

# Career Prospects In Information And Communication Technology and guidance counselling

A paper Presented at N. Mazunda Endowment  
Fund, 2023

BY

**Professor Francisca Avuwa Egbokhare mni**

**December, 2023**

- **Introduction/Background to the Study**
- **Career paths**
- **Job Roles in Information Technology**
- **STEM and ICT**
- **Choosing a career path in ICT**
- **Female enrollment in ICT Courses**
- **Guidance and Counseling**
- **Conclusion**



**NMEF**

# Introduction/Background

**NMEF**



Information and Communication Technology (ICT) has gained traction in almost every aspect of human endeavour such as government, industries, homes, health-care, offices, education etc



**ICT is one of the key building blocks for accelerating growth and development globally (Innocent and Kipane, 2022)**



**This has increased the demand for information Technology skills to meet current 21<sup>st</sup> century challenges**

# Information and Communication Technology



ICT is one of the most promising Science, Technology, Engineering and Mathematics (STEM) fields with several career opportunities



Information Technology, Information & Communication Technology (ICT) and Computing are umbrella terms used to describe the broad professional area that encompasses computer technology, information processing and communication technologies (McKenzie and Bennett, 2022)



# Information and Communication Technology



ICT is one of the key building blocks for accelerating growth and development globally (Innocent and Kipane, 2022) hence there is high demand for IT skills



ICT jobs are rated among the highest paying jobs globally (GLT, 2023)

# Information and Communication Technology Career Paths



Most ICT courses in Nigerian Universities are in the Faculty of Computing

ICT courses are under five main Categories:

- i. Information Science
- ii. Computer Science
- iii. Data Science
- iv. Cyber Security
- v. Software Engineering



- Systems Analyst
- Front End Developer
- Coder
- IT instructor
- Network Engineer
- Web Developer
- Coder
- Content Developer
- Web Master
- Database Administrator



- Software Engineer
- UI/UX design
- Data Analyst
- Computer Engineer
- Project Manager
- Testers
- Data Scientist
- Mobile App Developers, etc

- ✓ **O'Level Requirements: Science, Technology, Engineering and Mathematics (STEM) subjects at O'level**
- ✓ **Most universities require Physics, mathematics and any other science subject**

➤ **Mathematics and English language are now mandatory subjects for admission into all undergraduate courses in Nigerian Universities**

**Interest that stems from:**

Creativity

Innovation

Logical Reasoning

**Problem Solving Skills**

# Duration and UTME requirements for ICT-related Courses in Nigerian Universities

- 4-year undergraduate programme in most Nigerian Universities except Universities of Technology where it is five years
- Admission is through University Tertiary Matriculation Examination (UTME) or Direct entry
- UTME subjects are English, Mathematics and Physics are mandatory with one Science or Social Science subject

Relevant in almost every sector of the society

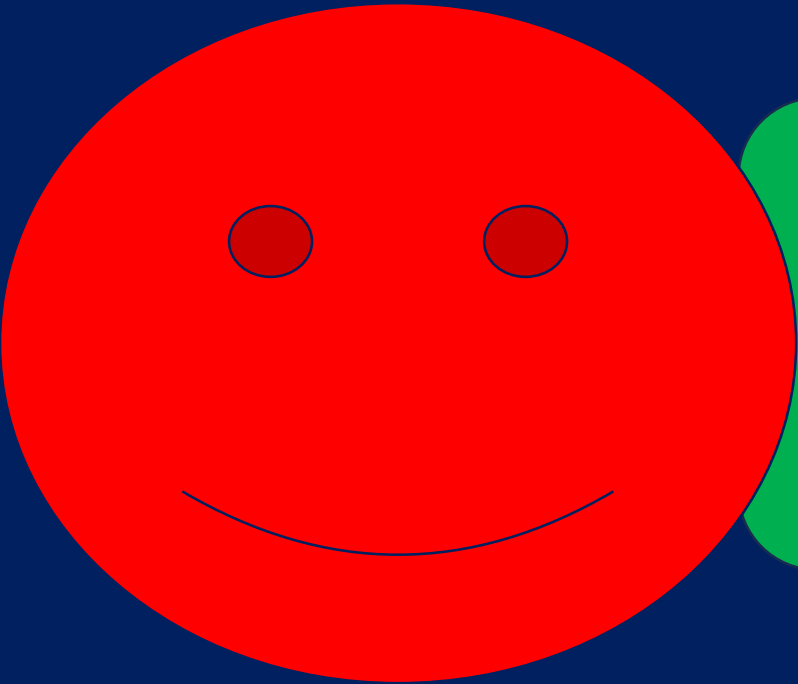
- Health
- Education
- Government Ministries, Departments and Agencies
- Banking and Finance
- Judiciary
- Governance
- Commerce & Industry
- Manufacturing
- Engineering, Agriculture, etc

- In the early days of computing, women played significant roles. E.g. Grace Hopper of the US Navy and Ada Lovelace
- OECD (2018) observed a widening gender digital divide
- The ICT field seem to be male dominated (Yates and Plagnol, 2022; Bureau of Labour Statistics (BLS, 2023))

- The level of female representation in ICT careers is low (Chernyan et al, 2017; Scott et al, 2018; Innocent & Kipani, 2022)
- CS (2023) reported that women accounted for:
  - 13.6% of BSc graduates in the 1970s.
  - It rose to 37% in 1984
  - This has declined to 18% today

**NMEF**

# Female Representation in IT Careers



Only 6% of girls that follow STEM career path end up as CEOs at top 100 global tech companies (Ali, 2021)

Only 30% of Technology Companies are owned by women in Nigeria and more than one third of these companies have no female employees (Ramachandran and Omakwu, 2019)

- Less than 20% females graduate from IT related courses (Molnar et al., 2021)
- Only 24% women take up IT jobs in the US
- 18% in the UK
- 28% in Australia
- 20% in Nigeria (NBS, 2023)



(Molnar et al., 2021)

Three elements interact to make certain fields unattractive to females (Cheryan et al., 2017):

- a) Masculine culture of some fields
- b) Lack of early exposure of women to some courses
- c) Lack of confidence in their ability to succeed.

# Masculine culture of some fields

- **ICT is perceived as a male-dominated field synonymous with programming/coding and Mathematics, so women are often discouraged from pursuing a career in that sector (Kofi, 2011)**
- Most females prefer to use ICT as a tool rather than for academic purposes (Passive Users)
- Few females are interested in STEM careers
- Most girls feel they are less technically competent than their male counterparts
- **Masculine classrooms/learning environment. Most females prefer collaborative lecture environments**

# Poor Exposure to ICT related courses

- Poor ICT curriculum in primary and secondary school
- Lack of interest in the field
- Passive users of ICT tools
- Lack of confidence to perform well in computer-related tasks
- Poor Career guidance. Few females STEM careers
- Gender Stereotypes

# Lack of confidence in their ability to succeed.

- Absence of female mentors and role models to disabuse their minds against biases about certain career paths
- Work imbalance between boys and girls
- Lack of exposure to ICT courses/career paths
- Poor motivations to study IT related courses especially in the upper years of secondary school (Tsakissiris & Grant-Smith, 2021)
- Poor Orientation towards mathematics dominated careers (**Innocent and Kipane, 2022**)

**NMEF**

GOING FORWARD??????????



# Guidance and Counselling



# Tips on Choosing a Career Path

Discover your Interests

Identify your academic Strengths

Identify your personal and social strengths

Explore trending Careers related to your interest and academic strength

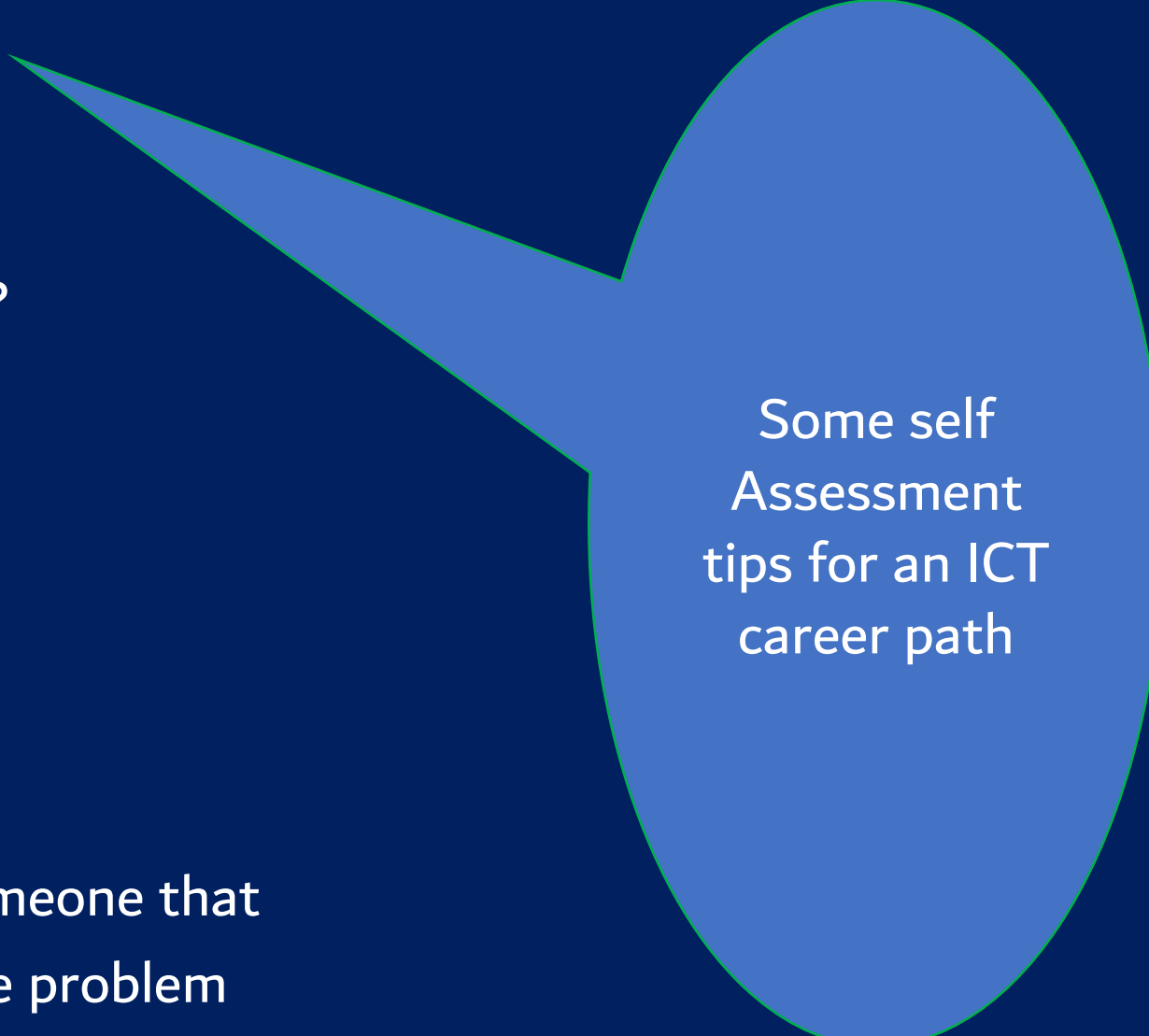
Discuss Options with the guidance counsellor

Work with your guidance counsellor to Identify a mentor in the field and discuss your options

Always remember, this is all about YOU. Your future depends on today's CHOICES

# Are you considering an ICT Career Path?

- Are you creative
- Are you innovative?
- Do you possess good problem solving skills?
- Do you think logically?
- Can you work alone for several hours?
- Are you a good team player?
- Are you flexible with your working hours?
- Can you handle complex situations? E.g. Someone that needs a solution but cannot clearly state the problem



Some self  
Assessment  
tips for an ICT  
career path

# Guidance and Counselling



In a constantly changing world, students require counselling as individuals or groups in their career quest on a wide range of issues (Owobamigbe et al., 2021).

Guidance and Counselling plays a crucial role in education

It prepares students for 21<sup>st</sup> century challenges through academic, career, personal and social development

The Guidance counsellor provides professional, academic and career-related services to students

# Responsibilities of A Guidance Counsellor

- i. Facilitates career exploration
- ii. Assists students to develop effective interpersonal skills,
- iii. Organises regular workshops to develop decision-making and problem-solving skills
- iv. Highlights the dangers inherent in various social vices
- v. Provides advocacy for students, foster resilience and assure equitable access to educational opportunities
- vi. Assists students to develop effective time-management skills





# Conclusion

- Information Technology is one of the trending career paths that offers several opportunities to solve today's 21<sup>st</sup> century challenges
- Poor female representation in the sector is still a major challenge that must be surmounted globally
- Early career counselling
- Mentoring
- demystify traditional beliefs about technology related courses

*Thank You!*

# References

Ali, J.T (2021) Girls in ICT education and Workforce . cepei.org

CS(2023) Women in Computer Science: Getting involved in STEM. Computer Science.org

GLT (2023) Top 25 Highest Paying Jobs in the World. Mygreatlearning.com

Innocent, W.A. and Kipane, V.T. (2022). Assessment of Female Student's Perception & Integration of ICT Courses in Tanzania's Higher Education Institutions. International Journal of Education & Development Using Information and Communication Technology, 18(2), 223 - 230

McKenzie, S and Bennett, D (2022). Understanding the career interests of Information Technology (IT) students: a focus on choice of major and career aspirations. Education and Information Technologies. 27(9), 1-15

NBS (2023) Closing the Gender Gap. wtec.org.ng

OECD(2018) Bridging the Digital Gender Divide. Include, Upskill, Innovate  
BLS (2023). Bureau of Labour Statistics

**Ramachandran, V. and Omakwu, B (2019). Nigeria's Tech Sector May Be Booming But Where are the Women? Gender for Global Development, gdev.org**

Scott, M, Petrea, R & Peter, A. (2018) Factors Discouraging Participation of Girls in ICT Education. Australasian Conference on Information Systems

Yates, J and Plagnol, C. (2022). Female Computer Science Students: A qualitative Exploration of Women's Experience Studying Computer Science at a University in the UK. Education and Information Technologies 27, 3079-3105.

Cheryan, S., Ziegler, S. A., Montoya, A. K., & Jiang, L. (2017). Why are some STEM fields more gender balanced than others? Psychological Bulletin, 143(1), 1–35.

Mullan, K. (2018). Technology and children's screen-based activities in the UK: The story of the millennium so far. Child Indicators Research, 11(6), 1781–1800.