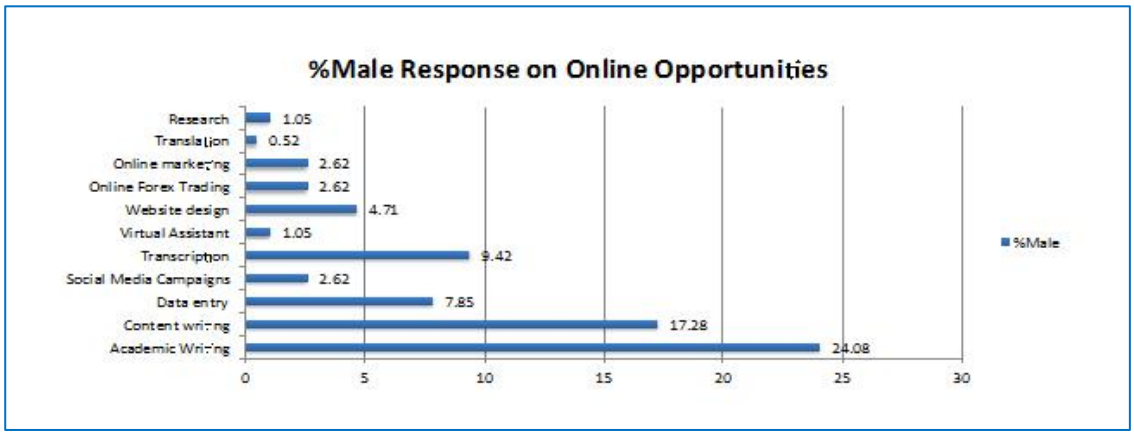

Figure 16: Opportunities presented by Digital Content and Platforms (Male)

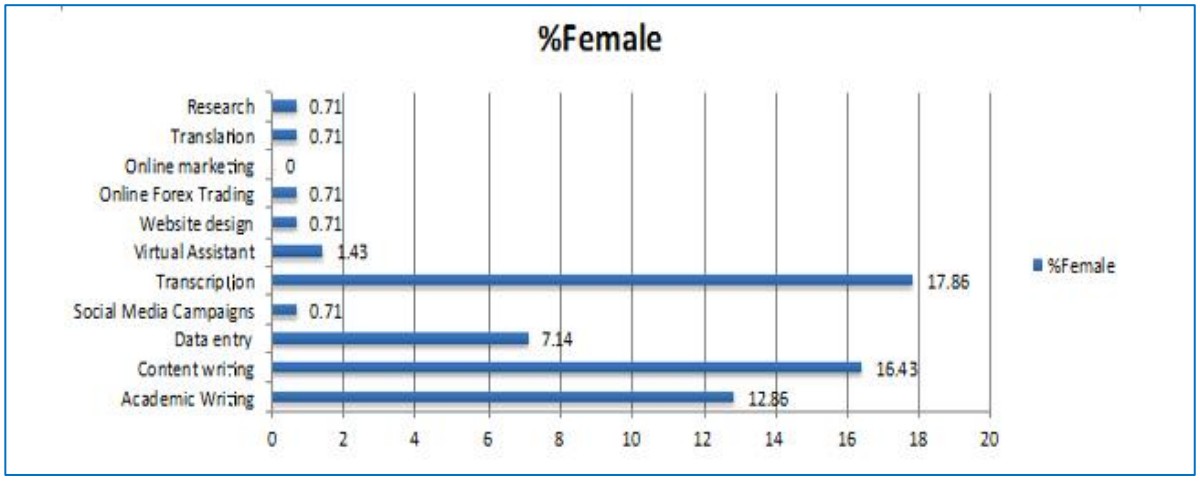

Figure 17: Opportunities presented by Digital Content and Platforms (Female)

3.6 Platforms for Online Working

The effective use of the online platforms for online working is dependent on the content delivery mechanism and the platform user functionalities. A good platform will therefore need to deliver content effectively and be inclusive to the excluded and underserved local-communities. In evaluating platform performance, the following criteria is commonly adopted; a platform that adoptable to various functionalities, delivery channels, access devices, user interface options, nature and type of content and capability of the users. In determining the platforms that may have had an impact to the online workers, a number of platforms were accessed. From the survey, Ajira Digital was the most popular platform used by online workers at 43.81 %, followed by Upwork at 34.44% and Freelancer at 30.51%. There were different levels percentages usage on the gender front; overly, the platforms were analysed and rated by the participants as shown in figure 18, figure 19 and figure 20.

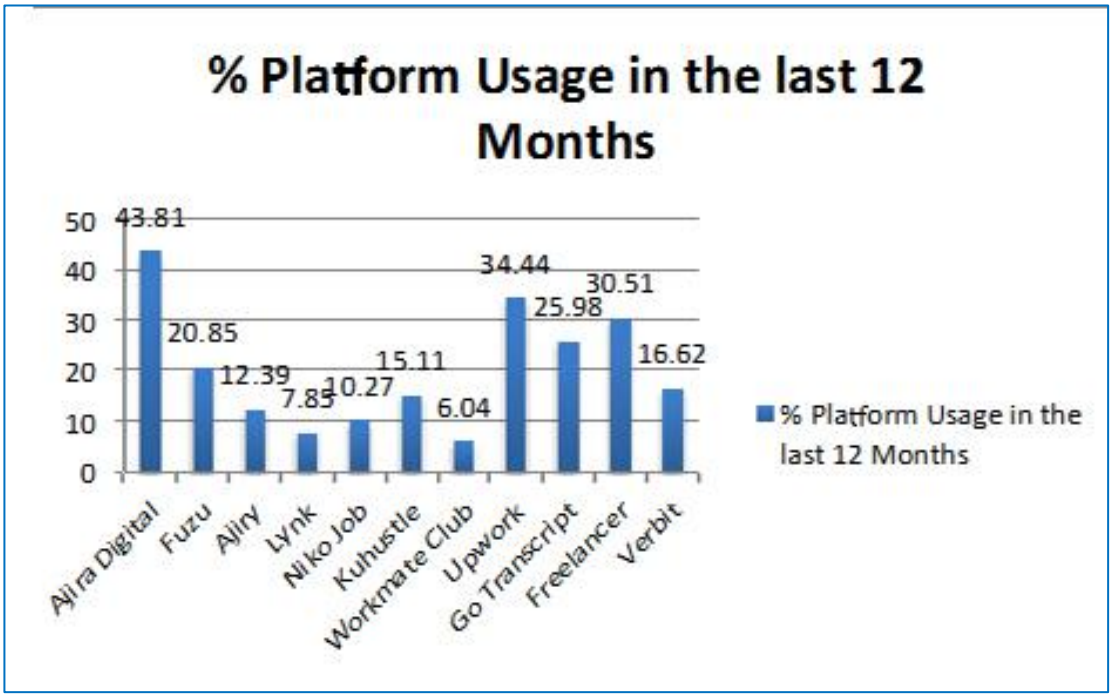

Figure 18: Platforms Usage in the last 12 Months

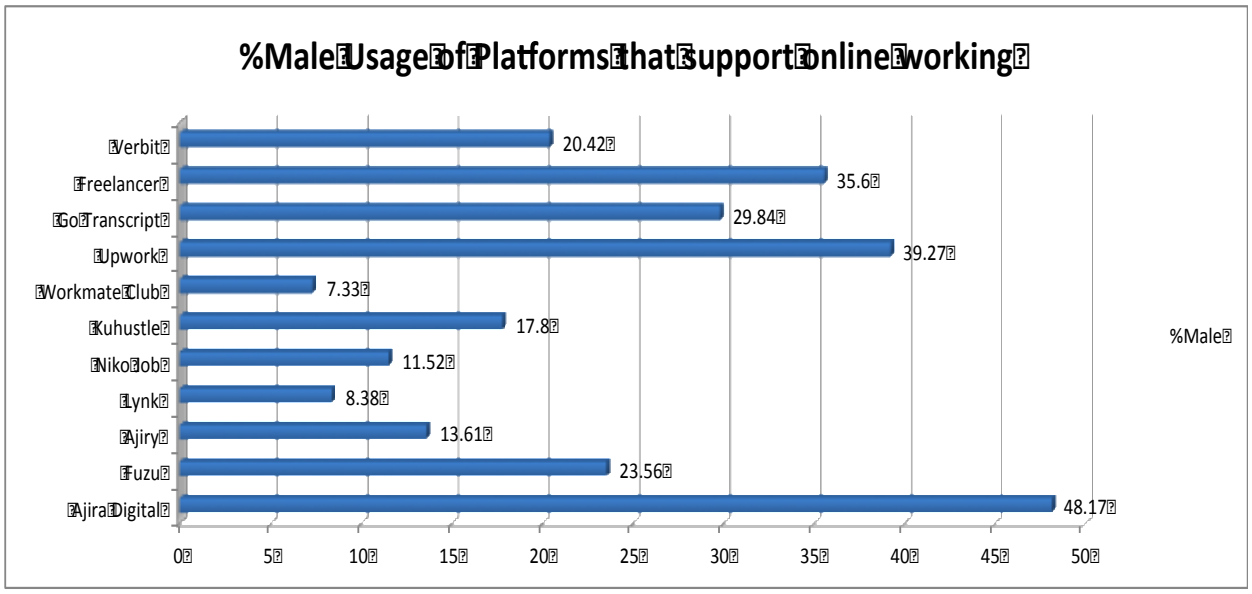

Figure 19: Popularity of Digital Platforms among male

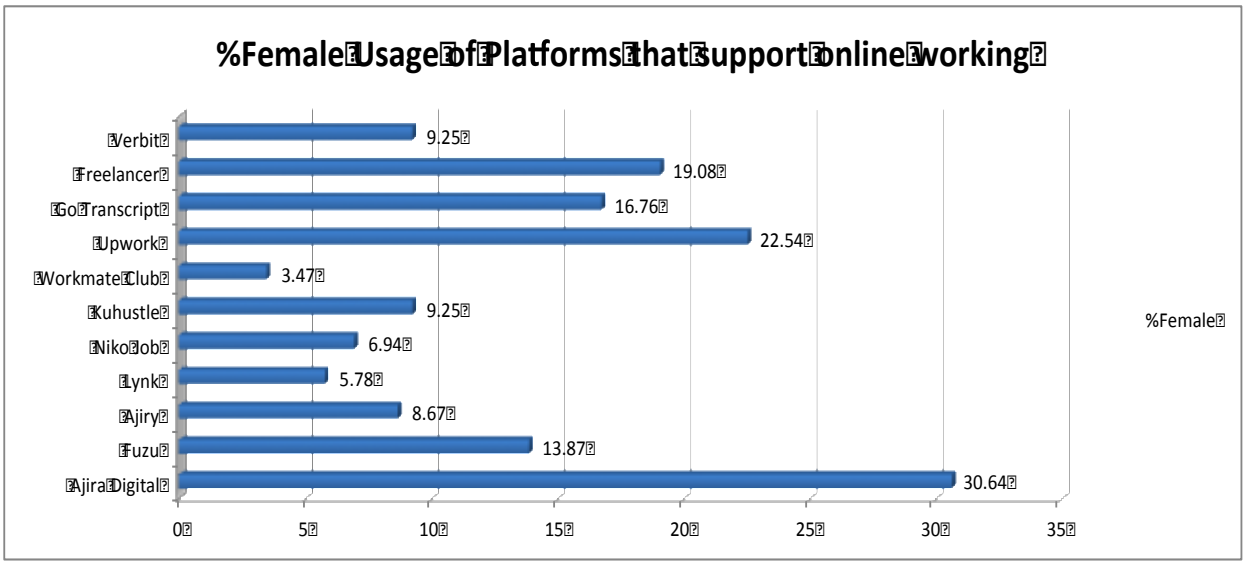

Figure 20: Popularity of Digital Platforms among Female

3.6.1 Rating of Online Digital Models/platforms

The survey sort to establish the rating of platforms by the users based on the functional attributes with a view for improvement of such platforms and to draw lessons for development of new models. The rating was based on the following system functionalities: i) Ease of registration ii) Trust that personal information is safe iii) Availability of platform when needed iv) Accuracy and updated information v) Easy to use vii) use of language that is easy to understand and viii) has locally relevant content. A likert scale of 1-5 was used, where 1-Very poor, 2-Poor, 3-Not sure, 4-Good and 5-Very good was adopted.

The table 3 represents the findings of the survey. From the survey, the following platforms were rated on average highly; Ajira Digital at 3.73, Freelancer at 3.64 and Upwork at 3.62.

Table 3: Rating of Platforms for Online Working

Platform used for Online work	Easy to register on the platform	Trust your personal information is safe	Platform is available when it	Has accurate and up to date information	Easy to use the platform	Use language that is easy to understand	Easy to find information on the platform	Overall Rating
Ajira Digital	4.45	4.45	4.45	3.87	4.45	4.45	4.24	***3.73***
Fuzu	3.97	3.74	4.05	3.88	4.05	4.24	4.01	***3.42***
Ajiry	4.45	3.95	4.2	3.95	3.95	3.95	3.95	***3.49***
Lynk	3.7	2.2	3.7	2.95	3.45	3.95	3.7	***2.85***
Niko Job	4.2	4.2	3.95	3.7	3.95	4.45	4.2	***3.49***
Kuhustle	3.95	3.45	3.95	4.2	4.33	4.45	3.7	***3.48***
Workmate Club	1.95	1.95	1.95	1.95	1.95	1.95	1.95	***1.67***
Upwork	3.98	3.98	4.45	4.45	4.45	4.01	4.45	***3.62***
Go Transcript	3.61	3.85	3.89	3.81	3.88	4.06	3.76	***3.3***
Freelancer	4.45	4.29	4.13	3.98	4.45	4.2	3.9	***3.64***
Verbit	4.2	3.87	4.04	3.83	4.12	4.12	4.2	***3.45***


transforming
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4 | Conclusions & Recommendations

4.1 Key findings and conclusions

From the survey, it can be inferred that the user needs for the residents of Nairobi County are variant based on the response of the participants. Nonetheless, there is clear user need for the government services and platforms that deliver government services. There is also a need for online contents and platforms that can meet the other aspects of economic and social interactions of the residents.

The survey revealed existence of number of barriers that have affected the level of utilization of digital contents and digital platforms. Lack of Internet accessibility and high Internet costs were identified to be a challenge to many online workers. Other barriers include cyber bullying and cyber security/hygiene; overcrowded community hubs; negative sentiments form family members and friends; lack of appropriate skills and ability to interpret the online content.

The survey also found out that Internet access and usage is significantly lower amongst females as compared to males. Gender gap in other access and usage indicators is also high. Low access and use of Internet could be driven lack of relevant skills, general lack of awareness, poor information seeking culture, poor network connectivity and high cost of voice and data. Disparities in access to digital technologies and services mean there is a risk of a digital divide and further exclusion of the underserved local communities.

To spur the growth of online activities in Nairobi, the following factors were identified to be critical increase of ICT training opportunities, tackling cyber hygiene, change of attitude and building trust on online platforms; building platforms with automated/virtual help mechanism; use of local languages like Kiswahili in content development and on online platforms; creating and supporting community websites and community ihubs and adoption of open platforms to overcome the challenge of affordability

There are clear employment opportunities presented by online platforms to Nairobian. Some of the most popular opportunities identified include Academic writing, content writing and transcription. Other opportunities that registered significant interest include: data entry, website designing; online marketing and virtual assistants.

4.2 Recommendations

4.2.1 Recommendation for increasing access and utility of relevant digital content and platforms

- **Increasing access and usage of the Internet:** there will be a need to improve the confidence of the users more so women in the usage of the Internet. Initiatives such as having female trainers/centre managers and role models could go a long way to increasing usage.
- **Internet usage skills:** in addition to the trainings on digital online skills that allow them user to get jobs, there is a need to also invest in basic ICT skills training classes. This elementary skills training will enhance the confidence of users to use computers and also consider looking for work from online platforms.
- **Barriers to access to online jobs**: there are number of barriers that affect females more than males. The factors can be classified into five key groups;
    - **Access barriers**: allocating slots for women within ICT hubs, pursue financing options for ICT equipment (computers and wi-fi)
    - **Family barriers**: sensitization the general public and influencers on the need for support structures for women at home. Initiation or facilitation of communal crèches for female online workers.

- **Skills barriers**: it is recommended that basic and advanced digital still training be offered in order to get more women.
- **Cultural barriers**: consider the recruitment of female ICT hubs staff as and also run specific classes for women.
- **Cyberbullying**: soft-skills training on how to deal with cyber-bullying. Also lobbing for legislation to punish offenders.

4.2.2 Digital Platforms Recommended for scaling

Based on the rating of the platforms by the respondents, user needs, content and services offered by the platforms and potential opportunities the following platforms are recommended for further analysis and engagement with the project. We consider that they have great potential for up scaling their job opportunities in Nairobi City County.

Table 4: Digital Platforms Shortlist

Model & Link	Organization Owner	Sighted Opportunities
Ajira Digital https://ajiradigital.go.ke/home	Government of Kenya	Integrated mobile platform that offers convenient one stop access to local and international online jobs.
Freelancer https://www.freelancer.com/	Freelancer Technology Pty Limited	This is a platform where job seekers register. They are then linked with job opportunities that are available.
Upwork https://www.upwork.com/	Upwork® Global Inc	Works by connecting job opportunities with proven professionals to work on projects from web and mobile app.


DREAMS
VUSHA GIRLS
EMPLOYABILITY PROGRAM
CERTIFICATE OF COMPLETION
Cresar Aneno Otieno

5 | Lessons Learnt

Given the survey focused on understanding the digital ecosystem in Nairobi City County currently, it will be critical to provide some lessons learnt that could be used to inform future programmes.

5.1 User needs

The enhance acceptability and adaptability of the content and platforms the user needs will be key in clarifying on what content will be relevant to the local communities. This will enable a direct approach to tackling the areas where significant gaps may exist that further excludes the underserved.

5.2 Barriers

Existing barriers to accessing locally relevant and development-oriented digital content and platforms are not uniform. Some are based on societal structures and there this component needs to be taken into consideration when programming for any project. For instance, there are barriers that significantly affect female as compared to men. Example being negative attitudes associated to online working and family-work balancing.

5.3 Critical success factors

The success of generating and availing locally relevant and development-oriented digital content and platforms is inherently person-specific or user-centric. For instance, ICT training and tackling cyber hygiene are examples of factors that focus on users.

5.4 Opportunities

The large population of online workers do not fully understand the existing opportunities for developing and accessing locally relevant and development-oriented digital content and platforms. There is a clear gap on educating the populous on how to use the available resources.

5.5 Platforms

Existing platforms have been designed to preform specific tasks and therefore may be lacking adaptability characteristics. Further, they need to be enhanced to provide functionalities like virtual help assistant. The level of usage of many platforms for delivery of accessible and inclusive locally relevant and development-oriented digital content is significantly affected because they are complex as compared to the user abilities since they have abstracted functionalities. Most of the platforms are not locally based and therefore are not fully customised to the local context.

6 | Appendix- Questionnaire

SECTION 1: introduction

Good morning/afternoon, my name is ……..and I am calling you from ACWICT and OPWAK. With support from the UK Government, ACWIC and OPWAK is conducting a study to understand users' experience of various online/digital work platforms. Your feedback will be used to generate improvements for the platforms.

I would also like to assure you that all the information that you share with use would be treated with confidentiality. The interview will take about 15-20minute of your time. Do you want to continue?

Yes – want to continue > continue with the interview

No – do not want to continue > terminate interview

SECTION 2: Demographic Data

1. Please indicate your gender
   - ☐ Male
   - ☐ Female
2. Indicate your age bracket
   - ☐ 18 - 35
   - ☐ 35 - 60
   - ☐ Above 60
3. Please select the sub-county you reside in?
   - ☐ Dagoretti North
   - ☐ Dagoretti South
   - ☐ Kamukunji
   - ☐ Westlands
   - ☐ Langata
   - ☐ Kibra
   - ☐ Mathare
   - ☐ Roysambu
   - ☐ Ruaraka
   - ☐ Starehe
   - ☐ Kasarani

- ☐ Makadara
- ☐ Embakasi West
- ☐ Embakasi South
- ☐ Embakasi North
- ☐ Embakasi Central
- ☐ Westlands East

4. Identify the level of your technical skill required in the type of work you are involved in as Excellent, Good, Fair and Poor.
   - ☐ Excellent
   - ☐ Good
   - ☐ Fair
   - ☐ Poor
5. Please indicate the highest level of education attained
   - ☐ Primary level Certificate
   - ☐ Secondary level Certificate
   - ☐ Tertiary level Certificate
   - ☐ Diploma
   - ☐ University degree
   - ☐ None of the above (Specify)
6. Which of these bests describes your marital status?
   - ☐ Married
   - ☐ Single
   - ☐ Divorced
   - ☐ Windowed
   - ☐ Separated
7. Do you have a disability?
   - ☐ Yes
   - ☐ No

SECTION B: User Needs for Locally Relevant and Development-Oriented Digital Content and Platforms

1. What government services have you sought in the last in the last 12 months?
   - ☐ Passport Application
   - ☐ National ID Application

- ☐ Driving license Application
- ☐ Birth & Death Registration
- ☐ Land Rates Payment
- ☐ Taxes/filling returns through iTax
- ☐ Others specify

2. For each of these content and services needed, did you access them?
   - ☐ Huduma Centres
   - ☐ eCitizen portal
3. How often have you gone online for the following purposes?

Purpose	Several times a day	Daily	Weekly	Monthly	Less than monthly	Never
Buying a product online						
Selling things online						
Using your bank's online services						
Comparing products and services						
Ordering groceries or food online						
Finding the location of a house, office, store or restaurant						
Check your email for emails from friends						
Send messages or post (eg. Facebook, WhatsApp Yahoo! Messenger)						
Check, look at or update a social network site such as Facebook, Twitter YouTube, Instagram, LinkedIn)						

SECTION C: Barriers of Accessing Locally Relevant and Development-Oriented Digital Content and Platforms

1. Identify the challenges you experience in sourcing for the content and platforms you need
   - ☐ Lack of Internet accessibility
   - ☐ High Internet costs
   - ☐ Lack of appropriate skills for using Internet and platforms
   - ☐ Ability to interpret the content in different languages
   - ☐ Cyber bullying and Cyber Security threats
   - ☐ Overcrowded community information and ICT hubs
   - ☐ Juggling between family/home responsibilities and work
   - ☐ Negative sentiment from friends and relatives

SECTION D: Critical Success Factors for Generating and Availing Locally Relevant and Development-Oriented Digital Content and Platforms

1. Which of the following will help promote the accessibility of the content and platforms in your location?

- ☐ Community websites
- ☐ Use of local language like Kiswahili in content development and in the platforms
- ☐ Public content access points/Public open data policy
- ☐ Open platforms
- ☐ ICT training opportunities
- ☐ Platforms with automated/virtual help mechanism
- ☐ Use of mixture delivery of content (Voice, pictures)
- ☐ Alternative accessible format for persons with disabilities
- ☐ Reliable Internet connectivity
- ☐ Affordable Internet
- ☐ Cyber hygiene
- ☐ Change of attitude and building trust on online platforms

SECTION E: Opportunities for Developing and Accessing Locally Relevant and Development-Oriented Digital Content and Platforms

1. What kinds of online or digital work have been actively available in your location in the last 12 months?

- ☐ Academic Writing
- ☐ Content Writing
- ☐ Data Entry
- ☐ Developer
- ☐ Online Forex Trading
- ☐ Social Media Campaigns
- ☐ Transcription
- ☐ Virtual Assistant
- ☐ Web designer
- ☐ Research
- ☐ Online Marketing
- ☐ Translation
- ☐ Others specify

SECTION F: Platforms for Delivery of Accessible and Inclusive Locally Relevant and Development-Oriented Digital Content

1. Which of the following digital job platforms have you ever used in the last 12 months?

- ☐ Ajira Digital
- ☐ Fuzu
- ☐ AJiry
- ☐ Niko Job
- ☐ Kuhustle
- ☐ Workmate Club
- ☐ Upwork
- ☐ Go Transcript
- ☐ Freelancer
- ☐ Any other (Specify)

2. Rank the digital job platforms on a scale of 1-5, where 1-Very poor, 2-Poor, 3-Not sure, 4-Good and 5-Very good based on the functional attributes of the platforms

	Easy to register on the platform	Trust your personal information is safe	Platform is available when it	Has accurate and up to date information	Easy to use the platform	Use language that is easy to understand	Easy to find information on the platform
Ajira Digital							
Fuzu							
Ajiry							
Niko Job							
Kuhustle							
Workmate Club							
Upwork							
Go Transcript							
Freelancer							
Any other (specify)							

THANK YOU FOR TAKING PART IN THE SURVEY