Science, Technology and Innovation (STI) as a means for Enhancing Youth Employability, Entrepreneurship, and Job Creation in Eastern and Southern Africa

A Stakeholder Engagement Workshop Report, Kigali, Rwanda

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1. Introduction

The Rwanda National Council of Science and Technology (NCST) and the African Technology Policy Studies Network (ATPS) in partnership with the Mastercard Foundation and Afreximbank co-organized a hybrid (physical and virtual) stakeholder engagement workshop on the "***Application of STI in developing skills and fostering youth employment and entrepreneurship in Africa***" that took place on **29th April 2024** at Marriott Hotel Kigali, Rwanda. The workshop aimed to disseminate the key findings emanating from the research study conducted under the **"*Technological Innovation Development in Africa to Enhance Employability, Entrepreneurship and Job Creation (TIDE)"* project**, and stimulated discussions among critical stakeholders, including policymakers, researchers, industry experts, educators, and youth representatives.

The youth are Africa's greatest asset. Africa's youth population is rapidly growing and expected to double to over 830 million by 2050 (AfDB, 2016). If properly harnessed, this increase could support increased productivity and stronger, more inclusive economic growth. Unfortunately, majority of the youth do not have access to stable economic opportunities. Of Africa's nearly 420 million youth aged 15-35, one-third are unemployed and discouraged, another third are vulnerably employed, and only one in six is are in wage employment (AfDB, 2016). While 10 to 12 million youth enter the workforce each year, only 3.1 million jobs are created, leaving vast numbers of youth unemployed (Ibid). These conditions have been exacerbated by the COVID-19 pandemic. Addressing the youth unemployment challenges in Africa will require sustainable solutions that can be achieved through effective policy interventions and the strengthening of institutions. Unfortunately, Africa as a whole is limited with robust policies and plans on science, technology and innovation (STI), which slows down its progress in attaining industrialization and economic development (Ozor, 2020). There is need, therefore, to support policy reviews in countries that will prioritize STI development (Ibid). This is because policies and institutions embedded in STI development have shown to have the greatest potential to accelerate job creation (AUC, 2014). To make effective policies the use of evidence is paramount (Bowen & Zwi, 2005). Besides, there is no systematic documentation of technological innovations especially by the youth and women that could be supported for commercialization.

Therefore, the planned workshop stemmed from a comprehensive study conducted in seven African countries (Ethiopia, Ghana, Kenya, Nigeria, Rwanda, Uganda, Senegal and Zimbabwe). The study investigated the potential of STI to equip youth with relevant skills and knowledge, thereby enabling them to pursue meaningful careers and contribute to economic development. The study also aimed at understanding the statuses, what works (successes), what doesn't work (failures) and why (reasons for successes or failures).

2. Objectives of the workshop

The primary objective of the workshop was to disseminate the key findings emanating from the research study conducted under the **"***Technological Innovation Development in Africa to Enhance Employability, Entrepreneurship and Job Creation (TIDE)" Project* and stimulate

discussions among critical stakeholders, including policymakers, researchers, industry experts, educators, and youth representatives. Specifically, the workshop aimed to:

- Disseminate key findings from the study on STI policy and institutional landscapes for youth development, entrepreneurship, and job creation.
- Engage stakeholders across government, private sector, civil society, and academia in a dynamic dialogue on how to sustain technological innovation development that is driven by the youth, the opportunities and challenges.
- Discuss the next steps in the project aimed at sustaining funding for youth innovation development that support skills and create job opportunities in the region.
- Develop concrete recommendations for policymakers, practitioners, and other stakeholders to support STI-based solutions for youth employment and entrepreneurship.

3. Methodology

The One-day workshop blended physical sessions in Kigali, Rwanda with virtual participation opportunities to maximize engagement across a diverse range of stakeholders in the Eastern Africa and Southern Africa Region. There were plenary remarks and presentations to set the stage for the interactive workshop. To gain more insights from experts in the field of STI and youth engagements, there was a panel discussion from experts drawn from policymakers, academia, youth-led organizations, donor organizations, and the private sector who discussed key issues around youth-led technological innovation development for skills acquisition, entrepreneurship, and job creation. There was also a breakout sessions that helped the participants have a deeper understanding of how the youth can harness the opportunities offered by STI to improve their skills, support entrepreneurship development, and create more jobs.

4. Expected outcomes

The workshop expected to achieve the following outcomes:

- Increased mainstreaming of youth in STI programmes and policies in the region.
- Increased opportunities for youth-led technological innovations that improve youth skills, increase entrepreneurship opportunities, as well as job creation.
- Increased funding for youth-led technological innovation development.
- Greater opportunities for stakeholder engagements and networking across the STI actors within the ecosystem.

5. Proceedings of the Stakeholder Engagement

5.1 Opening Remarks

The ATPS Executive Director, Prof. Nicholas Ozor expressed gratitude to all the participants who attended the workshop including distinguished representatives such as the Executive Secretary for National Council for Science and Technology Rwanda, and the team from Mastercard Foundation, notably Ibrahim Oanda and Prof. Ayobami Ojebode. Additionally, he acknowledged the National Chapter Coordinators from Uganda, Kenya, and Ethiopia, along with all participants involved in the research on technological innovations for job creation and

youth employability in Africa. Prof. Ozor emphasized the genesis of the project three years ago, initiated by the Mastercard Foundation, aimed at comprehensively understanding the policy and institutional landscape governing technological innovations. The focus was on organizations such as Ministries, NGOs, civil society, and the private sector, pivotal in fostering sustainable industries through innovation. He highlighted the previous dissemination of findings in Abuja, Nigeria, and underscored the significance of replicating this effort for the East African Region, comprising Rwanda, Uganda, Kenya, and Ethiopia. Prof. Ozor elucidated the prioritization of sectors based on individual country's focus areas and articulated the forthcoming presentation of policies supporting technological innovation for youth employability and job creation. Moreover, he emphasized the identification of key challenges and the importance of testimonials from beneficiaries of seed fund initiatives, emphasizing inclusivity to accommodate innovations from the informal sector. Prof. Ozor reiterated the commitment to contributing to the Mastercard Foundation's goal of creating thirty million jobs by 2030. In conclusion, he expressed gratitude to partners, including the Mastercard Foundation and AFREXIMBANK, for their support, which enhanced the research process and expanded its scope to include Zimbabwe. He concluded by welcoming participants and expressing optimism regarding the insights and collaborative efforts that would ensue from the meeting.

Mr. Abdo, Head of Department, Labour Market Interventions at Rwanda Development Board, expressed gratitude for the opportunity to address esteemed guests, including representatives from government institutions and the Commission of Science and Technology. Acknowledging the pivotal role played by the Mastercard Foundation and AFREXIM bank in facilitating the success of the project, Mr. Abdo commended the Government of Rwanda's efforts in job creation, particularly amidst the challenges posed by the COVID-19 pandemic. He highlighted the ambitious targets set under the National Strategy for Transformation (NST1), emphasizing the significant progress made in job creation, especially in sectors such as agro-processing, construction, tourism, and ICT. Mr. Abdo underscored the government's commitment to equipping youth with skills and facilitating access to finance through various interventions, including access to finance schemes and partnerships with the private sector. He emphasized the importance of ICT as an enabler for economic growth, noting the government's investments in air connectivity, conference infrastructure, and nationwide fiber optic networks. Mr. Abdul emphasized the high business survival rate in the ICT sector and highlighted the government's aspirations for human capital development and gender equality in the labor market. He outlined the government's vision for 2050, which includes increasing enrollment in STEM-related courses, reducing unemployment rates, and promoting gender equality. Mr. Abdul underscored the government's commitment to research and development, as evidenced by targets to increase investment in research and the involvement of teaching staff in academic research. In conclusion, Mr. Abdo invited participants to engage in the upcoming labor month activities and urged collective action in translating recommendations into tangible outcomes for youth employment. He expressed gratitude to organizers, partners, and contributors, emphasizing the importance of turning recommendations into actionable initiatives.

Adam Abdulal, representing AFREXIM Bank, began by providing insight into the bank's mission as a multilateral trade finance institution dedicated to promoting the growth and diversification of African trade. He emphasized AFREXIM Bank's role as a bridge between the public and private sectors, engaging in policy advocacy activities to amplify the voice of the African private sector to policymakers. Highlighting the significance of their partnership with the African Technology Policy Studies Network (ATPS), Abdulal underscored the importance of digital ecosystems in today's rapidly evolving technological landscape. He outlined various platforms developed by AFREXIM Bank, such as the Mansa platform for digital company registration and the Trader platform for trade information and regulation. Abdulal emphasized the relevance of technology policies in preparing young people for the demands of the modern labor market, particularly in the context of the Fourth Industrial Revolution. He stressed the importance of education, skills development, and entrepreneurship in empowering youth to thrive in the digital economy. Acknowledging the pivotal role of technology policies in enhancing youth employability, Abdulal called for a multi-faceted approach involving collaboration between governments, the private sector, civil society, and educational institutions. He emphasized the need for policies that promote diversity, equity, and inclusion in the workforce to ensure equal opportunities for all youth. In conclusion, Abdulal reiterated the profound impact of technology policies on youth employability and economic prosperity in Africa. He emphasized the importance of investing in education, skills development, and entrepreneurship to empower young people to build a brighter future for themselves and their communities.

Prof. Ayobami Ojebode, representing the Mastercard Foundation, extended a warm welcome to all attendees, expressing gratitude for the opportunity to convene at the stakeholder engagement event. He introduced himself as part of the research and learning team, working alongside Ibrahim and others in the foundation. Prof. Ojebode provided context on the foundation's establishment as a Canadian charity organization in 2006, initially operating from Canada before relocating its operations to Africa in 2018. He highlighted the foundation's presence in seven African countries and its ambitious goal of enabling thirty million young people to access dignified employment by 2030. Emphasizing the foundation's focus on poverty reduction and education, Prof. Ojebode underscored the importance of youth employment in Africa. He outlined various initiatives and partnerships aimed at achieving this goal, including collaborations with organizations such as World Data Lab and Partnership for Economic Policy (PEP). He stressed the foundation's commitment to technology and innovation as catalysts for sustainable employment. He highlighted the significance of understanding the STI landscape in relation to youth employment, praising ATPS for their leadership and collaboration in this endeavor. Acknowledging the importance of partnerships and collective action, Prof. Ojebode emphasized the need for inclusive conversations and actions to address youth unemployment effectively. He expressed gratitude to all participants for their engagement and commitment to tackling this critical issue. In conclusion, Prof. Ojebode reiterated the foundation's dedication to not only understanding but also solving the challenges of youth unemployment in Africa. He encouraged continued collaboration and action beyond the event, emphasizing the importance of empowering young people for a brighter future.

Dr. Eugene Mutimura, Executive Secretary of the NCST, Rwanda, extended a warm welcome to all distinguished guests, delegates, and participants gathered for the stakeholder engagement workshop. Acknowledging the presence of Prof. Nicholas Ozor from ATPS, representatives from various ministries, government institutions, private sector, NGOs, and the youth, Dr. Mutimura emphasized the importance of harnessing STI to develop the skills and foster the employment and entrepreneurship of African youth. Highlighting the demographic trend of Africa's burgeoning youth population, Dr. Mutimura underscored the pivotal role of the youth in driving economic development across the continent. He stressed the need to strategically engage with the youth, understand their needs, and empower them with diverse competencies and skills, leveraging the opportunities presented by STI. Drawing on the example of Rwanda's youth population, Dr. Mutimura emphasized the significance of prioritizing policies that support youth capacity development in STI. He highlighted Rwanda's efforts in supporting youth through initiatives such as the Rwanda Innovation Challenge and emphasized the importance of gender equality and inclusivity in these endeavors. Encouraging the youth to be energetic, bold, and strategic in their pursuits, Dr. Mutimura urged active participation and engagement throughout the workshop. He expressed gratitude to Prof. Nicholas Ozor, the Mastercard Foundation, AFREXIMBANK, and all partners for their collaboration in advancing youth employability and entrepreneurship in Africa. In conclusion, Dr. Mutimura reiterated the importance of collective action and partnership in achieving the shared goal of empowering African youth. He expressed confidence in the continuous collaboration and broader partnerships to drive the development of skills and opportunities for youth across the continent.

5.2 Summary Research Findings

The study in East Africa, focusing on Ethiopia, Kenya, Uganda and Rwanda, reveals that these countries have established STI policies and institutions aimed at fostering youth employment and entrepreneurship. In Ethiopia, the implementation of initiatives such as the Empower Youth for Work (EYW) Initiative has been successful, leading to increased opportunities for youth and marginalized groups. However, challenges persist, notably the private sector's limited contribution to skills development and youth employment due to an unconducive enabling environment. Only 10% of employers provide training, significantly lower than the SSA average of 30%. The economy's heavy reliance on agriculture further limits job opportunities for youth, although it presents opportunities for STI application. Challenges in creating youth employment include poor infrastructure, underutilization of skills, limited access to education, rural-urban migration, economic diversification issues, and gender inequities. Opportunities for addressing these challenges include investing in education, fostering entrepreneurship, advancing agribusiness, engaging with the private sector, and promoting digital literacy. Ethiopia's STI policies and institutional landscape, such as the Growth and Transformation Plan II and the Ethiopian Innovation and Entrepreneurship Council, have set the stage for significant contributions to skills development, youth employment, and entrepreneurship. Initiatives like the Ethiopian Technology Startup Fund and enhanced public-private cooperation underscore efforts toward inclusivity and robust planning. The Empower Youth for Work program has demonstrated innovative compliance strategies, while collaboration between the government, private sector, and development partners continues to play a pivotal role in creating opportunities for Ethiopian youth.

In Rwanda, educational and STI policy reforms have focused on skilling youth to meet labor market demands and encourage female enrollment in STEM fields, resulting in increased empowerment and representation of women in prominent positions, particularly in government. However, the overall educational level remains low, posing challenges as youth struggle to match the skills required in the evolving economy. STI policies have led to the launch of various programs, with mixed results in skills development, job creation, and entrepreneurship. Challenges include inadequate access to quality STI education, scarcity of STI-related job opportunities, gender inequality, and concerns over electricity availability. Despite challenges, Rwanda's growing economy offers opportunities for youth employment, driven by increasing reliance on STI, government commitments to STI promotion, and rising demand for STI skills in both public and private sectors. Best practices include strong government support for STI, reforms to foster business development, initiatives like the Rwanda Innovation Hub supporting youth-led STI initiatives, strategic partnerships, and successful public-private partnership programs like YouthConnekt, which have created jobs and provided training opportunities for youth. Additionally, Rwanda's participation in global initiatives like GloPID-R and the Science Granting Councils Initiative demonstrates its commitment to STI development.

In Kenya, the government's focus on STI, in alignment with initiatives like Vision 2030, has propelled technological advancement, youth employment, and innovation ecosystem development. However, challenges persist, including the pressing issue of youth unemployment, driven by skill gaps and limited formal job opportunities. The implementation of the Recognition of Prior Learning (RPL) Policy framework acknowledges competencies among youth, yet institutional challenges like high loan default rates and limited awareness of support services hinder progress. Opportunities for addressing youth unemployment lie in leveraging technology, responsive policy formulation based on real-time data insights, and promoting innovation aligned with Vision 2030. Best practices include the adoption of the RPL framework, economic empowerment programs promoting gender equity, emphasis on TVET and STEM education, and the development of a Digital Masterplan, showcasing relevant strategies for youth empowerment.

In Uganda, bridging the skills gap and promoting effective skills development requires close collaboration between the Ministry of Education and Sports (MoES) and industry, with the former setting standards and ensuring curriculum relevance while the latter identifies skills needs and offers practical opportunities. Financial literacy programs for schools and youth groups, in partnership with financial institutions, are essential for fostering responsible financial behavior and economic growth among young people. However, challenges persist, including slow economic growth limiting formal job opportunities and perpetuating poverty cycles. To address these challenges, comprehensive strategies for economic growth, improvement of vocational training programs, and investment in key sectors are crucial. Financial literacy education and partnership for financial literacy involving government, financial institutions, and civil society organizations are also vital for empowering youth in entrepreneurship and job creation. Uganda's best practices include the development of the National Strategy for Youth Employment in Agriculture (NSYEA), the commissioning of Kiira

Motors, enhanced partnerships in development initiatives, and the establishment and encouragement of vocational practice. These efforts aim to foster entrepreneurship, create job opportunities, and drive economic growth, ultimately contributing to the prosperity of Ugandan youth and the nation as a whole.

5.3 Panel Discussion

The panel discussion during the stakeholder engagement workshop provided valuable insights into the challenges and opportunities surrounding youth employment, skills development, and innovation in Africa, particularly in Rwanda and Kenya. The panel was comprised of the following members: Dr. Esperance Munganyi, representing the National Research and Innovation Fund at the National Council for Science and Technology in Rwanda, Dr. Roselida Owuor, the Director of Research and Development at the State Department for University Education and Research, Ministry of Education, Kenya, and Mr. Alex Musamirema, a young researcher and entrepreneur. The session was moderated by Mr. Alfred Nyambane, ATPS's programme manager. The discussion shed light on various aspects of policy formulation, implementation, and stakeholder engagement. Dr. Esperance emphasized the critical role of government policies in supporting entrepreneurship, innovation, and job creation. She highlighted the need for policies to be effectively implemented and emphasized the importance of creating an enabling environment for businesses to thrive. She also stressed the significance of public-private partnerships and the adoption of emerging technologies like Artificial Intelligence to enhance business sustainability and competitiveness.

Dr. Roselida Owuor provided insights into the government's efforts to promote youth employment and skills development through policy initiatives and partnerships. She discussed the establishment of institutional frameworks and funding mechanisms to support research, innovation, and entrepreneurship. She also highlighted the importance of STEM education, mentorship, and public-private partnerships in bridging the skills gap and fostering innovation among youth.

Mr. Alex Musamirema shared his personal experience of navigating the innovation ecosystem in Rwanda. He emphasized the need for inclusivity in policy-making processes, highlighting the importance of involving youth in decision-making and creating opportunities for them to contribute to economic development through innovation. Alex underscored the significance of mentorship, grants, and capacity building in supporting youth-led initiatives and fostering a culture of innovation.

During the discussion, questions were raised about the involvement of the informal sector in policy formulation and the allocation of resources for research and innovation. Dr. Munganyi and Dr. Owuor provided insights into the inclusive nature of policy-making processes in Rwanda and Kenya, highlighting the importance of stakeholder engagement and public participation. They also discussed strategies for enhancing the accessibility of funding and promoting intellectual property rights to support innovation and entrepreneurship.

In conclusion, the panel discussion underscored the importance of collaborative efforts between government, academia, industry, and civil society in addressing the challenges of youth unemployment and promoting innovation-driven economic growth in Africa. The exchange of ideas and experiences during the workshop provided valuable insights and recommendations for advancing policies and programs that support youth empowerment and entrepreneurship across the continent.

5.4 Question and Answer Session

The question and answer session delved into crucial aspects of youth employment, STI policy formulation, and the role of the informal sector in innovation and development. Some of the key questions entailed:

Question 1: What are the things that need to be done to enhance youth employment and generation of innovations and skills development?

In addressing the imperative of enhancing youth employment and fostering the generation of innovations while promoting skills development, participants articulated several crucial strategies during the discussions. Central to the discourse was the imperative of integrating youth perspectives in policy formulation processes, ensuring their voices resonate in decision-making arenas. It was underscored that policies should be tailored to prioritize youth entrepreneurship, creating an enabling environment that encourages collaboration between academia and industry. Participants stressed the significance of fostering partnerships between educational institutions and private enterprises to incentivize innovation within the private sector. Moreover, institutions were urged to design and implement targeted programs aimed at nurturing youth-led initiatives, spanning from the conceptualization stage to the commercialization phase. Such programs should encompass robust funding mechanisms tailored explicitly to support youth-driven endeavors, thereby catalyzing their entrepreneurial aspirations and facilitating the realization of their innovative potential.

Question 2: What gaps can be filled to ensure that youths in East Africa region are getting more employment opportunities and conducive environment to generate innovations?

Addressing the imperative of enhancing youth employment opportunities and fostering an environment conducive to innovation within the East Africa region necessitates a comprehensive approach aimed at bridging existing gaps. During the deliberations, several strategies emerged to address these challenges and capitalize on available opportunities. Participants emphasized the critical need for a paradigm shift in the mindset of youth, advocating for a culture of patience and steadfast commitment throughout the innovation value chain. Furthermore, it was underscored that access to practical entrepreneurial education and mentorship is paramount in honing the skills of young innovators, refining their ideas, and nurturing their projects towards fruition. Some of the recommendations proffered entailed the establishment of incubation services and the initiation of early capacity-building initiatives, starting as early as high school. Such interventions were said to be essential in equipping youth with practical competencies, facilitating smoother transitions into tertiary education, and preparing them for real-world applications.

Acknowledging the prevailing challenges, participants identified outdated technology, lack of recognition for informal sector innovation, and insufficient mentorship as significant hurdles confronting the youth. Conversely, several opportunities were identified, including the availability of STEM infrastructure, government initiatives aimed at formalizing the informal sector, existing STI policies, and accessible business support incubators. These opportunities serve as potential avenues for youth to leverage, enhancing their prospects of securing meaningful employment or establishing ventures that could serve as sources of employment for fellow youth.

To sustain youth employability and foster job creation, participants proposed a multifaceted approach. This included advocating for the provision of youth-specific tenders, incorporating youth representation in businesses, promoting success stories, and offering grants to youth-led initiatives. Additionally, emphasis was placed on involving youth in modern technologies such as Artificial Intelligence and ensuring their active participation in program planning and implementation processes. By embracing these strategies, it was believed that stakeholders could contribute to creating an enabling environment where youth can thrive, innovate, and actively contribute to economic growth and development within the East Africa region.

Question 3: What can young innovators do to scale their innovations and expand the market share with the products emanating from their innovations?

Participants emphasized the critical importance of protecting intellectual property rights by encouraging young innovators to patent their innovations. This proactive measure ensures that innovators can fully realize the benefits of their creations. A compelling case study underscored this necessity, illustrating the example of an ATPS grantee who developed hair products from banana waste. This case study highlighted the pivotal role of intellectual property protection, particularly in scenarios where innovators aim to export their products to wider markets. Moreover, participants lauded the burgeoning collaboration between innovators and individuals from the informal sector. This collaborative approach was heralded as the next frontier for scaling and commercializing innovations while simultaneously promoting local expertise. By forging partnerships with stakeholders in the informal sector, young innovators can leverage their combined strengths to amplify the reach and impact of their innovations, ultimately facilitating market expansion and sustainable growth.

Question 4: What can be done to treat youth employability and encourage innovations?

While East African countries boast commendable policies aimed at enhancing youth employability and fostering innovation, the primary hurdle lies in their implementation. Lack of coordination and documentation were identified as significant impediments to realizing the full potential of these policies. To surmount these challenges, recommendations include drawing valuable lessons from past implementations, thereby leveraging insights to inform future strategies. Furthermore, there is a pressing need for inclusive policy formulation, ensuring that diverse perspectives and stakeholder inputs are comprehensively incorporated. By embracing inclusivity, policies can be tailored to address the multifaceted needs of youth and the broader community, thereby enhancing their effectiveness and relevance. Harnessing partnerships with the informal sector presents a promising avenue for overcoming

implementation barriers. Collaboration with informal sector stakeholders can facilitate innovation scaling and job creation, capitalizing on the sector's inherent dynamism and local expertise. By fostering synergistic relationships with informal sector entities, policymakers can unlock new pathways for policy implementation, driving tangible outcomes in youth employability and innovation promotion.

5.5 Group presentations and discussions: Exploring challenges and opportunities in STI Youth Engagement

During the group discussions, participants delved into the intricacies of how Science, STI policies and institutional support can effectively foster youth development, entrepreneurship, and job creation. Some of the points raised are highlighted below:

Question 1: How does the STI policy and institutions support youth development, entrepreneurship, and job creation?

It was noted that the STI policy and institutions play a pivotal role in fostering youth development, entrepreneurship, and job creation by implementing inclusive policies and facilitating collaboration between various stakeholders. Policies need to prioritize inclusion of youth voices and perspectives to address their specific needs and challenges effectively. By actively involving young people in policy formulation, governments can ensure that their concerns are adequately addressed, thereby fostering a more supportive environment for youth development. STI policies should also place a strong emphasis on promoting youth entrepreneurship. This entails creating an enabling environment that incentivizes and supports entrepreneurial endeavours among young people. By offering incentives and facilitating access to resources such as funding and mentorship, governments can encourage more young individuals to venture into entrepreneurship, thereby driving innovation and job creation.

Collaboration between industry and academia was seen as very essential for leveraging the strengths of both sectors in driving innovation and entrepreneurship. STI policies and institutions thereof, should prioritize fostering partnerships between universities, research institutions, and industries to facilitate knowledge transfer, technology commercialization, and skills development. By encouraging private sector involvement and subsidizing innovation costs, governments can stimulate economic growth and create more job opportunities for youth.

Institutions should design and implement targeted programs specifically tailored to the needs of young people. These programs may include mentorship initiatives, skills development workshops, networking opportunities, and entrepreneurial training programs. By providing youth-centric support services, institutions can empower young individuals to realize their full potential and contribute meaningfully to society.

Institutions also need to establish funding mechanisms that are specifically aimed at supporting youth-led innovation initiatives. These mechanisms should cover the entire innovation value chain, from idea conception to product development and commercialization.

By providing financial support to young innovators, institutions can catalyze innovation and entrepreneurship, thereby driving economic growth and job creation.

Question 2: How can the youth effectively harness the opportunity offered by STI to improve their skills, create jobs, and become entrepreneurs?

Participants noted that it is essential to effectively harness the opportunities offered by STI and translate them into opportunities for skills development, job creation, and entrepreneurial success. Youth can adopt several strategies such as cultivating a mindset conducive to innovation and entrepreneurship. This involves embracing uncertainty, persisting through challenges, and being receptive to continuous learning and adaptation. Fostering a growth mindset young people can overcome obstacles and seize opportunities for growth and development.

Young innovators should actively seek opportunities to learn from experienced professionals in their respective fields. Mentorship programs, internships, and industry partnerships provide valuable avenues for gaining insights, guidance, and practical knowledge. By leveraging the expertise of mentors and industry leaders, youth can accelerate their learning curve and avoid common pitfalls in their entrepreneurial journey. Also, practical education in entrepreneurship is crucial for refining ideas and projects. Youth should be exposed to real-world business scenarios, market dynamics, and financial management principles through entrepreneurship education programs. Young individuals can enhance their entrepreneurial acumen and improve their chances of success in the business world by equipping themselves with foundational business skills.

Making good use of incubation services was also noted as something that is critical to aid in offering a supportive environment for young entrepreneurs to develop their ideas into viable businesses. These services provide access to mentorship, resources, networking opportunities, and infrastructure needed to nurture and grow startup ventures. By leveraging incubation services, youth can receive guidance and support at various stages of their entrepreneurial journey, from idea validation to market entry and beyond.

Question 3: What are the major challenges and opportunities for youth employability and development in STI?

In the realm of youth employability and developmental pathways within STI, a nuanced examination reveals a spectrum of challenges. Chief among the impediments is the obsolescence inherent in technology infrastructure, a pervasive hurdle that encumbers youthful innovators and obstructs their competitive edge in the digital era. This limitation poses a formidable barrier to the realization of their potential, constraining their capacity for transformative contributions. A glaring discrepancy lies in the lack of acknowledgment and support for innovation cultivated within the informal sector. Despite its propensity for substantial creativity and ingenuity, the informal sector remains relegated to the sidelines of formal recognition, thus inhibiting avenues for youth engagement and inhibiting broader socio-economic progress. Complementing these challenges is the dearth of robust mentorship networks, an essential cornerstone for nurturing talent, fostering resilience, and honing critical skills requisite for navigating the intricacies of entrepreneurship and innovation.

Without such guidance, the trajectory of youthful endeavours may falter, impeding the realization of their full potential.

Amidst these challenges, however, lies a vista of opportunities ripe for exploration and exploitation by the youth cohort within STI. A pivotal facet entails the provision of quality infrastructure tailored explicitly for Science, Technology, Engineering, and Mathematics (STEM) disciplines. Equipping youth with requisite tools and resources such infrastructure serves as a catalyst for unleashing innovation, propelling their capacity for transformative endeavors to unprecedented heights. Concurrently, governmental initiatives aimed at formalizing and integrating the informal sector into the broader economic fabric present a salient opportunity. By affording recognition and avenues for engagement, such initiatives unlock the latent potential harbored within the informal sector, thereby enriching the STI landscape and broadening the scope for youth involvement. Integral to this milieu is the presence of robust STI policy frameworks, which underpin a conducive ecosystem primed for nurturing youth-driven innovation. By delineating clear pathways and incentives, these frameworks serve as enablers, fostering an environment conducive to the translation of youthful creativity into tangible socio-economic outcomes. Augmenting these policy mechanisms are business support incubators, revered as bastions of mentorship, funding, and networking opportunities. By serving as crucibles for transformative ideas, these incubators provide a nurturing milieu wherein youth can cultivate their entrepreneurial acumen, catalyzing the realization of their innovative visions into tangible ventures.

Question 4: How can the government and development partners sustain youth employability and job creation?

To ensure the continued employability of youth and foster job creation, it is imperative for governments and development partners to implement a comprehensive array of strategies that capitalize on the immense potential of young individuals as catalysts for economic growth and innovation. Firstly, the allocation of youth-specific tenders by governments serves as a crucial mechanism for stimulating youth employment and entrepreneurship. By setting aside procurement opportunities tailored specifically for youth-led enterprises, governments can provide a level playing field for young entrepreneurs to showcase their capabilities and contribute to economic activity. This approach not only empowers youth but also injects dynamism and innovation into the marketplace.

Integrating youth representation within the organizational structures of businesses and development partners is essential for fostering youth empowerment. By actively involving young individuals in decision-making processes and operational activities, enterprises can leverage their unique perspectives and talents to drive innovation and productivity. This inclusive approach not only enriches the diversity of organizations but also nurtures a pipeline of skilled young professionals poised to shape the future economy.

Highlighting success stories of youth entrepreneurs and innovators serves as a powerful tool for inspiration and emulation. By showcasing tangible examples of youthful ingenuity and resilience, governments and development partners can instill confidence and ambition within the youth demographic, motivating them to pursue entrepreneurial ventures and contribute

to economic growth. This storytelling approach celebrates achievement and cultivates a culture of entrepreneurship and ambition among young people.

Furthermore, prioritizing youth as eligible recipients for grants and funding initiatives is essential for nurturing youth-led innovation. Development partners play a pivotal role in providing financial support and resources to young innovators, enabling them to transform their ideas into viable ventures. By investing in youth-led initiatives, development partners can unlock the transformative potential of young entrepreneurs, driving economic growth and job creation.

Encouraging youth participation in emerging technologies, such as Artificial Intelligence (AI), presents a promising avenue for fostering innovation and job creation. By equipping young individuals with the necessary skills and knowledge to leverage cutting-edge technologies, governments and development partners can position them as drivers of technological advancement and economic prosperity. This proactive approach not only prepares youth for the jobs of the future but also ensures their active participation in shaping the digital economy.

Finally, ensuring youth representation in the design and implementation of policies, programs, and initiatives is critical for fostering inclusivity and efficacy. By actively engaging young people in decision-making processes, governments and development partners can harness their insights, perspectives, and aspirations to craft targeted interventions that address the specific needs of youth. This participatory approach not only strengthens the legitimacy of policies but also fosters a sense of ownership and empowerment among young individuals.

5.6 Closing Remarks

In his closing remarks, Prof. Nicholas Ozor expressed sincere gratitude to their esteemed partners, the Mastercard Foundation and Afreximbank, for their unwavering support and commitment to advancing the cause of youth empowerment and sustainable development. He noted their enduring energy and dedication, even after a long day, exemplified the importance and urgency of their shared mission. Prof. Ozor extended appreciation to the hosts, the National Council for Science and Technology, for facilitating the event graciously. He acknowledged their collaboration with the Council and other partners, which had been instrumental in promoting science, technology, and innovation across Africa.

A special commendation was given to the grantees who fearlessly ventured into innovation and entrepreneurship. Prof. Ozor highlighted their pioneering work, from alternative bread-making in Nigeria to confectionary production in Ghana, as exemplifying the transformative potential of grassroots innovation. He particularly thanked Mr. Kimani for his steadfast partnership since 2011 and expressed anticipation for continued collaboration. He also thanked all stakeholders who contributed to the research and discussions, acknowledging their invaluable insights in shaping understanding and guiding actions. He emphasized the collaborative approach and unwavering support of their partners, the Mastercard Foundation and AFREXIMBANK, and highlighted their commitment to co-designing, co-implementing, and co-sharing results.

Addressing his dedicated team at the ATPS, Prof. Ozor expressed deep appreciation for their tireless efforts and unwavering commitment to excellence. He recognized the pivotal role of their national chapter coordinators across thirty countries, emphasizing their importance in ensuring effective program implementation. Concluding his closing remarks, Prof. Ozor urged continued collaborative effort towards their shared vision of creating meaningful opportunities for Africa's youth. He emphasized the significance of collective action in contributing to the Sustainable Development Goals and shaping a brighter future for generations to come. Prof. Ozor concluded by thanking all participants for their continued support and dedication.

6. Conclusion

It is evident that the collaboration between various stakeholders, including government institutions, development partners, and youth representatives, has been instrumental in addressing the challenges and harnessing the opportunities for youth employment, skills development, and innovation in Africa. Throughout the discussions and presentations, key themes emerged, highlighting the importance of inclusive policy formulation, effective institutional support, and the need for targeted interventions to empower young people. The insights shared by esteemed guests and participants underscore the significance of adopting a holistic approach that prioritizes youth inclusion, fosters entrepreneurship, and promotes collaboration across sectors. The engagement demonstrated a collective commitment to advancing the agenda of youth empowerment and sustainable development. Participants emphasized the need for continued collaboration, knowledge sharing, and capacity building to address the complex challenges facing African youth effectively. From the discussions and insights gained, it is imperative to translate recommendations into tangible actions that drive positive change. By harnessing the innovative potential of young people, investing in their skills development, and creating enabling environments for entrepreneurship, we can unlock opportunities for inclusive growth and prosperity across the continent.

ANNEXES

Annex 1: Workshop Programme for the Eastern Africa Stakeholder Engagement

Time	Activities	Responsibility
	Moderator: Alfred Nyambane, ATPS Programme Manager **Rapporteurs: Wentland Muhatiah, Research Officer, ATPS**	
08:00- 09:00am	Registration of participants	Susan Mburu
09:00 - 09:30am	**Welcoming remarks** • Executive Secretary, NCST • Executive Director, ATPS • Afreximbank • Mastercard Foundation	• Dr. Eugene Mutimura, NCST • Prof. Nicholas Ozor, ATPS • Mr. Adham Abdelaal, Afreximbank • Mr. Ibrahim Oanda
09:30 - 09:45am	**Opening Remarks:** Guest of Honour	**TBC**
09:45 - 10:30am	Paper presentation on: *The role of science, technology, and innovation (STI) as a means for enhancing youth employability, entrepreneurship, and job creation in Eastern Africa*	Prof. Nicholas Ozor, Executive Director, ATPS
10:30 - 11:00 am	• **Group Photo Session** • **Health break and Networking**	**All**
11:00- 11:30am	**Presentations by Grantees** -Muturi Kimani-TEXFAD Ltd, Uganda -Rahab Wangare- KEZA, Rwanda	
11:30-11:45am	**Question and Answer Session**	**All**
11:45am -12:20pm	**Panel Discussions** • Representative of the Ministry, Rwanda. • Dr. Roselida Owuor- Director, Ministry of Education Kenya • Lady Entrepreneur • Youth Entrepreneur • Young Researcher • Representative of Mastercard Foundation	Moderator: Alfred Nyambane, ATPS
12:20 - 12:30 pm	Facilitated Questions and Answers	
12:30– 12:00 pm	**Lunch and Networking**	**All**
2:00 - 3:00 pm	Breakout Sessions (Two groups) to address the following questions: 1. How do the STI policy and institutions support youth development, entrepreneurship and job creation? 2. How can the youth effectively harness the opportunities offered by STI to improve their skills,	**Chair:** Louis Sibomana, NCST

	create jobs, and become entrepreneurial? 3. What are the major challenges and opportunities for youth engagement and development in STI? 4. How can governments and development partners sustain youth employability, entrepreneurship, and job creation	
3:00- 3:30 pm	Plenary presentations of group work and Q&A	
3:30 – 4:00 pm	**Closing Remarks**	• Prof. Nicholas Ozor, ATPS • Mr. Ibrahim Oanda, Mastercard Foundation
4:00-4:30pm	**Health break, Networking, and Departure**	All

Annex 2: List of participants

	NAME	ORGANISATION	EMAIL
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26	Eugene Mutimura	NCST	
27	Diana Umulisa	NCST	
28	Louis Sibomana	NCST	
29	Sano Anselme	NCST	
30	Esperance Munganyika	NCST	
31	Kayumba Theogene	NCST	
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34	Ngoboka Francois	Chief Skills Officer, Rwanda Development Board (RDB)	
35	Mwambari Faustin	Ministry of Public Service and Labour)	
36	Ms Solange Tetoro	Director General Youth Empowerment (Ministry of Youth and Arts (MOYA))	
37	Musabirema Alexis	NUTRIFARM	alexismusabirema@gmail.com
38	Samantha Mugeni Niyoyita	SAND Technologies	niyoyitasamantha@gmail.com

Annex 3: Selected photos during the stakeholder engagement in Rwanda



Plate 1: Prof. Nicholas Ozor making opening remarks during the stakeholder engagement



Plate 1: Dr. Eugene Mutimura making opening remarks during the stakeholder engagement



Plate 2: Mr. Abdo making opening remarks during the stakehlder engagement



Plate 3: Prof Ayobami making opening remarks on behalf of Mastercard Foundation



Plate 4: Participants following presentations made by ATPS researchers during the stakeholder engagement



Plate 5: Group photo of participants who participated in the stakeholder engagement