Addressing Youth Unemployment by Matching Lifelong Skills Development Needs with Talents and Labour Market Demographics

A winning idea under the inaugural ACCESS "University of Ideas" Competition for African lecturers

by

Nashon J. Adero

Department of Mining and Mineral Processing Engineering
Taita Taveta University (TTU), Voi, Kenya
Email: nashon.adero@ttu.ac.ke; nashon.adero@gmail.com

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Executive Summary

Youth unemployment is a pressing global challenge, with the International Labour Organization (ILO) reporting over 73 million unemployed youths aged 15-24 in 2015. In Africa, there's a notable mismatch between education and job requirements, leading to rising unemployment rates. To address this, the ILO initiated the Youth Employment Programme (YEP) in 2005.

The COVID-19 pandemic has fast-tracked digital revolution and the emergence of the collaborative economy. This transition underscores the need for pragmatic partnerships among schools, businesses, and policymakers to ensure quality education and lifelong skills development. Even with educational investments, academic institutions cannot entirely mirror real-world market dynamics. Quality education should ideally produce graduates with adaptive resilience for active engagement with the real world in creative and innovative ways, thereby contributing positively to society. The World Economic Forum predicts a net gain of 12 million jobs due to technology adoption by 2025. However, there is a growing concern as African education systems, mostly borrowed from elsewhere without adequate domestication, produce an excess of academic qualifications without imparting skills for locally relevant and practice-oriented market readiness.

In 2020, the African Centre for Career Enhancement and Skills Support (ACCESS) challenged African lecturers to a competition on novel and viable ideas for solving youth unemployment through higher education. The three winning ACCESS "University of Ideas" came from Kenya, Rwanda, and Benin. The Kenyan winning idea was entitled **Addressing Youth Unemployment by Matching Lifelong Skills Development Needs with Talents and Labour Market Demographics**. Presented here are the key findings from the initial execution of the project idea in Kenya.

Phase I of the implementation of the "University of Ideas – ACCESS Idea of 2020" in Kenya has been completed successfully. The goal was to conduct a nationwide youth skills and employment survey across Kenya to inform the development of a model for linking youth talents with skills development needs and labour market demographics. A total of 437 youth in the 18–35 age bracket responded adequately to the survey. The survey covered the period March 5 – April 5, 2021.

The majority, 81%, were youth in their 20's. Only 29% were in regular employment and 14% were flexibly engaged in the gig economy, 36% of them not employed despite being available and looking for work. Despite interviewing a cross-section of youth in the 18–35 age bracket largely (56%) made up of university degree holders pursuing STEM disciplines, the study found a low level of skills proficiency and digital fluency among them. On a quiz exploring their digital literacy, they scored a mean of only 16% with a median of 13% and the 75th percentile scored only 25%. Awareness of the Sustainable Development Goals was also confirmed to be low (18%), hence a setback to meeting the goal of internationalisation and global citizenship in modern education for a hyperconnected world.

Only a quarter of the respondents could state they had definitively identified their talents before joining tertiary education levels. The weak link in talent management could be traced to the primary school level, hence the support by 80% for a competency- and skills-based curriculum for early talent identification. Tertiary education levels came out to be the key stage where the larger share of the youth have had their talents properly refined (27%), followed by industry exposure through attachment and internships (18%).

Low skills proficiency was expressed in the low confidence level in the market-readiness of the youths' skills; only 24% were confident of fitting comfortably in the work environment without any need for retraining. The results compared fairly well with skills mismatch in industry and the subsequently low compensation the majority felt they were getting, only 19% of them stating they were satisfied with the compensation levels. The attitude of the youth towards TVET was, however, found to be changing positively, with 79% of them expressing a readiness to give up their university admission in favour of joining TVET if only to acquire skills-based training with increased job prospects. The youth cited drug abuse, laziness, skills deficit, and being too choosy as part of their share of the blame for high youth unemployment in Kenya.

Besides self-drive and passion among 30% of the respondents, parents emerged as the strongest external agents influencing the career choices of the youth (17%). The importance of mentorship in enhancing youth employability was recognised by a large majority, 82%. Missing links were manifested in the wide lack of linkages of the youth to structured mentorship programmes — 70% stating they did not know of any structured mentorship programme in Kenya with 83% not enrolled in any such programme. Academic mentorship was particularly wanting, from the low score of only 27% of the respondents, fronting a key challenge to lecturers to volunteer their services to mentor more youth to progress to the sharp end of the skills revolution pyramid that Africa needs for disruptive and breakthrough innovations.

Overall, the youth survey revealed key insights with lessons that should help repurpose, remodel, and retool the education and training landscape in Kenya and Africa while recalibrating educational policies for early talent identification, talent management, and skills-based training. Informed policy and strategic interventions should lead to increased labour market participation rates for the youth in various ways which can match their talents or vocations and meet their lifelong skills and career development needs.

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A Review of the Global Discourse on Youth Unemployment

Key Highlights

1. Youth unemployment is a global issue, with over 73 million young people aged 15-24 unemployed in 2015, and the numbers continue to rise.

2. In sub-Saharan Africa, young people account for 23.5% of the working poor, and the unemployment rate has risen in Kenya from 4.7% in 2019 to 10.4% in 2020.

3. The COVID-19 pandemic has accelerated digital transformation and shifted the traditional capitalist orientation of business models.

4. Talents and skills development have become crucial for enhancing global competitiveness, and policymakers and business leaders are welcoming the limitless prospects of innovation for knowledge economies.

5. Quality education and lifelong skills development are essential for any society, but schools cannot replicate the real marketplace where practical skills are required.

6. The pace of technology adoption is expected to remain undiminished and may accelerate in some areas.

7. The Future of Jobs Report 2020 predicted that technology adoption would kill 85 million jobs and create 97 million more by 2025.

8. A completed 2021 nationwide youth survey in Kenya (aged 18-35) that was supported under the 2020 ACCESS Idea Competition found **a general disagreement to the thesis that higher education would guarantee a good job in Kenya**, with an average score of 2.5 on a scale of 1 (strong disagreement) to 5 (strong agreement).

9. The general feeling among the Kenyan youth was that digitalisation and automation would reduce their employment opportunities and job security. On a scale of 1 (highly reducing employment and job security) to 5 (highly increasing employment opportunities and job security), the average score was 2.7.

10. The study confirmed that attitudes towards TVET have been changing positively given the promise for skills and jobs. A total share of 79% would be ready to give up their university admission to join TVET institutions instead given the promise of skills development and matching jobs: **very readily** (19%), **readily** (28%), **probably** (32%), and **not at all** (21%). On a scale of 1 (not at all) to 4 (very readily), the weighted mean was 2.5 out of 4.

Keywords: *Africa, digital fluency, Education 4.0, mentorship, pedagogical re-engineering, skills revolution, TVET, youth unemployment*

1 Youth Unemployment Statistics

The International Labour Organization (ILO) estimated that more than 73 million youth aged 15–24 were unemployed in 2015, 75% of youth workers were in informal employment, and 50% of young people were either overeducated or undereducated for the employment they were holding. The numbers continue to rise. As per the United Nations standard, youth refers to the 15-24 age bracket. Currently, about 40% of the global population is aged under 25 and in Africa the same percentage is aged under 15. Unemployment in the strict sense is estimated to be the share of the labour force without work but available for, and seeking, employment (Our World in Data, 2020).

The ILO established the Youth Employment Programme (YEP) in 2005 as a response to the growing global youth unemployment problem. The ILO (2020) has also estimated that of the 38.1% estimated total working poor in sub-Saharan Africa, young people account for 23.5%. These statistics confirm the grim reality facing today's youth, especially in Africa, home to the world's fastest growing population. As shown in Figure 1, unemployment rates in South Africa, Kenya, and North Africa have been above the average rate for sub-Saharan Africa. The youth are the main victims in these demographics.

In Kenya, the overall unemployment rate in the strict sense rose from 4.7% in 2019 to 10.4% in 2020. In the relaxed sense, which includes those who were not looking for work but were available for work, the unemployment rate rose from 11.6% to 22.6% over the same period. The age group 20–29 was the most affected over the July – September 2020 period with an unemployment rate of 22% in the strict sense and 29%–40% in the relaxed sense (KNBS, 2020).

2 Talents and Skills Development in a Changing Global Technology Marketplace

Accelerated by COVID-19, digital transformation continues to disrupt the traditional capitalist orientation of business models. There is a sweeping seismic shift in favour of a sharing or collaborative economy. Education, information, skills, experience, and exposure have collectively taken on a new strategic significance in the form of intellectual capital for enhancing global competitiveness. Policymakers and business leaders are increasingly welcoming the limitless prospects of innovation for knowledge economies through knowledge- and technology-led transformation.

In Davos at the 2021 World Economic Forum, Prof. Klaus Schwab avowed that the world of the future would not be pegged on capitalism, but on "talentism" as human talents supersede conventional capital as the most important factor of production. This observation reinforces the timeless value of quality education and lifelong skills development to any society. It has been predicted that skills-based occupational shifts would replace the shifts based on academic degrees, hence the need for more practice-oriented collaborations actively bringing together educational institutions, businesses, and policymakers (Lund et al., 2021).

Quality education, however, cannot thrive in isolation. However much any government invests in education, schools remain a model of reality. Schools, therefore, will not be able to replicate the real marketplace where practical skills are the main requirement. The end of quality education must not be about graduation or good grades, but rather the graduates' lifelong and disciplined engagement with the real world thereafter, and their ultimate concrete and positive impact on society.

The World Economic Forum (2020) has published the Future of Jobs Report 2020, which states that despite the COVID-19 pandemic's disruptions, the pace of technology adoption is expected to remain undiminished and may accelerate in some areas. The Future of Jobs Research has reported that technology adoption would kill 85 million jobs and create 97 million more by 2025. The report has identified that cloud computing, big data, and e-commerce continue to be high priorities for business leaders as interest also rises for encryption, nonhumanoid robots, and artificial intelligence (AI). These findings have important implications for the half-life of skills and the frequency of reskilling and upskilling among workers.

3   Previous Study Findings

Past studies by the author involving key informant surveys and youth mentorship sessions across ten countries, between 2014 and 2020, have found that the existing education models across Africa create an oversupply of academic qualifications but an undersupply of work-ready skills. The skewed outcome has been given a dual figurative description in the previous study series as "drops of skills in an ocean of academic qualifications" and the "inverted pyramid effect" – producing more of the less required qualifications but less of the most needed skill-sets (Adero, 2019). The skewed outcome also manifests in pedagogy.

Scientific inquiry, systems thinking, talent management, spatial intelligence, and communication skills have been mostly neglected in basic education. In today's rapidly changing labour market influenced by digital transformation, the resulting skills gap and the rapid reduction in the half-life of skills compound the rising youth unemployment problem. Education 4.0, in tandem with the emerging Fourth Industrial Revolution (Industry 4.0), must respond to the new skills development needs of the millennial and subsequent generations.

The 21st-century youth are digital natives, who must develop resilient coping strategies in a labour market increasingly influenced by automation and artificial intelligence. With the advent of the gig economy and remote working, career security based on transferable skills is replacing job security; quintessentially, the era of permanent jobs and permanent loyalty to one employer amid a long-term preoccupation with routine tasks is fading away as today's youth mostly stay 2-3 years on a job (World Employment Confederation, 2016).

On a continental scale, key development agenda include the African Union's Agenda 2063. This is the 2013-2063 blueprint and master plan for transforming Africa through citizen-driven approaches, especially the first aspiration of a prosperous Africa based on inclusive growth and sustainable

development and Goal 2 on "Well-educated citizens and skills revolution underpinned by Science, Technology and Innovation (STI)" (African Union, 2015, p.7). Universally, these agenda have key linkages with the Sustainable Development Goals (SDGs), especially SDG 4 and SDG 8 (United Nations, n.d.).

A study of the skills development model in Germany as a European best practice provides key lessons in guided career development trajectories. The model ensures an early identification of learner capabilities and interests to guide smooth transitions into *Hauptschule, Realschule, Gymnasium, Fachhochschule,* and *Universität.* The lessons are important for Kenya and Africa on how to come up with the right and upright pyramid that serves justice to the curve of talents and labour market demographics. Finland offers a global best practice in quality education in several ways: high respect to the teaching profession through training support and compensation, equity in access to quality public education right from the basic level – with no private schools in the classical profit-making sense, and giving learners more time to explore and develop their curiosity outside exam-oriented classroom training.

4 The Unique African Situation

Home to the world's youngest and fastest growing population, currently rising at 2.49% annually, Africa faces a serious and escalating burden of youth unemployment in the post-pandemic era. The median age of 20 in Africa is less than half the median age in the European Union (43). The flagship programmes of the African Union's Agenda 2063 require a highly skilled workforce, hence a skills revolution. In contrast, the existing structural deficiencies and wide digital divide across Africa aggravate the shortcomings and shortage of work-ready skills among African youth. The prevailing youth bulge in Africa needs to be turned into a demographic dividend through youth empowerment and skills development for meaningful work engagements. Inayatullah (2016) contrasted the negative outcomes of a youth bulge in the Middle East and North Africa (MENA) region to the demographic dividend from the empowered youth actively engaged in technological innovations in Kenya (silicon savanna).

The youth unemployment challenge in Africa can be discussed comprehensively based on the global sustainable development priorities and aspirations for 2030 as reflected in the SDG 4 and SDG 8 targets that deal with the business themes on capacity building, skilled workforce, and youth employment (SDG 4.4, SDG 8.3, and SDG 8.b; GRI, UN Global Compact, & WBCSD, 2015). The goals match the first Africa Agenda 2063 aspiration of a prosperous Africa based on inclusive growth and sustainable development, particularly Goal 2 on well-educated citizens and skills revolution underpinned by Science, Technology and Innovation (STI).

The 2020 Global Skills Index Report by Coursera has shown that skills proficiency is critical to robust socioeconomic development across countries. A percentage increase in a country's average skills proficiency correlates with an increase of about 600 USD in per capita GDP (Coursera, 2020). This has been manifested in lower unemployment rates, lower income inequality, and higher per capita GDP.

Europe is the most skilled region according to the finding. This finding motivates more emphasis on skilling Africa's dominant youthful demographic for post-pandemic recovery and resilience.

The rural-urban digital divide across Africa is evident. A detailed analysis of the changes in community mobility data in Kenya generated by Google from civilian satellite-based (GPS) services confirmed the situation over the period of January 3 – April 26, 2020. The period covered the time before COVID-19 was reported in the country and after enforcing movement restrictions. Only twelve (12) out of the 47 counties in Kenya showed a fair to good level of technological readiness in terms of sufficient mobile connectivity to generate remotely sensed data towards boosting location-based intelligence in the fight against the community spread of COVID-19 over this study period. Again, only five counties out of the 47, three of them in the more urban Nairobi metropolitan region and then Mombasa and Nakuru – also mainly urban, generated enough data over the three-month study period to support reporting on all the six community mobility categories.

5   Post-COVID-19 Perspectives

The COVID-19 global pandemic has increased the urgency of innovative skills development models that can equip African youth with adaptive, market- and future-ready skills to exploit the promises of the post-COVID-19 digital economy, gig economy, green economy, blue economy, circular economy, and virtual collaboration opportunities. Mainstream discussions in the era of Industry 4.0 also support broad-based curriculum development to equip university graduates with adaptive skills for resilience, a quality essential to cross-disciplinary collaboration and research in the fast-changing era of technology-driven convergence in disciplines.

Recent research has established that automation would lead to net job creation as opposed to the feared consequence of net job losses and that by 2025, 50% of all employees would need reskilling with 40% of workers to reskill for six months or less (Coursera, 2020; World Economic Forum, 2020). By 2022, 50% of the existing jobs might be lost to automation and 54% of the existing employees would be required to upskill or reskill. A shift in skill-sets and a reduction in the half-life of existing skills are, however, expected due to the influence of automation of routine tasks and the progressive blurring of disciplinary boundaries. The post-COVID implication is an accelerated push for reskilling and upskilling to sustain relevance in the emerging dynamic labour market.

Lund et al. (2021) have observed that COVID-19 has accelerated the existing trends in automation, remote working, and e-commerce. By January 2021, the need to switch occupations had been estimated to go up by 25% to match the workforce skills that resonate with new labour market models, a workforce transition that is likely to affect more of the younger demographic. Demand is projected to rise for instructors, gig workers, and healthcare workers who take care of mental health and the world's growing share of old people. They include nurses and hearing aid workers. As mass rapid visual communication gains currency and prominence among modern generations over traditional scripts, the demand for

skilled workers in photography and videography is also projected to rise (Lund et al., 2021; Manyika et al., 2017; Roy, 2018).

Lund et al. (2021) have further discussed the disruption caused by COVID-19 to jobs that require close physical proximity between people and indoor operations. This disruption is supposed to give a new lease of life to jobs in outdoor production and maintenance. Countries such as India and China, determined in this study to have 35-55% of their workforce engaged in these outdoor activities, are likely to benefit from this disruption. High-wage jobs and those that demand STEM workers as well as high technological, social and emotional skills are also projected to grow at the expense of the low-wage jobs with lower demands on these skills, which will have their lateral freedom of movement limited.

Technical and vocational education and training should be enhanced to increase the stock of skilled workers, who must make up the broad base of the upright pyramid of labour market demographics. Pedagogical re-engineering is needed to help boost skills-focused, digital, and borderless education and training programmes. Multi-agency and multilateral partnerships with the active involvement of industry stakeholders, entrepreneurs, and highly skilled Africans in diaspora are key to enhancing peer-to-peer knowledge exchange, mentorship, and skills and technology transfer. The DAAD is a promising agent in this endeavour through African-German centres of academic excellence and key examples such as the African Centre for Career Enhancement and Skills Support (ACCESS) and the African German Entrepreneurship Academy.

6 Background to the Youth Unemployment Research

In recent years, policy attention has been shifting towards investing in young talents while promoting knowledge- and technology-led socioeconomic transformation. The growing youth unemployment problem in Africa has elicited various national and multilateral responses, introduced here in the context of the African Union's agenda for education and skills development, the current African-German capacity building programmes and local youth mentorship efforts in Kenya, and the Vision 2030 agenda for skills development in Kenya. The theory of change and implementation plan of the idea encapsulated in the title of this study are presented as well.

6.1   The Skills Revolution Imperative

The Knowledge Doubling Curve surmises that knowledge will soon double every 12 hours thanks to the Internet of Things (IoT), a spectacular surge from 1945 when the period used to be 25 years and recently in 2017, when the period had reduced to only a year. Under the African Union's Agenda 2063, Goal 2 focuses on ensuring a well-educated citizenry and a skills revolution underpinned by Science, Technology and Innovation (ST&I). Kenya has been a key country example in promoting ST&I as a critical foundation for the pillars of her long-term national development blueprint – Vision 2030. Skills-based education and training in Science, Technology, Engineering, and Mathematics (STEM) is key to developing the requisite capacity in the youth to be innovators.

The prevailing context for ST&I readiness among the Kenyan youth, however, features education curricula and industry exposure modes that do not prepare them adequately for the dynamic labour market. Industry has been reporting growing cases of skills deficit and skills mismatch among young graduates. Higher education institutions, through informed curriculum adjustments, can transform outcomes for enhanced youth employability skills in the emerging labour market demographics post COVID-19.

6.2   Germany's Academic Partnership for Change by Exchange

Germany has had one of the longest and most well-structured academic exchange services for African students and academia. The German Academic Exchange Service (DAAD) has been at the centre of the long-term scholarship programme. The beneficiaries of the scholarship become DAAD alumni. The author of this article, a DAAD alumnus and a volunteer youth mentor both under his self-founded Impact Borderless Digital (IBD), the Kenya Presidential Digital Talent Programme, and the FIG Mentoring Programme for Africa has conducted a study across Kenya on youth unemployment and skills deficit to help generate evidence-based policy advice on curriculum improvement and lifelong skills development. Results of supporting studies previously conducted on skills development right from the basic school level and inequalities in STEM learning outcomes have been shared and discussed as well.

Youth unemployment is a growing global problem. The DAAD, through the Higher Education Excellence in Development Cooperation (exceed) programme under the African Centre for Career Enhancement and Skills Support (ACCESS), challenged African academia to the "ACCESS Idea Competition" on solving the growing youth unemployment in Africa through employability promotion at higher education institutions in Africa. The competition ran over the period November 1 – 15, 2020. The three winning ideas, from Kenya, Rwanda and Benin, were announced on November 27, 2020 (Award Ceremony). Proceeding from this outcome is the development and implementation of the winning ACCESS Idea from Kenya: **Addressing Youth Unemployment by Matching Lifelong Skills Development Needs with Talents and Labour Market Demographics.**

6.3   The Theory of Change

Education, gender and work together constitute a key global issue among the top development issues featuring in the World Economic Forum. Technology, globalisation, demographics including gender dynamics in a rapidly changing labour market, and climate change are together shaping and disrupting the broader global issues related to education, gender, and work. If identified early and developed optimally, a country's stock of diverse talents should enhance employability skills, job creation, and boost innovation capacities for accelerated transformation of economies and societies.

The overall study goal was to identify facts and informed perspectives on the key skills development needs that higher education curricula should prioritise to ensure a youth-inclusive and just transition into the post-pandemic labour market. Informed by systems thinking principles, the study explores measures and mechanisms to facilitate early talent identification from the basic school level for timely

and sustained mentorship. In Table 1.1 is shown the elements of the theory of change underpinning the study.

Table 1-1 Theory of change

Key Result Areas (KRAs)	Activities and Strategies
i. *Talents identified early for all learners* ii. *Skills matching identified talents* iii. *Increased stock and variety of skilled and employable graduates for the economy* iv. *Improved and dynamic higher education curricula* v. *Upright pyramid of qualifications and skill-sets matching labour market needs*	i. Early talent identification by trainers ii. Targeted skills development to match talents iii. Timely, structured and talent-oriented mentorship iv. Curriculum improvement based on changing labour market needs v. Setting up and managing labour market intelligence and information system
Prevailing Context	**Assumptions**
i. *Growing youth unemployment and underemployment* ii. *Growing skills gap and skills mismatch* iii. *Inverted pyramid of qualifications which are out of phase with the wave of labour market needs* iv. *Static higher education curricula*	i. Cooperation assured from key stakeholders: universities, teachers, parents, students, and government agencies in charge of education, training, innovations, youth, and labour ii. Competency- and skills-based curriculum at the basic education level will be implemented successfully iii. ACCESS will support international exchange programmes to enrich the idea and make it scalable
Impact from Cumulative Outcomes *Youth-driven socioeconomic transformation, measurable through national development indicators*	**Risks** i. Tradition and institutional inertia slow the uptake and implementation of new ideas from the project ii. Dwindling funding for key research objectives

The prevailing context for youth unemployment in Kenya features growing numbers of youth facing the problems of skills deficit, skills mismatch, and higher education curricula that do not prepare them adequately for the dynamic labour market. The five intended key result areas of this idea will require the five activity areas shown in Table 1.1. The underlying assumptions include cooperation from the key stakeholders, continued networking support by ACCESS, and a successful implementation of a competency- and skills-based curriculum at the basic education level.

Systems thinking informs the view that the quality of learners at higher education institutions has structural interconnectedness and interdependencies with the quality of the basic education that shaped

them as younger learners. The actionable intelligence arising from the study should inform the implementation of the ACCESS Idea over the 2020 – 2024 project phase.

6.4   Scope, Outputs and Outcome

The study scope involved interviews of Kenyan youth from all the 47 counties. The primary data arising from the youth survey will be used to calibrate the information available from key informants and primary actors including policymakers, trainers, and parents. Published data from past surveys and existing policy documents complement the subsequent analyses. The background paper this study has already prepared on youth unemployment globally, across Africa, and in Kenya is part of the informational resources that have informed the study.

The study **outputs** were designed to be:

1.   A list of priority skills development needs for the youth;

2.   Training and mentorship models needed to deliver on the Key Result Areas (KRAs) aligned to policies on addressing unemployment; and

3.   An improved **model** that can:

   i.   facilitate early talent identification among learners;

   ii.   inform and shape curricula to be focused on an appropriate **skills revolution model**, producing an upright pyramid of work-ready graduates in the recommended proportions to match evolving labour market needs for the country; and

   iii.   promote structured mentorship and partnerships between learning institutions and industry for active labour market participation by young graduates.

The expected **outcomes** are:

   i.   Well-managed young talents, identified early and refined optimally;

   ii.   Universities administering new, improved, skills-based and responsive curricula that are adaptive to current and anticipated labour market intelligence;

   iii.   An increasing percentage of youth joining and graduating from structured mentorship programmes;

   iv.   Enhanced skills proficiency among the young graduates; and

   v.   Reduced youth unemployment with innovative job creation for the labour market.

The outcomes are expected to cumulatively create a positive **impact** on the Kenyan economy in the long term, measurable through development indicators such as average national skills proficiency, national innovation capacity, GDP per capita, and youth unemployment rate, among others.

6.5   The ACCESS Idea Study Objectives

The objectives of this Kenyan case study were to be realised through three stages. Under each Phase are the following objectives to be met.

Phase I: Online interview of the 18–35 demographics across Kenya (target: 400 respondents)

i.   Assess the nature and variety of talent pools and career aspirations across Kenya's youth demographic in the 18-35 age bracket.

ii.   Assess the views of the youth in Kenya with respect to how the prevailing education and training models match or mismatch their talents, skills development needs, and the labour market needs (36 questions identified and structured into an online SurveyMonkey questionnaire).

iii.   Determine suitable curriculum and policy interventions needed to enhance youth employability skills and employment or active labour market participation rates.

Phase II: Engagement of key stakeholders in youth talent management, teaching, and skills development

i.   Based on current trends and benchmarking, identify the key skill-sets that would give young learners a competitive edge in the emerging labour market and digital economy.

ii.   Assess and rank the current degree of training emphasis on the identified skill-sets so as to establish the key gaps in curriculum delivery.

Phase III: Model development, calibration, testing, verification, validation and evaluation

This final phase will deploy dynamic modelling skills. The aim is to develop a System Dynamics (SD) model to inform talent management, adaptive curriculum improvements, and mentorship in ways that would match lifelong skills development strategies with talents and the evolving labour market demographics. The recommended ratios and parameters of quality will be applied to generate the labour market intelligence required to calibrate the national skills development pyramid.

7 Methodology

The methodological approach was tailored to address each Phase of the project effectively.

7.1 Phase I: Online Interview of Youth (18-35) across Kenya

For Phase I, the shortlisting and interview of the youth to be recruited to conduct an online questionnaire-based survey was completed in the first week of March, 2021. The target group was aged 18-35, a demographic that made up 31% of the national population according to the 2019 Kenya population and housing census, 52% being female. This age bracket is strategic, first because it matches the generally accepted definition of youth in Kenya, and secondly because it represents the most active segment of the age bracket acquiring higher education and taking on new jobs or settling in early career phases. The target group should, therefore, give a credible picture of the youth unemployment situation in Kenya.

The sample size for the proportionate representation of the Kenyan youth population aged 18-35 was determined using Slovin's Formula at 95% confidence level, allowing for an error tolerance of 5%. According to the latest national census in Kenya, this age group had 14,538,799 people (KNBS, 2019). Given the estimated 2.3% annual population growth rate, the estimated population in this age bracket comes to about 14.9 million by March 2021. Applying Slovin's equation, $n = N/(1 + Ne^2)$, gives n = 400 respondents. N is 14.9 million and e is 0.05 in this case (95% confidence level). The sample size of 400 respondents was stratified and distributed proportionately by population size per county, differentiated by sex. The resulting breakdown of the youth demographics by county and sex across Kenya has been displayed in Table 2-1.

Table 2-1 Sample distribution by county and sex for youth respondents across Kenya

County Code	County Name	Region	Youth by Sex (18-35Yrs)			Stratified Sampling Size (n_{ij})			n 400
			Male	Female	Total	Male	Female	Total	
001	MOMBASA	COAST	227,206	244,087	471,293	6.3	6.7	13	
002	KWALE		109,610	128,433	238,043	3.0	3.5	7	
003	KILIFI		198,120	228,193	426,313	5.5	6.3	12	
004	TANA RIVER		40,197	43,899	84,096	1.1	1.2	2	
005	LAMU		23,504	19,706	43,210	0.6	0.5	1	
006	TAITA TAVETA		50,499	47,892	98,391	1.4	1.3	3	
						17.9	19.6	37	
007	GARISSA	NORTH EASTERN	136,302	119,982	256,284	3.7	3.3	7	
008	WAJIR		108,084	104,916	213,000	3.0	2.9	6	
009	MANDERA		108,457	110,532	218,989	3.0	3.0	6	
010	MARSABIT		69,931	60,786	130,717	1.9	1.7	4	
011	ISIOLO		40,193	38,333	78,526	1.1	1.1	2	
						12.7	12.0	25	
012	MERU	EASTERN	225,099	231,309	456,408	6.2	6.4	13	
013	THARAKA-NITHI		52,699	55,534	108,233	1.4	1.5	3	
014	EMBU		90,483	87,970	178,453	2.5	2.4	5	
015	KITUI		137,517	152,953	290,470	3.8	4.2	8	
016	MACHAKOS		219,154	219,907	439,061	6.0	6.1	12	
017	MAKUENI		135,562	133,203	268,765	3.7	3.7	7	
						23.7	24.2	48	
018	NYANDARUA	CENTRAL	81,278	84,224	165,502	2.2	2.3	5	
019	NYERI		100,847	102,553	203,400	2.8	2.8	6	
020	KIRINYAGA		84,791	86,841	171,632	2.3	2.4	5	
021	MURANGA		133,603	132,250	265,853	3.7	3.6	7	
022	KIAMBU		420,739	462,214	882,953	11.6	12.7	24	
						22.6	23.9	46	
023	TURKANA	RIFT VALLEY	148,128	135,819	283,947	4.1	3.7	8	
024	WEST POKOT		78,679	85,198	163,877	2.2	2.3	5	
025	SAMBURU		42,948	44,082	87,030	1.2	1.2	2	
026	TRANS-NZOIA		131,363	142,502	273,865	3.6	3.9	8	
027	UASIN GISHU		193,363	202,748	396,111	5.3	5.6	11	
028	ELGEYO-MARAKWET		65,155	66,065	131,220	1.8	1.8	4	
029	NANDI		127,336	135,886	263,222	3.5	3.7	7	
030	BARINGO		92,481	94,648	187,129	2.5	2.6	5	
031	LAIKIPIA		71,929	75,003	146,932	2.0	2.1	4	
032	NAKURU		333,247	354,195	687,442	9.2	9.7	19	
033	NAROK		152,750	165,059	317,809	4.2	4.5	9	
034	KAJIADO		188,659	205,009	393,668	5.2	5.6	11	
035	KERICHO		136,126	145,220	281,346	3.7	4.0	8	
036	BOMET		124,144	136,895	261,039	3.4	3.8	7	
						51.9	54.7	107	
037	KAKAMEGA	WESTERN	223,904	260,987	484,891	6.2	7.2	13	
038	VIHIGA		66,852	74,635	141,487	1.8	2.1	4	
039	BUNGOMA		208,599	235,183	443,782	5.7	6.5	12	
040	BUSIA		111,477	130,965	242,442	3.1	3.6	7	
						16.8	19.3	36	
041	SIAYA	NYANZA	121,214	142,858	264,072	3.3	3.9	7	
042	KISUMU		170,673	196,773	367,446	4.7	5.4	10	
043	HOMA BAY		138,285	168,815	307,100	3.8	4.6	8	
044	MIGORI		144,191	171,885	316,076	4.0	4.7	9	
045	KISII		158,739	199,225	357,964	4.4	5.5	10	
046	NYAMIRA		72,357	92,298	164,655	2.0	2.5	5	
						22.2	26.7	49	
047	NAIROBI	NAIROBI	896,124	988,531	1,884,655	24.7	27.2	52	
						24.7	27.2	52	
Total Youth Pop., N			6,992,598	7,546,201	14,538,799				
			48%	52%	100%	192	208	400	
						Youth	National		
				N=	14,538,799	47,564,296		31%	

Source: Kenya National Bureau of Statistics (2019) Population and Housing Census, Volume III

400

From the background paper on youth unemployment shared earlier, thirty-six (36) questions were identified to address the topic of youth unemployment, talents, skills, and labour market needs. The questions covered the following key areas:

i. Youth demographics in terms of sex, qualifications, and digital preparedness administered through an online quiz with sixty-three selected digital keywords and applications, assigned points depending on the weight of the keyword or application. Unlike common keywords and applications such as Sustainable Development Goals (SDGs) and MS Excel that attracted one point each, elite keywords and vertical software solutions were assigned more than one point (three points maximum).

ii. Talent management experience at school

iii. Reasons for the choices of career paths

iv. Skills deficit and mismatch in the labour market

v. Perceived reasons for high youth unemployment rates

vi. Views on education, TVET, automation and labour policies

vii. The role of youth mentorship

Due to the prevailing COVID-19 public health and safety protocols at the time, the questionnaire was automated in SurveyMonkey (paid subscription) to be administered fully online using a weblink. Youth training sessions were conducted physically in Ongata Rongai, Kajiado County, for new recruits and virtually for the youth who had acquired experience as Research Assistants before. The meaning of the survey and how the youth were supposed to accurately administer the questionnaire among their peers were explained. The contents of the questionnaire addressed the first three objectives, under Phase I. The subsequent phase, Phase II, was designed to benefit from the results obtained from the survey conducted in Phase I.

7.2   Phase II: Key Stakeholder Engagements

Informed opinions of primary actors and key experts in youth skills development and employment are meant to inform the skill-sets and labour policies that deserve emphasis to give the youth a competitive edge in the emerging labour market and digital economy. Dissemination of the results of Phase I at conferences attended by key decision makers in the education and youth employment sectors is a key strategy for realising Phase II. The interactive sessions should yield informed ranking of the relative importance of various skill-sets in addressing the innovation, employment, and job creation needs for the growing youth population. The degree of emphasis the identified skill-sets have been receiving in the prevailing education and training regime will be explored as well, in a constructive process of reflective and generative dialogue.

The category of informants targeted to deliver on this Phase include the following:

i.   industry leaders/employers of young graduates;

ii.   trainers/teachers/lecturers, researchers and policy analysts;

iii.   policy and decision makers in the government ministries, departments and agencies (MDAs) dealing with education, innovation, youth, and labour issues; and

iv.   donor agencies, such as DAAD, which have been supporting youth scholarship and skills development.

7.3   Phase III: Model Development

The analysed and consolidated results received from Phase I and Phase II will be used to develop a model linking the key result areas to the processes and parameters essential to achieving the overall goal of enhanced youth employability through curriculum improvement and structured mentorship.

The envisaged model components are:

i.   population of Kenyan youth aged 18-35 at any given time, $P_y(t)$, and national population $P(t)$;

ii.   differentiated labour market needs by priority sectors aligned to the long-term national development vision, $L_i(t)$;

iii.   growth in $P_y(t)$, $P(t)$, and $L_i(t)$;

iv.   parameters/constants derived from (government) policies on training, employment, job creation, among others;

v.   interrelationships between i – iv above as derived from the studied mathematical/statistical relationships between them, which may lead to various feedback loops.

The philosophical underpinning of the envisaged modelling process is a knowledge-based development of a system dynamics model. STELLA, the industry leader in icon-based, stock and flow system dynamics modelling and simulation has been selected to develop this model. The state variables are to be represented as stocks, the processes as flows, the parameters as converters, and the mathematical interrelationships as connectors.

8 Results and Discussion

The results of the first stage of this project (January–April 2021) are hereby presented according to the predefined Phases. The results of the subsequent phases will be included as they get realised.

8.1   Youth Skills and Unemployment Situation in Kenya

The nationwide youth skills and unemployment survey covered the period March 5–April 5, 2021. The results presented here are findings on the youth demographics as related to education, skills, career, and mentorship.

8.1.1   *Youth demographics in terms of sex, qualifications, employment and digital preparedness*

Twenty youths drawn from different Kenyan counties used the online SurveyMonkey link to share the questionnaire with their peers in the counties who satisfied the survey criteria. After cleaning the data received for completeness and accuracy, 437 responses were retained — a return rate of 109% against the target of 400. The respondents were 219 females and 218 males drawn from all the 47 counties in Kenya. The majority (36%) were in the 24–26 age bracket, followed by 21–23 (24%), 27–29 (21%), 30–32 (10%), 33–35 (6%), and 18–20 (3%). As a proxy of youth unemployment rate in Kenya, only 29% were in regular employment or employer status while 14% were gigging, with 36% not employed and 21% not actively looking for work or unavailable for work because of studies. This outcome was not far from the recent estimate of 39% youth employment in Kenya.

Among the respondents, the highest qualifications included: Master's degree (6.7%), Bachelor's degree (63.7%), and Diploma (16.8%). Holders of TVET certificates were 4.8%, secondary school certificate 7.8%, and only one respondent had a primary school certificate as the highest qualification. The majority (52%) of the respondents identified with STEM competency domains (37% in logical-mathematical intelligence and 15% in visual-spatial intelligence).

Most of the respondents (56%) were drawn from STEM disciplines. They were as follows: 14% from engineering courses, 14% from ICT courses, computer engineering included, 14% from business and commercial courses, 6% from mathematical subjects including statistics and actuarial science, 4% from health sciences, 4% from physical sciences, 4% from life/biological sciences, 9% from food and agricultural sciences, 3% from economics and social sciences, 7% from humanities, 4% from linguistics, 4% from media, communication and journalism, 3% from travel, hospitality and tourism, and 1% each from geo-, earth and environmental sciences, land and the built environment, diplomacy, professional accounting, professional sports, and driving. The rest had three responses or less (less than 1% of the total responses to the question) and included youth pursuing or who have pursued degree or TVET courses in legal studies, veterinary and animal health sciences, fine and performance arts, management sciences, planning and policy studies, woodwork, metalwork, and textiles and carvings.

The quiz administered on digital literacy and global awareness based on keywords and software applications totalling 96 points, however, confirmed a median literacy score of 13% and a mean score of

only 16%, the 100th percentile scoring 82%, 25% in the 75th percentile, and 3% in the 25th percentile. Facebook was the favourite with the youth at 71%, followed by Instagram 62%, Twitter 57%, and LinkedIn 49%. The share of the respondents who showed awareness of the following were as follows: artificial intelligence (AI) 27%, SDGs 18%, big data 17%, Industry 4.0 (4IR) 10%, and Internet of Things (IoT) 8%. The youth had interacted less with PowerPoint (53%) than Excel (63%). In terms of the uptake of smart cloud services, Google Drive (55%) was the highest, more than Google Maps (48%), OneDrive (32%), Dropbox (31%), and OneNote (23%). Google Translator (26%) scored double the popularity of Microsoft Translator (13%). The popularity of Google products over Microsoft products can be explained by the more horizontal proliferation of Google products across devices, especially smartphones. Microsoft Teams (33%) scored higher than Google Hangouts (27%) and TeamViewer (19%), perhaps because of the online lecture platforms whose uptake went up after COVID-19 disrupted physical classrooms.

The spaces for sharing online scholarly materials were relatively deserted by the youth, as shown in the share of the respondents using them in these results: Academia.edu 25%, ResearchGate 21%, Udemy 16%, Coursera 14%, Khan Academy 13%, Medium 10%, and Moodle 5%. Familiarity with contemporary software applications for data science and decision support also scored low among the youth: MS Access 43%, SPSS 21%, Python 21%, Salesforce 13%, AutoCAD 15%, MATLAB 10%, ArchiCAD 9%, R Studio 8%, ArcGIS 7%, QGIS 4%, and What3Words 3%. As expected, vertical solutions had a much lower uptake: e.g., 3% for SNAP and ENVI; 2% for ERDAS Imagine; and 1% or less for STELLA, Eagle Point, and Vensim software applications.

The survey established that youth awareness of the circular economy and green economy has been low in Kenya, even among this group which is mostly enlightened in STEM and using digital products. Among them, in terms of awareness of modern keywords and megatrends, 30% stated they were aware of digital economy and only 11% were aware of the gig economy. The level of awareness of the other key terminologies were as follows: blue economy awareness (15%); green economy awareness (12%); and circular economy awareness (3%).

These paradoxical results on digital literacy among a mainly STEM-oriented youth demonstrate the generally shallow depth of digital fluency and practice among the youth. Since Kenya is viewed as a leading country in Africa in terms of technology and innovation readiness, the finding challenges higher education to redouble efforts on project- and skills-based training to deepen the skills proficiency of the youth entering the job market. Global citizenship is also challenged by the very low score on awareness of the SDGs among the youth. This is a key result area for enhancing youth employability in Kenya and Africa as a whole, especially in the increasingly digital post-COVID-19 world of work.

8.1.2   *Talent management experience at school*
The main findings included a lack of early talent identification mechanisms in the basic education system, only 26% of the respondents stating they had definitively identified their talents before joining tertiary education levels. A large majority (80%) believed Kenya's new competency-based curriculum (CBC) system has the potential to solve skills mismatch and unemployment. The majority (77%)

preferred that learners be assisted in identifying and nurturing their talents either at the pre-primary or primary school level.

Only 30% stated that their education and training had brought out the best in them in terms of their talents, with the overall message being that the realised talent refinement level was just a bit, at best, as stated by 40% of the respondents. Another 30% stated "no" or "not sure". As to the stage where their education and training refined their talents, the tertiary education level came out to be the main centre of this realisation of talent refinement for the majority (27%), followed by industrial attachment or internships (18%), secondary school (15%), workplace (11%), and primary school (4%) — leaving out a whole 26% still with largely unrefined talents because of the missed opportunities in the formal education and training system.

The findings expose the urgent need to have in place early talent identification and nurturing mechanisms right from primary school. The role of higher education and industrial attachment or internships in youth talent development and maturation has also come out strongly from this study. Secondary school level has prospects for advancing the talent management objective since it already demonstrates this through the fairly large share (15%) of learners who got their talents refined well at that level. The findings complement the earlier 2018 – 2020 study finding by Adero (2021a) under the GraFA EMPOWER Good Governance and Social Entrepreneurship Programme at the TU Bergakademie Freiberg, Germany, which established that in Kenya, STEM learning outcomes from primary school and secondary school could be enhanced by:

i.   Ensuring an adequate stock of well-trained, motivated and exposed teachers;
ii.   Establishing well-equipped laboratories and libraries right from primary school to secondary school;
iii. Science congress activities, started earlier from primary school as opposed to secondary school as has been the case;
iv.   Overcoming cultural barriers to gender equality in STEM education through positive and inclusive and gender-neutral socialisation of STEM education;
v.   Structured STEM mentorship for talent management and career development; and
vi.   Increasing the budget for learning materials and extra maintenance and sanitary needs to the level of 750 USD per girl per year and 410 USD per boy per year.

For higher education curriculum enhancement to address youth employability effectively, it should pay due attention to the structural weakness emanating from the basic school level, overcoming cultural barriers to gender equality in STEM education, and structured STEM mentorship for talent management and career development. The budget requirements captured in the survey excluded transport and boarding facilities.

8.1.3   *Reasons for the choices of career paths*
The survey explored the reasons behind the choice of various courses and career paths among the Kenyan youth. Though self-drive and passion claimed the largest share of 30%, parents (17%) were the

strongest external agents in these career decisions. The other reasons included employability (9%), the grades achieved (8%), self-employment opportunities (7%), teachers (6%), future-readiness of the course (5%), career fairs and talks (5%), prestige (4%), and mentors (4%). The least rated factors were institutional reputation and peer pressure.

8.1.4   *Skills deficit and mismatch in the labour market*
The relevance of the skills acquired from the school or college was unfavourably scored by 51% of the youth, 8% stating they were not skilled to match the job market at all and 43% stating they needed major retraining, reskilling and upskilling at workplace to be confident. Others needed minimal retraining (26%) and only 23% were market-ready with skills upon graduation. The key message here is that the opinion is highly divided in terms of market- and future-readiness in skills development, hence the need to enhance outcomes through well-targeted and talent-matching skills development for the youth.

At the entry level, graduates of different training schools find their knowledge and skills generally not matching the workplace needs. The weighted average was 2.2 on a scale of 1 (matching comfortably well) to 4 (very wide knowledge and skills mismatch requiring major retraining). Only 24% rated their skills to be matching comfortably well, 46% saw a bit of mismatch requiring minor retraining, 21% expressed a wide mismatch needing some training, and 9% expressed a very wide knowledge and skills mismatch requiring major retraining. These results compare with recent research by Dinda (2016, p. 188), which explored the issue of the "half-baked factor" and found that 74% of the graduates coming from Kenya's higher learning institutions annually were not fit for the job market. As expected in an environment of low skills proficiency, there was general dissatisfaction with compensation: 47% of the respondents dissatisfied, 34% neutral, and only 19% satisfied, giving a weighted average of 2.6 on a scale of 1 (highly dissatisfied) to 5 (highly satisfied, crazily loving the compensation). Less than 2% were highly satisfied; 17% satisfied, 33% dissatisfied, and 14% highly dissatisfied.

The results confirmed that the market- and future-readiness of youth skills is still wanting, hence the urgent priority to enhance outcomes through well-targeted and talent-matching skills development for the youth demographic. The situation of skills mismatch has not changed much since 2012 when a report on skills gap among graduates was published in Kenya (GoK & UNDP, 2012).

8.1.5   *Reasons for high youth unemployment rates*
The youth enumerated the critical factors leading to high youth unemployment in Kenya as follows:

  i.   Lack of skills and experience;
 ii.   Corruption;
iii.   Poor education and labour governance leading to high populations of graduates but limited job opportunities;
 iv.   Drug abuse among the youth; and
  v.   Wrong course choices.

The youth, however, also agreed to share the blame by citing the following acts and attitudes:

i. Drug abuse;
ii. Laziness;
iii. Lack of aggressiveness and creativity;
iv. Being too choosy in terms of jobs (obsession with white-collar jobs); and
v. Ignorance about available opportunities.

Chege (2016, p. 12) has written on the work ethics and life skills of Kenyan youth with observations that support the findings above. She has decried the laziness and lack of dependability and life skills among the majority of Kenyan youth, saying "many expect the world of work to adapt to their 'culture', instead of the generally acceptable work culture and work ethics". The World Health Organization (WHO) has defined life skills as the collective abilities for adaptive and positive behaviour to deal effectively with the demands and challenges of everyday life. Borrowing from the successful history of labour export by Asian countries, the viewpoint by Mwiria (2016) on facilitating labour mobility for Kenyan youth to exploit the worldwide demand for highly skilled labour is insightful here. Reaching out to regional and global markets would expand labour participation opportunities for Kenyan youth.

8.1.6 Views on higher education, TVET, automation and labour policies

On a scale of 1 (strongly disagree) to 5 (strongly agree), the youth blamed Kenya's education system for youth unemployment, with a mean agreement rating of 3.4. There was general disagreement to the thesis that higher education would guarantee a good job in Kenya with an average score of 2.5 on a scale of **1** (strong disagreement) to **5** (strong agreement).

The study results revealed that attitudes towards TVET have been changing positively given the promise for skills and jobs. On a scale of 1 (not at all) to 4 (very readily), the weighted mean was 2.5 out of 4. The majority (79%) would be ready to give up their university admission to join TVET institutions instead given the promise of skills development and matching jobs. In response to making such a decision, the response for **very readily** was 19%, **readily** 28%, **probably** 32%, and **not at all** 21%. Mainstreaming TVET into national skilled labour export programmes (Mwiria, 2016) is recommended as a result. This finding also gives a strong backing to the plan by the Government of Kenya to build and modernise Technical Institutions in every county and Vocational Schools in every constituency.

The youth expressed a preference for curriculum adjustments and labour policy changes geared towards imparting industry-relevant technical and practical skills. Youth exposure to industry through internships got a strong backing. The youth's appeal to government was to enhance job creation and adjust retirement age to be in favour of a turnover that gives more youth a chance to take up job opportunities. This recommendation, however, meets its contradiction in the low skills proficiency

among the youth. This technical contradiction is an opportunity for inventive problem-solving through a modern curriculum informed by labour market demographics.

On digitalisation and automation, the general feeling was that these megatrends would reduce employment opportunities and job security for the youth. On a scale of **1** (highly reducing employment and job security) to **5** (highly increasing employment opportunities and job security), the average score was 2.7 (noting that 3 is mid-point/neutral). Of the total responses, 52% were pessimistic, 36% were optimistic, and the rest were neutral. The youth were, however, positive about the importance of their training in the labour market despite the high youth unemployment rate. Only 8% were sceptical about the demand for their areas of training in the labour market. The mean score was 3.9 on a scale of **1** (outdated training) to **5** (strongly demanded for more than a decade despite automation). The collective message from these results is that the majority of the Kenyan youth would still find meaningful engagement in the more labour-intensive and informal sectors, a reflection of the fact that the larger demographic lacks advanced formal education. This is also evident in the low share of barely 20% qualifying to join universities from 2016 (published results, Ministry of Education) and, as a result, the even lower share of college graduates among the youth. An important policy implication is that the government should incentivise the creation of more employment opportunities in the informal sector to help reduce youth employment.

The perceived change in marketability of the courses the youth have taken or are taking was also explored in the survey. While a third believed their courses would still increase in marketability, a third believed the opposite, and the remaining a third believed the marketability had not changed or would not change over time. The mean rating was 3.0 on a scale of **1** (highly reduced/reducing in marketability) to **5** (highly increased/increasing in marketability) — implying neutrality (practically no overall change in marketability).

Insufficient sharing of labour market information is among the causes of youth unemployment in Kenya (Nebe & Mang'eni, 2016). Awareness raising about the need to aim at skills-driven career security, as opposed to employment security, is critical as revealed from the findings. There are rapidly growing opportunities for skilled youth in the digital and gig economy. Higher education curriculum improvements should utilise the space offered by the expressed positive change in the attitude of youth towards TVET as a source of skills-based empowerment for youth employability in the labour market.

The upright pyramid of labour market demographics for Kenya, and Africa as well, must have a broad base made up of skilled workers from TVET institutions as the tipping point accommodates a lean number of highly specialised scholars and thought leaders. The indicative ratio of **1:3:4 for engineers: technologists: technicians** provides evidence to support this argument. Applied to Kenya assuming an aspirational UNESCO ratio of one engineer for every 2,000 citizens, the estimated country population of 60 million by 2030 would require a supply of 30,000 engineers from universities, 90,000 technologists, and 360,000 technicians (Adero, 2021b). Even as universities aim at increasing the supply of market-ready engineers, TVET institutions should shoulder the greater burden of meeting the needs of the

labour market demographics featuring a broader constitution of technicians and skilled industry workers.

The growing acceptance of TVET may direct Kenya to the dual vocational education and training model in Germany, where there are various exit routes to skills-based vocational schools (*Berufsschule*): from *Hauptschule* (Grade 5–9/10), *Realschule* (Grade 5–10), or *Gymnasium* (Grade 5 – 13). Danner (2016) noted that even in Germany, an increasing number of students from these levels have been opting to join apprenticeship in vocational schools where practical training takes up the bulk of the syllabus — with an example in 2011 when 23% of *Gymnasium* graduates joined vocational schools instead of university.

Modernisation of vocational training centres has been responsive to technological advances in Germany, one example being the replacement of training in mechanics with training in mechatronics to match evolving trends in the modern car industry (Danner, 2016). The approach includes a strong private sector participation through funding and paid on-the-job training contracts for the youth apprentices; involvement of government and local chambers of commerce and industry; and involvement of universities and schools through adaptive curriculum reviews. Integrating work ethics into the education process beyond imparting academic knowledge and practical skills has been recommended as a key prerequisite for enhanced youth employability (Danner, 2016; Chege, 2016). The *Jua Kali* model in Kenya has been viewed as a promising local context for skilling the youthful masses in Kenya, referred to by Muteti (2016, p. 167) as the home of Kenya's creativity, ingenuity and energy.

8.1.7   *The role of youth mentorship*

The youth rated the importance of mentorship to employability skills at a strong mean of 4.1 on a scale of **1** (not important at all) to **5** (very highly important) — very highly important for 31% and highly important for 51% of the responses. Though 82% of the youth rated mentorship as important to enhancing youth employability skills, 70% stated they did not know of any structured mentorship programme in Kenya. As a result, 83% were not registered in any structured mentorship programme. Some 45% of the respondents stated they had no regular individual mentors either. For the rest, who had regular dedicated individual mentors, the mentors were in the form of career mentors (48%), spiritual mentors (41%), academic mentors (27%), peer mentors (23%), and reverse mentors (7%). The youth who know of existing mentorship programmes cited Impact Borderless Digital (IBD), Ajira Digital, Equity, KYEOP, Greenhorn, and Kenya's Presidential Digital Talent Programme (PDTP).

The findings prove that the role of mentorship is no doubt critical to youth employability. There is an urgent need to enhance structured mentorship programmes in number, visibility, and strategic outreach targeting the youth in learning institutions. Academic mentorship is particularly wanting from the low score of 27%, fronting a key challenge to lecturers to volunteer their services to mentor more youth to graduate to the sharp end of the skills revolution pyramid that Africa needs for disruptive and breakthrough innovations.

8.2 Implications of the Findings for Youth Skills Development

The results from Phase I of the project have provided the current primary data essential to evidence-based decision-making and calibration of education and labour policies. Kenya's National Skills Development Policy (NSDP) 2020 also supports evidence-based human resource planning as one of its key principles. The Vision 2030 of Kenya aspires to a newly industrialising middle-income economy providing a high quality of life to citizens in a clean, healthy, safe and secure environment. This aspiration places a heavy demand on Kenyan universities to cut a niche in adequately supplying the sharp end of the skills pyramid, mainly made up of highly specialised scholars, researchers, and thought leaders.

Youth unemployment is an urgent and complex problem that must be confronted jointly by the entire Kenyan society, not any single agency or donor (Danner, Kerretts-Makau, & Nebe, 2016). There are massive and urgent needs of the labour market demographics at the broad base of the pyramid, where technicians and skilled industry workers are critical. For Kenya and Africa, horizontal solutions that require skilled blue- and green-collar workers are still expected to be higher in demand than the vertical solutions requiring white-collar workers. TVET institutions are the best placed centres to shoulder this greater burden.

The homegrown *Jua Kali* industry offers a unique opportunity to the Kenyan youth, but it needs to be supported to be better structured and further facilitated to be key centres for skilling and mentoring the youth to refine and apply their raw talents creatively and effectively to meet the common and immediate needs of a developing nation. Infrastructure projects are also central to offering mass employment to graduates while empowering them with industry-relevant skills. Policies for retaining the developed skills pool are needed to assure the youth of continued engagement beyond the completion of infrastructure projects, such as transport, communication, water, mining and energy infrastructure.

The skills revolution pyramid has to be aligned to the natural talent demographics, which is broader at the bottom and tapering towards the top. This outlook supports the African Union's Agenda 2063, particularly on attaining ST&I-driven skills revolution and socioeconomic transition from producing raw materials to value addition through industrialisation and digitally leveraged services. Policies and economic incentives should now lean more towards motivating and investing in skills-based training and job creation by the rising number of graduates from TVET institutions. There should be a proportionate matching of these larger youth demographics to fewer yet highly focused and skilled graduates from universities.

9   Conclusions and Recommendations

Phase I of the implementation of "The University of Ideas – ACCESS Idea of 2020" has been completed successfully by meeting the goal of conducting a nationwide youth skills and employment survey across Kenya for 437 youth in the 18–35 age bracket. The survey covered the period March 5 – April 5, 2021.

The overall outcome challenges Kenyan universities to deliver on a project- and skills-based curriculum with enhanced exposure to digital literacy, and better still, digital fluency and other key transferrable skills for the dynamic labour market. The low mean score of 16% on the administered quiz on digital literacy among the youth segment, more than half of them being in STEM disciplines, is telling and instructive in this respect.

The confirmed positive attitude of the youth towards accepting TVET institutions so as to acquire market-ready skills despite gaining university admission grades, a choice voted for by 79% of the respondents, is a notable point of intervention through policies that can incentivise higher enrolment in TVET. A mix of ambition and ambivalence about the market-readiness of the youth skills and marketability of the courses they took in the face of disruptive digitalisation and automation emerged. The policy implication is to raise awareness on why the youth need to aim at skills-driven career security as a substitution for the shaky employment security in the increasingly digital and automated post-COVID-19 labour market and gig economy. Another important policy implication based on the youth demographics is that the government should incentivise the creation of more employment opportunities in the informal sector to help reduce youth employment.

The Phase I research findings imply that Kenyan universities need to cut a niche in adequately supplying the sharp end of the skills pyramid, mainly made up of highly specialised scholars, researchers, and thought leaders. In return, TVET institutions should be equipped to meet the massive and urgent needs of the labour market demographics at the broader base of the pyramid — technicians and skilled industry workers being key. This recommendation generally applies to Africa as well. The attendant policy justification arises due to the demands of the African Union's Agenda 2063, particularly on attaining ST&I-driven skills revolution and socioeconomic transition from producing raw materials to value addition through industrialisation and digitally leveraged services.

In summary, the policy implications of the survey results point to the need for a comprehensive approach that focuses on skills development, strengthening TVET institutions, expanding youth mentorship programmes, improving information sharing, and aligning policies with the labour market's demand for skilled workers. These measures can help address youth unemployment and support Kenya's development goals.

The following key recommendations ensued from Phase I:

1. **Private Sector Collaboration:** Encourage private sector participation in vocational training by offering incentives such as funding and on-the-job training contracts for youth apprentices. Collaboration between government, local chambers of commerce, and industry associations is essential.

2. **Strengthen TVET Institutions**: TVET institutions should be strengthened and modernised to meet the dynamic demands of the labour market. This could involve curriculum improvements,

increased private sector participation, adaptive curriculum reviews, and funding for technological advancements. Emphasising practical training and work ethics is key to enhancing youth employability.

3. **Dual Vocational Education Model**: Kenya could consider adopting a dual vocational education model similar to Germany, offering multiple exit routes to skills-based vocational schools. This system could provide more opportunities for practical training and skills development, hence meeting the training and employment needs of the larger section of the youth population.

4. **Promote Skills-Based Education**: The survey results indicate that the majority of Kenyan youth may find meaningful employment opportunities in the more labor-intensive and informal sectors because the majority still lack advanced formal education. There is a need to continuously update and adapt the curriculum in both universities and TVET institutions to reflect the evolving needs of the labor market and technological advances. Therefore, policymakers should prioritise and promote skills-based education and vocational training, particularly through Technical and Vocational Education and Training (TVET) institutions. Economic incentives should be shifted towards motivating and investing in skills-based training and job creation, particularly for graduates from TVET institutions. This includes offering incentives to businesses to hire and train skilled workers. The criticism of Kenya's education system as a contributor to youth unemployment calls for regular re-evaluation of the curriculum to ensure it imparts practical skills and aligns with industry needs. Educationists should also consider incorporating life skills and work ethics education at all levels.

5. **Align with the Youth Demographics and Skills Pyramid**: Policymakers should align their policies with the natural youth talent and labour market demographics, broader at the bottom of the skills pyramid. This includes focusing on producing a larger number of skilled blue- and green-collar workers through practice-oriented training to meet the immediate needs of the labour market.

6. **Internship Opportunities:** Encourage businesses to provide internships for students and recent graduates. This will give young people practical exposure to industries, enhance their employability, and bridge the gap between formal education and employment.

7. **Youth Mentorship Programmes**: Mentorship is highly valued by Kenyan youth for enhancing employability skills. Policymakers should work to expand structured mentorship programmes, making them more visible and accessible to young people, both within and outside of educational institutions. This includes encouraging academic mentorship to bridge the gap between formal education and the need for proficiency in research and industry practice.

8. **Information Sharing on New Opportunities in the Digital and Sharing Economy**: Insufficient sharing of labour market information is a key challenge contributing to youth unemployment. Government and relevant agencies should invest in awareness campaigns to inform the youth about skills-driven career security, ensuring they are aware of opportunities in the digital and gig economy, as well as the sharing economy model. Equally, encourage the youth to develop skills relevant to these sectors, which are experiencing growth despite automation.

9. **Infrastructure Projects**: Infrastructure projects can provide mass employment opportunities for graduates while equipping them with industry-relevant skills. Policymakers should prioritise and invest in infrastructure development projects, such as transport, communication, water, mining, and energy infrastructure, to create jobs and retain skilled workers.

10. **Continuous Research and Data Analysis**: Policymakers should encourage the regular collection and analysis of data on youth employment, youth skills development, and marketability of courses to inform evidence-based decision-making. This will help ensure that policies remain responsive to evolving labour market trends.

11. **Support Jua Kali Industry:** The Government to recognise the potential of the informal sector, particularly the Jua Kali industry, in skilling and employing the youth, and hence provide support and training to formalise and enhance productivity within this sector.

The subsequent project phases should be completed by May 2024 as the results of Phase I get discussed and applied to develop the intended model connecting youth talents with lifelong skills development needs and labour market demographics.

10 Annex – Questionnaires for Phase I

Link to the key results summary (complete questionnaire and results shown only while the SurveyMonkey subscription is active): [Views on Addressing Youth Unemployment in Kenya: Talents, Skills, Labour Market - SurveyMonkey Dashboard](#)

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Acknowledgements

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