REPUBLIC OF RWANDA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

ncst National Council for Science and Technology

Insight into Research Outputs for National Socio-Economic Development

NCST Quarterly Newsletter - Issue No: 10 - October - December 2023

PREAMBLE: This edition explores advances in scientific and technological innovations including presentation of research outputs aimed at propelling national socio-economic development. It begins with key insights derived from the 8th NCST Council Meeting and a preceding symposium, showcasing research presentations of selected Rwandan researchers. The focus is also on Rwanda National Research and Experimental Development (R&D) Survey reference to fiscal year 2022/2023. The issue further provides an overview of the NCST-conducted workshop in collaboration with stakeholders, addressing the challenges and opportunities of harnessing data in Rwanda. A special emphasis is placed on NCST's active participation in various stakeholder functions and activities.

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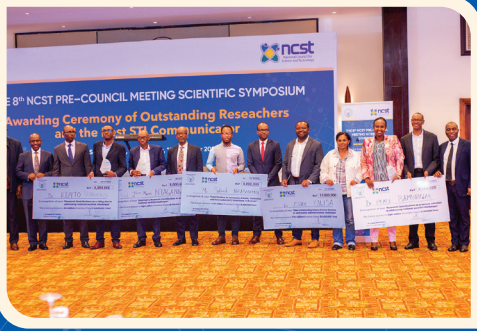

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The 8th NCST Council Meeting and its key recommendations

Eugene Mutimura[1] , Sano Anselme[1], Japhet Niyobuhungiro[1], and Diana Umulisa[1]
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1. Background

On October 19 2023, the 8th National Council for Science and Technology (NCST) Council Meeting took place at Marriot Hotel Kigali. It was preceded by pre-council meeting Symposium on 18th October 2023 at Serena Hotel Kigali. The symposium theme was ***"Insight into existing research programs by priority areas in Rwanda".*** There were presentations that included research funded by private sector, non-for-profit organizations, national public institutions, and National Research and Innovation Fund (NRIF), which is currently financing over 120 research projects. The symposium and the NCST Council Meeting have goals.

2. Purpose and goals

The purpose of the Symposium was to provide a platform for scientific presentations by researchers and innovators to engage in insightful discussions, network, share ideas, create new ideas, and ignite motivation through awards to best scientists, with specific goals:

1. Share
key progress activities, plans, challenges and opportunities for integrating Science, Technology and Innovation (STI) in national programs.

2. Deliberate
on stakeholders' roles to enable improved collaborations and exchange of best scientific practices.

3. Examine
and appreciate existing research projects tailored to national and global context.

4. Shape
sustainable solutions and strategies to become a regional hub for R&D and innovation attracting African and global researchers and innovators.

3. Proceedings

On 19th October 2023 the Council members held a courtesy meeting with The Right Hon. Dr. Édouard Ngirente The Prime Minister of The Republic of Rwanda (**Photo 1**).

Photo1: On 19th October 2023, NCST *Council Members held a courtesy meeting with The Right Hon. Prime Minister of the Republic of Rwanda*

The goal of the meeting with the Right Hon. Prime Minister was for the Council members to provide an update of key achievements by NCST Secretariat, and to obtain guidance. The Council members also highlighted the need for NCST staff capacity strengthening according to six (6) STI Policy priority areas to efficiently support the Secretariat role of coordination with various Ministries and institutions.

The Council members also briefed The Right Hon. Prime Minister on the scientific presentations that were presented at the Pre-Council Meeting Symposium in six (6) priority areas; namely Sustainable Energy, Food Security and Modern Agriculture, Life and Health Sciences, Local Production and Value Addition, Digital Services, Products and Lifestyles; and Resilient Environment and Climate Change. In addition, they also briefed him on a panel discussion that focused on ***"Exploring the World of Emerging Technologies in Space Science, Agriculture and Environment".*** The symposium was important because it featured over 30 prominent Rwandan researchers and scientists presenting some of their ground-breaking research outputs in form of abstracts and poster presentations to an audience of over 200 people (**Photo 2**).

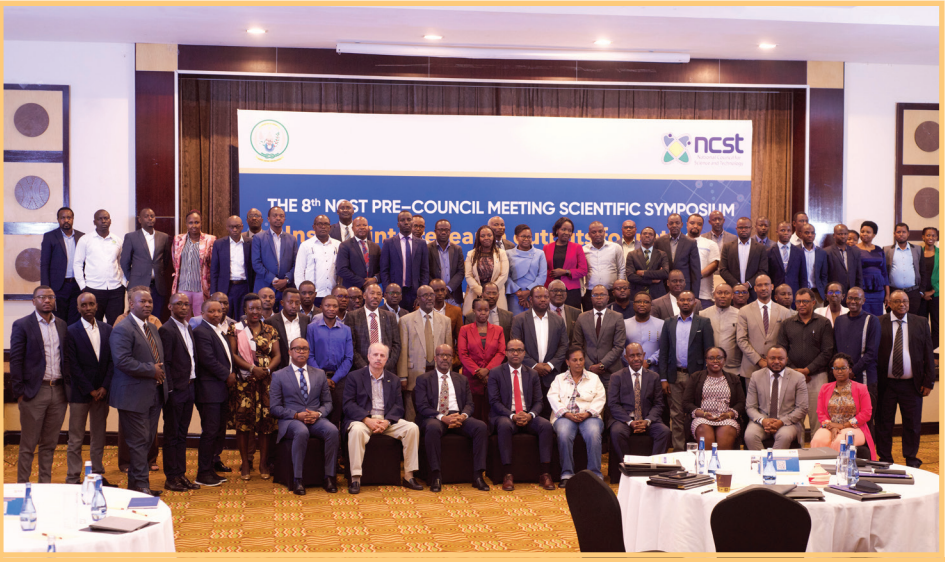

Photo2: On 18th October 2023: *Some participants at the symposium on* ***"Insight into existing research programs by priority areas in Rwanda".***

The symposium was an opportunity to stimulate competition where annual prestigious awards were presented to best national researchers and innovators at a well-publicized gala dinner. The awards included: a) **Most Accomplished Researcher Award** b) **Most Innovative Researcher Award** c) **Women Researcher Award** d) **Promising Young Researcher Award;** and e) **Best STI Communicator Award**

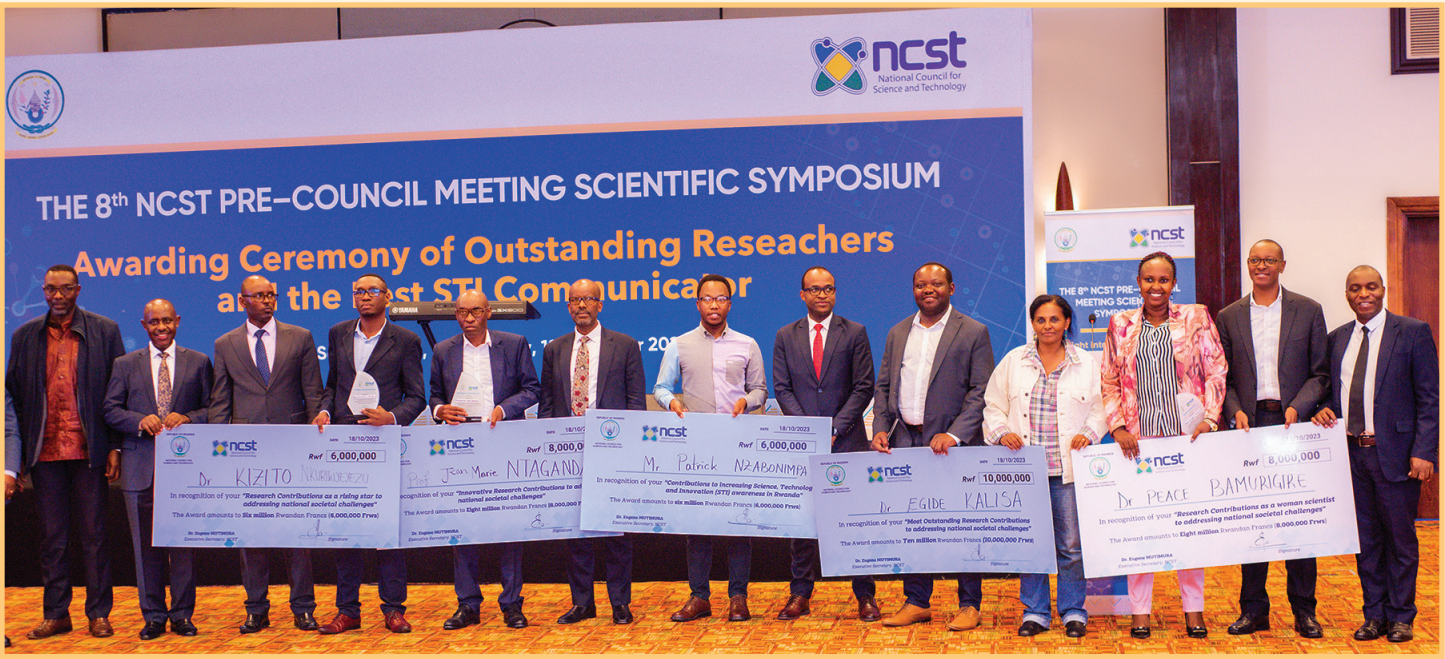

Photo3: Award winners for *a) Most Accomplished Researcher Award* ***(Awarded to Dr. Egide KALISA);*** *b) Most Innovative Researcher Award* ***(Awarded to Dr. Jean Marie NTAGANDA);*** *c) Women Researcher Award* ***(Awarded to Dr. Peace BAMURIGIRE);*** *d) Promising Young Researcher Award* **(Awarded to Dr. Kizito NKURIKIYEYEZU);** *and e) Best STI Communicator Award* **(Awarded to Patrick NZABONIMPA)**

4. Conclusion

The NCST Council adopted and approved action plan for 2024/25, and approved NCST 5-year Strategic Plan 2023-2028, a roadmap for achieving the NCST core mandate as enshrined in the law n° 40/2017 of 16/08/2017 establishing the National Council for Science and Technology (NCST). Moreover, the NCST Council provided key recommendations to the secretariat which aim at improving the National Innovation outputs leading to impact on the society.

Received an update on key achievements, adopted and approved action plan for 2024/25

The Council approved NCST 5-year Strategic Plan 2023-2028

The Secretariat to coordinate implementation of a study between icipe and RBC on Malaria transmission-blocking microbe discovered in mosquitoes in Kenya by specifically by advocating for a budget to scale up the project from both public and private sources.

On implementation of blockchain technology AI tools for traceability and cashless payments in the mining sector, the Secretariat to work with RMB and involve Rwanda coding academy and add progress and indicators in the plan

It was recommended that there is increase funding for research and development (R&D) from all sectors, and incentivize researchers increase the proportion and quality of R&D and allow smooth implementation of various identified grant schemes

The Secretariat to implement recommendations of Rwanda Law Reform Commission (RLRC) on Instructions & Regulations on Research Activities in Rwanda.

Develop a strategy to leverage on the diverse expertise of council members through boosting data sector for development in Rwanda

It was recommended that the Secretariat improves National Innovation output through benchmarking on proven innovations elsewhere and customize to Rwandan context

Rwanda National Research and Experimental Development (R&D) Survey Reference Fiscal Year 2022/2023

Japhet Niyobuhungiro[1] and Theogene Kayumba[1]

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1. Background and Rationale

Rwanda envisions a knowledge-based, service-oriented, and innovation-led economy to achieve upper middle-income status by 2035 and become a high-income country by 2050. Research and Experimental Development (R&D) play a pivotal role in this transformation. The government, through strategic initiatives and the Science, Technology, and Innovation (STI) Policy, aims to strengthen the R&D and Innovation Ecosystem. The Government of Rwanda is actively investing in research and innovation, evident through the establishment of the National Research and Innovation Fund (NRIF) to support researchers and innovators in addressing social, economic, and environmental challenges, among other several strategic initiatives aiming at building an efficient national innovation system.

The overarching goals for the Vision 2050 namely Economic Growth and Prosperity, and High Quality and Standards of Life for Rwandans require Research and Development and Innovation as key pillars to be achieved. In this regard, the government of Rwanda will increase investments in Higher Learning Education to build capacity in Research and development, undertake concerted efforts to strengthen linkages between the academia and industry. More specifically Gross Domestic Expenditure on Research and Development as a proportion percentage of GDP will increase up to 1.5% by 2035 and 3% by 2050, and break into top ranking countries in innovation globally.

2. Rwanda National R&D Survey

R&D statistics are crucial for benchmarking national performance, monitoring innovation, and aligning with global development targets and indicators. In this regard there is a need for periodic collection of R&D statistics in order to enhance the impact and efficiency of research and development (R&D) investments.

The National Council for Science and Technology (NCST) is conducting the Rwanda National Research and Experimental Development (R&D) Survey for the reference fiscal year 2022/2023, building on previous surveys conducted in 2015/2016 and 2018/2019. The survey encompasses the business enterprise, government, higher education, and private non-profit sectors, aligning with the sector categorization recommended by the Organization for Economic Cooperation and Development (OECD) in the Frascati Manual. The methodology prioritizes national context relevance and digitization, utilizing digital questionnaires and Database Management Systems. The survey focuses on four main dimensions of R&D: Expenditure, Funding, Personnel, and Output.

The survey findings provide informed policy recommendations to the government, and is instrumental in guiding research planning, evidence-based policy formulation, and strategic decision-making for putting in place strategic interventions to bolster the national research performance.

3. Objectives of the R&D Survey

The primary goal of the National R&D Survey is to evaluate the research and development (R&D) status of the country using internationally recognized core indicators. The survey aims to monitor the performance of the country's investment in Science, Technology, and Innovation during the reference year 2022/23. The survey findings will serve as a foundation for identifying needs and implementing strategic interventions to support and enhance research performance, thereby contributing to industrial development. Specific objectives include determining R&D expenditure across the four sectors, as well as overall Gross Domestic Expenditure on R&D (GERD) and the country's R&D intensity which is the GERD as a proportion percentage of the Gross Domestic Product (GDP), among others.

Figure 1: Training of R&D Survey Enumerators by NCST in collaboration with experts from the Office of Science Technology and Innovation at AUDA-NEPAD.

Harnessing Data Science in Rwanda: A consultative Meeting on Challenges and Opportunities

Felly Kalisa [1], Japhet Niyobuhungiro[1], Theogene Kayumba, Diana Umulisa[1] and Marie Chantal cyulinyana[1]

[1]National Council for Science and Technology, Rwanda

On 9th November 2023, the National Council for Science and Technology (NCST) facilitated a consultative meeting with key stakeholders on national data ecosystem to enhance big data technologies for informed decision making. The meeting took place at the sideline of Data Science for health Discovery and innovation in Africa (DS-I-Africa) that took place in Kigali. This is in line with Rwanda's Vision 2050 where data science is one of key emerging technologies to support national vision for a competitiveness economy to drive growth in income and welfare. This shall be enhanced by fostering excellence and scale in Research and Development (R&D) and technology-led industrial growth to become a regional hub for innovations. Rwanda continues to strengthen human capital development, robust private sector empowerment and accountable institutions to advance self-reliance. Rwanda aspires to be among: i) the top 10 countries in doing business in 2035; ii) the top 20 economies in economic competitiveness by 2035; and iii) the top 10 countries in global economic competitiveness by 2050.

In order to achieve this status, data-driven economy is imperative. To boost the data sector, Rwanda has made substantial investments in developing robust data infrastructure and governance mechanisms to promote the use of technology and data in different sectors. These include i) well developed policies; ii) institutional development; iii) infrastructure and iv) R&D human resource development, among others. These investments are at various institutions such as National Institute of Statistics Rwanda (NISR), Center for the Fourth Industrial Revolution Rwanda (C4IR), Rwanda Utilities Regulatory Authority (RURA), National Data Centre, and Centers of Excellence at University of Rwanda (UR), among others.

In addition, there are R&D funding instruments such as National Research and Innovation Fund (NRIF) Rwanda Innovation Fund (RIF) to support and boost innovations growth.

Leveraging on the aforementioned investments, Rwanda shall continue to prioritize and focus on big-time investment in big data initiatives that foster application of novel technologies such as data storage, data mining, data analytics, and data visualization; as well as to foster use of emerging/frontier technologies and innovations for socio-economic development. These technologies include Internet of Things (IoT), artificial intelligence (AI), Machine Learning, 3D printing, and nanotechnology solutions.

On 9th November 2023, the National Council for Science and Technology (NCST) invited key stakeholders to a consultative meeting on national data ecosystem to enhance big data technologies for informed decision making.

The objective of the meeting was to provide a platform to stakeholders to share, deliberate and brainstorm on existing policies, strategies, programs and activities to develop a strategy for data use in the field of frontier technologies such as AI and IoT to inform Rwanda's socio-economic development. Various institutions participated in the meeting. These institutions include, Ministry of Health, Rwanda Biomedical Center (RBC), Centre for the Fourth Industrial Revolution, Rwanda Information Society Authority (RISA), Irembo Rwanda, Rwanda Utilities and Regulatory Agency (RURA), and Rwanda Space Agency.

All discussions were about how to ensure that data in Rwanda becomes the new currency driving innovation, economic growth, and social progress. The discussions were led by one of NCST Council Members, Dr. Birari H. Runesha.

At the end of the meeting, various recommendations were provided. These include:

1. Ensure improved data governance and management for data sharing, access & utilization.
2. Establish well-defined training, career path and retention in data science.
3. Ensure and facilitate shared resources and infrastructure for high quality data generation.
4. Develop metadata sets/data late –critical for contextual AI analytics and applications.
5. Establish continuous dialogue by experts involved in development of national data sector.
6. Develop policy brief or strategy to boost data sector for national development.

Participation in Key identified Stakeholder programs and activities

Marie Chantal Cyulinyana[1], Louis Sibomana[1], Esperance Munganyinka[1], Japhet Niyobuhingiro[1], Didacienne Mukanyiligira[1], Felly Kalisa[1], Jean Louis Niragire [1], Benjamin Nabaana[1], Hubert Kageruka[2], and Eugene Mutimura [1]

[1]National Council for Science and Technology (NCST)
[2]National Industrial Research and Development Agency (NIRDA)

Participation in the Grand Challenges Annual Meeting 2023 in Dakar, Senegal

The **2023 Grand Challenges Annual Meeting (GCAM 2023)** took place from 08th – 11th October 2023 in Dakar, Senegal, with the overall theme "**Innovation Saves Lives**". This GCAM 2023 brought together leading global scientists, policymakers, and funders from more than 75 countries, and explore how the global health community can expand the frontiers of science and innovation to further save and improve lives.

The opening remarks on 09 October 2023 was graced by H.E. President Macky Sall, President, Republic of Senegal, and H.E Azali Assoumani, President of the Comoros and current President of the African Union. A high-level conversation was lead H.E Macky Sall and Bill Gates where they discussed the "**Role of Leadership in Catalysing Innovation**" by putting more focus on the role of the government and private sector to invest more in supporting innovation and research funding and environment towards improved socio-economic development.

In line with GCAM 2023, Hon. Dr. Sabin Nsanzimana, Minister of Health, Rwanda, participated on plenary session (**Figure 2**), namely **"Key Ingredients for R&D Ecosystems and Accelerating Innovation in LMICs: Mobilizing R&D and Innovation Investments from Africa for Africa",** together with other high-level African leaders and policy makers. The session focused on sharing examples, successes and learnings from different African countries' experiences. Dr. Sabin demonstrated how the Government of Rwanda is committed to invest in research development and innovation as well as supporting strong conducive and improved uptake of research and innovation for impact. In addition, Dr Sabin participated on the panel discussion "**AI for the World: Advancing Inclusive and Equitable Use of Artificial Intelligence",** and he highlighted how AI has impacted improved health care systems and daily businesses in Rwanda and across Africa. Panellists recommended more exploration of AI benefits in consideration of policy and data management aspects

A

B

Figure 2: A: Dr Sabin, Minister of Health Rwanda highlighting key achievements for R&D and innovation in Rwanda B: Participation of GC Rwanda in GCAM 2023

Side meetings with partners

The participation of **NCST through GC Rwanda** in GCAM 2023 was an opportunity for GC Rwanda to meet and engage with existing and new partners to strengthen collaborations in pursuit of a more robust, efficient, and equitable research and innovation ecosystem. In particular, GC Rwanda engaged with different potential partners, for instance:

- AUDA-NEPAD and Grand Challenges Africa coordinated and organized a joint Country Grand Challenges meeting where Africa National Grand Challenges including GC Rwanda to learn and share experience, best practices, and plan for joint activities across GCs in Africa. During this side meeting, NCST delegate presented and shared to partners the progress of implementing Grand Challenges Rwanda program and future priorities to support research and innovation funding, and foster scientific collaboration in Africa and globally.
- Meeting with Bill &Melinda Gates Foundation (BMGF): agreed with the BMGF team on the proposed request for proposal on Climate for Heath with the support of 300000 USD from BMGF to co-fund 3 research and innovation projects. This call is now out and submission of proposals is on 31st January 2024.

Key recommendations from GCAM 2023 and side meetings

The high-level conversation, panel discussions and side meetings recommended that:

- Similar to other African nations, Rwanda is committed to amplifying its investment in research and innovation by establishing a comprehensive financial model. This strategic allocation of resources is intended to drive technological solutions that will enhance various facets of societal well-being, with a specific focus on advancing healthcare systems. Moreover, Rwanda aims to create a conducive research environment, invest in human capital development for research and development (R&D), and foster collaborations for global health discovery and the creation of innovative technological solutions.
- GC Rwanda joined the Global Call on Climate for Health RFP published on 03rd December 2023, during COP 2023 Nov 30,2023- Dec 12, 2023, in Dubai
- GC Africa and AUDA-NEPAD to set up a forum for the National GC in Africa to assess progress, share experience and strengthen collaborations among national GC programs in Africa.

Participation in the 3rd conference on Data Science for health Discovery and innovation in Africa (DS-I-Africa)

The 3rd Conference on Data Science for Health Discovery and Innovation in Africa (DS-I-Africa) took place at Serena Hotel, Kigali from 3-9 November 2023, and gathered over 250 researchers from Africa and beyond to showcase their ground-breaking scientific work, to drive the future of data-driven healthcare solutions.

National Council for Science and Technology (NCST) coordinated grant application in which University of Rwanda (Co-PI: Associate Professor David Tumusiime) and Washington University School of Medicine in St Louis (Co-PI: Prof Victor Davila-Roman) secured a grant on Research Training in Data Science for Health funded by US National Institutes of Health (NIH). Dr. Eugene Mutimura the Executive Secretary of NCST who is the Chair of the Training Advisory Committee provided opening remarks at the DSI-Africa meeting **(Figure 3 A)**. He highlighted Rwanda's Vision for Promoting STI through Data-Informed Policy and that, *"Developing clear career path for data scientists is not only to incentivize individuals to pursue this field, but also to ensure that we retain top talent to improve healthcare through data-driven innovations."*

As per the 8th NCST Council Meeting resolution, NCST hosted a sideline 20-man experts' workshop on "**Harnessing Data in Rwanda: Challenges and Opportunities"** to examine existing programs to develop a strategy to boost data sector to inform Rwanda's economic development. Among the key recommendations were to ensure improved data regulatory governance on data sharing, access & utilization; to establish well-defined training and career path and retention in data science; and to establish continuous dialogue by experts involved in development of national data sector.

A

B

Figure 3: The executive Secretary of NCST providing opening remarks (A) and with other leaders participating in DSI-Africa meeting (B)

The second edition of this innovation week, hosted by GIIH in collaboration with other hubs within the University of Rwanda (UR)

The University of Rwanda Grid Innovation and Incubation Hub (GIIH) organized an Innovation Week with the theme **" Scaling up University enables innovation for thriving Rwanda and Africa"** in Kigali from November 8 to 10, 2023. The National Council for Science and Technology (NCST) actively participated in various activities during the event. Dr. Cyulinyana Marie Chantal, our Science, Technology, and Innovation (STI) foresight analyst, contributed to a panel discussion titled **"Harnessing gender and socially inclusive innovations alongside technological innovations in the health and agricultural sectors."**

Figure 4: Panelists of the panel discussion: Harnessing gender and socially inclusive innovations alongside technological innovations in the health and agricultural sectors, where Dr Cyulinyana, a science and technology foresight analyst contribution on a panel discussion sharing some of the government of Rwanda initiatives

During her contribution to the panel discussions **(Figure 4)**, Dr. Cyulinyana shared various government initiatives aimed at considering the diverse needs and values of men, women, and marginalized individuals in designing the innovation ecosystem in Rwanda. Although gender mainstreaming strategies are in place across sectors, there are still challenges in creating awareness and implementing different practices. However, there are ongoing efforts to address these challenges and promote inclusivity in innovation.

The second edition of this innovation week, hosted by GIIH in collaboration with other hubs within the University of Rwanda (UR), aimed to enhance innovation by bringing together a diverse range of partners from the innovation ecosystem across Africa and various sectors. The goal was to explore the pivotal role that universities can play in transformative innovation pathways for African countries, aligning with the national strategy for transformation vision 2050 and Sustainable Development Goals (SDGs).

The objectives and aims of Innovation Week 2023 were as follows:

1. Mobilize key stakeholders around a more sustainable, inclusive, and locally tailored understanding of innovation and research.
2. Launch the UNIPOD to highlight the leadership roles played by students in innovation **(Figure 5)**.
3. Establish short-term priorities for outputs and impact, as well as a long-term strategic vision for effective and impactful innovation at the University of Rwanda.
4. Define the role of higher learning institutions in nurturing innovators and fostering collaboration among stakeholders.

Figure 5: Official Launch of the UNIPOD by Hon. Minister of Education Gaspard Twagirayezu and UNDP Country Representative in Rwanda where a big emphasize was on the leadership roles played by students in innovation.

Leveraging Innovation and Technology for Development: learning from the Korea Experience

On 31st October 2023, The World Bank jointly organized a workshop with the Ministry of Trade and Industry (MINICOM) and The National Industrial Research and Development Agency (*NIRDA*) on "*Leveraging Innovation and Technology for Development: learning from the Korea Experience*". Various national institutions including NCST **(Figure 6)** participated and interacted with one of the authors of the report, Mr. Hoon Sahib Soh (World Bank's Practice Manager) and raise questions in the context of Rwanda. South Korea's outstanding development trajectory over the last decades provides lessons for Rwanda's innovation ecosystem. Specifically, the shift from government-led to private sector-led industries and companies provides better opportunities for economic growth.

Figure 6: High level Rwandan officials attending a workshop on "Leveraging Innovation and Technology for Development: learning from the Korea Experience".

Overview of Korea's trajectory towards long-term growth

The report provides a comprehensive overview of Korea's trajectory towards long-term growth, focusing on key factors that have shaped its economic landscape. It highlights Korea's exceptional transition from a low to a high-income economy, achieved through 29 years of rapid growth exceeding 6%, a rarity compared to other nations. The sustainability of this growth is attributed to the consolidation of macroeconomic stability, a focus on manufacturing exports, and strategic investments in infrastructure and human capital. The transformation of Korea's economic structure, particularly the significant shift towards a service-oriented economy and the decline of agriculture, is underscored. The report also emphasizes Korea's success in export-led manufacturing, with a notable increase in labour productivity, especially in high-tech sectors such as semiconductors, electronics, and automobiles. Additionally, Korea's role as a global innovator and technology leader is highlighted, showcasing its position as a research and development-intensive high-tech manufacturing exporter with a substantial increase in the share of high-tech contributions to real manufacturing value added.

Three pillars as Enablers of Korea's success story:

Korea's success story is underpinned by three crucial pillars: the transformation of the state-market relationship, the evolution of industrial policies, and the development of an educated and skillful labor force. The shift in the state-market relationship involved a transition from favoring large businesses to supporting Micro, Small, and Medium Enterprises (MSMEs), along with reducing business regulations and liberalizing the capital market. Industrial policies were transformed to prioritize small firms and technology, resulting in a substantial increase in research and development (R&D) expenditure. The promotion of technology entrepreneurship, exemplified by the rise in venture capital investment and venture firms since 2010, played a pivotal role. The strategy to enhance the skilled workforce included increased investment in education, reforms emphasizing STEM (Science, Technology, Engineering, and Mathematics), and efficient coordination between national economic planning and human development planning.

Lesson learnt from the Korea's experience in the context of Rwanda: Rwanda has made tremendous policy and implementation strategies to strengthen national innovation ecosystem. Learning from Korea's experience, focus should be put into:

i. Investment in infrastructure that support businesses as well as technology-based infostructure for knowledge creation and innovation growth
ii. Human capital development, mainly focus on STEM Education and R&D development
iii. Manufacturing export-led growth with emphasis to manufacturing and firms led by private sector
iv. Promotion of technology entrepreneurship i.e. to improve productivity, competitiveness and adaptability
v. Policy shift from promoting firms to technology (operationalize Technology industrial policy)
vi. Investing in R&D and highlight the role of private sector in investing in R&D and incentivization in this domain
vii. Development of domestic capacity for science and technology

The UNITED for Health Days 2023 "Market of Opportunities for researchers and innovators"

NCST collaborates with various stakeholders to enhance national research and innovation capacity, performance, and productivity by funding research and innovation projects. The goal is foster economic growth in line with the national development agenda. In pursuit of these goals, NCST has funded numerous projects across six priority areas, including health. Some of the funded projects have yielded research outputs, such as products and services. In its capacity, NCST supports commercialization process, and participation in scientific exhibitions that is critical to showcase research discoveries and outputs **(Figure 9)**.

Figure 7 : Opening of Health Days 2023

On November 9-10, 2023, the University of Rwanda, in collaboration with the Rwanda Biomedical Center (RBC) and in partnership with the World Health Organization (WHO), the Clinton Health Access Initiative (CHAI), Partners In Health (PIH), Enabel, and Zipline, organized the UNITED for Health Days 2023 "Market of Opportunities" exhibition **(Figure 7)**. The mission of this event is to enhance Rwanda's healthcare system by fostering collaboration between universities and health-focused organizations and institutions.The event was hosted by University of Rwanda- College of Medicine and Health Sciences (UR-CMHS), Remera Campus, where NCST presented to the public its mission, shedding light on the available opportunities for researchers in Health, from NRIF research funding, writing grant proposals, joining the global network of researchers, and advising on research growth from ideas to implementation. It was also a great opportunity for NCST to showcase some of its work in supporting researchers from universities, private sector and public institutions in funding some of the best projects that address some of the pressing issues in the society.

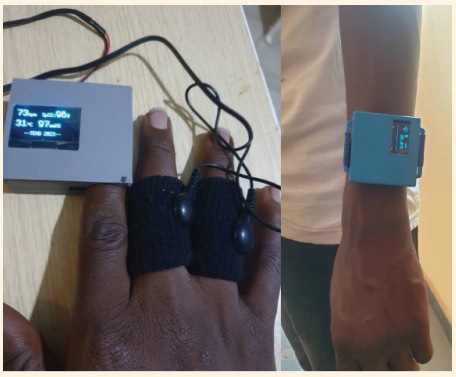

Figure 8: vital signs monitoring system and IoT smart wearable device for real-time risk monitoring of infectious virus spreading

Project investigators Prof. Damien Hanyurwimfura and Dr. Evariste Twahirwa attended the exhibition and presented their respective research outputs of projects funded by NCST, such as a smart wearable device for real-time risk monitoring of infectious virus spreading and a low-cost IoT-based vital signs monitoring system **(Figure 8)**. They had opportunity to connect with key players in Rwanda's healthcare sector.

Figure 9: At the exhibition booth showcasing some of NCST's work

NCST participation in Science Granting Councils Initiative 2023 Annual Forum and Global Research Council Sub-Saharan Regional Meeting

The Science Granting Councils Initiative in sub-Saharan Africa (SGCI) was launched in April 2015 with the aim to strengthen the capacities of Science Granting Councils (SGCs) in sub-Saharan Africa in order to support research and evidence-based policies that will contribute to economic and social development. The Initiative is jointly funded by the United Kingdom's Foreign, Commonwealth and Development Office (FCDO); Canada's International Development Research Centre (IDRC); South Africa's National Research Foundation (NRF); the Swedish International Development Cooperation Agency (Sida); the Norwegian Agency for Development Cooperation (NORAD) and the German Research Foundation (DFG).

Specifically, SGCI-1 focused on strengthening the ability of the Councils to: i) manage research; ii) design and monitor research programs, and to formulate and implement policies based on the use of STI indicators; iii) support knowledge exchange with the private sector, and; iv) establish partnerships among Councils and with other science system actors. During the second 5-year phase of the SGCI (SGCI-2; 2018-2023), Rwanda National Council for Science and Technology (NCST) received funding for 3 grant projects, namely:

- Support for Research call management in Rwanda;
- Management of Research and Innovation Programs in Rwanda;
- Support and Manage Innovation Projects for commercialization.

This funding collaboration supports new dimensions on research excellence under three themes, namely:

- Strengthening the ability of NCST in research management;
- Supporting strategic communications, uptake of knowledge outputs and networking;
- Strengthening the Capacities of NCST in gender equality and inclusivity.

Annual Forum

The NCST joined other sixteen SGCs on the continent and participated in the Science Granting Councils Initiative' (SGCI) 2023 Annual Forum and the Global Research Council (GRC) Sub-Saharan Africa Regional Meeting hosted by the National Research Fund–Kenya (NRF-KE) **(Figure 10)**. The forum took place from 13th to 17th November 2023 in Mombasa, Kenya with the overall objective to support and enhance the voices and views of the SGCs and other STI stakeholders in thematic STI debates. The convening has provided a platform for participants to engage in high level discussions on various science, technology, and innovation (STI) themes and engage with the global network of partners in academia, industry, civil society, government as well as intergovernmental organizations.

Figure10: The SGCI has partnered with 17 Science Granting Councils (SGCs) from East, Southern, and West Africa. The SGCI Annual Forum is a unique opportunity for peer-to-peer learning, capacity building & discussions on R&D plans and priorities

Highlights

Amongst the highlights are SGCI meetings including a Masterclass on the impact trends in research funding flows for the Councils, a learning session sharing achievements, lessons learnt and good practices, and SGCI governance meetings, as well as the GRC meeting which discussed topics on Sustainable Research. The interactive discussions focused on strengthening research funding in Africa to accelerate innovation required for development. Specifically, NCST

- Showcased and highlighted its key role in strengthening the Rwanda National Innovation System, and presented SGCI funded project implementation status, achievement, lessons learnt and good practices including Data and Information Management System;
- At the Councils Committee Meeting, shared perspectives on the needs and interests of NCST in terms of focusing on increasing R&D investment and funding to create more tangible outputs that will lead to impact.

The goal is to ensure that the SGCI continues to respond to the needs and interests of participating councils and to prepare for long-term sustainability.

Workshop on building capacity and scaling up adoption of countries' STI4SDGs Roadmaps and Actions in Africa

Rwanda is one of the pilot countries in the STI for SDGs roadmaps in Africa project supported by the European Commission/Joint Research Center (EC/JRC). The pilot countries consist of Gambia, Malawi, Mauritius, Namibia, Rwanda and Seychelles. So far, various consultative meetings and workshops have taken place to kick start the development of Rwanda STI for SDGs roadmap; an international expert to support the development of the roadmap has been hired by the EC/JRC, and a local team of experts has been established.

In October 2023, NCST participated (virtually) in a 2-day workshop on building capacity and scaling up the adoption of countries' Science, Technology and Innovation for Sustainable Development Goals (STI4SDGs) Roadmaps and Actions in Africa. The main objectives of this meeting were the following:

1. To assist governments in assessing and advancing the implementation of STI roadmaps/actions, as well as fostering partnerships.
2. To enhance capacity for the implementation of STI roadmaps by providing a deeper understanding of existing gaps, needs, and challenges.

This workshop took place in Addis Ababa, Ethiopia, and was organized by the United Nations Economic Commission for Africa (UNECA).

During the workshop, various topics were discussed under roundtable sessions. These topics include strengthening innovation ecosystems through mapping STI potentials and multi-stakeholder engagement, and designing, funding and implementing mission-oriented R&I policies and national STI roadmaps to address national sustainability challenges. The following pictures show some speakers who participated in different roundtable sessions: