



Asosiasi Asesmen Pendidikan (AAP)

Address: Bumi Mutiara Serang, Cluster Symphony, Blok C2 No.18 Serang – Banten, 42122 – Indonesia.

☎ +62 85312898866; ✉ jurnal@aapbk.org



Journal of Counseling and Educational Research

ISSN 3063-9786 (Electronic)

Editor: Rima Pratiwi Fadli

Publication details, including author guidelines

URL: <https://journal.aapbk.org/index.php/jcerch/about/submissions#authorGuidelines>

Counselling Nigerian Youth in the Fourth Industrial Revolution: Implications for National Development

Gafar Isiaka¹, Abdulkadir Olarewaju Rasah², Beatrice Paul Zuhumben³

Unit for Distance Education, Faculty of Education, University of Pretoria, South Africa¹

AbdulRasah Abubakar Toyin University, Ganmo, Nigeria²

Department of Educational Foundation, Faculty of Education, University of Lagos, Nigeria³

Article History

Received : 05 May 2026

Revised : 12 August 2026

Accepted : 16 August 2026

How to cite this article (APA 6th)

Isiaka, G., Rasah, A. O., & Zuhumben, B. P. (2026). Counselling Nigerian Youth in the Fourth Industrial Revolution: Implications for National Development. *Journal of Counseling and Educational Research*, 3(1), 1-13. DOI: 10.63203/jcerch.v3i1.550

The readers can link to article via <https://doi.org/10.63203/jcerch.v3i1.550>

Correspondence regarding this article should be addressed to:

Gafar Isiaka, Email: isiakagafar87@gmail.com, University of Pretoria, South Africa

SCROLL DOWN TO READ THIS ARTICLE



Asosiasi Asesmen Pendidikan (as Publisher) makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications. However, we make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Asosiasi Asesmen Pendidikan. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information.



This work is licensed under a <https://creativecommons.org/licenses/by/4.0>

Copyright by Isiaka, G., Rasah, A. O., & Zuhumben, B. P. (2026)

The authors whose names are listed in this manuscript declared that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript. This statement is signed by all the authors to indicate agreement that the all information in this article is true and correct.

Original Article

Counselling Nigerian Youth in the Fourth Industrial Revolution: Implications for National Development

Gafar Isiaka¹, Abdulkadir Olarewaju Rasdaq², Beatrice Paul Zuhumben³

Unit for Distance Education, Faculty of Education, University of Pretoria, South Africa¹

AbdulRasaq Abubakar Toyin University, Ganmo, Nigeria²

Department of Educational Foundation, Faculty of Education, University of Lagos, Nigeria³

Abstract. This conceptual paper examines how technological innovation, particularly the Fourth Industrial Revolution (4IR), artificial intelligence, and automation, is reshaping the world of work and the career-adjustment demands facing Nigerian youth. Drawing on a structured synthesis of peer-reviewed literature, national policy documents, and international labour-market reports published between 2015 and 2026, the paper analyses three interlocking shifts: the restructuring of global and Nigerian labour markets, the transformation of work values and occupational identity, and the counselling responses required to support youth adjustment. The World Economic Forum's Future of Jobs Report 2025 projects that 92 million jobs will be displaced and 170 million created by 2030, with 39% of existing skill sets requiring transformation. Nigeria's ICT sector contributed approximately 19.8% of real GDP in the second quarter of 2024, while youth unemployment estimates range from 6.5% under the National Bureau of Statistics' revised methodology to over 50% under civil-society assessments, underscoring the scale of adjustment required. The paper argues that professional counsellors occupy a strategic position for translating these macro-level shifts into individual career resilience, and concludes with prioritised, actor-specific recommendations for counsellor education, professional bodies, curriculum policy, and government agencies to strengthen Nigeria's national human-capital response.

Keywords: Fourth Industrial Revolution; Artificial Intelligence; Career Counselling; Youth Unemployment; Technological Adjustment.

Corresponding author: Gafar Isiaka, isiakagafar87@gmail.com, Pretoria, South Africa



This work is licensed under a CC-BY

Introduction

Technology has always been a catalyst of social transformation, but the pace and depth of change in the contemporary era are unprecedented. The convergence of artificial intelligence (AI), robotics, big data analytics, the Internet of Things (IoT), and automation, collectively described as the Fourth Industrial Revolution (4IR), is fundamentally reshaping the structure of economies, labour markets, and educational requirements worldwide (Schwab, 2020). For Nigeria, a country with a median youth age of approximately 18 years and where more than 60% of the population is under 25, these developments carry both extraordinary promise and serious risk (Okolo et al, 2024; ISS African Futures, 2024). Technological disruption is, of course, only one of several forces shaping outcomes for this population; Nigerian counselling research has also documented how non-technological stressors, such as domestic violence, affect the academic performance that underpins later labour-market readiness (Lawal et al,

2026), underscoring the breadth of adjustment challenges the counselling profession is already expected to address.

Technology is defined as the organised application of scientific knowledge, physical devices, and systematic thinking to facilitate the production of goods, delivery of services, and transformation of human environments. It creates functional interdependence between people and their environment, establishing the basis for evolving work values and occupational development. From early mechanisation to the present era of machine learning and intelligent automation, each technological generation has profoundly altered the character of human work, and the relationship between scientific and technological literacy and educational outcomes has long been recognised in the Nigerian context (Akande & Abubakar, 2006; Fatokun, 2000; Schwab, 2020).

Nigeria's National Policy on Education (Federal Republic of Nigeria, 2013) recognises technological education as the acquisition of practical, applied skills alongside basic scientific knowledge. Yet the challenge today extends far beyond traditional technological literacy. Nigeria's ICT sector contributed approximately 19.8% of real Gross Domestic Product (GDP) in the second quarter of 2024 — a share-of-GDP figure that has fluctuated between roughly 16% and 20% across recent quarters — outpacing traditional sectors and underscoring a decisive shift toward a knowledge-driven economy (National Bureau of Statistics, as cited in World Economic Forum, 2025a). Simultaneously, the International Finance Corporation estimates that 57 million jobs in Nigeria and four other African nations will require digital skills in the near future (Howard, 2023). The implications for youth career development, counselling practice, and national development planning are immense.

Despite a substantial body of Nigerian counselling scholarship on adjustment and value orientation dating back several decades (Wren, 1962; Okon, 1983; Denga, 1985; Kolo, 1992; Omotosho, 1994), this literature was developed before the emergence of the 4IR labour-market disruptions now unfolding, and consequently offers limited guidance on digitally mediated career adjustment, AI-driven occupational displacement, or the specific competencies counsellors now require. Recent Nigerian scholarship has begun to address this gap from adjacent angles — for instance by examining career readiness among graduating undergraduates (Effiom et al., 2025) or the competency and policy requirements for 4IR-ready counselling practice (Popoola et al., 2025) — but a synthesis that connects labour-market restructuring, shifting work values, counsellor role adjustment, and national development outcomes specifically for the Nigerian context remains limited. This paper addresses that gap.

This paper examines how technological innovations are transforming the world of work, analyses the changing work values and occupational landscape confronting Nigerian youth, articulates the critical role of counsellors in facilitating adjustment to this dynamic environment, and highlights the implications for national development. It integrates recent empirical and policy evidence to update and extend earlier Nigerian scholarship on adjustment and value orientation (Okorodudu, 2010; Kolo, 1992; Omotosho, 1994) within a contemporary 4IR framework

Method

This is a conceptual paper employing a structured narrative-synthesis design, appropriate for integrating and interpreting evidence across a rapidly evolving, cross-disciplinary field in which the phenomenon of interest spans macro-level (labour-market), meso-level (institutional and policy), and micro-level (counselling practice) evidence that a single primary-data study would not, on its own, capture (cf. Popoola et al., 2025, who adopt a comparable position-paper design for a closely related question).

Evidence was drawn from three categories of source, all published or last updated between 2015 and 2026: (a) peer-reviewed journal articles and book chapters on career development, counselling theory, and 4IR-related occupational change; (b) international policy and labour-market reports, including the World Economic Forum's Future of Jobs Report 2025, International Labour Organization publications, and World Bank technical briefs; and (c) Nigeria-specific statistical and policy documents, including National Bureau of Statistics releases and the Federal Republic of Nigeria's National Policy on Education. Sources were identified through targeted searches of academic databases and institutional repositories using combinations of the terms “Fourth Industrial Revolution,” “career counselling,” “youth unemployment,” “Nigeria,” and “national development,” supplemented by hand-searching the reference lists of key sources.

Sources were selected for thematic relevance to the paper's four analytical foci — labour-market restructuring, occupational identity and work values, counsellor role adjustment, and national development, and were synthesised thematically rather than through a formal systematic-review protocol. Where statistical claims are contested or methodology-dependent, as is the case for Nigerian youth unemployment estimates, this is noted explicitly rather than resolved by selecting a single figure

Results and Discussions

The synthesis is organised around four interconnected themes: the restructuring of work under the 4IR, the accompanying shift in work values and occupational identity, the counselling responses required to support youth adjustment, and the resulting implications for national development.

Technology Innovation and the World of Work in the 4IR Era

Within the context of the Fourth Industrial Revolution, the nature, organisation, and content of work are being fundamentally reconfigured. Unlike previous industrial transitions, the 4IR is distinguished by its speed and breadth, and by the unprecedented fusion of physical, digital, and biological systems (Schwab, 2020). Artificial intelligence, robotics, autonomous systems, advanced biotechnology, and quantum computing are not merely new tools; they are catalysts of systemic transformation affecting every industry and occupation. A recent systematic review of the essential skills required across the 4IR labour market similarly concludes that the breadth of competencies now demanded of workers — spanning technical, cognitive, and socio-emotional domains, has no close precedent in earlier industrial transitions (Borrajero & Mennega, 2023).

The World Economic Forum's Future of Jobs Report 2025, drawing on data from over 1,000 companies across 55 economies, projects that 92 million jobs will be displaced and 170 million new roles created by 2030, yielding a net gain of approximately 78 million positions globally. However, this headline figure masks profound disruption: nearly 39% of existing skill sets will require transformation within the same period, and approximately 59 out of every 100 workers will need reskilling or upskilling to remain employable, with 11 of these unlikely to receive such support (World Economic Forum, 2025b). Figure 1 illustrates this disruption for five illustrative technology-driven categories; because the report's full occupational breakdown spans many more categories than can be shown in a single chart, the figure should be read as indicative of the pattern of uneven disruption across categories, rather than as an exhaustive accounting of the full 92-million/170-million global totals.

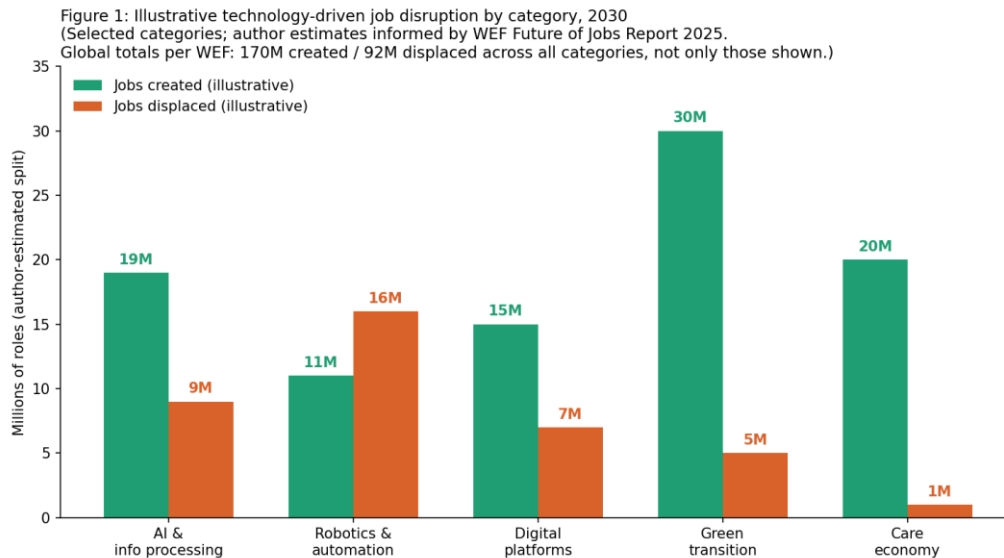


Figure 1. Illustrative technology-driven job disruption by category, 2030.

Selected categories; author estimates informed by the World Economic Forum's Future of Jobs Report 2025 (World Economic Forum, 2025b). Global totals per the source report are 170 million jobs created and 92 million displaced across all categories, not only those shown here.

As Figure 1 shows, the ratio of jobs created to jobs displaced varies sharply by category: care-economy and green-transition roles show the most favourable ratios, while robotics and automation show substantial displacement even as they create new roles. This unevenness matters for counselling practice because it means youth cannot be advised simply to “move into technology” as an undifferentiated strategy; guidance must be category-specific.

Africa is home to nearly one billion people under the age of 35, and with a median age of 18.8 years, these global trends carry distinctive urgency. Approximately 10–12 million young Africans enter the labour market annually, yet only 3 million formal sector jobs are available (Okolo et al., 2024; Microsoft Research, 2024). In Nigeria, youth unemployment is projected to exceed 33% by 2025, placing unprecedented pressure on graduates and school-leavers (Azu et al., 2025). This projection sits within a wider, contested statistical picture: Nigeria's National Bureau of Statistics reported youth (15–24) unemployment at 6.5% in 2024 following a 2020 revision to its calculation methodology, while the pre-revision methodology and independent civil-society assessments place the figure far higher, 53.4% in 2020 under the earlier methodology, and 53% in a 2025 multi-agency assessment covering nearly 80 million young people (Afrobarometer, 2025; Plan International & Action Aid Nigeria, 2025). This paper does not attempt to resolve which figure is definitive; rather, it treats the scale of disagreement itself as evidence that youth labour-market distress in Nigeria is severe under any plausible measure, even as the precise magnitude remains debated. At the same time, Nigeria's rapidly expanding ICT sector and digitising economy create genuine opportunities for those equipped with the right competencies.

Three major structural transitions define the changing world of work in Nigeria and Africa broadly. First, there is the ongoing shift from industrial and manufacturing employment to service and information-economy occupations. About 65% of the global workforce is now engaged in generating, processing, storing, or transmitting knowledge and information (Okorodudu, 2010), a proportion that continues to grow. Second, AI-driven automation is replacing routine and semi-routine tasks across clerical, administrative, and even professional roles, even as the same technologies generate demand for entirely new categories of work;

evidence from the post-pandemic labour market suggests this “replace or create” dynamic operates simultaneously rather than sequentially, with the net effect depending heavily on how quickly workers and institutions adapt (Yan-ping & Qi, 2022). The WEF (2025b) specifically projects sharp declines in cashiers, administrative assistants, accounting clerks, and printing workers. Third, entirely new occupational categories are emerging: data scientists, AI specialists, cybersecurity engineers, fintech professionals, and digital platform managers, which did not exist in recognisable form a decade ago.

The impact of these shifts on Nigeria is amplified by a critical skills gap. Research on Nigerian educational institutions confirms moderate familiarity with 4IR technologies but significant deficiencies in man-machine communication, data analysis, and cybersecurity skills among graduates (Adepoju & Aigbavboa, 2021). Consistent with this, a study of final-year undergraduates in a public university in Ibadan found that while students rated themselves highly in teamwork, professionalism, and critical thinking, they scored notably lower on career-management skills and global/cultural fluency, and only moderately on digital-technology literacy, precisely the competency profile the 4IR labour market least rewards (Effiom et al., 2025). At a continental level, foundational-skills gaps of this kind are identified as one of the principal barriers to a more inclusive 4IR transition across African labour markets (Brookings Institution, 2023).

New biotechnology, energy technology, and intelligent automation are similarly creating new occupational demands in genetics, precision agriculture, renewable energy engineering, and sustainable manufacturing (Kolo, 1992; Schwab, 2020). The credentials and qualifications required of the workforce are evolving rapidly, with AI literacy, data analytics, cybersecurity, and creative problem-solving identified as the most critical in-demand skills (WEF, 2025b).

Changing Work Values, Attitudes, and Occupational Identity

The structural transformation of labour markets is accompanied by a parallel transformation in work values, occupational identity, and the psychological meaning of work. As manufacturing employment declines relative to service, knowledge, and creative occupations, the attributes associated with ‘good work’ are shifting: physical strength and manual precision are giving way to cognitive flexibility, digital fluency, emotional intelligence, and the capacity for continuous learning (Denga, 1985; World Economic Forum, 2025b).

The WEF Future of Jobs Report 2025 identifies analytical thinking as the most sought-after core skill among employers, followed by resilience, flexibility, agility, and leadership and social influence. Crucially, AI and big data proficiency tops the list of fastest-growing skill areas, while manual dexterity and repetitive precision skills are among the most rapidly declining (World Economic Forum, 2025b). This combination means that Nigerian youth are entering a labour market that simultaneously demands higher levels of technical competency and stronger human skills such as creativity, communication, and adaptability than any previous generation faced.

Automation's effect on occupational identity is also significant. Workers who previously derived meaning from skilled manual or routine cognitive tasks find their roles either eliminated or radically deskilled, generating alienation, anxiety, and reduced job satisfaction (Brammer, 1996). Conversely, technology is creating upper-level roles that offer greater intellectual challenge, autonomy, and reward, but accessing these roles requires educational credentials and adaptive capacities that are not equally distributed. The result is a polarisation of the job market: a growing premium on high-skill, high-wage roles and the erosion of middle-skill employment (AfriCatalyst, 2025).

A 2024 PricewaterhouseCoopers analysis, discussed in a synthesis by AfriCatalyst (2025), reports that in sectors most exposed to AI, wages are increasing roughly twice as fast as in less-exposed sectors, and that workers with AI expertise have commanded wage premiums rising from 25% to 56% within a single year. For Nigerian youth who develop the right competencies,

these trends represent extraordinary opportunity; for those who do not, they represent deepening precarity. The role of career counselling in bridging this gap is therefore not merely helpful but central to national equity and development.

The entry of women into an expanding range of professions in Nigeria, though still hampered by structural barriers, is reshaping occupational landscapes and family dynamics. Technology has reduced many purely physical barriers to occupational participation, opening new possibilities in digital commerce, remote work, fintech, healthtech, and information services. Counsellors must address gendered access to digital skills, as evidence from West Africa confirms that women in routine-task roles face disproportionate displacement risks from AI-driven automation (Osei & Boateng, 2024; ISS African Futures, 2024).

The Role of Counsellors in Value Orientation and Adjustment for the 4IR

That counselling must evolve alongside a changing world of work is not, in itself, a new observation for the profession, Wren (1962) made a version of this same argument more than six decades ago, in a very different technological era, but the accelerating transformation of work and occupational identity under the 4IR gives this longstanding imperative unusual urgency and scope. Professional counsellors in Nigeria are positioned at a strategic intersection between educational institutions, youth development, career guidance, and national human capital formation (Sambo, 2009; Isiaka, 2025). Their effectiveness in this role depends, however, on their own professional updating and their command of 4IR-relevant knowledge, digital tools, and evidence-based interventions, an evidence base that includes demonstrated Nigerian precedent, such as structured social-support interventions shown to reduce anxiety and build resilience among populations facing acute psychosocial stress (Zuhumben & Isiaka, 2026).

Research on Nigerian counselling practice identifies a pressing need for curriculum redesign aligned to 4IR competencies, mandatory continuing professional development (CPD) in cyberpsychology and data ethics, and minimum technology standards for counselling practice (Popoola et al., 2025). Without such integration, counsellors risk progressive marginalisation as career guidance professionals; with it, they can deliver broader access, higher efficiency, and better outcomes for youth facing occupational uncertainty. This is echoed in Nigeria-focused practitioner literature, which similarly frames career counselling as an instrument for transforming youth outcomes when it is adequately resourced and updated (Igbe, 2026).

The core functions of counsellors in facilitating youth adjustment to the changing world of technological work may be conceptualised across five interconnected domains, summarised in Table 1. These domains were synthesised by the author from the overlapping competency and service-model frameworks proposed in the cited sources, rather than adapted wholesale from any single one; Table 1's note identifies the specific source of each contributing idea.

Translated into day-to-day practice, these five domains suggest concrete interventions counsellors can implement with limited additional resourcing. In secondary schools, a counsellor might run a termly “labour-market update” session using free, publicly available data (Nigeria's National Bureau of Statistics releases, ILO country profiles) to keep career information current, addressing Domain 1. In tertiary institutions, career services can pair final-year students with structured competency self-assessments against a 4IR skills checklist such as the domains identified by Borrageiro and Mennega (2023), before designing individualised reskilling referrals, addressing Domain 2. For psychological adjustment (Domain 3), brief, group-based “technostress” psychoeducation sessions, delivered at points of known transition stress such as final-year job searches and post-graduation unemployment spells, can apply existing cognitive-behavioural and resilience-building techniques, including structured self-reflection practices shown to support transformative growth in Nigerian counselling contexts (Yusuf & Isiaka, 2026), to a 4IR-specific stressor without requiring new theoretical

infrastructure. Domain 4 can be operationalised through partnerships with existing digital-economy initiatives, for example referring interested students to established entrepreneurship and digital-skills programmes rather than counsellors building parallel infrastructure. Domain 5, value reorientation, is arguably the domain requiring the most direct counsellor-led work, since it involves helping youth process the loss of previously stable occupational identities and construct new ones around adaptability itself as a value — a task consistent with the value-clarification tradition already well established in Nigerian counselling (Okon, 1983; Denga, 1985).

Table 1. Five domains of counsellor roles in facilitating 4IR adjustment among Nigerian youth

No	Domain	Core activities	Key skills required of counsellor
1	Career information & digital exploration	Providing current occupational data; guiding use of online career platforms and AI tools; mapping emerging 4IR roles.	Digital literacy; labour market knowledge; familiarity with career databases and AI tools.
2	Skills assessment & competency development	Identifying skill gaps; connecting youth to reskilling pathways; aligning training with 4IR frameworks.	Psychometric assessment; knowledge of AU Agenda 2063 skills priorities; training navigation.
3	Psychological adjustment & resilience-building	Addressing technostress and occupational anxiety; group and individual resilience sessions; growth-mindset fostering.	Cyberpsychology; cognitive-behavioural techniques; positive psychology interventions.
4	Entrepreneurship & self-employment orientation	Promoting job-creation mindsets; digital economy and gig platform awareness; startup education.	Entrepreneurship coaching; knowledge of digital commerce and fintech; innovation facilitation.
5	Value reorientation for the knowledge economy	Shifting work values from industrial to knowledge-economy orientation; lifelong learning attitudes; digital citizenship.	Cross-cultural fluency; data ethics; values-clarification counselling; curriculum co-design.

Note. Domain 1 synthesises Popoola et al. (2025) and WEF (2025b); Domain 2 synthesises WEF (2025b) and Borrageiro & Mennega (2023); Domain 3 synthesises Popoola et al. (2025), Brammer (1996), and Yusuf & Isiaka (2026); Domain 4 synthesises AfriCatalyst (2025) and Osei & Boateng (2024); Domain 5 synthesises Omotosho (1994), Okorodudu (2010), and Okon (1983).

It is equally important that counsellors engage proactively with the ethical dimensions of technological change, including issues of digital rights, data privacy, AI bias, and the equitable distribution of the benefits of automation. Developing digital citizenship competencies among youth, combining technical proficiency with ethical and civic awareness — is identified as a critical but underserved dimension of Nigerian educational practice (Discover Global Society, 2025).

Implications for National Development

National development is understood here as a comprehensive socio-economic process through which individuals within a country are enabled to fully realise their potential, contributing to measurable improvements in human capital, per capita income, educational attainment, technological capacity, and institutional quality (Nicholas et al., 2010). In this context, the relationship between counselling, youth adjustment to technological change, and national development is direct and substantive. Figure 2 presents a conceptual framework, developed for this paper, illustrating this relationship.

Figure 2: Framework linking 4IR technological innovation to national development through professional counselling (Authors, 2025)

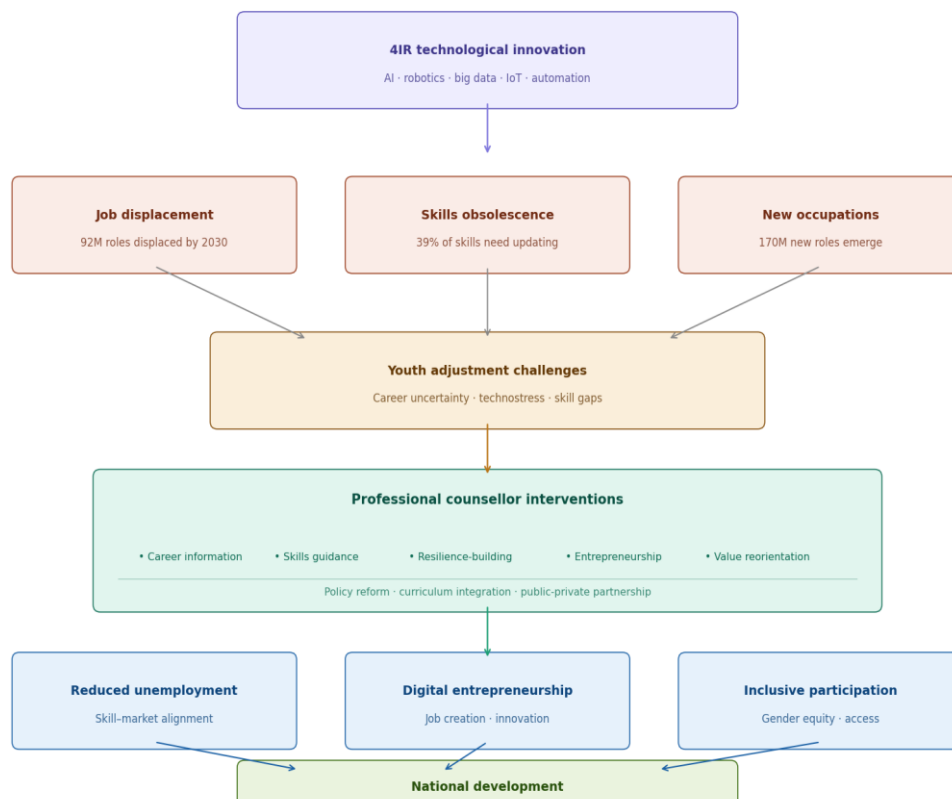


Figure 2. Conceptual framework linking 4IR technological innovation to national development through professional counselling (Authors, 2025).

As Figure 2 illustrates, the framework proposes a sequential pathway with four stages. First, 4IR technological innovation (AI, robotics, big data, IoT, and automation) generates three concurrent labour-market effects: job displacement, skills obsolescence, and the emergence of new occupations, the same three dynamics documented in the Technology Innovation subsection above. Second, these effects converge on youth as adjustment challenges: career uncertainty, technostress, and skill gaps. Third, professional counsellor interventions, the five domains detailed in Table 1, are positioned as the mechanism through which these individual-level adjustment challenges are addressed, operating alongside the policy reforms and curriculum integration discussed throughout this paper. Fourth, effective counsellor intervention is proposed to produce three national-level outcomes: reduced unemployment through better skill-market alignment, growth in digital entrepreneurship, and more inclusive participation in the digital economy, which in turn contribute to national development. This framework is offered as a conceptual proposition for future empirical testing rather than as an already-validated causal model; the paper's contribution is to make the proposed mechanism explicit rather than to claim it has been empirically confirmed.

Nigeria's demographic profile, with over 70% of its population under 30, represents a potential demographic dividend of extraordinary magnitude, but realising this dividend depends critically on successfully equipping young people for the digital economy. The World Bank (2023) emphasises that digital skills are now foundational to human capital development across Africa, while the WEF (2025a) cautions that without coordinated investment in skills, education, and innovation, Nigeria's demographic advantage could become a liability rather than

an asset. This concern is echoed at a global-policy level, where digital-era education transformation is identified as a precondition for translating demographic potential into development gains rather than a peripheral concern (UNESCO, 2022).

The Nigerian Youth Employment Action Plan (ILO, 2021) identifies digital skills, quality employment, entrepreneurship, and vocational training as its core strategic priorities, providing a policy framework within which counselling services should be positioned. The Digital Skills Acquisition, Entrepreneurship, Employability and Leadership (DEEL) initiative represents one concrete policy instrument through which counsellors can collaborate with government and the private sector to advance youth employability. Realising this potential is not automatic: institutional capacity within state ministries of education is uneven, counselling positions are frequently underfunded or vacant, ICT infrastructure and reliable electricity remain considerably scarcer in rural than urban schools, and policy frameworks such as the Youth Employment Action Plan depend on implementation and funding commitments that have historically lagged their stated ambitions. Any proposed counselling contribution to national development should therefore be read as conditional on addressing these structural constraints, not as a guaranteed outcome of policy adoption alone.

For national development, the counselling profession's contribution operates through several channels: reducing youth unemployment and underemployment by aligning career choices with actual labour-market demand; fostering entrepreneurship and the creation of new enterprises in the digital economy; reducing occupational mismatch and skills misalignment that reduce productivity; building psychological resilience among the workforce; and promoting inclusive participation by women, persons with disabilities, and marginalised youth in the digital economy.

Without effective career counselling and occupational guidance, a form of market failure in career choice becomes more likely: youth may disproportionately pursue declining occupational fields, skills gaps may persist or widen, and some of the productivity gains potentially available from 4IR adoption may be offset by human-capital deficits. This is a plausible mechanism consistent with the evidence reviewed above, rather than a claim this paper tests directly. Conversely, a well-resourced, technologically updated, and professionally credentialed counselling workforce is positioned, on this reasoning, as a potentially powerful instrument of national human-capital formation and socio-economic transformation (Akinade, 2002; Okorodudu, 2010).

Conclusions

This paper's distinct contribution is its integration of labour-market restructuring, shifting work values, and counsellor practice into a single explanatory framework for the Nigerian context, and its explicit articulation, summarised in Figure 2, of the pathway connecting counselling practice to national development outcomes, a connection that existing Nigerian literature on digital skills and career counselling has tended to assume rather than make explicit.

The Fourth Industrial Revolution is not a distant prospect for Nigerian youth; it is an accelerating present reality that is already restructuring labour markets, redefining occupational demands, and reshaping the skills required for productive participation in economic and social life. The convergence of AI, robotics, big data, and digital platforms is generating both unprecedented opportunities and significant risks, with the balance of outcomes heavily determined by the quality of education, guidance, and policy support available to young people.

Counsellors occupy a strategic position in mediating between the rapidly evolving world of work and the developmental needs of Nigerian youth. Their effectiveness in this role depends on continuous professional development, integration of digital tools and evidence-based practices, familiarity with 4IR competency frameworks, and active collaboration with schools, tertiary institutions, employers, and government agencies. The development of hybrid,

technologically informed counselling practice, grounded in ethical principles and responsive to Nigeria's diverse social and infrastructure contexts, is not optional but essential for professional relevance and national impact.

The government must rethink and restructure elements of the educational system to provide the next generation of workers with the knowledge, digital literacy, and adaptive skills required for the rapidly changing technological landscape. Curriculum reform, mandatory teacher and counsellor professional development in 4IR competencies, investment in ICT infrastructure in schools, and public-private partnerships in skills development are all necessary components of a comprehensive national response. Ultimately, technology presents Nigerian youth with tools of potentially transformative power. Whether these tools become instruments of broadly shared prosperity or deepening inequality depends substantially on the educational, counselling, and policy choices made today

Recommendations

Based on the analysis presented, the following recommendations are prioritised by the breadth of actors required for implementation, from institution-level to system-level:

1. Counsellor education programmes (responsible actor: Nigerian universities and NUC-accredited counsellor-training programmes) should redesign curricula to incorporate 4IR competencies, digital career-guidance tools, cyberpsychology, data ethics, and AI-assisted counselling methods. Realistic first step: a curriculum audit against the five domains in Table 1, completed within one academic session. Measurable outcome: the proportion of counsellor-training programmes with an explicit 4IR-competency module.
2. Professional bodies — the Association of Professional Counsellors in Nigeria (APROCON), in collaboration with the Counselling Association of Nigeria (CASSON), should develop and enforce mandatory continuing professional development standards in digital literacy and 4IR career guidance for practising counsellors. Measurable outcome: a minimum annual CPD-hours requirement specifically tied to digital/4IR competencies, tracked through existing licensing renewal.
3. Ministries of Education (federal and state) should formally integrate career guidance and work-values education into the secondary-school curriculum as a compulsory subject, equipping youth with adaptive competencies before they reach the point of labour-market entry.
4. Government and institutional policymakers should prioritise equitable access to digital infrastructure in schools and ensure counselling services are resourced to deliver technologically informed guidance, with particular attention to rural and underserved communities where the access gap is largest.
5. Counsellors and tertiary career-services offices should actively promote entrepreneurship, digital self-employment pathways, and awareness of the gig and platform economy as viable career alternatives, given the constrained pace of formal-sector job creation relative to labour-market entrants documented above.
6. Counselling associations and gender-focused education policymakers should institutionalise gender-sensitive career counselling to address the differential exposure of young women to occupational displacement risk, and to actively promote their participation in STEM and digital-economy careers.
7. The Federal Ministry of Education, the Federal Ministry of Youth Development, employers, and the counselling profession should formalise multisectoral collaboration to align career-guidance content with actual and projected labour-market demand, using the kind of labour-market data reviewed in this paper as a shared evidence base.

Acknowledgements

The authors declare no specific funding was received for this work and report no conflict of interest.

References

- Adepoju, O. O., & Aigbavboa, C. O. (2021). Assessing knowledge and skills gap for construction 4.0 in a developing economy. *Journal of Public Affairs*, 21(3), e2264. <https://doi.org/10.1002/pa.2264>
- AfriCatalyst. (2025). Artificial intelligence is rewriting the future of work: What does that mean for Africa? *AfriCatalyst Development Advisory for Africa*. <https://africatalyst.com/artificial-intelligence-is-rewriting-the-future-of-work-what-does-that-mean-for-africa/>
- Afrobarometer. (2025). *Nigerian youth want government action on jobs and cost of living* (Dispatch No. 998). <https://www.afrobarometer.org/>
- Akande, F. F., & Abubakar, S. Y. (2006). *The use of science and technology in education*. Integrity.
- Akinade, E. A. (2002). *Evaluation in guidance and counselling*. Bobs Olatunji Publishers.
- Azu, N. P., Okorie, V. T., Akadile, I. A., & Okafor, J. S. (2025). Impact of institutional quality on youth unemployment in Nigeria: A comparative analysis of male and female youths. *International Journal of Business and Economic Studies*, 7(2), 81–92. <https://doi.org/10.54821/uiecd.1612885>
- Borrageiro, K., & Mennega, N. (2023). Essential skills needed in the fourth industrial revolution (4IR): A systematic literature review. In *2023 IST-Africa Conference (IST-Africa)* (pp. 1–13). IEEE. <https://doi.org/10.23919/IST-Africa60249.2023.10187815>
- Brammer, L. M. (1996). *The helping relationship: Process and skills* (6th ed.). Prentice Publication.
- Brookings Institution. (2023). Foundational skills for a more inclusive Fourth Industrial Revolution (4IR) in Africa. *Foresight Africa 2023*. <https://www.brookings.edu/articles/foundational-skills-for-a-more-inclusive-fourth-industrial-revolution-4ir-in-africa/>
- Denga, D. I. (1985). Adjustment and value orientation among Nigerian selected couples. *The Counsellor*, 6(3).
- Discover Global Society. (2025). Developing competencies for digital citizenship in Nigerian classrooms: A 4IR perspective. *Discover Global Society*. <https://link.springer.com/article/10.1007/s44282-025-00322-1>
- Effiom, D. D., Balogun, O. K., Ogunsola, J. A., & Oyekola, A. O. (2025). Career readiness trends among final-year undergraduates in a public university in Ibadan, Nigeria. *Canadian Journal of Career Development*, 24(2), 93–109. <https://doi.org/10.53379/cjed.2025.430>
- Fatokun, J. O. (2000). *Technology and society*. Educational Publishers.
- Federal Republic of Nigeria. (2013). *National Policy on Education* (6th ed.). NERDC Press.
- Hooley, T., & Staunton, T. (2020). The role of digital technology in career development. In P. Robertson, T. Hooley, & P. McCash (Eds.), *The Oxford handbook of career development* (pp. 297–312). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190069704.013.22>
- Howard, C. (2023). *Digital skills for youth employment in Africa: Evidence synthesis paper*. Include Platform. <https://includeplatform.net/wp-content/uploads/2023/01/digital-skills-for-youth-employment-in-africa-1.pdf>

- Igbe, O. E. (2026). Career counselling as a tool for transforming youth energy into national productivity in Nigeria. *International Journal of Academic Multidisciplinary Research*, 10(3), 111–121.
- International Labour Organization (ILO). (2021). *Federal Republic of Nigeria 2021–2024 Youth Employment Action Plan*. ILO.
- International Labour Organization (ILO). (2023). African youth face pressing challenges in the transition from school to work. *ILOSTAT*. <https://ilostat.ilo.org/african-youth-face-pressing-challenges-in-the-transition-from-school-to-work/>
- Isiaka, G. (2025). Cheating behaviours in schools: The need for value reorientation. *Abuja International Journal of Education*, 12(1), 56–66. <https://doi.org/10.66083/aije.v12i1.42>
- ISS African Futures. (2024). Can AI unlock Africa's youth demographic opportunities? *Institute for Security Studies*. <https://futures.issafrica.org/blog/2024/Can-AI-unlock-Africas-youth-demographic-opportunities->
- Kolo, F. D. (1992). *Guidance and counselling in perspective*. Stevano Printing Press.
- Lawal, K. K., Isiaka, G., & Olubolalade, G. H. (2026). Domestic violence and academic performance among senior secondary school students in Surulere Local Government of Lagos State, Nigeria. *International Journal of Contemporary Security Studies*, 2(2). <https://contemporarysecuritystudies.com/journal/article/view/81>
- Microsoft Research. (2024). *AI and the future of work in Africa: White paper*. Microsoft Research, University of Pretoria, NEPAD, Lelapa AI, & Oxford University. <https://arxiv.org/pdf/2411.10091>
- Nicholas, S. I., Samuel, A. O., & Ester, O. O. (2010). *The Nigeria Journal of Guidance and Counselling*. Stimty-Hodan Publishers Ltd.
- Okolo, C. T., Gilmore, A. K., & Self-Brown, S. (2024). Technology innovations for violence prevention, mental wellness and resilience among youth. *Frontiers in Digital Health*. <https://doi.org/10.3389/fdgth.2024.1365726>
- Okon, S. E. (1983). Value in counselling. In A. Uba (Ed.), *Introduction to counselling* (pp. 94–111). University of Ife Press.
- Okorodudu, R. I. (2010). *Information and technology in counselling*. Delta State University Press.
- Omotosho, J. A. (1994). Attitude change for national development and national consciousness: The need to take counselling to non-school settings. *The Nigeria Journal of Guidance and Counselling*, 5(1&2), 32–40.
- Osei, M., & Boateng, A. (2024). Gendered access to digital jobs in West Africa: Barriers and policy interventions. *Gender, Technology and Development*, 28(1), 21–39. <https://doi.org/10.1080/09718524.2023.2264356>
- Plan International & ActionAid Nigeria. (2025). *State of the Nigerian youth report 2025*. <https://nigeria.actionaid.org/publications/2025/state-nigerian-youth>
- Popoola, B. O., Oduola, O. Z., & Kareem, Y. B. (2025). The future counsellors: Challenges and prospects in the Fourth Industrial Revolution. *Suluh: Jurnal Bimbingan dan Konseling*, 11(1), 46–53. <https://doi.org/10.33084/suluh.v11i1.10615>
- Sambo, S. (2009). *Understanding guidance and counselling*. Ahmadu Bello University Press.
- Schwab, K. (2020). *The fourth industrial revolution* (updated ed.). World Economic Forum.
- UNESCO. (2022). *Transforming education for the digital era: Global monitoring report*. United Nations Educational, Scientific and Cultural Organization. <https://unesdoc.unesco.org>
- World Bank. (2023). *Digital skills to accelerate human capital for youth in Africa* (Africa Human Capital Technical Briefs Series). World Bank Publications. <https://www.worldbank.org>
- World Economic Forum. (2025a). How youthful Nigeria could become a digital powerhouse. *WEF*. <https://www.weforum.org/stories/2025/11/nigeria-youth-wave-skills-powerhouse/>

- World Economic Forum. (2025b). *Future of Jobs Report 2025*. WEF. <https://www.weforum.org/publications/the-future-of-jobs-report-2025/>
- Wren, C. G. (1962). *The counsellor in a changing world*. American Personnel and Guidance Association.
- Yan-ping, L., & Qi, A.-Q. (2022). Replace or create: Analysis of the relationship between artificial intelligence and youth employment in the post-epidemic era. *Procedia Computer Science*, 202, 217–222.
- Yusuf, J., & Isiaka, G. (2026). Fostering self-reflection: A core strategy for counselling and transformative growth. *AKASA Multidisciplinary Journal*, 4(1), 1–17. <https://doi.org/10.64726/wryw7j72>
- Zuhumben, B. P., & Isiaka, G. (2026). Impact of social support in reducing anxiety and depression of women exposed to violent conflicts in Plateau State, Nigeria. *International Journal of Contemporary Security Studies*, 2(1), 71–80. https://doi.org/10.18485/fb_ijcss.2026.2.1.7