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Digital Transition in the 21st Century: Interrogating the Future of Women in the Fourth Industrial Revolution in Nigeria

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ABSTRACT
The United Nations' celebration of International Women's Day in 1975 was an occasion to stand together to advance gender equality worldwide. This equality is not evident in STEM and technological applications, unlike in any other area. Women are argued to be more analogous than their male counterparts. Today, technology has advanced from quantum physicists to artificial intelligence, yet women are still grappling to understand the use of basic personal technological equipment. Most of the new technological equipment such drones as phones, remote control, laptops, and other technological appliances women use are often managed by their digital children and their male relatives. Applying the ecosystem theory, and online quantitative research design, the paper collected data on the factors that hinder women mainstreaming in STEM, the place of women in the fourth industrial revolution, the extent technological know-how would enhance women's professional productivity in the fourth industrial revolution, and how women can utilize technology to bridge the gender gap. The primary data collected was analyzed to generate inferential statistics while secondary data was thematically content analysed. Women must either latch in this emerging era and be mainstreamed or widen the gender gap by being lethargic to technology.

Keywords: *digital, fourth industrial-revolution, higher education, women*

I. INTRODUCTION

The increase in the number of women academics over the past 60 years has increased these gender differences in the used tech. Still, much is yet to be achieved for women to be relevant in the technological ecosystem of the fourth industrial revolution. The dawn of this new dispensation of the fourth industrial revolution presents technology as a tool for solving human problems amidst unpredictable socio-economic and political quagmires of our new world. All these point to the new realities of the fourth industrial revolution as the new mode of production for goods, services, war, or peace in the hands of the youths. Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies, or programs, in all areas and at all levels. The essence of mainstreaming gender is to ensure that men and women benefit in all political, economic, and social spheres that gender equality is achieved and sustained, especially in STEM, and that inequality is not perpetuated.

The concept of the Industrial Revolution confirms that technological transformation to all industries and societies (Sechser, et al 2019). Recently, technology has become a powerful tool for peace and war. Technology today is used as a political tool for peace and war, exposing sensitive political and governmental information to the benefit of the public (www.acquia.com). Traditionally, women have been found to play an important role in preventing and resolving conflicts and in peacebuilding (Nwolise 2014). Paradoxically, women are more marginal in STEM than in any other sphere of life. The UN has made efforts for the maintenance and promotion of peace and security, and the need to increase the role of women in decision-making regarding conflict prevention and resolution (peacewomen.org/scr-1325). The big question then is; since women have continued to lag in science and technology how is this very tall ambition of the UN going to be realized in a world that is technologically driven? The Covid-19 pandemic has opened the eyes of the world, especially Nigeria that technology and artificial intelligence is the way to go to produce goods and services, peace, and war. The aftermath of this evolving change in the mode of production of goods and services is that social positions would change again as in other previous industrial revolutions. In this industrial revolution those who do not own the means of production (technology and technological know-how) would become modern slaves and serfs of those who own property and means of production of goods and services hence the bourgeoisie would always in every history dominate the nagging and irritant proletariat.

The COVID-19 invasion of the world has further changed the world and proved that technology as a means of production is inevitable. Our world has and we are also changed but if the change is not balanced, if the change is skewed

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towards the men, then it may be counterproductive. In Political science, David Easton's system theory sees the political system as the interaction of all the elements involved in policymaking. In it, he believes that any defect in any of the elements involved in the political system will affect the holistic function of the political system (Hauss 2006). For him, for the system to function optimally, every component of a system must be actively involved in the maintenance of the system, be it in the ecosystem or the political system. The negation of any of the elements or components of the system will alter the comprehensive and healthy function of the whole. This is because the elements in a cyclic manner impact each other and together through nutrient cycles and energy to maintain and sustain the system. Following the system argument negating women as important elements in STEM in the fourth industrial revolution will not benefit the country Nigeria or elsewhere. Industrialization changed man and has impacted the environment positively and negatively but the verily crucial role of women in the fourth industrial revolution cannot be over-emphasized and neglected.

Consequently, this paper on the future of women in the fourth industrial revolution interrogates is germane at this period to awaken women stakeholders on the importance of mainstreaming women in the emerging 4IR. To bridge the existing gender gap in higher education demands urgent and intentional efforts of government and policy makers to mainstream women in STEM especially in Nigerian higher education. Today technology is evolving like a specter around the world as the new mode of production. Women must either latch in this emerging era and be mainstreamed or widen the gender gap by being lethargic to technology. The paper is, however, divided into sessions which start with understanding the concept of the Industrial Revolution, data analysis where quantitative data was analyzed using inferential and descriptive statistics, then the revelation which buttresses the findings of the data was followed by the summary and recommendation for the way forward.

II. UNDERSTANDING THE CONCEPT OF THE INDUSTRIAL REVOLUTION

Three industrial revolutions transformed our modern society. Each of these three advancements signified a change in the mode of production. The First Industrial Revolution from 1760 to sometime between 1820 and 1840, now also known as the First Industrial Revolution, was the transition to new manufacturing processes in Europe and the United States. The revolution caused the growth of industries, such as coal, iron, railroads, and textiles. The Second Industrial Revolution in the 1870s witnessed the expansion of electricity, petroleum, and steel (David, 1969)). The third industrial revolution, the cyber revolution 1950s-2019 brought us to the fourth industrial revolution. The revolution fundamentally changed our world thereby changing our ecosystem. Each change that occurred had to do with new products simply replacing old ones and a shift in the mode of production (Horn, Jeff; Rosenband, Leonard; Smith & Merritt 2010).

Consequently, the Industrial Revolution which began in England in the second half of the eighteenth century spread in due course to Belgium, France, and other parts of Western Europe (Appadorai, 2004). In the economic sphere, the revolution substituted machine production for hand production. The small–scale production of goods in private homes was supplanted by mass production in factories. With the new mode of production women had their loved ones- children and husbands; migrating from farm to factories, from country to city, from agriculture to industry while women kept their homes. Following these philosophers such as Hegel and Rousseau stressed that the natural and spontaneous division of labour within the family also naturally paved the way for the social position of men and women in society (Lisa 1997).

Marx on the other hand, stressed that the changes in the mode of production and the industrial revolution birthed capitalism which divided the society into two hostile camps- the protectorate and the bourgeoisie. To him, the proletariat grew larger and larger with their miseries and pauperization attenuated while the bourgeoisie became numerically smaller, prosperous, and well-off with wages pushed lower and lower. Unfortunately, women who were neither the bourgeoisie nor the proletariats in that industrial epoch kept the home while men worked either as the bourgeoisie or the proletariat. This resonated with women being some kind of cartel for men where he regarded his wife and children as his property and slaves. The man had power over them and could do with their labour as he chooses

Women were rather properties of either the bourgeoisie (men) or proletariats (men) as wives (heir breeders) or slaves. The home position women occupied made them lose out in the changing mode of production and the subsequent industrial revolutions. The two social classes, the bourgeoisie, and the proletariat are owners of the mode of production one way or the other. The proletariats had women in their homes as wives, breeders of their heirs, and maintainers of the proletariat's private property. On the other hand, the bourgeoisie owns both- their wives, children, and the proletariat. The class difference between the bourgeoisie and proletariats was sharply differentiated in function and interest. Appadorai (2004) explained that the Industrial Revolution destroyed forever, the preponderance weight of the agricultural classes in the community and brought into being a new middle class who generally and year by year became more insistent in their demand for political recognition (Appadorai 2004).

Again, the Second Industrial Revolution in 1870 the century which was the Age of Science and Mass Production. With it, things started to speed up and several key inventions were recorded. Owners of means of production now richer started thinking of gasoline engines, aeroplanes, chemical fertilizers, and inventions that helped them go faster and do more. Scientific principles were brought right into the factories. Most notably, the assembly line effectively powered mass production. By the

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early part of the 20th century, Henry Ford's company was mass-producing the groundbreaking Ford Model T, a car with a gasoline engine built on an assembly line in his factories.

People followed the jobs, and in the early 1900s large number of workers left their rural homes behind to move to urban areas to work in factories. By 1900, 40% of the people in the rural areas especially in the US lived in cities, compared to just 6% in 1800. Cities were getting more and more urbanized. Inventions such as electric lighting, the radio, and telephones transformed the way people lived and communicated, and this ushered in the modern world- the third Industrial Revolution.

The Third Industrial Revolution beginning in the 1950s fundamentally changed with the discovery of electricity and mass production ushering in the Digital Industrial Revolution. With the third industrial revolution came the magical internet which replaced the steam engines and the Ford Mainframe computers with some kind of miniature mobile and handy devices that let you access both the cloud (soft) and the (earth hard copies)- that was the wonders of the digital internet cloud. The third industrial revolution brought semiconductors, mainframes, and personal computers. Things that used to be analogue moved to digital technologies, like an old television you used to tune in with an antenna (analogue) being replaced by an Internet-connected tablet that lets you stream movies (digital). The move from analogue electronic and mechanical devices to pervasive digital technology dramatically disrupted industries, especially global communications and energy. Electronics and information technology, internet commerce, and trade eclipse the cloud. The third industrial revolution provided access to gargantuan information explosion and knowledge consumption thereby exacerbating good and bad information consumption, especially in the hands of the youth.

Each of these (first -third industrial revolutions) represented profound change with the major societal transformation of the way people lived worked and communicated. The discovery in the Third Industrial Revolution advanced profoundly and has equally launched us into the Fourth Industrial Revolution. Now, many of the technologies people dreamed of in the 1950s and 60s have become a reality in the emerging Fourth Industrial Revolution and we are going to be more changed as the Fourth Industrial Revolution completely emerged. With it, we may have flying cars as we already have robots. Full-blown genetic sequencing and editing, artificial intelligence, miniaturized sensors, and 3D revolutions (printing, to name a few (trailhead.salesforce.com 2020). What then will be the fate of women who are still grappling with mastering the use of basic personal technological equipment?

III. BRIEF LITERATURE AND PHILOSOPHICAL PERSPECTIVE OF WOMEN'S MARGINALIZATION IN INDUSTRIAL REVOLUTIONS

Damilola (2020), identifies the roles female folks tend to play in the whole process, how women can actively be a part of the revolution, benefit from its positive contributions on one hand, and overcome the challenges it poses to the gender on the other. She also suggests necessary skills that will be economically viable for women to engage in without having much fear of the disruptions expected of the 4IR, while noting the economic power of women in managing the families as the 4IR is expected to cause a lot of household disruptions. According to Ruiz et al (2024), there are similarities between the four industrial revolutions and the five ages of civilizations and the transition of women from domestic work to industrial work. Min et al (2018) situated the hunter-and-gatherer age, the agricultural age, the industrial age, the information worker age, and the emerging age of wisdom and showed that the productivity of each subsequent age goes up fifty times over the preceding age. They further revealed the opportunities of the fourth industrial revolution through the characteristics of these five ages of civilization

With the scale, scope, and complexity of the fourth industrial revolution, the transformation will be unlike anything humankind has experienced before. (Schwab 2015). The fourth industrial revolution can raise income levels by allowing entrepreneurs to "run" with their new ideas. It will improve the quality of life for many people around the world. To Ivy, (2013), it is often assumed that the woman worker was produced by the Industrial Revolution and that since that time women have taken an increasing share in the world's work. Reinforcing the evolution of global industries in the fourth industrial revolution is both exciting and scary (Peters 2017), Anderson,(2012 contends that the fourth industrial revolution is likely to reduce barriers between inventors and markets due to new technologies such as 3D printing for prototyping. With the challenges of the Fourth Industrial Revolution, "the world stands on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another (Anderson, 2012). Analysing the origin of the family, private property, and state and drawing heavily on the work of the 19th-century anthropologist Lewis Morgan, Engels traced the supposed evolution and subordination of women in the family and society from the earliest savage society to the present day (Mukherjee, et al 2011).

For Rousseau men and women differed in virtues. While a man's virtue was his rational capacity, a woman's virtue was her sexuality which meant chastity, gentleness, and obedience. Since the functions of men and women differed, their education would also have to be different (Rousseau) Disagreeing with Rousseau, Wollstonecraft argued that the fulfilment of maturity and the eventual emancipation of women would come only when women are treated as persons and not merely as

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sexual beings. Contending that women like men were endowed with reason enabling them to make rational decisions and were entitled to natural rights. She states further that men and women should be given equal education.

According to him, primitive societies differed from modern societies in that relations between the sexes were based on equality. Then he argued that there was a sexual division of labour whereby women were responsible for domestic work and men for agriculture and animal husbandry, and there was the practice of paring family (which was not the same as strict monogamy) From the account of Engel in the primitive society this did not involve subordination; the women reigned supreme in the home and decent was calculated through the female line. Engels called this ‘’mother- rights’’.

The egalitarian situation was, however, changed by the development of new sources of wealth in the male sphere of activity through the domestication of animals and the breeding of herbs. As some men gained property and power over others, their position within the family was strengthened, and they wanted to pass their property to their children. To do this they have to overthrow the traditional order of inheritance and ensure strict monogamy on the part of each woman, who became the mere oppression of her husband, the means of producing an heir. In Eagles’ vivid phrase, the overthrow of the mother right was the world’s historical defeat of the female sex (Mukherjee, et al 2011).

Consequently, the man took command in the home, the woman was degraded and reduced to servitude, and she became the slave of his lust and a mere instrument to produce children. This account of Engels can be inferred that the subordination of women coincided with the first private property and class society, for it was then that women lost control in the home and became economically dependent upon men; it also means that female oppression has no other material cause-- it is a part of class society, but not necessarily a permanent feature of human relationships. Therefore, the abolition of private property will mean an end to sex oppression. For men will no longer have any motive to exploit women; the supremacy of the man in marriage is a simple consequence of his economic supremacy and with the abolition of the latter, it disappears itself Engels in Lisa (1997) argued that good equality in the society could not be achieved by will but only at a particular state of historical and economic development.

Following the account of Engels women’s marginal representation in societies started from the transition from agrarian to the acquisition of private property and animal husbandry through the overthrow of mother-right. From the first phase of change of production to the Industrial Revolution up to the third, women have remained stocked in the family and are hardly represented in governance, science, and technology. Mill (1806-1873) argued that women were marginalized because women acquiesced themselves to the situation and policed their marginalization by fighting women who tried to live outside the gender norm. For example, the widows’ right is performed and executed by women. Invectives are usually hurled at women by women who live outside of expected cultural and patriarchal norms for women.

Consequently, the United Nations' celebration of International Women's Day in 1975 was an occasion to stand together to advance gender equality around the world, but this equality is yet to be evident in STEM and technological applications than in any other area. According to Mayanja, (2020), this year marks ten years the United Nations Security Council Resolution 1325, which anchored mainly on the mainstreaming of women in peace and conflict issues, yet women are still marginalised in that sector at the dawn of the fourth industrial revolution when previously unimaginable technological productions are staring at the world. It has presented itself to substitute the third industrial revolution of the internet and electricity (Mayanja, 2020). Do women stand a chance of being mainstreamed in this new era? What is the place of women in the fourth industrial revolution? To what extent can women be crucial in the use of technology as a tool for peace? How can women's technological know-how in the fourth industrial revolution bridge the gender gap?

IV. METHODOLOGY

This article applied ecosystem theory and utilised a quantitative method of research design to gather primary data, while secondary data was generated through empirical literature and online digital materials to investigate the place of women in the fourth industrial revolution. The questionnaire was administered online to knowledgeable respondents such as women, policymakers, civil servants, youths and some government officials between ages 21-61 using a judgemental research method. Respondents are Nigeria residents.Quantitative data was analysed using SPSS to generate inferential statistics, while secondary data was thematically content analysed. Data was collected to investigate the factors that hinder women mainstreaming in STEM, the place of women in the fourth industrial revolution, the extent to which technological know-how would enhance women’s professional productivity in the fourth industrial revolution, and how women can utilise technology to bridge the gender gap. The data collected was content analysed to show the tables below. Quantitative data from an online survey for this paper were analysed using inferential and descriptive statistics. Table 1.1showsan array of questions aimed at showing the place of women in the Fourth Industrial Revolution. This is followed by two other tables according to the research questions for this paper.

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V. DATA ANALYSIS

Table 1.1: The place of women in the fourth industrial revolution

Statement	AG	SA	DA	SD	UD	SUM
Women still trying to understand the use of basic personal technologies such as laptops and phones	30.3%	13.2%	10.1%	43.3%	3.1%	100
Do women have equal representation in sciences and technology	32%	29.3%	12.3%	17.2%	9.2%	100
Who helps women solve their technological equipment problems-sons, husbands , male relatives ,	sons -30.3%	Male-relatives 32.4%	Daughters 18%	women 12%	7.3%	100
Do you think women have distractions?	multiple task 50%	husbands 20%	Marriage, 14%	Interest 10%	6%	100
Total						

Source: Online survey by Amaka T.O. Emordi 2020

Are women still trying to understand the use of basic personal technologies such as laptops and phones? 30.3% of the respondents strongly agreed that many women are still trying to understand the use of basic personal technologies such as laptops and phones while 32.4% agreed to make it a total of 62.7% of the respondents agree that women are still trying to understand the use of basic personal technologies such as laptops and phones. 18% strongly disagreed while 12% agreed while1 7.2 was undecided on the issue. However, the result showed that more of the respondents 62.7% believed women could conveniently use their basic technological equipment at the dawn of the Fourth Industrial Revolution. Again, to the question do women have equal representation in sciences and technology? 32% agreed while 29.3% strongly agreed. 12.3% disagreed and 17.2% disagreed. While 9.2% were undecided. The report revealed that 29.5 % disagreed while 61.3% agreed.

To unveil who helps women solve their technological equipment problems -sons, male relatives' daughters or women? Of the respondents, 30.3% said that the women are helped by their sons while 32.4% stressed that women's male relatives help women help women in solving their technical problems but 18% confirmed that it was the female children (daughters) while 12% maintained that women fix their minor technological problems by themselves. 7.3% were undecided on who helps on who help women solve their problems.

To discover if women have things that distract women from science and technology 50% of the respondents agreed that women are distracted by multiple tasks and 20% believed that women are distracted by their husbands. On the other hand, 14% of the respondents argue that women are distracted by marriage 10% argue that women are not interested in science and technology while 6% were undecided about what distracts women.

Table 1.2: Women being crucial in the use of technology as a tool for peace?

Statement	AG	SA	DS	SD	UD	SUM
The fourth industrial revolution present technology as a tool for peace and war?	47.1%	21.2%	20.1%	6.5%	5.1%	100
Women stand a chance of bridging the gender gap using technology	35%	29%	15%	13%	8%	100
It is very crucial for women to advance in technology to be mainstreamed in the fourth IR.	44.2%	26%	10.6%	13%	6.2%	100
Technology can be a veritable tool in solving unpredictable social political and gender problems	35.2%	30.3%	10.3%	14.2%	10%	100
Technologically poor women will be left behind in the wheel of progress in the IR	38.3%	32.1%	15.5%	9.1%	5%	100

Source: Online survey by Amaka T.O. Emordi 2020

How crucial are women in the use of technology as too for peace and war? Responding to this question 47.1% agreed that women will be useful in using technology as a tool for peace than war. 21.2% strongly supported this statement. On the contrary, 20.1% disagreed while 6.5% strongly disagreed while 5.1 were undecided. Therefore 68.3 % believed women could be useful in the use of technology as an instrument of peace. The result showed that 68.3% maintained that women would be very useful in using technology as an instrument for peace in the fourth industrial revolution.

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To uncover if women stand a chance of bridging the gender gap using technology. The respondents 35% agreed and 29% strongly supported the statement while 15% strongly disagreed and 13% disagreed while 8% were undecided. Their responses revealed that 64% believed women could bridge the gender gap using technology or widen it without efforts to latch in on the emerging fourth industrial revolution. If women as revealed in the findings are competent in the use of their technological equipment, they can be explored and improved upon.

To discover how crucial it is for women to advance in technology to be mainstreamed in the fourth IR. 44.2% of the respondents responded by agreeing that women must be mainstreamed in the fourth industrial revolution. 26% strongly supported the statement while 10.6% disagreed and 13% strongly disagreed while 6.2 were undecided. However, the total of 70.2 that affirmatively in the fact that women mainstreaming in the fourth industrial revolution is very crucial.

In using technology as a veritable tool in solving unpredictable social political and gender problems 35.2% agreed 30.3% strongly agreed 10.3% disagreed while 14.2% strongly disagreed while 10% were undecided on the statement. The respondents 65.5% agreed that technology will be a veritable tool in the fourth industrial revolution, and it will be better used by women to bridge the gender gap.

To uncover the fate of technologically poor women in the fourth industrial revolution: the findings revealed that technologically poor women will be left behind in the wheel of progress in the IR as 38.3% agreed while 32.1% strongly agreed to make it a total of 70.4% of them confirmed the statement. While 15.5% disagreed and 9.1% strongly disagreed. 5% of the respondents were not able to decide but were undecided.

Table 1.3: How did women's technological know-how in the fourth industrial revolution bridge the gender gap?

Statement	AG	SA	DA	SD	UD	SUM
Women will play a positive role in gendering peace in our society using technology	38 %	25.6%	13.7%	12.4%	10.3	100
The emerging technology of the fourth IR will further marginalize women?	25.5%	18.6%	35.2%	10.3%	10.4	100
Women marginalization in science and technology is due to women's lack of interest?	21.4%	16.2%	38.3%	12.1%	12%	100
Women's poor representation in science and technology is because of their nature?	20.1%	19.1%	40%	12.8%	8%	100
Women's inability to embrace technology in the new era will widen the gender gap	29.8%	32.2%	20.8%	12.1%	5.1	100

Source: Online survey by Amaka T.O. Emordi 2020

To discover if women will play a positive role in gendering peace in our society using technology. To this question, 38 % agreed and 25.6% strongly supported the statement. However, 13.7% disagreed while 12.4% strongly disagreed that women will play a positive role in gendering peace in our society using technology while 10.3 was undecided. The statement showed 64.6% of the respondents agreeing that women played a positive role in engendering peace in the fourth industrial revolution.

The emerging technology of the fourth IR will further marginalize women. Respondents 25.5% of agreed that the emerging technology of the fourth IR will further marginalize women and widen the gender gap and 18.6% strongly agreed with the assertion. 35.2% disagreed and 10.1% of the respondents strongly disagreed while 12% were undecided. This infers that 44% conceded that the gender gap could be widened in the fourth industrial revolution if women do not embrace technology 45.2% however, disagreed.

Women's marginalization in science and technology is due to women's interest. In answering this question, the respondents 21.4% agreed and 16.2 strongly agreed. 38.3% disagreed. 12.1 strongly disagreed and 12% were undecided. 37.6% argued that women's marginal presence in science and technology is because women lack interest while 50.4% disagreed, arguing that women's marginal presence in science and technology is not because women lack interest. While 12.1% strongly disagreed 5.1% were undecided on why women are not duly represented in science and technology.

Women's poor representation in science and technology is because of their nature. 20.1% agreed and 19.1 strongly agreed 40% disagreed 12.8% strongly disagreed and 8% were undecided. This revealed that women's little presence in science and technology is not naturally determined but environmentally determined since 52.8% of the respondents disputed the statement that nature is the reason women are marginal in science and technology.

The reason for women's poor representation in technology is due to women's inability to embrace technology in the new era will widen the gender gap 29.8% agreed and was supported by 32.2% this made it a total of 62% of the respondents stressing that women need to embrace technology in the fourth industrial revolution or be further marginalized.20.8% disagreed 12.1% strongly disagreed and 5.1% were undecided.

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VI. FINDINGS

The result of the survey based on 62.7% of the respondents is that women can conveniently use their personal basic their basic technological equipment theoretically and could have equal representation in sciences and technology, but they are not able to solve their technological problems by themselves 61.3% believe that women still depend on their male relatives (sons or husbands) to solve their technological minor issues. Women were discovered to be distracted by a lot of factors which affect both the imputes and outputs of women in science and technology. Women are engaged in multiple tasks such as marriage, husbands, and children but there is also the women factor which is a lack of interest.

Many of these factors are germane and therefore hinder women from benefiting in science and technology. Although a few women have made inroads in STEM, Lisa (2003) argued that the reason women are marginal in politics and STEM by extension is not the historical context and economic imperative of women's participation in politics. No, according to her the reason is women's lack. Women lack skills, drive, charisma, and political savvy all of which are symbolized by having a penis. As women lack this important piece of political equipment, being male seems to be a key criterion for growing up to occupy an important social position in society such as becoming the president of the USA. Consequently, using this as a political strategy, the state has a neutral referee approach and recommends women change to become more like normative political actors, presumptively masculine. Women are required women to accept androcentric political priorities and standards to become like men (Lisa 2003). In our contemporary time, most women who go beyond the glass ceiling are either not married or are divorced and often without children**.** If they remain married and with children, they must fight thrice as hard as the men worked to combine all of that to make headway.

Sarah (2005) upholds Lisa's position that either through nature or nurture women and men experience different treatments and outcomes when they run for office, lobby for policy, claim benefits, seek protection, compete for government contracts, join the military, call for, or run from the cops or otherwise, bump up against state institutions (Sarah 2005). Differences in treatment and outcome result because people are already divided into masculine and feminine lines in society and their perceptions.

The findings from the survey also revealed that women can bridge the gender gap easily with the use of technology when they are mainstreamed in it. This confirmed why 64% of the respondents in this survey maintained that women could bridge the gender gap using technology or widen it without efforts to latch in on the emerging fourth industrial revolution. If women as revealed in the findings can be competent in the use of their technological equipment, they can explore and improve upon it. This is very crucial for women to occupy an enviable place in the fourth industrial revolution. 70.2% of the research respondents argue that for women to advance in technology to be mainstreamed in the fourth IR affirmatively in the fact that women mainstreaming in the fourth industrial revolution is very crucial.

Furthermore, 65.5% stressed that with technology women can find solutions to unpredictable social-political, and gender problems. The respondents agreed that technology is a veritable tool in the fourth industrial revolution, and it will be better used by women to bridge the gender gap. Consequently, 70.4% of them confirmed technologically poor women in the fourth industrial revolution. This shows that without most women being techy in the fourth industrial revolution which is the way the world is going then the gender gap will be further widened and women will be left behind again in the fourth industrial revolution as in the previous industrial revolutions. Therefore, technologically poor women will be left behind in the wheel of progress in the IR as the statement.

Exclusion, on the other hand, is referred to as an extension of gender inequality which expresses the roles the society and culture ascribe to males and females in social situations and institutions that need to be revisited by those interested in peace and security issues in our contemporary times based on biological determinism. It is this kind of biological exclusion which has implications for the number of women in policy-making circles especially in the security sector (Danjibo 2013), and (Nwolise 2014). This may be inevitable in the fourth industrial revolution According to Nona (2013) around the globe the potential of mothers has thus far been neglected in counter-terrorism strategy for peace Women have their roles to play because they are more peaceful but the fact that they are not equal with men in governance, peace, and security development cumulate in insecurity around the world and Nigeria (Nwolise 2014).

VII. CONCLUSION & SUMMARY

The paper presents a critical analysis of women's place in Nigeria's fourth industrial revolution, emphasizing the urgency of incorporating women into STEM fields to close the gender gap. While it outlines important issues, the study's empirical details, such as sample size or statistical significance, are underdeveloped. The paper explores how women are perceived in the Fourth Industrial Revolution, particularly in terms of technology usage, representation in STEM fields, and bridging gender gaps. The findings suggest that women face challenges but can play a critical role in the tech world. This paper examines the role of women in Nigeria's fourth industrial revolution (4IR), focusing on their integration into STEM fields. It

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highlights gender disparities, especially in technology use, and advocates for greater inclusion of women to prevent the widening of the gender gap. Future research should expand the sample size and provide a more robust statistical analysis to validate the findings.

However, the struggle for gender equality has been one of the hallmarks of the 20th c feminists and women empowerment stakeholders. Since the first wave of feminism to date much has been achieved but a lot remains undone as the agenda remains unfinished, especially in Nigeria Much is yet to be achieved in mainstreaming women in science and technology. The increase in the number of women academics over the past 60 years has increased these gender differences in the used tech but much is yet to be achieved for women to be relevant in the technological ecosystem of the fourth industrial revolution. The findings of this survey expressly revealed that in the fourth industrial revolution, women will be marginalized further if they are not mainstreamed in science and technology and will be left behind if urgent and effective action is not taken to mainstream women in science and technology in Nigeria.

Furthermore, 65.5%stressed with technology women can find solutions to unpredictable social political and gender problems. The respondents agreed that technology will a veritable tool in the fourth industrial revolution, and it will be better used by women to bridge the gender gap. Consequently, 70.4% of them confirmed technologically poor women in the fourth industrial revolution will be left behind in the wheel of progress. This shows that without most women being techy in the fourth industrial revolution which is the way the world is going then the gender gap will be further widened.

- **Way forward**
- Since women can conveniently use their personal basic their basic technological equipment
- The government need to create means of managing those things that distract from science and technology to enable them to concentrate on techy needs.
- Women have been found to do multiple tasks and this is also one of the banes of women in STEM. To this end, women need to be trained to focus on a few things and be encouraged by their husbands even as they space the birth of their children and train to be independent
- Engaging women in science and technology will help to solve many of the peace and security quagmires the world especially Nigeria is facing today. Everything must be done to have women mainstreamed in STEM now.
- Women must as a matter of necessity encourage their female children to go into science-related courses.
- Government and stakeholders making efforts to bridge the wide gap in STEM should endeavour to train young female children to compete favourably in STEM,
- Women who are already empowered should encourage fellow women in the lower rung of the ladder to in science
- Women, stakeholders of women mainstreaming in science and technology should make use effectiveness of technology to connect millions and millions of women all over the world to be involved in STEM. As we saw it happened with the black LivesMatter campaign in the wake of police brutality and the death of George Floyd in the USA.
- Women were discovered to be distracted by a lot of factors which affect both the imputes and outputs of women in science and technology.
- The UN through UNDP should ensure to reduce multi-tasks for women moving towards STEM without society shaming them. Women are engaged in multiple tasks such as marriage, husbands, and children sometimes because culture and society pressure them to do so and this in turn reduces their interest in STEM.
- The effectiveness of legislation cannot be over-emphasized for Nigeria and other states to achieve positive improvement in STEM. Therefore, there is a need for legislation to encourage women's involvement in science and technology.

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