

# **4<sup>th</sup> KIPPRA ANNUAL REGIONAL CONFERENCE**

## **Concept Note and Programme**



**Science, Technology, and Innovation in Enhancing  
Delivery of the Big Four Development Agenda**

**23<sup>rd</sup> – 25<sup>th</sup> June 2021, Nairobi, Kenya**



@ KIPPRAKenya

## 1. Background

Research has shown that countries that can steer Science, Technology, and Innovation (ST&I) processes towards knowledge-based economies, enjoy more economic growth and prosperity. Knowledge and innovation are key drivers for economies to become competitive in today's world market thus, countries could consider embarking on a knowledge-based and innovation-based development process. Kenya's Vision 2030 proposes intensified application of ST&I to raise productivity and efficiency levels across the social, economic, and political pillars of the Vision. The Constitution of Kenya 2010 as well explicitly places a premium on the generation and management of a knowledge-based economy. Nonetheless, the ST&I sector has been experiencing myriad of challenges, which have slowed down the development of a knowledge-based economy. Among the key challenges are a weak policy framework to facilitate effective integration of ST&I in all sectors of the economy, lack of integration or collaborations "Silo Mentality", inadequate funding for instance, although currently 2% of the national budget is supposed to fund ST&I, the amount has decreased over the years. Further, there has been perennial non-alignment of education and training curricula to industry needs which has led to skills mismatch and under-employment. It is for this reason that this conference is organized to bring together state and non-state actors to discuss progresses made, challenges faced and way forward in forging a common front to accelerate the gains of ST&I.

## 2. Objectives and Expected Outputs

The broad objective of the conference is to provide a forum for policy makers, implementers, data producers and data users to discuss the use of ST&I in enhancing delivery of the 'Big Four' Development Agenda.

The specific objective is to: 1. *Examine the human resource development relevant for ST&I in Kenya*, 2. *Assess the infrastructure and related policies to support ST&I in Kenya*, 3. *Evaluate the innovation system in Kenya*, 4. *Investigate the institutional system and economic incentives to promote ST&I in Kenya* and 5. *Determine the role of ST&I in building resilience in economic crises in Kenya*.

The conference is expected to generate the following outputs:

- i) **Enhanced knowledge sharing** on the status of ST&I for **future research**
- ii) **Lessons from good practices** across the national and county governments as well as at regional and global level;
- iii) **Networking** and partnerships with relevant stakeholders; and
- iv) **Communique** on harnessing ST&I in the achievement of the Big Four Agenda & Global Commitments.

## 3. Proposed Themes and Topics for Discussion

The themes selected for panel discussions capture critical aspects to consider while addressing issues associated with ST&I.

### Theme 1: Status with ST&I in Kenya

This theme focuses on the position of Science, Technology, and Innovation within the Kenyan context.

#### ***a. Investment in research and innovation by the public and private sector***

Research is a source of ideas and knowledge on development of new products and services by both the public and private sectors. New ideas and knowledge drive innovation that contributes positively to the economy through creation of new markets, diversification of goods and services, creation of job opportunities, expansion of government tax revenue, and economic growth of the country. The conference will provide an opportunity for researchers, policymakers, and actors in both public and private sectors to brainstorm investment gaps in research and innovation that should be bridged for sustainable development.

### ***b. Access to ICT***

Information and communication technology (ICT) drives innovation which is important in development of new products and services, and diversification of existing products and services. ICT supports businesses to be more efficient, effective, and prompt in responding to customer needs. The platform will bring together players in the ICT sector to discuss what needs to be done to enhance access to ICT in the country.

### ***c. FINTECH***

Financial technologies (FINTECHs) enhance efficiency of Small and Medium Enterprises (SMEs). They support financial inclusion, innovation in payment systems, diversification of credit markets, and insurance. The success of the MPESA mobile money platform in Kenya, for instance, has revolutionized digital trade while supporting job creation, sustainability of MSEs, and coverage of the large unbanked and underbanked market. The annual conference will spark debate on the various opportunities created by FINTECHs, and the needed policy environment to support the FINTECH ecosystem.

### ***d. E-commerce***

E-commerce supports digital trading. Its benefits include cost-reduction for businesses, the ability to reach out to more customers, enhanced access to regional and global markets, efficiency in serving customers, obtaining customer feedback and resolution of customer complaints, and enhanced business visibility. The platform will support dialogue on Kenya's e-commerce ecosystem in the wake of the COVID-19 pandemic which has disrupted traditional supply chains.

### ***e. Status of industrial technology***

Kenya is a leading technology and innovation hub in Africa. The country has witnessed investment in large-scale telecommunications infrastructure that supports efficient and affordable info-communications services. The infrastructure is critical in making Kenya globally competitive while creating an environment upon which businesses can integrate to evolving market dynamics for enhanced competition and diversification of the Kenyan economy. Under this sub-theme, public and private sector actors will have an opportunity to discuss how industrial technology could drive realization of the Big 4 Agenda on manufacturing and the large economic pillar under Kenya Vision 2030.

## **Theme 2: Policy, Institutional and Legislative Framework**

Within this theme, the stakeholders will deliberate on what makes a good ST&I policy objective, coordinating the institutional structures of ST&I as well as explore the importance of political economy of ST&I.

### ***a. What makes a good ST&I Policy objective?***

A National ST&I policy provides a conducive environment and incentives for investment and harnessing of ST&I for the attainment of a country's development objectives. The policy should aspire to align ST&I programmes to national development goals and market needs; improves technical competencies and institutional capacity for ST&I and R&D institutions; build a robust national innovation system (NIS) that entrenches product oriented multi-disciplinary approach to R&D; strengthens governance and management of the ST&I sector and institutions to make them more efficient and effective. It should also provide a sustainable financing framework for ST&I and protect knowledge production by strengthening intellectual property and regulatory regimes at all levels. For effective implementation of policy it is important to establish institutional and regulatory environments as well mechanisms to track performance of national innovation systems.

### ***b. Coordinating the institutional structures of ST&I***

A well-coordinated institutional system provides essential interactions among diverse groups of actors involved in the ST&I framework in pursuit of a common set of socio-economic goals and objectives for a country. ST&I



in Kenya is governed by the ST&I Act of 2013 as the overarching legal framework. The ST&I sector is regulated under various regulatory frameworks which have established various institutions mandated to carry out the relevant functions. Some of the key institutions include NACOSTI, NRE, KENIA, NEMA, KEPHIS, and KEBS among others. Good institutional structures have to ensure effective interactions among ST&I stakeholders including government, private sector and academia- what is often referred to as the 'triple helix'.

### ***c. The political economy of ST&I***

The important role of ST&I in achieving the development goals of world economies has been widely acknowledged. In Kenya the Vision 2030 has identified ST&I as a foundation for economic development. As a result, the Government is committed to increase expenditure on ST&I to 2% of the GDP. Noting that innovation and use of technology is driven by business and private investors, it is incumbent upon the government to provide fiscal and policy incentives to attract private sector investments in R&D and adopt technology use. Granted, investments in R&D are high risk and investors need government guarantee as a leverage to inject their funds in ST&I development and commercialization of innovations. Existence of a strong Intellectual property regime and promotion of consumption of local technologies are some of the strategies that can foster the growth of a knowledge-based economy. It is also important to note the increased liberalization of the global economy to make local innovations and technologies amenable to competition from advanced countries.

## **Theme 3: Development of Human Capital**

This theme gives attention to education, and the relevance of adequate skills as important drivers to create a knowledge-based economy.

### ***a. Does the education system matter?***

Through ST&I, Kenya economic blueprint envisages a modern economy, in which new knowledge plays a central role in wealth creation, social welfare and international competitiveness. Education and research are the key determinants of the ability to create a knowledge-based economy. The education sector provides a platform for harnessing knowledge and skills in ST&I for global competitiveness. Education and research system must be proactive in addressing the needs of industry to ensure effective synergy. The knowledge-intensive nature of science and technology requires highly qualified and skilled human resources. A pool of relevant and adequate skills must be available for knowledge absorption into the economy.

### ***b. The role of technology universities***

The university sub-sector has witnessed growth in the last decade due to establishment of new universities and expansion of the existing ones. Some universities have been dedicated as centres of excellence to develop national capacities in key national priority areas. There has been a derailed shortage of science equipment and modern facilities in learning institutions. There is shortfall in qualified and trained science teachers for imparting quality science education in schools. There is limited inter- institutional collaborations and partnerships to facilitate sharing of education and research resources. Therefore, investment in education infrastructure needs to come with deliberate focus on research and development.

### ***c. What can TVETS do in propelling ST&I?***

The growth in the education sector provides a platform for harnessing knowledge and skills in science, technology and innovation for global competitiveness and revitalization of the technical education subsector and the youth polytechnics. This will raise human capital capacity for research and innovation. Further, there is need for effective linkage between academia and industry in an environment that incentivises the adoption of research and development.

**d. *Is the skills level ready for ST&I?***

A large component of the programmes offered in Kenyan universities consists of arts and social science-based courses. There are fewer courses in Science, Technology, Engineering, and Mathematics (STEM) in the universities. Universities do not have enough sufficiently qualified faculty with the capacity to teach STEM related programmes of sufficient quality to meet required standards. Another issue is that costs associated with delivering STEM related programmes are higher than those associated with delivering courses in the social sciences and humanities because of the need to invest in expensive equipment needed in delivering STEM based programmes. There is need to dedicate specific institutions to support innovation in critical national development sectors. The Competency Based Curriculum fosters creativity in Science and mathematics resulting which will increase participation in STEM in secondary and tertiary levels.

**Theme 4: Building a strong innovation system**

Investing in Research and Development, Technology and Innovation process, patenting and intellectual property rights, i-labs, and innovation centers are the sub-themes considered for building a robust innovation system.

**a. *Investing in Research and Development for quality innovation***

Research and development play an important role in the innovation process. It enhances investment in technology and future capabilities which transform into new products, processes, and services. It is also key in developing new competitive advantages driving the economic transformation and development. With the current high unemployment rate in Kenya, investing in research and development will thus promote technical learning and innovations stimulating the structural changes, improving firm's competitiveness, and creating more jobs. Under this thematic area, the stakeholders will have an opportunity to engage on how to leverage on research and technology as a crucial component of innovation and highlight the options available for Kenya.

**b. *Technology and Innovation process***

The technological innovation process consists of a series of phases necessary to implement improvements or develop a new production process, product or service. They include basic research, applied research, development, engineering, manufacturing, marketing, promotion, and continuous improvement. The processes highlighted converts knowledge into useful products and services that have socioeconomic impact to the economy. Additionally, technology has been seen as a building block for technological innovations, serving as a cornerstone to research, design, development, manufacturing and marketing. The sub theme would thus provide a forum to highlight on how to integrate the inventions and existing technologies to bring innovations to the marketplace.

**c. *Patenting and Intellectual property rights***

The Fourth Industrial Revolution is a convergence of technologies. A patent gives the owner the exclusive rights to prevent others from manufacturing, using, or selling the protected invention in a given country. More than 70% of the world's technical information is published only in patent documents. Therefore, whether your interest is in research or product development, patent information is a resource that one cannot afford to ignore. The thematic area will provide a platform to engage on the best ways to avoid some of problems associated with patenting in making informed and realistic decisions about your intellectual property; unravel the uncertainties surrounding AI innovations that don't fit square within any categories we currently have of intellectual property aspects of artificial intelligence and explore how AI impact copy rights, trade secrets, databases and even trade law.

**d. *I-Labs and innovation centres***

Innovation centres and I-Labs are very key in driving innovation by developing commercially viable solutions to transform lives and spark new business opportunities in key sectors among them, manufacturing, affordable

housing, and food security. The centres have been also earmarked to drive Research and Innovation in Information Communication Technology towards achieving the Sustainable Development (SDGs) and Kenya's Vision 2030. The research centres involvement in interdisciplinary research, students' engagement, collaboration with government, industry and other agencies is important in driving the country's economic growth and development. The thematic area will provide a platform to engage on how to leverage on I-Labs and innovation centres towards enhancing Kenya's innovation ecosystem in creating new business opportunities and ensuring full commercial viability in providing solutions and services.

### Theme 5: Infrastructure in ST&I

Access to ICT, transport and special economic zones are the sub-themes that cover infrastructure.

#### *a. Access to information, communication, and technology system*

ICT provides the reach to high speed internet, mobile broad band, and computing, which collectively can catalyse economic growth and development. Kenya has made tremendous improvements in ICT development and enabled about 95 percent of the population gain access to ICT devices and equipment. The rate of economic growth has however not been commensurate with the rapid developments in ICT. Furthermore, while ICT has the potential to empower the youth and women, the progress in empowering them has been slower. The sub-theme would thus focus on how ICT can be harnessed to promote growth and development and empower the youth and women, reducing poverty, and more critically, how ICT can be better harnessed to promote ST&I activities in the region.

#### *b. Access to roads, energy, and water as enablers of ST&I*

Infrastructure has to do with the facilities and services that promote economic growth and development. This includes transport infrastructure (roads, railways, and ports), energy infrastructure, ICT, water and sanitation, health, housing, urban development, among others. Clearly, infrastructure is a prerequisite in creating and supporting business environment that facilitates investment, growth, and job creation. Kenya has also invested heavily in building critical infrastructure. This sub-theme is thus aimed at providing an understanding on the extent to which infrastructure development has translated to investment, growth, creation of jobs, and promotion of tourism. In addition, the sub-theme would help assess how ST&I has been leveraged to lead to the development of infrastructure in Kenya and in the region. Also, crucially, focus would be laid on how the identified infrastructure have performed as enablers for the development of ST&I.

#### *c. Special Economic Zones*

Special economic zones (SEZs) refer to a broad range of zones which include free-trade zones, export-processing zones, industrial parks, economic and technology-development zones, high-tech zones, science and technology parks, free ports, and enterprise zones. SEZs are effective instruments for helping a country to industrialise if well implemented. Kenya has had the SEZs since the 1970s. The session will therefore focus on the extent to which SEZs in Kenya have contributed to the manufacturing and industry sector, their roles in employment creation, protecting the environment and promoting green growth. In addition, the session will assess the application of ST&I in SEZs. Given the dismal performance of SEZs in sub-Saharan Africa, lessons would also be drawn on global experiences of SEZs and how they have translated to promoting industrial development

### Theme 6: Cross cutting issues

Under this theme, we have 3 sub-themes namely; availability and use of data, gender perspectives in technology and innovation as well as technology for persons with disability as cross cutting issues.

#### *a. Availability and use of ST&I statistics*

The availability of data is crucial for evidence-based decision making and informing policy. The ST&I sector in Kenya is however faced with inadequate or limited data availability as has been acknowledged in the draft

ST&I Policy for Kenya. Furthermore, there is limited institutional coordination. For instance, various actors each collect their own data for their own internal uses or for purposes of monitoring and evaluation. This sub-theme would thus help address the data collection, storing, dissemination and sharing for purposes of informing policy. Issues of institutional coordination for promoting the availability of statistics would also be explored.

### ***b. Gender perspectives in technology and innovation***

Gender equality has been highlighted as one of the 17 sustainable development goals (SDGs). Gender parity in ST&I is known to lead to better or effective ST&I policies and activities. This calls for an all-inclusive approach, the involvement of men and women in the ST&I platform. Despite several measures to enable women and girls as key players in ST&I, women and girls remain grossly under-represented in the ST&I field. The sub-theme thus focusses on the following key policy questions: What factors contribute to the continued existence of a gender-gap in ST&I? What are the challenges to effective gender mainstreaming? What can be done to ensure a gender-responsive approach to ST&I policies and activities? How can ST&I be leveraged to support women's development in critical areas such as food and nutrition, technologies in agricultural activities, energy, access to water, and healthcare?

### ***c. Technologies for PWDs***

Being abled differently, persons with disabilities (PWDs) need assistive devices and technologies that can enable them to perform like their peers who do not have disability. Technological innovations can empower PWDs, enable them function more effectively, and emancipate them from the lack of dignity and self-esteem, such as education and learning, participation in socio-economic activities, access to information and public services, and enhance their safety. The session therefore focusses on the availability and affordability of technologies for PWDs, application of ST&I to manufacturing of devices for PWDs. In addition, the aspect of participation of PWDs in Science, Technology, Engineering and Mathematics (STEM) related courses to mainstream them in ST&I.

## **Theme 7: Building resilience with ST&I**

This theme emphasizes on efforts in agricultural technologies, food security and nutrition, water, sanitation and waste management, blue economy and technology, sustainable cities and communities and disaster preparedness and the role of ST&I.

### ***a. Agricultural technologies and food security and nutrition***

One of the major global concerns in the twenty-first century is provision of sufficient, safe and nutritious food to all people. Over the years, the world is becoming increasingly food insecure due to population growth, climate change, volatile food prices, unequal food access and inefficient supply chains. With the growing demand for food, solutions need to be developed to feed a hungry nation. Technology plays a vital role at the heart of enhancing food productivity growth. To curb the rising food insecurity in the county, Kenya is focusing on the big 4 agenda to ensure that the country is a food secure nation. The purpose of the thematic area is to provide a platform to engage on how to identify appropriate technologies and build the research and development support systems. Additionally, engagement on role played by the public sector in supporting the implementation of new technologies.

### ***b. Water, sanitation, and waste management***

Provision of safe water, sanitation and hygienic conditions is essential to protecting human health especially during the infectious disease outbreaks like Covid-19. In Kenya, access to safe water, sanitation and hygienic conditions remain a challenge. Only 32 percent of the rural population have access to improved sanitation of which 72 percent predominantly consist of simple pit latrines providing varied degrees of safety, hygiene, and privacy. Solid waste management remains a major environmental hazard in Kenya. This sub-theme would thus help explore on the opportunities of ST&I to address the challenges faced in access to safe water, sanitation, and hygienic conditions.



### ***c. Blue economy and technology***

Blue economy and technology explore how innovators can develop the right business models to capitalise on the growth opportunities. This sector is huge and includes offshore renewable energy, ports and harbours, shipping, maritime surveillance, cyber security, aquaculture, and ocean conservation. Importantly, 70 per cent of the planet is covered by water, and 90 per cent of global economic trade is transported by sea. The world's seas and oceans present a big business and an important sector to generate more income and create more employment opportunities. The sub theme will thus bring together policy makers to discuss how technology can be utilized to harness the benefits presented by the blue economy and have a deeper understanding on the implementation of the Blue Economy concepts.

### ***d. Sustainable cities and communities***

Urbanization has led to increased pressure on the environment while accelerating demand for basic services, infrastructure, jobs, land, and affordable housing. The increase in rural urban migration has led to a boom in mega-cities including Nairobi, Mombasa, and Kisumu. The high concentration of people in the cities has caused an increase in the poverty levels as the government struggles to accommodate the increasing population. To ensure safety in the cities, the government is working towards ensuring access to safe and affordable housing and upgrading slum settlements among other projects including investment in public transport, creating green public spaces, and improving urban planning to ensure sustainability. This sub theme will thus create a platform on how to efficiently use the available resources in making the cities sustainable by leveraging on ST&I.

### ***e. Disaster preparedness and the role of ST&I***

Information and Communication Technologies (ICTs) play a crucial role in disaster management. Timely, predictable, and effective information is vital to the actors involved in rescue operations and decision-making processes. Information systems are key in enhancing situational awareness as well as two-way communication through recording, exchanging, and processing information. ICTs play a critical role in facilitating the flow of vital information in a timely manner thus minimizing the disaster risk. Countries have embraced the setting up of early warning and monitoring systems and the provision of emergency telecommunications equipment when disasters strike. This sub thematic area will thus focus on the role of ST&I in disaster management at all stages (mitigation, preparedness, response and relief, recovery and rehabilitation).

## **Theme 8: Industrialization and ST&I**

The focus under this theme will be on industrial development in the Science, Technology, and Innovation spaces.

### ***a. Are we ready for 4th Industrial Revolution?***

Kenya is poised to tap into the benefits of the 4<sup>th</sup> industrial revolution that promises to transform production, management, and governance systems. Breakthroughs in emerging technologies that include artificial intelligence, robotics, internet of things, autonomous vehicles, nanotechnology, biotechnology, and quantum computing promise to fundamentally transform Kenya's economy. Technological advancements have improved efficiency and productivity of global supply chains, which have consequently reduced trading costs, opened new markets, and supported economic growth. The 4<sup>th</sup> KIPPRA annual conference brings together stakeholders from public and private sectors to discuss Kenya's policy environment as a key building block for the 4<sup>th</sup> industrial revolution.

### ***b. Artificial intelligence***

Kenya was the highest-ranking African country in the 2019 Government Artificial Intelligence (AI) Index at position 52. Despite presenting opportunities attributable to automation efficiency, AI presents threats to traditional jobs like truck drivers, customer service representatives, financial analysts, and lawyers. Investment in research and development for context-specific artificial intelligence is needed to spur the Kenyan economy towards enhanced diversification. Under this sub-theme, stakeholders will have an opportunity to discuss how the public and private sector can harness artificial intelligence for improved diversification of the Kenyan economy.



### **c. *SMEs and ST&Is***

Science, technology, and innovation are associated with enhanced performance and survival of SMEs. Adoption of ST&Is supports product and service diversification, operational efficiency, and enhancement in total factor productivity. Particularly, ST&I is central to the realization of 15% contribution of manufacturing to Kenya's GDP in line with the Big 4 Agenda and Vision 2030. Under this sub-theme, ideas on how ST&I can be harnessed for enhanced sustainability of SMEs in Kenya will be discussed.

## **The Youth Event**

The youth are an essential component of a nation's development, owing to their large numbers, their energy, vibrancy, creativity and innovativeness, and other productive potential. Therefore, this theme will investigate ways of engaging the youth through 3 sub-themes: opportunities for youth within ST&I, commercializing innovations and youth activities.

### **a. *Opportunities for youth with ST&I***

In Kenya and globally, the youth have a valuable role to play in helping to achieve the country's development agenda as outlined in the Big 4 and the Kenya Vision 2030. If well tapped, trained and mentored, the youth can benefit themselves and the other segment of the population through ST&I. For example, the youth constitute about 32 percent of Kenya's population, which translates to a large workforce. A discussion with a cross-section of university students and other youth will dwell on their sentiments about their potential, the investment opportunities they need to succeed in the ST&I field, the training and mentorship opportunities available for them to explore on ST&I, their participation in the agenda-setting for ST&I, and how to address the constraints that they face in wanting to innovate, and how youth can harness ST&I for job creation, entrepreneurship and empowerment.

### **b. *Commercializing innovations***

Inventions, innovations, and new technologies should translate to economic or social benefits or returns to the producers. Finished products and services should access the market where exchanges or transactions can take place. An understanding of the markets for inventions and innovations is therefore key. In addition, an understanding of the commercialization process and pathways towards commercialization would aid in addressing any existing gaps. The sub-theme will also highlight the roles played by innovation hubs, incubation Centres and technology transfer centres in helping commercialize innovations, financing and other support for commercialization, and adaptation and uptake of innovations. An assessment of lessons or best practices for commercializing innovations would also be discussed.

### **c. *Youth Activities***

The youth will benefit from a mentorship session with professionals in the ST&I field on their role in promoting and using ST&I for development and empowerment. A talk on promotion of youth agency in ST&I, and a youth session on how other youth are making progress in ST&I. Songs and spoken words or entertainment will be delivered based on the subject, and a display of exhibitions of some of the innovations developed.

## **4. Venue, Date and Format**

The conference will be held in **Nairobi County, Kenya from 23<sup>rd</sup> to 25<sup>th</sup> June 2021.**

The format of the conference is designed to appeal to the interests of a multi-disciplinary audience and to maximize the interaction of participants and networking. For this reason and in keeping with the theme of Science, Technology and Innovation, a hybrid conference, both physical and online conferencing, will be implemented.

**Plenary sessions:** All panels will have presentations to guide the discussion. The thematic areas will form the plenary discussions. Keynote speakers necessary for initiating plenary sessions will be identified based on the objectives of the conference and the discussion main issues will be drawn to feed into breakaway sessions.

**Side events & Break away groups (BAGS):** Breakaway sessions and side events enable direct interactions among participants. Within each workshop, there will be an opportunity to explore technical assistance needed in overcoming the challenges and barriers, linked to the theme of each group.

**Exhibitions:** Exhibitions will be self-financing side events aimed at attracting relevant stakeholder providers and users from all over the world to network, provide advice, educate, and showcase products and technologies relevant to the theme of the conference.

*'Summing up'* sessions will bring delegates together to summarize the outcomes of the debate in thematic working forums. Rapporteurs from each group will briefly summarize the workshop discussions and highlight the key issues and potential solutions as well as examples of transferable practice.

*'Key lessons and way forward'* session will offer a facilitated debate and reflections on the key messages emerging from the conference. A conference communique will be drafted for adoption at the close of the conference.

## 5. Target Audience

The conference will bring together over 400 participants both physically and virtually from around the globe. The participants will be constituted of representation from the public, national and county governments, policymakers, development partners, Universities, and research institutions in addition to key personalities.

## DAY 1: Wednesday, 23<sup>rd</sup> June 2021

|   |   |
|---|---|
| 7.00 am   | Arrival and Registration  |
| 8.15 am   | Prayers   |
| <b>OPENING REMARKS</b>  |   |
| 8.30 am   | Conference Overview: Setting stage for Science, Technology, and Innovation in Enhancing Delivery of the Big Four Development Agenda<br>ST&I, Law, and the Constitution: What We Need to Know , ST&I Regulatory Framework & National Research Priorities, The Role STEM Education in Enhancing ST&I<br>Facilitating the Development of Information & Communication Sector, Regulations & Standards University Education & Research-Policy & Management |
| 10.00 am  | INTERLUDE AND REFRESHMENT BREAK   |
| <b>10:30 am – 4:30 pm YOUTH'S SIDE EVENT (ANNEX 1: PROGRAMME) &amp; EXHIBITIONS</b> |   |
| <b>THEME 1: STATUS OF ST&amp;I IN KENYA</b>   |   |
| <b>PLENARY SESSION 1.1 – Status of ST&amp;I in Kenya</b>                            |   |
| 10:30 am  | Trend in ST&I in East and Central Africa; Access to ICT; FINTECH; E-commerce; Status of Industrial Technology (MoITED);   |
| <b>PLENARY SESSION 1.2 – Policy, Institutional and Legislative Framework</b>        |   |
| 11:50 am  | What makes a good ST&I Policy Objective? Coordinating the Institutional Structures of ST&I; The Political Economy of ST&I<br>Role of Ombudsman & Governance in the Promotion of ST&I Program, Policies & Practices<br><a href="#">Linking Jua Kali to Modern Technology and Innovation for Wealth Creation</a>  |
| 13:00 am  | KABARAK CHOIR PERFORMANCE<br>LUNCH BREAK<br>ENTERTAINMENT   |
| <b>BREAK AWAY GROUPS</b>  |   |
| 2:00 pm<br>- 4:30 pm  | BAG 1.1 (Group 1A) – Policy, Institutional and Legislative Framework<br>BAG 1.2 (Group 1B) – Development of Human Capital<br>BAG 1.3 (Group 1C) – Building Robust Innovation Systems  |
| <b>THEME 2: DEVELOPMENT OF HUMAN CAPITAL</b>  |   |
| <b>PLENARY SESSION 2.1 Education</b>  |   |
| 2:00 pm   | Educational System and ST&I; Development of Human Capital Resource in Nuclear Power and Reactor Programme; How Skill Development Can Build Industry; Access to Education in 4 <sup>th</sup> IR<br>STEM Education on sustainable socio-economic development; Re-tooling and Upgrading Skills to Match Industry Expectations: Key Lessons from Strathmore University on Capacity Building on Emerging Technologies                                      |
| 3:30 pm   | REFRESHMENT AND ENTERTAINMENT   |
| 4:30 pm   | PRESENTATION FROM THE BAGS AND STUDENT'S SIDE EVENT   |
| KU CHOIR PERFORMANCE  |   |

## DAY 2: Thursday, 24<sup>th</sup> June 2021

| THEME 3: BUILDING A STRONG INNOVATION SYSTEM           |  |
|--|--|
| 8:15 am  | PRAYERS<br>RECAP OF DAY ONE: <i>Key Highlights</i>   |
| PLENARY SESSION 3.1 – Innovation Systems               |  |
| 8:30 am  | Investing in Research and Development (R&D) for quality Innovation in Kenya; Media Coverage of ST&I for PWDs; Innovation in Assistive Technology   |
| PLENARY SESSION 3.2 – Health Systems                   |  |
| 9:30 am  | Role of ST&I on health care; Building Resilience in the Public Health Sector; Data Integration and Sharing; eHealth Implementations in Kenya; Innovation for cure for cancer; Impact of Technology on Health Care  |
| 10:30 am   | INTERLUDE AND REFRESHMENT BREAK  |
| SPECIAL SESSION 1 – OFFICIAL OPENING OF THE CONFERENCE |  |
| 11:00 am   | Entertainment by <i>KIPRA Choir</i> ; Recap of Conference Agenda & Welcoming Remarks<br>Opening Remarks: <i>Dr Linda Musumba, KIPRA Board Chair</i><br>Welcoming Remarks and Invitation of the keynote speakers and the Chief Guest<br>The Importance of Education Systems in Development of Human Capital ST&I<br>Role of ST&I in Enhancing Food Security and Nutrition in Kenya<br>Keynote Address and Official Opening                      |
| THEME 4: INFRASTRUCTURE                                |  |
| PLENARY SESSION 4.1 – ST&I Infrastructure              |  |
| 12:00 noon   | Access to Information, Communication, and Technology System; Role of ICT from PWDs Perspective; Role of Technology and Innovation Hubs in Propelling ST&I Agendas<br>Deploying IoT Beyond Cities through Innovative Broadband Networks – The Opportunity of TV White Spaces; Infrastructure Development Pertaining PWDs; Cyber Security Threats and Capacity Building to Address potential challenge in the implementation of the Big 4 Agenda |
| 1:00 pm  | LUNCH BREAK  |
| BREAK AWAY GROUPS                                      |  |
| 2:00 pm<br>- 4:30 pm                                   | BAG 1.1 (Group 1A) – Infrastructure<br>BAG 1.2 (Group 1B) – Building resilience with ST&I<br>BAG 1.3 (Group 1C) – Cross Cutting Issues   |
| THEME 5: CROSS CUTTING ISSUES                          |  |
| PLENARY SESSION 5.1 – GENDER, PWDs, YOUTH              |  |
| 2:00 pm  | Mainstreaming a Gender Perspective in Science, Technology, and Innovation; Opportunities for the youth in ST&I; Technologies for Persons living with Disabilities  |



| PLENARY SESSION 5.2 – ST&I DATA AND STATISTICS |  |
|--|--|
| 3:20 pm  | Availability and use of ST&I Statistics; Role of data protection in ST&I Sector; Big Data and its role in ST&I; Big Data Analytics for the Big 4 Agenda: Evidence /Data Driven Interventions |
| 4:20 pm  | REFRESHMENT BREAK  |
| 4:40 pm  | PRESENTATIONS FROM THE BAGS  |
| NITA CHOIR PERFORMANCE                         |  |

### DAY 3: Friday, 25<sup>th</sup> June 2021

| 8:15 am  | PRAYERS<br>RECAP OF DAY TWO: <i>Key highlights</i>   |
|--|--|
| THEME 6: BUILDING RESILIENCE THROUGH ST&I        |  |
| PLENARY SESSION 6.1 – BUILDING RESILIENCE        |  |
| 8:30 am  | Status of Disaster Preparedness in Kenya; Disaster Preparedness and the Role of ST&I; Research and Impact on COVID 19 Pandemic; Building resilience with ST&I                |
| PLENARY SESSION 6.2 – AGRICULTURE                |  |
| 9:30 am  | Role of ST&I in Agriculture Sector Growth and Transformation; Agricultural Technologies and Food Security; Technologies on Scaling up Nutrition; Blue Economy and Technology |
| 10:30 am   | INTERLUDE AND REFRESHMENT BREAK  |
| PLENARY SESSION 6.3 – HOUSING                    |  |
| 11:00 am   | The Role of ST&I in Affordable Housing in Kenya; Waste management in relation to ST&I; Sustainable Cities and Communities  |
| PLENARY SESSION 6.4 – INDUSTRIALISATION AND ST&I |  |
| 12:00 noon                                       | Are we ready for 4th Industrial Revolution?<br>Artificial Intelligence<br>SMEs and ST&I<br>The launch of KIBO satellite  |
| 1:00 pm  | LUNCH BREAK  |
| SPECIAL SESSION 2 – WRAP UP AND WAY FORWARD      |  |
| 2:00 pm  | Discussions and Conference Resolutions - Presentation of Conference Communique<br>Vote of Thanks<br>Closing Remarks<br>Official Closing                                      |
| 4:00 pm  | REFRESHMENT BREAK  |
| GUESTS LEAVE AT THEIR OWN PLEASURE               |  |

**YOUTH SIDE EVENT – DAY 1: Wednesday, 23<sup>rd</sup> June 2021**

| PLENARY SESSION (SE_1) – SCIENCE, TECHNOLOGY, AND INNOVATION (ST&I) IN ACADEMIA |  |
|---|--|
| 10:00 am  | <p>Youth Empowerment through ICT</p> <p>Commercializing Innovations to Enhance Opportunities for Youth in ST&amp;I (Entrepreneurships, Patenting, Job Creation)</p> <p>Promoting the Agency and Participation or Engagement of Youth in Matters of ST&amp;I</p>  |
| PLENARY SESSION (SE_1) – Science, Technology, and Innovation (ST&I) in Academia |  |
| 11:00 am  | <p>The Link Between Innovation, Entrepreneurship and the Big 4 Agenda among the Youth</p> <p>Admissions and Student's Participation in ST&amp;I Activities</p> <p>Design of ST&amp;I Courses in Institutions of Higher Learning</p> <p>Investing in the Youth Through ST&amp;I Initiative</p>  |
| PLENARY SESSION (SE_1) – Science, Technology, and Innovation (ST&I) in Academia |  |
| 12:00 noon  | <p>Personal Branding and Emotional Intelligence</p> <p>Perceptions and Attitudes of Students and Teaching Staff on ST&amp;I Courses</p> <p>Financing of ST&amp;I in Higher Education</p>   |
| 1:00 pm   | LUNCH AND ENTERTAINMENT  |
| PLENARY SESSION (SE_2) – CAMPUS LIFESTYLE, CHALLENGES AND COPING MECHANISMS     |  |
| 2:00 pm   | <p>Campus Life and Strategic Planning by Youth</p> <p>Students' Mental Health and Technology</p> <p>Sexual and Reproduction Health</p> <p>Drug and Substance Abuse among Students</p> <p>Gender Based Violence in Campus</p>   |
| 3:10 pm   | REFRESHMENT BREAK AND ENTERTAINMENT  |
| PLENARY SESSION (SE_) – YOUTH EMPOWERMENT AND ENGAGEMENT                        |  |
| 3:30 pm   | <p>Career Networking and Challenges Faced in Transitioning into the Workplace</p> <p>CV Writing and Pitching/Matching Jobs</p>   |
| ABSTRACTS PRESENTATIONS   |  |
| 3.45 pm   | <p>Development of Human Capital: School Curriculum Utilization in Optimization of Science Technology and Innovation in Development of Human Capital</p> <p>Cross Cutting Issues: Stem-Driven Education System: Bringing More Women on Board</p> <p>Infrastructure: Dissemination of Information to Farmers through ICT</p> <p>Social Media Activation: Facebook, Twitter, LinkedIn, Instagram and YouTube</p> <p>Plenary Session</p> |
| 4.45 pm   | Recognition of Students Essays   |
| 5.15 pm   | PRESENTATION FROM THE YOUTH SIDE EVENT (in the Main Plenary)   |
| ENTERTAINMENT: MUSIC  |  |
| BACKGROUND MUSIC  |  |

KIPPRA ANNUAL REGIONAL CONFERENCE 2021 | 15



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